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INTELLIGENTLY?

MACHINING

ISCAR MILLING LINES

Metric Catalog

ENDMILLS & SOLID MILLS

FACE MILLS

PROFILING

FAST FEED

SLOTTING

THREAD MILLING

MILLING INSERTS

TOOLING SYSTEMS

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MILLING TOOLS

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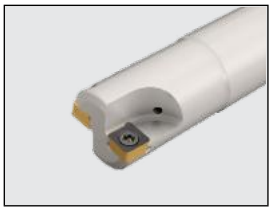

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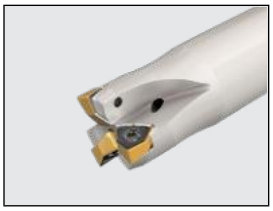

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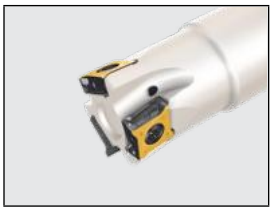

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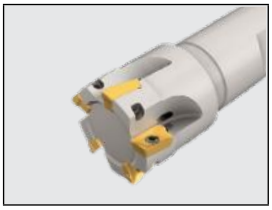

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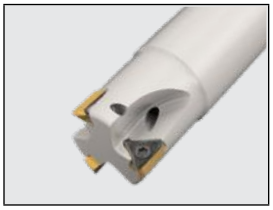

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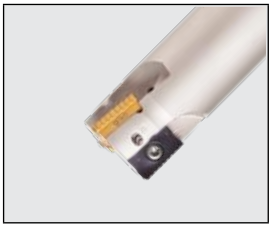

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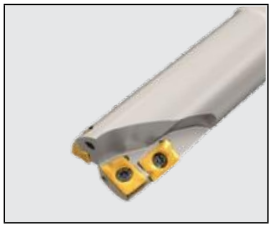

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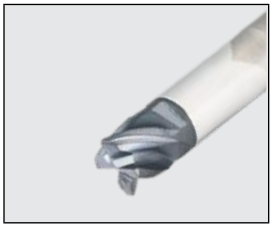

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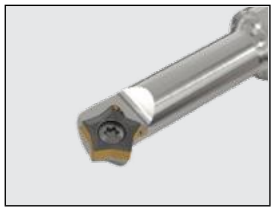

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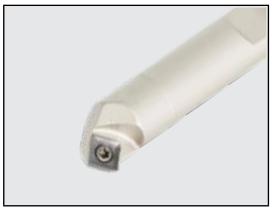

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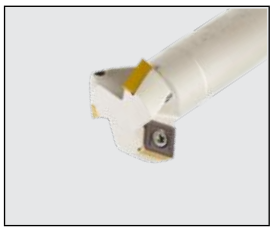

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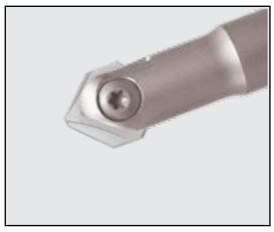

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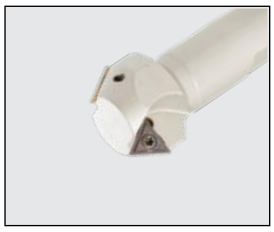

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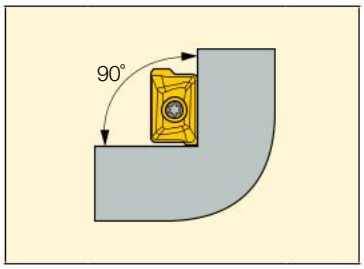
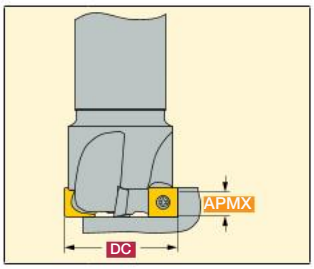
ISCARMILL

90° Endmills Selection Guide





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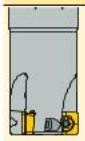
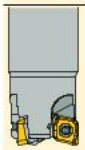
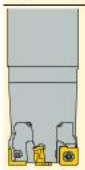
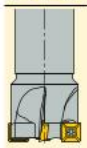
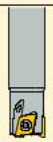
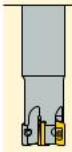
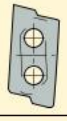
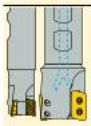
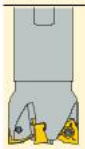
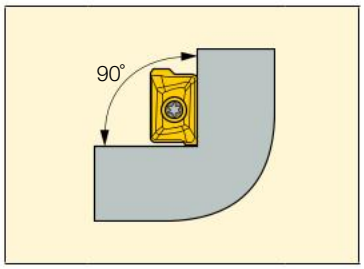
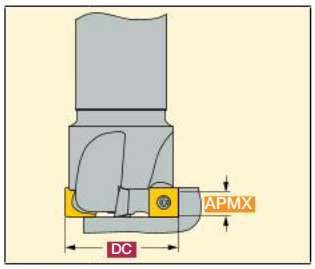
 E90SO-04 E90SO-MM-04	13 13	3.5	•	•	•	•	•	•				•												SOMT/CT 0402
 E90CN-M E90CN	19 19	4						•				•			•									CNHT/MT 07
 S890 ESZ S890 ESZ-MMT	18 19	5													•			•						S890 SZMU 0804
 E90SP E90X	28 20	9.6 5.8		•	•	•	•	•		•		•			•			•		•				SPMT 10 XPMT 10 QPMR 10 QPMT 10 SOMT 06 XOMT 06 SPCT 10 SPMR 10
 T290 ELN-05 T290 ELN-MM-05 T290 ELN-10	18 18 29	5 10		•	•	•	•	•				•			•			•		•				T290 LNMT 05 T290 LNMT 1004
 HP E90AN-07 HP E90AN-M-07 HP E90AN-MM-07 HP E90AT-19	21 21 22 49	7.7 18			•	•	•	•				•			•	•		•						HP ANKT 0702  HP AD..19
 HM90 E90A-10 HM90 E90A-MM-10 HM90 E90A-M-10 HM90 E90AD-15 HM90 E90AD-M-15	32-37 37-38 39 43 50-52	10 10 10 14.3 14.3			•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•			HM90 AP...10 AP...10 HM90 AD...15 AD...15
 H690 EWN-04 H690 EWN-07	14 20	4 7								•	•	•			•			•		•				H690 WNMU 0403 H690 WNHU/WNMU 0705

ISCARMILL

90° Endmills Selection Guide





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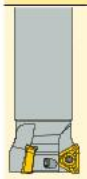
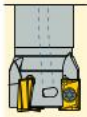
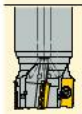
 HM390 ETP-04 HM390 ETP-MM-04 HM390 ETP-05 HM390 ETP-MM-05 HM390 ETC-07 HM390 ETC-MM HM390 ETP-10 HM390 ETP-M HM390 ETP-C#-10 HM390 ETD-15 HM390 ETD-M HM390 ETD-19	15 15 16 16-17 22 23 29 30 31 42 42 46	3 3.5 5 8 13 16	•	•	•	•	•	•		•		•		•	•	•		•		•	•		HM390 TPKR 0401 HM390 TPKT/CT 0502 HM390 TCKT/CT 0703 HM390 TPKT/CT 1003 HM390 TDKT/CT 1505 HM390 TDKT 1907
 H490 E90AX-09 H490 E90AX-M H490 E90AX-MM H490 E90AX-12 H490 E90AX-17	26 27 27 41 47	8 12 16.3						•		•		•		•	•			•		•	•	•	•	H490 ANKX/ANCX-09 H490 ANKX/ANCX-12 H490 ANKX/ANCX-17
 P290 EPW P290 EPW-M	48 49	12 18										•			•			•		•				P290 ACCT/KT1204 P290 ACCT/KT1806
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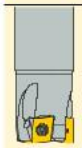 T490 ELN-05 T490 ELN-MM-05 T490 ELN-08 T490 ELN-M-08 T490 ELN-MM..-08 T490 ELN-11 T490 ELN-13 T490 ELN-16	23 23 24 25 25 40 41 46	4.6 8 9 12.5 16			•	•		•		•		•		•	•			•		•	•			T490 LN..0502 T490 LN..0804 T490 LN..1106 T490 LN..1306 T490 LN..1607
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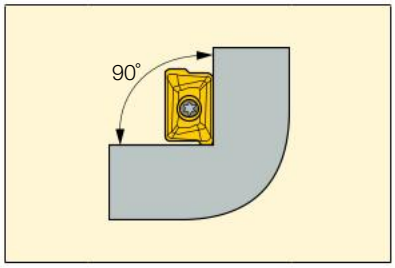
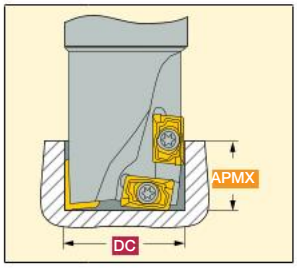
Center Cutting Endmills





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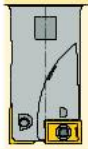
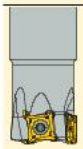
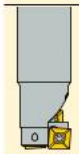
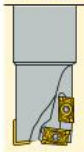
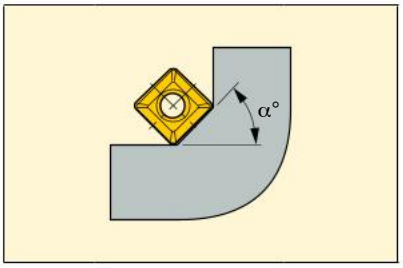
 MDR-D-C MDR-MMT	12 12	7.3 8.9 11.5					•				•			•									MDR ANMU
 T890HT ELN-R13	40	9.5															•		•				T890 LNHT 1306
 E90XC	50	5.8-22			•						•												SOMT-HQ XOMT-HQ
 E90AC	50	19-38												•			•	•					ADCT 1505 ADKT 1505 FDKT 1505

ISCARMILL

Endmills 30°, 45°, 60° Selection Guide



Tools	Pages	DC / APMX	6	8	12	16	20	25	30	32	40	Inserts
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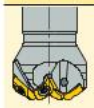
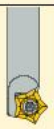
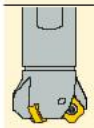
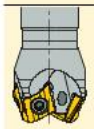
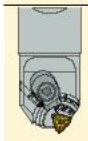
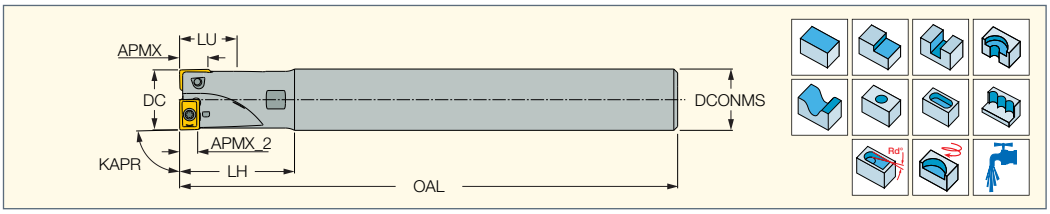
 E30 / T230	51	2.5 7 α°=30°			4	3						T290 LNMT 05 TPMT
 CH45-PN06 CH45-MM-PN06	51 51	1.5 α°=45°			1	1						PNMT 0602-TN
 SOE 45 8/16	52	3.5-6 α°=45°						2		3	4	S845 SNMU/SNHU 1306 ONMU/ONHU 0505
E45X	53	4 α°=45°	1	1								SOMT 06 XOMT 06 QOMT 06
E45 / T245	53	3.6-9.7 α°=45°			1-4	2			3			SCMT 12 SDMT 09 T290 LNMT 05 TPMT
HCM	304-307	5 - 12 α°=45°			2	2	2	2				HCD
 E60 / T260	53	4.5 12.3 α°=60°			4			2				T290 LNMT 05 TPMT
 HM390 E10-80-07	54	0.35-1.97 α°=10°-80°						1				HM390 TCK/CT 0703

QUICK D MILL

MDR D-C-AN
Multi-Function Endmill Cutters



Designation	DC	APMX	APMX_2	KAPR(1)	CICT(2)	LU(3)	LH	OAL	DCONMS	Shank	MDN(4)	MDX(5)	MIID(6)	kg
MDR D16-2-C16-AN07	16.00	7.30	4.70	90.0	2	12.00	30.0	130.00	16.00	C	16.80	30.80	MDR ANMU 0703...	0.14
MDR D20-2-C20-AN09	20.00	8.90	5.70	90.0	2	15.00	35.0	145.00	20.00	C	21.80	38.20	MDR ANMU 0903...	0.30
MDR D25-2-C25-AN12	25.00	11.50	6.50	90.0	2	18.50	50.0	150.00	25.00	C	26.30	47.60	MDR ANMU 1204...	0.47

New

- When drilling holes deeper than 5 mm, it is recommended to use the pecking method (G83)
- For user guide, see pages 616-622

(1) Tool cutting edge angle
(2) Number of inserts (or edges for solid tool)
(3) Max.drilling depth
(4) Minimum diameter to obtain a flat-bottom pocket having no protrusions by use of helical or circular interpolation
(5) Maximum diameter to obtain a flat-bottom pocket having no protrusions by use of helical or circular interpolation
(6) Master insert identification

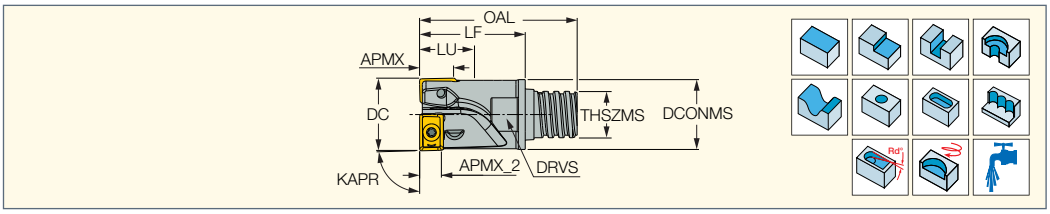
For inserts, see pages: MDR ANMU PNTR (508)

Spare Parts

Designation		
MDR D16-2-C16-AN07	SR M2.5-L6-D3.25-T7	T-7/51
MDR D20-2-C20-AN09	SR 10508082-HG	T-8/53
MDR D25-2-C25-AN12	SR 14-571	T-10/51

QUICK D MILL

MDR MMT-JHP
Multi-Function Modular Head
for Endmill Cutters with
a MULTI-MASTER
Threaded Adaptation



Designation	DC	APMX	APMX_2	KAPR(1)	CICT(2)	LU(3)	LF	OAL	THSZMS	DCONMS	DRVS(4)	RMPX°(5)	MDN(6)	MDX(7)	MIID(8)	kg
MDR D16/.63-2-MMT10-07JHP	16.00	7.30	4.70	90.0	2	12.00	23.00	34.30	T10	15.20	13.0	90.0	16.80	30.80	MDR ANMU 07	0.07
MDR D20/.79-2-MMT12-09JHP	20.00	8.90	5.70	90.0	2	15.00	24.70	38.00	T12	18.30	16.0	90.0	21.80	38.20	MDR ANMU 09	0.08
MDR D25/.98-2-MMT15-12JHP	25.00	11.50	6.50	90.0	2	18.50	33.00	50.00	T15	23.90	20.0	90.0	26.30	47.60	MDR ANMU 12	0.08

New

- Do not apply lubricant to the MULTI-MASTER threaded connection
- When drilling holes deeper than 5 mm, it is recommended to use the pecking method (G83)
- For adaptation, see page 59
- For user guide, see pages 616-622

(1) Tool cutting edge angle
(2) Number of inserts (or edges for solid tool)
(3) Max.drilling depth
(4) Torque key size
(5) Maximum ramping angle
(6) Minimum diameter to obtain a flat-bottom pocket having no protrusions by use of helical or circular interpolation
(7) Maximum diameter to obtain a flat-bottom pocket having no protrusions by use of helical or circular interpolation
(8) Master insert identification

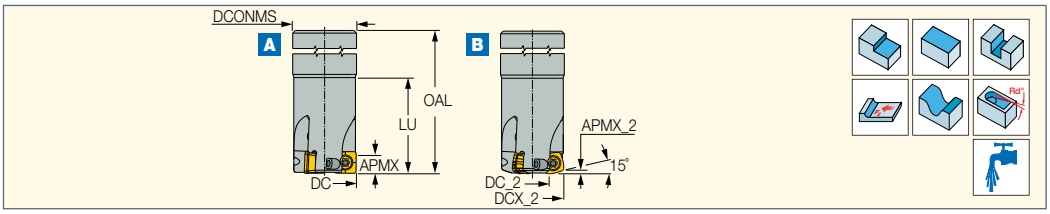
For inserts, see pages: MDR ANMU PNTR (508)
For holders, see pages: MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106)
• MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106)
• MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

Spare Parts

Designation		
MDR D16/.63-2-MMT10-07JHP	SR M2.5-L6-D3.25-T7	T-7/51
MDR D20/.79-2-MMT12-09JHP	SR 10508082-HG	T-8/53
MDR D25/.98-2-MMT15-12JHP	SR 14-571	T-10/51

HELI4MILL

E90SO-04
Endmills Carrying Square Inserts for Shouldering and Fast Feed Milling Applications



Designation	DC	APMX	DC_2	DCX_2	APMX_2	LU	OAL	DCONMS	Shank[1]	CICT[2]	RMPX°[3]	MIID[4]	MIID_2[5]	kg
E90SO D06-1-C06-04-C	6.00	3.50	-	6.17	0.50	15.00	57.00	6.00	C	1	-	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.06
E90SO D08-1-C08-04-C	8.00	3.50	1.90	8.17	0.50	15.30	60.00	8.00	C	1	8.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.01
E90SO D10-2-C10-04-C	10.00	3.50	3.90	10.17	0.50	18.00	70.00	10.00	C	2	6.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.04
E90SO D12-2-C12-04-C	12.00	3.50	5.90	12.17	0.50	18.00	70.00	12.00	C	2	3.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.05
E90SO D12-3-C12-04-C	12.00	3.50	5.90	12.17	0.50	18.00	70.00	12.00	C	3	3.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.05
E90SO D14-4-C14-04-C	14.00	3.50	7.90	14.17	0.50	20.00	80.00	14.00	C	4	2.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.08
E90SO D16-4-C16-04-C	16.00	3.50	9.90	16.17	0.50	20.00	90.00	16.00	C	4	2.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.12
E90SO D16-5-C16-04-C	16.00	3.50	9.90	16.17	0.50	20.00	90.00	16.00	C	5	2.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.12
E90SO D20-6-C20-04-C	20.00	3.50	13.90	20.17	0.50	25.00	110.00	20.00	C	6	1.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.23

• A - with SOMT/CT 0402 insert • B - with SOMT 0402-FF insert • Tightening torque 0.5 Nxm
(1) C-Cylindrical
(2) Number of inserts (or edges for solid tool)
(3) Maximum ramping angle - valid only with SOMT 040208 PNR-FF insert
(4) Master insert identification
(5) Master insert identification 2

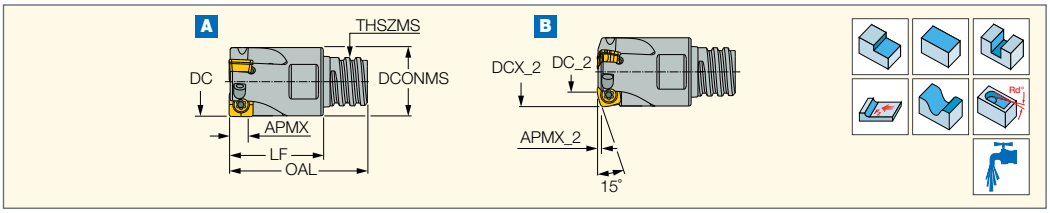
For inserts, see pages: SOMT 0402-FF (568) • SOMT/CT 0402 (568)

Spare Parts

Designation		
E90SO D06-1-C06-04-C	TS 18041I/HG/S	T-6IP/51
E90SO D08-1-C08-04-C	TS 18041I/HG/S	T-6IP/51
E90SO D10-2-C10-04-C	TS 18041I/HG	T-6IP/51
E90SO D12-2-C12-04-C	TS 18041I/HG	T-6IP/51
E90SO D12-3-C12-04-C	TS 18041I/HG	T-6IP/51
E90SO D14-4-C14-04-C	TS 18041I/HG	T-6IP/51
E90SO D16-4-C16-04-C	TS 18041I/HG	T-6IP/51
E90SO D16-5-C16-04-C	TS 18041I/HG	T-6IP/51
E90SO D20-6-C20-04-C	TS 18041I/HG	T-6IP/51

HELI4MILL

E90SO-MM-04
Endmills with a MULTI-MASTER Connection Carrying Inserts for Shouldering and Fast Feed Applications



Designation	DC	APMX	DC_2	DCX_2	APMX_2	LF	OAL	CICT[1]	DCONMS	THSZMS	DRVS[2]	RMPX°[3]	MIID[4]	MIID_2[5]	kg
E90SO D10-2-MMT06-04	10.00	3.50	3.90	10.17	0.50	15.00	21.30	2	9.70	T06	8.0	6.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.05
E90SO D12-3-MMT08-04	12.00	3.50	5.90	12.17	0.50	16.00	23.50	3	11.60	T08	10.0	3.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.15
E90SO D14-4-MMT08-04	14.00	3.50	7.90	14.17	0.50	16.00	23.50	4	13.60	T08	10.0	2.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.01
E90SO D16-5-MMT10-04	16.00	3.50	9.90	16.17	0.50	18.00	29.30	5	15.60	T10	13.0	2.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.03
E90SO D20-6-MMT12-04	20.00	3.50	13.90	20.17	0.50	25.00	38.80	6	19.60	T12	16.0	1.0	SOMT 040204 PNTR	SOMT 040208 PNR-FF	0.08

• A - with SOMT/CT 0402 insert • B - with SOMT 0402-FF insert • Tightening torque 0.5 Nxm
(1) Number of inserts (or edges for solid tool)
(2) Torque key size
(3) Maximum ramping angle - valid only with SOMT 040208 PNR-FF insert
(4) Master insert identification
(5) Master insert identification 2

For inserts, see pages: SOMT 0402-FF (568) • SOMT/CT 0402 (568)
For holders, see pages: MM CAB (110) • MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

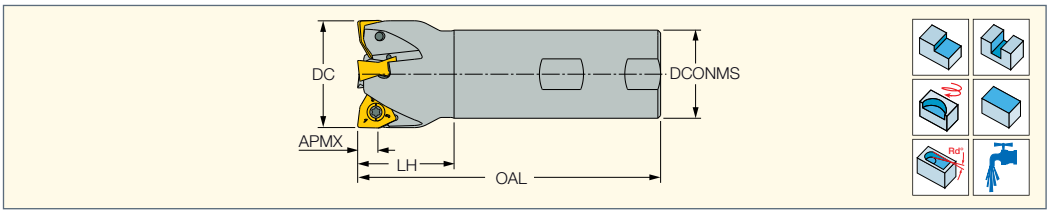
Spare Parts

Designation		
E90SO-MM-04	TS 18041I/HG	T-6IP/51

HELIDO TRIGON LINE

H690 EWN-04

90° Endmills Carrying H690 WNMU 0403 Double-Sided Trigonal Inserts with 6 Helical Cutting Edges



Designation	DC	CICT(1)	APMX	OAL	LH	DCONMS	Shank(2)	RMPX°(3)	kg
H690 EWN D18-2-C16-R04	18.00	2	4.00	100.00	24.0	16.00	C	1.7	0.14
H690 EWN D18-2-C16-R04-B	18.00	2	4.00	160.00	24.0	16.00	C	1.7	0.21
H690 EWN D20-2-C19-R04-B	20.00	2	4.00	160.00	26.0	19.00	C	1.5	0.31
H690 EWN D20-2-C20-R04	20.00	2	4.00	110.00	26.0	20.00	C	1.5	0.42
H690 EWN D20-3-C19-R04-B	20.00	3	4.00	160.00	26.0	19.00	C	1.5	0.30
H690 EWN D20-3-C20-R04	20.00	3	4.00	110.00	26.0	20.00	C	1.5	0.24
H690 EWN D20-3-C20-R04-B	20.00	3	4.00	160.00	26.0	20.00	C	1.5	0.31
H690 EWN D20-3-W20-R04	20.00	3	4.00	85.00	26.0	20.00	W	1.5	0.16
H690 EWN D25-4-C25-R04	25.00	4	4.00	120.00	30.0	25.00	C	1.1	0.36
H690 EWN D25-5-C25-R04	25.00	5	4.00	120.00	30.0	25.00	C	1.1	0.37
H690 EWN D25-5-W25-R04	25.00	5	4.00	95.00	30.0	25.00	W	1.1	0.22
H690 EWN D32-5-C32-R04	32.00	5	4.00	130.00	35.0	32.00	C	0.8	0.68
H690 EWN D32-6-C32-R04	32.00	6	4.00	130.00	35.0	32.00	C	0.8	0.68
H690 EWN D32-6-W32-R04	32.00	6	4.00	110.00	35.0	32.00	W	0.8	0.56

- For user guide see pages 616-622

(1) Number of inserts (or edges for solid tool)
(2) C-Cylindrical , W-Weldon
(3) Maximum ramping angle

For inserts, see pages: H690 WNMU 0403 (536)

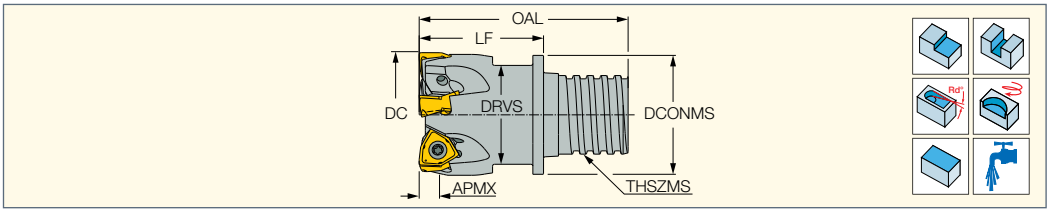
Spare Parts

Designation		
H690 EWN-04	SR M2.5X6-T7-60	T-7/51

HELIDO TRIGON LINE

H690 EWN-MM-04

90° Endmills with a MULTI-MASTER ThreadedConnection Carrying H690 WNMU 0403 Double Sided Trigonal Inserts



Designation	DC	APMX	CICT(1)	LF	DCONMS	THSZMS	OAL	DRVS(2)	RMPX°(3)	TQ_3(4)	kg
H690 EWN D20-3-MMT12-R04	20.00	4.00	3	20.00	18.30	T12	33.00	16.0	1.5	28	0.07
H690 EWN D25-5-MMT15-R04	25.00	4.00	5	25.00	23.90	T15	42.00	20.0	1.1	40	0.12

- Insert clamping screw must be lubricated every indexing. • For adaptation see page 59 • For user guide see pages 616-622

(1) Number of inserts (or edges for solid tool)
(2) Clamping wrench size
(3) Maximum ramping angle
(4) Tool tightening torque (Nxm)

For inserts, see pages: H690 WNMU 0403 (536)
For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

Spare Parts

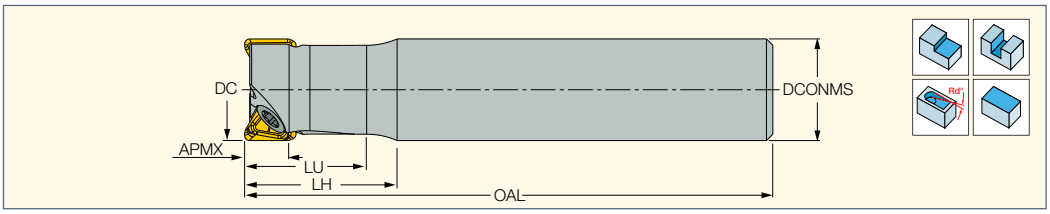
Designation		
H690 EWN-MM-04	SR M2.5X6-T7-60[a]	T-7/51

[a] Tightening torque 0.9 Nxm

NANMILL
NANO ENDMILL

HM390 ETP-04

90° Small Diameter Endmills Carrying HM390 TPKR 0401 Triangular Inserts with 3 Helical Cutting Edges



Designation	DC	APMX	CICT(1)	OAL	LU	LH	DCONMS	Shank(2)	RMPX°(3)	kg
HM390 ETP D08-2-C08-04	8.00	3.00	2	60.00	9.60	12.0	8.00	C	3.0	0.02
HM390 ETP D10-3-C10-04	10.00	3.00	3	80.00	12.60	15.0	10.00	C	2.5	0.05

- Tightening torque 0.5 Nxm

(1) Number of inserts (or edges for solid tool)
(2) C-Cylindrical
(3) Maximum ramping angle

For inserts, see pages: HM390 TPKR 0401 (511)

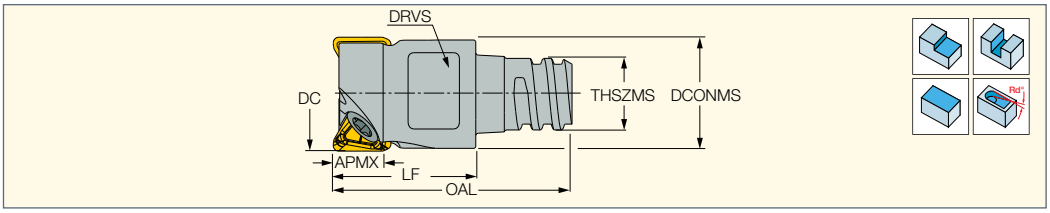
Spare Parts

Designation		
HM390 ETP D08-2-C08-04	SR M2X0.4-3 T6	T-6/5 MAGNET 3X3
HM390 ETP D10-3-C10-04	SR M2X0.4-3.5 T6	T-6/5 MAGNET 3X3

NANMILL
NANO ENDMILL

HM390 ETP-MM-04

90° Endmills with a MULTI-MASTER Threaded Adaptation Carrying HM390 TPKR 0401... Triangular Inserts



Designation	DC	APMX	CICT(1)	LF	DCONMS	THSZMS	OAL	DRVS(2)	RMPX°(3)	kg
HM390 ETP D08-2-MMT05-04	8.00	3.00	2	10.00	7.60	T05	16.75	5.5	3.0	0.04
HM390 ETP D10-3-MMT06-04	10.00	3.00	3	12.00	9.60	T06	18.30	8.0	2.5	0.04

- Insert tightening torque 0.5 N*m • For adaptation, see page 59 • For user guide, see pages 616-622

(1) Number of inserts (or edges for solid tool)
(2) Clamping wrench size
(3) Maximum ramping angle

For inserts, see pages: HM390 TPKR 0401 (511)
For holders, see pages: MM CAB (110) • MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102)
• MM S-A (straight shanks) (106) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109)
• MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

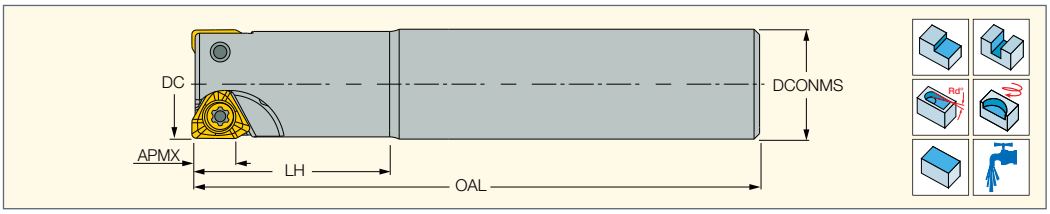
Spare Parts

Designation		
HM390 ETP D08-2-MMT05-04	SR M2X0.4-3 T6	T-6/5 MAGNET 3X3
HM390 ETP D10-3-MMT06-04	SR M2X0.4-3.5 T6	T-6/5 MAGNET 3X3

HELI3MILL HM390 LINE

HM390 ETP-05

90° Endmills Carrying HM390 TPKT 0502 Triangular Inserts with 3 Helical Cutting Edges



Designation	DC	APMX	CICT(1)	OAL	LH	DCONMS	Shank(2)	RMPX°(3)	kg
HM390 ETP D06-1-C06-05-C	6.00	3.50	1	57.00	15.0	6.00	C	1.0	0.06
HM390 ETP D08-1-C08-05-C	8.00	3.50	1	60.00	14.9	8.00	C	1.0	0.03
HM390 ETP D10-2-C10-05-C	10.00	3.50	2	70.00	18.0	10.00	C	2.0	0.03
HM390 ETP D12-3-C12-05-C	12.00	3.50	3	70.00	18.0	12.00	C	1.5	0.06
HM390 ETP D14-3-C14-05-C	14.00	3.50	3	80.00	20.0	14.00	C	1.5	0.08
HM390 ETP D16-4-C16-05-C	16.00	3.50	4	90.00	20.0	16.00	C	1.5	0.12

• Tightening torque 0.5 N*m • For user guide see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) C-Cylindrical

(3) Maximum ramping angle

For inserts, see pages: HM390 TPKT/CT 0502 (511)

Spare Parts

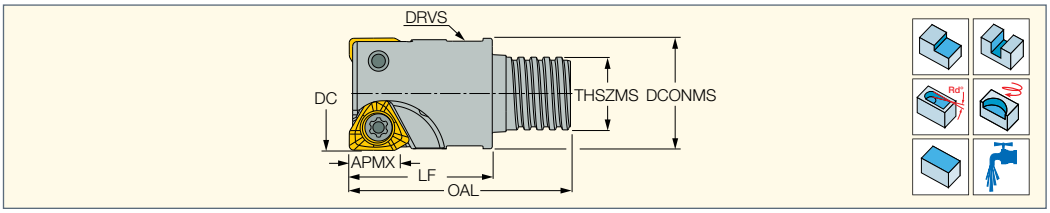
Designation		
HM390 ETP D06-1-C06-05-C	TS 18041I/HG/S	T-6IP/51(a)
HM390 ETP D08-1-C08-05-C	TS 18041I/HG/S	T-6IP/51(a)
HM390 ETP D10-2-C10-05-C	TS 18041I/HG	T-6IP/51(a)
HM390 ETP D12-3-C12-05-C	TS 18041I/HG	T-6IP/51(a)
HM390 ETP D14-3-C14-05-C	TS 18041I/HG	T-6IP/51(a)
HM390 ETP D16-4-C16-05-C	TS 18041I/HG	T-6IP/51(a)

(a) For optimal tightening torque, use 7007317 HSD 4-0.65NM + 7007375 BLD 4 T06-0.65NM optional torque limiting screwdriver.

HELI3MILL HM390 LINE

HM390 ETP-MM-05

90° Endmills with a MULTI-MASTER Threaded Adaptation Carrying HM390 TPKT 0502... Triangular Inserts



Designation	DC	APMX	CICT(1)	LF	DCONMS	THSZMS	OAL	DRVS(2)	RMPX°(3)	kg
HM390 ETP D10-2-MMT06-05	10.00	3.50	2	15.00	9.60	T06	21.60	8.0	2.0	0.01
HM390 ETP D12-3-MMT08-05	12.00	3.50	3	16.00	11.60	T08	24.20	10.0	1.5	0.00
HM390 ETP D14-3-MMT08-05	14.00	3.50	3	16.00	13.60	T08	22.90	10.0	1.5	0.01
HM390 ETP D16-4-MMT10-05	16.00	3.50	4	18.00	15.60	T10	29.80	13.0	1.5	0.03

• Insert tightening torque 0.5 N*m • For adaptation, see page 59 • For user guide, see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) Clamping wrench size

(3) Maximum ramping angle

For inserts, see pages: HM390 TPKT/CT 0502 (511)

For holders, see pages: MM CAB (110) • MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

Spare Parts

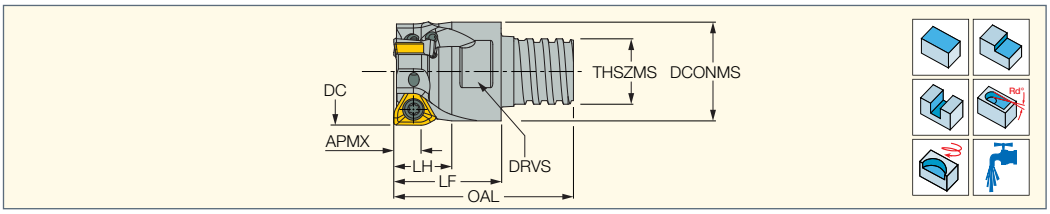
Designation		
HM390 ETP-MM-05	TS 18041I/HG	T-6IP/51(a)

(a) For optimal tightening torque, use 7007317 HSD 4-0.65NM + 7007375 BLD 4 T06-0.65NM optional torque limiting screwdriver.

HELI3MILL HM390 LINE

HM390 ETP/C/D-MM-JHP

90° JHP Endmill with a
MULTI-MASTER
Threaded Adaptation



Designation	DC	APMX	CICT(1)	LF	DCONMS	THSZMS	OAL	DRVS(2)	RMPX°(3)	MIID(4)
HM390 ETPD16-4MMT10-05JHP	16.00	3.50	4	18.00	15.50	T10	29.30	13.0	1.5	HM390 TPKT 0502
HM390 ETPD20-5MMT12-05JHP	20.00	3.50	5	20.00	19.40	T12	33.27	16.0	1.3	HM390 TPKT 0502
HM390 ETCD16-2MMT10-07JHP	16.00	5.00	2	16.00	15.30	T10	27.30	13.0	1.9	HM390 TCKT 0703
HM390 ETCD20-3MMT12-07JHP	20.00	5.00	3	20.00	18.30	T12	33.30	16.0	1.4	HM390 TCKT 0703
HM390 ETCD25-4MMT15-07JHP	25.00	5.00	4	25.00	23.90	T15	42.00	20.0	1.0	HM390 TCKT 0703
HM390 ETPD25-3MMT15-10JHP	25.00	8.00	3	30.00	24.00	T15	47.00	20.0	2.9	HM390 TPKT 1003
HM390 ETPD32-4MMT21-10JHP	32.00	8.00	4	30.00	29.00	T21	53.10	24.0	2.1	HM390 TPKT 1003
HM390 ETDD40-4MMT21-15JHP	40.00	13.00	4	35.00	29.00	T21	58.10	24.0	2.1	HM390 TDKT 1505

New

• Insert tightening torque 0.5 N*m • For adaptation, see page 59 • For user guide, see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) Torque key size

(3) Maximum ramping angle

(4) Master insert identification

For inserts, see pages: HM390 TCKT/CT 0703 (512) • HM390 TDCR 1505 (514) • HM390 TDKT/CT 1505 (513) • HM390 TPCR 1003 (513) • HM390 TPKT/CT 0502 (511) • HM390 TPKT/CT 1003 (512)

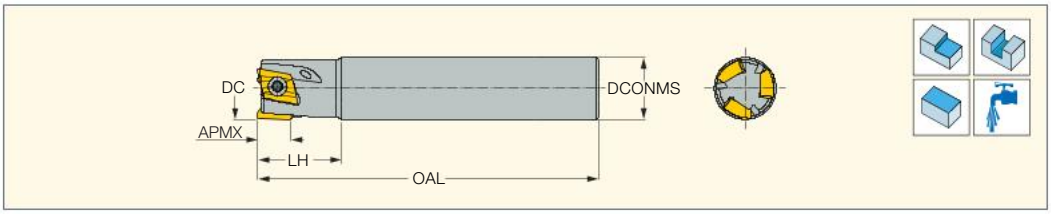
Spare Parts

Designation				
HM390 ETPD16-4MMT10-05JHP	TS 18041I/HG	T-6IP/51		
HM390 ETPD20-5MMT12-05JHP	TS 18041I/HG	T-6IP/51		
HM390 ETCD16-2MMT10-07JHP	SR M2.5X5-T7-60	T-7/51		
HM390 ETCD20-3MMT12-07JHP	SR M2.5X5-T7-60	T-7/51		
HM390 ETCD25-4MMT15-07JHP	SR M2.5X6-T7-60	T-7/51		
HM390 ETPD25-3MMT15-10JHP	SR 14-562/S		BLD T10/S7	SW6-SD
HM390 ETPD32-4MMT21-10JHP	SR 14-562/S		BLD T10/S7	SW6-SD
HM390 ETDD40-4MMT21-15JHP	SR 10511869		BLD IP20/S7	SW6-T

SUMOMILL 290 LINE

T290 ELN-05

Endmills Carrying Tangentially Clamped Inserts



Designation	DC	CICT(1)	OAL	LH	APMX	DCONMS	Shank(2)	kg		
T290 ELN D08-01-C08-05	8.00	1	60.00	20.0	5.00	8.00	C	0.02	SR 10503833	T-7/51
T290 ELN D10-02-C10-05	10.00	2	80.00	20.0	5.00	10.00	C	0.04	SR 10503833-S	T-7/51
T290 ELN D12-02-C12-05	12.00	2	80.00	20.0	5.00	12.00	C	0.06	SR 10503833	T-7/51
T290 ELN D12-03-C12-05	12.00	3	80.00	20.0	5.00	12.00	C	0.05	SR 10503833	T-7/51
T290 ELN D14-03-C14-05	14.00	3	80.00	20.0	5.00	14.00	C	0.08	SR 10503833	T-7/51
T290 ELN D16-04-C16-05	16.00	4	80.00	22.0	5.00	16.00	C	0.10	SR 10503833	T-7/51
T290 ELN D16-05-C16-05	16.00	5	80.00	22.0	5.00	16.00	C	0.10	SR 10503833	T-7/51

- For user guide, see pages 616-622

(1) Number of inserts (or edges for solid tool)

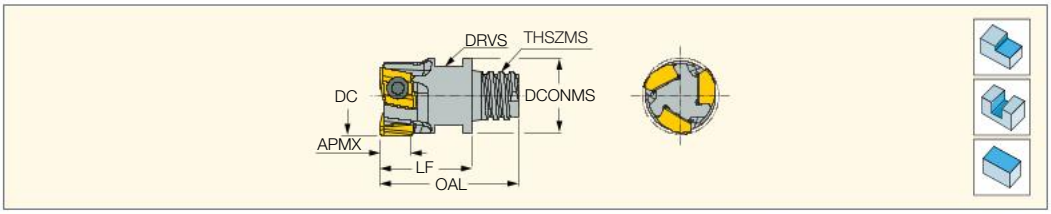
(2) C-Cylindrical

For inserts, see pages: T290 LNMT/LNHT 0502 (542)

SUMOMILL 290 LINE

T290 ELN-MM-05

Endmills with a MULTI-MASTER Adaptation Carrying Tangentially Clamped Inserts



Designation	DC	CICT(1)	APMX	DCONMS	THSZMS	LF	OAL	DRVS(2)	kg		
T290 ELN D10-02-MMT06-05	10.00	2	5.00	9.20	T06	13.40	20.00	8.0	0.01	SR 10503833-S	T-7/51
T290 ELN D12-03-MMT08-05	12.00	3	5.00	11.00	T08	16.00	24.00	10.0	0.01	SR 10503833	T-7/51
T290 ELN D14-03-MMT08-05	14.00	3	5.00	13.00	T08	16.06	24.00	10.0	0.01	SR 10503833	T-7/51
T290 ELN D16-04-MMT10-05	16.00	4	5.00	14.95	T10	19.25	30.55	13.0	0.03	SR 10503833	T-7/51

- Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation see page 59 • For user guide see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) Clamping wrench size

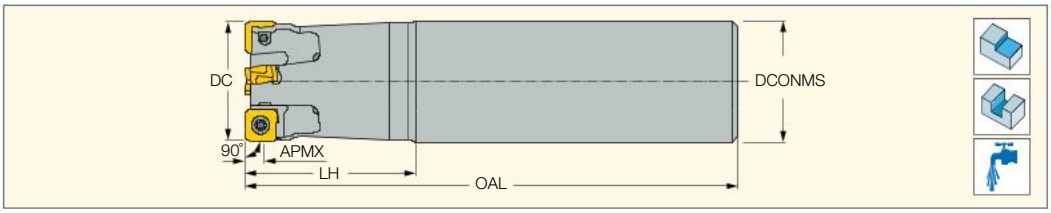
For inserts, see pages: T290 LNMT/LNHT 0502 (542)

For holders, see pages: MM CAB (110) • MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

NEODO S90° LINE

S890 ESZ-R08

Endmills Carrying Double-Sided Square Inserts with 8 Cutting Edges



Designation	DC	APMX	CICT(1)	LH	OAL	DCONMS	Shank(2)	MIID(3)	kg
S890 ESZ D25-3-C25-R08	25.00	5.00	3	35.0	120.00	25.00	C	S890 SZMU 0804	0.35
S890 ESZ D25-3-W25-R08	25.00	5.00	3	35.0	95.00	25.00	W	S890 SZMU 0804	0.07
S890 ESZ D32-4-C32-R08	32.00	5.00	4	45.0	130.00	32.00	C	S890 SZMU 0804	0.66
S890 ESZ D32-4-W32-R08	32.00	5.00	4	45.0	110.00	32.00	W	S890 SZMU 0804	0.17

New

- For user guide see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) C-Cylindrical, W-Weldon

(3) Master insert identification

For inserts, see pages: S890 SZMU-0804PN (572)

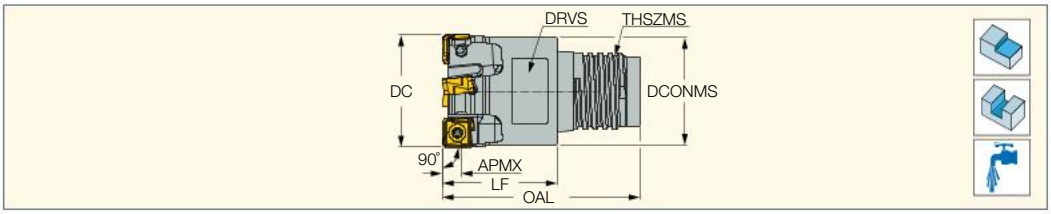
Spare Parts

Designation		
S890 ESZ-R08	SR M3X0.5-L7.4 IP9	IP-9/151

NEODO S90° LINE

S890 ESZ-MMT15-R08

Endmills Carrying
Double-Sided Square Inserts
with 8 Cutting Edges



Designation	DC	APMX	CICT(1)	LF	THSZMS	DCONMS	OAL	CSP(2)	DRVS(3)	MIID(4)	kg
S890 ESZ D25-3-MMT15-R08	25.00	5.00	3	25.00	T15	23.90	42.00	1	20.0	S890 SZMU 0804...	0.10
S890 ESZ D32-4-MMT21-R08	32.00	5.00	4	32.00	T21	30.00	55.10	1	24.0	S890 SZMU0804...	0.20

New

- For user guide see pages 616-622

(1) Number of inserts (or edges for solid tool)
(2) 0 - Without coolant supply, 1 - With coolant supply
(3) Torque key size
(4) Master insert identification

For inserts, see pages: S890 SZMU-0804PN (572)
For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER-H (108) • MM TS-A (105)

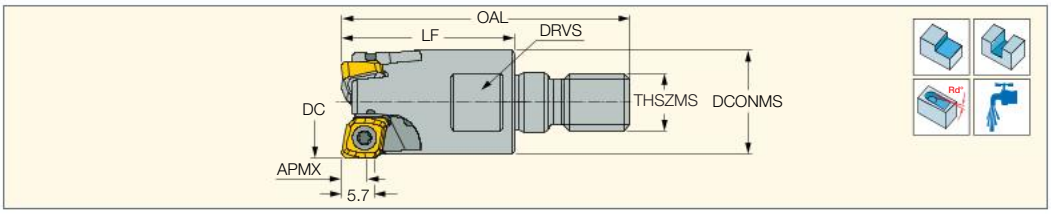
Spare Parts

Designation		
S890 ESZ-MMT15-R08	SR M3X0.5-L7.4 IP9	IP-9/151

TORMILL

E90CN-M

90° Endmills with a FLEX-FIT
Threaded Connection Carrying
CNMT/HT 0703 Inserts



Designation	DC	CICT(1)	APMX(2)	LF	OAL	THSZMS	RMPX°(3)	DCONMS	DRVS(4)	TQ_3(5)	kg		
E90CN D16-2-M08-07-C	16.00	2	4.00	30.00	47.50	M08	5.0	13.00	13.0	20	0.03	SR 34-505/LHG	T-8/53
E90CN D20-3-M10-07-C	20.00	3	4.00	30.00	50.00	M10	3.5	18.00	16.0	29	0.05	SR 34-505/LHG	T-8/53
E90CN D25-4-M12-07-C	25.00	4	4.00	35.00	57.00	M12	2.5	21.00	17.0	33	0.09	SR 34-505/LHG	T-8/53

- For adaptation see page 59 • For user guide see pages 616-622 • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

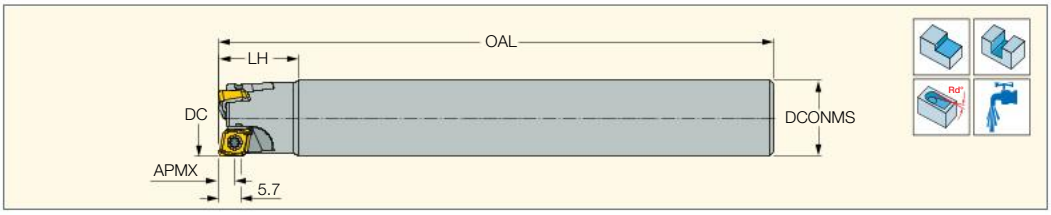
(1) Number of inserts (or edges for solid tool)
(2) Maximum recommended depth of cut for CNMT 070308-MM insert, APMX=2 mm for CNHT 070305 insert
(3) Maximum ramping angle
(4) Clamping wrench size
(5) Tool tightening torque Nxm

For inserts, see pages: CNHT/MT 07 (611)
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

TORMILL

E90CN

90° Endmills Carrying
CNMT/HT 0703 Inserts



Designation	DC	CICT(1)	APMX(2)	LH	OAL	RMPX°(3)	DCONMS	kg		
E90CN D16-2-L100-C15-07-C	16.00	2	4.00	20.0	100.00	5.0	15.00	0.11	SR 34-505/LHG	T-8/53
E90CN D20-3-L140-C19-07-C	20.00	3	4.00	20.0	140.00	3.5	19.00	0.27	SR 34-505/LHG	T-8/53
E90CN D25-4-L160-C24-07-C	25.00	4	4.00	20.0	160.00	2.5	24.00	0.48	SR 34-505/LHG	T-8/53

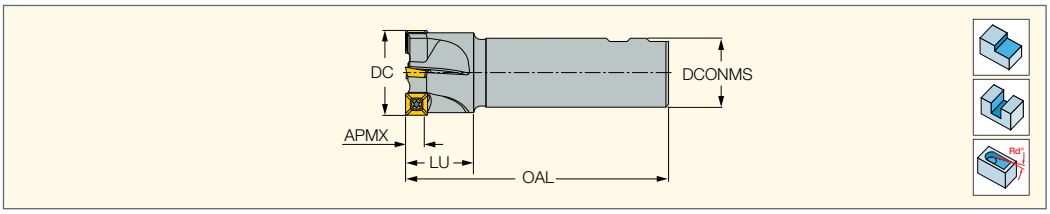
- For user guide see pages 616-622

(1) Number of inserts (or edges for solid tool)
(2) Maximum recommended depth of cut for CNMT 070308-MM insert, for CNHT 070305 insert APMX=2 mm
(3) Maximum ramping angle

For inserts, see pages: CNHT/MT 07 (611)

HELIQUAD

E90X
Endmills Carrying Square
Q/S/XOMT Inserts



Designation	DC	CICT(1)	APMX	LU	OAL	DCONMS	Shank(2)	RMPX°(3)	kg		
E90X D08-C10-06	8.00	1	5.80	16.0	70.00	10.00	C	-	0.04	SR 34-508 M2.2X0.45	T-7/51
E90X D10-C10-06	10.00	1	5.80	20.0	80.00	10.00	C	-	0.04	SR 34-508 M2.2X0.45	T-7/51
E90X D12-C16-06	12.00	1	5.80	22.0	80.00	16.00	C	-	0.10	SR 34-508 M2.2X0.45	T-7/51
E90X D14-C16-06	14.00	2	5.80	20.0	80.00	16.00	C	9.0	0.11	SR 34-508/L	T-7/51
E90X D14-W16-06	14.00	2	5.80	22.0	70.00	16.00	W	9.0	0.09	SR 34-508/L	T-7/51
E90X D16-C16-06	16.00	2	5.80	20.0	90.00	16.00	C	5.5	0.13	SR 34-508/L	T-7/51
E90X D20-C20-06	20.00	3	5.80	22.0	110.00	20.00	C	3.0	0.25	SR 34-508/L	T-7/51
E90X D25-C20-06	25.00	4	5.80	25.0	120.00	20.00	C	1.7	0.29	SR 34-508/L	T-7/51
E90X D32-W25-06	32.00	5	5.80	25.0	90.00	25.00	W	1.3	0.34	SR 34-508/L	T-7/51

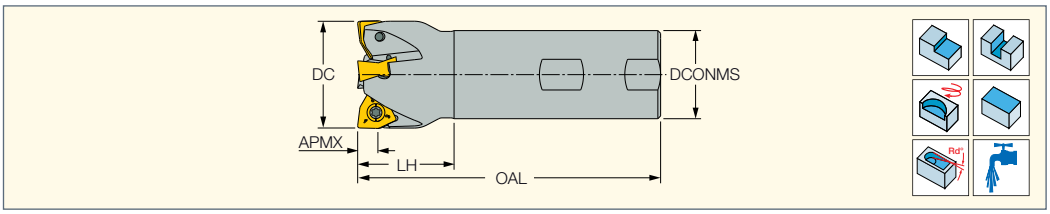
- For user guide see pages 616-622

(1) Number of inserts (or edges for solid tool)
(2) C-Cylindrical, W-Weldon
(3) Maximum ramping angle

For inserts, see pages: QOMT-HQ (560) • SOMT-HQ (560) • XOMT-HQ (561)

HELIDO TRIGON LINE

H690 EWN-07
90° Endmills Carrying H690
WNMU 0704
Double-Sided Trigonal Inserts
with 6 Helical Cutting Edges



Designation	DC	CICT(1)	APMX	OAL	LH	DCONMS	Shank(2)	RMPX°(3)	kg			
H690 EWN D032-03-W32-R07	32.00	3	7.00	110.00	48.0	32.00	W	2.0	0.56	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH
H690 EWN D040-04-W32-R07	40.00	4	7.00	110.00	35.0	32.00	W	1.5	0.64	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH

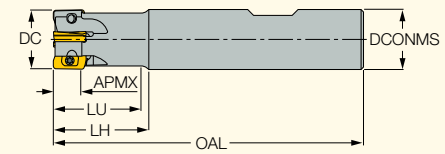
- Insert clamping screw must be lubricated every indexing • For user guide see pages 616-622

(1) Number of inserts (or edges for solid tool)
(2) C-cylindrical, W-Weldon
(3) Maximum ramping angle

For inserts, see pages: H690 WNHU/WNMU 0705 (537)

HELIPLUS

HP E90AN-07
Endmills with HELI-PLUS
HP ANKT 0702.. Inserts



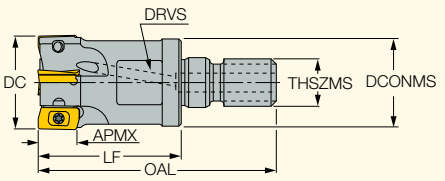
Designation	DC	CICT(2)	LH	LU	OAL	APMX	DCONMS	Shank(3)	RMPX°(4)	RMPX°_2(5)	RPMX(6)	CSP(7)	kg		
HP E90AN-D10-1-C10-07-C	10.00	1	20.0	18.0	80.00	7.70	10.00	C	2.5	-	66390	1	0.04	SR 34-533	T-6/51
HP E90AN-D12-2-C12-07-C	12.00	2	18.0	16.2	80.00	7.70	12.00	C	2.7	3.5	56970	1	0.06	SR 34-533/L/HG	T-6/51
HP E90AN-D14-2-C14-07-C	14.00	2	18.0	16.5	80.00	7.70	14.00	C	3.2	4.2	999	1	0.08	SR 34-533/L/HG	T-6/51
HP E90AN-D16-3-C15-07-C-B (1)	16.00	3	26.0	24.5	150.00	7.70	15.00	C	3.2	6.0	45100	1	0.17	SR 34-533/L/HG	T-6/51
HP E90AN-D16-3-C16-07-C	16.00	3	26.0	24.5	90.00	7.70	16.00	C	3.2	6.0	45100	1	0.11	SR 34-533/L/HG	T-6/51
HP E90AN-D16-3-W16-07	16.00	3	21.0	18.5	85.00	7.70	16.00	W	3.2	6.0	45100	0	0.12	SR 34-533/L/HG	T-6/51
HP E90AN-D16-4-C16-07-C	16.00	4	26.0	24.5	90.00	7.70	16.00	C	3.2	6.0	45100	1	0.11	SR 34-533/L/HG	T-6/51
HP E90AN-D16-4-W16-07	16.00	4	20.0	18.5	85.00	7.70	16.00	W	3.2	6.0	45100	0	0.12	SR 34-533/L/HG	T-6/51
HP E90AN-D20-4-C19-07-C-B (1)	20.00	4	22.0	20.5	160.00	7.70	19.00	C	2.4	4.5	38890	1	0.31	SR 34-533/L/HG	T-6/51
HP E90AN-D20-4-C20-07-C	20.00	4	22.0	20.5	110.00	7.70	20.00	C	2.4	4.5	38890	1	0.23	SR 34-533/L/HG	T-6/51
HP E90AN-D20-5-C20-07-C	20.00	5	22.0	20.5	110.00	7.70	20.00	C	2.4	4.5	38890	1	0.23	SR 34-533/L/HG	T-6/51
HP E90AN-D20-5-W20-07	20.00	5	22.0	20.5	90.00	7.70	20.00	W	2.4	4.5	38890	0	0.20	SR 34-533/L/HG	T-6/51
HP E90AN-D25-5-C20-07-C	25.00	5	24.0	-	120.00	7.70	20.00	C	2.0	3.0	33440	1	0.28	SR 34-533/L/HG	T-6/51
HP E90AN-D25-7-C20-07-C	25.00	7	24.0	-	120.00	7.70	20.00	C	2.0	3.0	33440	1	0.27	SR 34-533/L/HG	T-6/51
HP E90AN-D32-8-C25-07-C	32.00	8	30.0	-	130.00	7.70	25.00	C	1.4	2.5	26610	1	0.48	SR 34-533/L/HG	T-6/51

• Insert tightening torque: 0.6 Nxm. • For user guide see pages 616-622
(1) "B" suffix - cylindrical shank which may be shortened.
(2) Number of inserts (or edges for solid tool)
(3) C-Cylindrical, W-Weldon
(4) Maximum ramping angle
(5) Values only for HP ANKT 0702R12T-FF insert
(6) Maximum RPM
(7) 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: HP ANCR 0702PNFR (509) • HP ANKT 0702-FF (510) • HP ANKT/ANCT 0702 PN-R/PNTR (508) • HP ANKW 070204PNTR (509)

HELIPLUS

HP E90AN-M-07
90° Endmills with a FLEX-FIT
Threaded Adaptation
Carrying HELI-PLUS HP
ANKT 0702.. Inserts



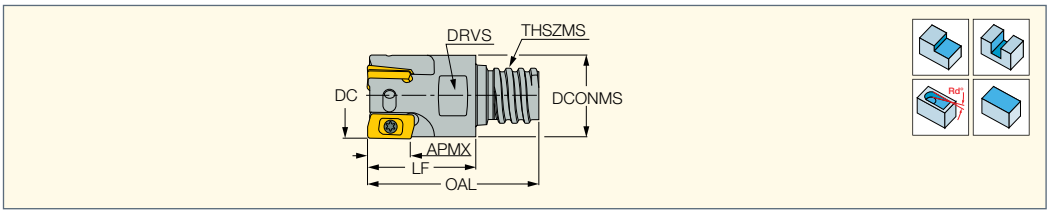
Designation	DC	CICT(1)	THSZMS	OAL	LF	APMX	DCONMS	RMPX°(2)	RMPX°_2(3)	DRVS(4)	TQ_3(5)	RPMX(6)	kg		
HP E90AN-D25-5-M12	25.00	5	M12	57.00	35.00	7.70	21.00	2.0	3.0	17.1	33	33440	0.09	SR 34-533/L/HG	T-6/51

• Insert tightening torque: 0.6 Nxm. • For adaptation see page 59 • For user guide see pages 616-622 • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter
(1) Number of inserts (or edges for solid tool)
(2) Maximum ramping angle
(3) Values only for HP ANKT 0702R12T-FF insert
(4) Torque key size
(5) Tool tightening torque Nxm (lbfxin)
(6) Maximum RPM

For inserts, see pages: HP ANCR 0702PNFR (509) • HP ANKT 0702-FF (510) • HP ANKT/ANCT 0702 PN-R/PNTR (508) • HP ANKW 070204PNTR (509)
For holders, see pages: (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360)
• ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

HELIPLUS

HP E90AN-MM-07
90° Endmills with a MULTI-MASTER Threaded Adaptation Carrying HELI-PLUS HP ANKT 0702.. Inserts



Designation	DC	CICT(1)	OAL	LF	APMX	THSZMS	DCONMS	DRVS(2)	RMPX°(3)	RMPX°_2(4)	RPMX(5)	kg		
HP E90AN-D12-2-MMT08	12.00	2	24.45	16.50	7.70	T08	10.60	10.0	2.7	3.5	56970	0.01	SR 34-533/L/HG	T-6/51
HP E90AN-D16-3-MMT10	16.00	3	31.75	20.00	7.70	T10	14.95	13.0	3.2	6.0	44860	0.03	SR 34-533/L/HG	T-6/51
HP E90AN-D16-4-MMT10	16.00	4	31.75	20.00	7.70	T10	14.95	13.0	3.2	6.0	37630	0.03	SR 34-533/L/HG	T-6/51
HP E90AN-D20-5-MMT12	20.00	5	35.30	21.50	7.70	T12	18.40	16.0	2.4	4.5	38890	0.05	SR 34-533/L/HG	T-6/51

• Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation see page 59 • For user guide see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) Clamping wrench size

(3) Maximum ramping angle

(4) Values only for HP ANKT 0702R12T-FF insert

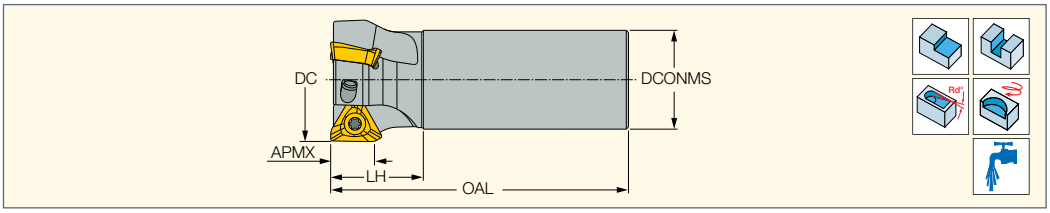
(5) The maximum cutting speed (RPM) for the cutting head assembled on the shank should be the lower parameter (RPMX) of either the cutting head or the shank

For inserts, see pages: HP ANCR 0702PNFR (509) • HP ANKT 0702-FF (510) • HP ANKT/ANCT 0702 PN-R/PNTR (508) • HP ANKW 070204PNTR (509)

For holders, see pages: MM CAB (110) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

HELI3MILL HM390 LINE

HM390 ETC-07
90° Endmills Carrying HM390 TCKT 0703 Triangular Inserts with 3 Helical Cutting Edges



Designation	DC	APMX	CICT(1)	OAL	LH	DCONMS	Shank(2)	RMPX°(3)	kg		
HM390 ETC D14-1-C16-07	14.00	5.00	1	80.00	21.0	16.00	C	1.9	0.10	SR M2.5X5-T7-60	T-7/51
HM390 ETC D16-2-C15-07-B	16.00	5.00	2	150.00	26.0	15.00	C	1.9	0.17	SR M2.5X5-T7-60	T-7/51
HM390 ETC D16-2-C16-07	16.00	5.00	2	100.00	26.0	16.00	C	1.9	0.12	SR M2.5X5-T7-60	T-7/51
HM390 ETC D16-2-C16-07-B	16.00	5.00	2	150.00	40.0	16.00	C	1.9	0.19	SR M2.5X5-T7-60	T-7/51
HM390 ETC D16-2-W16-07	16.00	5.00	2	80.00	26.0	16.00	W	1.9	0.10	SR M2.5X5-T7-60	T-7/51
HM390 ETC D18-2-C16-07	18.00	5.00	2	100.00	30.0	16.00	C	1.4	0.13	SR M2.5X5-T7-60	T-7/51
HM390 ETC D18-2-C16-07-B	18.00	5.00	2	160.00	30.0	16.00	C	1.4	0.21	SR M2.5X5-T7-60	T-7/51
HM390 ETC D20-3-C16-07	20.00	5.00	3	55.00	20.0	16.00	C	1.4	0.07	SR M2.5X5-T7-60	T-7/51
HM390 ETC D20-3-C19-07-B	20.00	5.00	3	160.00	30.0	19.00	C	1.4	0.28	SR M2.5X5-T7-60	T-7/51
HM390 ETC D20-3-C20-07	20.00	5.00	3	110.00	30.0	20.00	C	1.4	0.21	SR M2.5X5-T7-60	T-7/51
HM390 ETC D20-3-C20-07-B	20.00	5.00	3	160.00	40.0	20.00	C	1.4	0.31	SR M2.5X5-T7-60	T-7/51
HM390 ETC D20-3-W20-07	20.00	5.00	3	85.00	30.0	20.00	W	1.4	0.16	SR M2.5X5-T7-60	T-7/51
HM390 ETC D22-3-C20-07	22.00	5.00	3	110.00	30.0	20.00	C	1.0	0.21	SR M2.5X5-T7-60	T-7/51
HM390 ETC D22-3-C20-07-B	22.00	5.00	3	180.00	30.0	20.00	C	1.0	0.37	SR M2.5X5-T7-60	T-7/51
HM390 ETC D25-4-C25-07	25.00	5.00	4	120.00	35.0	25.00	C	1.0	0.36	SR M2.5X6-T7-60	T-7/51
HM390 ETC D25-4-W25-07	25.00	5.00	4	95.00	35.0	25.00	W	1.0	0.28	SR M2.5X6-T7-60	T-7/51
HM390 ETC D28-4-C25-07-B	28.00	5.00	4	200.00	35.0	25.00	C	0.9	0.64	SR M2.5X6-T7-60	T-7/51
HM390 ETC D32-5-C32-07	32.00	5.00	5	130.00	45.0	32.00	C	0.8	0.68	SR M2.5X6-T7-60	T-7/51
HM390 ETC D32-5-W32-07	32.00	5.00	5	110.00	45.0	32.00	W	0.8	0.56	SR M2.5X6-T7-60	T-7/51

• Insert clamping screw must be lubricated every indexing. • Tightening torque 0.9 Nxm. • For user guide see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) C-Cylindrical, W-Weldon

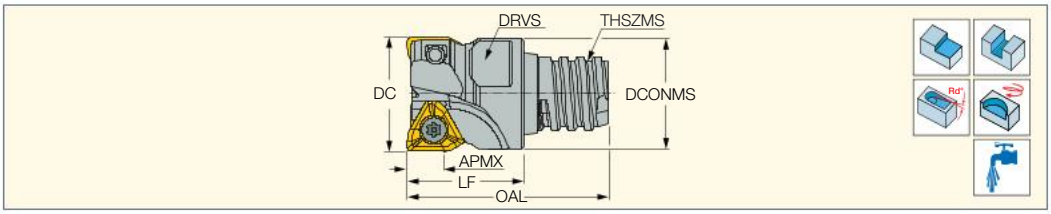
(3) Maximum ramping angle

For inserts, see pages: HM390 TCKT/CT 0703 (512)

HELI3MILL HM390 LINE

HM390 ETC-MM

90° Endmills with a MULTI-MASTER Threaded Adaptation Carrying HM390 TCKT 0703 Triangular Inserts



Designation	DC	APMX	CICT(1)	LF	DCONMS	THSZMS	OAL	DRVS(2)	RMPX°(3)	kg		
HM390 ETC D16-2-MMT10-07	16.00	5.00	2	16.00	15.20	T10	27.30	13.0	1.9	0.02	SR M2.5X5-T7-60	T-7/51
HM390 ETC D20-3-MMT12-07	20.00	5.00	3	20.00	18.30	T12	33.30	16.0	1.4	0.04	SR M2.5X5-T7-60	T-7/51
HM390 ETC D25-4-MMT15-07	25.00	5.00	4	25.00	23.90	T15	42.00	20.0	1.0	0.08	SR M2.5X6-T7-60	T-7/51

- Insert clamping screw must be lubricated every indexing. • Tightening torque 0.9 Nxm. • For adaptation see page 59
- For user guide see pages 616-622

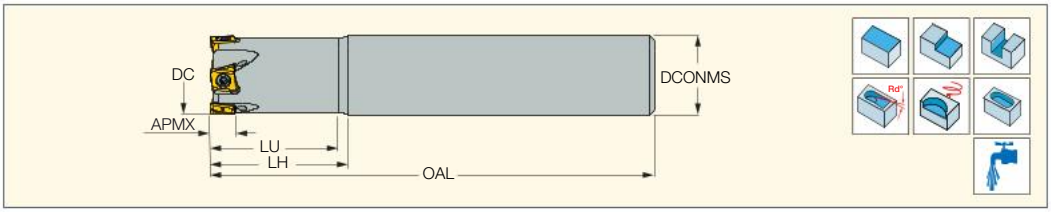
(1) Number of inserts (or edges for solid tool)
(2) Clamping wrench size
(3) Maximum ramping angle

For inserts, see pages: HM390 TCKT/CT 0703 (512)
For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109)
• MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106)
• MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

HELITANG T490 LINE

T490 ELN-05

90° Endmills Carrying Tangentially Clamped Inserts with 4 Helical, 4.6 mm Long Cutting Edges



Designation	DC	CICT(1)	OAL	LH	LU	APMX	DCONMS	Shank	RMPX°(2)	MIID(3)		
T490 ELN D10-2-C10-05	10.00	2	80.00	21.0	20.1	4.60	10.00	C	1.3	T490 LNMT 0502PNR-RD	SR M2X0.4-3.8 IP6	T-6IP/51
T490 ELN D12-3-C12-05	12.00	3	80.00	25.5	23.3	4.60	12.00	C	0.9	T490 LNMT 0502PNR-RD	SR M2X0.4-4.8 IP6	T-6IP/51
T490 ELN D16-4-C16-05	16.00	4	90.00	28.0	26.0	4.60	16.00	C	0.6	T490 LNMT 0502PNR-RD	SR M2X0.4-4.8 IP6	T-6IP/51
T490 ELN D20-5-C20-05	20.00	5	110.00	27.0	25.5	4.60	20.00	C	0.5	T490 LNMT 0502PNR-RD	SR M2X0.4-4.8 IP6	T-6IP/51
T490 ELN D25-6-C25-05	25.00	6	120.00	30.0	28.5	4.60	25.00	C	0.4	T490 LNMT 0502PNR-RD	SR M2X0.4-4.8 IP6	T-6IP/51

New

- For user guide see pages 616-622

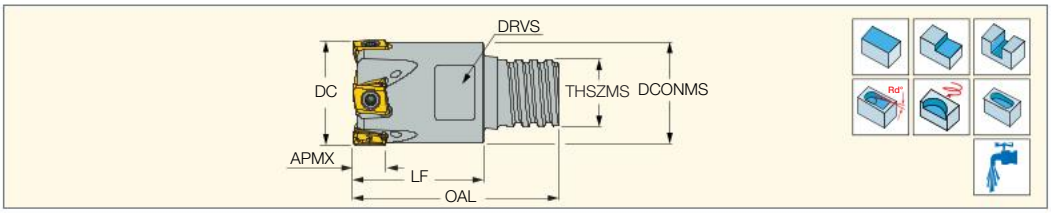
(1) Number of inserts (or edges for solid tool)
(2) Maximum ramping angle
(3) Master insert identification

For inserts, see pages: T490 LNMT 0502 (543)

HELITANG T490 LINE

T490 ELN-MM-05

90° Endmills with a MULTI-MASTER Threaded Adaptation Carrying Tangentially Clamped Inserts



Designation	DC	CICT(1)	APMX	DCONMS	LF	OAL	THSZMS	DRVS(2)	RMPX°(3)	kg	MIID(4)		
T490 ELN D10-2-MMT06-05	10.00	2	4.60	9.20	13.00	19.30	T06	8.0	1.3	0.01	T490 LNMT 0502PNR-RD	SR M2X0.4-3.8 IP6	T-6IP/51
T490 ELN D12-3-MMT08-05	12.00	3	4.60	11.00	14.50	22.00	T08	10.0	0.9	0.01	T490 LNMT 0502PNR-RD	SR M2X0.4-4.8 IP6	T-6IP/51
T490 ELN D16-4-MMT10-05	16.00	4	4.60	15.20	20.00	31.30	T10	13.0	0.6	0.03	T490 LNMT 0502PNR-RD	SR M2X0.4-4.8 IP6	T-6IP/51
T490 ELN D20-5-MMT12-05	20.00	5	4.60	19.20	22.00	35.30	T12	16.0	0.5	0.05	T490 LNMT 0502PNR-RD	SR M2X0.4-4.8 IP6	T-6IP/51

New

- Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation see page 59 • For user guide see pages 616-622

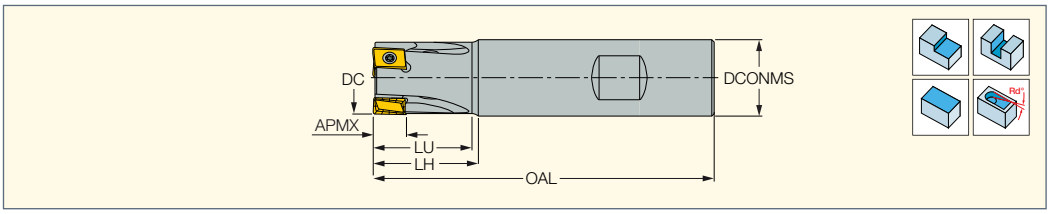
(1) Number of inserts (or edges for solid tool)
(2) Torque key size
(3) Maximum ramping angle
(4) Master insert identification

For inserts, see pages: T490 LNMT 0502 (543)
For holders, see pages: MM CAB (110) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109)
• MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106)
• MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

HELITANG T490 LINE

T490 ELN-08

90° Endmills Carrying Tangentially Clamped Inserts with 4 Helical, 8 mm Long Cutting Edges



Designation	DC	CICT[1]	LH	LU	APMX	OAL	DCONMS	Shank[2]	CSP[3]	RMPX°[4]	RMPX°_2[5]	kg		
T490 ELN D16-2-C15-08B	16.00	2	41.0	40.0	8.00	150.00	15.00	C	1	2.0	1.1	0.18	SR 10502813-HGSM	IP-7/51
T490 ELN D16-2-C16-08	16.00	2	28.0	26.0	8.00	90.00	16.00	C	0	2.0	1.1	0.13	SR 10502813-HGSM	IP-7/51
T490 ELN D16-2-C16-08C	16.00	2	28.0	26.0	8.00	90.00	16.00	C	1	2.0	1.1	0.12	SR 10502813-HGSM	IP-7/51
T490 ELN D16-2-W16-08	16.00	2	28.0	26.0	8.00	85.00	16.00	W	0	2.0	1.1	0.12	SR 10502813-HGSM	IP-7/51
T490 ELN D16-2-W16-08C	16.00	2	28.0	26.0	8.00	85.00	16.00	W	1	2.0	1.1	0.11	SR 10502813-HGSM	IP-7/51
T490 ELN D18-2-C20-08C	18.00	2	28.0	26.0	8.00	90.00	20.00	C	1	1.8	1.0	0.18	SR 10502813-HGSM	IP-7/51
T490 ELN D20-2-C19-08B	20.00	2	41.0	40.0	8.00	160.00	19.00	C	1	1.7	0.8	0.31	SR 10502813-HG-M	IP-7/51
T490 ELN D20-2-C20-08C	20.00	2	28.0	26.0	8.00	110.00	20.00	C	1	1.7	0.8	0.23	SR 10502813-HG-M	IP-7/51
T490 ELN D20-2-W20-08C	20.00	2	28.0	26.0	8.00	90.00	20.00	W	1	1.7	0.8	0.19	SR 10502813-HG-M	IP-7/51
T490 ELN D20-3-C20-08	20.00	3	28.0	26.0	8.00	110.00	20.00	C	0	1.7	0.8	0.25	SR 10502813-HG-M	IP-7/51
T490 ELN D20-3-C20-08C	20.00	3	28.0	26.0	8.00	110.00	20.00	C	1	1.7	0.8	0.23	SR 10502813-HG-M	IP-7/51
T490 ELN D20-3-W20-08	20.00	3	28.0	26.0	8.00	90.00	20.00	W	0	1.7	0.8	0.20	SR 10502813-HG-M	IP-7/51
T490 ELN D20-3-W20-08C	20.00	3	28.0	26.0	8.00	90.00	20.00	W	1	1.7	0.8	0.18	SR 10502813-HG-M	IP-7/51
T490 ELN D22-3-C20-08C	22.00	3	28.0	30.0	8.00	110.00	20.00	C	1	-	-	0.24	SR 10502813-HG-M	IP-7/51
T490 ELN D25-3-C24-08B	25.00	3	41.0	40.0	8.00	200.00	24.00	C	1	-	-	0.61	SR 10502813-HG-M	IP-7/51
T490 ELN D25-3-C25-08C	25.00	3	28.0	26.0	8.00	120.00	25.00	C	1	-	-	0.39	SR 10502813-HG-M	IP-7/51
T490 ELN D25-3-W25-08C	25.00	3	28.0	26.0	8.00	95.00	25.00	W	1	-	-	0.30	SR 10502813-HG-M	IP-7/51
T490 ELN D25-4-C25-08	25.00	4	28.0	26.0	8.00	120.00	25.00	C	0	-	-	0.43	SR 10502813-HG-M	IP-7/51
T490 ELN D25-4-C25-08C	25.00	4	28.0	26.0	8.00	120.00	25.00	C	1	-	-	0.39	SR 10502813-HG-M	IP-7/51
T490 ELN D25-4-W25-08	25.00	4	28.0	26.0	8.00	95.00	25.00	W	0	-	-	0.33	SR 10502813-HG-M	IP-7/51
T490 ELN D25-4-W25-08C	25.00	4	28.0	26.0	8.00	95.00	25.00	W	1	-	-	0.30	SR 10502813-HG-M	IP-7/51
T490 ELN D32-3-C32-08C	32.00	3	32.0	30.0	8.00	130.00	32.00	C	1	-	-	0.72	SR 10502813-HG-M	IP-7/51
T490 ELN D32-3-W32-08C	32.00	3	32.0	30.0	8.00	110.00	32.00	W	1	-	-	0.60	SR 10502813-HG-M	IP-7/51
T490 ELN D32-4-C32-08B	32.00	4	32.0	30.0	8.00	200.00	32.00	C	1	-	-	1.14	SR 10502813-HG-M	IP-7/51
T490 ELN D32-5-C32-08C	32.00	5	32.0	30.0	8.00	130.00	32.00	C	1	-	-	0.73	SR 10502813-HG-M	IP-7/51
T490 ELN D32-5-W32-08C	32.00	5	32.0	30.0	8.00	110.00	32.00	W	1	-	-	0.60	SR 10502813-HG-M	IP-7/51
T490 ELN D40-4-C32-08C	40.00	4	-	30.0	8.00	130.00	32.00	C	1	-	-	0.81	SR 10502813-HG-M	IP-7/51
T490 ELN D40-6-C32-08C	40.00	6	-	30.0	8.00	130.00	32.00	C	1	-	-	0.82	SR 10502813-HG-M	IP-7/51
T490 ELN D40-6-W32-08C	40.00	6	-	30.0	8.00	110.00	32.00	W	1	-	-	0.69	SR 10502813-HG-M	IP-7/51

• "B" suffix with long cylindrical shank which may be shortened. • For user guide, see pages 616-622

[1] Number of inserts (or edges for solid tool)

[2] C-Cylindrical, W-Weldon

[3] 0 - Without coolant supply, 1 - With coolant supply

[4] Maximum ramping angle - valid only with T490 LNHT 080404PNR-RD inserts

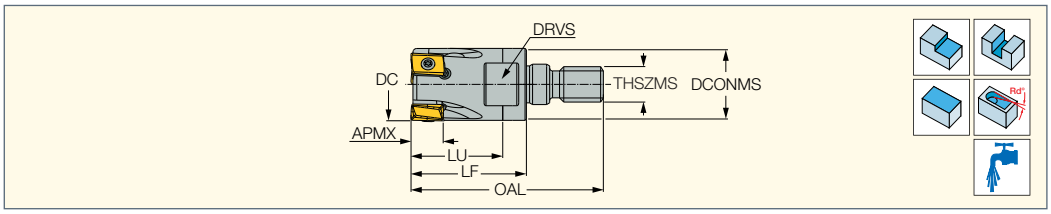
[5] Maximum ramping angle - valid only with T490 LNMT 080404PNR-RD inserts

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT/LNHT 0804 (544)

HELITANG T490 LINE

T490 ELN-M

90° Endmills with a FLEX-FIT Threaded Adaptation Carrying Tangentially Clamped Inserts



Designation	DC	CICT(1)	APMX	DCONMS	LU	LF	OAL	THSZMS	DRVS(2)	RMPX°(3)	RMPX°_2(4)	TQ_3(5)	kg
T490 ELN D20-3-M10	20.00	3	8.00	18.70	-	30.00	50.00	M10	15.0	1.7	0.8	29	0.06
T490 ELN D25-3-M12	25.00	3	8.00	21.00	-	28.00	50.00	M12	17.0	-	-	33	0.08
T490 ELN D25-4-M12	25.00	4	8.00	21.00	-	28.00	50.00	M12	17.0	-	-	33	0.08
T490 ELN D32-3-M16-13	32.00	3	12.50	29.00	-	45.00	70.00	M16	25.0	-	-	40	0.22
T490 ELN D32-5-M16	32.00	5	8.00	29.00	-	30.00	55.00	M16	25.0	-	-	40	0.16

• For adaptation see page 59 • For user guide see pages 616-622 • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Number of inserts (or edges for solid tool)

(2) Clamping wrench size

(3) Maximum ramping angle - valid only with T490 LNHT 080404PNR-RD inserts

(4) Maximum ramping angle - valid only with T490 LNMT 080404PNR-RD inserts

(5) Tool tightening torque Nxm (lbfxin)

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT 1306PNR-FF (547) • T490 LNMT 1306PNTR-FW (547) • T490 LNMT/LNHT 0804 (544) • T490 LNMT/LNHT/LNAR 1306 (546)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

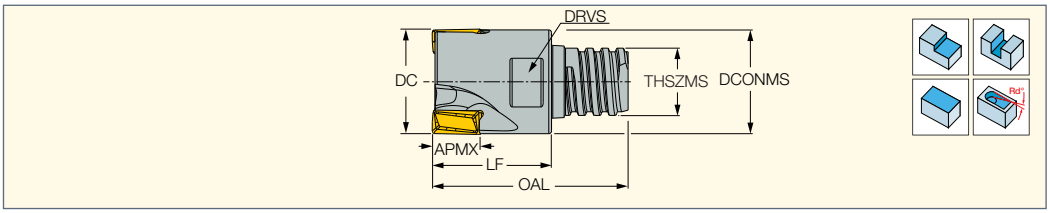
Spare Parts

Designation				
T490 ELN D20-3-M10	SR 10502813-HG-M	IP-7/51		
T490 ELN D25-3-M12	SR 10502813-HG-M	IP-7/51		
T490 ELN D25-4-M12	SR 10502813-HG-M	IP-7/51		
T490 ELN D32-3-M16-13	SR 34-535-SN		SW6-T-SH	BLD T15/S7
T490 ELN D32-5-M16	SR 10502813-HG-M	IP-7/51		

HELITANG T490 LINE

T490 ELN-MM-08

90° Endmills with a MULTI-MASTER Threaded Adaptation Carrying Tangentially Clamped Inserts



Designation	DC	CICT(1)	APMX	DCONMS	LF	OAL	THSZMS	DRVS(2)	RMPX°(3)	RMPX°_2(4)	kg		
T490 ELN D16-2-MMT10	16.00	2	8.00	14.70	20.00	32.00	T10	13.0	2.0	1.1	0.03	SR 10502813-HGSM	IP-7/51
T490 ELN D20-3-MMT12	20.00	3	8.00	18.70	22.00	35.00	T12	16.0	1.7	0.8	0.05	SR 10502813-HG-M	IP-7/51

• Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation see page 59 • For user guide see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) Clamping wrench size

(3) Maximum ramping angle - valid only with T490 LNHT 080404PNR-RD inserts

(4) Maximum ramping angle - valid only with T490 LNMT 080404PNR-RD inserts

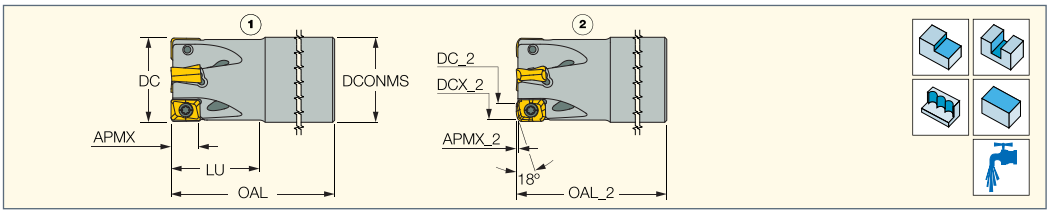
For inserts, see pages: T490 LNAR-P (548) • T490 LNMT/LNHT 0804 (544)

For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

HELIDO 490 LINE

H490 E90AX-09

90° Endmills Carrying H490 ANKX 09... Double-Sided Rectangular Inserts with 4 Helical Cutting Edges



Designation	DC	DCX_2	DC_2	CICT(1)	APMX	APMX_2	AE (2)	OAL	OAL_2	LU
H490 E90AX D16-2-C15-09-B	16.00	16.10	10.60	2	8.00	0.70	5.5	150.00	150.00	40.0
H490 E90AX D16-2-C16-09	16.00	16.10	10.60	2	8.00	0.70	5.5	90.00	90.00	26.0
H490 E90AX D16-2-W16-09	16.00	16.10	10.60	2	8.00	0.70	5.5	85.00	85.00	26.0
H490 E90AX D18-2-C16-09	18.00	18.10	12.60	2	8.00	0.70	5.5	90.00	90.00	25.0
H490 E90AX D20-2-C19-09-B	20.00	20.10	14.60	2	8.00	0.70	5.5	160.00	160.00	40.0
H490 E90AX D20-2-C20-09	20.00	20.10	14.60	2	8.00	0.70	5.5	110.00	110.00	26.0
H490 E90AX D20-2-W20-09	20.00	20.10	14.60	2	8.00	0.70	5.5	90.00	90.00	26.0
H490 E90AX D20-3-C20-09	20.00	20.10	14.60	3	8.00	0.70	5.5	110.00	110.00	26.0
H490 E90AX D20-3-W20-09	20.00	20.10	14.60	3	8.00	0.70	5.5	90.00	90.00	26.0
H490 E90AX D22-3-C20-09	22.00	22.10	16.60	3	8.00	0.70	5.5	115.00	115.00	25.0
H490 E90AX D25-3-C24-09-B	25.00	25.10	19.60	3	8.00	0.70	5.5	200.00	200.00	40.0
H490 E90AX D25-3-C25-09	25.00	25.10	19.60	3	8.00	0.70	5.5	120.00	120.00	26.0
H490 E90AX D25-3-W25-09	25.00	25.10	19.60	3	8.00	0.70	5.5	95.00	95.00	26.0
H490 E90AX D25-4-C25-09	25.00	25.10	19.60	4	8.00	0.70	5.5	120.00	120.00	26.0
H490 E90AX D25-4-W25-09	25.00	25.10	19.60	4	8.00	0.70	5.5	95.00	95.00	26.0
H490 E90AX D32-4-W32-09	32.00	32.10	26.60	4	8.00	0.70	5.5	110.00	110.00	30.0
H490 E90AX D32-5-C32-09	32.00	32.10	26.60	5	8.00	0.70	5.5	130.00	130.00	30.0
H490 E90AX D32-5-W32-09	32.00	32.10	26.60	5	8.00	0.70	5.5	110.00	110.00	30.0

Designation	DCONMS	RMPX°_2 (3)	MDN	MDX	Shank(4)	MIID(5)	MIID_2(6)	kg
H490 E90AX D16-2-C15-09-B	15.00	4.0	26.70	31.20	C	H490 ANKX 0904	H490 ANKX 0904..-FF	0.18
H490 E90AX D16-2-C16-09	16.00	4.0	26.70	31.20	C	H490 ANKX 0904	H490 ANKX 0904..-FF	0.12
H490 E90AX D16-2-W16-09	16.00	4.0	26.70	31.20	W	H490 ANKX 0904	H490 ANKX 0904..-FF	0.11
H490 E90AX D18-2-C16-09	16.00	3.0	30.70	35.20	C	H490 ANKX 0904	H490 ANKX 0904..-FF	0.12
H490 E90AX D20-2-C19-09-B	19.00	2.5	34.70	39.20	C	H490 ANKX 0904	H490 ANKX 0904..-FF	0.31
H490 E90AX D20-2-C20-09	20.00	2.5	34.70	39.20	C	H490 ANKX 0904	H490 ANKX 0904..-FF	0.23
H490 E90AX D20-2-W20-09	20.00	2.5	34.70	39.20	W	H490 ANKX 0904	H490 ANKX 0904..-FF	0.18
H490 E90AX D20-3-C20-09	20.00	2.5	34.70	39.20	C	H490 ANKX 0904	H490 ANKX 0904..-FF	0.23
H490 E90AX D20-3-W20-09	20.00	2.5	34.70	39.20	W	H490 ANKX 0904	H490 ANKX 0904..-FF	0.18
H490 E90AX D22-3-C20-09	20.00	1.6	38.70	43.20	C	H490 ANKX 0904	H490 ANKX 0904..-FF	0.25
H490 E90AX D25-3-C24-09-B	24.00	1.6	44.70	49.20	C	H490 ANKX 0904	H490 ANKX 0904..-FF	0.61
H490 E90AX D25-3-C25-09	25.00	1.6	44.70	49.20	C	H490 ANKX 0904	H490 ANKX 0904..-FF	0.39
H490 E90AX D25-3-W25-09	25.00	1.6	44.70	49.20	W	H490 ANKX 0904	H490 ANKX 0904..-FF	0.30
H490 E90AX D25-4-C25-09	25.00	1.6	44.70	49.20	C	H490 ANKX 0904	H490 ANKX 0904..-FF	0.39
H490 E90AX D25-4-W25-09	25.00	1.6	44.70	49.20	W	H490 ANKX 0904	H490 ANKX 0904..-FF	0.30
H490 E90AX D32-4-W32-09	32.00	1.4	58.70	63.20	W	H490 ANKX 0904	H490 ANKX 0904..-FF	0.60
H490 E90AX D32-5-C32-09	32.00	1.4	58.70	63.20	C	H490 ANKX 0904	H490 ANKX 0904..-FF	0.72
H490 E90AX D32-5-W32-09	32.00	1.4	58.70	63.20	W	H490 ANKX 0904	H490 ANKX 0904..-FF	0.60

• For user guide, see pages 616-622 • "B" Suffix cylindrical shank which may be shortened • 1- with standard square insert • 2- with FF (fast feed) insert

• When assembled the H490 ANKX 0904R12T-FF insert, tool diameter enlarges by 0.1 mm

(1) Number of inserts (or edges for solid tool)

(2) Maximum side plunge

(3) Maximum ramping angle when using FF inserts

(4) C-Cylindrical, W-Weldon

(5) Master insert identification

(6) Master insert identification 2

For inserts, see pages: H490 ANKX 0904-FF (538) • H490 ANKX/ANCX-09 (537)

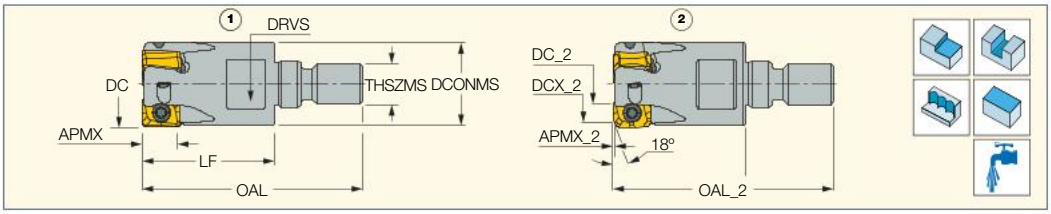
Spare Parts

Designation			
H490 E90AX-09	SR 10508082-HG	SW4-SD	BLD T08/M7

HELIDO 490 LINE

H490 E90AX-M

90° Endmills with a FLEX-FIT Threaded Connection Carrying H490 ANKX/ANCX 09... Double-Sided Rectangular Inserts



Designation	DC	DCX_2	DC_2	CICT(1)	APMX	APMX_2	MDN	MDX	RMPX°_2	AE
H490 E90AX D20-3-M10-09	20.00	20.10	14.60	3	8.00	0.70	34.70	39.20	2.5	5.5
H490 E90AX D25-4-M12-09	25.00	25.10	19.60	4	8.00	0.70	44.70	49.20	1.6	5.5
H490 E90AX D32-5-M16-09	32.00	32.10	26.60	5	8.00	0.70	58.70	63.20	1.4	5.5

Designation	LF_2	DCONMS	THSZMS	DRVS(2)	MIID(3)	MIID_2(4)	TQ_3(5)	kg
H490 E90AX D20-3-M10-09	30.00	18.70	M10	16.0	H490 ANCX 090404PDR	H490 ANKX 0904..-FF	29	0.06
H490 E90AX D25-4-M12-09	28.00	21.00	M12	17.0	H490 ANCX 090404PDR	H490 ANKX 0904..-FF	33	0.07
H490 E90AX D32-5-M16-09	30.00	29.00	M16	25.0	H490 ANCX 090404PDR	H490 ANKX 0904..-FF	40	0.16

• For adaptation, see page 59 • For user guide, see pages 616-622 • When mounting items with FLEXFIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

• 1- with standard square insert • 2- with FF (fast feed) insert

(1) Number of inserts (or edges for solid tool)

(2) Clamping wrench size

(3) Master insert identification

(4) Master insert identification 2

(5) Tool tightening torque Nxm (lbfxin)

For inserts, see pages: H490 ANKX 0904-FF (538) • H490 ANKX/ANCX-09 (537)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

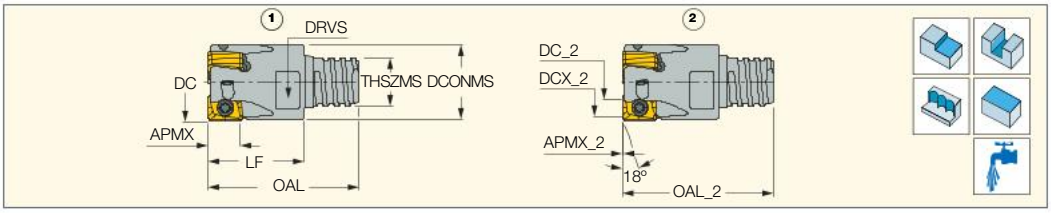
Spare Parts

Designation			
H490 E90AX-M	SR 10508082-HG	BLD T08/M7	SW4-SD

HELIDO 490 LINE

H490 E90AX-MM

90° Endmills with a MULTI-MASTER Threaded Connection Carrying H490 ANKX/ANCX 090... Double-Sided Rectangular Inserts



Designation	DC	DCX_2	DC_2	CICT(1)	APMX	APMX_2	AE	LF	RMPX°_2
H490 E90AX D20-3-MMT12-09	20.00	20.10	20.00	3	8.00	0.70	5.5	24.70	2.5

Designation	OAL	OAL_2	DCONMS	THSZMS	MDN	MDX	MIID(2)	MIID_2(3)	DRVS(4)	kg
H490 E90AX D20-3-MMT12-09	37.30	37.30	18.70	T12	34.70	39.20	H490 ANCX 090404PDR	H490 ANKX 0904..-FF	16.0	0.05

• Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation, see page 59 • For user guide, see pages 616-622

• 1- with standard square insert • 2- with FF (fast feed) insert

(1) Number of inserts (or edges for solid tool)

(2) Master insert identification

(3) Master insert identification 2

(4) Clamping wrench size

For inserts, see pages: H490 ANKX 0904-FF (470) • H490 ANKX/ANCX-09 (469)

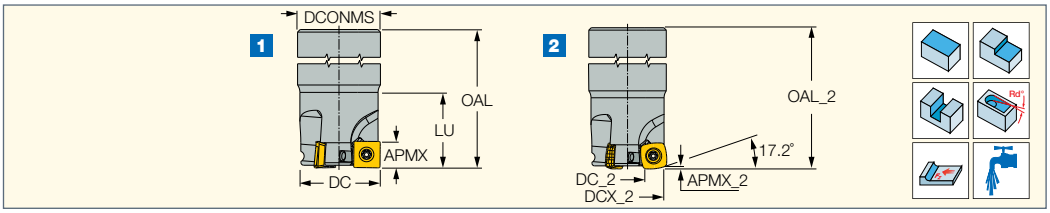
For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

Spare Parts

Designation			
H490 E90AX-MM	SR 10508082-HG	BLD T08/M7	SW4-SD

HELIQUAD

E90SP
Endmills Carrying Square Inserts



Designation	DC	CICT[1]	DCONMS	LU	APMX	OAL	RMPX°[2]	DC_2	DCX_2	APMX_2	OAL_2	RMPX°_2[3]	Shank[4]	kg			
E90SP D25-02-C25-10	25.00	2	25.00	32.0	9.60	110.00	3.0	8.30	25.45	1.27	110.26	5.0	C	0.35	SR 10514114[a]	BLD IP15/M7	SW6-T-SH
E90SP D25-02-W25-10	25.00	2	25.00	32.0	9.60	95.00	3.0	8.30	25.45	1.27	95.26	5.0	W	0.29	SR 10514114[a]	BLD IP15/M7	SW6-T-SH
E90SP D25-03-C25-10	25.00	3	25.00	32.0	9.60	110.00	3.0	8.30	25.45	1.27	110.26	5.0	C	0.76	SR 10514114[a]	BLD IP15/M7	SW6-T-SH
E90SP D25-03-W25-10	25.00	3	25.00	32.0	9.60	95.00	3.0	8.30	25.45	1.27	95.26	5.0	W	0.29	SR 10514114[a]	BLD IP15/M7	SW6-T-SH
E90SP D32-03-C32-10	32.00	3	32.00	32.0	9.60	130.00	2.0	15.30	32.45	1.27	130.26	4.0	C	0.69	SR 10514114[a]	BLD IP15/M7	SW6-T-SH
E90SP D32-03-W25-10	32.00	3	25.00	31.8	9.60	95.00	2.0	15.30	32.45	1.27	95.26	4.0	W	0.31	SR 10514114[a]	BLD IP15/M7	SW6-T-SH
E90SP D32-04-W25-10	32.00	4	25.00	32.0	9.60	95.00	2.0	15.30	32.45	1.27	95.26	4.0	W	0.02	SR 10514114[a]	BLD IP15/M7	SW6-T-SH
E90SP D40-04-C32-10	40.00	4	32.00	32.0	9.60	130.00	1.5	23.30	40.45	1.27	130.26	3.5	C	0.72	SR 10514114[a]	BLD IP15/M7	SW6-T-SH
E90SP D40-04-W32-10	40.00	4	32.00	32.0	9.60	110.00	1.5	23.30	40.45	1.27	110.26	3.5	W	0.60	SR 10514114[a]	BLD IP15/M7	SW6-T-SH
E90SP D40-05-W32-10	40.00	5	32.00	32.0	9.60	110.00	1.5	23.30	40.45	1.27	110.26	3.5	W	0.12	SR 10514114[a]	BLD IP15/M7	SW6-T-SH
E90SP D50-06-C32-10	50.00	6	32.00	35.0	9.60	130.00	1.0	33.30	50.45	1.27	130.26	3.0	C	0.80	SR 10514114[a]	BLD IP15/M7	SW6-T-SH

• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-622

[1] Number of inserts (or edges for solid tool)

[2] Maximum ramping angle when using 90° inserts

[3] Maximum ramping angle when using FF inserts

[4] C-Cylindrical, W-Weldon

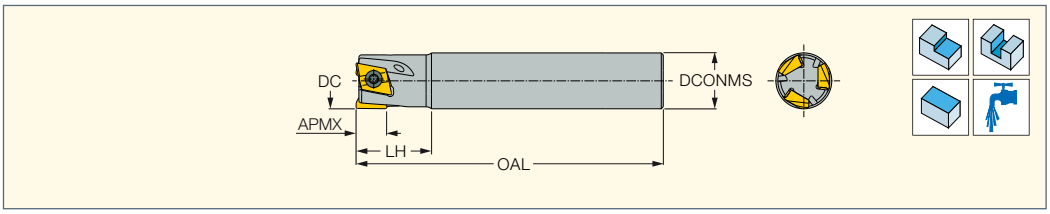
[a] Recommended tightening torque:4.8 N*m

For inserts, see pages: QPMR 1004-HQ-M (495) • QPMT 100408PDTN (495) • SPCT/SPMR PDR (496) • SPMT-HQ (495) • XPMT-HQ (496)

SUMOMILL 290 LINE

T290 ELN-10

Endmills Carrying Tangentially Clamped Inserts



Designation	DC	CICT(1)	OAL	LH	APMX	DCONMS	Shank(2)	kg			
T290 ELN D20-02-C20-10	20.00	2	110.00	27.0	10.00	20.00	C	0.22	SR 10504970	BLD IP15/M7	SW6-T-SH
T290 ELN D20-03-C20-10	20.00	3	110.00	27.0	10.00	20.00	C	0.23	SR 10504970	BLD IP15/M7	SW6-T-SH
T290 ELN D20-03-W20-10	20.00	3	90.00	28.0	10.00	20.00	W	0.18	SR 10504970	BLD IP15/M7	SW6-T-SH
T290 ELN D25-03-C25-10-XL	25.00	3	150.00	30.0	10.00	25.00	C	0.51	SR 10504970	BLD IP15/M7	SW6-T-SH
T290 ELN D25-04-C25-10	25.00	4	120.00	28.0	10.00	25.00	C	0.40	SR 10504970	BLD IP15/M7	SW6-T-SH
T290 ELN D25-04-W25-10	25.00	4	95.00	30.0	10.00	25.00	W	0.30	SR 10504970	BLD IP15/M7	SW6-T-SH
T290 ELN D32-05-C32-10	32.00	5	130.00	28.0	10.00	32.00	C	0.73	SR 10504970	BLD IP15/M7	SW6-T-SH

- For user guide, see pages 616-622

(1) Number of inserts (or edges for solid tool)

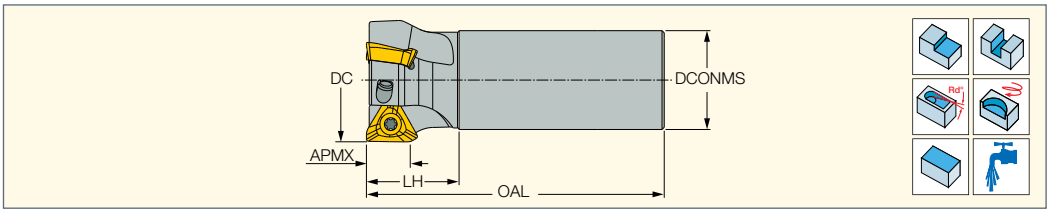
(2) C-Cylindrical, W-Weldon

For inserts, see pages: T290 LNMT/LNHT 1004 (542)

HELI3MILL HM390 LINE

HM390 ETP-10

90° Endmills Carrying HM390 TPKT 1003 Triangular Inserts with 3 Helical Cutting Edges



Designation	DC	APMX	CICT(1)	OAL	LH	DCONMS	Shank(2)	RMPX°(3)	kg			
HM390 ETP D25-2-C25-10	25.00	8.00	2	120.00	25.0	25.00	C	2.9	0.38	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D25-2-W25-10	25.00	8.00	2	95.00	25.0	25.00	W	2.9	0.30	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D25-3-C24-10-B	25.00	8.00	3	200.00	25.0	24.00	C	2.9	0.60	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D25-3-C25-10	25.00	8.00	3	120.00	25.0	25.00	C	2.9	0.38	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D25-3-C25-10-B	25.00	8.00	3	200.00	40.0	25.00	C	2.9	0.66	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D25-3-W25-10	25.00	8.00	3	95.00	25.0	25.00	W	2.9	0.30	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D25-4-C25-10	25.00	8.00	4	120.00	25.0	25.00	C	2.9	0.38	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D28-3-C25-10	28.00	8.00	3	120.00	25.0	25.00	C	2.5	0.40	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D28-3-C25-10-B	28.00	8.00	3	200.00	25.0	25.00	C	2.5	0.67	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D32-3-C31-10-B	32.00	8.00	3	250.00	30.0	31.00	C	2.1	1.33	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D32-3-C32-10	32.00	8.00	3	130.00	30.0	32.00	C	2.1	0.71	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D32-3-W32-10	32.00	8.00	3	110.00	30.0	32.00	W	2.1	0.58	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D32-4-C32-10	32.00	8.00	4	130.00	30.0	32.00	C	2.1	0.70	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D32-4-C32-10-B	32.00	8.00	4	200.00	40.0	32.00	C	2.1	1.11	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D32-4-W32-10	32.00	8.00	4	110.00	30.0	32.00	W	2.1	0.58	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D40-5-C32-10	40.00	8.00	5	130.00	30.0	32.00	C	1.6	0.76	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D40-5-W32-10	40.00	8.00	5	110.00	30.0	32.00	W	1.6	0.64	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D50-6-C32-10	50.00	8.00	6	130.00	38.0	32.00	C	1.2	0.86	SR 14-562/S	BLD T10/S7	SW6-SD

- For user guide see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) C-Cylindrical, W-Weldon

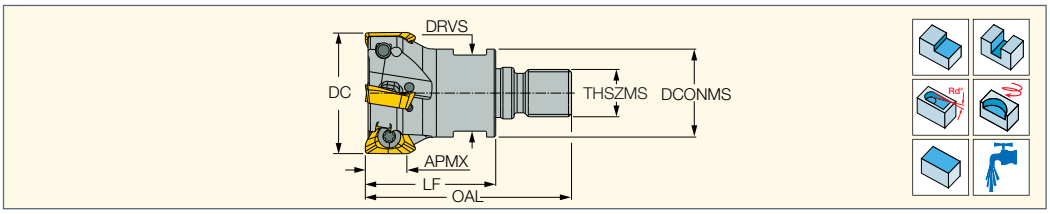
(3) Maximum ramping angle

For inserts, see pages: HM390 TPCR 1003 (513) • HM390 TPKT/CT 1003 (512)

HELI3MILL HM390 LINE

HM390 ETP-M

90° Endmills with a FLEX-FIT Threaded Adaptation Carrying HM90 TPKT 1003... Inserts with 3 Helical Cutting Edges



Designation	DC	APMX	CICT(1)	LF	DCONMS	THSZMS	OAL	DRVS(2)	RMPX°(3)	TQ_3(4)	kg			
HM390 ETP D25-3-M12	25.00	8.00	3	35.00	21.00	M12	57.00	17.1	2.9	33	0.08	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D32-4-M16	32.00	8.00	4	35.00	29.00	M16	60.00	25.1	2.1	40	0.16	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D32-5-10-M16	32.00	8.00	5	35.00	29.00	M16	60.00	25.1	2.1	40	0.17	SR 14-562/S	BLD T10/S7	SW6-SD

• For adaptation see page 59 • For user guide see pages 616-622 • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Number of inserts (or edges for solid tool)

(2) Clamping wrench size

(3) Maximum ramping angle

(4) Tool tightening torque Nxm (lbfxin)

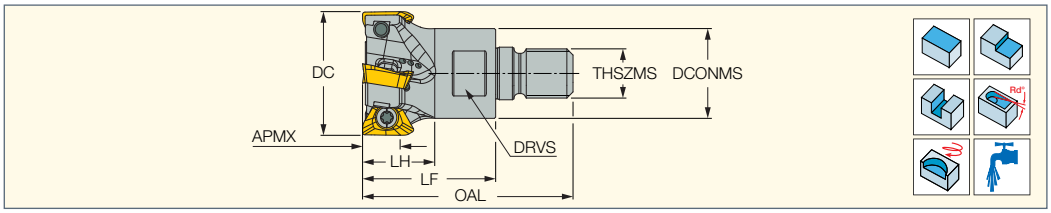
For inserts, see pages: HM390 TPCR 1003 (513) • HM390 TPKT/CT 1003 (512)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

HELI3MILL HM390 LINE

HM390 ETP/C/D-M-JHP

90° JHP endmill with a FLEX-FIT threaded adaptation



Designation	DC	CICT(1)	APMX	OAL	LF	DCONMS	THSZMS	RMPX°(2)	MIID(3)
HM390 ETC D16-2-M08-07JHP	16.00	2	5.00	38.00	20.50	15.30	M08	1.9	HM390 TCKT 0703
HM390 ETC D20-3-M10-07JHP	20.00	3	5.00	45.50	25.50	18.30	M10	1.4	HM390 TCKT 0703
HM390 ETC D25-4-M12-07JHP	25.00	4	5.00	59.00	37.00	21.00	M12	1.0	HM390 TCKT 0703
HM390 ETP D25-3-M12-10JHP	25.00	3	8.00	57.00	35.00	21.00	M12	2.9	HM390 TPKT 1003
HM390 ETP D32-4-M16-10JHP	32.00	4	8.00	55.00	30.00	29.00	M16	2.1	HM390 TPKT 1003
HM390 ETP D40-4-M16-10JHP	40.00	4	8.00	55.00	30.00	29.00	M16	1.6	HM390 TPKT 1003
HM390 ETD D40-4-M16-15JHP	40.00	4	13.00	68.00	43.00	29.00	M16	2.1	HM390 TDKT 1505

New

• When assembled the HM390 TDKT 1505PDR-FW insert, tool diameter enlarges by 1.0 mm • For user guide, see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) Maximum ramping angle

(3) Master insert identification

For holders, see pages: BT-ODP (FLEX-FIT) (359) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

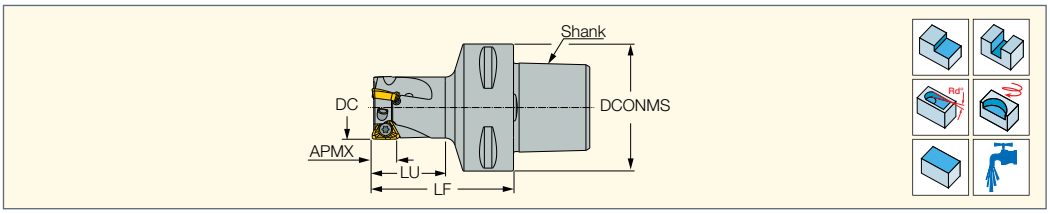
Spare Parts

Designation				
HM390 ETC D16-2-M08-07JHP	SR M2.5X5-T7-60	T-7/51		
HM390 ETC D20-3-M10-07JHP	SR M2.5X5-T7-60	T-7/51		
HM390 ETC D25-4-M12-07JHP	SR M2.5X6-T7-60	T-7/51		
HM390 ETP D25-3-M12-10JHP	SR 14-562/S		BLD T10/S7	
HM390 ETP D32-4-M16-10JHP	SR 14-562/S		BLD T10/S7	SW6-SD
HM390 ETP D40-4-M16-10JHP	SR 14-562/S		BLD T10/S7	
HM390 ETD D40-4-M16-15JHP	SR 10511869		BLD IP20/S7	SW6-T

HELI3MILL HM390 LINE

HM390 ETP-C#-10

90° Endmills Carrying HM390 TPKT 1003 Triangular Inserts with 3 Helical Cutting Edges



Designation	DCONMS	DC	APMX	CICT(1)	LU	LF	RMPX°(2)	Shank	DCP(3)	kg			
HM390 ETP D25-3-L39-C3-10	32.00	25.00	8.00	3	39.0	55.00	2.9	CAMFIX	0	0.21	SR 14-562/S	BLD T10/S7	SW6-SD

- For user guide see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) Maximum ramping angle

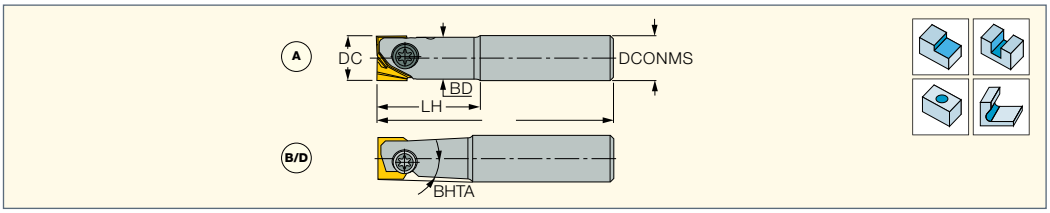
(3) 1 - Slot for data chip, 0 - Without slot for data chip

For inserts, see pages: HM390 TPCR 1003 (513) • HM390 TPKT/CT 1003 (512)

BALLPLUS

HCE

Multifunction Endmills that Can Carry Several Insert Geometries



Designation	DC	LH	OAL	BD	DCONMS	Shank(1)	BHTA	Type	TQ(2)	kg			
HCE D12-A-L120-C12	12.00	30.0	120.00	11.10	12.00	C	-	A	6.0	0.10	SR 34-540	BLD T15/S7(a)	SW6-T
HCE D12-B-L160-C20	12.00	50.0	160.00	-	20.00	C	4.6	B	6.0	0.42	SR 34-540	BLD T15/S7(a)	SW6-T
HCE D12-D-L160-C16	12.00	60.0	160.00	-	16.00	C	1.9	D	6.0	0.21	SR 34-540	BLD T15/S7(a)	SW6-T
HCE D16-A-L130-C16	16.00	36.0	130.00	14.90	16.00	C	-	A	7.8	0.19	SR 10503579	BLD T20/S7(a)	SW6-T
HCE D16-B-L160-C25	16.00	60.0	160.00	-	25.00	C	4.3	B	7.8	0.50	SR 10503579	BLD T20/S7(a)	SW6-T
HCE D16-D-L160-C20	16.00	65.0	160.00	-	20.00	C	1.7	D	7.8	0.32	SR 10503579	BLD T20/S7(a)	SW6-T
HCE D20-A-L150-C20	20.00	60.0	150.00	18.80	20.00	C	-	A	12.0	0.33	SR 1052964	BLD T25/S7(a)	SW6-T
HCE D20-D-L200-C25	20.00	90.0	200.00	-	25.00	C	1.6	D	12.0	0.62	SR 1052964	BLD T25/S7(a)	SW6-T
HCE D25-A-L170-C25	25.00	70.0	170.00	23.00	25.00	C	-	A	12.0	0.57	SR 1051666	BLD T25/S7(a)	SW6-T
HCE D25-D-L250-C32	25.00	125.0	250.00	-	32.00	C	1.6	D	12.0	1.20	SR 1051666	BLD T25/S7(a)	SW6-T

- For undercutting, use HTR inserts only • The dimensions are for HCC inserts with RE=0.5 mm • For user guide, see pages 616-622

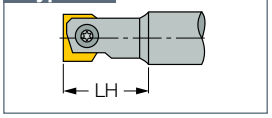
(1) C-Cylindrical

(2) Screw Tightening Torque

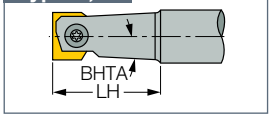
(a) Recommended torque value according to the "Tightening Torque" table

For inserts, see pages: HCC-QF (608) • HLB-QF (609)

Type A



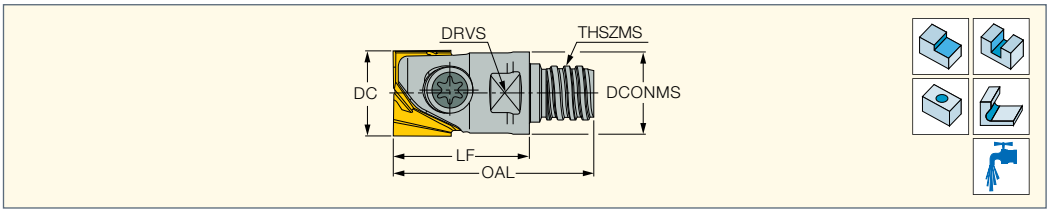
Type B, D



BALLPLUS

HCE-MM

Multifunction Endmills with a MULTI-MASTER Threaded Adaptation that Mounts Several Insert Geometries



Designation	DC	OAL	LF	APMX	THSZMS	DCONMS	DRVS(1)	TQ(2)	kg			
HCE D12/.50-MMT08	12.00	28.00	20.00	8.10	T08	11.50	10.0	6.0	0.01	SR 34-540	BLD T15/S7(a)	SW6-T
HCE D16/.62-MMT10	16.00	36.75	25.00	10.30	T10	15.20	13.0	7.8	0.03	SR 10503579	BLD T20/S7(a)	SW6-T
HCE D20/.75-MMT12	20.00	48.80	35.40	12.80	T12	18.50	15.0	12.0	0.06	SR 1052964	BLD T25/S7(a)	SW6-T

- For undercutting, use HTR inserts only • The dimensions are for HCC inserts with RE=0.5 mm • Do not apply lubricant to the MULTI-MASTER threaded connection
- For adaptation options, see page 59 • For user guide, see pages 616-622

(1) Width across flats (wrench should be ordered separately)

(2) Screw Tightening Torque

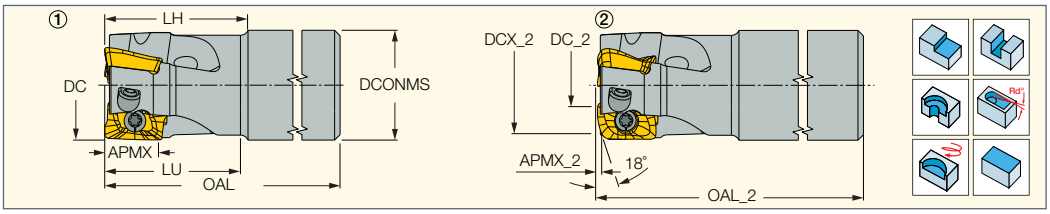
(a) Recommended torque value according to the "Tightening Torque" table

For inserts, see pages: HCC-QF (608) • HLB-QF (609)

For holders, see pages: MM CAB (110) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106)
• MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106)
• MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

HELI2000

HM90 E90A-10
Endmills Carrying HM90
AP.. 1003... Inserts



Designation	DC	DCX_2	DC_2	DCONMS	APMX	APMX_2	CICT(1)	OAL	OAL_2	LH	LU
HM90 E90A-D10-1-C10	10.00	10.10	1.00	10.00	9.80	1.00	1	80.00	79.63	20.0	13.8
HM90 E90A-D10-1-C10-C	10.00	10.10	1.00	10.00	9.80	1.00	1	80.00	79.63	20.0	13.8
HM90 E90A-D10-1-C16-LB	10.00	10.10	1.00	16.00	9.80	1.00	1	160.00	159.63	30.0	13.8
HM90 E90A-D10-1-W16	10.00	-	-	16.00	9.80	-	1	80.00	-	20.0	10.6
HM90 E90A-D12-1-C16	12.00	12.10	3.00	16.00	9.80	1.00	1	80.00	79.63	20.0	14.0
HM90 E90A-D12-1-C16-LB	12.00	12.10	3.00	16.00	9.80	1.00	1	160.00	59.63	30.0	16.0
HM90 E90A-D12-1-W16	12.00	12.10	3.00	16.00	9.80	1.00	1	80.00	79.63	20.0	14.0
HM90 E90A-D12-1-W16-C	12.00	12.10	3.00	16.00	9.80	1.00	1	80.00	79.63	20.0	14.0
HM90 E90A-D12-1-C16-C	12.00	-	-	16.00	9.80	-	1	80.00	-	20.0	14.0
HM90 E90A-D14-1-C16	14.00	14.10	5.00	16.00	9.80	1.00	1	80.00	79.63	23.0	18.4
HM90 E90A-D14-1-W16	14.00	14.10	5.00	16.00	9.80	1.00	1	80.00	79.63	23.0	18.4
HM90 E90A-D16-2-C15-B	16.00	16.10	7.00	15.00	9.80	1.00	2	150.00	149.63	25.0	24.4
HM90 E90A-D16-2-C15-B-C	16.00	16.10	7.00	15.00	9.80	1.00	2	150.00	149.63	25.0	24.4
HM90 E90A-D16-2-C16	16.00	16.10	7.00	16.00	9.80	1.00	2	90.00	89.63	26.0	25.2
HM90 E90A-D16-2-C16-B	16.00	16.10	7.00	16.00	9.80	1.00	2	150.00	149.63	40.0	38.2
HM90 E90A-D16-2-C16-B-C	16.00	16.10	7.00	16.00	9.80	1.00	2	150.00	149.63	40.0	38.2
HM90 E90A-D16-2-C16-C	16.00	16.10	7.00	16.00	9.80	1.00	2	90.00	89.63	26.0	25.2
HM90 E90A-D16-2-C16-LB	16.00	16.10	7.00	16.00	9.80	1.00	2	180.00	179.63	40.0	38.1
HM90 E90A-D16-2-W16	16.00	16.10	7.00	16.00	9.80	1.00	2	85.00	84.63	26.0	25.2
HM90 E90A-D16-2-W16-C	16.00	16.10	7.00	16.00	9.80	1.00	2	85.00	84.63	26.0	25.2
HM90 E90A-D17-2-C16	17.00	17.10	8.00	16.00	9.80	1.00	2	90.00	89.63	28.0	27.0
HM90 E90A-D17-2-C16-L170	17.00	17.10	8.00	16.00	9.80	1.00	2	170.00	169.63	27.0	-

Designation	RMPX°(2)	RMPX°_2	MDN	MDX	Shank(3)	CSP(4)	RPMX(5)	MIID(6)	MIID_2(7)	kg
HM90 E90A-D10-1-C10	5.0	5.0	11.10	19.20	C	0	132843	HM90 APKT 1003 PDR	-	0.04
HM90 E90A-D10-1-C10-C	5.0	5.0	11.10	19.20	C	1	131850	HM90 APKT 1003 PDR	-	0.04
HM90 E90A-D10-1-C16-LB	5.0	5.0	11.10	19.20	C	0	132843	HM90 APKT 1003 PDR	-	0.22
HM90 E90A-D10-1-W16	5.0	-	-	-	W	0	132843	HM90 APKT 1003 PDR	-	0.10
HM90 E90A-D12-1-C16	32.0	32.0	15.10	23.20	C	0	92536	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.11
HM90 E90A-D12-1-C16-LB	32.0	32.0	15.10	23.20	C	0	92536	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.23
HM90 E90A-D12-1-W16	32.0	32.0	15.10	23.20	W	0	92536	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.11
HM90 E90A-D12-1-W16-C	32.0	32.0	15.10	23.20	W	1	92536	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.10
HM90 E90A-D12-1-C16-C	32.0	-	-	-	C	1	92536	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.10
HM90 E90A-D14-1-C16	7.0	7.0	19.10	27.20	C	0	75930	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.11
HM90 E90A-D14-1-W16	7.0	7.0	19.10	27.20	W	0	75930	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.11
HM90 E90A-D16-2-C15-B	15.0	15.0	23.10	31.20	C	0	66712	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.19
HM90 E90A-D16-2-C15-B-C	15.0	15.0	23.10	31.20	C	1	66712	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.17
HM90 E90A-D16-2-C16	15.0	15.0	23.10	31.20	C	0	66712	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.12
HM90 E90A-D16-2-C16-B	15.0	15.0	23.10	31.20	C	0	66712	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.22
HM90 E90A-D16-2-C16-B-C	15.0	15.0	23.10	31.20	C	1	66712	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.20
HM90 E90A-D16-2-C16-C	15.0	15.0	23.10	31.20	C	1	66712	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.11
HM90 E90A-D16-2-C16-LB	15.0	15.0	23.10	31.20	C	0	66712	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.26
HM90 E90A-D16-2-W16	15.0	15.0	23.10	31.20	W	0	66712	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.12
HM90 E90A-D16-2-W16-C	15.0	15.0	23.10	31.20	W	1	66712	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.11
HM90 E90A-D17-2-C16	15.0	15.0	25.10	33.20	C	0	63393	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.13
HM90 E90A-D17-2-C16-L170	4.5	15.0	25.10	33.20	C	0	63393	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.25

• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

(4) 0 - Without coolant supply, 1 - With coolant supply

(5) Maximum RPM

(6) Master insert identification

(7) Master insert identification 2

For inserts, see pages: APCR 1003PDFR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519) • APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518) • APKW 100304 PDR (PCD) (516) • HM90 APCR 100304PDFR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515) • HM90 APKT 1003PD-W (520) • HM90 APKW 1003PDR (519)

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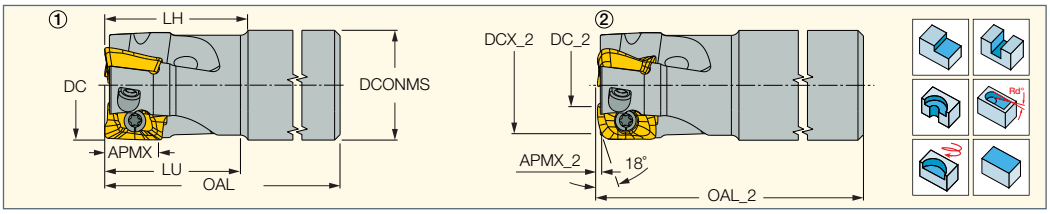
HELI2000

HM90 E90A-10
Endmills Carrying HM90
AP.. 1003... Inserts



Designation	DC	DCX_2	DC_2	DCONMS	APMX	APMX_2	CICT(1)	OAL	OAL_2	LH	LU
HM90 E90A-D18-2-C16	18.00	18.10	9.00	16.00	9.80	1.00	2	90.00	89.63	26.0	-
HM90 E90A-D18-2-C16-C	18.00	18.10	9.00	16.00	9.80	1.00	2	90.00	89.63	26.0	-
HM90 E90A-D18-2-W20	18.00	18.10	9.00	20.00	9.80	1.00	2	90.00	89.63	30.0	26.4
HM90 E90A-D18-2-W20-C	18.00	18.10	9.00	20.00	9.80	1.00	2	90.00	89.63	30.0	26.4
HM90 E90A-D19-2-C20	19.00	19.10	10.00	20.00	9.80	1.00	2	90.00	89.63	26.0	25.0
HM90 E90A-D20-2-C19-B	20.00	20.10	11.00	19.00	9.80	1.00	2	160.00	159.63	25.0	-
HM90 E90A-D20-2-C19-B-C	20.00	20.10	11.00	19.00	9.80	1.00	2	160.00	159.63	25.0	-
HM90 E90A-D20-2-C20	20.00	20.10	11.00	20.00	9.80	1.00	2	110.00	109.63	26.0	25.3
HM90 E90A-D20-2-C20-B	20.00	20.10	11.00	20.00	9.80	1.00	2	160.00	159.63	40.0	38.0
HM90 E90A-D20-2-C20-B-C	20.00	20.10	11.00	20.00	9.80	1.00	2	160.00	159.63	40.0	38.0
HM90 E90A-D20-2-C20-C	20.00	20.10	11.00	20.00	9.80	1.00	2	110.00	109.63	26.0	25.3
HM90 E90A-D20-2-C20-LB	20.00	20.10	11.00	20.00	9.80	1.00	2	200.00	199.63	40.0	38.0
HM90 E90A-D20-2-C20-XL	20.00	20.10	11.00	20.00	9.80	1.00	2	130.00	129.63	60.0	59.0
HM90 E90A-D20-2-W20	20.00	20.10	11.00	20.00	9.80	1.00	2	90.00	89.63	26.1	25.0
HM90 E90A-D20-2-W20-XL	20.00	20.10	11.00	20.00	9.80	1.00	2	130.00	129.63	60.0	59.0
HM90 E90A-D20-3-C20	20.00	20.10	11.00	20.00	9.80	1.00	3	110.00	109.63	26.1	25.0
HM90 E90A-D20-3-C20-C	20.00	20.10	11.00	20.00	9.80	1.00	3	110.00	109.63	26.1	25.0
HM90 E90A-D20-3-W16	20.00	20.10	11.00	16.00	9.80	1.00	3	85.00	84.63	26.1	-
HM90 E90A-D20-3-W16-C	20.00	20.10	11.00	16.00	9.80	1.00	3	85.00	84.63	26.1	-
HM90 E90A-D20-3-W20	20.00	20.10	11.00	20.00	9.80	1.00	3	90.00	89.63	26.1	25.0
HM90 E90A-D20-3-W20-C	20.00	20.10	11.00	20.00	9.80	1.00	3	90.00	89.63	26.1	25.0

Designation	RMPX°(2)	RMPX°_2	MDN	MDX	Shank(3)	CSP(4)	RPMX(5)	MIID(6)	MIID_2(7)	kg
HM90 E90A-D18-2-C16	7.5	7.5	27.10	35.20	C	0	60361	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.13
HM90 E90A-D18-2-C16-C	7.5	7.5	27.10	35.20	C	1	60361	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.12
HM90 E90A-D18-2-W20	7.5	7.5	27.10	35.20	W	0	60361	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.18
HM90 E90A-D18-2-W20-C	7.5	7.5	27.10	35.20	W	1	60361	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.17
HM90 E90A-D19-2-C20	7.5	7.5	29.10	37.20	C	0	57727	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.19
HM90 E90A-D20-2-C19-B	7.5	7.5	31.10	39.20	C	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.33
HM90 E90A-D20-2-C19-B-C	7.5	7.5	31.10	39.20	C	1	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.30
HM90 E90A-D20-2-C20	7.5	7.5	31.10	39.20	C	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.24
HM90 E90A-D20-2-C20-B	7.5	7.5	31.10	39.20	C	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.36
HM90 E90A-D20-2-C20-B-C	7.5	7.5	31.10	39.20	C	1	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.33
HM90 E90A-D20-2-C20-C	7.5	7.5	31.10	39.20	C	1	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.22
HM90 E90A-D20-2-C20-LB	7.5	7.5	31.10	39.20	C	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.46
HM90 E90A-D20-2-C20-XL	7.5	7.5	31.10	39.20	C	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.27
HM90 E90A-D20-2-W20	7.5	7.5	31.10	39.20	W	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.19
HM90 E90A-D20-2-W20-XL	7.5	7.5	31.10	39.20	W	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.27
HM90 E90A-D20-3-C20	7.5	7.5	31.10	39.20	C	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.24
HM90 E90A-D20-3-C20-C	7.5	7.5	31.10	39.20	C	1	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.22
HM90 E90A-D20-3-W16	7.5	7.5	31.10	39.20	W	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.13
HM90 E90A-D20-3-W16-C	7.5	7.5	31.10	39.20	W	1	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.12
HM90 E90A-D20-3-W20	7.5	7.5	31.10	39.20	W	0	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.19
HM90 E90A-D20-3-W20-C	7.5	7.5	31.10	39.20	W	1	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.18

• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

(4) 0 - Without coolant supply, 1 - With coolant supply

(5) Maximum RPM

(6) Master insert identification

(7) Master insert identification 2

For inserts, see pages: APCR 1003PDFR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519) • APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518) • APKW 100304 PDR (PCD) (516) • HM90 APCR 100304PDFR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515) • HM90 APKT 1003PD-W (520) • HM90 APKW 1003PDR (519)

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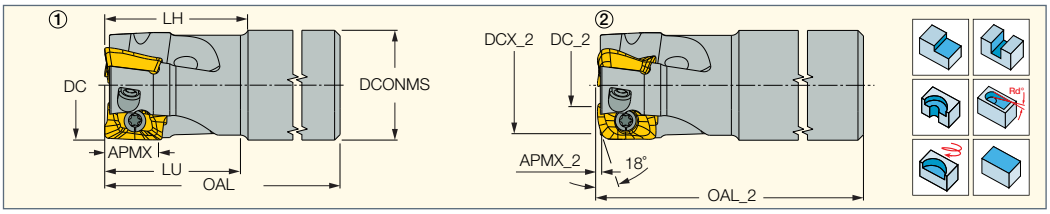
HELI2000

HM90 E90A-10
Endmills Carrying HM90
AP.. 1003... Inserts



Designation	DC	DCX_2	DC_2	DCONMS	APMX	APMX_2	CICT(1)	OAL	OAL_2	LH	LU
HM90 E90A-D20-2-W20-C	20.00	-	-	20.00	9.80	-	2	90.00	-	26.1	25.0
HM90 E90A-D21-2-C20-L270	21.00	21.10	12.00	20.00	9.80	1.00	2	270.00	269.63	26.0	-
HM90 E90A-D21-3-C20	21.00	21.10	12.00	20.00	9.80	1.00	3	115.00	114.63	26.0	25.0
HM90 E90A-D22-3-C20	22.00	22.10	13.00	20.00	9.80	1.00	3	115.00	114.63	26.0	-
HM90 E90A-D22-3-C20-C	22.00	22.10	13.00	20.00	9.80	1.00	3	115.00	114.63	26.0	-
HM90 E90A-D22-3-W25	22.00	22.10	13.00	25.00	9.80	1.00	3	95.00	94.63	26.0	21.0
HM90 E90A-D22-3-W25-C	22.00	22.10	13.00	25.00	9.80	1.00	3	95.00	94.63	26.0	21.0
HM90 E90A-D25-3-C24-B	25.00	25.10	16.00	24.00	9.80	1.00	3	200.00	199.63	25.0	-
HM90 E90A-D25-3-C24-B-C	25.00	25.10	16.00	24.00	9.80	1.00	3	200.00	199.63	25.0	24.0
HM90 E90A-D25-3-C25	25.00	25.10	16.00	25.00	9.80	1.00	3	120.00	119.63	26.1	25.0
HM90 E90A-D25-3-C25-B	25.00	25.10	16.00	25.00	9.80	1.00	3	200.00	199.63	40.0	37.0
HM90 E90A-D25-3-C25-B-C	25.00	25.10	16.00	25.00	9.80	1.00	3	200.00	199.63	40.0	37.0
HM90 E90A-D25-3-C25-C	25.00	25.10	16.00	25.00	9.80	1.00	3	120.00	119.63	26.1	25.0
HM90 E90A-D25-3-W25	25.00	25.10	16.00	25.00	9.80	1.00	3	95.00	94.63	26.1	25.0
HM90 E90A-D25-3-W25-C	25.00	25.10	16.00	25.00	9.80	1.00	3	95.00	94.63	26.1	25.0
HM90 E90A-D25-3-W25-XL	25.00	25.10	16.00	25.00	9.80	1.00	3	140.00	139.63	80.0	79.0
HM90 E90A-D25-4-C25	25.00	25.10	16.00	25.00	9.80	1.00	4	120.00	119.63	26.0	25.0
HM90 E90A-D25-4-C25-C	25.00	25.10	16.00	25.00	9.80	1.00	4	120.00	120.00	26.0	25.0
HM90 E90A-D25-4-W25	25.00	25.10	16.00	25.00	9.80	1.00	4	95.00	94.63	26.0	25.0
HM90 E90A-D25-4-W25-C	25.00	25.10	16.00	25.00	9.80	1.00	4	95.00	94.63	26.0	25.0
HM90 E90A-D25-2-C25	25.00	-	-	25.00	9.80	-	2	120.00	120.00	26.1	25.0
HM90 E90A-D25-2-W25	25.00	-	-	25.00	9.80	-	2	95.00	95.00	26.1	25.0

Designation	RMPX°(2)	RMPX°_2	MDN	MDX	Shank(3)	CSP(4)	RPMX(5)	MIID(6)	MIID_2(7)	kg
HM90 E90A-D20-2-W20-C	7.5	-	-	-	W	1	55578	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.18
HM90 E90A-D21-2-C20-L270	2.8	2.8	33.10	41.20	C	0	53729	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.64
HM90 E90A-D21-3-C20	7.5	2.8	33.10	41.20	C	0	53729	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.26
HM90 E90A-D22-3-C20	7.5	7.5	35.10	43.20	C	0	51846	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.26
HM90 E90A-D22-3-C20-C	7.5	7.5	35.10	43.20	C	1	51846	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.25
HM90 E90A-D22-3-W25	7.5	7.5	35.10	43.20	W	0	51846	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.31
HM90 E90A-D22-3-W25-C	7.5	7.5	35.10	43.20	W	1	51846	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.29
HM90 E90A-D25-3-C24-B	2.5	2.5	41.10	49.20	C	0	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.67
HM90 E90A-D25-3-C24-B-C	2.5	2.5	41.10	49.20	C	1	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.64
HM90 E90A-D25-3-C25	2.5	2.5	41.10	49.20	C	0	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.42
HM90 E90A-D25-3-C25-B	2.5	2.5	41.10	49.20	C	0	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.72
HM90 E90A-D25-3-C25-B-C	2.5	2.5	41.10	49.20	C	1	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.68
HM90 E90A-D25-3-C25-C	2.5	2.5	41.10	49.20	C	1	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.39
HM90 E90A-D25-3-W25	2.5	2.5	41.10	49.20	W	0	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.32
HM90 E90A-D25-3-W25-C	2.5	2.5	41.10	49.20	W	1	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.30
HM90 E90A-D25-3-W25-XL	2.5	2.5	41.10	49.20	W	0	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.47
HM90 E90A-D25-4-C25	2.5	2.5	41.10	49.20	C	0	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.42
HM90 E90A-D25-4-C25-C	2.5	2.5	41.10	49.20	C	1	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.39
HM90 E90A-D25-4-W25	2.5	2.5	41.10	49.20	W	0	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.31
HM90 E90A-D25-4-W25-C	2.5	2.5	41.10	49.20	W	1	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.30
HM90 E90A-D25-2-C25	2.5	-	-	-	C	0	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.42
HM90 E90A-D25-2-W25	2.5	-	-	-	W	0	47512	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.32

• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

(4) 0 - Without coolant supply, 1 - With coolant supply

(5) Maximum RPM

(6) Master insert identification

(7) Master insert identification 2

For inserts, see pages: APCR 1003PDFR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519) • APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518) • APKW 100304 PDR (PCD) (516) • HM90 APCR 100304PDFR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515) • HM90 APKT 1003PD-W (520) • HM90 APKW 1003PDR (519)

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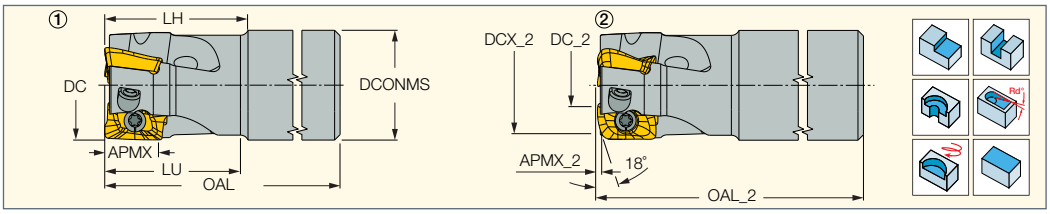
HELI2000

HM90 E90A-10
Endmills Carrying HM90
AP.. 1003... Inserts



Designation	DC	DCX_2	DC_2	DCONMS	APMX	APMX_2	CICT(1)	OAL	OAL_2	LH	LU
HM90 E90A-D28-4-C25	28.00	28.10	19.00	25.00	9.80	1.00	4	120.00	119.63	26.0	-
HM90 E90A-D28-4-C25-C	28.00	28.10	19.00	25.00	9.80	1.00	4	120.00	119.63	26.0	-
HM90 E90A-D28-4-W25	28.00	28.10	19.00	25.00	9.80	1.00	4	95.00	94.63	26.0	-
HM90 E90A-D30-4-C32	30.00	30.10	21.00	32.00	9.80	1.00	4	130.00	129.63	40.0	35.4
HM90 E90A-D30-4-W25	30.00	30.10	21.00	25.00	9.80	1.00	4	95.00	94.63	30.0	-
HM90 E90A-D30-4-W25-C	30.00	30.10	21.00	25.00	9.80	1.00	4	95.00	94.63	30.0	-
HM90 E90A-D32-3-C32	32.00	32.10	23.00	32.00	9.80	1.00	3	130.00	129.63	30.0	28.5
HM90 E90A-D32-3-W32	32.00	32.10	23.00	32.00	9.80	1.00	3	110.00	109.63	30.0	28.5
HM90 E90A-D32-4-C32	32.00	32.10	23.00	32.00	9.80	1.00	4	130.00	129.63	30.0	28.5
HM90 E90A-D32-4-C32-B	32.00	32.10	23.00	32.00	9.80	1.00	4	200.00	199.63	40.0	37.2
HM90 E90A-D32-4-C32-LB	32.00	32.10	23.00	32.00	9.80	1.00	4	250.00	249.63	40.0	37.2
HM90 E90A-D32-4-W25	32.00	32.10	23.00	25.00	9.80	1.00	4	95.00	94.63	30.0	-
HM90 E90A-D32-4-W32-XL	32.00	32.10	23.00	32.00	9.80	1.00	4	160.00	159.63	100.0	28.5
HM90 E90A-D32-5-C32	32.00	32.10	23.00	32.00	9.80	1.00	5	130.00	129.63	30.0	28.5
HM90 E90A-D32-5-C32-C	32.00	32.10	23.00	32.00	9.80	1.00	5	130.00	129.63	30.0	28.5
HM90 E90A-D32-5-W25	32.00	32.10	23.00	25.00	9.80	1.00	5	95.00	94.63	30.0	-
HM90 E90A-D32-5-W25-C	32.00	32.10	23.00	25.00	9.80	1.00	5	95.00	94.63	30.0	-
HM90 E90A-D32-5-W32-C	32.00	32.10	23.00	32.00	9.80	1.00	5	110.00	109.63	30.0	28.5
HM90 E90A-D40-5-C32	40.00	40.10	31.00	32.00	9.80	1.00	5	130.00	129.63	30.0	-
HM90 E90A-D40-5-W32-C	40.00	40.10	31.00	32.00	9.80	1.00	5	110.00	109.63	30.0	-
HM90 E90A-D50-7-C32	50.00	-	-	32.00	9.80	-	7	130.00	130.00	41.6	-

Designation	RMPX°(2)	RMPX°_2	MDN	MDX	Shank(3)	CSP(4)	RPMX(5)	MIID(6)	MIID_2(7)	kg
HM90 E90A-D28-4-C25	2.0	2.0	47.10	55.20	C	0	44005	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.44
HM90 E90A-D28-4-C25-C	2.0	2.0	47.10	55.20	C	1	44005	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.41
HM90 E90A-D28-4-W25	2.0	2.0	47.10	55.20	W	0	44005	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.33
HM90 E90A-D30-4-C32	2.0	2.0	51.10	59.20	C	0	36782	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.72
HM90 E90A-D30-4-W25	2.0	2.0	51.10	59.20	W	0	36782	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.35
HM90 E90A-D30-4-W25-C	2.0	2.0	51.10	59.20	W	1	36782	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.33
HM90 E90A-D32-3-C32	3.0	3.0	55.10	63.20	C	0	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.76
HM90 E90A-D32-3-W32	3.0	3.0	55.10	63.20	W	0	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.63
HM90 E90A-D32-4-C32	3.0	3.0	55.10	63.20	C	0	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.75
HM90 E90A-D32-4-C32-B	3.0	3.0	55.10	63.20	C	0	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	1.18
HM90 E90A-D32-4-C32-LB	3.0	3.0	55.10	63.20	C	0	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	1.50
HM90 E90A-D32-4-W25	3.0	3.0	55.10	63.20	W	0	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.37
HM90 E90A-D32-4-W32-XL	3.0	3.0	55.10	63.20	W	0	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.87
HM90 E90A-D32-5-C32	3.0	3.0	55.10	63.20	C	0	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.75
HM90 E90A-D32-5-C32-C	3.0	3.0	55.10	63.20	C	1	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.72
HM90 E90A-D32-5-W25	3.0	3.0	55.10	63.20	W	0	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.37
HM90 E90A-D32-5-W25-C	3.0	3.0	55.10	63.20	W	1	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.35
HM90 E90A-D32-5-W32-C	3.0	3.0	55.10	63.20	W	1	35614	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.60
HM90 E90A-D40-5-C32	2.7	2.7	71.10	79.20	C	0	31855	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.83
HM90 E90A-D40-5-W32-C	2.7	2.7	71.10	79.20	W	1	31855	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.68
HM90 E90A-D50-7-C32	2.7	-	-	-	C	0	28492	HM90 APKT 1003 PDR	APKT 1003R8T-FF	0.94

• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

(4) 0 - Without coolant supply, 1 - With coolant supply

(5) Maximum RPM

(6) Master insert identification

(7) Master insert identification 2

For inserts, see pages: APCR 1003PDFR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519) • APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518) • APKW 100304 PDR (PCD) (516) • HM90 APCR 100304PDFR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515) • HM90 APKT 1003PD-W (520) • HM90 APKW 1003PDR (519)

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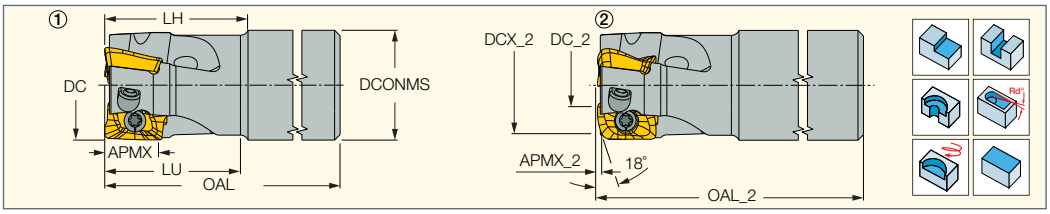
HELI2000

HM90 E90A-10
Endmills Carrying HM90
AP.. 1003... Inserts



Spare Parts

Designation				
HM90 E90A-D10-1-C10	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D10-1-C10-C	SR 34-505/HG	T-8/53		
HM90 E90A-D10-1-C16-LB	SR 34-505/HG	T-8/53		
HM90 E90A-D10-1-W16	SR 34-505/HG	T-8/53		
HM90 E90A-D12-1-C16	SR 34-505/HG	T-8/53		
HM90 E90A-D12-1-C16-LB	SR 34-505/HG	T-8/53		
HM90 E90A-D12-1-W16	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D12-1-W16-C	SR 34-505/HG	T-8/53		
HM90 E90A-D12-1-C16-C	SR 34-505/HG	T-8/53		
HM90 E90A-D14-1-C16	SR 34-505/HG	T-8/53		
HM90 E90A-D14-1-W16	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D16-2-C15-B	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D16-2-C15-B-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D16-2-C16	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D16-2-C16-B	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D16-2-C16-B-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D16-2-C16-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D16-2-C16-LB	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D16-2-W16	SR 34-505/HG	T-8/53		
HM90 E90A-D16-2-W16-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D17-2-C16	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D17-2-C16-L170	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D18-2-C16	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D18-2-C16-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D18-2-W20	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D18-2-W20-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D19-2-C20	SR 34-505/HG	T-8/53		
HM90 E90A-D20-2-C19-B	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-C19-B-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-C20	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-C20-B	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-C20-B-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-C20-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-C20-LB	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-C20-XL	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-W20	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-W20-XL	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-3-C20	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-3-C20-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-3-W16	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-3-W16-C	SR 34-505/HG	T-8/53		
HM90 E90A-D20-3-W20	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-3-W20-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D20-2-W20-C	SR 34-505/HG	T-8/53		
HM90 E90A-D21-2-C20-L270	SR 34-505/HG	T-8/53		
HM90 E90A-D21-3-C20	SR 34-505/HG	T-8/53		
HM90 E90A-D22-3-C20	SR 34-505/HG	T-8/53		
HM90 E90A-D22-3-C20-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D22-3-W25	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D22-3-W25-C	SR 34-505/HG	T-8/53		
HM90 E90A-D25-3-C24-B	SR 34-505/HG	T-8/53		
HM90 E90A-D25-3-C24-B-C	SR 34-505/HG	T-8/53	BLD T08/M7	SW4-SD
HM90 E90A-D25-3-C25	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-3-C25-B	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-3-C25-B-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-3-C25-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-3-W25	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-3-W25-C	SR 34-505/HG	T-8/53	BLD T08/M7	SW4-SD
HM90 E90A-D25-3-W25-XL	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-4-C25	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-4-C25-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-4-W25	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-4-W25-C	SR 34-505/HG		BLD T08/M7	SW4-SD

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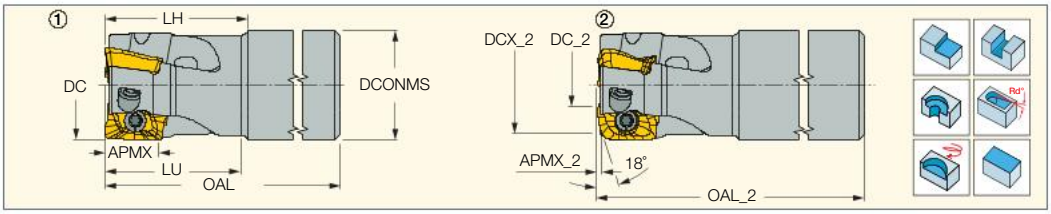
HELI2000

HM90 E90A-10
Endmills Carrying HM90
AP.. 1003... Inserts

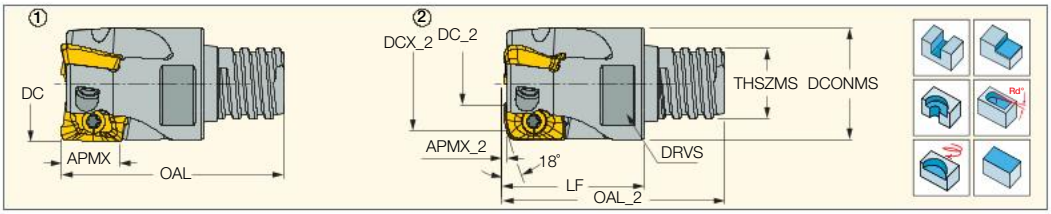


Spare Parts

Designation				
HM90 E90A-D25-2-C25	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D25-2-W25	SR 34-505/HG	T-8/53		
HM90 E90A-D28-4-C25	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D28-4-C25-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D28-4-W25	SR 34-505/HG	T-8/53		
HM90 E90A-D30-4-C32	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D30-4-W25	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D30-4-W25-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D32-3-C32	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D32-3-W32	SR 34-505/HG	T-8/53		
HM90 E90A-D32-4-C32	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D32-4-C32-B	SR 34-505/HG	T-8/53		
HM90 E90A-D32-4-C32-LB	SR 34-505/HG	T-8/53		
HM90 E90A-D32-4-W25	SR 34-505/HG	T-8/53		
HM90 E90A-D32-4-W32-XL	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D32-5-C32	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D32-5-C32-C	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D32-5-W25	SR 34-505/HG		BLD T08/M7	SW4-SD
HM90 E90A-D32-5-W25-C	SR 34-505/HG	T-8/53		
HM90 E90A-D32-5-W32-C	SR 34-505/HG	T-8/53		
HM90 E90A-D40-5-C32	SR 34-505/HG	T-8/53		
HM90 E90A-D40-5-W32-C	SR 34-505/HG	T-8/53		
HM90 E90A-D50-7-C32	SR 34-505/HG		BLD T08/M7	SW4-SD

HELI2000

HM90 E90A-MM-10
90° Endmills with a
MULTI-MASTER Threaded
Adaptation Carrying HM90
AP.. 1003... Inserts



Designation	DC	DC_2	DCX_2	CICT(1)	APMX	APMX_2	OAL	OAL_2	RMPX°(2)	RMPX°_2	LF	THSZMS	DRVS(3)
HM90 E90A-D16-2-MMT10	16.00	7.00	16.10	2	9.80	1.00	34.75	34.38	15.0	15.0	23.00	T10	13.0
HM90 E90A-D20-2-MMT12	20.00	11.00	20.10	2	9.80	1.00	38.30	37.93	7.5	7.5	24.60	T12	16.0
HM90 E90A-D20-3-MMT12	20.00	11.00	20.10	3	9.80	1.00	38.30	37.93	7.5	7.5	24.60	T12	16.0

Designation	MDN	MDX	RPMX(4)	DCONMS	kg	MIID(5)'	MIID_2(6)		
HM90 E90A-D16-2-MMT10	23.10	31.20	66712	15.30	0.03	APKT 1003PDR-HM	APKT 1003R8T-FF	SR 34-505/HG	
HM90 E90A-D20-2-MMT12	31.10	39.20	55578	19.20	0.05	APKT 1003PDR-HM	APKT 1003R8T-FF	SR 34-505/HG	T-8/53
HM90 E90A-D20-3-MMT12	31.10	39.20	55578	19.20	0.05	APKT 1003PDR-HM	APKT 1003R8T-FF	SR 34-505/HG	

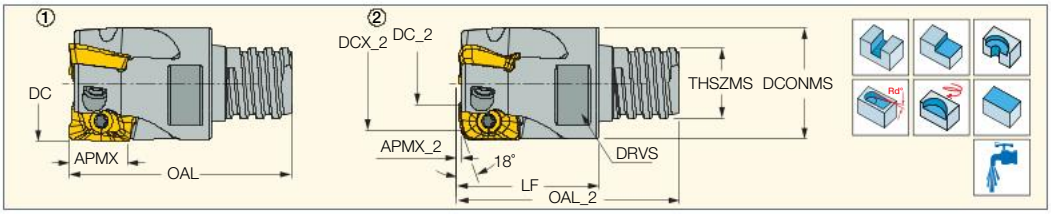
• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-622 • Do not apply lubricant to the MULTI-MASTER threaded connection
• For adaptation see page 59

(1) Number of inserts (or edges for solid tool)
(2) Maximum ramping angle
(3) Clamping wrench size
(4) The maximum cutting speed (RPM) for the cutting head assembled on the shank should be the lower parameter (RPMX) of either the cutting head or the shank
(5) Master insert identification
(6) Master insert identification 2

For inserts, see pages: APCR 1003PDFR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519)
• APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518)
• HM90 APCR 100304PDFR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515) • HM90 APKT 1003PD-W (520) • HM90 APKW 1003PDR (519)
For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104)
• MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108)
• MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)(6) Master insert identification 2

HELI2000 JET LINE

HM90 E90A-MM-10-JHP
90° JHP Endmills with a MULTI-MASTER Threaded Adaptation Carrying HELI-2000 and HELI-MILL Inserts



Designation	DC	DC_2	DCX_2	CICT[1]	APMX	APMX_2	OAL	OAL_2	RMPX°[2]	RMPX°_2	MDN	MDX
HM90 E90A D16-2-MMT10-JHP	16.00	7.00	16.10	2	9.80	1.00	34.80	35.17	15.0	15.0	23.10	31.20
HM90 E90A D20-3-MMT12-JHP	20.00	11.00	20.10	3	9.80	1.00	38.50	38.87	7.5	7.5	31.10	39.20
HM90 E90A D25-4-MMT15-JHP	25.00	16.00	25.10	4	9.80	1.00	47.00	47.37	7.5	7.5	41.10	49.20
HM90 E90A D32-5-MMT21-JHP	32.00	23.00	32.10	5	9.80	1.00	57.95	58.32	3.0	3.0	55.10	63.20

Designation	LF	DCONMS	THSZMS	RPMX[3]	DRVS[4]	TQ_3[5]	kg	MIID[6]	MIID_2[7]
HM90 E90A D16-2-MMT10-JHP	23.40	15.60	T10	66710	13.0	28	0.10	APKT 1003PDR-HM	APKT 1003R8T-FF
HM90 E90A D20-3-MMT12-JHP	25.50	19.70	T12	55575	16.0	28	0.15	APKT 1003PDR-HM	APKT 1003R8T-FF
HM90 E90A D25-4-MMT15-JHP	30.00	24.70	T15	47510	20.0	40	0.05	APKT 1003PDR-HM	APKT 1003R8T-FF
HM90 E90A D32-5-MMT21-JHP	34.85	30.10	T21	35610	24.0	110	0.20	APKT 1003PDR-HM	APKT 1003R8T-FF

• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-622 • Do not apply lubricant to the MULTI-MASTER threaded connection
• For adaptation see page 59
[1] Number of inserts (or edges for solid tool)
[2] Maximum ramping angle
[3] The maximum cutting speed (RPM) for the cutting head assembled on the shank should be the lower parameter (RPMX) of either the cutting head or the shank
[4] Torque key size
[5] Tool tightening torque Nxm (lbfxin)
[6] Master insert identification
[7] Master insert identification 2

For inserts, see pages: APCR 1003PDFR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519) • APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518) • APKW 100304 PDR (PCD) (516) • HM90 APCR 100304PDFR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515) • HM90 APKT 1003PD-W (520) • HM90 APKW 1003PDR (519)

For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

Spare Parts

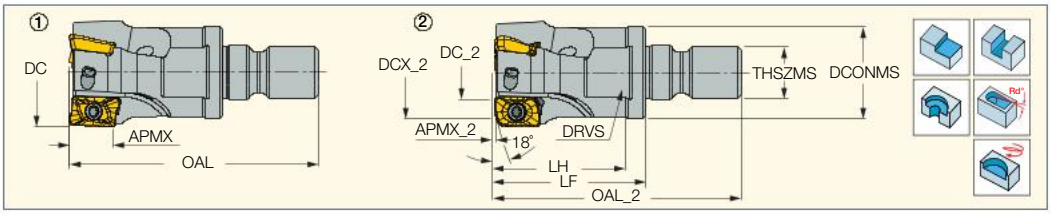
Designation				
HM90 E90A-MM-10-JHP	SR 34-505/HG	SR 34-505/HG[a]	BLD T08/M7	SW4-SD

[a] Recommended tightening torque for this item: 1.2 Nxm

HELI2000

HM90 E90A-M-10

90° Endmills with a FLEX-FIT Threaded Adaptation Carrying HM90 AP.. 1003... Inserts



Designation	DC	DC_2	DCX_2	CICT(1)	DCONMS	THSZMS	LH	LF	OAL	AL_2	APMX	APMX_2	RMPX°(2)	RMPX°_2
HM90 E90A-D16-2-M08	16.00	7.00	16.10	2	14.75	M08	24.0	30.00	47.50	47.13	9.80	1.00	15.0	15.0
HM90 E90A-D20-3-M10	20.00	11.00	20.10	3	18.00	M10	30.0	30.00	50.00	49.63	9.80	1.00	7.5	7.5
HM90 E90A-D20-3-M12	20.00	11.00	20.10	3	21.00	M12	24.0	30.00	52.00	51.63	9.80	1.00	7.5	7.5
HM90 E90A-D25-3-M12	25.00	16.00	25.10	3	21.00	M12	35.0	35.00	57.00	56.63	9.80	1.00	2.5	2.5
HM90 E90A-D25-4-M12	25.00	16.00	25.10	4	21.00	M12	35.0	35.00	57.00	56.63	9.80	1.00	2.5	2.5
HM90 E90A-D32-4-M16	32.00	23.00	32.10	4	29.00	M16	35.0	35.00	60.00	59.63	9.80	1.00	3.0	3.0

Designation	MDN	MDX	CSP(3)	DRVS(4)	TQ_3(5)	RPMX(6)	MIID(7)	MIID_2(8)	kg
HM90 E90A-D16-2-M08	23.10	31.20	0	9.6	20	66712	APKT 1003PDR-HM	APKT 1003R8T-FF	0.03
HM90 E90A-D20-3-M10	31.10	39.20	1	15.1	29	55578	APKT 1003PDR-HM	APKT 1003R8T-FF	0.05
HM90 E90A-D20-3-M12	31.10	39.20	1	17.1	33	55578	APKT 1003PDR-HM	APKT 1003R8T-FF	0.06
HM90 E90A-D25-3-M12	41.10	49.20	1	17.1	33	47512	APKT 1003PDR-HM	APKT 1003R8T-FF	0.08
HM90 E90A-D25-4-M12	41.10	49.20	1	17.1	33	47512	APKT 1003PDR-HM	APKT 1003R8T-FF	0.08
HM90 E90A-D32-4-M16	55.10	63.20	1	25.1	40	35614	APKT 1003PDR-HM	APKT 1003R8T-FF	0.16

• 1- with standard square insert • 2- with FF (fast feed) insert • For adaptation,see page 59 • For user guide see pages 616-622

• When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Number of inserts (or edges for solid tool)

(2) Maximum ramping angle

(3) 0 - Without coolant supply, 1 - With coolant supply

(4) Torque key size

(5) Tool tightening torque Nxm (lbfxin)

(6) Maximum RPM

(7) Master insert identification

(8) Master insert identification 2

For inserts, see pages: APCR 1003PDFR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519) • APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518) • APKW 100304 PDR (PCD) (516) • HM90 APCR 100304PDFR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515) • HM90 APKT 1003PD-W (520) • HM90 APKW 1003PDR (519)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

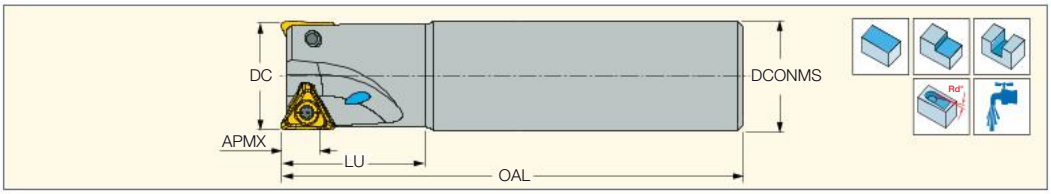
Spare Parts

Designation			
HM90 E90A-M-10	SR 34-505/HG	SW4-SD	BLD T08/M7

HELIDO 690 LINE

H690 E90AX-10

90° Endmills Carrying H690 TNKX 1005..Triangular Inserts with 6 Helical Cutting Edges



Designation	DC	CICT(1)	APMX	OAL	LU	DCONMS	Shank(2)	RMPX°(3)	kg			
H690 E90AX D20-2-C20-10	20.00	2	8.00	110.00	26.0	20.00	C	2.8	0.23	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D20-2-W20-10	20.00	2	8.00	90.00	26.0	20.00	W	2.8	0.18	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D20-3-C20-10	20.00	3	8.00	110.00	26.0	20.00	C	2.8	0.23	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D20-3-W20-10	20.00	3	8.00	90.00	26.0	20.00	W	2.8	0.18	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D25-3-C25-10	25.00	3	8.00	120.00	26.0	25.00	C	2.6	0.39	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D25-3-W25-10	25.00	3	8.00	95.00	26.0	25.00	W	2.6	0.29	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D25-4-C25-10	25.00	4	8.00	120.00	26.0	25.00	C	2.6	0.39	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D25-4-W25-10	25.00	4	8.00	95.00	26.0	25.00	W	2.6	0.30	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D32-4-C32-10	32.00	4	8.00	130.00	30.0	32.00	C	1.6	0.72	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D32-4-W32-10	32.00	4	8.00	110.00	30.0	32.00	W	1.6	0.60	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D32-5-C32-10	32.00	5	8.00	130.00	30.0	32.00	C	1.6	0.71	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D32-5-W32-10	32.00	5	8.00	110.00	30.0	32.00	W	1.6	0.59	SR 10508082-HG	BLD T08/M7	SW4-SD
H690 E90AX D40-5-W32-10	40.00	5	8.00	110.00	38.0	32.00	W	1.1	0.63	SR 10508082-HG	BLD T08/M7	SW4-SD

• For user guide see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) C-Cylindrical, W-Weldon

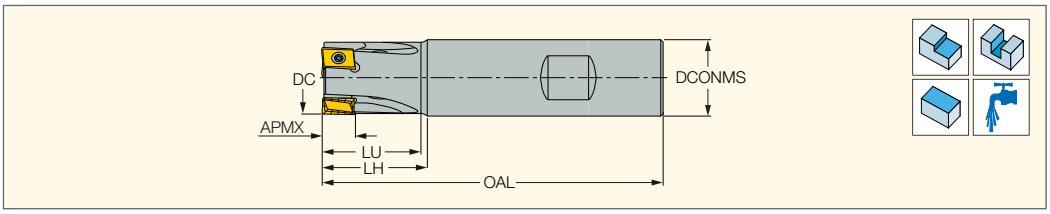
(3) Maximum ramping angle

For inserts, see pages: H690 TNKX/TNCX 1005 (540)

HELITANG T490 LINE

T490 ELN-11

90° Endmills Carrying T490 LN#T 11... Tangentially Clamped Inserts



Designation	DC	CICT[2]	LH	LU	APMX	OAL	DCONMS	Shank[3]	RMPX°[4]	kg			
T490 ELN D22-2-W25-11	22.00	2	35.0	33.0	9.00	95.00	25.00	W	-	0.29	SR 34-535-SN/L9.3	BLD T15/S7[a]	SW6-SD
T490 ELN D25-3-C24-11B [1]	25.00	3	35.0	33.0	9.00	200.00	24.00	C	1.7	0.64	SR 34-535/L9.5-SN	BLD T15/S7[a]	SW6-SD
T490 ELN D25-3-C25-11	25.00	3	35.0	33.0	9.00	120.00	25.00	C	1.7	0.40	SR 34-535/L9.5-SN	BLD T15/S7[a]	SW6-SD
T490 ELN D25-3-W25-11	25.00	3	35.0	33.0	9.00	95.00	25.00	W	1.7	0.30	SR 34-535/L9.5-SN	BLD T15/S7[a]	SW6-SD
T490 ELN D32-3-C32-11	32.00	3	40.0	38.0	9.00	130.00	32.00	C	1.5	0.73	SR 34-535-SN	BLD T15/S7[a]	SW6-SD
T490 ELN D32-3-C32-11B [1]	32.00	3	40.0	38.0	9.00	200.00	32.00	C	1.5	1.16	SR 34-535-SN	BLD T15/S7[a]	SW6-SD
T490 ELN D32-3-W32-11	32.00	3	40.0	38.0	9.00	110.00	32.00	W	1.5	0.60	SR 34-535-SN	BLD T15/S7[a]	SW6-SD
T490 ELN D32-4-C32-11	32.00	4	40.0	38.0	9.00	130.00	32.00	C	1.5	0.73	SR 34-535-SN	BLD T15/S7[a]	SW6-SD
T490 ELN D32-4-W32-11	32.00	4	40.0	38.0	9.00	110.00	32.00	W	1.5	0.60	SR 34-535-SN	BLD T15/S7[a]	SW6-SD
T490 ELN D40-4-C32-11	40.00	4	44.0	38.0	9.00	130.00	32.00	C	1.4	0.84	SR 34-535-SN	BLD T15/S7[a]	SW6-SD
T490 ELN D40-4-W32-11	40.00	4	44.0	38.0	9.00	115.00	32.00	W	1.4	0.75	SR 34-535-SN	BLD T15/S7[a]	SW6-SD
T490 ELN D40-5-C32-11	40.00	5	44.0	38.0	9.00	130.00	32.00	C	1.4	0.83	SR 34-535-SN	BLD T15/S7[a]	SW6-SD

- Important: Maximum clamping torque 3.2 N*m

[1] Long cylindrical shank

[2] Number of inserts (or edges for solid tool)

[3] C-Cylindrical, W-Weldon

[4] Maximum ramping angle - valid only with T490 LNHT 1106PNTR-RD insert

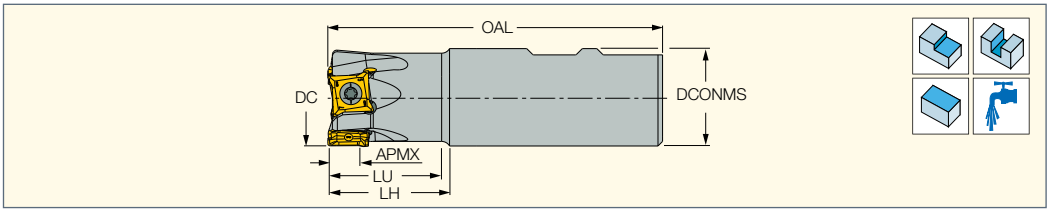
[a] Recommended key handle for limiting torque to 3.2 N*m for this item is HSD 4-3.2NM (to be used with BLD 4 T15-4.8 blade)

For inserts, see pages: T490 LNMT/LNHT 1106 (545)

LOGIQ8TANG T890 MILLING LINE

T890HT ELN-R13

90° Endmills Carrying T890 LNT 1306... Tangentially Clamped Inserts with 8 Cutting Edges



Designation	DC	APMX	CICT[1]	DCONMS	Shank[2]	LU	LH	OAL	kg
T890HT ELN D32-3-C32-13	32.00	9.50	3	32.00	C	37.40	40.0	130.00	0.68
T890HT ELN D32-3-C32-13B	32.00	9.50	3	32.00	C	47.40	50.0	250.00	1.43
T890HT ELN D32-3-W32-13	32.00	9.50	3	32.00	W	37.40	40.0	110.00	0.56
T890HT ELN D40-4-C32-13	40.00	9.50	4	32.00	C	-	44.0	130.00	0.12
T890HT ELN D40-4-W32-13	40.00	9.50	4	32.00	W	-	40.0	115.00	0.69

[1] Number of inserts (or edges for solid tool)

[2] C-Cylindrical, W-Weldon

For inserts, see pages: T890 LN.. 1306 (543)

Spare Parts

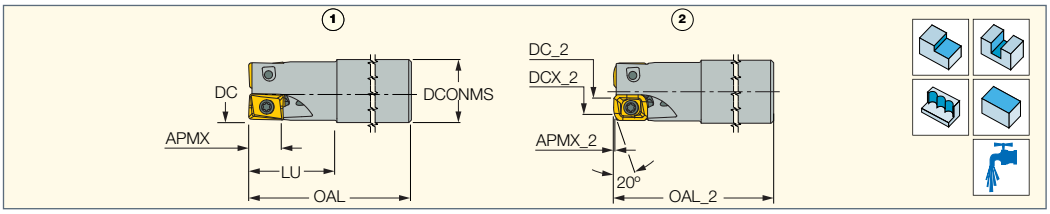
Designation			
T890HT ELN-R13	SR 10513105[a]	BLD IP20/M7	SW6-T-SH

[a] Recommended tightening torque: 8.0 N*m (71.0 lbf*in)

HELIDO 490 LINE

H490 E90AX-12

90° Endmills Carrying H490 ANKX 12...Double-Sided Rectangular Inserts with 4 Helical Cutting Edges



Designation	DC	DCX_2	DC_2	CICT(1)	APMX	APMX_2	AE (2)	OAL	OAL_2	LU
H490 E90AX D25-2-C25-12	25.00	25.50	15.20	2	12.00	1.40	8.5	110.00	109.77	35.0
H490 E90AX D25-2-W25-12	25.00	25.50	15.20	2	12.00	1.40	8.5	110.00	109.77	35.0
H490 E90AX D32-3-C32-12	32.00	32.50	22.20	3	12.00	1.40	8.5	110.00	109.77	40.0
H490 E90AX D32-3-W32-12	32.00	32.50	22.20	3	12.00	1.40	8.5	110.00	109.77	40.0
H490 E90AX D40-4-C32-12	40.00	40.50	30.20	4	12.00	1.40	8.5	130.00	129.77	40.0
H490 E90AX D40-4-W32-12	40.00	40.50	30.20	4	12.00	1.40	8.5	115.00	114.77	40.0

Designation	DCONMS	Shank(3)	RMPX°_2 (4)	MDN	MDX	MIID(5)	MIID_2(6)	kg
H490 E90AX D25-2-C25-12	25.00	C	4.5	40.70	50.00	H490 ANKX 1205PNTRR	H490 ANCX 1205..-FF	0.36
H490 E90AX D25-2-W25-12	25.00	W	4.5	40.70	50.00	H490 ANKX 1205PNTRR	H490 ANCX 1205..-FF	0.35
H490 E90AX D32-3-C32-12	32.00	C	3.1	54.70	64.00	H490 ANKX 1205PNTRR	H490 ANCX 1205..-FF	0.60
H490 E90AX D32-3-W32-12	32.00	W	3.1	54.70	64.00	H490 ANKX 1205PNTRR	H490 ANCX 1205..-FF	0.59
H490 E90AX D40-4-C32-12	32.00	C	2.3	70.70	80.00	H490 ANKX 1205PNTRR	H490 ANCX 1205..-FF	0.83
H490 E90AX D40-4-W32-12	32.00	W	2.3	70.70	80.00	H490 ANKX 1205PNTRR	H490 ANCX 1205..-FF	0.73

• For user guide, see pages 616-622 • 1- with standard square insert, 2- with FF (fast feed) insert • Ramping angle is valid only when H490 ANCX 1205R15T-FF insert is used • When assembled the H490 ANCX 1205R15T-FF insert, tool diameter enlarges by 0.5 mm

(1) Number of inserts (or edges for solid tool)

(2) Maximum side plunge

(3) C-Cylindrical, W-Weldon

(4) Maximum ramping angle when using FF inserts

(5) Master insert identification

(6) Master insert identification 2

For inserts, see pages: H490 ANKX/ANCX 1205-FF (539) • H490 ANKX/ANCX-12 (538)

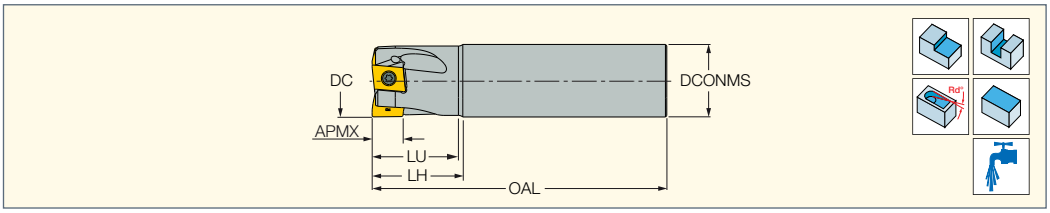
Spare Parts

Designation			
H490 E90AX D25-2-C25-12	SR 14-544/S	SW6-T	BLD T15/M7
H490 E90AX D25-2-W25-12	SR 14-544/S	SW6-T	BLD T15/M7
H490 E90AX D32-3-C32-12	SR 14-544	SW6-T	BLD T15/M7
H490 E90AX D32-3-W32-12	SR 14-544	SW6-T	BLD T15/M7
H490 E90AX D40-4-C32-12	SR 14-544	SW6-T	BLD T15/M7
H490 E90AX D40-4-W32-12	SR 14-544	SW6-T	BLD T15/M7

HELITANG T490 LINE

T490 ELN-13

90° Endmills Carrying Tangentially Clamped Inserts with 4 Helical, 12.5 mm Long Cutting Edges



Designation	DC	CICT(3)	OAL	LH	LU	APMX	DCONMS	Shank(4)	RMPX°(5)	kg			
T490 ELN D25-2-C25-13	25.00	2	120.00	35.0	33.0	12.50	25.00	C	-	0.39	SR M4.5-10507218(a)	BLD T15/S7	SW6-T-SH
T490 ELN D25-2-W25-13 (1)	25.00	2	95.00	35.0	33.0	12.50	25.00	W	-	0.29	SR M4.5-10507218(a)	BLD T15/S7	SW6-T-SH
T490 ELN D32-3-C32-13	32.00	3	130.00	40.0	38.0	12.50	32.00	C	2.1	0.72	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 ELN D32-3-C32-13B (2)	32.00	3	250.00	50.0	48.0	12.50	32.00	C	2.1	1.44	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 ELN D32-3-W32-13	32.00	3	110.00	40.0	38.0	12.50	32.00	W	2.1	0.59	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 ELN D40-3-C40-13B (2)	40.00	3	250.00	50.0	48.0	12.50	40.00	C	1.5	2.25	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 ELN D40-4-C32-13	40.00	4	130.00	40.0	-	12.50	32.00	C	1.5	0.81	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 ELN D40-4-W32-13	40.00	4	115.00	40.0	-	12.50	32.00	W	1.5	0.72	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 ELN D50-4-C32-13	50.00	4	130.00	36.5	-	12.50	32.00	C	1.1	0.96	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 ELN D50-5-C32-13	50.00	5	130.00	36.5	-	12.50	32.00	C	1.1	0.96	SR 34-535-SN	BLD T15/S7	SW6-T-SH

• For user guide see pages 616-622

(1) Cutting recommendations: at a_p=5, f_z=0.15 at a_p=10, f_z=0.1

(2) "B" suffix for long cylindrical shank which may be shortened.

(3) Number of inserts (or edges for solid tool)

(4) C-Cylindrical, W-Weldon

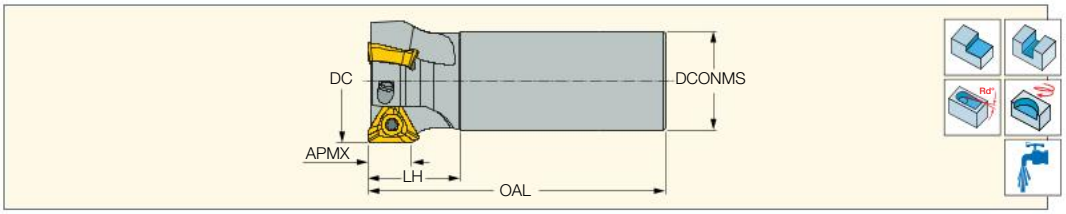
(5) Maximum ramping angle - valid only when T490 LNHT 1306 PNTR-RD insert is used

(a) Recommended tightening torque:4.8 N*m (42.5 lbf*in)

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT 1306PNR-FF (547) • T490 LNMT 1306PNTR-FW (547) • T490 LNMT/LNHT/LNAR 1306 (546)

HM390 ETD-15

90° Endmills Carrying HM390 TDKT 1505 Triangular Inserts with 3 Helical Cutting Edges



Designation	DC	APMX	CICT(1)	OAL	LH	DCONMS	RMPX°(2)	kg			
HM390 ETD D040-3-C32-15	40.00	13.00	3	130.00	40.0	32.00	2.1	0.71	SR 10511869	BLD IP20/S7	SW6-T
HM390 ETD D040-4-C32-15	40.00	13.00	4	130.00	30.0	32.00	2.1	0.73	SR 10511869	BLD IP20/S7	SW6-T
HM390 ETD D050-4-C32-15	50.00	13.00	4	130.00	40.0	32.00	1.6	0.84	SR 10505427	BLD IP20/S7	SW6-T

• When assembled the HM390 TDKT 1505PDR-FW insert, tool diameter enlarges by 1.0 mm • For user guide, see pages 616-622

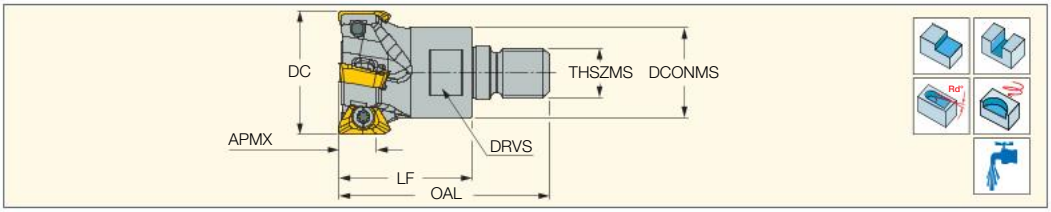
(1) Number of inserts (or edges for solid tool)

(2) Maximum ramping angle

For inserts, see pages: HM390 TDCR 1505 (514) • HM390 TDKT/CT 1505 (513)

HM390 ETD-M

90° Endmills with a FLEX-FIT Threaded Adaptation Carrying HM390 TDKT 1505 Triangular Inserts



Designation	DC	APMX	CICT(1)	LF	DCONMS	THSZMS	OAL	DRVS(2)	RMPX°(3)	TQ_3(4)	kg			
HM390 ETD D040-4-M16	40.00	13.00	4	43.00	29.00	M16	68.00	25.0	1.6	40	0.22	SR 10511869	BLD IP20/S7	SW6-T

• For adaptation, see page 59 • For user guide, see pages 616-622 • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

• When assembled the HM390 TDKT 1505PDR-FW insert, tool diameter enlarges by 1.0 mm

(1) Number of inserts (or edges for solid tool)

(2) Clamping wrench size

(3) Maximum ramping angle

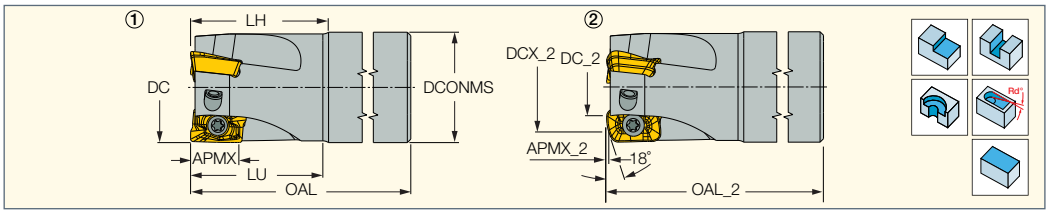
(4) Tool tightening torque Nxm (lbfxin)

For inserts, see pages: HM390 TDCR 1505 (514) • HM390 TDKT/CT 1505 (513)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

HELI2000

HM90 E90AD-15
90° Endmills Carrying HM90
ADKT-1505... Inserts



Designation	DC	DCX_2	DC_2	DCONMS	APMX	APMX_2	CICT[1]	OAL	OAL_2	LH	LU	RMPX°[2]	RMPX°_2
HM90 E90AD-D20-1-C20	20.00	20.50	7.26	20.00	14.30	1.50	1	110.00	109.74	35.0	34.0	3.0	3.0
HM90 E90AD-D25-2-C24-B	25.00	25.50	12.26	24.00	14.30	1.50	2	200.00	199.74	30.0	-	11.5	11.5
HM90 E90AD-D25-2-C25	25.00	25.50	12.26	25.00	14.30	1.50	2	110.00	109.74	35.0	34.0	11.5	11.5
HM90 E90AD-D25-2-C25-B	25.00	25.50	12.26	25.00	14.30	1.50	2	200.00	199.74	50.0	49.0	11.5	11.5
HM90 E90AD-D25-2-C25-C	25.00	25.50	12.26	25.00	14.30	1.50	2	110.00	109.74	35.0	34.0	11.5	11.5
HM90 E90AD-D25-2-C25-XL	25.00	25.50	12.26	25.00	14.30	1.50	2	150.00	149.74	35.0	34.0	11.5	11.5
HM90 E90AD-D25-2-W25	25.00	25.50	12.26	25.00	14.30	1.50	2	100.00	99.74	35.0	34.0	11.5	11.5
HM90 E90AD-D25-2-W25-C	25.00	25.50	12.26	25.00	14.30	1.50	2	100.00	109.74	35.0	34.0	11.5	11.5
HM90 E90AD-D25-2-W25-XL	25.00	25.50	12.26	25.00	14.30	1.50	2	150.00	149.74	70.0	69.0	11.5	11.5
HM90 E90AD-D32-2-C32	32.00	32.50	19.26	32.00	14.30	1.50	2	120.00	119.74	40.0	38.0	5.3	5.3
HM90 E90AD-D32-3-C31-B	32.00	32.50	19.26	31.00	14.30	1.50	3	250.00	249.74	30.0	-	5.3	5.3
HM90 E90AD-D32-3-C32	32.00	32.50	19.26	32.00	14.30	1.50	3	120.00	119.74	40.0	38.0	5.3	5.3
HM90 E90AD-D32-3-C32-B	32.00	32.50	19.26	32.00	14.30	1.50	3	250.00	249.74	50.0	48.0	5.3	5.3
HM90 E90AD-D32-3-C32-C	32.00	32.50	19.26	32.00	14.30	1.50	3	120.00	119.74	40.0	38.0	5.3	5.3
HM90 E90AD-D32-3-C32-XL	32.00	32.50	19.26	32.00	14.30	1.50	3	160.00	159.74	40.0	38.0	5.3	5.3
HM90 E90AD-D32-3-W32	32.00	32.50	19.26	32.00	14.30	1.50	3	110.00	109.74	40.0	38.3	5.3	5.3
HM90 E90AD-D32-3-W32-C	32.00	32.50	19.26	32.00	14.30	1.50	3	110.00	109.74	40.0	38.3	5.3	5.3
HM90 E90AD-D32-3-W32-XL	32.00	32.50	19.26	32.00	14.30	1.50	3	160.00	159.74	40.0	38.3	5.3	5.3
HM90 E90AD-D40-3-C40-B	40.00	40.50	27.26	40.00	14.30	1.50	3	250.00	249.74	50.0	48.0	4.0	4.0
HM90 E90AD-D40-3-W40-XL	40.00	40.50	27.26	40.00	14.30	1.50	3	200.00	199.74	80.0	78.0	4.0	4.0
HM90 E90AD-D40-4-C32	40.00	40.50	27.26	32.00	14.30	1.50	4	130.00	129.74	40.0	-	4.0	4.0
HM90 E90AD-D40-4-W32	40.00	40.50	27.26	32.00	14.30	1.50	4	115.00	114.74	40.0	-	4.0	4.0
HM90 E90AD-D40-4-W32-C	40.00	40.50	13.26	32.00	14.30	1.50	4	115.00	114.74	40.0	-	4.0	11.5

Designation	MDN	MDX	Shank[3]	RPMX[4]	CSP[5]	MIID_2[6]	kg			
HM90 E90AD-D20-1-C20	27.76	40.00	C	51586	0	ADCT 1505R8T-FF	0.24	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-C24-B	37.76	50.00	C	41967	0	ADCT 1505R8T-FF	0.67	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-C25	37.76	50.00	C	41967	0	ADCT 1505R8T-FF	0.37	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-C25-B	37.76	50.00	C	41967	0	ADCT 1505R8T-FF	0.71	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-C25-C	37.76	50.00	C	41967	1	ADCT 1505R8T-FF	0.34	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-C25-XL	37.76	50.00	C	41967	0	ADCT 1505R8T-FF	0.53	SR 14-544/S	SW6-T-SH	BLD T15/M7
HM90 E90AD-D25-2-W25	37.76	50.00	W	41967	0	ADCT 1505R8T-FF	0.33	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-W25-C	37.76	50.00	W	41967	1	ADCT 1505R8T-FF	0.30	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-W25-XL	37.76	50.00	W	41967	0	ADCT 1505R8T-FF	0.51	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D32-2-C32	51.76	64.00	C	28924	0	ADCT 1505R8T-FF	0.68	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D32-3-C31-B	51.76	64.00	C	28924	0	ADCT 1505R8T-FF	1.41	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D32-3-C32	51.76	64.00	C	28924	0	ADCT 1505R8T-FF	0.67	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D32-3-C32-B	51.76	64.00	C	28924	0	ADCT 1505R8T-FF	1.48	SR 14-544/S	SW6-T-SH	BLD T15/M7
HM90 E90AD-D32-3-C32-C	51.76	64.00	C	28924	1	ADCT 1505R8T-FF	0.63	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D32-3-C32-XL	51.76	64.00	C	28924	0	ADCT 1505R8T-FF	0.92	SR 14-544/S	SW6-T-SH	BLD T15/M7
HM90 E90AD-D32-3-W32	51.76	64.00	W	28924	0	ADCT 1505R8T-FF	0.59	SR 14-544/S	SW6-T-SH	BLD T15/M7
HM90 E90AD-D32-3-W32-C	51.76	64.00	W	28924	1	ADCT 1505R8T-FF	0.56	SR 14-544/S	SW6-T-SH	BLD T15/M7
HM90 E90AD-D32-3-W32-XL	51.76	64.00	W	28924	0	ADCT 1505R8T-FF	0.91	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D40-3-C40-B	67.76	80.00	C	25870	0	ADCT 1505R8T-FF	2.34	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D40-3-W40-XL	67.76	80.00	W	25870	0	ADCT 1505R8T-FF	1.81	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D40-4-C32	67.76	80.00	C	25870	0	ADCT 1505R8T-FF	0.82	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D40-4-W32	67.76	80.00	W	25870	0	ADCT 1505R8T-FF	0.73	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D40-4-W32-C	39.76	52.00	W	25870	1	ADCT 1505R8T-FF	0.69	SR 14-544/S	SW6-SD	BLD T15/M7

• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

(4) Maximum RPM

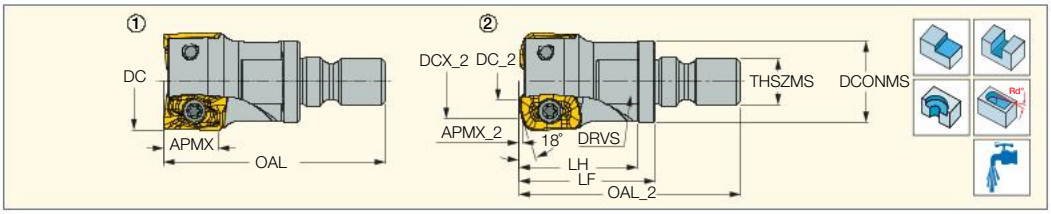
(5) 0 - Without coolant supply, 1 - With coolant supply

(6) Master insert identification 2

For inserts, see pages: ADCR 1505PDFR (523) • ADCT 1505PDFR-HM (523) • ADKR 1505PDR/L (523) • ADKT 1505-FF (527) • ADKT 1505..R/L-HM (526) • ADKT 1505PD-W (527) • ADKT 1505PDR/L-HM (525) • ADKT 1505PDTR-76 (526) • ADKT 1505PDTR/L-RM (525) • ADKW (CBN) (524) • ADKW (PCD) (524) • ADMT 1505PDR-HS (525) • HM90 ADCR 1505PDFR-P (522) • HM90 ADCT 1505 (521) • HM90 ADCT 1505PDR-CF (522) • HM90 ADKT 1505 (521) • HM90 ADKT 1505PD-W (527) • HM90 ADKW 1505PDR (530)

HELI2000

HM90 E90AD-M-15
90° Endmills with a FLEX-FIT Threaded Adaptation Carrying HM90 ADKT-1505... Inserts



Designation	DC	DC_2	DCX_2	CICT(1)	APMX	APMX_2	DCONMS	THSZMS	LH	LF	OAL	OAL_2	RMPX°(2)	RMPX°_2
HM90 E90AD-D25-2-M12	25.00	12.26	25.50	2	14.30	1.50	21.00	M12	30.8	35.00	57.00	56.74	11.5	11.5
HM90 E90AD-D32-3-M16	32.00	19.26	32.50	3	14.30	1.50	29.00	M16	40.0	40.00	65.00	64.74	5.3	5.3
HM90 E90AD-D40-4-M16	40.00	27.26	40.50	4	14.30	1.50	29.00	M16	40.0	40.00	65.00	64.74	4.0	4.0

Designation	MDN	MDX	MIID(3)	MIID_2(4)	RPMX(5)	DRVS(6)	TQ_3(7)	kg
HM90 E90AD-D25-2-M12	37.76	50.00	ADKT 1505PDTR	ADCT 1505R8T-FF	41967	17.1	33	0.08
HM90 E90AD-D32-3-M16	51.76	64.00	ADKT 1505PDTR	ADCT 1505R8T-FF	28924	25.1	40	0.16
HM90 E90AD-D40-4-M16	67.76	80.00	ADKT 1505PDTR	ADCT 1505R8T-FF	25870	25.1	40	0.21

• 1- with standard square insert • 2- with FF (fast feed) insert • For adaptation,see page 59 • For user guide see pages 616-622

• When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Number of inserts (or edges for solid tool)
(2) Maximum ramping angle
(3) Master insert identification
(4) Master insert identification 2
(5) Maximum RPM
(6) Torque key size
(7) Tool tightening torque Nxm (lbfxin)

For inserts, see pages: ADCR 1505PDFR (523) • ADCT 1505PDFR-HM (523) • ADKR 1505PDR/L (523) • ADKT 1505-FF (527) • ADKT 1505..R/L-HM (526) • ADKT 1505PD-W (527) • ADKT 1505PDR/L-HM (525) • ADKT 1505PDTR-76 (526) • ADKT 1505PDTR/L-RM (525) • ADKW (CBN) (524) • ADKW (PCD) (524) • ADMT 1505PDR-HS (525) • HM90 ADCR 1505PDFR-P (522) • HM90 ADCT 1505 (521) • HM90 ADCT 1505PDR-CF (522) • HM90 ADKT 1505 (521) • HM90 ADKT 1505PD-W (527) • HM90 ADKW 1505PDR (530)

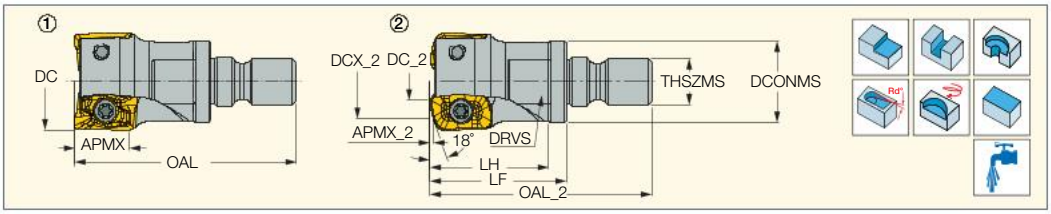
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

Spare Parts

Designation			
HM90 E90AD-D25-2-M12	SR 14-544/S	SW6-T-SH	BLD T15/M7
HM90 E90AD-D32-3-M16	SR 14-544/S	SW6-T-SH	BLD T15/M7
HM90 E90AD-D40-4-M16	SR 14-544/S	SW6-SD	BLD T15/M7

HELI2000 JET LINE

HM90 E90AD-M-15-JHP
90° JHP Endmills With a FLEX-FIT Threaded Adaptation Carrying HELI-2000 and HELI-MILL Inserts



Designation	DC	DC_2	DCX_2	CICT[1]	APMX	APMX_2	OAL	OAL_2	RMPX°[2]	RMPX°_2	LF	THSZMS
HM90 E90AD D32-3-M16-JHP	32.00	19.26	32.50	3	14.30	1.50	65.00	64.74	5.3	5.3	40.00	M16

Designation	MDN	MDX	RPMX[3]	DRVS[4]	DCONMS	TQ_3[5]	MIID[6]	MIID_2[7]	kg
HM90 E90AD D32-3-M16-JHP	51.76	64.00	28924	25.0	30.50	40	ADKT 1505PDTR	ADCT 1505R8T-FF	0.17

• 1- with standard square insert • 2- with FF (fast feed) insert • For adaptation,see page 59 • For user guide see pages 616-622
• When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

[1] Number of inserts (or edges for solid tool)
[2] Maximum ramping angle
[3] Maximum RPM
[4] Torque key size
[5] Tool tightening torque Nxm (lbfxin)
[6] Master insert identification
[7] Master insert identification 2

For inserts, see pages: ADCR 1505PDFR (523) • ADCT 1505PDFR-HM (523) • ADKR 1505PDR/L (523) • ADKT 1505-FF (527) • ADKT 1505..R/L-HM (526) • ADKT 1505PD-W (527) • ADKT 1505PDR/L-HM (525) • ADKT 1505PDTR-76 (526) • ADKT 1505PDTR/L-RM (525) • ADKW (CBN) (524) • ADKW (PCD) (524) • ADMT 1505PDR-HS (525) • HM90 ADCR 1505PDFR-P (522) • HM90 ADCT 1505 (521) • HM90 ADCT 1505PDR-CF (522) • HM90 ADKT 1505 (521) • HM90 ADKT 1505PD-W (527) • HM90 ADKW 1505PDR (530)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

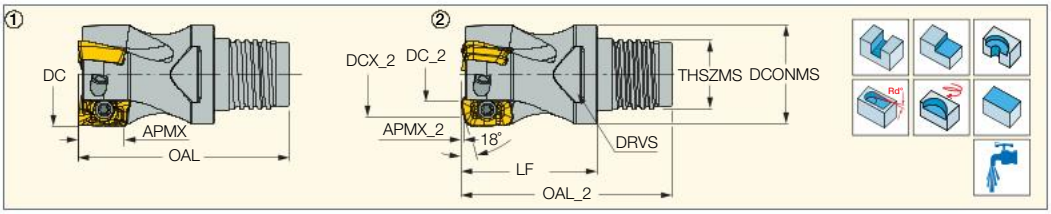
Spare Parts

Designation				
HM90 E90AD-M-15-JHP	SR 14-544/S	SR 14-544/S[a]	BLD T15/M7	SW6-T-SH

[a] Recommended tightening torque for this item: 4.8 Nxm

HELI2000 JET LINE

HM90 E90AD-MM-15-JHP
90° JHP Endmills with a MULTI-MASTER Threaded Adaptation Carrying HELI-2000 and HELI-MILL Inserts



Designation	DC	DC_2	DCX_2	CICT(1)	APMX	APMX_2	OAL	OAL_2	DCONMS	RMPX°(2)	RMPX°_2	LF
HM90 E90AD D25-2-MMT15JHP	25.00	12.26	25.00	2	14.30	1.50	56.30	56.04	24.00	11.5	11.5	39.30
HM90 E90AD D32-3-MMT21JHP	32.00	19.26	32.50	3	14.30	1.50	63.00	62.74	30.50	5.3	5.3	39.90

Designation	RPMX(3)	THSZMS	MDN	MDX	TQ_3(4)	DRVS(5)	MIID(6)	MIID_2(7)	kg
HM90 E90AD D25-2-MMT15JHP	41967	T15	37.76	50.00	40	20.0	ADKT 1505PDTR	ADKT 1505R8T-FF	0.10
HM90 E90AD D32-3-MMT21JHP	28924	T21	51.76	64.00	40	24.0	ADKT 1505PDTR	ADKT 1505R8T-FF	0.26

New

- 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-622 • Do not apply lubricant to the MULTI-MASTER threaded connection
- For adaptation see page 59

(1) Number of inserts (or edges for solid tool)
(2) Maximum ramping angle
(3) The maximum cutting speed (RPM) for the cutting head assembled on the shank should be the lower parameter (RPMX) of either the cutting head or the shank
(4) Tool tightening torque Nxm (lbfxin)
(5) Torque key size
(6) Master insert identification
(7) Master insert identification 2

For inserts, see pages: ADCR 1505PDFR (523) • ADCT 1505PDFR-HM (523) • ADKR 1505PDR/L (523) • ADKT 1505-FF (527) • ADKT 1505..R/L-HM (526) • ADKT 1505PD-W (527) • ADKT 1505PDR/L-HM (525) • ADKT 1505PDTR-76 (526) • ADKT 1505PDTR/L-RM (525) • ADKW (CBN) (524) • ADKW (PCD) (524) • ADMT 1505PDR-HS (525) • HM90 ADCR 1505PDFR-P (522) • HM90 ADCT 1505 (521) • HM90 ADCT 1505PDR-CF (522) • HM90 ADKT 1505 (521) • HM90 ADKT 1505PD-W (527) • HM90 ADKW 1505PDR (530)

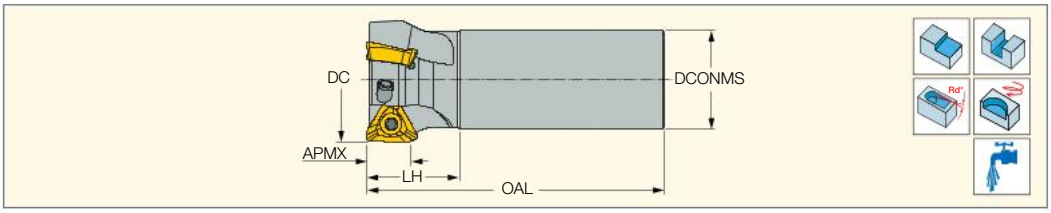
For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER-H (108) • MM TS-A (105)

Spare Parts

Designation			
HM90 E90AD-MM-15-JHP	SR 14-544/S	BLD T15/M7	SW6-T-SH

HELI3MILL HM390 LINE

HM390 ETD-19
90° Endmills Carrying HM390 TDKT 1907 Triangular Inserts with 3 Helical Cutting Edges



Designation	DC	APMX	CICT(1)	OAL	LH	DCONMS	RMPX°(2)	Shank(3)	kg			
HM390 ETD D040-2-C32-19	40.00	16.00	2	130.00	45.0	32.00	2.0	C	0.69	SR 14-591/L12	BLD T20/S7	SW6-T

- For user guide, see pages 616-622

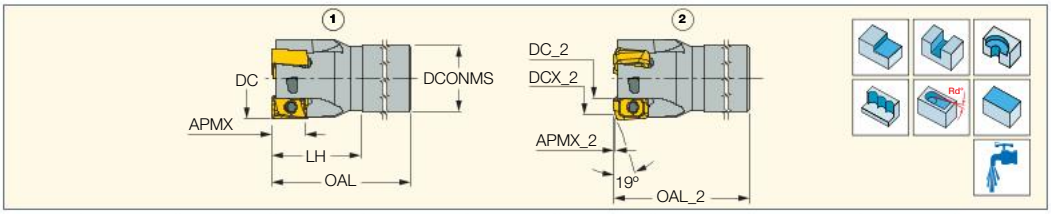
(1) Number of inserts (or edges for solid tool)
(2) Maximum ramping angle
(3) C-Cylindrical

For inserts, see pages: HM390 TDKT 1907 (514)

HELIDO 490 LINE

H490 E90AX-17

90° Endmills Carrying H490 ANKX 17... Double-Sided Rectangular Inserts with 4 Helical Cutting Edges



Designation	DC	DCX_2	DC_2	CICT(1)	APMX	APMX_2	AE (2)	OAL	OAL_2	LH	DCONMS
H490 E90AX D32-2-C32-17	32.00	33.50	21.70	2	16.30	1.60	9.5	130.00	129.86	44.0	32.00
H490 E90AX D32-2-W32-17	32.00	33.50	21.70	2	16.30	1.60	9.5	95.00	94.86	30.0	32.00
H490 E90AX D40-3-C32-17	40.00	41.50	29.70	3	16.30	1.60	9.5	130.00	129.86	44.0	32.00
H490 E90AX D40-3-W32-17	40.00	41.50	29.70	3	16.30	1.60	9.5	110.00	109.86	35.0	32.00
H490 E90AX D50-4-C32-17	50.00	51.50	39.70	4	16.30	1.60	9.5	120.00	119.86	40.0	32.00

Designation	Shank(3)	RMPX°_2 (4)	MDN	MDX	MIID(5)	MIID_2(6)	kg
H490 E90AX D32-2-C32-17	C	5.5	55.20	66.00	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	0.70
H490 E90AX D32-2-W32-17	W	5.5	55.20	66.00	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	0.50
H490 E90AX D40-3-C32-17	C	3.7	71.20	82.00	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	0.76
H490 E90AX D40-3-W32-17	W	3.7	71.20	82.00	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	0.64
H490 E90AX D50-4-C32-17	C	2.5	91.20	102.00	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	0.81

• For user guide, see pages 616-622 • 1- with standard square insert, 2- with FF (fast feed) insert • Ramping angle is valid only when H490 ANKX 1706R15T-FF insert is used • When assembled the H490 ANKX 1706R15T-FF insert, tool diameter enlarges by 1.5 mm

(1) Number of inserts (or edges for solid tool)

(2) Maximum side plunge

(3) C-Cylindrical, W-Weldon

(4) Maximum ramping angle when using FF inserts

(5) Master insert identification

(6) Master insert identification 2

For inserts, see pages: H490 ANKX 1706-FF (540) • H490 ANKX/ANCX-17 (539)

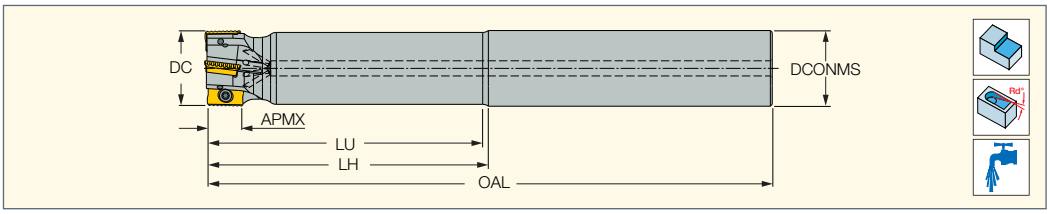
Spare Parts

Designation			
H490 E90AX-17	SR 14-591	SW6-T	BLD T20/M7

MILLSHRED P290 LINE

P290 EPW

Long Reach Endmills Carrying 12 and 18 mm Long Edged Inserts



Designation	DC	CICT(1)	LU	LH	OAL	DCONMS	Shank(2)	RMPX°(3)	APMX	MIID(4)	kg
P290 EPW D20-2-100-W20-12	20.00	2	37.00	40.0	100.00	20.00	W	2.0	12.00	P290 ACKT 1204PDR-FW	0.20
P290 EPW D25-3-130-W25-12	25.00	3	68.00	70.0	130.00	25.00	W	1.4	12.00	P290 ACKT 1204PDR-FW	0.39
P290 EPW D25-3-160-C25-12	25.00	3	88.00	90.0	160.00	25.00	C	1.4	12.00	P290 ACKT 1204PDR-FW	0.47
P290 EPW D25-3-200-C25-12	25.00	3	117.00	120.0	200.00	25.00	C	1.4	12.00	P290 ACKT 1204PDR-FW	0.62
P290 EPW D32-4-130-W25-12	32.00	4	70.00	-	130.00	25.00	W	1.0	12.00	P290 ACKT 1204PDR-FW	0.46
P290 EPW D32-4-150-C25-12	32.00	4	90.00	-	150.00	25.00	C	1.0	12.00	P290 ACKT 1204PDR-FW	0.54
P290 EPW D25-2-120-W25-18	25.00	2	57.70	60.0	120.00	25.00	W	2.5	18.00	P290 ACKT 1806PDR-FW	0.36
P290 EPW D32-3-170-W32-18	32.00	3	97.70	100.0	170.00	32.00	W	2.0	18.00	P290 ACKT 1806PDR-FW	0.84
P290 EPW D32-3-210-C32-18	32.00	3	127.70	130.0	210.00	32.00	C	2.0	18.00	P290 ACKT 1806PDR-FW	1.06
P290 EPW D32-3-240-C32-18	32.00	3	157.00	160.0	240.00	32.00	C	2.0	18.00	P290 ACKT 1806PDR-FW	1.22
P290 EPW D40-4-170-W32-18	40.00	4	108.00	-	170.00	32.00	W	1.5	18.00	P290 ACKT 1806PDR-FW	0.95
P290 EPW D40-4-200-C32-18	40.00	4	140.00	-	200.00	32.00	C	1.5	18.00	P290 ACKT 1806PDR-FW	1.13
P290 EPW D40-4-250-W40-18	40.00	4	147.00	150.0	250.00	40.00	W	1.5	18.00	P290 ACKT 1806PDR-FW	2.08

- For user guide see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) C-Cylindrical, W-Weldon

(3) Maximum ramping angle

(4) Master insert identification

For inserts, see pages: P290 ACCT/KT (529) • P290 ACKT (529)

Spare Parts

Designation				
P290 EPW D20-2-100-W20-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 EPW D25-3-130-W25-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 EPW D25-3-160-C25-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 EPW D25-3-200-C25-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 EPW D32-4-130-W25-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 EPW D32-4-150-C25-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 EPW D25-2-120-W25-18	SR 14-544/S(b)		BLD T15/M7	SW6-T-SH
P290 EPW D32-3-170-W32-18	SR 14-544/S(b)		BLD T15/M7	SW6-T-SH
P290 EPW D32-3-210-C32-18	SR 14-544/S(b)		BLD T15/M7	SW6-T-SH
P290 EPW D32-3-240-C32-18	SR 14-544/S(b)		BLD T15/M7	SW6-T-SH
P290 EPW D40-4-170-W32-18	SR 14-544/S(b)		BLD T15/M7	SW6-T-SH
P290 EPW D40-4-200-C32-18	SR 14-544/S(b)		BLD T15/M7	SW6-T-SH
P290 EPW D40-4-250-W40-18	SR 14-544/S(b)		BLD T15/M7	SW6-T-SH

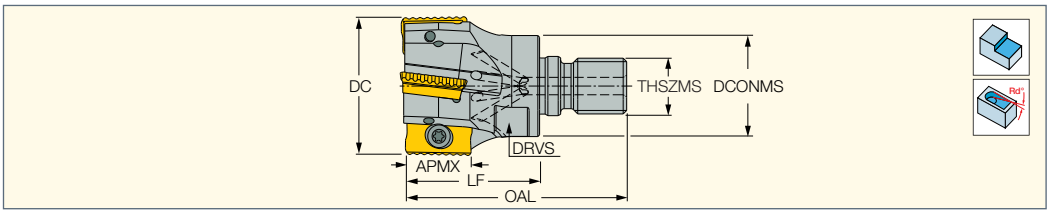
(a) Recommended tightening torque:2.0 N*m

(b) Recommended tightening torque:4.8 N*m

MILLSHRED P290 LINE

P290 EPW-M

Endmills with FLEX-FIT Threaded Adaptation Carrying 12 and 18 mm Long Edged Inserts



Designation	DC	APMX	CICT(1)	LF	OAL	THSZMS	DCONMS	DRVS(2)	RMPX°(3)	CSP(4)	TQ_3(5)	kg
P290 EPW D20-2-M10-12	20.00	12.00	2	25.00	45.00	M10	18.00	15.0	2.0	0	29	0.04
P290 EPW D25-3-M12-12	25.00	12.00	3	30.00	52.00	M12	21.00	19.0	1.4	1	33	0.07
P290 EPW D32-4-M16-12	32.00	12.00	4	35.00	60.00	M16	29.00	25.0	1.0	1	40	0.16
P290 EPW D32-3-M16-18	32.00	18.00	3	40.00	65.00	M16	29.00	25.0	2.0	1	40	0.15
P290 EPW D40-4-M16-18	40.00	18.00	4	40.00	65.00	M16	29.00	25.0	1.5	1	40	0.20

• For adaptation see page 59 • For user guide, see pages 616-622 • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Number of inserts (or edges for solid tool)

(2) Clamping wrench size

(3) Maximum ramping angle

(4) 0 - Without coolant supply, 1 - With coolant supply

(5) Tool tightening torque Nxm

For inserts, see pages: P290 ACCT/KT (529) • P290 ACKT (529)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

Spare Parts

Designation				
P290 EPW D20-2-M10-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 EPW D25-3-M12-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 EPW D32-4-M16-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 EPW D32-3-M16-18	SR 14-544/S(b)		BLD T15/M7	SW6-T-SH
P290 EPW D40-4-M16-18	SR 14-544/S(b)		BLD T15/M7	SW6-T-SH

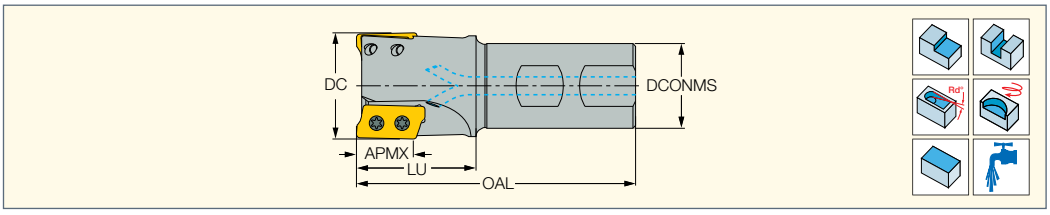
(a) Recommended tightening torque:2.0 N*m

(b) Recommended tightening torque:4.8 N*m

HELIPLUS

HP E90AT-19

90° Endmills Carrying HP AD.. 1906.. Inserts



Designation	DC	CICT(1)	APMX	OAL	LU	DCONMS	RMPX°(2)	RPMX(3)	Shank(4)	kg			
HP E90AT-D25-2-W25-19	25.00	2	18.70	100.00	40.0	25.00	14.0	27995	W	0.30	SR 14-571/L	SW6-SD	BLD T10/S7
HP E90AT-D32-3-W32-19	32.00	3	18.40	105.00	40.0	32.00	7.0	18330	W	0.52	SR 14-571/L	SW6-SD	BLD T10/S7

• First loosely attach the inner clamping screw, then the outer one. In the same order tighten them both. • For user guide, see pages 616-622

(1) Number of inserts (or edges for solid tool)

(2) Maximum ramping angle

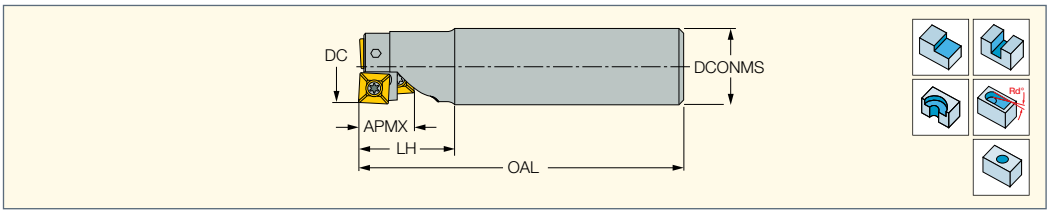
(3) Maximum RPM

(4) W-Weldon

For inserts, see pages: HP ADCR 1906 (532) • HP ADKT/ADCT 1906 (532)

HELIQUAD

E90XC
Drilling Endmills Carrying
Square S/XOMT Inserts



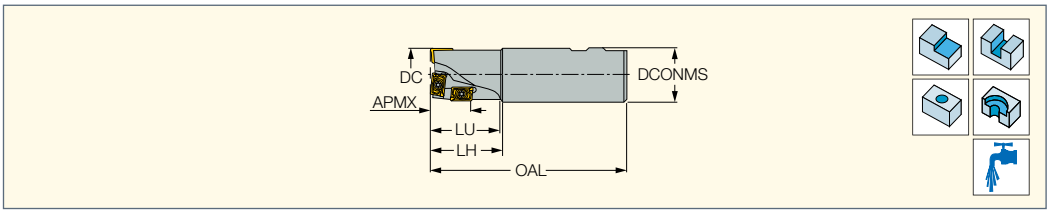
Designation	DC	CICT(1)	NOF(2)	APMX	LH	OAL	DCONMS	Shank(3)	CSP(4)	kg		
E90XC D12-06-C12-06	12.00	1	1	5.80	25.0	90.00	12.00	C	0	0.07	SR 34-508 M2.2X0.45	T-7/51
E90XC D20-22-C20-06	20.00	5	1	22.00	37.0	120.00	20.00	C	1	0.24	SR 34-508/L	T-7/51

• Use the XOMT 06.... insert in central face location • For user guide, see pages 616-622
(1) Number of inserts (or edges for solid tool)
(2) Number of flutes
(3) C-Cylindrical
(4) 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: SOMT-HQ (560) • XOMT-HQ (561)

HELIMILL

E90AC
Drilling Endmills Carrying
APKT/ADKT Inserts



Designation	DC	CICT(1)	NOF(2)	APMX	LU	LH	OAL	DCONMS	Shank(3)	MIID(4)	kg
E90AC D25-20W25	25.00	3	2	19.00	49.0	50.0	110.00	25.00	W	APKT 1003PDR-HM	0.30
E90AC D32-25W32	32.00	3	2	25.00	48.0	50.0	130.00	32.00	W	ADCT 1505PDFR-HM	0.60
E90AC D38-25W32	38.00	5	2	26.00	-	50.0	130.00	32.00	W	ADCT 1505PDFR-HM	0.70

• For user guide see pages 616-622
(1) Number of inserts (or edges for solid tool)
(2) Number of flutes
(3) W-Weldon
(4) Master insert identification

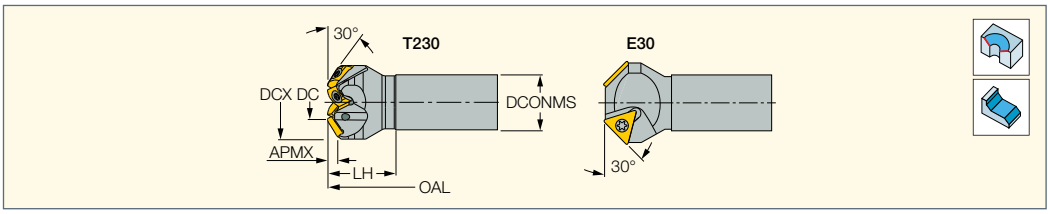
For inserts, see pages: ADCT 1505PDFR-HM (523) • ADKT 1505..R/L-HM (526) • ADKT 1505PDR/L-HM (525) • ADKT 1505PDTR-76 (526) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • XPMT-HQ (563)

Spare Parts

Designation				
E90AC D25-20W25	SR 34-505/HG	BLD T08/M7	SW4-SD	
E90AC D32-25W32	SR 14-544/S	BLD T15/M7	SW6-T-SH	
E90AC D38-25W32	SR 14-544/S	BLD T15/M7	SW6-T-SH	ZPN 4-520

ISCARMILL

E30 / T230
30° Chamfering Endmills



Designation	DC	DCX(1)	CICT(2)	APMX	OAL	LH	DCONMS	Shank(3)	CSP(4)	MIID(5)	kg		
T230 ELN D12-4-C16-05	12.00	21.50	4	2.50	90.00	20.0	16.00	C	1	T290 LNHT 0502TR	0.13	SR 10503833	T-7/51
T230 ELN D12-4-W16-05	12.00	21.50	4	2.50	90.00	20.0	16.00	W	1	T290 LNHT 0502TR	0.13	SR 10503833	T-7/51
E30 D16-W25	16.00	40.90	3	7.00	100.00	36.4	25.00	W	0	TPMT 160304	0.42	SR 14-541	T-15/51

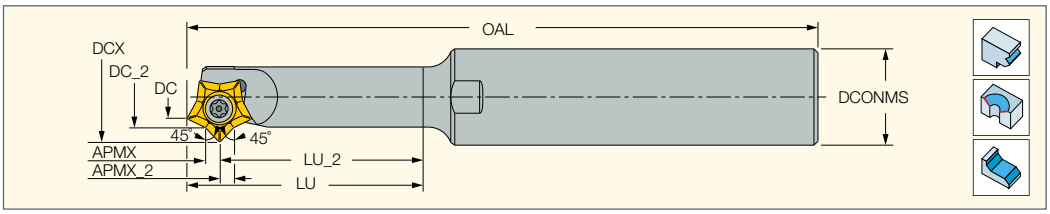
- For user guide see pages 616-622

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) C - Cylindrical, W - Weldon
(4) 0 - Without coolant supply, 1 - With coolant supply
(5) Master insert identification

For inserts, see pages: T290 LNMT/LNHT 0502 (542) • TPMT (536)

CHAMFMILL
CHAMFERING LINE

CH45-PN06
Upper and Bottom Chamfering Endmills Carrying Pentagonal Inserts



Designation	DCX(1)	DC_2	DC	APMX	APMX_2	DCONMS	CICT(2)	LU	LU_2	OAL	DMIN(3)	kg
CH45-10-30-1-C12-PN06	11.70	8.45	6.60	1.50	1.50	12.00	1	29.40	25.40	100.00	10.00	0.00
CH45-17-60-2-C16-PN06	16.70	13.45	11.40	1.50	1.50	16.00	2	29.40	25.40	110.00	17.00	0.13
CH45-19-80-3-C16-PN06	18.70	15.45	13.40	1.50	1.50	16.00	3	29.40	25.40	130.00	19.00	0.16

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Minimum penetration diameter for back chamfering

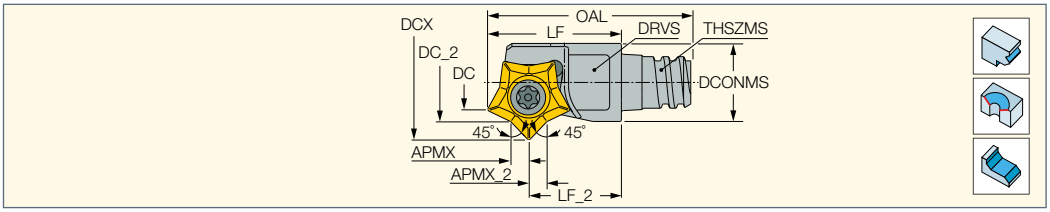
For inserts, see pages: PNMT 0602-TN (613)

Spare Parts

Designation		
CH45-PN06	SR M2.5X5-T7-60	T-7/51

CHAMFMILL
CHAMFERING LINE

CH45-MM-PN06
Upper and Bottom Chamfering Endmills with a MULTI-MASTER Threaded Adaptation



Designation	DCX(1)	DC_2	DC	APMX	APMX_2	LF	LF_2	OAL	DCONMS	THSZMS	CICT(2)	DRVS(3)	DMIN(4)	kg
CH45-10/.39-1-MMT05-PN06	11.70	8.45	6.60	1.50	1.50	13.00	9.00	19.75	7.60	T05	1	5.5	10.00	0.00
CH45-17/.67-2-MMT08-PN06	16.70	13.45	11.40	1.50	1.50	18.00	14.00	25.50	12.20	T08	2	10.0	17.00	0.02
CH45-19/.75-3-MMT10-PN06	18.70	15.45	13.40	1.50	1.50	20.00	16.00	31.30	15.30	T10	3	13.0	19.00	0.02

- Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation options, see page 59 • For user guide, see pages 616-622

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Width across flats (wrench should be ordered separately)
(4) Minimum penetration diameter for back chamfering

For inserts, see pages: PNMT 0602-TN (613)
For holders, see pages: MM CAB (110) • MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102)
• MM S-A (straight shanks) (106) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106)
• MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

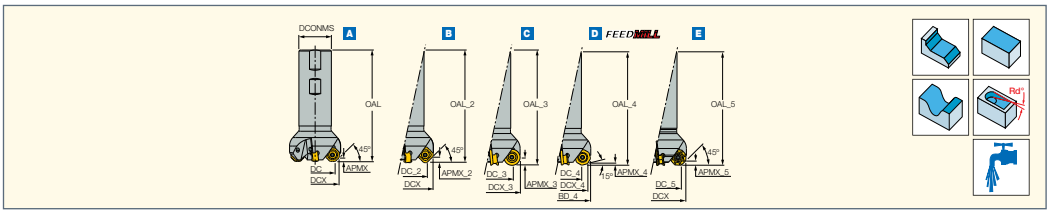
Spare Parts

Designation		
CH45-MM-PN06	SR M2.5X5-T7-60	T-7/51

HELIDO 800 LINE

SOE45 8/16

Multifunctional Endmills for Octagonal, Square and Round Insert Contours with Several Entry Angles



Designation	DC	DC_2	DC_3	DC_4	DC_5	DCX[1]	DCX_3	DCX_4	BD_4	APMX	APMX_2	APMX_3	APMX_4	APMX_5
SOE45 8/16-D025-02-W20R	25.00	22.65	20.90	20.10	25.30	35.40	36.50	29.40	35.60	3.50	6.00	7.90	1.20	2.90
SOE45 8/16-D032-03-W25R	32.00	29.65	27.50	26.70	32.30	42.40	43.30	36.20	42.60	3.50	6.00	7.90	1.20	2.90
SOE45 8/16-D040-04-W32R	40.00	37.65	35.40	37.50	40.30	50.40	51.30	47.00	50.60	3.50	6.00	7.90	1.20	2.90

Designation	DCONMS	CICT[2]	OAL	OAL_2	OAL_3	OAL_4	OAL_5	RMPX°[3]	kg
SOE45 8/16-D025-02-W20R	20.00	2	100.00	101.2	101.60	101.30	101.20	3.1	0.25
SOE45 8/16-D032-03-W25R	25.00	3	100.00	101.2	101.60	101.30	101.20	4.2	0.38
SOE45 8/16-D040-04-W32R	32.00	4	110.00	111.2	111.60	111.30	111.20	3.7	0.72

- A- with ONMU 0505... insert
- B- with S845 SNMU 1305... insert
- C- with RXMT 1607N insert
- D- with OXMT 0507R08-FF insert
- E- with OXMT 050705-R-HP insert
- Use only Torx Plus keys
- For user guide see pages 616-622

[1] Cutting diameter maximum

[2] Number of inserts (or edges for solid tool)

[3] Maximum ramping angle - valid only with RXMT 1607N insert

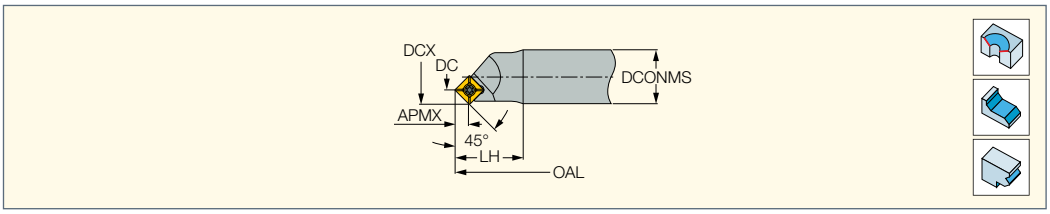
For inserts, see pages: ONHU 0505-W (574) • ONHU/ONMU-05 (574) • OXMT 0507 (575) • RXMT 1607 (602) • S845 SNHU 1305-W (569) • S845 SNMU/SNHU-13 (569)

Spare Parts

Designation			
SOE45 8/16	SR 11800745	BLD IP15/S7	SW6-T-SH

HELIQUAD

E45X
45° Chamfering Endmills
Carrying X/Q/SOMT 06 Inserts



Designation	DC	DCX(1)	CICT(2)	APMX	LH	OAL	DCONMS	Shank(3)	kg		
E45X D06-C12-06	6.00	14.10	1	4.00	25.0	80.00	12.00	C	0.06	SR 34-508 M2.2X0.45	T-7/51
E45X D06-W12-06	6.00	14.10	1	4.00	19.0	70.00	12.00	W	0.05	SR 34-508 M2.2X0.45	T-7/51
E45X D08-C16-06	8.00	16.10	1	4.00	25.0	100.00	16.00	C	0.14	SR 34-508 M2.2X0.45	T-7/51
E45X D08-W16-06	8.00	16.10	1	4.00	23.0	80.00	16.00	W	0.11	SR 34-508 M2.2X0.45	T-7/51

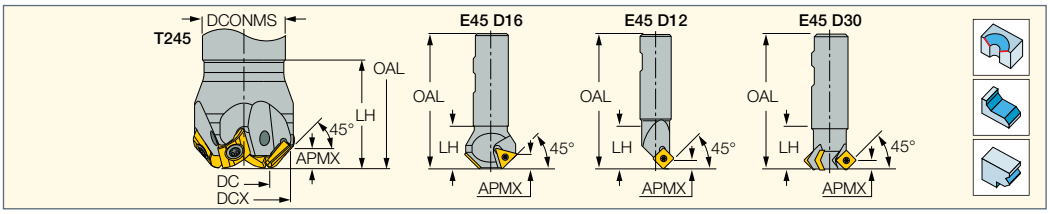
- For user guide, see pages 616-622

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) C-Cylindrical, W-Weldon

For inserts, see pages: QOMT-HQ (560) • SOMT-HQ (560) • XOMT-HQ (561)

ISCARMILL

E45 / T245
45° Chamfering Endmills



Designation	DC	DCX(1)	CICT(2)	APMX	OAL	LH	DCONMS	Shank(3)	CSP(4)	MIID(5)	kg		
T245 ELN D12-4-C16-05	12.00	19.70	4	3.60	90.00	20.0	16.00	C	1	T290 LNHT 0502	0.12	SR 10503833	T-7/51
T245 ELN D12-4-W16-05	12.00	19.70	4	3.60	90.00	20.0	16.00	W	1	T290 LNHT 0502	0.12	SR 10503833	T-7/51
E45 D12-W20	12.00	23.20	1	5.60	100.00	30.0	20.00	W	0	SDMT 0903	0.20	SR 14-541	T-15/51
E45 D16-W25	16.00	35.90	2	9.70	100.00	33.0	25.00	W	0	TPMT 1603	0.35	SR 14-541	T-15/51
E45 D30-W25	30.00	46.10	3	7.80	100.00	35.0	25.00	W	0	SCMT 120408-19	0.37	SR 16-212	T-20/51
E45 D30-W32	30.00	46.10	3	7.80	110.00	35.0	32.00	W	0	SCMT 120408-19	0.61	SR 16-212	T-20/51

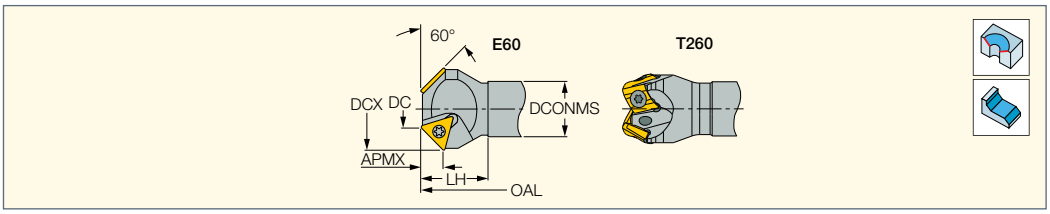
- For user guide see pages 616-622

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) W-Weldon C-Cylindrical
(4) 0 - Without coolant supply, 1 - With coolant supply
(5) Master insert identification

For inserts, see pages: SCMT-19 (584) • SDMT-AD-N (584) • T290 LNMT/LNHT 0502 (542) • TPMT (536)

ISCARMILL

E60 / T260
60° Chamfering Endmills



Designation	DC	DCX(1)	CICT(2)	APMX	OAL	LH	DCONMS	Shank(3)	CSP(4)	MIID(5)	kg		
T260 ELN D12-4-C12-05	12.00	17.50	4	4.50	80.00	20.0	12.00	C	1	T290 LNHT 0502	0.06	SR 10503833	T-7/51
T260 ELN D12-4-W12-05	12.00	17.50	4	4.50	80.00	20.0	12.00	W	1	T290 LNHT 0502	0.06	SR 10503833	T-7/51
E60 D25-W25	25.00	39.40	2	12.30	100.00	33.0	25.00	W	0	TPMT 1603	0.39	SR 14-541	T-15/51

- For user guide see pages 616-622

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) W-Weldon C-Cylindrical
(4) 0 - Without coolant supply, 1 - With coolant supply
(5) Master insert identification

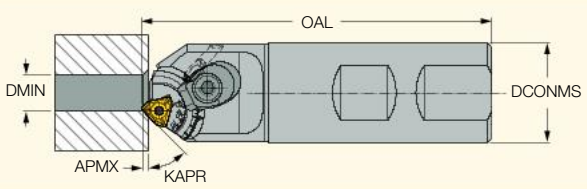
For inserts, see pages: T290 LNMT/LNHT 0502 (542) • TPMT (536)

HELI3MILL HM390 LINE

HM390 E10-80-07

Chamfering Endmill with an Adjustable Edge Angle

KAPR	DMIN	APMX	OAL
10°	5	0.35	87.15
20°	6.1	0.68	87.55
30°	7.3	1.00	87.90
40°	8.6	1.29	88.15
45°	9.3	1.41	88.20
50°	10	1.53	88.25
60°	11.3	1.73	88.20
70°	12.6	1.88	88.10
80°	13.9	1.97	87.85



Designation	CICT[1]	OAL	DCONMS	Shank[2]	MIID[3]	kg
HM390 E10-80 D05-1-W25-07	1	87.85	25.00	W	HM390 TCCT 0703PCR	0.28

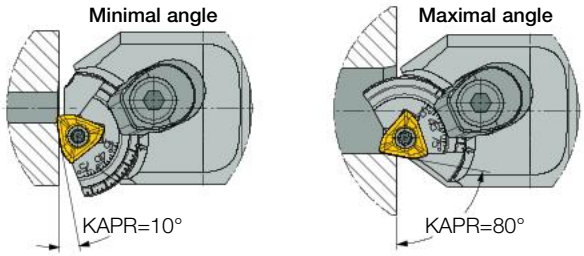
- For user guide see pages 616-622

[1] Number of inserts (or edges for solid tool)

[2] W-Weldon

[3] Master insert identification

For inserts, see pages: HM390 TCKT/CT 0703 (512)



Spare Parts

Designation						
HM390 E10-80 D05-1-W25-07	SR M4X10DIN912	T-7/51	CR E10-80 HM390-07	CLAMP E10-80	SR M2.5X5-T7-60	HW 3.0

MULTI-MASTER

Indexable Solid Carbide Milling Heads
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E = Economical

Indexable Solid Carbide Milling Heads
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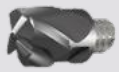
MM ELB	—	4	8,10,12,16	Lens-Shaped (Barrel)	75	
MM ELBA	—	4	8,10,12,16	Lens-Shaped (Barrel)	75	
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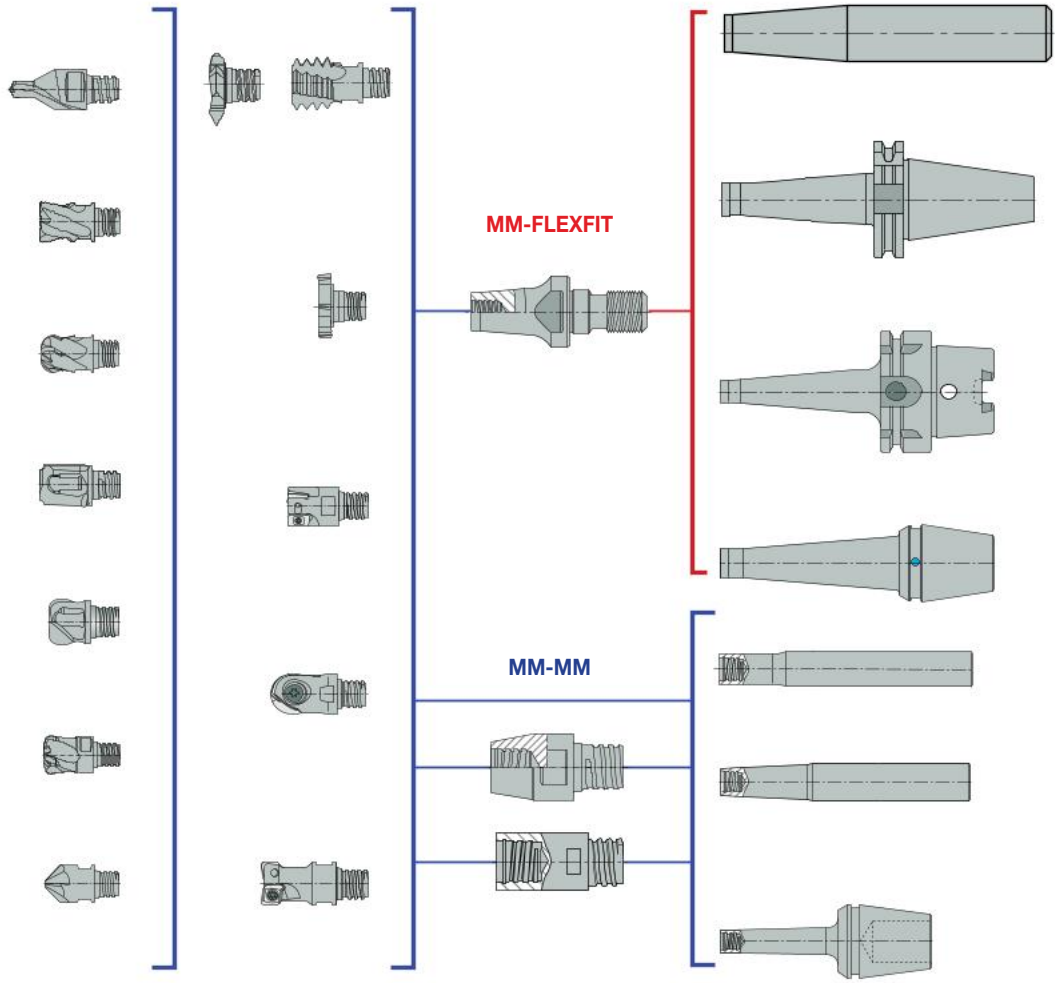
E = Economical

MULTI-MASTER and FLEXFIT Connection Options

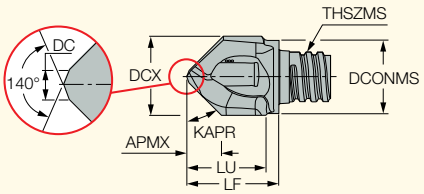


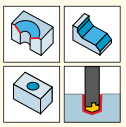
Features
Modular system reduces stock cost by using the same head with different shank options. Enables machining with larger overhang. Same head can be mounted on metric and inch combinations.

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM HCD

Interchangeable 2 Flute Solid Carbide Heads for Chamfering, Countersinking and Spot Drilling





ECONOMICAL SOLUTION

Designation	Dimensions										IC908
	DCX[4]	DCXTOL	NOF[5]	LU	THSZMS	DCONMS	LF	APMX	DC	KAPR[6]	
MM HCD060-090-2T04	6.00	z9	2	6.86	T04	5.80	8.50	2.66	1.00	45.0	●
MM HCD080-060-2T05	8.00	h10	2	8.00	T05	7.60	10.50	6.08	1.20	60.0	●
MM HCD080-120-2T05	8.00	h10	2	7.80	T05	7.60	10.30	2.15	1.00	30.0	●
MM HCD080-090-2T05 [1]	8.00	z9	2	7.00	T05	7.60	9.75	3.15	1.00	45.0	●
MM HCD083-090-2T05 [1]	8.30	z9	2	7.50	T05	7.60	10.00	3.56	1.00	45.0	●
MM HCD.375-100-2T06 [2]	9.50	h10	2	9.70	T06	9.50	13.40	3.60	2.00	40.0	●
MM HCD.375-080-2T06	9.50	z9	2	9.00	T06	9.20	11.80	5.00	2.00	50.0	●
MM HCD100-060-2T06	10.00	h10	2	9.30	T06	9.50	11.75	7.60	1.50	60.0	●
MM HCD100-120-2T06	10.00	h10	2	9.50	T06	9.50	12.70	2.70	1.50	30.0	●
MM HCD100-090-2T06-N [1]	10.00	z9	2	10.10	T06	9.50	14.00	4.50	1.50	45.0	●
MM HCD104-090-2T06 [1]	10.40	z9	2	9.00	T06	9.50	11.75	4.60	1.50	45.0	●
MM HCD120-060-2T08	12.00	h10	2	11.00	T08	11.50	15.40	9.24	1.50	60.0	●
MM HCD120-120-2T08	12.00	h10	2	11.65	T08	11.50	15.20	3.50	1.50	30.0	●
MM HCD120-090-2T08 [1]	12.00	z9	2	12.00	T08	11.50	15.50	5.30	1.50	45.0	●
MM HCD124-090-2T08 [1]	12.40	z9	2	11.80	T08	11.50	15.50	5.50	1.50	45.0	●
MM HCD.500-080-2T08 [3]	12.70	z9	2	11.10	T08	12.20	15.50	6.80	1.50	50.0	●
MM HCD.500-100-2T08 [2]	12.70	z9	2	10.90	T08	11.50	14.70	4.90	1.50	40.0	●
MM HCD.625-080-2T10	15.90	z9	2	15.20	T10	15.00	18.80	8.80	2.00	50.0	●
MM HCD.625-100-2T10 [2]	15.90	z9	2	14.90	T10	15.10	19.00	6.20	2.00	40.0	●
MM HCD160-060-2T10	16.00	h10	2	16.20	T10	15.20	20.20	12.00	2.50	60.0	●
MM HCD160-120-2T10	16.00	h10	2	15.50	T10	15.20	19.90	4.40	1.50	30.0	●
MM HCD160-090-2T10-N	16.00	z9	2	15.70	T10	15.20	20.00	7.40	1.50	45.0	●
MM HCD165-090-2T10 [1]	16.50	z9	2	14.90	T10	15.20	18.80	7.10	1.50	45.0	●
MM HCD.750-080-2T12	19.05	z9	2	19.60	T12	18.45	24.70	11.00	2.00	50.0	●
MM HCD.750-100-2T12 [2]	19.05	z9	2	18.50	T12	18.30	23.60	7.50	1.50	40.0	●
MM HCD200-060-2T12	20.00	h10	2	18.20	T12	18.30	24.70	15.50	2.60	60.0	●
MM HCD200-120-2T12	20.00	h10	2	14.65	T12	18.30	21.15	5.50	1.50	30.0	●
MM HCD200-090-2T12 [1]	20.00	z9	2	18.20	T12	18.30	24.70	9.40	1.50	45.0	●

• For shanks, see pages 101-111 • Clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

[1] May be used for F-type (fine) countersink according to DIN 74.

[2] May be used for 100° countersink according to ISO 5856, DIN EN 4072, ANSI B18.6.3-1972

[3] Countersink according to American National and British standard flat screws.

[4] Cutting diameter maximum

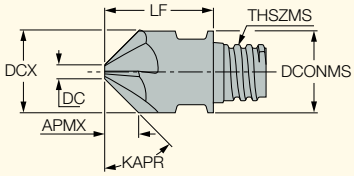
[5] Number of flutes

[6] Tool cutting edge angle

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM ECF

Interchangeable Solid Carbide Heads for Chamfering and Countersinking



Designation	Dimensions								IC908
	KAPR(1)	DCX(2)	NOF(3)	DC	APMX	THSZMS	DCONMS	LF	
MM ECF120-02/100-4T06	30.0	10.00	4	2.00	2.30	T06	10.00	13.00	●
MM ECF120-02/120-4T08	30.0	12.00	4	2.00	2.90	T08	12.00	16.50	●
MM ECF120-03/160-6T10	30.0	16.00	6	3.00	3.70	T10	16.00	20.50	●
MM ECF120-05/200-6T12	30.0	20.00	6	5.00	4.30	T12	18.45	25.50	●
MM ECF120-06/250-6T15	30.0	25.00	6	6.00	5.40	T15	25.00	25.00	●
MM ECF45-080-4T05	45.0	8.00	4	1.95	3.00	T05	8.00	10.00	●
MM ECF45-100-4T06	45.0	10.00	4	1.95	4.00	T06	10.00	13.00	●
MM ECF45-120-4T08	45.0	12.00	4	1.95	5.00	T08	12.00	16.50	●
MM ECF45-.500-4T08	45.0	12.70	4	1.95	5.00	T08	12.70	16.50	●
MM ECF45-160-6T10	45.0	16.00	6	3.00	6.50	T10	16.00	20.50	●
MM ECF45-200-6T12	45.0	20.00	6	5.00	7.50	T12	18.45	25.50	●
MM ECF45-250-6T15-M	45.0	25.00	6	5.00	10.00	T15	25.00	25.00	●
MM ECF60-100-4T06	60.0	10.00	4	1.60	7.30	T06	10.00	13.00	●
MM ECF60-02/100-4T06	60.0	10.00	4	2.00	6.90	T06	10.00	13.00	●
MM ECF60-03/120-4T08	60.0	12.00	4	3.00	7.80	T08	12.00	16.50	●
MM ECF60-04/160-6T10	60.0	16.00	6	4.00	10.00	T10	16.00	20.50	●
MM ECF60-05/200-6T12	60.0	20.00	6	5.00	13.00	T12	18.45	25.50	●
MM ECF60-08/250-6T15	60.0	25.00	6	8.00	14.00	T15	25.00	25.00	●

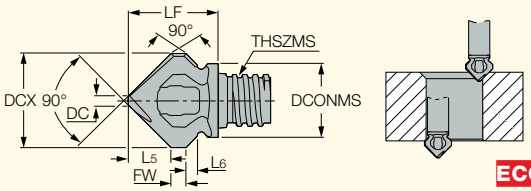
• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

(1) Tool cutting edge angle
(2) Cutting diameter maximum
(3) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM HDF

Interchangeable 2 Flute Solid Carbide Heads for Upper and Bottom Chamfering



ECONOMICAL SOLUTION

Designation	Dimensions									IC908
	DCX(1)	NOF(2)	L5	L6	FW	DC	THSZMS	DCONMS	LF	
MM HDF100-090-2T05	9.80	2	4.30	0.90	2.50	1.20	T05	7.60	10.80	MM KEY 8X5*	●
MM HDF120-090-2T06	11.80	2	5.30	1.20	2.00	1.20	T06	9.30	11.20	MM KEY 10X7*	●
MM HDF160-090-2T08	15.70	2	7.10	2.20	2.00	1.50	T08	11.50	14.00	MM KEY 13X8*	●

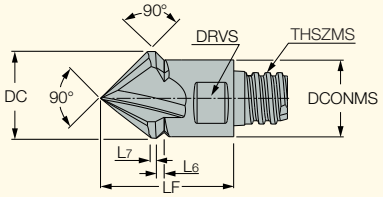
• For shanks, see pages 101-111 • Clamping keys to be ordered separately • For tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection • For user guide, see pages 59,211-218

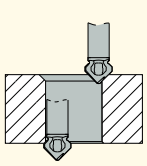
(1) Cutting diameter maximum
(2) Number of flutes
* Optional, to be ordered separately

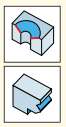
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EDF

Interchangeable 3 Flute Solid Carbide Heads for Upper and Bottom Chamfering







Designation	Dimensions							IC908
	DC	DCONMS	NOF(1)	L6	L7	LF	THSZMS	
MM EDF074-090-58-3T04	7.40	5.80	3	0.90	1.00	10.00	T04	●
MM EDF094-090-76-3T05	9.40	7.60	3	0.90	1.00	12.50	T05	●
MM EDF116-090-95-3T06	11.60	9.60	3	1.00	1.00	16.50	T06	●

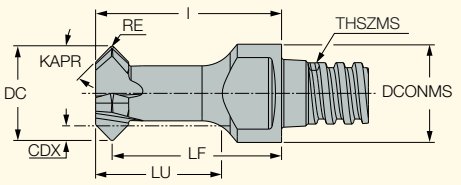
• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

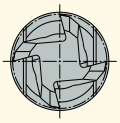
(1) Number of flutes

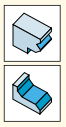
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TS-45

Interchangeable Solid Carbide Small Diameter 45° Chamfering Heads







Designation	Dimensions										IC908
	DC	KAPR(1)	CDX(2)	RE	NOF(3)	l	THSZMS	DCONMS	LU	LF	
MM TS077-45-20A-4T05	7.70	45.0	1.20	0.20	4	15.20	T05	8.00	10.3	13.85	●

• For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection

(1) Tool cutting edge angle

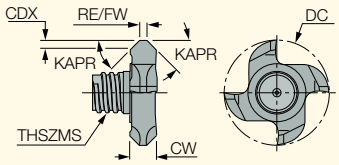
(2) Cutting depth maximum

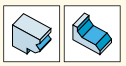
(3) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM GRIT-45A

Interchangeable Solid Carbide Small Diameter 45° Chamfering Heads





Designation	Dimensions									IC908
	DC	KAPR(1)	CDX(2)	RE	FW	CW	THSZMS	NOF(3)		
MM GRIT18K-45A-3T6	17.70	45.0	1.40	0.10	-	3.47	T06	3	T-25/3*	●
MM GRIT18P-45A-3T6	17.70	45.0	1.40	0.10	-	3.47	T06	3	T-25/3*	●
MM GRIT22K-45A-4T8	21.70	45.0	1.70	-	1.50	5.55	T08	4	T-30/3 L*	●
MM GRIT22P-45A-4T8	21.70	45.0	1.70	-	1.50	5.55	T08	4	T-30/3 L*	●
MM GRIT28K-45A-6T10	27.70	45.0	4.00	-	0.50	9.80	T10	6	T-40/3 L*	●

• P-TYPE - Positive geometry for soft and gummy materials. • K-Type - For general steel machining. • Modification options on request. • Do not apply lubricant to the threaded connection. • For clamping instructions, see pages 111-112 • For shanks, see pages 101-111

(1) Tool cutting edge angle

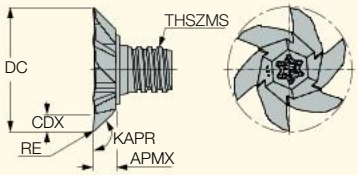
(2) Cutting depth maximum

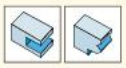
(3) Number of flutes

* Optional, to be ordered separately

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM Dovetail
Interchangeable Solid Carbide Heads





Designation	Dimensions								IC908
	DC	KAPR(1)	CDX(2)	APMX	RE	THSZMS	NOF(3)		
MM TS105-45D-06T04	10.50	135.0	1.33	1.60	0.20	T04	6	T-15/3*	●
MM TS135-45D-06T05	13.50	135.0	1.75	2.00	0.20	T05	6	T-20/3*	●
MM TS165-45D-06T06	16.50	135.0	1.75	2.00	0.20	T06	6	T-25/3*	●
MM TS195-45D-06T08	19.50	135.0	2.55	2.80	0.20	T08	6	T-30/3 L*	●
MM TS225-45D-06T08	22.50	135.0	3.48	3.70	0.20	T08	6	T-40/3 L*	●
MM TS250-45D-06T10	25.00	135.0	3.68	3.90	0.20	T10	6	T-50/3 L*	●
MM GRIT 28K-45D-6T10	27.70	135.0	4.00	4.20	0.20	T10	6	T-40/3 L*	●
MM TS105-60D-06T04	10.50	120.0	0.84	1.70	0.20	T04	6	T-15/3*	●
MM TS135-60D-06T05	13.50	120.0	1.67	3.10	0.20	T05	6	T-20/3*	●
MM TS165-60D-06T06	16.50	120.0	2.02	3.70	0.20	T06	6	T-25/3*	●
MM TS195-60D-06T08	19.50	120.0	2.70	4.80	0.20	T08	6	T-30/3 L*	●
MM TS225-60D-06T08	22.50	120.0	3.79	6.70	0.20	T08	6	T-40/3 L*	●
MM TS250-60D-06T10	25.00	120.0	3.85	6.80	0.20	T10	6	T-50/3 L*	●
MM GRIT 28K-60D-6T10	27.70	120.0	4.00	7.08	0.20	T10	6	T-40/3 L*	●
MM GRIT 28K-75D-6T10	27.70	105.0	2.20	8.39	0.20	T10	6	T-40/3 L*	●

• Use carbide shanks for groove milling heads • For user guide, see pages 59,211-218

(1) Tool cutting edge angle

(2) Cutting depth maximum

(3) Number of flutes

* Optional, to be ordered separately

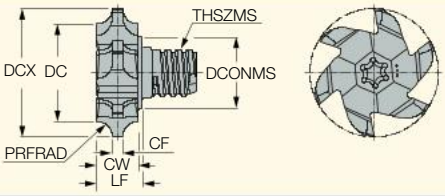
MM GRIT 28K-45D-6T10

MM GRIT 28K-60D-6T10

MM GRIT 28K-75D-6T10

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM GRIT 28P-DR
Interchangeable 6 Flute Solid Carbide Double-Sided Corner Round Milling Heads



Designation	Dimensions										IC908
	PRFRAD	CF	DCX(1)	DC	LF	CW	NOF(2)	THSZMS	DCONMS		
MM GRIT 28P-2.7-DR1.0	1.00	2.70	27.70	24.80	6.00	5.60	6	T10	15.30	T-40/3 L*	●
MM GRIT 28P-2.6-DR2.0	2.00	2.60	27.70	22.90	7.70	7.30	6	T10	15.30	T-40/3 L*	●
MM GRIT 28P-2.3-DR3.0	3.00	2.30	27.70	21.10	9.70	8.90	6	T10	15.30	T-40/3 L*	●
MM GRIT 28P-2.6-DR4.0	4.00	2.60	27.70	19.70	11.70	10.90	6	T10	15.30	T-40/3 L*	●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

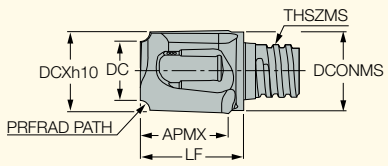
(1) Cutting diameter maximum

(2) Number of flutes

* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM HR
Interchangeable 2 Flute
Solid Carbide Corner
Round Milling Heads



ECONOMICAL SOLUTION

Designation	Dimensions									IC908
	DCX[1]	PRFRAD	Tm[2]	NOF[3]	DC	APMX	THSZMS	DCONMS	LF	
MM HR1.0/047-5.8-2T05	8.00	1.00	r0.5-3.0	2	5.80	7.50	T05	7.60	10.60	●
MM HR1.6/063-6.8-2T06	10.00	1.60	r0.5-3.0	2	6.80	9.50	T06	9.50	12.50	●
MM HR2.0/078-6.0-2T06	10.00	2.00	r0.5-3.0	2	6.00	9.50	T06	9.50	12.50	●
MM HR2.5/094-5.1-2T06	10.00	2.50	r0.5-3.0	2	5.10	9.50	T06	9.50	12.50	●
MM HR3.0/125-6.5-2T08	12.70	3.00	r0.5-4.0	2	6.50	12.00	T08	11.50	15.60	●
MM HR4.0/156-4.7-2T08	12.70	4.00	r0.5-4.0	2	4.70	12.00	T08	11.50	15.60	●
MM HR5.0/188-6.2-2T10	16.00	4.88	r0.5-5.0	2	6.20	15.00	T10	15.20	19.10	●
MM HR6.0/236-8.0-2T12	20.00	6.00	r0.5-6.0	2	8.00	7.00	T12	18.45	17.40	●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

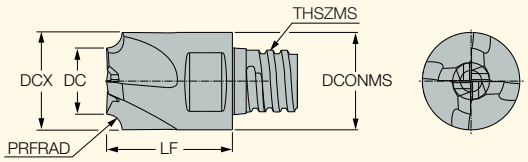
[1] Cutting diameter maximum

[2] Specially tailored radius range upon request.

[3] Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM ER
Interchangeable 4 Flute
Solid Carbide Corner
Round Milling Heads



Designation	Dimensions								IC908
	PRFRAD	Tm[1]	DC	DCX[2]	DCONMS	NOF[3]	LF	THSZMS	
MM ER0.5/020-5.0-4T04	0.50	0.5-1.0	5.00	6.00	6.00	4	8.50	T04	●
MM ER1.0/040-5.8-4T05	1.00	0.5-1.4	5.80	8.00	8.00	4	10.00	T05	●
MM ER1.6/063-6.8-4T06	1.60	0.5-2.5	6.80	10.00	10.00	4	13.00	T06	●
MM ER2.0/078-6.0-4T06	2.00	0.5-2.5	6.00	10.00	10.00	4	13.00	T06	●
MM ER2.5/094-5.1-4T06	2.50	0.5-2.5	5.10	10.00	10.00	4	13.00	T06	●
MM ER3.0/125-6.5-4T08	3.00	0.5-3.1	6.50	12.70	12.70	4	16.50	T08	●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

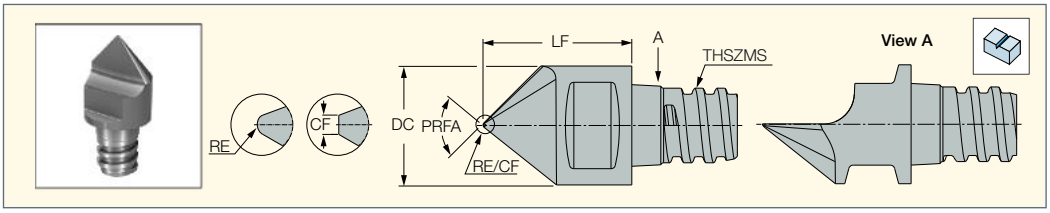
[1] Specially tailored radius range upon request.

[2] Cutting diameter maximum

[3] Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

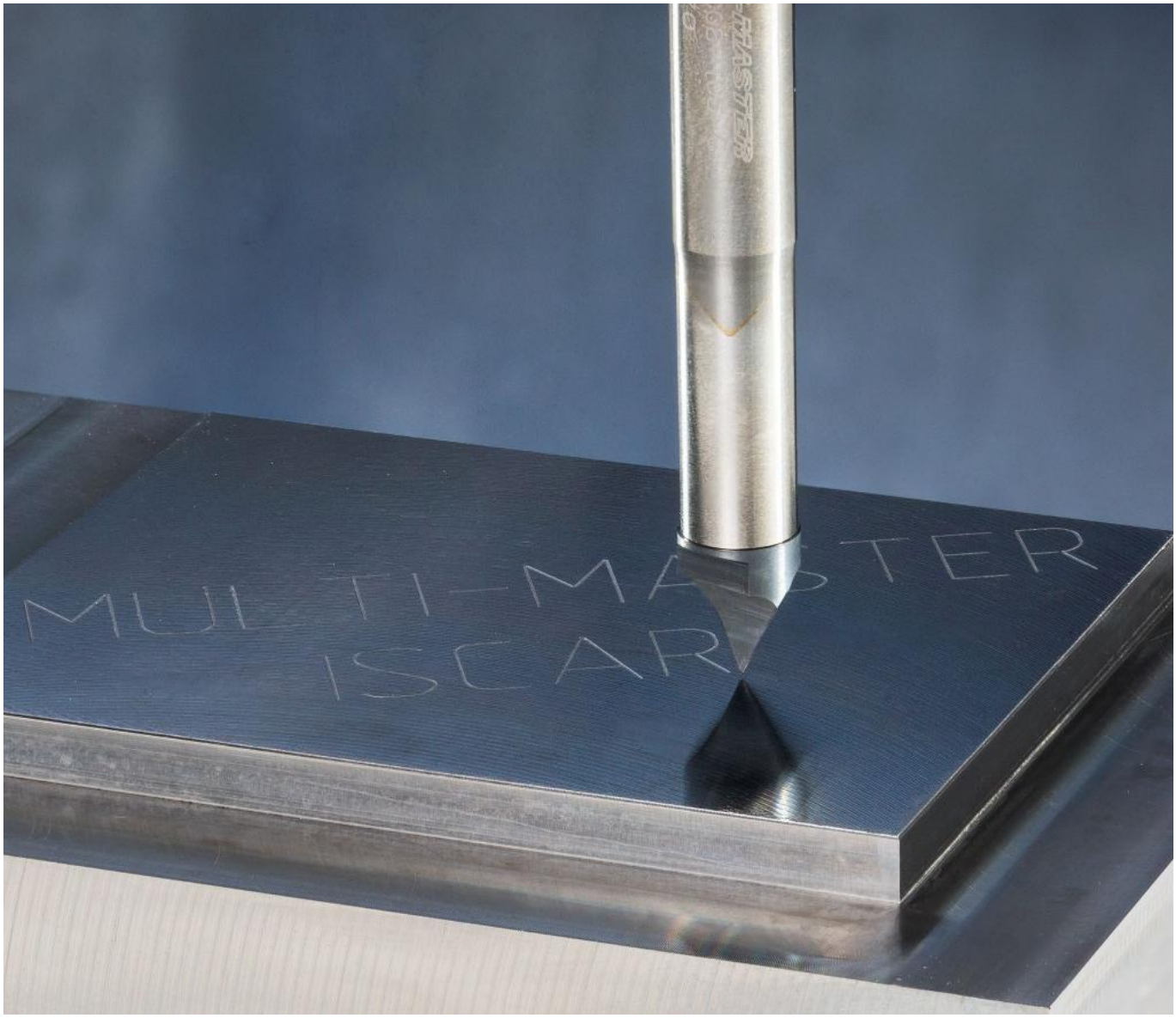
MM EPG
Single Flute MULTI-MASTER
Engraving Tool Head



Designation	Dimensions						IC908
	DC	RE	CF[1]	PRFA	LF	THSZMS	
MM EPG060/60-1T04	6.00	0.20	-	60.00	8.50	T04	●
MM EPG080/30-1T05	8.00	0.20	-	30.00	10.00	T05	●
MM EPG080/45-1T05	8.00	0.20	-	45.00	10.00	T05	●
MM EPG080/60-1T05	8.00	0.20	-	60.00	10.00	T05	●
MM EPG080/90-1T05	8.00	0.20	-	90.00	10.00	T05	●
MM EPG080/60-F50-1T05	8.00	-	0.50	60.00	10.00	T05	●
MM EPG080/60-F75-1T05	8.00	-	0.75	60.00	10.00	T05	●
MM EPG080/90-F32-1T05	8.00	-	0.32	90.00	10.00	T05	●
MM EPG080/90-F50-1T05	8.00	-	0.50	90.00	10.00	T05	●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection

(1) Front flat



MULTI-MASTER

MM ECS

Interchangeable Solid Carbide Centering Drills (DIN 332)

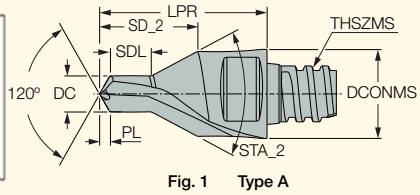


Fig. 1 Type A

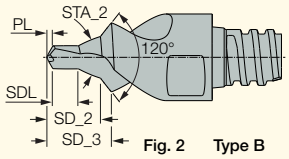
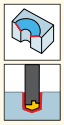
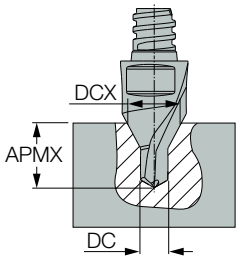


Fig. 2 Type B



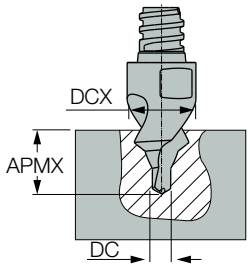
Designation	Dimensions										IC908
	DC	DCONMS	THSZMS	LPR	SDL	SD_2	SD_3	STA_2	PL	Fig.	
MM ECS-A1.00X06-2T04	1.07	6.00	T04	10.00	1.32	4.14	-	60.0	0.280	1	●
MM ECS-A1.60X06-2T04	1.65	6.00	T04	10.00	1.97	4.45	-	60.0	0.430	1	●
MM ECS-A2.00X06-2T04	2.07	6.00	T04	10.00	2.36	6.37	-	60.0	0.540	1	●
MM ECS-A3.15X08-2T05	3.28	8.00	T05	15.00	3.75	8.76	-	60.0	0.850	1	●
MM ECS-A4.00X10-2T06	4.12	10.00	T06	19.00	4.83	11.05	-	60.0	1.070	1	●
MM ECS-A5.00X12-2T08	5.13	12.00	T08	23.00	5.88	13.23	-	60.0	1.320	1	●
MM ECS-A6.30X16-2T10	6.46	16.00	T10	28.00	7.25	17.18	-	60.0	1.650	1	●
MM ECS-B3.15X12-2T08	3.24	12.00	T08	23.00	3.55	7.40	8.94	60.0	0.830	2	●
MM ECS-B4.00X127-2T08	4.09	12.70	T08	23.00	4.53	9.50	10.71	60.0	1.070	2	●
MM ECS-B5.00X19-2T12	5.09	18.45	T12	25.50	5.56	11.70	14.17	60.0	1.330	2	●
MM ECS-B6.30X20-2T12	6.41	18.45	T12	25.50	6.95	14.50	16.58	60.0	1.680	2	●

- For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112
- Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218



ISO		IC908 *V_c x f_z [m/min x mm/tooth]						
		MM ECS-A1.00X06-2T04	MM ECS-A1.60X06-2T04	MM ECS-A2.00X06-2T04	MM ECS-A3.15X08-2T05	MM ECS-A4.00X10-2T06	MM ECS-A5.00X12-2T08	MM ECS-A6.30X16-2T10
		DCX=2.12, APMX=2.5	DCX=3.35, APMX=3.9	DCX=4.25, APMX=4.8	DCX=6.70, APMX=7.60	DCX=8.50, APMX=9.80	DCX=10.60, APMX=12.00	DCX=13.20, APMX=14.80
P	4340 24-29HRC	80x0.020	80x0.025	80x0.025	80x0.030	80x0.040	80x0.050	80x0.060
P	4340 38-42HRC	65x0.020	65x0.025	65x0.025	65x0.030	65x0.040	65x0.050	65x0.060
M	316L MAX-215 HB	50x0.015	50x0.020	50x0.020	50x0.025	50x0.030	50x0.040	50x0.040
S	Inconel 718	15x0.010	15x0.010	15x0.015	15x0.015	15x0.020	15x0.020	15x0.025

* V_c Calculated for ØDC



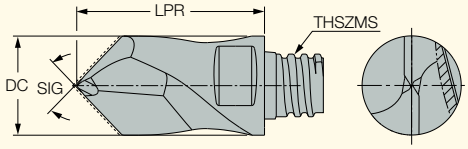
ISO		IC908 *V_c x f_z [m/min x mm/tooth]			
		MM ECS-A3.15X12-2T08	MM ECS-A4.00X127-2T08	MM ECS-A5.00X19-2T12	MM ECS-A6.30X20-2T12
		DCX=10.00, APMX=8.80	DCX=12.50, APMX=11.00	DCX=16.00, APMX=13.900	DCX=18.00, APMX=16.80
P	4340 24-29HRC	75x0.030	75x0.040	75x0.050	75x0.060
P	4340 38-42HRC	60x0.030	60x0.040	60x0.050	60x0.060
M	316L MAX-215 HB	45x0.025	45x0.030	45x0.040	45x0.040
S	Inconel 718	12x0.015	12x0.020	12x0.020	12x0.025

* V_c Calculated for ØDC

MULTI-MASTER

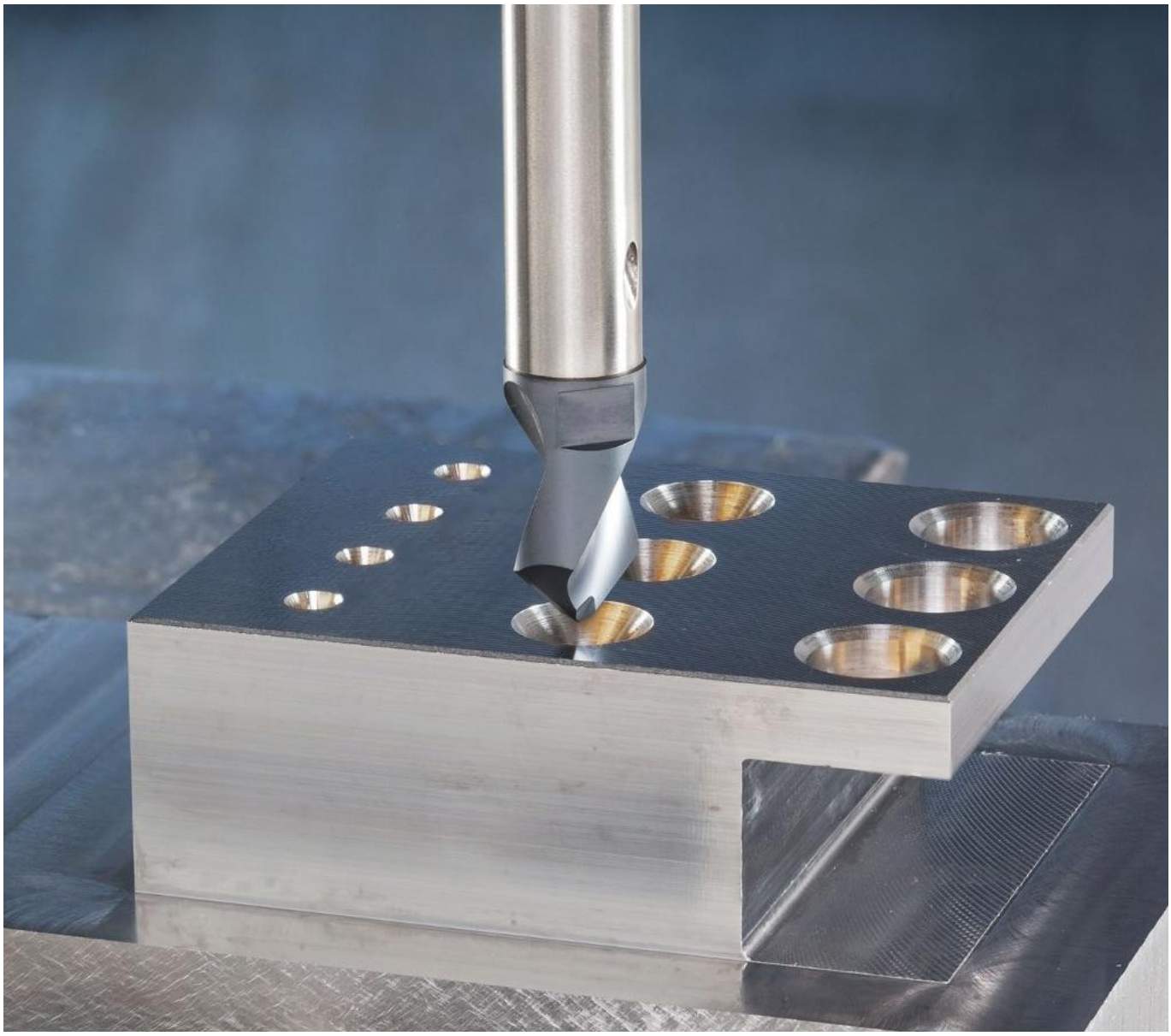
MM ECD

NC Spot Drills for Accurate Hole Location without the need for a Bushing Guide.



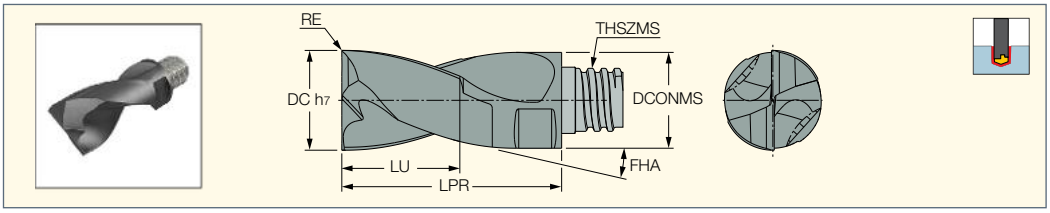
Designation	Dimensions				IC908
	DC	LPR	THSZMS	SIG	
MM ECD-06X145-2T04	6.00	8.50	T04	145	●
MM ECD-06X90-2T04	6.00	11.00	T04	90	●
MM ECD-08X145-2T05	8.00	10.00	T05	145	●
MM ECD-08X90-2T05	8.00	15.00	T05	90	●
MM ECD-10X145-2T06	10.00	13.00	T06	145	●
MM ECD-10X90-2T06	10.00	19.00	T06	90	●
MM ECD-12X145-2T08	12.00	16.50	T08	145	●
MM ECD-12X90-2T08	12.00	23.00	T08	90	●
MM ECD-16X145-2T10	16.00	20.50	T10	145	●
MM ECD-16X90-2T10	16.00	28.00	T10	90	●

- For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112
- Do not apply lubricant to the threaded connection



MULTI-MASTER

MM ECDF
MULTI-MASTER
Exchangeable Solid Carbide
Flat Bottom Drill Heads



Designation	Dimensions DC	DCONMS	NOF(1)	LU	LPR	RE	FHA	THSZMS	IC908
MM ECDF080A100-2T05	8.00	7.70	2	10.00	18.00	0.00	30.0	T05	●
MM ECDF085A120-2T05	8.50	7.70	2	12.00	22.00	0.00	30.0	T05	●
MM ECDF090A120-2T05	9.00	7.70	2	12.00	22.00	0.00	30.0	T05	●
MM ECDF095A120-2T06	9.50	9.20	2	12.00	22.00	0.00	30.0	T06	●
MM ECDF100A120-2T06	10.00	9.60	2	12.00	22.00	0.00	30.0	T06	●
MM ECDF105A120-2T06	10.50	9.60	2	12.00	23.00	0.00	30.0	T06	●
MM ECDF110A120-2T06	11.00	9.60	2	12.00	23.00	0.00	30.0	T06	●
MM ECDF115A120-2T06	11.50	9.60	2	12.00	23.00	0.00	30.0	T06	●
MM ECDF120A150-2T08	12.00	11.70	2	15.00	27.00	0.00	30.0	T08	●
MM ECDF125A150-2T08	12.50	12.10	2	15.00	27.00	0.00	30.0	T08	●
MM ECDF130A150-2T08	13.00	12.20	2	15.00	27.00	0.00	30.0	T08	●
MM ECDF135A150-2T08	13.50	12.20	2	15.00	27.00	0.00	30.0	T08	●
MM ECDF140A150-2T08	14.00	12.20	2	15.00	27.00	0.00	30.0	T08	●
MM ECDF145A150-2T08	14.50	12.20	2	15.00	27.00	0.00	30.0	T08	●
MM ECDF150A150-2T08	15.00	12.20	2	15.00	27.00	0.00	30.0	T08	●
MM ECDF155A150-2T08	15.50	12.20	2	15.00	27.00	0.00	30.0	T08	●
MM ECDF160A200-2T10	16.00	15.30	2	20.00	33.50	0.00	30.0	T10	●
MM ECDF165A200-2T10	16.50	15.30	2	20.00	33.50	0.00	30.0	T10	●
MM ECDF170A200-2T10	17.00	15.30	2	20.00	33.50	0.00	30.0	T10	●
MM ECDF175A200-2T10	17.50	15.30	2	20.00	33.50	0.00	30.0	T10	●
MM ECDF180A200-2T10	18.00	15.30	2	20.00	33.50	0.00	30.0	T10	●
MM ECDF185A200-2T12	18.50	18.20	2	25.00	41.00	0.00	30.0	T12	●
MM ECDF190A250-2T12	19.00	18.30	2	25.00	41.00	0.00	30.0	T12	●
MM ECDF195A250-2T12	19.50	18.30	2	25.00	41.00	0.00	30.0	T12	●
MM ECDF200A250-2T12	20.00	18.45	2	25.00	41.00	0.00	30.0	T12	●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

(1) Number of flutes

Recommended Machining Conditions for Solid Carbide Endmill Heads DC=8.0-25.4 mm

ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Material Group No.	V m/min	Feed vs. Flat-Drill Diameter DC=8.0-9.9	DC=10.0-12.9	DC=13.0-15.9	DC=16.0-17.9	DC=18.0-25.4
								frev mm/rev				
P	non-alloy steel and cast steel, free cutting steel	< 0.25 %C	annealed	420	125	1	80-110-140	0.08	0.10	0.12	0.14	0.18
		≥ 0.25 %C	annealed	650	190	2		0.10	0.12	0.15	0.17	0.21
		< 0.55 %C	quenched and tempered	850	250	3		0.12	0.14	0.18	0.20	0.24
		≥ 0.55 %C	annealed	750	220	4						
			quenched and tempered	1000	300	5	80-105-130					
	low alloy and cast steel (less than 5% of alloying elements)		annealed	600	200	6						
			quenched and tempered	930	275	7	60-80-100	0.06	0.06	0.08	0.10	0.12
				1000	300	8		0.08	0.08	0.10	0.12	0.14
				1200	350	9		0.10	0.10	0.12	0.14	0.16
	high alloyed steel, cast steel and tool steel		annealed	680	200	10						
			quenched and tempered	1100	325	11						
	stainless steel and cast steel		ferritic/martensitic	680	200	12	60-80-100	0.01	0.02	0.03	0.04	0.06
			martensitic	820	240	13		0.02	0.03	0.04	0.05	0.07
								0.03	0.04	0.05	0.06	0.08
M	stainless steel and cast steel		austenitic, duplex	600	180	14	60-80-100	0.01	0.02	0.03	0.04	0.06
								0.02	0.03	0.04	0.05	0.07
								0.03	0.04	0.05	0.06	0.08
K	gray cast iron (GG)		ferritic / pearlitic		180	17	80-120-160	0.08	0.10	0.14	0.16	0.18
			pearlitic / martensitic		260	18		0.10	0.12	0.16	0.18	0.20
	nodular cast iron (GGG)		ferritic		160	15		0.12	0.14	0.18	0.20	0.22
			pearlitic		250	16						
	malleable cast iron		ferritic		130	19						
			pearlitic		230	20						

■ recommended cutting data

Spare Parts

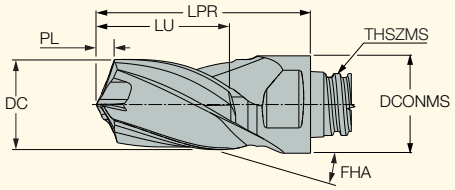
Designation	
MM ECDF080A100-2T05	MM KEY 6X4*
MM ECDF100A120-2T06	MM KEY 8X5*
MM ECDF120A150-2T08	MM KEY 10X7*
MM ECDF160A200-2T10	MM KEY 13X8*
MM ECDF200A250-2T12	MM KEY 16X9*

* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM SPD-3T

Three-Flute Exchangeable
Solid Carbide Drilling Heads



Designation	Dimensions DC	LU	LF	THSZMS	DCONMS	SIG	FHA	IC908
MM SPD080-08-3T06	8.00	12.10	22.00	T06	10.00	142	15.0	●
MM SPD085-09-3T06	8.50	12.20	22.00	T06	10.00	142	15.0	●
MM SPD090-09-3T06	9.00	12.30	22.00	T06	10.00	142	15.0	●
MM SPD0925-10-3T06	9.25	13.80	22.00	T06	10.00	142	15.0	●
MM SPD095-10-3T06	9.50	13.90	22.00	T06	10.00	142	15.0	●
MM SPD100-10-3T08	10.00	15.00	27.00	T08	12.00	142	15.0	●
MM SPD105-11-3T08	10.50	15.00	27.00	T08	12.00	142	15.0	●
MM SPD1075-11-3T08	10.75	15.10	27.00	T08	12.00	142	15.0	●
MM SPD110-11-3T08	11.00	15.10	27.00	T08	12.00	142	15.0	●
MM SPD1125-12-3T08	11.25	16.20	27.00	T08	12.00	142	15.0	●
MM SPD115-12-3T08	11.50	16.20	27.00	T08	12.00	142	15.0	●
MM SPD120-12-3T08	12.00	16.60	27.00	T08	12.70	142	15.0	●
MM SPD125-13-3T08	12.50	16.60	27.00	T08	12.70	142	15.0	●
MM SPD1275-13-3T10	12.75	20.00	33.50	T10	16.00	142	15.0	●
MM SPD130-13-3T10	13.00	20.00	33.50	T10	16.00	142	15.0	●
MM SPD140-14-3T10	14.00	19.70	33.50	T10	16.00	142	15.0	●
MM SPD145-15-3T10	14.50	20.80	33.50	T10	16.00	142	15.0	●
MM SPD150-15-3T10	15.00	20.40	33.50	T10	16.00	142	15.0	●
MM SPD1525-16-3T10	15.25	20.50	33.50	T10	16.00	142	15.0	●
MM SPD155-16-3T10	15.50	20.50	33.50	T10	16.00	142	15.0	●
MM SPD160-16-3T12	16.00	25.10	41.00	T12	18.43	142	15.0	●

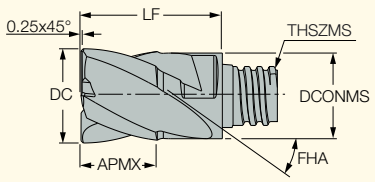
New

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EFCB

Interchangeable 4 Flute 30°
Helix Solid Carbide Heads
for Flat Counter Boring



Designation	Dimensions DC(1)	APMX	LF	DCONMS	THSZMS	NOF(2)	FHA	CHW	KCH	IC908	Recommended Machining Data f_z (mm/t)
MM EFCB110A08-4T06	11.00	8.40	16.50	10.00	T06	4	30.0	0.25	45.0	●	0.03-0.04
MM EFCB140A11-4T08	14.00	11.50	28.00	12.00	T08	4	30.0	0.25	45.0	●	0.04-0.05

• 0.06 mm maximum concavity on the tool's bottom • For shanks, see pages 101-117 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

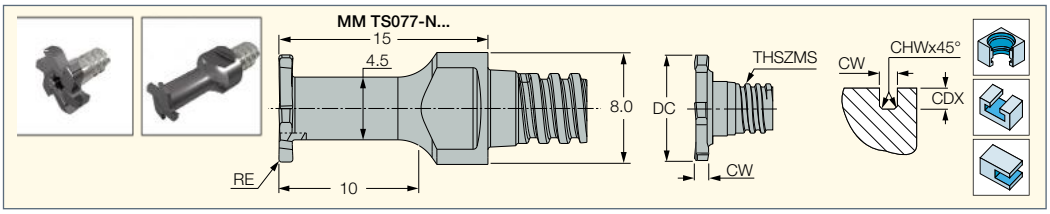
(1) e8 tolerance

(2) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TS-N

Interchangeable Solid Carbide T-SLOT Milling Heads



Designation	Dimensions DC	DCTOLL	CW	NOF(1)	THSZMS	CDX(2)	RE	CHW			Tough ↔ Hard IC928	IC908
MM TS077-N07A-4T05	7.70	-0.0500	0.70	4	T05	1.20	0.20	-	MM KEY 6X4*			●
MM TS077-N08A-4T05	7.70	-0.0500	0.80	4	T05	1.20	0.20	-	MM KEY 6X4*			●
MM TS077-N09A-4T05	7.70	-0.0500	0.90	4	T05	1.20	0.20	-	MM KEY 6X4*			●
MM TS077-N10A-4T05	7.70	-0.0500	1.00	4	T05	1.20	0.20	-	MM KEY 6X4*			●
MM TS077-N15A-4T05	7.70	-0.0500	1.50	4	T05	1.20	0.20	-	MM KEY 6X4*			●
MM TS077-N20A-4T05	7.70	-0.0500	2.00	4	T05	1.20	0.20	-	MM KEY 6X4*			●
MM TS105-N20D-06T04	10.50	-0.0500	2.00	6	T04	2.00	0.40	-		T-15/3*	●	
MM TS.500-N062P-06T05	12.70	-0.0500	1.58	6	T05	2.25	-	0.15		T-20/3*		●
MM TS.500-N078P-06T05	12.70	-0.0500	1.98	6	T05	2.25	-	0.15		T-20/3*		●
MM TS135-N20P-06T05	13.50	-0.0500	2.00	6	T05	2.65	-	0.20		T-20/3*		●
MM TS135-N25P-06T05	13.50	-0.0500	2.50	6	T05	2.65	-	0.20		T-20/3*		●

• For shanks, see pages 101-111 • For tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection
• For user guide, see pages 59,211-218

(1) Number of flutes

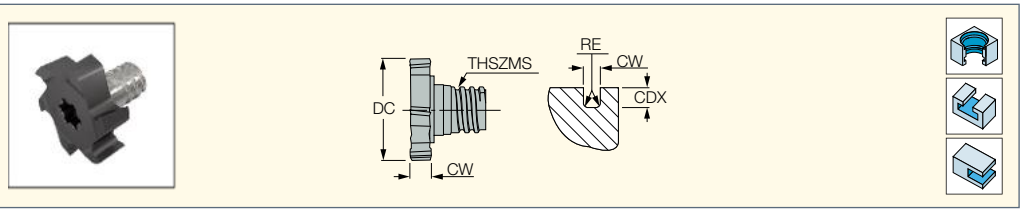
(2) Cutting depth maximum

* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TS-H

Interchangeable Solid Carbide T-SLOT Milling Heads with Diverse Corner Radii



Designation	Dimensions DC	DCTOLL	CW	CDX(1)	NOF(2)	RE	THSZMS		IC908
MM TS135-H30D-06T05	13.50	-0.0500	3.00	2.65	6	0.40	T05	T-20/3*	●
MM TS135-H40D-06T05	13.50	-0.0500	4.00	2.65	6	0.40	T05	T-20/3*	●
MM TS165-H40A-06T05	16.50	-0.0500	4.00	4.25	6	0.20	T05	T-20/3*	●
MM TS160-H20D-06T06	16.00	-0.0500	2.00	3.00	6	0.40	T06	T-20/3*	●
MM TS160-H30D-06T06	16.00	-0.0500	3.00	3.00	6	0.40	T06	T-25/3*	●
MM TS160-H40D-06T06	16.00	-0.0500	4.00	3.00	6	0.40	T06	T-25/3*	●
MM TS165-H20D-06T06	16.50	-0.0500	2.00	3.25	6	0.40	T06	T-20/3*	●
MM TS165-H30D-06T06	16.50	-0.0500	3.00	3.25	6	0.40	T06	T-25/3*	●
MM TS165-H40D-06T06	16.50	-0.0500	4.00	3.25	6	0.40	T06	T-25/3*	●
MM TS195-H60A-06T06	19.50	-0.0500	6.00	4.45	6	0.20	T06	T-25/3*	●
MM TS225-H60A-06T06	22.50	-0.0500	6.00	5.95	6	0.20	T06	T-25/3*	●
MM TS195-H40D-06T08	19.50	-0.0500	4.00	3.45	6	0.40	T08	T-30/3 L*	●
MM TS195-H50D-06T08	19.50	-0.0500	5.00	3.45	6	0.40	T08	T-30/3 L*	●
MM TS195-H60D-06T08	19.50	-0.0500	6.00	3.45	6	0.40	T08	T-30/3 L*	●
MM TS225-H40D-06T08	22.50	-0.0500	4.00	4.90	6	0.40	T08	T-40/3 L*	●
MM TS225-H50D-06T08	22.50	-0.0500	5.00	4.95	6	0.40	T08	T-40/3 L*	●
MM TS225-H60D-06T08	22.50	-0.0500	6.00	4.95	6	0.40	T08		●
MM TS225-H80D-06T08	22.50	-0.0500	8.00	4.95	6	0.40	T08	T-40/3 L*	●
MM TS250-H50D-06T08	25.00	-0.0500	5.00	5.90	6	0.40	T08	T-50/3 L*	●
MM TS250-H60D-06T08	25.00	-0.0500	6.00	5.90	6	0.40	T08	T-50/3 L*	●
MM TS250-H80D-06T08	25.00	-0.0500	8.00	5.90	6	0.40	T08	T-50/3 L*	●
MM TS250-H50D-06T10	25.00	-0.0500	5.00	4.30	6	0.40	T10	T-50/3 L*	●
MM TS250-H60D-06T10	25.00	-0.0500	6.00	4.30	6	0.40	T10	T-50/3 L*	●
MM TS250-H80D-06T10	25.00	-0.0500	8.00	4.30	6	0.40	T10	T-50/3 L*	●

• Inserts in 5 mm and wider feature chip splitting edges • For tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection • For shanks, see pages 101-111 • For user guide, see pages 59,211-218

(1) Cutting depth maximum

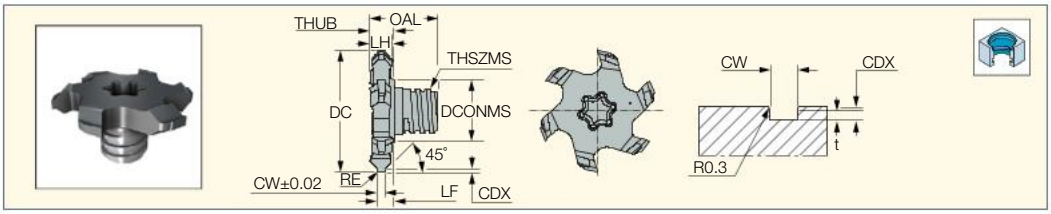
(2) Number of flutes

* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TS-C

Interchangeable Solid Carbide Circlip Groove Milling Heads Conform to DIN 471/472



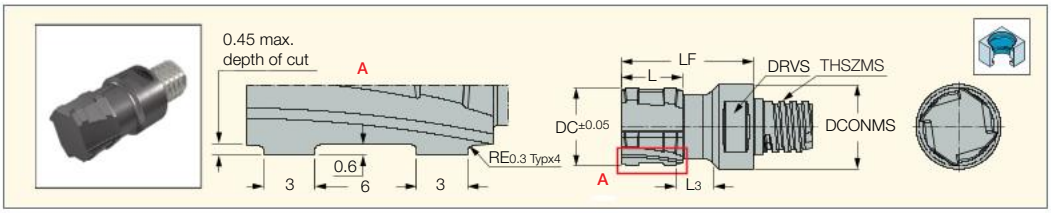
Designation	Dimensions													IC928
	DC	CW	CDX	LF	t	RE	THUB	LH	OAL	DCONMS	NOF(1)	THSZMS		
MM TS127C118T035-6T05	12.70	1.18	0.35	2.23	0.27	0.05	3.00	2.7	8.43	7.70	6	T05	T-20/3*	●
MM TS127C118T040-6T05	12.70	1.18	0.40	2.23	0.32	0.05	3.00	2.7	8.43	7.70	6	T05	T-20/3*	●
MM TS127C118T050-6T05	12.70	1.18	0.50	2.23	0.42	0.05	3.00	2.7	8.43	7.70	6	T05	T-20/3*	●
MM TS127C138T050-6T05	12.70	1.38	0.50	2.23	0.42	0.05	3.00	2.7	8.63	7.70	6	T05	T-20/3*	●
MM TS225C138T060-6T08	22.50	1.38	0.60	3.08	0.50	0.05	4.50	4.2	9.48	11.70	6	T08	T-40/3 L*	●
MM TS225C138T070-6T08	22.50	1.38	0.70	3.08	0.60	0.05	4.50	4.2	9.48	11.70	6	T08	T-40/3 L*	●
MM TS225C138T085-6T08	22.50	1.38	0.85	3.08	0.74	0.05	4.50	4.2	9.48	11.70	6	T08	T-40/3 L*	●
MM TS225C168T070-6T08	22.50	1.68	0.70	3.23	0.60	0.10	4.50	4.2	9.78	11.70	6	T08	T-40/3 L*	●
MM TS225C168T085-6T08	22.50	1.68	0.85	3.23	0.74	0.10	4.50	4.2	9.78	11.70	6	T08	T-40/3 L*	●
MM TS225C168T100-6T08	22.50	1.68	1.00	3.23	0.89	0.10	4.50	4.2	9.78	11.70	6	T08	T-40/3 L*	●
MM TS225C193T100-6T08	22.50	1.93	1.00	3.35	0.89	0.10	4.50	4.2	10.03	11.70	6	T08	T-40/3 L*	●
MM TS225C193T125-6T08	22.50	1.93	1.25	3.35	1.13	0.10	4.50	4.2	10.03	11.70	6	T08	T-40/3 L*	●
MM TS225C223T150-6T08	22.50	2.23	1.50	3.50	1.38	0.10	4.50	4.2	10.33	11.70	6	T08	T-40/3 L*	●
MM TS225C273T150-6T08	22.50	2.73	1.50	3.77	1.39	0.20	4.50	4.1	10.83	11.70	6	T08	T-40/3 L*	●
MM TS225C273T175-6T08	22.50	2.73	1.75	3.77	1.64	0.20	4.40	3.9	10.83	11.70	6	T08	T-40/3 L*	●
MM TS225C325T175-6T08	22.50	3.25	1.75	4.40	1.64	0.20	5.10	4.6	11.35	11.70	6	T08	T-40/3 L*	●

• For shanks, see pages 101-111 • For tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection
• For user guide, see pages 59,211-218
(1) Number of flutes
* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

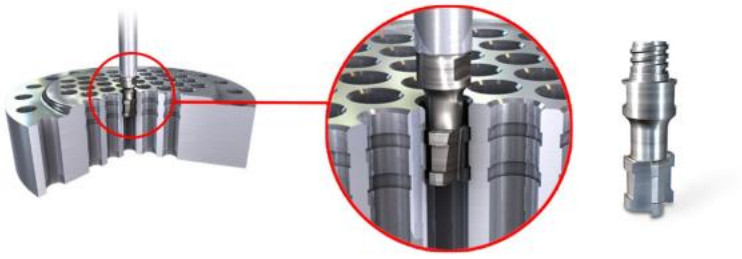
MM TS-DG

Double Groove Internal Grooving Heads with a Threaded Connection for Heat Exchanger Tube Sheets



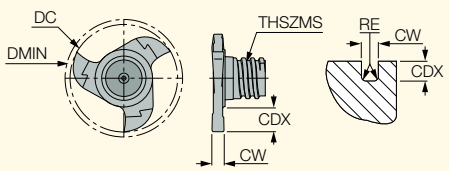
Designation	Dimensions										IC908
	DC	DCONMS	PHD(1)	THSZMS	NOF(2)	LF	L3	L	DRVS(3)		
MM TS155-04T10-8238	15.50	16.00	15.88	T10	4	33.70	17.80	14.20	10.0	MM KEY 10X7*	●
MM TS185-04T12-8239	18.50	18.45	19.05	T12	4	34.50	18.30	14.50	13.0	MM KEY 13X8*	●
MM TS245-04T15-8240	24.50	23.80	25.40	T15	4	37.20	11.00	14.40	20.0	MM KEY 20*	●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection • For user guide, see pages 59,211-218
(1) For minimum tube outer diameter
(2) Number of flutes
(3) Clamping wrench size
* Optional, to be ordered separately



MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM GRIT-3T6
Interchangeable Solid Carbide Small Diameter Groove Milling Heads



Designation	Dimensions								IC908
	DC	CW	CDX[1]	NOF[2]	RE	DMIN[3]	THSZMS		
MM GRIT16K150-010-3T6	15.70	1.50	2.80	3	0.10	16.00	T06	T-20/3*	●
MM GRIT16P150-010-3T6	15.70	1.50	2.80	3	0.10	16.00	T06	T-20/3*	●
MM GRIT16K157-020-3T6	15.70	1.57	2.80	3	0.20	16.00	T06	T-25/3*	●
MM GRIT16K200-020-3T6	15.70	2.00	2.80	3	0.20	16.00	T06	T-20/3*	●
MM GRIT16P220-110-3T6	15.70	2.20	2.80	3	1.10	16.00	T06	T-20/3*	●
MM GRIT16K239-020-3T6	15.70	2.39	2.80	3	0.20	16.00	T06	T-25/3*	●
MM GRIT16K250-020-3T6	15.70	2.50	2.80	3	0.20	16.00	T06	T-20/3*	●
MM GRIT16K300-020-3T6	15.70	3.00	2.80	3	0.20	16.00	T06	T-25/3*	●
MM GRIT16P300-020-3T6	15.70	3.00	2.80	3	0.20	16.00	T06	T-25/3*	●
MM GRIT16K317-020-3T6	15.70	3.17	2.80	3	0.20	16.00	T06	T-25/3*	●
MM GRIT18K120-005-3T6	17.70	1.20	3.80	3	0.05	18.00	T06	T-20/3*	●
MM GRIT18P120-060-3T6	17.70	1.20	3.80	3	0.60	18.00	T06	T-20/3*	●
MM GRIT18K140-005-3T6	17.70	1.40	3.80	3	0.05	18.00	T06	T-20/3*	●
MM GRIT18K150-010-3T6	17.70	1.50	3.80	3	0.10	18.00	T06	T-20/3*	●
MM GRIT18K157-020-3T6	17.70	1.57	3.80	3	0.20	18.00	T06	T-20/3*	●
MM GRIT18K170-005-3T6	17.70	1.70	3.80	3	0.05	18.00	T06	T-20/3*	●
MM GRIT18K200-020-3T6	17.70	2.00	3.80	3	0.20	18.00	T06	T-20/3*	●
MM GRIT18P200-100-3T6	17.70	2.00	3.80	3	1.00	18.00	T06	T-20/3*	●
MM GRIT18P220-110-3T6	17.70	2.20	3.80	3	1.10	18.00	T06	T-20/3*	●
MM GRIT18K239-020-3T6	17.70	2.39	3.80	3	0.20	18.00	T06	T-20/3*	●
MM GRIT18K250-020-3T6	17.70	2.50	3.80	3	0.20	18.00	T06	T-20/3*	●
MM GRIT18K300-020-3T6	17.70	3.00	3.80	3	0.20	18.00	T06	T-25/3*	●
MM GRIT18P300-150-3T6	17.70	3.00	3.80	3	1.50	18.00	T06	T-25/3*	●
MM GRIT18K317-020-3T6	17.70	3.17	3.80	3	0.20	18.00	T06	T-25/3*	●

• Recommended for O-rings and retaining rings • Modification options on request • Do not apply lubricant to the threaded connection • For clamping instructions, see pages 111-112 • For user guide, see pages 59,211-218 • For shanks, see pages 101-111 • K-Type - For general steel machining • P-Type - Positive geometry for soft and gummy materials

(1) Cutting depth maximum

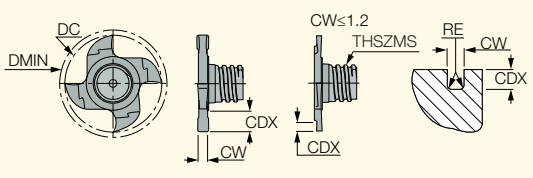
(2) Number of flutes

(3) Minimum bore diameter

* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM GRIT-4T8/6T10
Interchangeable Solid Carbide Small Diameter Groove Milling Heads



Designation	Dimensions								IC908
	DC	CW	CDX(1)	NOF(2)	RE	DMIN(3)	THSZMS	∠	
MM GRIT22K076-000-4T8	21.70	0.76	1.50	4	0.00	22.00	T08	T-25/3*	•
MM GRIT22K086-000-4T8	21.70	0.86	1.70	4	0.00	22.00	T08	T-25/3*	•
MM GRIT22K096-000-4T8	21.70	0.96	1.90	4	0.00	22.00	T08	T-25/3*	•
MM GRIT22K100-005-4T8	21.70	1.00	2.00	4	0.05	22.00	T08	T-25/3*	•
MM GRIT22P100-005-4T8	21.70	1.00	2.00	4	0.05	22.00	T08	T-25/3*	•
MM GRIT22K120-005-4T8	21.70	1.20	4.50	4	0.05	22.00	T08	T-25/3*	•
MM GRIT22K140-005-4T8	21.70	1.40	4.50	4	0.05	22.00	T08	T-25/3*	•
MM GRIT22K157-000-4T8	21.70	1.57	4.50	4	0.00	22.00	T08	T-25/3*	•
MM GRIT22K170-010-4T8	21.70	1.70	4.50	4	0.10	22.00	T08	T-25/3*	•
MM GRIT22P170-010-4T8	21.70	1.70	4.50	4	0.10	22.00	T08	T-25/3*	•
MM GRIT22K195-020-4T8	21.70	1.95	4.50	4	0.20	22.00	T08	T-25/3*	•
MM GRIT22K200-020-4T8	21.70	2.00	4.50	4	0.20	22.00	T08	T-25/3*	•
MM GRIT22P200-020-4T8	21.70	2.00	4.50	4	0.20	22.00	T08	T-25/3*	•
MM GRIT22K225-020-4T8	21.70	2.25	4.50	4	0.20	22.00	T08	T-25/3*	•
MM GRIT22K239-020-4T8	21.70	2.39	4.50	4	0.20	22.00	T08	T-25/3*	•
MM GRIT22K250-020-4T8	21.70	2.50	4.50	4	0.20	22.00	T08	T-25/3*	•
MM GRIT22P250-020-4T8	21.70	2.50	4.50	4	0.20	22.00	T08	T-25/3*	•
MM GRIT22K275-020-4T8	21.70	2.75	4.50	4	0.20	22.00	T08	T-25/3*	•
MM GRIT22K300-020-4T8	21.70	3.00	4.50	4	0.20	22.00	T08	T-30/3 L*	•
MM GRIT22P300-020-4T8	21.70	3.00	4.50	4	0.20	22.00	T08	T-30/3 L*	•
MM GRIT22K317-020-4T8	21.70	3.17	4.50	4	0.20	22.00	T08	T-30/3 L*	•
MM GRIT22K325-020-4T8	21.70	3.25	4.50	4	0.20	22.00	T08	T-30/3 L*	•
MM GRIT22P381-020-4T8	21.70	3.81	4.50	4	0.20	22.00	T08	T-30/3 L*	•
MM GRIT22K400-020-4T8	21.70	4.00	4.50	4	0.20	22.00	T08	T-30/3 L*	•
MM GRIT22P400-020-4T8	21.70	4.00	4.50	4	0.20	22.00	T08	T-30/3 L*	•
MM GRIT22P400-200-4T8	21.70	4.00	4.50	4	2.00	22.00	T08	T-30/3 L*	•
MM GRIT22K425-020-4T8	21.70	4.25	4.50	4	0.20	22.00	T08	T-30/3 L*	•
MM GRIT22K425-120-4T8	21.70	4.25	4.50	4	1.20	22.00	T08	T-30/3 L*	•
MM GRIT22K475-020-4T8	21.70	4.75	4.50	4	0.20	22.00	T08	T-30/3 L*	•
MM GRIT22K525-020-4T8	21.70	5.25	4.50	4	0.20	22.00	T08	T-30/3 L*	•
MM GRIT22K600-300-4T8	21.70	6.00	4.50	4	3.00	22.00	T08	T-30/3 L*	•
MM GRIT28K250-020-6T10	27.70	2.50	6.00	6	0.20	28.00	T10	T-40/3 L*	•
MM GRIT28K525-020-6T10	27.70	5.25	6.00	6	0.20	28.00	T10	T-40/3 L*	•
MM GRIT28P700-350-6T10	27.70	7.00	6.00	6	3.50	28.00	T10	T-40/3 L*	•
MM GRIT28K1000-020-6T10	27.70	10.00	6.00	6	0.20	28.00	T10	T-40/3 L*	•
MM GRIT28K1100-020-6T10	27.70	11.00	6.00	6	0.20	28.00	T10	T-40/3 L*	•
MM GRIT28K1200-020-6T10	27.70	12.00	6.00	6	0.20	28.00	T10	T-40/3 L*	•
MM GRIT28K1300-020-6T10	27.70	13.00	6.00	6	0.20	28.00	T10	T-40/3 L*	•

• Recommended for Orings and retaining rings • K - for general steel & cast iron machining P - for soft and gummy materials • Modification options on request • Do not apply lubricant to the threaded connection • For clamping instructions, see pages 111-112 • For user guide, see pages 59,211-218 • For shanks, see pages 101-111

(1) Cutting depth maximum

(2) Number of flutes

(3) Minimum bore diameter

* Optional, to be ordered separately

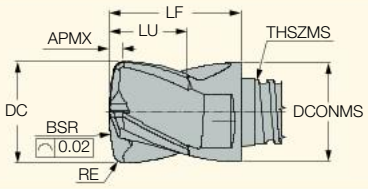
Machining Data for MULTI-MASTER Groove Milling Heads

ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Material No.	MM-TS			MM-GRIT K-TYPE			MM-GRIT P-TYPE		
							Speed	Feed mm/t		Speed	Feed mm/t		Speed	Feed mm/t	
							V m/min	$F_{z\ (min)}$	$F_{z\ (max)}$	V m/min	$F_{z\ (min)}$	$F_{z\ (max)}$	V m/min	$F_{z\ (min)}$	$F_{z\ (max)}$
P	non-alloy steel and cast steel, free cutting steel	< 0.25 %C	annealed	420	125	1	110-140	0.08	0.20	110-160	0.05	0.15	-	-	-
		>= 0.25 %C	annealed	650	190	2	100-120	0.08	0.18	100-150	0.05	0.15	-	-	-
		< 0.55 %C	quenched and tempered	850	250	3	70-100	0.08	0.15	80-100	0.05	0.15	-	-	-
		>= 0.55 %C	annealed	750	220	4	70-100	0.08	0.15	80-100	0.05	0.15	-	-	-
			quenched and tempered	1000	300	5	60-80	0.08	0.15	60-80	0.05	0.15	-	-	-
	low alloy and cast steel (less than 5% of alloying elements)		annealed	600	200	6	100-120	0.08	0.15	110-150	0.05	0.15	-	-	-
			quenched and tempered	930	275	7	90-120	0.08	0.15	100-120	0.05	0.15	-	-	-
				1000	300	8	80-110	0.08	0.15	70-110	0.05	0.15	-	-	-
				1200	350	9	70-100	0.05	0.12	70-100	0.05	0.15	-	-	-
	high alloyed steel, cast steel and tool steel		annealed	680	200	10	60-80	0.05	0.18	60-80	0.05	0.15	-	-	-
			quenched and tempered	1100	325	11	55-70	0.08	0.15	55-70	0.05	0.15	-	-	-
	stainless steel and cast steel		ferritic/ martensitic.	680	200	12	100-130	0.06	0.12	100-130	0.03	0.15	100-130	0.03	0.10
			martensitic	820	240	13	100-120	0.08	0.15	100-130	0.03	0.15	100-130	0.03	0.10
M	stainless steel and cast steel		austenitic	600	180	14	80-120	0.05	0.10	90-120	0.03	0.12	90-120	0.03	0.10
K	grey cast iron (GG)		ferritic/ pearlitic		180	15	160-220	0.10	0.20	160-220	0.03	0.12	-	-	-
			pearlitic / martensitic		260	16	120-200	0.10	0.15	120-200	0.03	0.12	-	-	-
	cast iron nodular (GGG)		ferritic		160	17	100-140	0.10	0.20	-	-	-	-	-	-
			pearlitic		250	18	80-100	0.10	0.15	-	-	-	-	-	-
	malleable cast iron		ferritic		130	19	180-250	0.10	0.20	180-250	0.03	0.15	-	-	-
			pearlitic		230	20	160-220	0.10	0.15	160-220	0.03	0.15	-	-	-
N	aluminum-wrought alloys		not cureable		60	21	800-1200	0.10	0.20	-	-	-	800-1200	0.05	0.15
			cured		100	22	800-1200	0.10	0.20	-	-	-	800-1200	0.05	0.15
	aluminum-cast-alloys	<=12% Si	not cureable		75	23	-	-	-	-	-	-	600-1000	0.05	0.15
			cured		90	24	-	-	-	-	-	-	500-1000	0.05	0.15
		>12% Si	high temperature		130	25	-	-	-	-	-	-	200-400	0.05	0.15
	copper alloys	>1% Pb	free cutting		110	26	-	-	-	-	-	-	-	-	-
			brass		90	27	-	-	-	-	-	-	-	-	-
			electrolitic copper		100	28	-	-	-	-	-	-	-	-	-
	non-metallic		duroplastics, fiber plastics			29	-	-	-	-	-	-	-	-	-
			hard rubber			30	-	-	-	-	-	-	-	-	-
S	high temp. alloys	Fe based	annealed		200	31	-	-	-	30-40	0.02	0.12	-	-	-
			cured		280	32	25-35	0.05	0.12	25-40	0.02	0.12	-	-	-
		Ni or Co based	annealed		250	33	25-35	0.05	0.12	25-40	-	-	-	0.01	0.12
			cured		350	34	25-35	0.05	0.12	25-40	-	-	-	0.01	0.12
			cast		320	35	40-60	0.05	0.12	25-40	-	-	-	0.01	0.12
	titanium ti alloys			RM 400		36	40-60	0.05	0.12	40-60	-	-	-	0.05	0.12
			alpha+beta alloys cured	RM 1050		37	40-60	0.05	0.10	40-60	-	-	-	0.05	0.10
H	hardened steel		hardened		55 HRC	38									
			hardened		60 HRC	39									
	chilled cast iron		cast		400	40									
	cast iron		hardened		55 HRC	41									

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM ELB

Interchangeable Lens-Shaped (Barrel) Solid Carbide Heads for 3D Profiling



Designation	Dimensions								IC908
	DC	BSR	RE	LU	APMX	THSZMS	DCONMS	NOF(1)	LF	
MM ELB08R16A05-4T05	8.00	16.00	0.50	5.50	0.90	T05	7.70	4	10.00	●
MM ELB10R20A07-4T06	10.00	20.00	1.00	7.50	1.42	T06	9.70	4	13.00	●
MM ELB12R24A09-4T08	12.00	24.00	1.00	9.00	1.55	T08	11.70	4	16.50	●
MM ELB16R32A12-4T10	16.00	32.00	1.00	12.00	1.80	T10	15.30	4	20.50	●

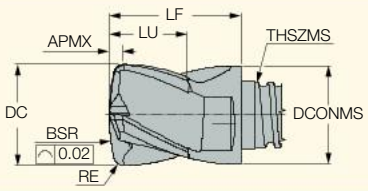
• For user guide, see pages 59,211-218

(1) Number of flutes

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM ELBA

Interchangeable Lens-Shaped (Barrel) Solid Carbide Heads for 3D Aluminum Profiling



Designation	Dimensions								IC08
	DC	BSR	RE	LU	APMX	THSZMS	DCONMS	NOF(1)	LF	
MM ELBA08R16A05-4T05	8.00	16.00	0.50	5.00	0.90	T05	8.00	4	10.00	●
MM ELBA10R20A07-4T06	10.00	20.00	1.00	7.00	1.42	T06	10.00	4	13.00	●
MM ELBA12R24A09-4T08	12.00	24.00	1.00	9.00	1.55	T08	12.00	4	16.50	●
MM ELBA16R32A12-4T10	16.00	32.00	1.00	12.00	1.80	T10	16.00	4	20.50	●

New

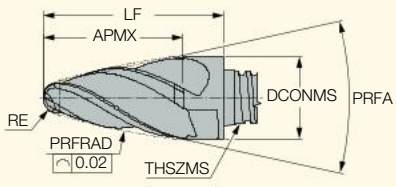
• For user guide, see pages 59,211-218

(1) Number of flutes

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM EOB

Interchangeable Oval-Shaped (Barrel) Solid Carbide Heads for 3D Profiling



Designation	Dimensions								IC908
	PRFRAD	RE	APMX	PRFA	THSZMS	NOF(1)	DCONMS	LF	
MM EOB08R1.5R80A13-4T05	80.00	1.50	14.20	24.00	T05	4	8.00	18.00	●
MM EOB08R1.5R80A13-6T05	80.00	1.50	14.10	24.00	T05	6	8.00	18.00	●
MM EOB10R2.0R85A16-4T06	85.00	2.00	16.50	24.00	T06	4	10.00	22.00	●
MM EOB10R2.0R85A16-6T06	85.00	2.00	16.50	24.00	T06	6	10.00	22.00	●
MM EOB12R2.0R75A21-4T08	75.00	2.00	21.30	24.00	T08	4	12.00	27.00	●
MM EOB12R2.0R75A21-6T08	75.00	2.00	21.30	24.00	T08	6	12.00	27.00	●
MM EOB16R3.0R75A26-4T10	75.00	3.00	27.00	24.00	T10	4	16.00	33.50	●
MM EOB16R3.0R75A26-6T10	75.00	3.00	27.00	24.00	T10	6	16.00	33.50	●

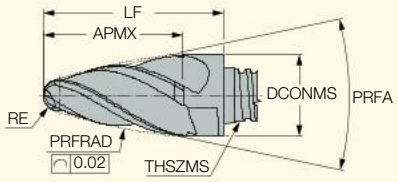
• For user guide, see pages 59,211-218

(1) Number of flutes

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM EOBA

Interchangeable Oval-Shaped (Barrel) Solid Carbide Heads for 3D Aluminum Profiling



Designation	Dimensions								IC08
	PRFRAD	RE	APMX	PRFA	THSZMS	NOF(1)	DCONMS	LF	
MM EOBA08R1.5R80A13-4T05	80.00	1.50	14.20	24.00	T05	4	8.00	18.00	●
MM EOBA10R2.0R85A16-4T06	85.00	2.00	16.50	24.00	T06	4	10.00	22.00	●
MM EOBA12R2.0R75A21-4T08	75.00	2.00	21.30	24.00	T08	4	12.00	27.00	●
MM EOBA16R3.0R75A26-4T10	75.00	3.00	27.00	24.00	T10	4	16.00	33.50	●

New

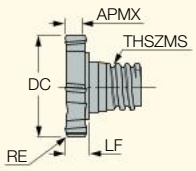
- For user guide, see pages 59,211-218

(1) Number of flutes

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM FM

Interchangeable Solid Carbide Face Milling Heads with MULTI-MASTER Threaded Connections



Designation	Dimensions							IC908	Recommended Machining Data
	DC	APMX	RE	NOF(1)	THSZMS	LF			f_z (mm/t)
MM FM100-36R0.2-06T05	10.00	3.60	0.20	6	T05	4.40	T-20/3*	●	0.04-0.10
MM FM120-36R0.2-06T05	12.00	3.60	0.20	6	T05	4.40	T-20/3*	●	0.04-0.10
MM FM160-48R0.4-06T06	16.00	4.80	0.40	6	T06	5.60	T-25/3*	●	0.05-0.10
MM FM200-60R0.4-06T08	20.00	6.00	0.40	6	T08	6.80	T-40/3 L*	●	0.05-0.10
MM FM250-75R0.4-06T10	25.00	7.50	0.40	6	T10	8.40	T-50/3 L*	●	0.05-0.10

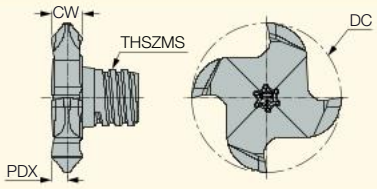
(1) Number of flutes

* Optional, to be ordered separately

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM SS

Interchangeable Solid Carbide Heads for Milling Involute Spline Shafts According to DIN 5480



Designation	Dimensions							IC908
	Module	T range(1)	DC	PDX	CW	NOF(2)	THSZMS	
MM SS22M100Z1720-4T08	1.00	17-20	21.70	2.8	5.50	4	T08	●
MM SS22M100Z2125-4T08	1.00	21-25	21.70	2.3	4.50	4	T08	●
MM SS22M150Z1720-4T08	1.50	17-20	21.70	2.7	5.40	4	T08	●

- Tightening torque 1500 Nxcm
- Do not apply lubricant to the threaded connection.
- For clamping instructions, see pages 111-112
- For user guide, see pages 59,211-218
- For shanks see pages 101-111

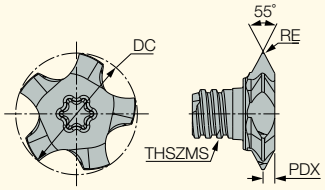
(1) Teeth range

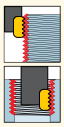
(2) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TRF 55°

Interchangeable Solid Carbide Milling Heads for 55° Partial Profile Thread Milling





Designation	Dimensions										IC908
	DC	NOF(1)	TPIN(2)	TPIX(3)	RE	PDX	THSZMS	TDZ(4)	DMIN	TQ(5)	
MM TRF12-W55-P11-5T05	11.94	5	11.00	14.00	0.23	1.15	T05	15.875	13.60	7.0	●
MM TRF12-W55-P19-5T05	11.94	5	19.00	28.00	0.11	0.75	T05	14.287	13.10	10.0	●
MM TRF16-W55-P8-5T06	15.94	5	8.00	14.00	0.23	1.55	T06	20.637	18.30	15.0	●
MM TRF20-W55-P6-6T08	19.94	6	6.00	8.00	0.40	1.95	T08	25.4	21.30	28.0	●

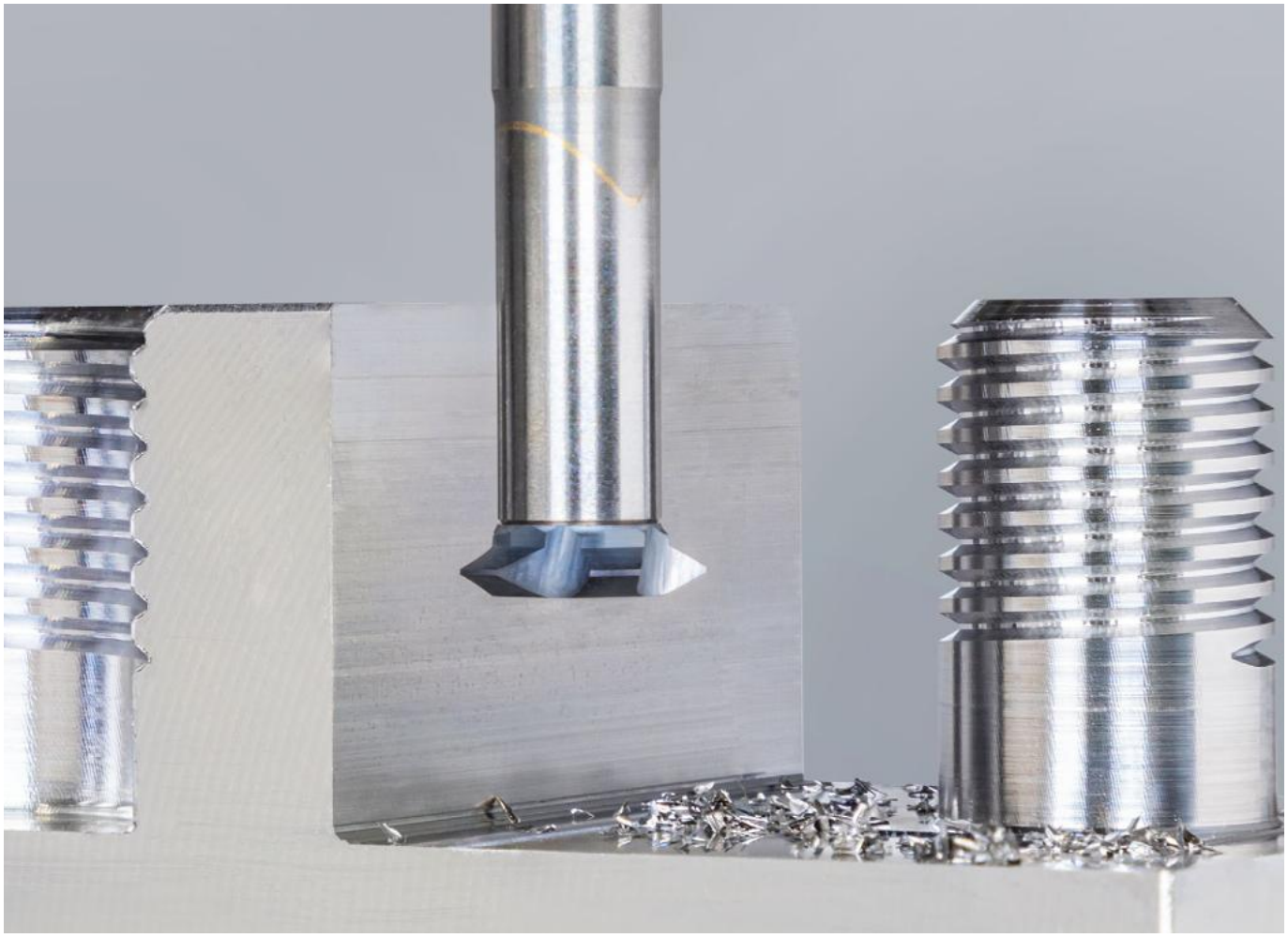
• For ISO metric thread (ISO 68, DIN13, ANSI B 1.13M-1983) • For shanks, see pages 101-111 • For clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection.

(1) Number of flutes
(2) Threads per inch minimum
(3) Threads per inch maximum
(4) Smallest possible thread
(5) Tightening torque

Spare Parts

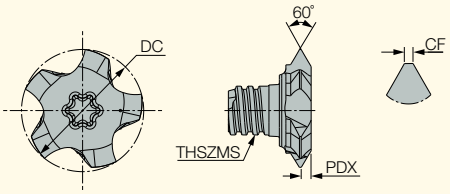
Designation	
MM TRF12-W55-P11-5T05	BIT SOCKET T20 3/8" DRIVE*
MM TRF12-W55-P19-5T05	BIT SOCKET T20 3/8" DRIVE*
MM TRF16-W55-P8-5T06	BIT SOCKET T25 3/8" DRIVE*
MM TRF20-W55-P6-6T08	BIT SOCKET T40 3/8" DRIVE*

* Optional, to be ordered separately



MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TRF 60°
Interchangeable Solid Carbide Milling Heads for 60° Partial Profile Thread Milling



Designation	Dimensions									
	DC	NOF[1]	TPN[2]	TPX[3]	TPN_DF2[4]	TPX_DF2[5]	TPIN[6]	TPIX[7]	TPIN_DF2[8]	TPIX_DF2[9]
MM TRF12A60-P080-5T05	11.94	5	0.500	0.800	0.400	0.800	28.00	56.00	32.00	64.00
MM TRF12A60-P175-5T05	11.94	5	1.000	1.750	0.800	1.500	14.00	28.00	16.00	32.00
MM TRF12A60-P250-5T05	11.94	5	2.000	2.500	1.750	2.000	10.00	13.00	11.00	15.00
MM TRF16A60-P080-5T06	15.94	5	0.500	0.800	0.400	0.800	28.00	56.00	32.00	64.00
MM TRF16A60-P175-5T06	15.94	5	1.000	1.750	0.800	1.500	14.00	28.00	16.00	32.00
MM TRF16A60-P300-5T06	15.94	5	2.000	3.000	1.750	2.500	8.00	13.00	10.00	15.00
MM TRF20A60-P200-6T08	19.94	6	1.000	2.000	0.800	1.750	13.00	28.00	15.00	32.00
MM TRF20A60-P300-6T08	19.94	6	2.000	3.000	1.750	2.500	8.00	13.00	10.00	15.00
MM TRF20A60-P400-6T08	19.94	6	3.000	4.000	2.500	3.500	6.00	9.00	7.00	10.00
MM TRF28A60-P600-5T10	27.70	5	5.000	6.000	4.500	5.000	4.00	5.00	5.00	6.00
MM TRF28A60-P500-6T10	27.70	6	3.000	5.000	2.500	4.500	6.00	8.00	6.00	10.00

Designation	Dimensions						IC908
	CF	PDX	THSZMS	TDZ[10]	TQ	DMIN	
MM TRF12A60-P080-5T05	0.05	0.55	T05	M14	7.0	13.50	●
MM TRF12A60-P175-5T05	0.11	0.96	T05	M14	7.0	13.00	●
MM TRF12A60-P250-5T05	0.22	1.21	T05	M16	7.0	14.00	●
MM TRF16A60-P080-5T06	0.05	0.55	T06	M18	10.0	17.50	●
MM TRF16A60-P175-5T06	0.10	1.00	T06	M18	10.0	17.00	●
MM TRF16A60-P300-5T06	0.22	1.41	T06	M20	10.0	18.00	●
MM TRF20A60-P200-6T08	0.11	0.95	T08	M24	10.0	23.00	●
MM TRF20A60-P300-6T08	0.22	1.41	T08	M24	15.0	22.00	●
MM TRF20A60-P400-6T08	0.31	1.86	T08	M25	15.0	22.00	●
MM TRF28A60-P600-5T10	0.57	2.49	T10	M38	28.0	33.00	●
MM TRF28A60-P500-6T10	0.34	2.17	T10	M33	28.0	30.00	●

• For ISO metric thread (ISO 68, DIN13, ANSI B 1.13M-1983) • For shanks, see pages 101-111 • For clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection.

[1] Number of flutes
[2] Thread pitch minimum (mm)-internal
[3] Thread pitch maximum (mm)-internal
[4] Thread pitch minimum (mm)-external
[5] Thread pitch maximum (mm)-external
[6] Threads per inch minimum-internal
[7] Threads per inch maximum-internal
[8] Threads per inch minimum-external
[9] Threads per inch maximum-external
[10] Smallest possible thread

Spare Parts

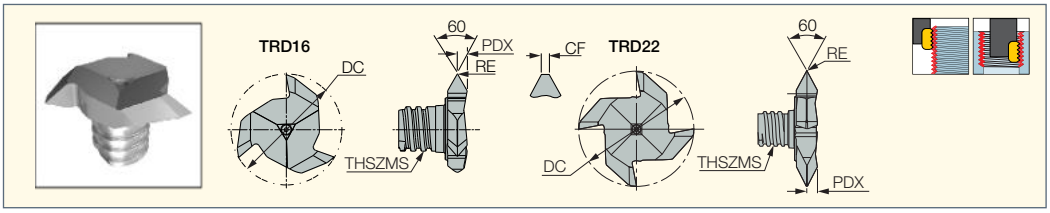
Designation	
MM TRF12A60-P080-5T05	BIT SOCKET T20 3/8" DRIVE*
MM TRF12A60-P175-5T05	BIT SOCKET T20 3/8" DRIVE*
MM TRF12A60-P250-5T05	BIT SOCKET T20 3/8" DRIVE*
MM TRF16A60-P080-5T06	BIT SOCKET T20 3/8" DRIVE*
MM TRF16A60-P175-5T06	BIT SOCKET T25 3/8" DRIVE*
MM TRF16A60-P300-5T06	BIT SOCKET T25 3/8" DRIVE*
MM TRF20A60-P200-6T08	BIT SOCKET T40 3/8" DRIVE*
MM TRF20A60-P300-6T08	BIT SOCKET T40 3/8" DRIVE*
MM TRF20A60-P400-6T08	BIT SOCKET T40 3/8" DRIVE*
MM TRF28A60-P600-5T10	BIT SOCKET T40 3/8" DRIVE*
MM TRF28A60-P500-6T10	BIT SOCKET T40 3/8" DRIVE*

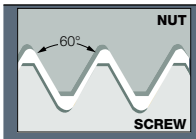
‘ Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

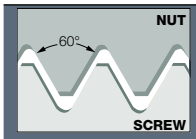
MM TRD-M

Interchangeable Solid Carbide Milling Heads for 60° Partial Profile Thread Milling





Designation	Dimensions DC	NOF(1)	TPN(2)	TPX(3)	TPN_DF2(4)	TPX_DF2(5)	TPIN(6)	TPIX(7)	TPIN_DF2(8)	TPIX_DF2(9)
MM TRD16-M60-05P-3T06	15.70	3	0.500	2.000	0.400	2.000	13.00	48.00	16.00	56.00
MM TRD16-M60-15P-3T06	15.70	3	1.500	2.000	1.000	1.500	13.00	16.00	16.00	28.00
MM TRD22-M60-30P-4T08	21.70	4	3.000	4.500	2.500	4.000	6.00	9.00	7.00	10.00



Designation	Dimensions RE	CF	PDX	THSZMS	TDZ(10)	DMIN	Tough ↔ Hard IC528	IC908
MM TRD16-M60-05P-3T06	- (11)	0.05	1.4	T06	M20	19.05	●	●
MM TRD16-M60-15P-3T06	0.05	-	1.4	T06	M22	19.05	●	●
MM TRD22-M60-30P-4T08	0.20	-	2.4	T08	M36	31.00	●	●

• For ISO metric thread (ISO 68, DIN13, ANSI B 1.13M-1983) • For shanks, see pages 101-111 • For clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • DIN13 , ISO 68-1, ISO 965 (1&2) - Internal tolerance: 6H, External tolerance: 6g • ANSI/ASME B1.1 - Internal tolerance: 2B, External tolerance: 2A

(1) Number of flutes
(2) Thread pitch minimum (mm)-internal
(3) Thread pitch maximum (mm)-internal
(4) Thread pitch minimum (mm)-external
(5) Thread pitch maximum (mm)-external
(6) Threads per inch minimum-internal
(7) Threads per inch maximum-internal
(8) Threads per inch minimum-external
(9) Threads per inch maximum-external
(10) Smallest possible thread
(11) Flat

Spare Parts

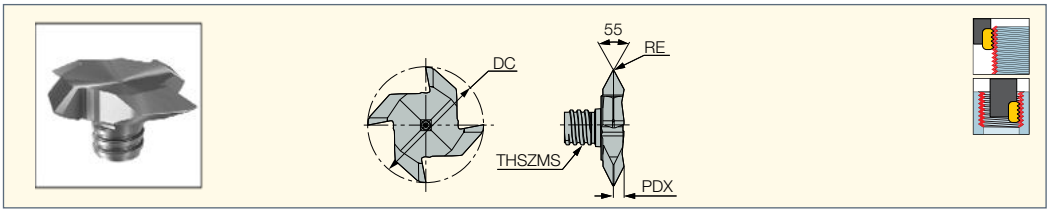
Designation		
MM TRD16-M60-05P-3T06	MM EGR 16-18*	T-25/3*
MM TRD16-M60-15P-3T06	MM EGR 16-18*	T-25/3*
MM TRD22-M60-30P-4T08	MM EGR 20-22*	T-30/3 L*

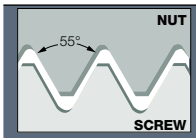
* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TRD-W

Interchangeable Solid Carbide Milling Heads for 55° Partial Profile Thread Milling





Designation	Dimensions DC	NOF(1)	RE	PDX	TPIN(2)	TPIX(3)	TPIN_DF2(4)	TPIX_DF2(5)	THSZMS	TDZ(6)	DMIN	Standard	Tough ↔ Hard IC528	IC908
MM TRD22-W55-14P-4T08	21.70	4	0.20	2.0	11.00	14.00	11.50	16.00	T08	G3/4	24.20	DIN ISO 228, B.S. 84	●	●

• For shanks, see pages 101-111 • For clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • B.S.84 Internal & External tolerance: Medium class

(1) Number of flutes
(2) Threads per inch minimum-internal
(3) Threads per inch maximum-internal
(4) Threads per inch minimum-external
(5) Threads per inch maximum-external
(6) Thread diameter size

Spare Parts

Designation		
MM TRD-W	T-30/3 L*	MM EGR 20-22*

* Optional, to be ordered separately

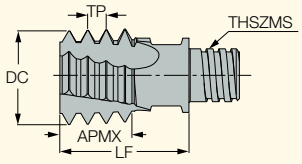
Identification Code

MT	10	D	6	0.75	ISO	MMT/MMTT
MULTI-MASTER thread mill	cutting dia.	no. of flutes	cutting length	pitch	thread profile iso un G (55°)	connection size

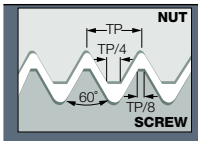
MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MT-ISO-MM

Carbide Milling Heads with a Threaded Connection for Internal ISO Metric Thread



Application: General engineering



Designation	Dimensions											IC908
	TP[1]	M Coarse	M Fine	DC	NOF[2]	APMX	LF	THSZMS				
MT10D7.5 0.5ISO-MMT05	0.500	-	=>14	10.00	4	7.50	12.75	T05	MM KEY 6X4*			●
MT 10D6 0.75ISO-MMT05	0.750	-	=>12	10.00	4	6.00	12.75	T05	MM KEY 6X4*			●
MT 10D6 1.0ISO-MMT05	1.000	-	=>12	10.00	4	6.00	12.75	T05	MM KEY 6X4*			●
MT 10D5 1.25ISO-MMT05	1.250	-	=>14	10.00	4	5.00	12.75	T05	MM KEY 6X4*			●
MT 10D6 1.5ISO-MMT05	1.500	-	=>14	10.00	4	6.00	12.75	T05	MM KEY 6X4*			●
MT 12D8 0.5ISO-MMT06	0.500	-	=>16	12.00	4	8.00	14.30	T06	MM KEY 8X5*			●
MT 12E8 0.75ISO-MMT06	0.750	-	=>16	12.00	5	8.30	14.30	T06	MM KEY 8X5*			●
MT 12E8 1.0ISO-MMT06	1.000	-	=>16	12.00	5	8.00	14.30	T06	MM KEY 8X5*			●
MT 12D8 1.25ISO-MMT06	1.250	-	=>16	12.00	4	7.50	14.30	T06	MM KEY 8X5*			●
MT 12D7 1.5ISO-MMT06	1.500	-	=>16	12.00	4	7.60	14.30	T06	MM KEY 8X5*			●
MT 12D7 1.75ISO-MMT06	1.750	-	=>16	12.00	4	7.10	14.30	T06	MM KEY 8X5*			●
MT12D8 2.0ISO-MMT06	2.000	M16	=>17	12.00	4	8.00	14.30	T06	MM KEY 8X5*			●
MT 16F12 1.0ISO-MMT08	1.000	-	=>22	16.00	6	12.00	20.00	T08	MM KEY 10X7*			●
MT 16F12 1.5ISO-MMT08	1.500	-	=>20	16.00	6	12.00	20.00	T08	MM KEY 10X7*			●
MT 16E12 2.0ISO-MMT08	2.000	-	=>19	16.00	5	12.00	20.00	T08	MM KEY 10X7*			●
MT15.4E13 2.5ISO-MMT08	2.500	M20	=>22	15.40	5	12.70	20.00	T08	MM KEY 10X7*			●
MT 16C12 3.0ISO-MMT08	3.000	M24	=>25	16.00	3	12.10	20.00	T08	MM KEY 10X7*			●
MT20F14 2.0ISO-MMTT10	2.000	-	=>27	20.00	6	12.00	21.00	T10		BIT SOCKET T30 3/8" DRIVE*	T-40/3 L*	●
MT20D12 3.0ISO-MMTT10	3.000	-	=>27	20.00	4	12.20	21.00	T10		BIT SOCKET T40 3/8" DRIVE*	T-40/3 L*	●
MT20D14 3.5ISO-MMTT10	3.500	-	=>30	20.00	4	10.60	21.00	T10		BIT SOCKET T40 3/8" DRIVE*	T-40/3 L*	●

• Note: Description and dimensions relate to the new products with clamping flats. • For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection

(1) Thread pitch

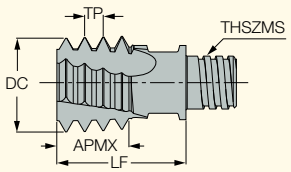
(2) Number of flutes

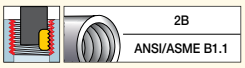
* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

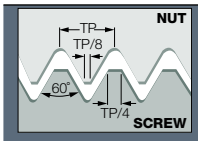
MT-UN-MM

Carbide Milling Heads with a Threaded Connection for Internal UN Thread Profile





Application: General engineering



Designation	Dimensions										IC908
	TPI[1]	UNC	UNF	UNEF	DC	NOF[2]	APMX	LF	THSZMS	TP[3]	
MT 10D7 32UN-MMT05	32.0	-	-	-	10.00	4	6.40	12.75	T05	0.794	●
MT 10D6 28UN-MMT05	28.0	-	-	1/2	10.00	4	5.50	12.75	T05	0.907	●
MT 10D6 24UN-MMT05	24.0	-	-	9/16-5/8	10.00	4	5.30	12.75	T05	1.058	●
MT 10D6 20UN-MMT05	20.0	-	1/2	-	10.00	4	5.10	12.75	T05	1.270	●
MT 10D5 18UN-MMT05	18.0	-	9/16-5/8	1 1/8-1 5/8	10.00	4	5.60	12.75	T05	1.411	●
MT 10D7 16UN-MMT05	16.0	-	3/4	-	10.00	4	6.40	12.75	T05	1.588	●
MT 12D8 24UN-MMT06	24.0	-	-	5/8- 11/16	12.00	4	7.40	14.30	T06	1.058	●
MT 12D8 20UN-MMT06	20.0	-	-	3/4 - 1	12.00	4	7.70	14.30	T06	1.270	●
MT 12D8 18UN-MMT06	18.0	-	5/8	=>1 11/16	12.00	4	7.10	14.30	T06	1.411	●
MT 12D8 16UN-MMT06	16.0	-	3/4	-	12.00	4	8.00	14.30	T06	1.588	●
MT 12D8 14UN-MMT06	14.0	-	7/8	-	12.00	4	7.30	14.30	T06	1.814	●
MT 16E11 18UN-MMT08	18.0	-	5/8	=>1 11/16	16.00	5	11.30	20.00	T08	1.411	●
MT 16E13 14UN-MMT08	14.0	-	7/8	-	16.00	5	12.70	20.00	T08	1.814	●
MT 16E13 12UN-MMT08	12.0	-	1-1 1/2	-	16.00	5	12.70	20.00	T08	2.117	●
MT 15.3D13 10UN-MMT08	10.0	3/4	-	-	15.30	4	12.70	20.00	T08	2.540	●
MT 16C11 9UN-MMT08	9.0	7/8	-	-	16.00	3	11.30	20.00	T08	2.822	●
MT 16C13 8UN-MMT08	8.0	1.0	-	-	16.00	3	12.70	20.00	T08	3.175	●
MT20F13 12UN-MMTT10	12.0	-	=>1	-	20.00	6	12.70	21.00	T10	2.117	●
MT20D13 8UN-MMTT10	8.0	1		-	20.00	4	12.70	21.00	T10	3.175	●
MT20D15 7UN-MMTT10	7.0	-	1 1/8 - 1 1/4	-	20.00	4	10.90	21.00	T10	3.629	●

• Note: Description and dimensions relate to the new products with clamping flats • For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection

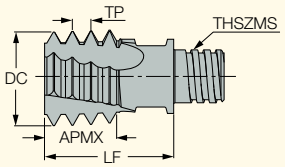
(1) Threads per inch

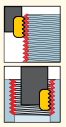
(2) Number of flutes

(3) Thread pitch

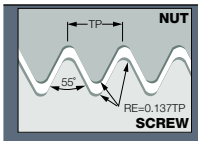
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MT-W-MM
Carbide Milling Heads with a Threaded Connection for Internal and External 55° BSW Thread Profile





Application: General engineering fittings and pipe couplings



Designation	TPI[1]	TDZ	DC	NOF[2]	APMX	LF	THSZMS	TP[3]	IC908
	Dimensions								
MT 10D6 19W-MMT05	19.0	G1/4-3/8	10.00	4	5.30	12.75	T05	1.337	●
MT 16D13 14W-MMT08	14.0	G1/2-7/8	16.00	4	12.70	20.00	T08	1.814	●
MT 16D11 11W-MMT08	11.0	G=>1	16.00	4	11.50	20.00	T08	2.309	●
MT20F15 14W-MMTT10	14.0	G3/4-7/8	20.00	6	12.70	21.00	T10	1.814	●
MT20F14 11W-MMTT10	11.0	G=>1	20.00	6	11.50	21.00	T10	2.309	●

• Note: Description and dimensions relate to the new products with clamping flats • For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection • B.S.84 Internal & External tolerance: Medium class

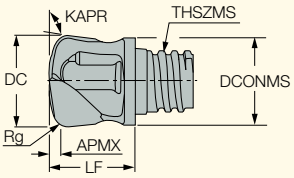
(1) Threads per inch
(2) Number of flutes
(3) Thread pitch

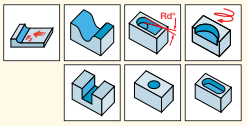
Thread Size	Key[1]	Torque Wrench[1]	Wrench[1]	Tightening Torque (N×cm)
T05	MM KEY 6x4	TORQUE WRENCH 5-50Nm 9X12	MM WRENCH 6-05	700
T06	MM KEY 8x5	TORQUE WRENCH 5-50Nm 9X12	MM WRENCH 8-06	1000
T08	MM KEY 10x7	TORQUE WRENCH 5-50Nm 9X12	MM WRENCH 10-08	1500
T10	MM KEY 13x8	TORQUE WRENCH 5-50Nm 9X12	MM WRENCH 13-10	2800

(1) Order separately

MULTI FEED MASTER

MM FF
Interchangeable 2 Flute FEED-MILL Solid Carbide Heads for Milling at Very Fast Feeds and Small D.O.C.





ECONOMICAL SOLUTION

Designation	DC	NOF[1]	APMX	Rg[2]	THSZMS	DCONMS	LF	KAPR[3]	RMPX°[4]	Tough ↔ Hard: IC908	Tough ↔ Hard: IC903	Recommended Machining Data: f_z (mm/t)
	Dimensions											
MM FF100R1.5-L12-2T06	10.00	2	0.60	2.00	T06	9.60	12.50	97.0	7.0	●		0.30-0.60
MM FF120R2.0-2T08	12.00	2	0.68	2.50	T08	11.50	11.10	97.0	7.0	●	●	0.50-1.00
MM FF500R08-L59-2T08	12.70	2	0.68	2.50	T08	11.50	15.00	95.0	7.0	●		0.50-1.00
MM FF160R2.0-2T10	16.00	2	1.10	3.00	T10	15.20	13.50	97.0	7.0	●		0.55-1.10
MM FF200R2.0-2T12	20.00	2	1.50	3.40	T12	18.45	17.40	95.0	7.0	●		0.75-1.50

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

(1) Number of flutes
(2) Radius for programming
(3) Tool cutting edge angle
(4) Maximum ramping angle

Machining Example:
Shank: MM S-B-L140-C16-T08
Milling head: MM FF 120R2.0-2T08
Workpiece material: SAE 4340 HRc 28

Plunging
a_p = 2 mm
V_c = 80 mm
F = 0.24 m/min

Milling
a_p = 0.7 mm
a_e = 8 mm
V_c = 150 m/min
F_z = 1 mm/tooth
V_f = 7960 mm/min

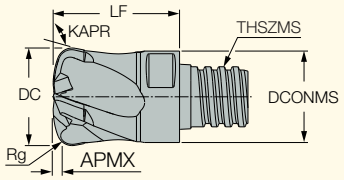
Machining Example:
Shank: MM S-A-L070-W20-T10
Milling head: MM FF160R2.0-2T10 908
Workpiece material: P20 HRc 52

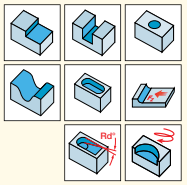
Milling
a_p = 0.2 mm
a_e = 6 mm
V_c = 150 m/min
F_z = 1.4 mm/tooth
V_f = 8355
T = 60 min

MULTI FEED MASTER

MM EFF

4, 6 Flute Solid Carbide Heads for Milling at Very Fast Feeds and Small D.O.C.





Designation	Dimensions DC	NOF[1]	APMX	THSZMS	DCONMS	LF	RMPX°[2]	KAPR[3]	Rg[4]	CSP[5]	Tough ↔ Hard IC908	IC903	Recommended Machining Data f_z (mm/t)
MM EFF080T3R1.62-4T05	8.00	4	0.40	T05	7.50	10.00	5.0	97.0	1.62	0		•	0.12-0.48
MM EFF080S2R0.86-6T05	8.00	6	0.40	T05	7.50	10.00	5.0	97.0	0.86	0		•	0.12-0.48
MM EFF100T4R2.01-4T06	10.00	4	0.50	T06	9.50	13.00	5.0	97.0	2.01	0		•	0.16-0.57
MM EFF100S2R1.0-6T06	10.00	6	0.45	T06	9.50	13.00	5.0	97.0	1.00	0		•	0.16-0.57
MM EFF100T2R1.0-6T06H	10.00	6	0.45	T06	9.50	10.00	3.0	97.0	1.00	1		•	0.16-0.47
MM EFF120T4R1.8-4T08H	12.00	4	0.60	T08	11.50	16.50	5.0	97.0	1.80	1	•	•	0.16-0.67
MM EFF120T4R2.47-4T08	12.00	4	0.60	T08	11.50	16.50	5.0	97.0	2.47	0		•	0.16-0.67
MM EFF120S3R1.2-6T08	12.00	6	0.65	T08	11.50	16.50	5.0	97.0	1.20	0		•	0.16-0.67
MM EFF120T2R1.2-6T08H	12.00	6	0.65	T08	11.50	12.00	3.0	97.0	1.20	1		•	0.16-0.54
MM EFF127T4R2.59-4T08	12.70	4	0.60	T08	12.20	16.50	5.0	97.0	2.59	0		•	0.16-0.67
MM EFF127S3R1.3-6T08	12.70	6	0.70	T08	12.70	16.50	5.0	97.0	1.30	0		•	0.16-0.67
MM EFF127T4R1.3-6T08H	12.70	6	0.70	T08	12.20	12.70	3.0	97.0	1.30	1		•	0.16-0.67
MM EFF160T5R2.2-4T10H	16.00	4	0.80	T10	15.40	20.50	5.0	97.0	2.20	1	•		0.20-0.75
MM EFF160T5R3.25-4T10	16.00	4	0.80	T10	15.40	20.50	5.0	97.0	3.25	0		•	0.20-0.75
MM EFF160S4R2.0-6T10	16.00	6	1.05	T10	15.40	20.50	5.0	97.0	2.00	0		•	0.20-0.75
MM EFF160T4R2.0-6T10H	16.00	6	1.05	T10	15.40	16.00	3.0	97.0	2.00	1		•	0.20-0.65
MM EFF200T6R4.02-4T12	20.00	4	1.00	T12	18.45	25.50	5.0	97.0	4.02	0		•	0.20-0.90
MM EFF200S5R2.2-6T12	20.00	6	1.25	T12	18.45	25.50	5.0	97.0	2.20	0		•	0.20-0.90
MM EFF200T5R2.2-6T12H	20.00	6	1.25	T12	18.45	20.00	3.0	97.0	2.20	1		•	0.20-0.80
MM EFF250A7R3.1-6T15	25.00	6	1.20	T15	23.90	25.00	5.0	97.0	3.10	0		•	0.25-1.00
MM EFF250S6R2.5-6T15	25.00	6	1.55	T15	23.90	25.00	5.0	97.0	2.50	0		•	0.25-1.00
MM EFF254A7R3.1-6T15	25.40	6	1.20	T15	23.90	25.00	5.0	97.0	3.10	0		•	0.25-1.00

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection • Heads with coolant supply are recommended for shouldering operations • For user guide, see pages 59,211-218

(1) Number of flutes
(2) Maximum ramping angle
(3) Tool cutting edge angle
(4) Radius for programming
(5) 0 - Without coolant supply, 1 - With coolant supply

MULTI-MASTER Machining Recommendations for MM EFF Heads

VDI 3323	Material Group[1]	v_c (m/min)	a_p	a_e	f_z (mm/t) vs. Tool Diameter (mm) 8	10	12	16	20	25
P	1	180	0.045xD	0.7xD	0.48	0.57	0.67	0.75	0.90	1.00
	2	160	0.045xD	0.7xD	0.48	0.57	0.67	0.75	0.90	1.00
	3	160	0.045xD	0.7xD	0.48	0.57	0.67	0.75	0.90	1.00
	4	160	0.045xD	0.7xD	0.48	0.57	0.67	0.75	0.90	1.00
	5	150	0.045xD	0.7xD	0.43	0.50	0.57	0.65	0.75	0.87
	6	150	0.045xD	0.7xD	0.33	0.40	0.48	0.57	0.67	0.78
	7	140	0.045xD	0.7xD	0.33	0.40	0.48	0.57	0.67	0.78
	8	140	0.045xD	0.7xD	0.30	0.35	0.43	0.52	0.60	0.70
	9	140	0.045xD	0.7xD	0.30	0.35	0.43	0.52	0.60	0.70
	10	130	0.04xD	0.6xD	0.28	0.33	0.38	0.48	0.57	0.67
	11	120	0.04xD	0.6xD	0.25	0.30	0.35	0.43	0.52	0.62
	12, 13	120	0.04xD	0.6xD	0.30	0.35	0.43	0.52	0.60	0.70
K	15-16	180	APMX	0.7xD	0.45	0.52	0.60	0.70	0.80	0.90
	17-18	160	APMX	0.7xD	0.38	0.45	0.52	0.60	0.70	0.80
H	38.1[2]	100	0.035xD	0.45xD	0.20	0.25	0.33	0.40	0.48	0.55
	38.2[3]	80	0.03xD	0.3xD	0.16	0.22	0.30	0.38	0.45	0.52
	39[4]	60	0.02xD	0.25xD	0.12	0.16	0.16	0.20	0.20	0.25

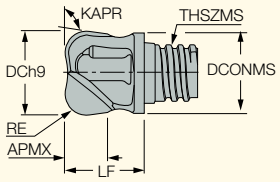
(1) ISCAR material group in accordance with VDI 3323 standard
(2) 45-49 HRC
(3) 50-55 HRC
(4) 56-63 HRC

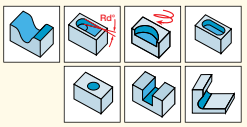
a_p - maximum depth of cut
a_e - maximum width of cut

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM HT

Torodial 2 Flute Interchangeable Solid Carbide Milling Heads





ECONOMICAL SOLUTION

Designation	Dimensions									Tough ↔ Hard	
	DC	NOF(1)	APMX	RE	Tm(2)	THSZMS	DCONMS	LF	KAPR(3)	IC908	IC903
MM HT100C08R0.5-2T06	10.00	2	7.00	0.50	r0-1.0	T06	9.50	12.45	95.0	●	
MM HT100C08R1.0-2T06	10.00	2	7.00	1.00	r0-1.0	T06	9.50	12.45	95.0	●	
MM HT100N06R2.0-2T06	10.00	2	6.00	2.00	r0-3.0	T06	9.50	12.40	97.0	●	
MM HT100N07R0.5-2T06	10.00	2	6.90	0.50	r0-1.0	T06	9.50	11.20	95.0		●
MM HT100N07R1.0-2T06	10.00	2	6.90	1.00	r0-1.0	T06	9.50	11.20	95.0		●
MM HT100N07R2.0-2T06	10.00	2	6.90	2.00	r0-3.0	T06	9.50	11.20	95.0		●
MM HT100N07R3.0-2T06	10.00	2	6.90	3.00	r2.7-4.0	T06	9.50	11.20	95.0		●
MM HT120N06R3.0-2T06	12.00	2	5.40	3.00	r2.7-4.0	T06	9.10	9.10	97.0	●	
MM HT120N06R4.0-2T06	12.00	2	5.10	4.00	r2.7-4.0	T06	11.50	9.10	97.0	●	
MM HT120N06R1.6-2T08	12.00	2	5.70	1.60	r1.3-r2.7	T08	11.50	11.10	97.0	●	●
MM HT120N06R2.0-2T08	12.00	2	5.90	2.00	r1.3-2.7	T08	11.50	11.10	97.0	●	●
MM HT120N06R2.5-2T08	12.00	2	5.50	2.50	r1.3-4.0	T08	11.50	11.10	97.0	●	
MM HT120N06R3.0-2T08	12.00	2	5.50	3.00	r2.7-4.4	T08	11.50	11.10	97.0	●	●
MM HT120N06R4.0-2T08	12.00	2	5.60	4.00	r2.7-4.4	T08	11.50	11.10	97.0	●	
MM HT160N07R2.0-2T10	16.00	2	6.90	2.00	r1.5-4.0	T10	15.20	13.10	97.0	●	
MM HT160N07R3.0-2T10	16.00	2	7.20	3.00	r1.5-4.0	T10	15.20	13.40	97.0	●	
MM HT160N07R4.0-2T10	16.00	2	7.10	4.00	r1.5-4.0	T10	15.20	13.40	97.0	●	
MM HT160N08R5.0-2T10	16.00	2	8.00	5.00	r2.7-4.4	T10	15.20	20.20	97.0	●	●
MM HT200N11R3.0-2T12	20.00	2	10.80	3.00	r3.0-8.0	T12	18.45	17.00	97.0	●	
MM HT200N11R4.0-2T12	20.00	2	11.10	4.00	r3.0-8.0	T12	18.45	17.30	97.0	●	
MM HT200N11R5.0-2T12	20.00	2	11.10	5.00	r3.0-8.0	T12	18.45	17.30	97.0	●	
MM HT200N11R6.0-2T12	20.00	2	11.00	6.00	r3.0-8.0	T12	18.45	17.30	97.0	●	
MM HT200N11R8.0-2T12	20.00	2	10.90	8.00	r3.0-8.0	T12	18.45	17.30	97.0	●	

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

(1) Number of flutes

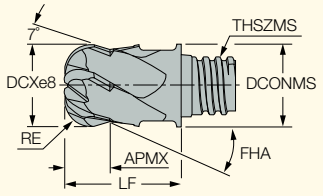
(2) Specially tailored radius range upon request

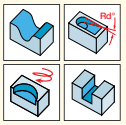
(3) Tool cutting edge angle

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM ETR

Torodial 6 Flute Interchangeable Solid Carbide Milling Heads





Designation	Dimensions									Tough ↔ Hard	
	DCX(1)	RE	NOF(2)	APMX	THSZMS	DCONMS	LF	FHA	RMPX°(3)	IC908	IC903
MM ETR080A4R05CF-6T05	8.00	0.50	6	4.00	T05	7.70	10.00	30.0	9.0		●
MM ETR080A4R10CF-6T05	8.00	1.00	6	4.00	T05	7.70	10.00	30.0	9.0		●
MM ETR080A04R2.0-6T05	8.00	2.00	6	5.00	T05	7.70	10.00	30.0	9.0	●	
MM ETR100A5R05CF-6T06	10.00	0.50	6	5.00	T06	9.60	13.00	30.0	9.0		●
MM ETR100A5R10CF-6T06	10.00	1.00	6	5.00	T06	9.60	13.00	30.0	9.0		●
MM ETR100A05R3.0-6T06	10.00	3.00	6	7.00	T06	9.60	13.00	30.0	9.0	●	
MM ETR120A7R05CF-6T08	12.00	0.50	6	7.00	T08	12.00	17.00	30.0	9.0		●
MM ETR120A7R10CF-6T08	12.00	1.00	6	7.00	T08	11.70	16.50	30.0	9.0		●
MM ETR120A07R4.0-6T08	12.00	4.00	6	9.00	T08	11.70	16.50	30.0	9.0	●	
MM ETR160A09R5.0-6T10	16.00	5.00	6	12.00	T10	15.30	20.50	30.0	9.0	●	

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

(1) Cutting diameter maximum

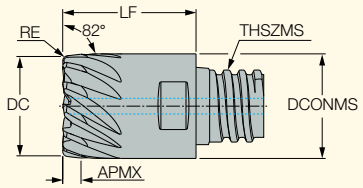
(2) Number of flutes

(3) Maximum ramping angle

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM ET

Solid Carbide Tapered Heads with 20/30° Helix, Variable Pitch and Coolant Holes for CHATTER-FREE Finishing Operations



Designation	Dimensions DC	RE	NOF(1)	APMX	THSZMS	DCONMS	LF	RMPX°(2)	IC908	Recommended Machining Data f_z (mm/t)
MM ET11/8H4R10CF-8T08H	11.00	1.00	8	3.50	T08	12.00	16.50	3.0	●	0.04-0.10
MM ET15/8H4R10CF-12T10H	15.00	1.00	12	3.50	T10	16.00	20.50	3.0	●	0.05-0.11

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

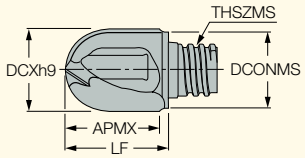
(1) Number of flutes

(2) Maximum ramping angle

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM HCR

Interchangeable 2 Flute Solid Carbide Ball Nose Milling Heads



ECONOMICAL SOLUTION

Designation	Dimensions DCX(1)	NOF(2)	APMX	THSZMS	DCONMS	LF	IC908
MM HCR080-2T05	8.00	2	7.80	T05	7.60	9.95	●
MM HCR100-2T06	10.00	2	10.00	T06	9.50	12.35	●
MM HCR120-2T08	12.00	2	11.45	T08	11.50	15.30	●
MM HCR160-2T10	16.00	2	15.80	T10	15.20	19.10	●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

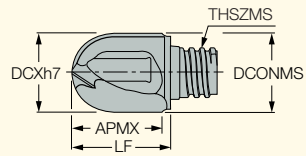
(1) Cutting diameter maximum

(2) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM HRF

Interchangeable 2 Flute Solid Carbide Ball Nose Finishing Milling Heads



Designation	Dimensions DCX(1)	NOF(2)	APMX	THSZMS	DCONMS	LF	Tough ↔ Hard IC908	IC903
MM HRF080-2T05	8.00	2	7.60	T05	7.60	9.95		●
MM HRF100-2T06	10.00	2	10.20	T06	9.50	12.35	●	●
MM HRF120-2T08	12.00	2	11.50	T08	11.50	15.30		●
MM HRF160-2T10	16.00	2	15.80	T10	15.20	19.10		●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

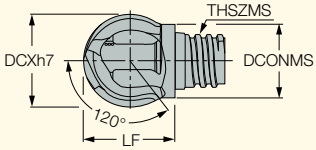
(1) Cutting diameter maximum

(2) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM HBR

Interchangeable 2 Flute High Precision Ball Nose Solid Carbide Milling Heads



ECONOMICAL SOLUTION

Designation	Dimensions DCX(1)	NOF(2)	THSZMS	DCONMS	LF		IC908
MM HBR080-2T04	8.00	2	T04	5.80	8.22	MM KEY 6X4*	●
MM HBR100-2T05	10.00	2	T05	7.60	10.00	MM KEY 6X4*	●
MM HBR120-2T06	12.00	2	T06	9.50	11.60	MM KEY 10X7*	●
MM HBR160-2T08	16.00	2	T08	12.20	15.40	MM KEY 13X8*	●
MM HBR200-2T10	20.00	2	T10	15.20	18.40	MM KEY 13X8*	●
MM HBR250-2T12	25.00	2	T12	18.30	23.20	MM KEY 16X9*	●

• For shanks, see pages 101-111 • For tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection.
• For user guide, see pages 59,211-218

(1) Cutting diameter maximum

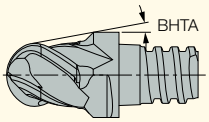
(2) Number of flutes

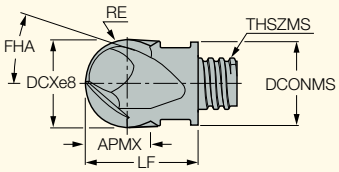
* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EB

Interchangeable Solid Carbide Ball Nose Milling Heads





Designation	Dimensions DCX(2)	NOF(3)	APMX	RE	THSZMS	DCONMS	LF	FHA	BHTA	IC908
MM EB050E07-4T05	5.00	4	7.00	2.49	T05	8.00	15.00	38.0	7.4	●
MM EB060E04-4T04	6.00	4	4.00	2.99	T04	5.80	8.50	37.0	-	●
MM EB060E05-4T05	6.00	4	5.00	2.99	T05	8.00	10.00	38.0	11.7	●
MM EB080A05-2T05	8.00	2	5.00	3.98	T05	7.70	10.00	30.0	-	●
MM EB080A05-4T05	8.00	4	5.00	3.98	T05	7.70	10.00	30.0	-	●
MM EB100A07-2T06	10.00	2	7.00	4.98	T06	9.60	13.00	30.0	-	●
MM EB100A07-4T06	10.00	4	7.00	4.98	T06	9.60	13.00	30.0	-	●
MM EB120A09-2T08	12.00	2	9.00	5.98	T08	11.70	16.50	30.0	-	●
MM EB120H09CF-3T08I (1)	12.00	3	9.00	5.98	T08	11.70	16.50	38.0	-	●
MM EB120A09-4T08	12.00	4	9.00	5.98	T08	11.70	16.50	30.0	-	●
MM EB160A09-2T10	16.00	2	9.00	7.98	T10	15.30	20.50	30.0	-	●
MM EB160A12-4T10	16.00	4	12.00	7.98	T10	15.30	20.50	30.0	-	●
MM EB200A15-4T12	20.00	4	15.00	9.97	T12	18.45	25.50	30.0	-	●
MM EB250A22-4T15	25.00	4	22.00	12.47	T15	23.90	37.00	30.0	-	●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

(1) With coolant holes directed to each flute

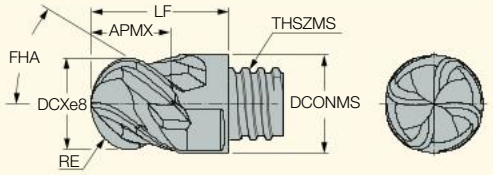
(2) Cutting diameter maximum

(3) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EBC

Interchangeable Solid Carbide Ball Nose Milling Heads for High Productivity on Hard Materials



Designation	Dimensions									IC903
	DCX(1)	NOF(2)	APMX	RE	THSZMS	DCONMS	LF	FHA		
MM EBC080B05-4T05CF	8.00	4	5.40	3.98	T05	7.70	10.00	45.0	MM KEY 6X4*	●
MM EBC100B07-4T06CF	10.00	4	7.40	4.98	T06	9.60	13.00	45.0	MM KEY 8X5*	●
MM EBC120B09-4T08CF	12.00	4	9.30	5.98	T08	11.70	16.50	45.0	MM KEY 10X7*	●
MM EBC160B12-4T10CF	16.00	4	12.40	7.98	T10	15.30	20.50	45.0	MM KEY 13X8*	●
MM EBC200B15-4T12CF	20.00	4	16.00	9.97	T12	18.45	25.50	45.0		●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

(1) Cutting diameter maximum

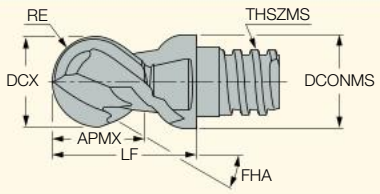
(2) Number of flutes

* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EBA-2

Interchangeable 2 Flute High Precision Solid Carbide Ball Nose Heads for Machining Aluminum



ALUMINUM

Designation	Dimensions									IC08
	DCX(1)	NOF(2)	APMX	RE	RETOL(3)	THSZMS	DCONMS	LF	FHA	
MM EBA080B05-2T05	8.00	2	5.00	3.98	0.010	T05	7.70	10.00	45.0	●
MM EBA100B07-2T06	10.00	2	7.00	4.98	0.010	T06	9.60	13.00	45.0	●
MM EBA120B09-2T08	12.00	2	9.00	5.98	0.012	T08	11.50	16.50	45.0	●
MM EBA160B12-2T10	16.00	2	12.00	7.98	0.012	T10	15.30	20.50	45.0	●
MM EBA200B15-2T12	20.00	2	15.00	9.97	0.012	T12	18.45	25.50	45.0	●
MM EBA250B22-2T15	25.00	2	22.00	12.50	0.012	T15	23.90	37.00	45.0	●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

(1) Cutting diameter maximum

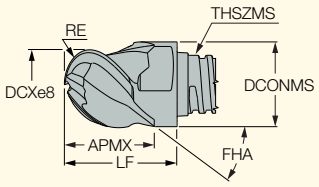
(2) Number of flutes

(3) Corner radius tolerance (+/-)

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EBA-3

Interchangeable 3 Flute High Precision Solid Carbide Ball Nose Heads for Machining Aluminum



ALUMINUM

Designation	Dimensions DCX(1)	NOF(2)	APMX	RE	RETOL(3)	THSZMS	DCONMS	LF	FHA	IC08
MM EBA080H05-3T05	8.00	3	5.50	3.98	0.010	T05	7.70	10.00	45.0	●
MM EBA100H07-3T06	10.00	3	7.50	4.98	0.010	T06	9.60	13.00	45.0	●
MM EBA120H09-3T08	12.00	3	9.50	5.98	0.012	T08	11.70	16.50	45.0	●
MM EBA160H12-3T10	16.00	3	12.70	7.98	0.012	T10	15.30	20.50	45.0	●
MM EBA200H15-3T12	20.00	3	15.60	9.97	0.012	T12	18.25	25.50	45.0	●
MM EBA250H22-3T15	25.00	3	22.60	12.47	0.015	T15	23.80	37.00	45.0	●

New

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

(1) Cutting diameter maximum

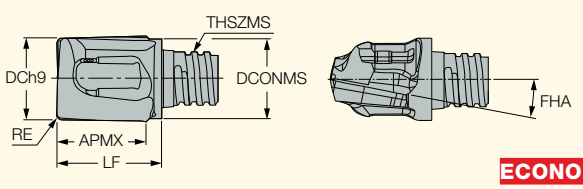
(2) Number of flutes

(3) Corner radius tolerance (+/-)

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM HC

Interchangeable Solid Carbide Slot Drill Milling Heads with Two 10° Helix Flutes



ECONOMICAL SOLUTION

Designation	Dimensions DC	NOF(1)	APMX	RE	Tm(2)	THSZMS	DCONMS	LF	FHA	Tough ↔ Hard IC908	IC903	Recommended Machining Data f_z (mm/t)
MM HC078C08R0.2-2T05	7.80	2	7.70	0.20	r0-2.0	T05	7.60	10.00	10.0	●		0.03-0.09
MM HC080C08R0.4-2T05	8.00	2	7.70	0.40	r0-2.0	T05	7.60	10.00	10.0	●	●	0.03-0.09
MM HC080C08R1.0-2T05	8.00	2	7.70	1.00	r0-2.0	T05	7.60	10.00	10.0	●	●	0.03-0.09
MM HC080C08R2.0-2T05	8.00	2	7.70	2.00	r0-2.0	T05	7.60	10.00	10.0	●	●	0.03-0.09
MM HC098C10R0.3-2T06	9.80	2	9.00	0.30	r0-3.0	T06	9.50	12.35	10.0	●		0.03-0.10
MM HC100C10R0.4-2T06	10.00	2	9.00	0.40	r0-3.0	T06	9.50	12.35	10.0	●	●	0.03-0.10
MM HC100C10R1.0-2T06	10.00	2	9.00	1.00	r0-3.0	T06	9.50	12.35	10.0	●	●	0.03-0.10
MM HC100C10R2.0-2T06	10.00	2	9.00	2.00	r0-3.0	T06	9.50	12.35	10.0	●	●	0.03-0.10
MM HC117C13R0.3-2T08	11.70	2	10.00	0.30	r0-3.0	T08	11.50	14.20	10.0	●		0.04-0.11
MM HC120C13R0.4-2T08	12.00	2	10.00	0.40	r0-3.0	T08	11.50	14.20	10.0	●	●	0.04-0.11
MM HC120C13R1.0-2T08	12.00	2	10.00	1.00	r0-3.0	T08	11.50	14.20	10.0	●	●	0.04-0.11
MM HC120C13R2.0-2T08	12.00	2	10.00	2.00	r0-3.0	T08	11.50	14.20	10.0	●	●	0.04-0.11
MM HC140C11R0.4-2T08	14.00	2	11.60	0.40	r0-4.0	T08	11.50	15.05	10.0	●		0.04-0.12
MM HC157C16R0.3-2T10	15.70	2	15.00	0.30	r0-4.0	T10	15.20	19.05	10.0	●		0.05-0.13
MM HC160C16R0.4-2T10	16.00	2	14.90	0.40	r0-4.0	T10	15.20	19.05	10.0	●	●	0.05-0.13
MM HC160C16R0.8-2T10	16.00	2	14.90	0.80	r0-4.0	T10	15.15	19.05	10.0	●	●	0.05-0.13

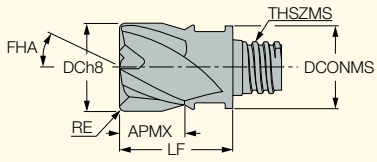
• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

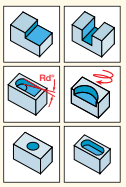
(1) Number of flutes

(2) Specially tailored radius range, available upon request.

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM ECU
Interchangeable 3 Flute
Undersized Solid Carbide Heads
for Keyways (DIN 6885)





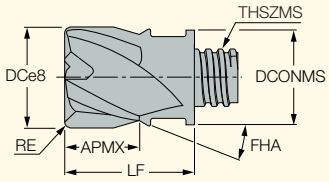
Designation	Dimensions DC	NOF(1)	APMX	RE	THSZMS	DCONMS	LF	FHA	IC908	Recommended Machining Data f_z (mm/t)
MM ECU077E04R020-3T05	7.70	3	4.00	0.20	T05	7.70	10.00	38.0	●	0.03-0.08
MM ECU097E05R030-3T06	9.70	3	5.00	0.30	T06	9.60	13.00	38.0	●	0.03-0.09
MM ECU117E07R030-3T08	11.70	3	7.00	0.30	T08	11.50	16.50	38.0	●	0.03-0.10
MM ECU157E08R030-3T10	15.70	3	8.00	0.30	T10	15.30	20.50	38.0	●	0.04-0.12
MM ECU197E12R040-3T12	19.70	3	12.00	0.40	T12	18.45	25.50	38.0	●	0.05-0.13

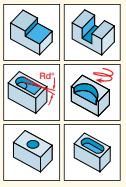
• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

(1) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EC-3
Interchangeable 3 Flute
Solid Carbide Endmill
Heads with 45° Helix





Designation	Dimensions DC	NOF(2)	APMX	RE	THSZMS	LF	FHA	DCONMS	IC908	Recommended Machining Data f_z (mm/t)
MM EC080B05R0.4-3T05	8.00	3	5.00	0.40	T05	10.00	45.0	7.70	●	0.03-0.09
MM EC080B05R000-3T05	8.00	3	5.00	0.00	T05	10.00	45.0	7.70	●	0.03-0.09
MM EC100B07R000-3T06	10.00	3	7.00	0.00	T06	13.00	45.0	9.60	●	0.03-0.10
MM EC100B12R000-3T06	10.00	3	12.00	0.00	T06	19.00	45.0	9.60	●	0.03-0.10
MM EC120B09R000-3T08I (1)	12.00	3	9.00	0.00	T08	16.50	45.0	11.70	●	0.04-0.11
MM EC120B09R000-3T08	12.00	3	9.00	0.00	T08	16.50	45.0	11.70	●	0.04-0.11

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see page 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

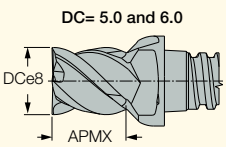
(1) With coolant holes directed to each flute

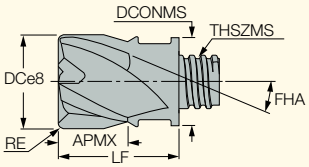
(2) Number of flutes

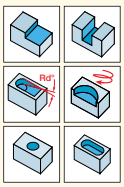
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EC-4

Interchangeable 4 Flute Solid Carbide Endmill Heads with 30°, 45° Helix and Various Corner Radii







Designation	Dimensions DC	RE	FHA	NOF[1]	APMX	THSZMS	DCONMS	LF	IC908	Recommended Machining Data f_z (mm/t)
MM EC050B07R000-4T05	5.00	0.00	45.0	4	7.00	T05	8.00	15.00	●	0.02-0.06
MM EC060B05R000-4T05	6.00	0.00	45.0	4	5.00	T05	8.00	10.00	●	0.03-0.07
MM EC060B04R0.5-4T04	6.00	0.50	45.0	4	4.00	T04	5.80	8.50	●	0.02-0.04
MM EC080B05R000-4T05	8.00	0.00	45.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC080B09R000-4T05	8.00	0.00	45.0	4	9.00	T05	7.70	15.00	●	0.03-0.09
MM EC080A05R0.5-4T05	8.00	0.50	30.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC080A09R0.5-4T05	8.00	0.50	30.0	4	9.00	T05	7.70	15.00	●	0.03-0.09
MM EC080B05R0.5-4T05	8.00	0.50	45.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC080A05R1.0-4T05	8.00	1.00	30.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC080B05R1.0-4T05	8.00	1.00	45.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC080A05R1.5-4T05	8.00	1.50	30.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC080B05R1.5-4T05	8.00	1.50	45.0	4	5.00	T05	7.70	10.00	●	0.03-0.09
MM EC100B07R000-4T06	10.00	0.00	45.0	4	7.00	T06	9.60	13.00	●	0.03-0.10
MM EC100B12R000-4T06	10.00	0.00	45.0	4	12.00	T06	9.60	19.00	●	0.03-0.10
MM EC100A07R0.5-4T06	10.00	0.50	30.0	4	7.00	T06	9.60	13.00	●	0.03-0.10
MM EC100B07R0.5-4T06	10.00	0.50	45.0	4	7.00	T06	9.60	13.00	●	0.03-0.10
MM EC100A07R1.0-4T06	10.00	1.00	30.0	4	7.00	T06	9.60	13.00	●	0.03-0.10
MM EC100B07R1.0-4T06	10.00	1.00	45.0	4	7.00	T06	9.60	13.00	●	0.03-0.10
MM EC120B09R000-4T08	12.00	0.00	45.0	4	9.00	T08	11.70	16.50	●	0.04-0.11
MM EC120B14R000-4T08	12.00	0.00	45.0	4	14.00	T08	11.70	23.00	●	0.04-0.11
MM EC120A09R0.5-4T08	12.00	0.50	30.0	4	9.00	T08	11.70	16.50	●	0.04-0.11
MM EC120B09R0.5-4T08	12.00	0.50	45.0	4	9.00	T08	11.70	16.50	●	0.04-0.11
MM EC120A09R1.0-4T08	12.00	1.00	30.0	4	9.00	T08	11.70	16.50	●	0.04-0.11
MM EC120B09R1.0-4T08	12.00	1.00	45.0	4	9.00	T08	11.70	16.50	●	0.04-0.11
MM EC160B12R000-4T10	16.00	0.00	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160A12R0.5-4T10	16.00	0.50	30.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160B12R0.5-4T10	16.00	0.50	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160A12R1.0-4T10	16.00	1.00	30.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160B12R1.0-4T10	16.00	1.00	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160A12R1.5-4T10	16.00	1.50	30.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160B12R1.5-4T10	16.00	1.50	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160A12R2.0-4T10	16.00	2.00	30.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160B12R2.0-4T10	16.00	2.00	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160A12R3.0-4T10	16.00	3.00	30.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160B12R3.0-4T10	16.00	3.00	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160A12R4.0-4T10	16.00	4.00	30.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC160B12R4.0-4T10	16.00	4.00	45.0	4	12.00	T10	15.30	20.50	●	0.05-0.13
MM EC200B15R000-4T12	20.00	0.00	45.0	4	15.00	T12	18.45	25.50	●	0.05-0.13
MM EC200A15R0.5-4T12	20.00	0.50	30.0	4	15.00	T12	18.45	25.50	●	0.05-0.13
MM EC200A15R1.0-4T12	20.00	1.00	30.0	4	15.00	T12	18.45	25.50	●	0.05-0.13
MM EC200A15R2.0-4T12	20.00	2.00	30.0	4	15.00	T12	18.45	25.50	●	0.05-0.13
MM EC200A15R3.0-4T12	20.00	3.00	30.0	4	15.00	T12	18.45	25.50	●	0.05-0.13

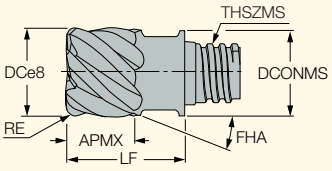
• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

[1] Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EC-6

Interchangeable 6 Flute Solid Carbide Endmill Heads with 30°, 45° Helix and Corners with Different Radius



Designation	Dimensions DC	NOF(1)	APMX	RE	THSZMS	DCONMS	LF	FHA	RMPX°(2)	IC908	Recommended Machining Data f_z (mm/t)
MM EC080A05R0.5-6T05	8.00	6	5.00	0.50	T05	7.70	10.00	30.0	6.0	●	0.03-0.09
MM EC080A05R1.0-6T05	8.00	6	5.00	1.00	T05	7.70	10.00	30.0	6.0	●	0.03-0.09
MM EC080A05R1.5-6T05	8.00	6	5.00	1.50	T05	7.70	10.00	30.0	6.0	●	0.03-0.09
MM EC080B05R0.5-6T05	8.00	6	5.00	0.50	T05	7.70	10.00	45.0	3.0	●	0.03-0.10
MM EC080B05R1.0-6T05	8.00	6	5.00	1.00	T05	7.70	10.00	45.0	3.0	●	0.03-0.09
MM EC080B05R1.5-6T05	8.00	6	5.00	1.50	T05	7.70	10.00	45.0	3.0	●	0.03-0.09
MM EC100A07R0.5-6T06	10.00	6	7.00	0.50	T06	9.60	13.00	30.0	6.0	●	0.03-0.10
MM EC100A07R1.0-6T06	10.00	6	7.00	1.00	T06	9.60	13.00	30.0	6.0	●	0.03-0.10
MM EC100A07R1.5-6T06	10.00	6	7.00	1.50	T06	9.60	13.00	30.0	6.0	●	0.03-0.10
MM EC100B07R0.5-6T06	10.00	6	7.00	0.50	T06	9.60	13.00	45.0	3.0	●	0.04-0.10
MM EC100B07R000-6T06	10.00	6	7.00	0.00	T06	9.60	13.00	45.0	3.0	●	0.03-0.10
MM EC100B07R1.0-6T06	10.00	6	7.00	1.00	T06	9.60	13.00	45.0	3.0	●	0.04-0.10
MM EC100B07R1.5-6T06	10.00	6	7.00	1.50	T06	9.60	13.00	45.0	3.0	●	0.03-0.10
MM EC100B12R1.5-6T06	10.00	6	12.00	1.50	T06	9.60	19.00	45.0	3.0	●	0.04-0.10
MM EC120A09R0.5-6T08	12.00	6	9.00	0.50	T08	11.70	16.50	30.0	6.0	●	0.04-0.11
MM EC120A09R1.0-6T08	12.00	6	9.00	1.00	T08	11.70	16.50	30.0	6.0	●	0.04-0.11
MM EC120B09R0.5-6T08	12.00	6	9.00	0.50	T08	11.70	16.50	45.0	3.0	●	0.04-0.10
MM EC120B09R000-6T08	12.00	6	9.00	0.00	T08	11.70	16.50	45.0	3.0	●	0.04-0.11
MM EC120B09R1.0-6T08	12.00	6	9.00	1.00	T08	11.70	16.50	45.0	3.0	●	0.04-0.10
MM EC120B09R1.5-6T08	12.00	6	9.00	1.50	T08	11.70	16.50	45.0	3.0	●	0.04-0.11

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

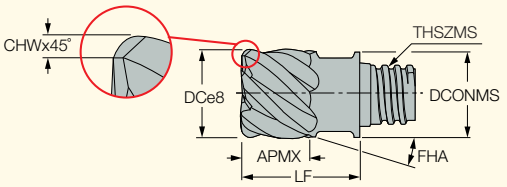
(1) Number of flutes

(2) Maximum ramping angle

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EC-D

Interchangeable 6, 8, 10 Flute Solid Carbide Endmill Heads with 50° Helix for Machining Hardened Steel



Designation	Dimensions DC	NOF(1)	APMX	CHW	KCH	THSZMS	DCONMS	LF	FHA	RMPX°(2)	IC903	Recommended Machining Data f_z (mm/t)
MM EC080D05C01-6T05	8.00	6	5.00	0.10	45.0	T05	7.70	10.00	50.0	2.0	●	0.03-0.10
MM EC100D07C01-6T06	10.00	6	7.00	0.10	45.0	T06	9.60	13.00	50.0	2.0	●	0.03-0.10
MM EC120D09C01-6T08	12.00	6	9.00	0.10	45.0	T08	11.70	16.50	50.0	3.0	●	0.04-0.11
MM EC160D12C02-8T10	16.00	8	12.00	0.20	45.0	T10	15.30	20.50	50.0	3.0	●	0.05-0.13
MM EC200D15C02-10T12	20.00	10	15.00	0.20	45.0	T12	18.45	25.50	50.0	3.0	●	0.05-0.13

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

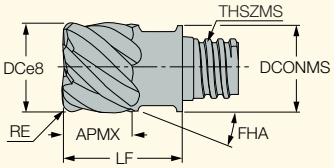
(1) Number of flutes

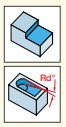
(2) Maximum ramping angle

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EC-8/10

Interchangeable 8, 10 Flute Solid Carbide Endmill Heads with 30°, 45° Helix and Corners with Different Radius





Designation	Dimensions DC	NOF(2)	APMX	RE	THSZMS	DCONMS	LF	FHA	RMPX°(3)	IC908	Recommended Machining Data f_z (mm/t)
MM EC160A12R0.5-8T10	16.00	8	12.00	0.50	T10	15.30	20.50	30.0	5.0	●	0.05-0.13
MM EC160A12R0.5-8T10H (1)	16.00	8	12.00	0.50	T10	15.30	20.50	30.0	5.0	●	0.05-0.13
MM EC160A12R1.0-8T10	16.00	8	12.00	1.00	T10	15.30	20.50	30.0	5.0	●	0.05-0.13
MM EC160A12R1.6-8T10	16.00	8	12.00	1.60	T10	15.30	20.50	30.0	5.0	●	0.05-0.13
MM EC160A12R2.0-8T10	16.00	8	12.00	2.00	T10	15.30	20.50	30.0	5.0	●	0.05-0.13
MM EC160B12R0.5-8T10	16.00	8	12.00	0.50	T10	15.30	20.50	45.0	5.0	●	0.05-0.13
MM EC160B12R1.0-8T10	16.00	8	12.00	1.00	T10	15.30	20.50	45.0	5.0	●	0.05-0.13
MM EC160B12R1.6-8T10	16.00	8	12.00	1.60	T10	15.30	20.50	45.0	5.0	●	0.05-0.13
MM EC160B12R2.0-8T10	16.00	8	12.00	2.00	T10	15.30	20.50	45.0	5.0	●	0.05-0.13
MM EC200A15R1.0-10T12	20.00	10	15.00	1.00	T12	18.45	25.50	30.0	3.0	●	0.05-0.13
MM EC200A15R2.0-10T12	20.00	10	15.00	2.00	T12	18.45	25.50	30.0	3.0	●	0.05-0.13
MM EC250A22R0.8-10T15	25.00	10	22.00	0.80	T15	23.90	37.00	30.0	3.0	●	0.05-0.13

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

(1) With a central coolant hole

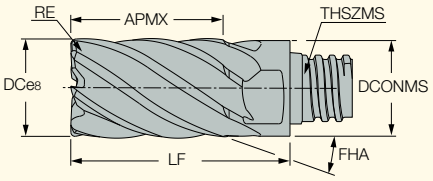
(2) Number of flutes

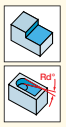
(3) Maximum ramping angle

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EC-CF-Z7/9-1.5xD

Interchangeable 7, 9 Flute Solid Carbide Endmill Heads with 36° Helix and 1.5xD Flute Lengths





Designation	Dimensions DC	APMX	RE	NOF(1)	THSZMS	DCONMS	LF	FHA	RMPX°(2)	IC908	Recommended Machining Data f_z (mm/t)
MM EC080H12R05CF-7T05	8.00	12.00	0.50	7	T05	7.70	18.00	36.0	3.0	●	0.03-0.10
MM EC100H15R05CF-7T06	10.00	15.00	0.50	7	T06	9.60	22.00	36.0	3.0	●	0.04-0.10
MM EC120H18R05CF-7T08	12.00	18.00	0.50	7	T08	11.70	27.00	36.0	3.0	●	0.04-0.10
MM EC160H24R08CF-9T10	16.00	24.00	0.80	9	T10	15.30	33.50	36.0	1.0	●	0.05-0.10
MM EC200H30R10CF-9T12	20.00	30.00	1.00	9	T12	18.45	41.00	36.0	1.0	●	0.05-0.10
MM EC250H37R10CF-9T15	25.00	37.00	1.00	9	T15	23.90	52.50	36.0	1.0	●	0.05-0.10

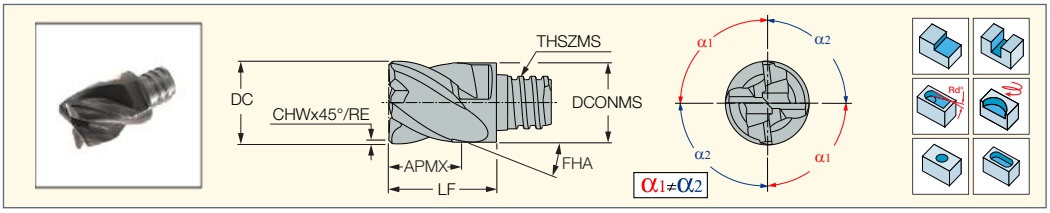
• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection • For user guide, see pages 59,211-218

(1) Number of flutes

(2) Maximum ramping angle

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EC-CF
Interchangeable Solid Carbide Endmill Heads for CHATTER-FREE Roughing and Finishing Operations



Designation	Dimensions DC	RE	NOF(2)	APMX	THSZMS	DCONMS	LF	FHA	CHW	KCH	IC908	Recommended Machining Data f_z (mm/t)
MM EC080E05C3CF-4T05	8.00	-	4	5.00	T05	7.70	10.00	38.0	0.30	45.0	●	0.03-0.09
MM EC080E05R0CF-4T05	8.00	-	4	5.00	T05	7.70	10.00	38.0	-	-	●	0.03-0.09
MM EC080E05R05CF-4T05	8.00	0.50	4	5.00	T05	7.70	10.00	38.0	-	-	●	0.03-0.09
MM EC100E07C4CF-4T06	10.00	-	4	7.00	T06	9.60	13.00	38.0	0.40	45.0	●	0.03-0.10
MM EC100E07R00CF-4T06	10.00	-	4	7.00	T06	9.60	13.00	38.0	-	-	●	0.03-0.10
MM EC100E07R02CF-4T06	10.00	0.20	4	7.00	T06	9.60	13.00	38.0	-	-	●	0.03-0.10
MM EC100E07R04CF-4T06	10.00	0.40	4	7.00	T06	9.60	13.00	38.0	-	-	●	0.03-0.10
MM EC100E07R05CF-4T06	10.00	0.50	4	7.00	T06	9.60	13.00	38.0	-	-	●	0.03-0.10
MM EC100E07R25CF-4T06	10.00	2.50	4	7.00	T06	9.60	13.00	38.0	-	-	●	0.03-0.10
MM EC120E09C5CF-4T08	12.00	-	4	9.00	T08	11.70	16.50	38.0	0.50	45.0	●	0.04-0.11
MM EC120E09C5CF-4T08I (1)	12.00	-	4	9.00	T08	11.70	16.50	38.0	0.50	45.0	●	0.04-0.11
MM EC120E09R00CF-4T08	12.00	-	4	9.00	T08	11.70	16.50	38.0	-	-	●	0.04-0.11
MM EC120E09R02CF-4T08	12.00	0.20	4	9.00	T08	11.70	16.50	38.0	-	-	●	0.04-0.11
MM EC120E09R04CF-4T08	12.00	0.40	4	9.00	T08	11.70	16.50	38.0	-	-	●	0.04-0.11
MM EC120E09R05CF-4T08	12.00	0.50	4	9.00	T08	11.70	16.50	38.0	-	-	●	0.04-0.11
MM EC120E09R15CF-4T08	12.00	1.50	4	9.00	T08	11.70	16.50	38.0	-	-	●	0.04-0.11
MM EC160E12C6CF-4T10	16.00	-	4	12.00	T10	15.30	20.50	38.0	0.60	45.0	●	0.05-0.13
MM EC160E12R05CF-4T10	16.00	0.50	4	12.00	T10	15.30	20.50	38.0	-	-	●	0.05-0.13
MM EC200E15C6CF-4T12	20.00	-	4	15.00	T12	18.45	25.50	38.0	0.60	45.0	●	0.05-0.17
MM EC200E15R05CF-4T12	20.00	0.50	4	15.00	T12	18.45	25.50	38.0	-	-	●	0.05-0.17
MM EC250E28C6CF-12T15	25.00	-	12	28.00	T15	23.90	43.00	38.0	0.60	45.0	●	0.06-0.13
MM EC250E28C6CF-4T15	25.00	-	4	28.00	T15	23.90	43.00	38.0	0.60	45.0	●	0.06-0.17
MM EC250E22C6CF-4T15	25.00	-	4	22.00	T15	23.90	37.00	38.0	0.60	45.0	●	0.06-0.17
MM EC250E22R05CF-4T15	25.00	0.50	4	22.00	T15	23.90	37.00	38.0	-	-	●	0.06-0.17
MM EC250E22R10CF-4T15	25.00	1.00	4	22.00	T15	23.90	37.00	38.0	-	-	●	0.06-0.17
MM EC250E22R20CF-4T15	25.00	2.00	4	22.00	T15	23.90	37.00	38.0	-	-	●	0.06-0.17
MM EC250E22R30CF-4T15	25.00	3.00	4	22.00	T15	23.90	37.00	38.0	-	-	●	0.06-0.17
MM EC320H38C06-4T21	32.00	-	4	38.00	T21	30.00	55.00	38.0	0.60	45.0	●	0.06-0.18

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

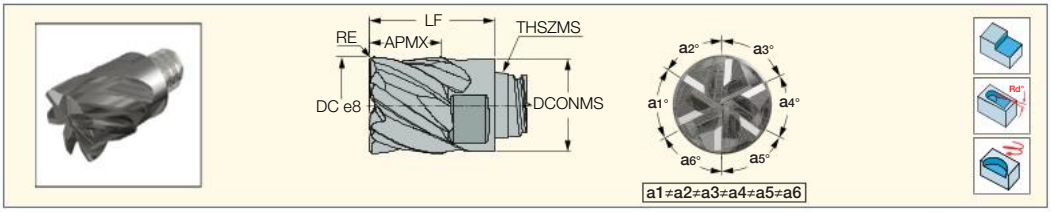
(1) With coolant holes directed to each flute

(2) Number of flutes

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM ECK-CF

5,6 Flute Solid Carbide Heads with 35°/38° Helix Featuring Different Corner Radii For Machining Titanium Alloys



Designation	Dimensions DC	RE	NOF(1)	APMX	THSZMS	DCONMS	LF	RMPX°(2)	IC908	Recommended Machining Data f_z (mm/t)
MM ECK080H05R04-6T05CF	8.00	0.40	6	5.00	T05	7.70	10.00	5.0	●	0.04-0.08
MM ECK100H07R05-6T06CF	10.00	0.50	6	7.00	T06	9.60	13.00	5.0	●	0.04-0.08
MM ECK120H09R05-6T08CF	12.00	0.50	6	9.00	T08	11.70	16.50	5.0	●	0.04-0.08
MM ECK160H12R08-6T10CF	16.00	0.80	6	12.00	T10	15.30	20.50	5.0	●	0.07-0.12
MM ECK160H12R30-6T10CF	16.00	3.00	6	12.00	T10	15.30	20.50	5.0	●	0.07-0.12
MM ECK160H12R40-6T10CF	16.00	4.00	6	12.00	T10	15.30	20.50	5.0	●	0.07-0.12
MM ECK200H15R10-6T12CF	20.00	1.00	6	15.00	T12	18.45	25.50	5.0	●	0.07-0.12
MM ECK200H15R30-6T12CF	20.00	3.00	6	15.00	T12	18.45	25.50	5.0	●	0.07-0.12
MM ECK200H15R40-6T12CF	20.00	4.00	6	15.00	T12	18.45	25.50	5.0	●	0.07-0.12
MM ECK250H22R10-6T15CF	25.00	1.00	6	22.00	T15	23.90	37.00	5.0	●	0.07-0.12
MM ECK250H22R30-6T15CF	25.00	3.00	6	22.00	T15	23.90	37.00	5.0	●	0.07-0.12
MM ECK250H22R40-6T15CF	25.00	4.00	6	22.00	T15	23.90	37.00	5.0	●	0.07-0.12
MM ECK320H38R4-5T21	32.00	4.00	5	38.00	T21	30.00	55.00	1.0	●	0.06-0.18
MM ECK320H38R5-5T21	32.00	5.00	5	38.00	T21	30.00	55.00	1.0	●	0.06-0.18

• For shanks, see pages 101-111 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages111-112
• Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

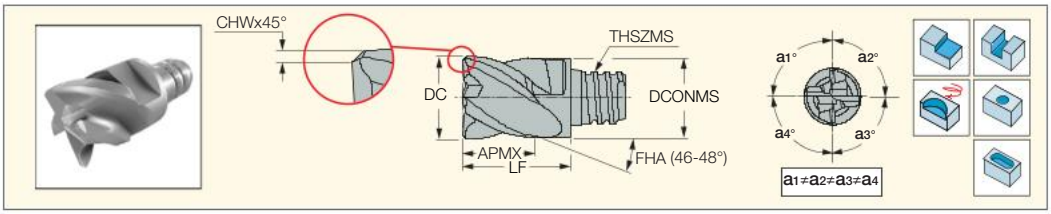
(1) Number of flutes

(2) Maximum ramping angle

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM EC-H-4-CF

Interchangeable Carbide Endmill Heads for CHATTER-FREE Milling Alloyed Steel



Designation	Dimensions DC	NOF(1)	APMX	THSZMS	DCONMS	LF	CHW	KCH	IC908	Recommended Machining Data f_z (mm/t)
MM EC080H05C3-4T05CF	8.00	4	5.00	T05	7.70	10.00	0.30	45.0	●	0.03-0.09
MM EC100H07C4-4T06CF	10.00	4	7.00	T06	9.60	13.00	0.40	45.0	●	0.03-0.10
MM EC120H09C5-4T08CF	12.00	4	9.00	T08	11.70	16.50	0.50	45.0	●	0.04-0.11
MM EC160H12C6-4T10CF	16.00	4	12.00	T10	15.30	20.50	0.60	45.0	●	0.05-0.13
MM EC200H15C6-4T12CF	20.00	4	15.00	T12	18.45	25.50	0.60	45.0	●	0.05-0.17

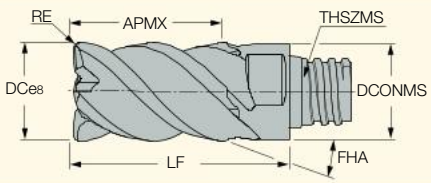
• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

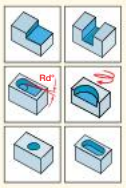
(1) Number of flutes

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM EC-Z4-1.5xD

Interchangeable Solid Carbide Endmill Heads with 1.5xD Flute Lengths for Roughing and Finishing





Designation	Dimensions DC	NOF(1)	APMX	RE	THSZMS	DCONMS	LF	FHA	Tough ↔ Hard IC908	IC608	Recommended Machining Data f_z (mm/t)
MM EC080B12R000-4T05	8.00	4	12.00	0.00	T05	7.70	18.00	46.5		●	0.03-0.09
MM EC080H12R05CF-4T05	8.00	4	12.00	0.50	T05	7.70	18.00	46.5	●		0.03-0.09
MM EC100B15R000-4T06	10.00	4	15.00	0.00	T06	9.60	22.00	46.5		●	0.03-0.10
MM EC100H15R05CF-4T06	10.00	4	15.00	0.50	T06	9.60	22.00	46.5	●		0.03-0.10
MM EC120B18R000-4T08	12.00	4	18.00	0.00	T08	11.70	27.00	46.5		●	0.04-0.11
MM EC120H18R05CF-4T08	12.00	4	18.00	0.50	T08	11.70	27.00	46.5	●		0.04-0.11
MM EC160B24R000-4T10	16.00	4	24.00	0.00	T10	15.30	33.50	46.5		●	0.05-0.13
MM EC160H24R05CF-4T10	16.00	4	24.00	0.50	T10	15.30	33.50	46.5	●		0.05-0.13
MM EC200B30R000-4T12	20.00	4	30.00	0.00	T12	18.45	41.00	46.5		●	0.05-0.17
MM EC200H30R05CF-4T12	20.00	4	30.00	0.50	T12	18.45	41.00	46.5	●		0.05-0.17
MM EC250B37R000-4T15	25.00	4	37.00	0.00	T15	23.90	52.50	46.5		●	0.06-0.17
MM EC250H37R05CF-4T15	25.00	4	37.00	0.50	T15	23.90	52.50	46.5	●		0.06-0.17

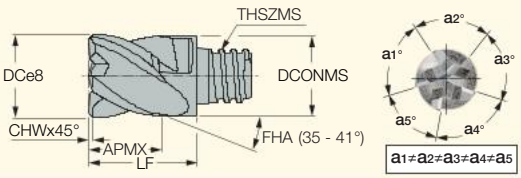
• For shanks, see pages 101-111 • Do not apply lubricant to the threaded connection • For user guide, see pages 59,211-218

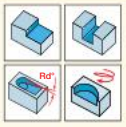
(1) Number of flutes

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE

MM EC-H-5-CF

Interchangeable Carbide Endmill Heads for CHATTER-FREE Milling of High Temperature Alloys Such as Titanium and Inconel





Designation	Dimensions DC	NOF(1)	APMX	THSZMS	DCONMS	LF	RMPX°(2)	CHW	KCH	IC908	Recommended Machining Data f_z (mm/t)
MM EC080H05C3-5T05CF	8.00	5	5.00	T05	7.70	10.00	5.0	0.30	45.0	●	0.03-0.09
MM EC100H07C4-5T06CF	10.00	5	7.00	T06	9.60	13.00	5.0	0.40	45.0	●	0.03-0.10
MM EC120H09C5-5T08CF	12.00	5	9.00	T08	11.70	16.50	4.0	0.50	45.0	●	0.04-0.11
MM EC160H12C6-5T10CF	16.00	5	12.00	T10	15.30	20.50	4.0	0.60	45.0	●	0.05-0.13
MM EC200H15C6-5T12CF	20.00	5	15.00	T12	18.45	25.50	3.0	0.60	45.0	●	0.05-0.17
MM EC250H22C6-5T15CF	25.00	5	22.00	T15	23.90	37.00	3.0	0.60	45.0	●	0.06-0.17

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

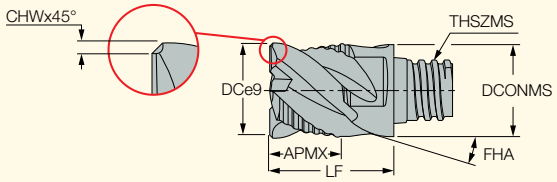
(1) Number of flutes

(2) Maximum ramping angle

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EFS

Combination of Interchangeable Solid Carbide Endmill Heads for Roughing and Finishing



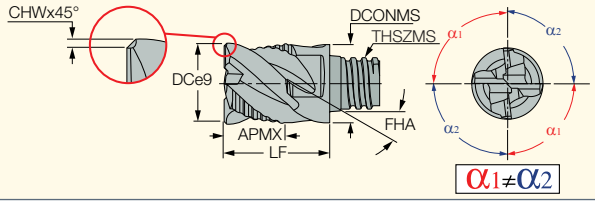
Designation	Dimensions DC	NOF(1)	APMX	THSZMS	DCONMS	LF	FHA	CHW	KCH	IC908	Recommended Machining Data f_z (mm/t)
MM EFS080B05-4T05	8.00	4	5.00	T05	7.70	10.00	45.0	0.30	45.0	●	0.03-0.08
MM EFS100B07-4T06	10.00	4	7.00	T06	9.60	13.00	45.0	0.30	45.0	●	0.03-0.09
MM EFS120B09-4T08	12.00	4	9.00	T08	11.70	16.50	45.0	0.40	45.0	●	0.04-0.10
MM EFS160B12-4T10	16.00	4	12.00	T10	15.30	20.50	45.0	0.60	45.0	●	0.05-0.11
MM EFS200B15-4T12	20.00	4	15.00	T12	18.45	25.50	45.0	0.60	45.0	●	0.05-0.11
MM EFS250B22-4T15	25.00	4	22.00	T15	23.90	37.00	45.0	0.60	45.0	●	0.06-0.11

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112
• Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218
(1) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EFS-CF

4 Flute Solid Carbide Heads with 38° Helix and Variable Pitch for CHATTER-FREE Roughing and Finishing Applications



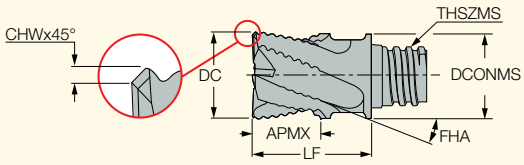
Designation	Dimensions DC	NOF(1)	APMX	CHW	KCH	THSZMS	DCONMS	LF	FHA	IC908	Recommended Machining Data f_z (mm/t)
MM EFS060E05-4T05 CF	6.00	4	5.00	0.25	45.0	T05	7.70	10.00	38.0	●	0.03-0.08
MM EFS080E05-4T05 CF	8.00	4	5.00	0.30	45.0	T05	7.70	10.00	38.0	●	0.03-0.08
MM EFS100E07-4T06 CF	10.00	4	7.00	0.40	45.0	T06	9.60	13.00	38.0	●	0.03-0.09
MM EFS120E09-4T08 CF	12.00	4	9.00	0.50	45.0	T08	11.70	16.50	38.0	●	0.04-0.10
MM EFS160E12-4T10 CF	16.00	4	12.00	0.60	45.0	T10	15.30	20.50	38.0	●	0.05-0.11
MM EFS200E15-4T12 CF	20.00	4	16.00	0.60	45.0	T12	18.45	25.50	38.0	●	0.05-0.11
MM EFS250E22-4T15 CF	25.00	4	22.00	0.60	45.0	T15	23.90	37.00	38.0	●	0.06-0.11

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218
(1) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM ERS

Interchangeable Solid Carbide Rough Milling Heads for High Metal Removal Rates



Designation	Dimensions DC	NOF[3]	APMX	THSZMS	DCONMS	LF	FHA	RMPX°[4]	CHW	KCH	IC908	Recommended Machining Data f_z (mm/t)
MM ERS080B05-4T05	8.00	4	5.00	T05	7.70	10.00	45.0	5.0	0.25	45.0	●	0.03-0.08
MM ERS080B09-4T05	8.00	4	9.00	T05	7.70	15.00	45.0	5.0	0.25	45.0	●	0.03-0.08
MM ERS100B07-4T06	10.00	4	7.00	T06	9.60	13.00	45.0	5.0	0.30	45.0	●	0.03-0.09
MM ERS120B09-4T08	12.00	4	9.00	T08	11.70	16.50	45.0	5.0	0.35	45.0	●	0.04-0.10
MM ERS120B09-4T08H [1]	12.00	4	9.00	T08	11.70	16.50	45.0	5.0	0.35	45.0	●	0.04-0.10
MM ERS120B09-4T08I [2]	12.00	4	9.00	T08	11.70	16.50	45.0	5.0	0.35	45.0	●	0.04-0.11
MM ERS120B14-4T08	12.00	4	14.00	T08	11.70	23.00	45.0	5.0	0.35	45.0	●	0.04-0.10
MM ERS160B12-5T10	16.00	5	12.00	T10	15.30	20.50	45.0	5.0	0.40	45.0	●	0.04-0.10
MM ERS160B12-5T10H [1]	16.00	5	12.00	T10	15.30	20.50	45.0	5.0	0.40	45.0	●	0.04-0.10
MM ERS200B15-6T12	20.00	6	15.00	T12	18.45	25.50	45.0	3.0	0.40	45.0	●	0.05-0.11
MM ERS250B22-6T15	25.00	6	22.00	T15	23.90	37.00	45.0	3.0	0.50	45.0	●	0.05-0.11

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

[1] With a central coolant hole

[2] With coolant holes directed to each flute

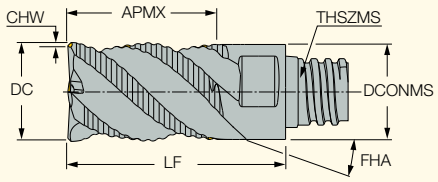
[3] Number of flutes

[4] Maximum ramping angle

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM ERS-1.5xD

Interchangeable Solid Carbide Rough Milling Heads with 1.5xD Flute Lengths for High Metal Removal Rates



Designation	Dimensions DC	NOF[1]	APMX	CHW	KCH	THSZMS	DCONMS	LF	FHA	RMPX°[2]	IC908	Recommended Machining Data f_z (mm/t)
MM ERS080B12-4T05	8.00	4	12.00	0.25	45.0	T05	7.70	18.00	46.0	5.0	●	0.03-0.08
MM ERS100B15-4T06	10.00	4	15.00	0.30	45.0	T06	9.60	22.00	46.0	5.0	●	0.03-0.09
MM ERS120B18-4T08	12.00	4	18.00	0.35	45.0	T08	11.70	27.00	46.0	5.0	●	0.04-0.10
MM ERS160B24-5T10	16.00	5	24.00	0.40	45.0	T10	15.30	33.50	40.0	5.0	●	0.04-0.10
MM ERS200B30-6T12	20.00	6	30.00	0.40	45.0	T12	18.45	41.00	47.0	3.0	●	0.05-0.11
MM ERS250B37-6T15	25.00	6	37.00	0.50	45.0	T15	23.90	52.50	47.0	3.0	●	0.05-0.11

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection • For user guide, see pages 59,211-218

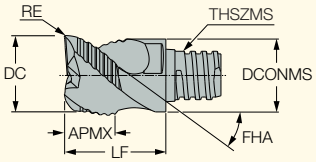
[1] Number of flutes

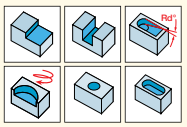
[2] Maximum ramping angle

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM ERA

Interchangeable Solid Carbide Rough Milling Heads for Machining Aluminum at High Metal Removal Rates





ALUMINUM

Designation	Dimensions DC	NOF(1)	APMX	RE	THSZMS	DCONMS	LF	FHA	IC08	Recommended Machining Data f_z (mm/t)
MM ERA080B05R0.2-3T05	8.00	3	5.00	0.20	T05	7.70	10.00	45.0	●	0.03-0.15
MM ERA100B06R0.2-3T06	10.00	3	6.00	0.20	T06	9.60	13.00	45.0	●	0.05-0.20
MM ERA120B08R0.2-3T08	12.00	3	8.00	0.20	T08	11.70	16.50	45.0	●	0.07-0.22
MM ERA160B10R0.2-3T10	16.00	3	10.00	0.20	T10	15.30	20.50	45.0	●	0.07-0.25
MM ERA200B12R0.2-3T12	20.00	3	12.00	0.20	T12	18.45	25.50	45.0	●	0.07-0.25
MM ERA250B19R0.2-3T15	25.00	3	19.00	0.20	T15	23.90	37.00	45.0	●	0.07-0.25

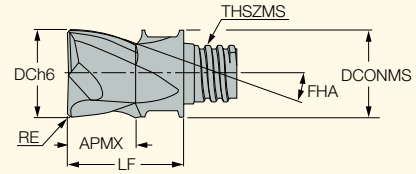
• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

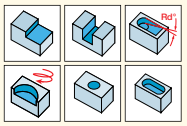
(1) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EA

Interchangeable Solid Carbide Slot Drill Milling Heads for Machining Aluminum





ALUMINUM

Designation	Dimensions DC	NOF(1)	APMX	RE	THSZMS	DCONMS	LF	FHA	IC08	Recommended Machining Data f_z (mm/t)
MM EA060B03R0.0-3T04	6.00	3	3.20	0.00	T04	5.80	8.50	45.0	●	0.02-0.05
MM EA080B05R0.5-2T05	8.00	2	5.00	0.50	T05	7.70	10.00	45.0	●	0.03-0.09
MM EA080B05R0.5-3T05	8.00	3	5.00	0.50	T05	7.70	10.00	45.0	●	0.03-0.09
MM EA100B07R0.5-2T06	10.00	2	7.00	0.50	T06	9.60	13.00	45.0	●	0.03-0.10
MM EA100B07R1.0-2T06	10.00	2	7.00	1.00	T06	9.60	13.00	45.0	●	0.03-0.10
MM EA100B06R0.5-3T06	10.00	3	6.00	0.50	T06	9.60	13.00	45.0	●	0.03-0.10
MM EA100B06R1.0-3T06	10.00	3	6.00	1.00	T06	9.60	13.00	45.0	●	0.03-0.10
MM EA120B09R0.5-2T08	12.00	2	9.00	0.50	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA120B09R1.0-2T08	12.00	2	9.00	1.00	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA120B08R0.5-3T08	12.00	3	8.00	0.50	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA120B08R1.0-3T08	12.00	3	8.00	1.00	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA120B08R3.0-3T08	12.00	3	8.00	3.00	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA160B10R000-3T10	16.00	3	10.00	0.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA160B10R1.0-3T10	16.00	3	10.00	1.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA160B10R2.0-3T10	16.00	3	10.00	2.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA160B10R3.0-3T10	16.00	3	10.00	3.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA160B10R4.0-3T10	16.00	3	10.00	4.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA200B12R0.5-3T12	20.00	3	12.00	0.50	T12	18.45	25.50	45.0	●	0.05-0.13
MM EA200B12R1.0-3T12	20.00	3	12.00	1.00	T12	18.45	25.50	45.0	●	0.05-0.13
MM EA200B12R2.0-3T12	20.00	3	12.00	2.00	T12	18.45	25.50	45.0	●	0.05-0.13
MM EA200B12R3.0-3T12	20.00	3	12.00	3.00	T12	18.45	25.50	45.0	●	0.05-0.13
MM EA200B12R4.0-3T12	20.00	3	12.00	4.00	T12	18.45	25.50	45.0	●	0.05-0.13

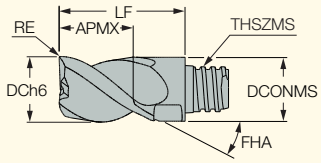
• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection.

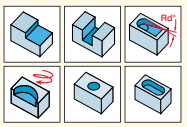
(1) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EA-CF

Interchangeable Solid Carbide Endmill Heads with Different Helix for Machining Aluminum





ALUMINUM

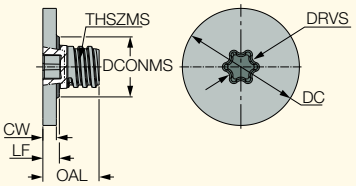
Designation	Dimensions DC	NOF(1)	APMX	RE	THSZMS	DCONMS	LF	FHA	IC08	Recommended Machining Data f_z (mm/t)
MM EA080H08R0CF-4T05	8.00	4	8.00	0.00	T05	7.70	15.00	40.0	●	0.03-0.09
MM EA100H10R0CF-4T06	10.00	4	10.00	0.00	T06	9.60	19.00	40.0	●	0.03-0.10
MM EA120H12R0.2CF-3T08	12.00	3	12.00	0.20	T08	11.70	23.00	40.0	●	0.04-0.11
MM EA120H12R0CF-4T08	12.00	4	12.00	0.00	T08	11.70	23.00	40.0	●	0.04-0.11
MM EA160H16R0.0CF-3T10	16.00	3	16.00	0.00	T10	15.30	28.00	40.0	●	0.05-0.13
MM EA160H16R0.2CF-3T10	16.00	3	16.00	0.20	T10	15.30	28.00	40.0	●	0.05-0.13
MM EA160H16R0.5CF-3T10	16.00	3	16.00	0.50	T10	15.30	28.00	40.0	●	0.05-0.13
MM EA160H16R2.5CF-3T10	16.00	3	16.00	2.50	T10	15.30	28.00	40.0	●	0.05-0.13
MM EA160H16R3CF-3T10	16.00	3	16.00	3.00	T10	15.30	28.00	40.0	●	0.05-0.13
MM EA160H16R4CF-3T10	16.00	3	16.00	4.00	T10	15.30	26.00	40.0	●	0.05-0.13
MM EA160H16R0CF-4T10	16.00	4	16.00	0.00	T10	15.30	26.00	40.0	●	0.05-0.13
MM EA200H20R0.0CF-3T12	20.00	3	20.00	0.00	T12	18.45	34.00	40.0	●	0.05-0.13
MM EA200H20R0.2CF-3T12	20.00	3	20.00	0.20	T12	18.45	34.00	40.0	●	0.05-0.13
MM EA200H20R0.5CF-3T12	20.00	3	20.00	0.50	T12	18.45	34.00	40.0	●	0.05-0.13
MM EA200H20R2.5CF-3T12	20.00	3	20.00	2.50	T12	18.45	34.00	40.0	●	0.05-0.13
MM EA200H20R3CF-3T12	20.00	3	20.00	3.00	T12	18.30	34.00	40.0	●	0.05-0.13
MM EA200H20R4CF-3T12	20.00	3	20.00	4.00	T12	18.45	34.00	40.0	●	0.05-0.13
MM EA250H19R0.5-3T15	25.00	3	19.00	0.50	T15	23.90	37.00	40.0	●	0.06-0.16
MM EA250H19R1.0-3T15	25.00	3	19.00	1.00	T15	23.90	37.00	40.0	●	0.06-0.16
MM EA250H19R3.0-3T15	25.00	3	19.00	3.00	T15	23.90	37.00	40.0	●	0.06-0.16
MM EA250H19R4.0-3T15	25.00	3	25.00	4.00	T15	23.90	37.00	40.0	●	0.06-0.16
MM EA320H32R0.2-4T21	32.00	4	32.00	0.20	T21	29.90	55.00	38.0	●	0.06-0.16
MM EA320H32R0.4-4T21	32.00	4	32.00	0.40	T21	29.90	55.00	38.0	●	0.06-0.16
MM EA320H32R0.8-4T21	32.00	4	32.00	0.80	T21	29.90	55.00	38.0	●	0.06-0.16

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection. • For user guide, see pages 59,211-218

(1) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TC-G
Interchangeable Cemented Carbide Blank Heads

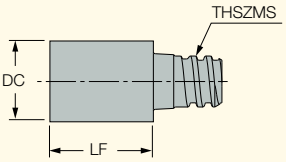


Designation	Dimensions							IC28
	DC	CW	LF	OAL	DCONMS	DRVS[1]	THSZMS	
MM TC138N-19-G-T05	13.80	1.90	2.50	9.60	7.60	20.0	T05	●
MM TC138N-23-G-T05	13.80	2.30	2.90	10.00	7.60	20.0	T05	●
MM TC138N-28-G-T05	13.80	2.80	3.40	10.50	7.60	20.0	T05	●
MM TC138N-35-G-T05	13.80	3.50	4.10	11.20	7.60	20.0	T05	●
MM TC138N-43-G-T05	13.80	4.30	4.90	12.00	7.60	20.0	T05	●
MM TC171N-19-G-T06	17.10	1.90	2.75	9.40	9.25	25.0	T06	●
MM TC171N-23-G-T06	17.10	2.30	3.15	9.80	9.25	25.0	T06	●
MM TC171N-33-G-T06	17.10	3.30	4.15	10.80	9.25	25.0	T06	●
MM TC171N-43-G-T06	17.10	4.30	5.15	11.80	9.25	25.0	T06	●
MM TC171N-50-G-T06	17.10	5.00	5.85	12.50	9.25	25.0	T06	●
MM TC234N-27-G-T08	23.40	2.70	3.30	11.25	12.00	40.0	T08	●
MM TC234N-42-G-T08	23.40	4.20	4.80	12.75	12.00	40.0	T08	●
MM TC234N-53-G-T08	23.40	5.30	5.90	13.85	12.00	40.0	T08	●
MM TC234N-66-G-T08	23.40	6.60	7.20	15.75	12.00	40.0	T08	●
MM TC234N-82-G-T08	23.40	8.20	8.80	17.35	12.00	40.0	T08	●
MM TC234N-99-G-T08	23.40	9.90	10.50	18.45	12.00	40.0	T08	●
MM TC286N-28-G-T10	28.60	2.80	3.65	15.40	15.30	40.0	T10	●
MM TC286N-36-G-T10	28.60	3.60	4.45	16.20	15.30	40.0	T10	●
MM TC286N-46-G-T10	28.60	4.60	5.45	17.20	15.30	40.0	T10	●
MM TC286N-56-G-T10	28.60	5.60	6.45	18.20	15.30	40.0	T10	●
MM TC286N-66-G-T10	28.60	6.60	7.45	19.20	15.30	40.0	T10	●
MM TC286N-83-G-T10	28.60	8.30	9.15	20.90	15.30	40.0	T10	●
MM TC286N-93-G-T10	28.60	9.30	10.15	21.90	15.30	40.0	T10	●
MM TC286N-103-G-T10	28.60	10.30	11.15	22.90	15.30	40.0	T10	●
MM TC356N-60-G-T12	35.60	6.00	6.55	20.35	18.30	50.0	T12	●
MM TC356N-100-G-T12	35.60	10.00	10.55	24.35	18.30	50.0	T12	●
MM TC356N-120-G-T12	35.60	12.00	12.55	26.35	18.30	50.0	T12	●
MM TC356N-160-G-T12	35.60	16.00	16.55	30.35	18.30	50.0	T12	●

• For shanks, see pages 101-111 • For tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection
• For user guide, see pages 59,211-218
[1] Torque key size

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

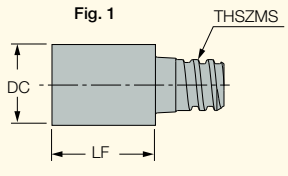
MM ESR-1.5D BLANKS
Interchangeable Solid Carbide Blank Heads

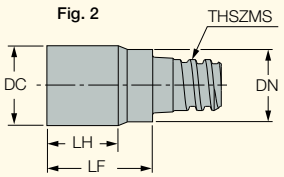


Designation	Dimensions			IC08
	DC	LF	THSZMS	
MM ESR-G 080-18.0 T05 08	8.00	18.40	T05	●
MM ESR-G.375-.87T06	9.53	22.40	T06	●
MM ESR-G 100-22.0 T06	10.00	22.40	T06	●
MM ESR-G 120-27.0 T08 08	12.00	27.45	T08	●
MM ESR-G.500-1.06T08	12.70	27.45	T08	●
MM ESR-G 160-33.5 T10	16.00	34.00	T10	●
MM ESR-G.750-1.61T12	19.05	41.50	T12	●
MM ESR-G 200-41.0 T12	20.00	41.50	T12	●
MM ESR-G 250-52.5 T15	25.00	53.00	T15	●
MM ESR-G1.00-2.07T15	25.40	53.00	T15	●

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM ESR BLANKS
Interchangeable Solid Carbide Blank Heads

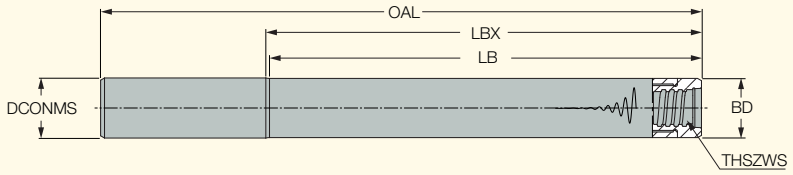




Designation	Dimensions DC	LF	THSZMS	LH	DN	Fig.	Tough ↔ Hard IC08	IC03
MM ESR-G 080-10 T05	8.00	10.35	T05	-	-	1	●	●
MM ESR-G 080-15 T05	8.00	15.40	T05	-	-	1	●	
MM ESR-G.375-.56T06	9.53	13.35	T06	-	-	1	●	
MM ESR-G.375-.75T06	9.53	19.40	T06	-	-	1	●	
MM ESR-G 100-13 T05	10.00	13.35	T05	-	-	1	●	
MM ESR-G 100-13 T06	10.00	13.35	T06	-	-	1	●	●
MM ESR-G 100-19 T06	10.00	19.45	T06	-	-	1	●	
MM ESR-G 120-17 T06	12.00	17.05	T06	-	-	1	●	
MM ESR-G 120-17 T08	12.00	17.05	T08	-	-	1	●	
MM ESR-G 120-23 T08	12.00	23.40	T08	-	-	1	●	
MM ESR-G.500-.67T06	12.70	17.09	T06	-	-	1	●	
MM ESR-G.500-.67T08	12.70	17.09	T08	-	-	1	●	●
MM ESR-G.500-.91T08	12.70	23.45	T08	-	-	1	●	
MM ESR-G.625-.83 T10	15.88	20.90	T10	-	-	1	●	
MM ESR-G 160-21 T08	16.00	20.90	T08	-	-	1	●	
MM ESR-G 160-21 T10	16.00	20.90	T10	-	-	1	●	●
MM ESR-G 160-28 T08	16.00	28.45	T08	-	-	1	●	
MM ESR-G 160-28 T10	16.00	28.45	T10	-	-	1	●	
MM ESR-G.750-1.02T12	19.05	26.05	T12	17.0	18.45	2	●	
MM ESR-G 200-26 T12	20.00	28.10	T12	16.6	18.45	2	●	●
MM ESR-G 200-34 T12	20.00	34.50	T12	-	-	1	●	
MM ESR-G 222-295 T12	22.00	29.50	T12	17.9	18.45	2	●	
MM ESR-G 222-295 T10	22.22	29.50	T10	17.9	18.45	2	●	
MM ESR-G 250-25 T15	25.00	25.60	T15	-	-	1	●	●
MM ESR-G 250-37 T12	25.00	37.60	T12	-	-	1	●	
MM ESR-G 250-37 T15	25.00	37.60	T15	-	-	1	●	
MM ESR-G 320-55-T21 NECK	32.00	55.80	T21	39.5	30.00	2	●	

MULTI-MASTER

MM S-A-AV
Anti-Vibration Cylindrical Shanks Mount Interchangeable Milling Heads



Designation	THSZWS	OAL	LBX	LB	DCONMS	BD
MM S-A-L175/120-C20-T12AV	T12	175.00	120.00	118.80	20.00	19.70
MM S-A-L200/145-C20-T12AV	T12	200.00	145.00	143.80	20.00	19.70
MM S-A-L210/150-C25-T15AV	T15	210.00	150.00	148.60	25.00	24.60
MM S-A-L250/190-C25-T15AV	T15	250.00	190.00	188.60	25.00	24.60

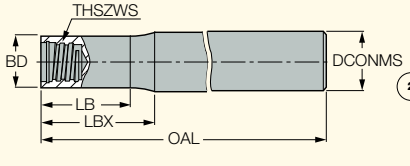
New

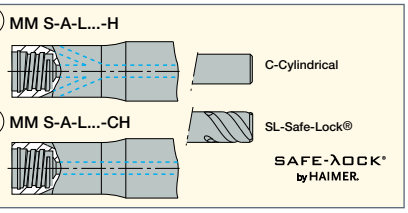
- Do not apply lubricant to the threaded connection

MULTI-MASTER

MM S-A (stepped shanks)

Stepped Cylindrical Shanks
Mount Interchangeable
Milling Heads





Designation	THSZWS	DCONMS	BD	LB	LBX	OAL	Shank[2]	Shank m.[3]	CSP[4]	Fig.	RPMX[5]	Kg
MM S-A-L050-C08-T04	T04	8.00	5.80	9.90	14.0	50.00	C	S	0	-	60000	0.03
MM S-A-L060/20-C08-T04-C	T04	8.00	5.80	16.90	20.0	60.00	C	C	0	-	60000	0.03
MM S-A-L060-C08-T05	T05	8.00	7.60	12.50	15.0	60.00	C	S	0	-	60000	0.05
MM S-A-L065/24-SL08T05C	T05	8.00	7.60	24.00	25.6	65.00	SL	C	0	-	60000	0.04
MM S-A-L070-C08-T05-C	T05	8.00	7.60	18.60	20.0	70.00	C	C	0	-	60000	0.04
MM S-A-L070-C08-T05-W	T05	8.00	7.60	18.90	20.0	70.00	C	W	0	-	60000	0.06
MM S-A-L090-C08-T05-C	T05	8.00	7.60	38.60	40.0	90.00	C	C	0	-	50160	0.06
MM S-A-L090-C08-T05-W	T05	8.00	7.60	38.60	40.0	90.00	C	W	0	-	36090	0.07
MM S-A-L110-C08-T05-C	T05	8.00	7.60	57.90	60.0	110.00	C	C	0	-	30600	0.07
MM S-A-L110-C08-T05-W	T05	8.00	7.60	58.90	60.0	110.00	C	W	0	-	21060	0.09
MM S-A-L070-C10-T06-C	T06	10.00	9.60	18.50	20.0	70.00	C	C	0	-	54900	0.08
MM S-A-L070-C10-T06-W-H	T06	10.00	9.60	18.90	20.0	70.00	C	W	1	1	60000	0.08
MM S-A-L075-C10-T06	T06	10.00	9.60	17.70	20.0	75.00	C	S	0	-	60000	0.05
MM S-A-L075-C10-T06-H	T06	10.00	9.60	19.40	20.0	75.00	C	S	1	1	53940	0.04
MM S-A-L075/12-C10-T06-CH	T06	10.00	9.60	10.60	12.0	75.00	C	S	1	2	53940	0.04
MM S-A-L075/30-SL10T06C	T06	10.00	9.60	30.00	31.7	75.00	SL	C	0	-	53940	0.00
MM S-A-L090-C10-T06-C	T06	10.00	9.60	38.60	40.0	90.00	C	C	0	-	55170	0.06
MM S-A-L090/040C10T06C-H	T06	10.00	9.60	38.60	40.0	90.00	C	C	1	1	60000	0.08
MM S-A-L090-C10-T06-W	T06	10.00	9.60	17.20	20.0	90.00	C	W	0	-	41670	0.12
MM S-A-L090-C10-T06-W-H	T06	10.00	9.60	39.00	40.0	90.00	C	W	1	1	40860	0.10
MM S-A-L110-C10-T06-C	T06	10.00	9.60	57.90	60.0	110.00	C	C	0	-	34530	0.11
MM S-A-L110-C10-T06-W-H	T06	10.00	9.60	59.00	60.0	110.00	C	W	1	1	24840	0.12
MM S-A-L150-C10-T06-C	T06	10.00	9.60	98.50	100.0	150.00	C	C	0	-	16620	0.16
MM S-A-L070-C12-T08-C	T08	12.00	11.60	17.90	20.0	70.00	C	C	0	-	60000	0.10
MM S-A-L070-C12-T08-W-H	T08	12.00	11.60	18.70	20.0	70.00	C	W	1	1	60000	0.11
MM S-A-L085/36-C12T08C	T08	12.00	11.60	36.00	37.7	85.00	C	C	0	-	60000	0.13
MM S-A-L090/14-C12-T08-CH	T08	12.00	11.60	13.00	14.0	90.00	C	S	1	2	43000	0.08
MM S-A-L090-C12-T08	T08	12.00	11.60	13.30	16.0	90.00	C	S	0	-	43000	0.10
MM S-A-L070/020C12T08C-CH	T08	12.00	11.60	18.00	20.0	70.00	C	C	1	2	43050	0.08
MM S-A-L090-C12-T08-C	T08	12.00	11.60	39.00	40.0	90.00	C	C	0	-	43050	0.12
MM S-A-L090-C12-T08-H	T08	12.00	11.60	38.70	40.0	90.00	C	S	1	1	41040	0.08
MM S-A-L090-C12-T08-W-H	T08	12.00	11.60	38.70	40.0	90.00	C	W	1	1	49800	0.15
MM S-A-L090/040C12T08C-CH	T08	12.00	11.60	38.00	40.0	90.00	C	C	1	2	49800	0.11
MM S-A-L090/42-C12-T08-CH	T08	12.00	11.60	41.00	42.0	90.00	C	S	1	2	41010	0.07
MM S-A-L110-C12-T08-W	T08	12.00	11.60	17.00	20.0	110.00	C	W	0	-	31350	0.20
MM S-A-L110-C12-T08-C	T08	12.00	11.60	57.00	60.0	110.00	C	C	0	-	41040	0.16
MM S-A-L110-C12-T08-W-H	T08	12.00	11.60	58.70	60.0	110.00	C	W	1	1	30210	0.18
MM S-A-L110/060C12T08C-CH	T08	12.00	11.60	58.00	60.0	110.00	C	C	1	2	30210	0.12
MM S-A-L130-C12-T08-C	T08	12.00	11.60	78.60	80.0	130.00	C	C	0	-	27960	0.19
MM S-A-L130-C12-T08-W-H	T08	12.00	11.60	78.70	80.0	130.00	C	W	1	1	20100	0.21
MM S-A-L130/080C12T08C-CH	T08	12.00	11.60	78.00	80.0	130.00	C	C	1	2	20100	0.17
MM S-A-L070-C16-T10-W-H	T10	16.00	15.30	18.20	20.0	70.00	C	W	1	1	60000	0.00
MM S-A-L090-C16-T10-C	T10	16.00	15.30	38.00	40.0	90.00	C	C	0	-	60000	0.21
MM S-A-L090-C16-T10-W-H	T10	16.00	15.30	38.20	40.0	90.00	C	W	1	1	57510	0.27
MM S-A-L090/040C16T10C-CH	T10	16.00	15.30	38.00	40.0	90.00	C	C	1	2	57510	0.17
MM S-A-L100-C16-T10	T10	16.00	15.30	17.10	20.0	100.00	C	S	0	-	39000	0.15
MM S-A-L100-C16-T10-H	T10	16.00	15.30	48.00	50.0	100.00	C	S	1	1	37140	0.13
MM S-A-L100/20-C16-T10-CH	T10	16.00	15.30	18.00	20.0	100.00	C	S	1	2	37140	0.12
MM S-A-L100/42-C16-T10-CH	T10	16.00	15.30	40.20	42.0	100.00	C	S	1	2	38040	0.14
MM S-A-L100/48-C16T10C [1]	T10	16.00	15.30	48.00	50.3	100.00	C	C	0	-	38040	0.06
MM S-A-L110-C16-T10-C	T10	16.00	15.30	58.20	60.0	110.00	C	C	0	-	47010	0.27
MM S-A-L110-C16-T10-W-H	T10	16.00	15.30	58.20	60.0	110.00	C	W	1	1	36030	0.33
MM S-A-L110/060C16T10C-H	T10	16.00	15.30	58.10	60.0	110.00	C	C	1	1	60000	0.24
MM S-A-L110/060C16T10C-CH	T10	16.00	15.30	58.00	60.0	110.00	C	C	1	2	36030	0.28
MM S-A-L130-C16-T10-C	T10	16.00	15.30	77.40	80.0	130.00	C	C	0	-	33510	0.32
MM S-A-L130-C16-T10-W-H	T10	16.00	15.30	78.20	80.0	130.00	C	W	1	1	24450	0.41
MM S-A-L130/080C16T10C-CH	T10	16.00	15.30	78.00	80.0	130.00	C	C	1	2	24450	0.32
MM S-A-L150-C16-T10-C	T10	16.00	15.30	97.40	100.0	150.00	C	C	0	-	24660	0.37
MM S-A-L150-C16-T10-W-H	T10	16.00	15.30	98.20	100.0	150.00	C	W	1	1	17610	0.45
MM S-A-L090-C20-T12-C	T12	20.00	18.30	37.20	40.0	90.00	C	C	0	-	60000	0.27

- Do not apply lubricant to the threaded connection

[1] With Safe-Lock® (by Haimer) pull-out prevention helical grooves

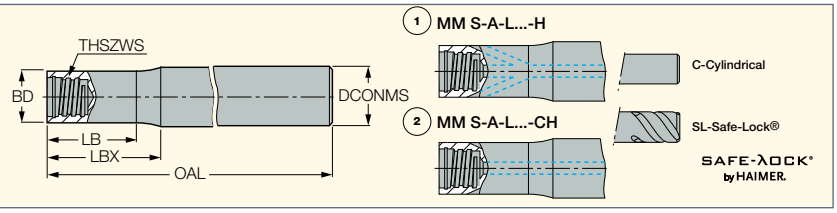
[2] C-Cylindrical, W-Weldon, SL-Safe-Lock® by Haimer, helical grooves that prevent pull-out (available upon request).

[3] S-steel, C-carbide, W-tungsten

[4] 0 - Without coolant supply, 1 - With coolant supply

[5] The maximum RPM must be calculated. Divide the listed max. RPM by the number of flutes (on the milling head) being used.

MM S-A (stepped shanks)
Stepped Cylindrical Shanks
Mount Interchangeable
Milling Heads



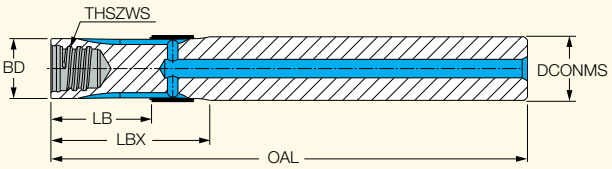
Designation	THSZWS	DCONMS	BD	LB	LBX	OAL	Shank[2]	Shank m.[3]	CSP[4]	Fig.	RPMX[5]	Kg
MM S-A-L090-C20-T12-W-H	T12	20.00	18.30	36.90	40.0	90.00	C	W	1	1	60000	0.41
MM S-A-L090/040C20T12C-CH	T12	20.00	18.30	37.20	40.0	90.00	C	C	1	2	60000	0.30
MM S-A-L110/50-SL20T12C	T12	20.00	18.30	50.00	53.3	110.00	SL	C	0	-	60000	0.41
MM S-A-L120-C20-T12	T12	20.00	18.30	20.30	25.0	120.00	C	S	0	-	36000	0.27
MM S-A-L120-C20-T12-H	T12	20.00	18.30	66.70	70.0	120.00	C	S	1	1	32160	0.25
MM S-A-L120/25-C20-T12-CH	T12	20.00	18.30	22.20	25.0	120.00	C	S	1	2	32160	0.12
MM S-A-L120/48-C20-T12-CH	T12	20.00	18.30	45.20	48.0	120.00	C	S	1	2	32160	0.20
MM S-A-L130-C20-T12-C	T12	20.00	18.30	77.20	80.0	130.00	C	C	0	-	42360	0.47
MM S-A-L130-C20-T12-W-H	T12	20.00	18.30	76.90	80.0	130.00	C	W	1	1	31650	0.59
MM S-A-L130/080C20T12C-CH	T12	20.00	18.30	77.20	80.0	130.00	C	C	1	2	42360	0.44
MM S-A-L170-C20-T12-C	T12	20.00	18.30	97.20	100.0	170.00	C	C	0	-	25170	0.63
MM S-A-L200-C20-T12-C	T12	20.00	18.30	116.50	120.0	200.00	C	C	0	-	17790	0.76
MM S-A-L200-C20-T12-W-H	T12	20.00	18.30	116.90	120.0	200.00	C	W	1	1	12540	0.92
MM S-A-L200/120C20T12C-CH	T12	20.00	18.30	117.20	120.0	200.00	C	C	1	2	17790	0.74
MM S-A-L120-C25-T15-C	T15	25.00	23.90	57.50	60.0	120.00	C	C	0	-	49400	0.64
MM S-A-L120-C25-T15-W-H	T15	25.00	23.90	58.00	60.0	120.00	C	W	1	1	41700	0.89
MM S-A-L125/63-C25T15C [1]	T15	25.00	24.00	63.00	65.8	125.00	C	C	0	-	41700	0.75
MM S-A-L135-C25-T15	T15	25.00	23.90	33.00	35.0	135.00	C	S	0	-	28290	0.47
MM S-A-L135/35-C25-T15-CH	T15	25.00	23.90	33.00	35.0	135.00	C	S	1	2	28230	0.42
MM S-A-L135/50-C25-T15-CH	T15	25.00	23.90	47.70	50.0	135.00	C	S	1	2	28230	0.40
MM S-A-L170-C25-T15-C	T15	25.00	23.90	98.00	100.0	170.00	C	C	0	-	27360	0.96
MM S-A-L175-C25-T15	T15	25.00	23.90	62.70	65.0	175.00	C	S	0	-	16890	0.10
MM S-A-L250-C25-T15-C	T15	25.00	23.90	148.00	150.0	250.00	C	C	0	-	12690	1.45
MM S-A-L100-W32-T21-CH	T21	32.00	30.00	-	-	100.00	W	S	1	2	12690	0.51
MM S-A-L100/32-C32-T21	T21	32.00	30.00	32.00	35.3	100.00	C	S	0	-	12690	0.56
MM S-A-L130/60-C32-T21-C	T21	32.00	30.00	60.00	63.3	130.00	C	C	0	-	12690	1.22
MM S-A-L135/64-C32T21C	T21	32.00	30.00	64.00	67.5	135.00	C	C	0	-	12690	1.02
MM S-A-L150/50-C32-T21	T21	32.00	30.00	50.00	53.5	150.00	C	S	0	-	12690	0.86
MM S-A-L150/50-C32-T21-CH	T21	32.00	30.00	50.00	53.3	150.00	C	S	1	2	12690	0.80
MM S-A-L170/100-C32-T21-C	T21	32.00	30.00	100.00	103.5	170.00	C	C	0	-	12690	1.22
MM S-A-L170/100C32T21C-CH	T21	32.00	30.00	100.00	103.5	170.00	C	C	1	2	12690	0.00
MM S-A-L250/150-C32-T21-C	T21	32.00	30.00	150.00	153.5	250.00	C	C	0	-	12690	2.50
MM S-A-L300/200-C32-T21-C	T21	32.00	30.00	200.00	203.5	300.00	C	C	0	-	12690	3.00

- Do not apply lubricant to the threaded connection

[1] With Safe-Lock® (by Haimer) pull-out prevention helical grooves
[2] C-Cylindrical, W-Weldon, SL-Safe-Lock® by Haimer, helical grooves that prevent pull-out (available upon request).
[3] S-steel, C-carbide, W-tungsten
[4] 0 - Without coolant supply, 1 - With coolant supply
[5] The maximum RPM must be calculated. Divide the listed max. RPM by the number of flutes (on the milling head) being used.

MULTI-MASTER

MM S-A-N
Stepped Cylindrical Shanks with Parallel Directed Coolant Mount Interchangeable Milling Heads

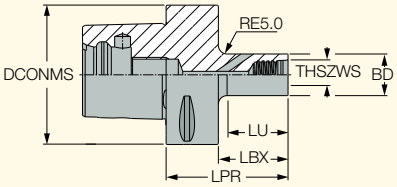


Designation	THSZWS	DCONMS	BD	LB	LBX	OAL	Shank m.(1)	kg
MM S-A-L075-C10-T06-N	T06	10.00	9.60	18.00	28.0	75.00	S	0.04
MM S-A-L090-C12-T08-N	T08	12.00	11.60	18.00	30.0	90.00	S	0.07
MM S-A-L100-C16-T10-N	T10	16.00	15.30	23.00	35.0	100.00	S	0.04

- Do not apply lubricant to the threaded connection

(1) S-steel

MM S-A-C#
MULTI-MASTER Threaded Connection Shanks with a CAMFIX (ISO 26623-1) Exchangeable Adaptation



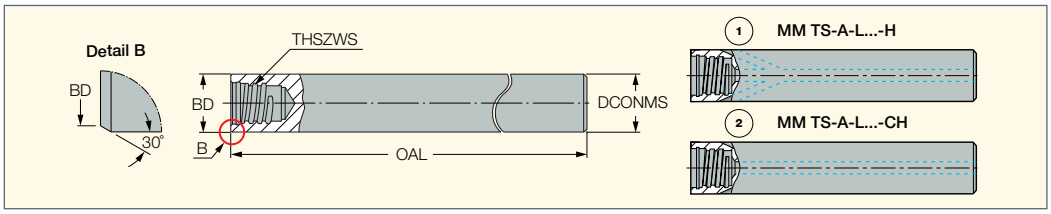
Designation	DCONMS	THSZWS	BD	LPR	LBX	LU	DCP(1)	kg
MM S-A-H035-C3-T05	32.00	T05	7.60	35.00	20.0	15.00	0	0.12
MM S-A-H035-C3-T06	32.00	T06	9.25	35.00	20.0	15.00	0	0.12
MM S-A-H040-C3-T08	32.00	T08	11.60	40.00	25.0	20.00	0	0.13
MM S-A-H040-C3-T10	32.00	T10	15.30	40.00	25.0	20.00	0	0.15
MM S-A-H045-C3-T12	32.00	T12	18.30	45.00	30.0	25.00	0	0.16
MM S-A-H045-C4-T06	40.00	T06	9.25	45.00	25.0	20.00	0	0.25
MM S-A-H045-C4-T08	40.00	T08	11.60	45.00	25.0	20.00	0	0.25
MM S-A-H050-C4-T10	40.00	T10	15.30	50.00	30.0	25.00	0	0.28
MM S-A-H055-C4-T12	40.00	T12	18.30	55.00	35.0	30.00	0	0.22
MM S-A-H055-C4-T15	40.00	T15	23.90	55.00	35.0	30.00	0	0.35
MM S-A-H060-C5-T10	50.00	T10	15.30	60.00	40.0	35.00	0	0.22
MM S-A-H060-C5-T12	50.00	T12	18.30	60.00	40.0	35.00	0	0.48
MM S-A-H060-C5-T15	50.00	T15	23.90	60.00	40.0	35.00	0	0.58
MM S-A-H065-C6-T12	63.00	T12	18.30	65.00	43.0	38.00	0	0.80
MM S-A-H065-C6-T15	63.00	T15	23.90	65.00	43.0	38.00	0	0.84
MM S-A-H070-C8-T15	80.00	T15	23.90	70.00	40.0	35.00	0	1.83

- Do not apply lubricant to the threaded connection
- For adaptation options, see page 59

(1) 1 - Slot for data chip, 0 - Without slot for data chip

MULTI-MASTER

MM TS-A
Cylindrical Shanks Mount
Interchangeable Milling Heads



Designation	THSZWS	DCONMS	BD	OAL	Shank m.(1)	RPMX(2)	CSP(3)	Fig.	kg
MM TS-A-L070-C08-T04	T04	8.00	5.80	70.00	S	-	0	-	0.03
MM TS-A-L070-C08-T05	T05	8.00	7.60	70.00	S	60000	0	-	0.03
MM TS-A-L080-C10-T06	T06	10.00	9.60	80.00	S	47400	0	-	0.05
MM TS-A-L080-C10-T06-H	T06	10.00	9.60	80.00	S	46920	1	1	0.04
MM TS-A-L090-C12-T08	T08	12.00	11.60	90.00	S	43110	0	-	0.07
MM TS-A-L090-C12-T08-H	T08	12.00	11.60	90.00	S	42780	1	1	0.12
MM TS-A-L070-C16-T10-CH	T10	16.00	15.30	70.00	S	39420	1	2	0.00
MM TS-A-L100-C16-T10	T10	16.00	15.30	100.00	S	39420	0	-	0.16
MM TS-A-L100-C16-T10-H	T10	16.00	15.30	100.00	S	39210	1	1	0.14
MM TS-A-L090-C20-T12-CH	T12	20.00	18.30	90.00	S	-	1	2	0.20
MM TS-A-L100-C25-T15-CH	T15	25.00	23.90	100.00	S	-	1	2	0.34

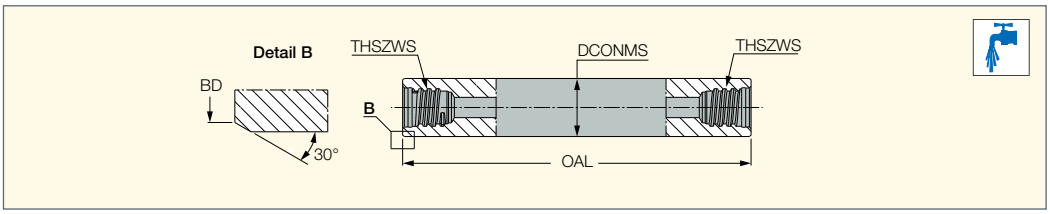
- Do not apply lubricant to the threaded connection

(1) S-steel

(2) The actual maximum RPM to be calculated by dividing the listed RPM max by the number of the head's flutes being used.

(3) 0 - Without coolant supply, 1 - With coolant supply

MM TS2-A
Double-Sided Cylindrical Shanks
for Interchangeable Heads

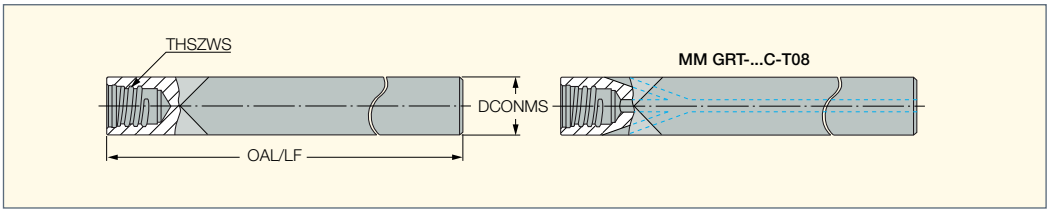


Designation	THSZWS	DCONMS	BD	OAL	Shank m.	kg
MM TS2-A-L050-C06-T04-CH	T04	6.00	5.80	50.00	S	0.03
MM TS2-A-L050-C08-T05-CH	T05	8.00	7.60	50.00	S	0.02
MM TS2-A-L060-C10-T06-CH	T06	10.00	9.60	60.00	S	0.04
MM TS2-A-L070-C12-T08-CH	T08	12.00	11.60	70.00	S	0.06
MM TS2-A-L080-C16-T10-CH	T10	16.00	15.30	80.00	S	0.00
MM TS2-A-L090-C20-T12-CH	T12	20.00	18.30	90.00	S	0.18

New

- Do not apply lubricant to the threaded connection

MM GRT (shanks)
Mount Slitting and Grooving
Interchangeable Milling Heads



Designation	THSZWS	DCONMS	OAL	Shank m.(1)	CSP(2)	kg
MM GRT-095-T06	T06	9.52	80.00	C	0	0.07
MM GRT-100-T06	T06	10.00	100.00	C	0	0.10
MM GRT-120C-T08	T08	12.00	100.00	C	1	0.12
MM GRT-127C-T08	T08	12.70	120.00	C	1	0.17

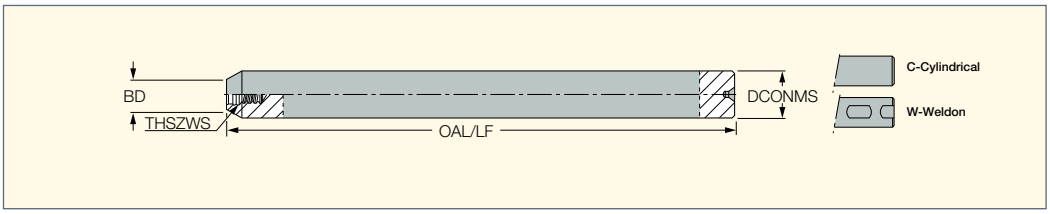
- MM GRT... shanks serve mainly for MM GRIT... slitting heads. When mounting other types of milling heads, do not exceed maximum specified depth of cut for the particular milling head. Since the shank diameter is not relieved, it may touch a wall on the workpiece being machined. • Use carbide shanks for groove milling heads and for applications requiring high rigidity and processes.

(1) C - Solid carbide

(2) 0 - Without coolant supply, 1 - With coolant supply

MULTI-MASTER

MM S-A (straight shanks)
Shanks Mount Interchangeable Milling Heads



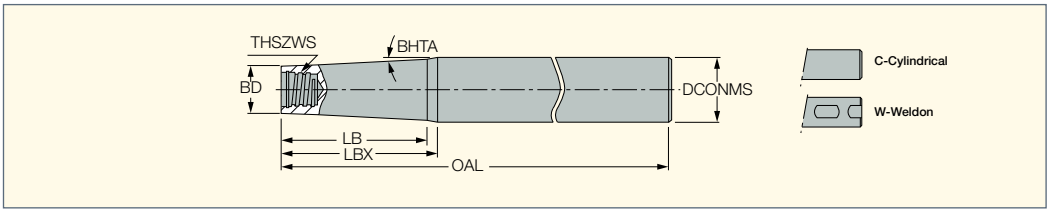
Designation	THSZWS	DCONMS	BD	OAL	Shank[2]	Shank m.[3]	RPMX[4]	kg
MM S-A-L055-W12-T05	T05	12.00	7.60	55.00	W	S	60000	0.05
MM S-A-L070-C20T05	T05	20.00	7.60	70.00	C	S	60000	0.24
MM S-A-L150-C12-T05-B [1]	T05	12.00	7.60	150.00	C	S	18270	0.13
MM S-A-L065-W16-T06	T06	16.00	9.60	65.00	W	S	60000	0.09
MM S-A-L080-C25T06	T06	25.00	9.60	80.00	C	S	60000	0.29
MM S-A-L200-C16-T06-B [1]	T06	16.00	9.60	200.00	C	S	11970	0.33
MM S-A-L065-W16-T08	T08	16.00	11.60	65.00	W	S	60000	0.10
MM S-A-L080-C25T08	T08	25.00	11.60	80.00	C	S	60000	0.40
MM S-A-L250-C20-T08-B [1]	T08	20.00	11.60	250.00	C	S	9330	0.60
MM S-A-L070-W20-T10	T10	20.00	15.30	70.00	W	S	60000	0.17
MM S-A-L080-C32T10	T10	32.00	15.30	80.00	C	S	60000	0.65
MM S-A-L250-C25-T10-B [1]	T10	25.00	15.30	250.00	C	S	11130	0.94
MM S-A-L075-W25-T12	T12	25.00	18.30	75.00	W	S	60000	0.28
MM S-A-L080-C32T12	T12	32.00	18.30	80.00	C	S	60000	0.65
MM S-A-L100-W32-T15	T15	32.00	23.90	100.00	W	S	60000	0.30
MM S-A-L100-C40T15	T15	40.00	23.90	100.00	C	S	60000	0.94
MM S-A-L100-C40T21	T21	40.00	30.00	100.00	C	S	60000	1.56

- Do not apply lubricant to the threaded connection.

[1] "B" suffix - cylindrical shank which may be shortened.
[2] C-Cylindrical, W-Weldon
[3] S-steel
[4] The maximum RPM must be calculated. Divide the listed max. RPM by the number of flutes (on the milling head) being used.

MULTI-MASTER

MM S-B (85° conical shanks)
Shanks Interchangeable Milling Heads



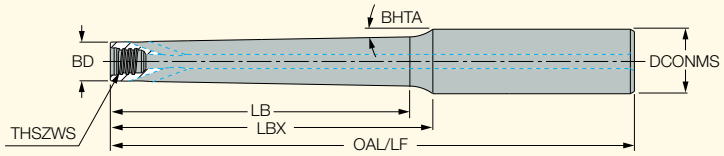
Designation	THSZWS	DCONMS	BD	BHTA	Shank[1]	LB	LBX	OAL	Shank m.[2]	RPMX[3]	kg
MM S-B-L080/24-C08-T04	T04	8.00	5.80	2.6	C	-	24.0	80.00	S	60000	0.04
MM S-B-L080-C12-T05	T05	12.00	7.60	5.0	C	-	25.0	80.00	S	60000	0.06
MM S-B-L085/32-C16T05	T05	16.00	7.60	5.0	C	27.00	32.0	85.00	S	41280	0.11
MM S-B-L125-C16-T06	T06	16.00	9.60	5.0	C	31.50	31.7	125.00	S	41280	0.19
MM S-B-L095/40-C20T06	T06	20.00	9.60	5.0	C	34.00	40.0	95.00	S	41280	0.19
MM S-B-L140-C20-T06-W	T06	20.00	9.65	5.0	C	-	60.3	140.50	W	51180	0.62
MM S-B-L140-C16-T08	T08	16.00	11.60	5.0	C	19.30	22.0	140.00	S	25590	0.22
MM S-B-L100/48-C20T08	T08	20.00	11.60	5.0	C	-	48.0	100.00	S	25590	0.32
MM S-B-L140-C20-T10	T10	20.00	15.30	5.0	C	-	27.0	140.00	S	31020	0.34
MM S-B-L170-C25-T10	T10	25.00	15.30	5.0	C	-	56.0	170.00	S	29490	0.16
MM S-B-L120/55-C25T10	T10	25.00	15.30	5.0	C	-	55.4	120.00	S	29490	0.40
MM S-B-L160-C25-T12	T12	25.00	18.30	5.0	C	-	40.0	160.00	S	28680	0.08
MM S-B-L190-C32-T12	T12	32.00	18.30	5.0	C	-	80.0	190.00	S	34890	0.56
MM S-B-L150/78-C32T12	T12	32.00	18.30	5.0	C	-	78.3	150.00	S	34890	0.78
MM S-B-L200-C32-T15	T15	32.00	23.90	5.0	C	-	50.0	200.00	S	14160	1.19
MM S-B-L180/92-C40T15	T15	40.00	23.90	5.0	C	-	92.0	180.00	S	14160	0.28
MM S-B-L250-W40-T15	T15	40.00	23.90	5.0	W	-	100.0	250.00	S	21840	2.12
MM S-B-L150/57-C40T21	T21	40.00	30.00	5.0	C	-	57.0	150.00	S	21840	0.62

- Do not apply lubricant to the threaded connection.

[1] C-Cylindrical, W-Weldon
[2] S-steel, W-tungsten
[3] The maximum RPM must be calculated. Divide the listed max. RPM by the number of flutes (on the milling head) being used.

MULTI-MASTER

MM S-D (89° conical shanks)
Shanks Mount Interchangeable Milling Heads



Designation	THSZWS	DCONMS	BD	LB	Shank	LBX	OAL	BHTA	Shank m.	CSP(1)	RPMX(2)	kg
MM S-D-L100-C12-T05	T05	12.00	7.60	29.60	C	35.0	100.00	1.0	S	0	52000	0.08
MM S-D-L110-C12-T05-C	T05	12.00	7.60	55.90	C	60.0	110.00	1.0	C	0	53430	0.13
MM S-D-L110-C12-T05-W-H	T05	12.00	7.60	55.70	C	60.0	110.00	1.0	W	1	38460	0.14
MM S-D-L130-C12-T05-C	T05	12.00	7.60	77.30	C	80.0	130.00	1.0	C	0	36420	0.15
MM S-D-L130-C12-T05-W-H	T05	12.00	7.60	76.40	C	80.0	130.00	1.0	W	1	26160	0.16
MM S-D-L150-C16-T05-C	T05	16.00	7.60	91.50	C	100.0	150.00	1.0	C	0	29700	0.26
MM S-D-L110-C12-T06-W-H	T06	12.00	9.60	58.80	C	60.0	110.00	1.0	W	1	36990	0.17
MM S-D-L130-C16-T06-W-H	T06	16.00	9.60	73.40	C	80.0	130.00	1.0	W	1	29490	0.28
MM S-D-L150-C16-T06-C	T06	16.00	9.60	95.40	C	100.0	150.00	1.0	C	0	30150	0.27
MM S-D-L150-C16-T06-W-H	T06	16.00	9.60	93.80	C	100.0	150.00	1.0	W	1	21660	0.33
MM S-D-L160-C16-T06	T06	16.00	9.60	46.80	C	55.0	160.00	1.0	S	0	23370	0.12
MM S-D-L170-C16-T06-C	T06	16.00	9.60	116.90	C	120.0	170.00	1.0	C	0	23400	0.11
MM S-D-L170-C16-T06-W	T06	16.00	9.60	46.30	C	55.0	170.00	1.0	W	0	21210	0.48
MM S-D-L130-C16-T08-C	T08	16.00	11.60	77.20	C	80.0	130.00	1.0	C	0	39870	0.28
MM S-D-L130-C16-T08-W-H	T08	16.00	11.60	76.40	C	80.0	130.00	1.0	W	1	29040	0.32
MM S-D-L150-C16-T08-C	T08	16.00	11.60	97.80	C	100.0	150.00	1.0	C	0	29970	0.33
MM S-D-L150-C16-T08-W-H	T08	16.00	11.60	98.30	C	100.0	150.00	1.0	W	1	21540	0.38
MM S-D-L170-C20-T08	T08	20.00	11.60	69.70	C	80.0	170.00	1.0	S	0	22680	0.30
MM S-D-L170-C20-T08-C	T08	20.00	11.60	112.00	C	120.0	170.00	1.0	C	0	26250	0.47
MM S-D-L170-C20-T08-W	T08	20.00	11.60	69.70	C	80.0	170.00	1.0	W	0	24900	0.65
MM S-D-L170-C20-T08-W-H	T08	20.00	11.60	113.10	C	120.0	170.00	1.0	W	1	18750	0.53
MM S-D-L150-C20-T10-C	T10	20.00	15.30	97.50	C	100.0	150.00	1.0	C	0	35610	0.10
MM S-D-L150-C20-T10-W-H	T10	20.00	15.30	96.80	C	100.0	150.00	1.0	W	1	25800	0.60
MM S-D-L170-C20-T10-C	T10	20.00	15.30	118.30	C	120.0	170.00	1.0	C	0	28140	0.61
MM S-D-L170-C20-T10-W-H	T10	20.00	15.30	118.00	C	120.0	170.00	1.0	W	1	20100	0.73
MM S-D-L190-C20-T10	T10	20.00	15.30	73.70	C	80.0	190.00	1.0	S	0	15780	0.42
MM S-D-L190-C20-T10-C	T10	20.00	15.30	-	C	140.0	190.00	1.0	C	0	22830	0.68
MM S-D-L190-C20-T10-W-H	T10	20.00	15.30	-	C	140.0	190.00	1.0	W	1	16170	0.83
MM S-D-L210-C20-T10-C	T10	20.00	15.30	-	C	160.0	210.00	1.0	C	0	18270	0.75
MM S-D-L210-C20-T10-W-H	T10	20.00	15.30	-	C	160.0	210.00	1.0	W	1	12870	0.93
MM S-D-L180-C25-T12-C	T12	25.00	18.30	115.70	C	120.0	180.00	1.0	C	0	29460	0.91
MM S-D-L180-C25-T12-W-H	T12	25.00	18.30	114.60	C	120.0	180.00	1.0	W	1	20940	1.15
MM S-D-L200-C25-T12-W-H	T12	25.00	18.30	146.60	C	150.0	200.00	1.0	W	1	16560	1.21
MM S-D-L210-C25-T12	T12	25.00	18.30	94.60	C	100.0	210.00	1.0	S	0	15540	0.66
MM S-D-L250-C25-T12-C	T12	25.00	18.30	135.60	C	140.0	250.00	1.0	C	0	16170	1.40
MM S-D-L250-C25-160T12W-H	T12	25.00	18.30	157.20	C	160.0	250.00	1.0	W	1	11310	1.76
MM S-D-L250-C25-T12-W-H	T12	25.00	18.30	135.60	C	140.0	250.00	1.0	W	1	11300	1.80
MM S-D-L250-C32-T15	T15	32.00	23.90	90.10	C	100.0	250.00	1.0	S	0	14160	1.00
MM S-D-L250-C32-T15-C	T15	32.00	23.90	143.30	C	150.0	250.00	1.0	C	0	20370	1.88
MM S-D-L300-C32-T15-C	T15	32.00	23.90	195.70	C	200.0	300.00	1.0	C	0	16000	2.62

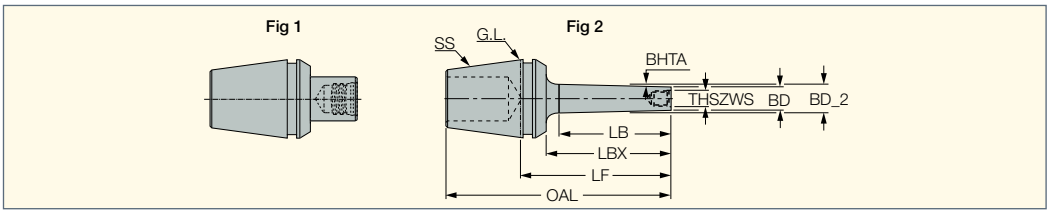
• Shank material (Shank m.): S-steel, C-carbide, W-tungsten. • Do not apply lubricant to the threaded connection.

(1) 0 - Without coolant supply, 1 - With coolant supply

(2) The maximum RPM must be calculated. Divide the listed max. RPM by the number of flutes (on the milling head) being used.

MULTI-MASTER

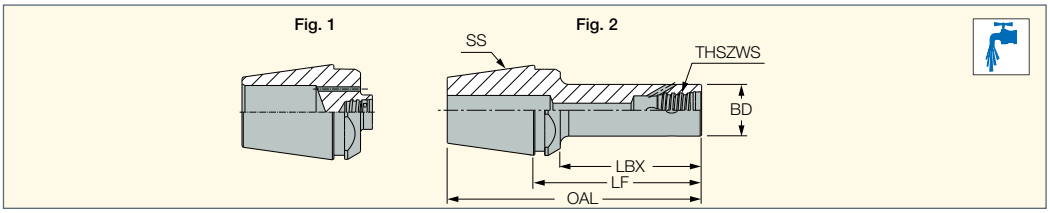
MM S-ER
Shanks that Mount MULTI-MASTER Solid Carbide Heads with an ER Collet Adaptation



Designation	SS	THSZWS	BHTA	BD	BD_2	LB	LBX	LF	OAL	Fig.	kg
MM S-A-H004-ER11-T04	ER11	T04	-	5.80	-	-	4.0	9.60	22.00	1	0.01
MM S-A-H004-ER11-T05	ER11	T05	-	7.60	-	-	4.0	9.60	22.00	1	0.01
MM S-A-H10.5-ER11-T05	ER11	T05	-	7.60	-	-	10.5	16.10	28.50	1	0.01
MM S-A-H004-ER16-T08	ER16	T08	-	11.60	-	-	4.0	11.60	31.50	1	0.03
MM S-A-H10.5-ER16-T05	ER16	T05	-	7.60	-	-	10.5	18.10	38.00	1	0.03
MM S-A-H10.5-ER16-T06	ER16	T06	-	9.25	-	-	10.5	18.10	38.00	1	0.04
MM S-A-H013-ER16-T08	ER16	T08	-	11.60	-	-	14.0	20.60	40.50	1	0.02
MM S-A-H004-ER20-T10	ER20	T10	-	15.30	-	-	4.0	12.60	35.50	1	0.05
MM S-A-H10.5-ER20-T05	ER20	T05	-	7.60	-	-	10.5	19.10	42.00	1	0.04
MM S-A-H10.5-ER20-T06	ER20	T06	-	9.25	-	-	10.5	19.10	42.00	1	0.05
MM S-A-H016-ER20-T10	ER20	T10	-	15.30	-	-	16.0	24.60	47.50	1	0.06
MM S-A-H004-ER25-T12	ER25	T12	-	18.30	-	-	4.0	13.10	38.00	1	0.08
MM S-A-H10.5-ER25-T12	ER25	T12	-	18.30	-	-	10.5	19.60	44.50	1	0.06
MM S-A-H025-ER32-T06	ER32	T06	-	9.25	10.00	18.00	25.0	35.10	65.00	2	0.15
MM S-B-H025-ER32-T06	ER32	T06	5.0	9.60	13.50	22.30	25.0	35.10	65.00	2	0.16
MM S-B-H050-ER32-T06	ER32	T06	5.0	9.60	17.90	47.30	50.0	60.10	90.00	2	0.20
MM S-B-H075-ER32-T06	ER32	T06	5.0	9.60	22.60	74.10	75.0	85.10	115.00	2	0.25
MM S-D-H050-ER32-T06	ER32	T06	1.0	9.60	11.20	45.00	50.0	60.10	90.00	2	0.17

• Do not apply lubricant to the threaded connection. • For adaptation see page 59 • When a rigid ER collet is assembled in an ER holder, the actual protruding length of the holder becomes shorter by 2.0 mm for ER20 and by 3.0 mm for ER25/ER32

MM S-ER-H
Shanks that Mount MULTI-MASTER Solid Carbide Heads with an ER Collet Adaptation and Coolant Holes

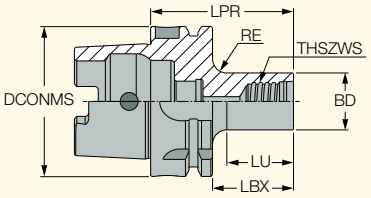


Designation	SS	THSZWS	BD	LBX	LF	OAL	Fig.	kg
MM S-A-H004-ER16-T05-H	ER16	T05	7.60	4.0	11.60	31.50	1	0.02
MM S-A-H004-ER16-T06-H	ER16	T06	9.25	4.0	11.60	31.50	1	0.03
MM S-A-H004-ER20-T05-H	ER20	T05	7.60	4.0	12.60	35.50	1	0.06
MM S-A-H004-ER20-T06-H	ER20	T06	9.25	4.0	12.60	35.50	1	0.06
MM S-A-H004-ER20-T08-H	ER20	T08	11.60	4.0	12.60	35.50	1	0.04
MM S-A-H013-ER20-T08-H	ER20	T08	11.60	13.0	21.60	44.50	1	0.07
MM S-A-H004-ER25-T05-H	ER25	T05	7.60	4.0	13.10	38.00	1	0.08
MM S-A-H004-ER25-T06-H	ER25	T06	9.25	4.0	13.10	38.00	1	0.07
MM S-A-H004-ER25-T08-H	ER25	T08	11.60	4.0	13.10	38.00	1	0.11
MM S-A-H004-ER25-T10-H	ER25	T10	15.30	4.0	13.10	38.00	1	0.10
MM S-A-H10.5-ER25-T05-H	ER25	T05	7.60	10.5	19.60	44.50	1	0.08
MM S-A-H10.5-ER25-T06-H	ER25	T06	9.25	10.5	19.60	44.50	1	0.12
MM S-A-H10.5-ER25-T08-H	ER25	T08	11.60	10.5	19.60	44.50	1	0.06
MM S-A-H10.5-ER25-T10-H	ER25	T10	15.30	10.5	19.60	44.50	1	0.10
MM S-A-H004-ER32-T05-H	ER32	T05	7.60	4.0	14.10	44.00	1	0.14
MM S-A-H025-ER32-T05-H	ER32	T05	7.60	25.0	35.10	65.00	1	0.14
MM S-A-H040-ER32-T05-H	ER32	T05	7.60	40.0	50.10	80.00	1	0.15
MM S-A-H004-ER32-T06-H	ER32	T06	9.60	4.0	14.10	44.00	1	0.14
MM S-A-H025-ER32-T06-H	ER32	T06	9.25	25.0	35.10	65.00	1	0.14
MM S-A-H040-ER32-T06-H	ER32	T06	9.25	40.0	50.10	80.00	1	0.22
MM S-A-H004-ER32-T08-H	ER32	T08	11.60	4.0	14.10	44.00	1	0.16
MM S-A-H025-ER32-T08-H	ER32	T08	11.60	25.0	35.10	65.00	1	0.16
MM S-A-H050-ER32-T08-H	ER32	T08	11.60	50.0	60.10	90.00	2	0.23
MM S-A-H004-ER32-T10-H	ER32	T10	15.30	4.0	14.10	44.00	1	0.14
MM S-A-H025-ER32-T10-H	ER32	T10	15.30	25.0	35.10	65.00	1	0.20
MM S-A-H050-ER32-T10-H	ER32	T10	15.20	50.0	60.10	90.00	2	0.25
MM S-A-H004-ER32-T12-H	ER32	T12	18.30	4.0	14.10	44.00	1	0.14
MM S-A-H025-ER32-T12-H	ER32	T12	18.30	25.0	35.10	65.00	1	0.17
MM S-A-H050-ER32-T12-H	ER32	T12	18.30	50.0	60.10	90.00	2	0.22
MM S-A-H004-ER32-T15-H	ER32	T15	23.90	4.0	14.10	44.00	1	0.16
MM S-A-H025-ER32-T15-H	ER32	T15	23.90	25.0	35.10	65.00	2	0.21
MM S-A-H050-ER32-T15-H	ER32	T15	23.90	50.0	60.10	90.00	2	0.25

• Do not apply lubricant to the threaded connection. • For adaptation see page 59

MULTI-MASTER HSK

MM S-A-HSK
MULTI-MASTER Threaded Connection Shanks with an Integral HSK DIN 69893 Form A Tapered Adaptation

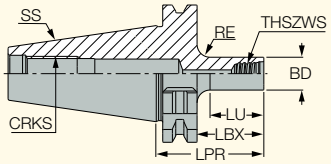


Designation	DCONMS	THSZWS	BD	LPR	LBX	LU	RE	DCP(1)	kg
MM S-A-H035-HSK A40-T05	40.00	T05	7.60	35.00	15.0	10.00	5.0	1	0.20
MM S-A-H040-HSK A40-T06	40.00	T06	9.25	40.00	20.0	15.00	5.0	1	0.28
MM S-A-H045-HSK A40-T08	40.00	T08	11.60	45.00	25.0	20.00	5.0	1	0.24
MM S-A-H050-HSK A40-T10	40.00	T10	15.30	50.00	30.0	25.00	5.0	1	0.23
MM S-A-H050-HSK A40-T12	40.00	T12	18.30	50.00	30.0	25.00	5.0	1	0.27
MM S-A-H050-HSK A63-T06	63.00	T06	9.25	50.00	24.0	18.00	6.0	1	0.70
MM S-A-H050-HSK A63-T08	63.00	T08	11.60	50.00	24.0	18.00	6.0	1	0.72
MM S-A-H055-HSK A63-T10	63.00	T10	15.30	55.00	29.0	23.00	6.0	1	0.73
MM S-A-H055-HSK A63-T12	63.00	T12	18.30	55.00	29.0	23.00	6.0	1	0.40
MM S-A-H055-HSK A63-T21	63.00	T21	30.00	55.00	29.0	19.00	10.0	1	0.83
MM S-A-H060-HSK A63-T15	63.00	T15	23.90	62.00	34.0	28.00	6.0	1	0.76
MM S-A-H080-HSK A63-T21	63.00	T21	30.00	80.00	54.0	44.00	10.0	1	0.94

• Do not apply lubricant to the threaded connection • For adaptation options, see page 59
(1) 1 - Slot for data chip, 0 - Without slot for data chip

MULTI-MASTER DIN69871

MM S-A-SK
DIN 69871 Integral Tapered Shanks Mount MULTI-MASTER Milling Heads

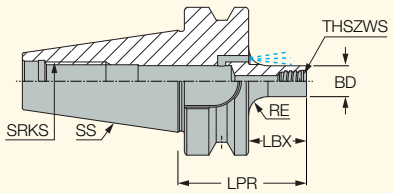


Designation	SS	CRKS	THSZWS	BD	LPR	LBX	LU	RE	kg
MM S-A-H040-SK 40-T06	40	M16	T06	9.25	40.00	21.0	15.00	6.0	0.86
MM S-A-H045-SK 40-T08	40	M16	T08	11.60	45.00	26.0	20.00	6.0	0.87
MM S-A-H050-SK 40-T10	40	M16	T10	15.30	50.00	31.0	25.00	6.0	0.83
MM S-A-H050-SK 40-T12	40	M16	T12	18.30	50.00	31.0	25.00	6.0	0.90
MM S-A-H050-SK 40-T15	40	M16	T15	23.90	50.00	31.0	25.00	6.0	0.09

• Do not apply lubricant to the threaded connection • For adaptation, see page 59

MULTI-MASTER BT MAS

MM S-A-BT
BT Integral Tapered Shanks Mount MULTI-MASTER Milling Heads



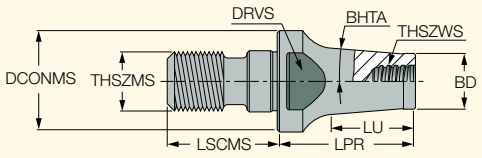
Designation	SS	CRKS	THSZWS	BD	LPR	LBX	RE
MM S-A-H040-BT30-T06-H	30	M12	T06	9.60	40.00	18.0	6.0
MM S-A-H045-BT30-T08-H	30	M12	T08	11.60	45.00	23.0	6.0
MM S-A-H050-BT30-T10-H	30	M12	T10	15.30	50.00	28.0	6.0
MM S-A-H050-BT30-T12-H	30	M12	T12	18.30	50.00	28.0	6.0
MM S-A-H050-BT30-T15-H	30	M12	T15	23.90	50.00	28.0	3.0

New

• Do not apply lubricant to the threaded connection • For adaptation, see page 59

MULTI-MASTER

MM CAB
Adapters for Connecting
FLEX-FIT Shanks and
MULTI-MASTER Milling Heads



Designation	THSZWS	THSZMS	LPR	LU	BD	DCONMS	LSCMS	DRVS(1)	BHTA	TQ_3(2)	kg
MM CAB T06M06-16/.63	T06	M06	16.00	11.60	9.30	9.70	14.50	8.0	1.5	15	0.01
MM CAB T06M08-16/.63	T06	M08	16.00	13.70	9.60	13.00	17.50	11.0	6.0	20	0.02
MM CAB T06M08-25/1.0	T06	M08	25.00	11.30	9.30	13.00	17.50	11.0	1.5	20	0.02
MM CAB T06M10-25/1.0	T06	M10	25.00	16.60	9.60	18.00	20.00	11.0	5.0	29	0.04
MM CAB T08M08-16/.63	T08	M08	16.00	5.40	11.70	13.00	17.50	11.0	11.4	20	0.02
MM CAB T08M08-25/1.0	T08	M08	25.00	19.50	11.70	13.00	17.50	11.0	1.5	20	0.02
MM CAB T08M10-20/.75	T08	M10	20.00	11.30	11.70	18.00	20.00	13.0	7.0	29	0.04
MM CAB T08M10-25/1.0	T08	M10	25.00	14.20	11.70	18.00	20.00	11.0	1.5	29	0.03
MM CAB T08M12-20/.75	T08	M12	20.00	9.30	11.70	21.00	22.00	13.0	7.0	33	0.05
MM CAB T08M12-25/1.0	T08	M12	25.00	12.50	11.70	21.00	22.00	13.0	1.5	33	0.04

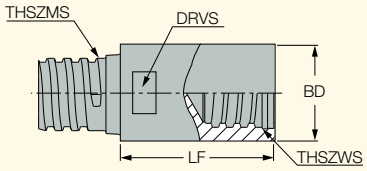
• Do not apply lubricant to the threaded connection • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Clamping wrench size

(2) Tool tightening torque Nxm (lbfxin)

MULTI-MASTER

MM CAB-T-T
MULTI-MASTER
Shank Extensions



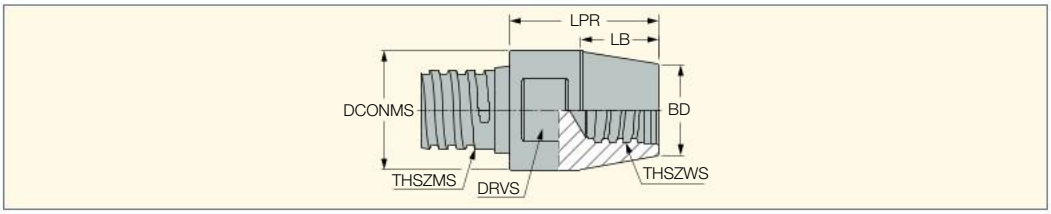
Designation	BD	THSZWS	THSZMS	LF	DRVS(1)	kg
MM CAB T05T05-25/1.0-C	7.60	T05	T05	25.40	6.0	0.02
MM CAB T06T06-25/1.0-C	9.30	T06	T06	25.40	8.0	0.02
MM CAB T08T08-25/1.0-C	11.50	T08	T08	25.40	10.0	0.02
MM CAB T10T10-38/1.5-C	15.20	T10	T10	38.10	13.0	0.08
MM CAB T12T12-38/1.5-C	18.45	T12	T12	38.10	16.0	0.11
MM CAB T15T15-45/1.77-C	23.90	T15	T15	45.00	20.0	0.21

• Clamping key to be ordered separately • For adaptation, see page 59

(1) Clamping wrench size

MULTI-MASTER

MM CAB-T-T-W
MULTI-MASTER Shank Reducers



Designation	DCONMS	THSZMS	THSZWS	BD	LB	LPR	DRVS[1]	kg
MM CAB T05T04-14.0/.55-W	7.60	T05	T04	5.80	8.20	14.00	5.5	0.01
MM CAB T06T05-15.0/.59-W	9.60	T06	T05	7.60	9.00	15.00	8.0	0.03
MM CAB T08T06-16.0/.63-W	11.60	T08	T06	9.60	9.00	16.00	10.0	0.04
MM CAB T10T08-19.0/.75-W	15.30	T10	T08	11.60	10.00	19.00	13.0	0.07
MM CAB T12T10-24.0/.94-W	18.30	T12	T10	15.30	15.00	24.00	16.0	0.12
MM CAB T15T12-30.0/1.18-W	23.90	T15	T12	18.30	17.50	30.00	20.0	0.24

New

- Clamping key to be ordered separately
- For adaptation, see page 59

(1) Torque key size

Accessories

MM Adjustable Torque Keys
Adjustable Torque Handle and Keys for Secure and Accurate Tightening of MULTI-MASTER Milling Heads

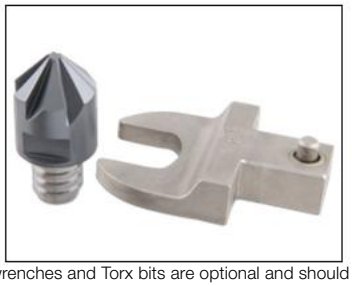
Designation	Fig.	Ts[1]	Key	TQ[2]
TORQUE WRENCH 3-25NM 9X12	1	-	-	-
TORQUE WRENCH 5-50NM 9X12	1	-	-	-
MM WRENCH 6-05	2	T05	-	7.0
MM WRENCH 8-06	2	T06	-	10.0
MM WRENCH 10-08	2	T08	-	15.0
MM WRENCH 13-10	2	T10	-	28.0
MM WRENCH 16-12	2	T12	-	28.0
MM WRENCH 20-15	2	T15	-	40.0
MM WRENCH 24-21	2	T21	-	110.0
MM WRENCH 4E-05	3	T05	-	7.0
MM WRENCH 5E-06	3	T06	-	10.0
MM WRENCH 7E-08	3	T08	-	15.0
MM WRENCH 8E-10	3	T10	-	28.0
MM WRENCH 9E-12	3	T12	-	28.0
INSERT TOOL 3/8" 9X12mm	4	-	-	-
BIT SOCKET T20 3/8" DRIVE	5	-	Torx T20	-
BIT SOCKET T25 3/8" DRIVE	5	-	Torx T25	-
BIT SOCKET T30 3/8" DRIVE	5	-	Torx T30	-
BIT SOCKET T40 3/8" DRIVE	5	-	Torx T40	-
BIT SOCKET T50 3/8" DRIVE	5	-	Torx T50	-

- NOTE: Recommended clamping torque for each MULTI-MASTER connection size, see next page

(1) MULTI-MASTER connection size

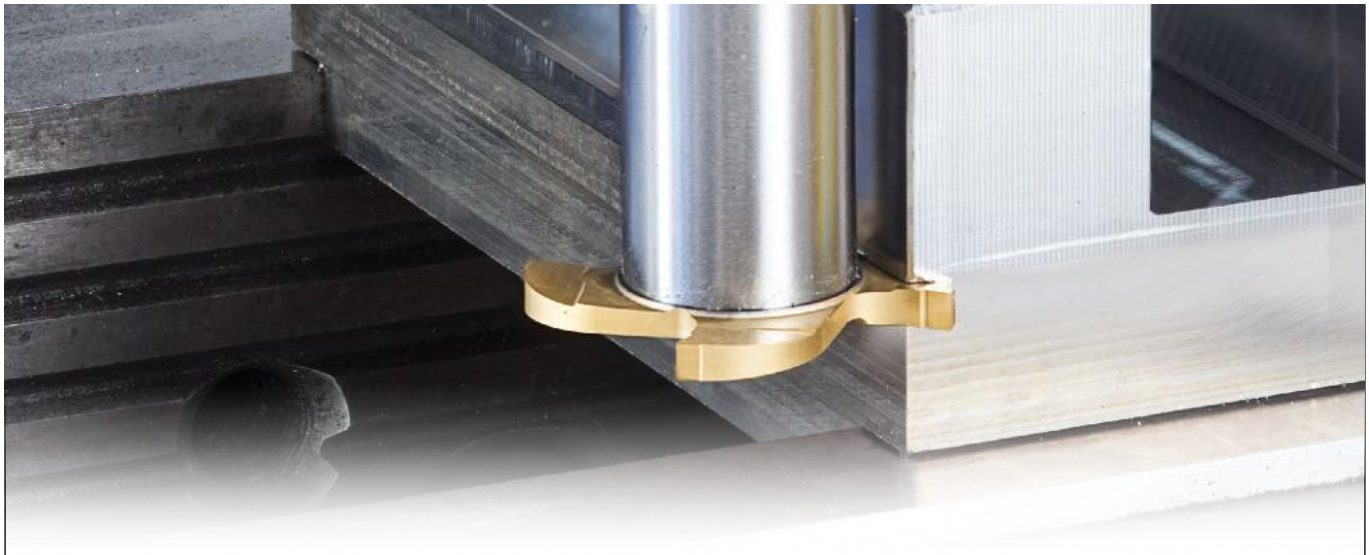
(2) Clamping torque Nxm

Adjustable Torque Handle with Interchangeable Wrenches for Clamping MULTI-MASTER Milling Heads

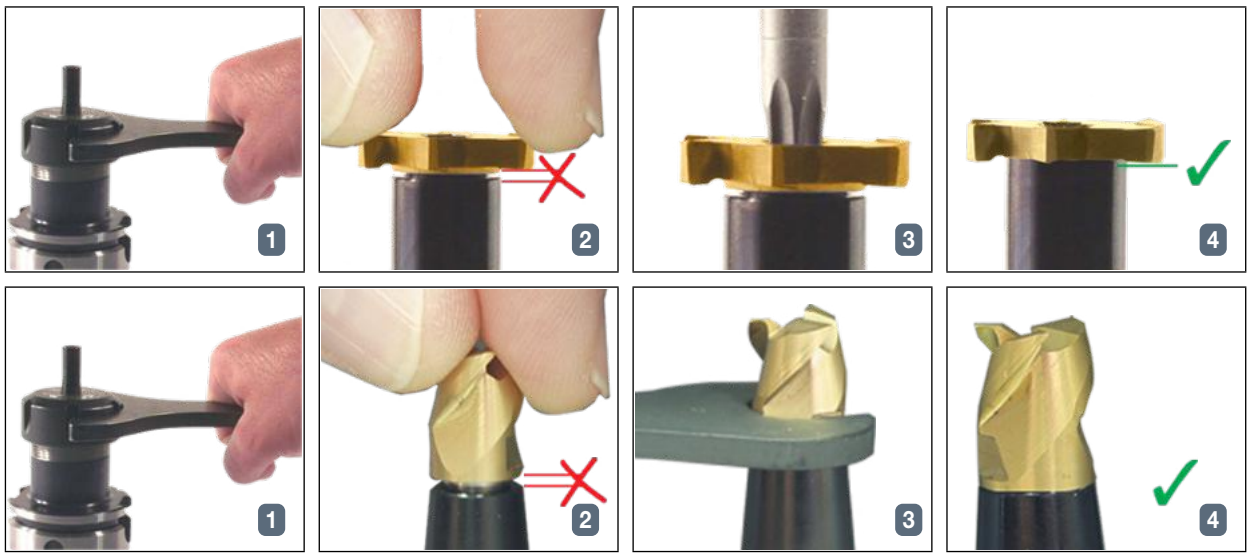


The adjustable torque handle, interchangeable wrenches and Torx bits are optional and should be ordered separately.

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE



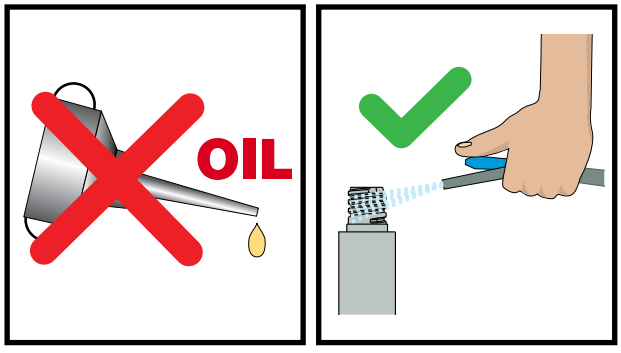
Clamping and Indexing Instructions



Do not apply lubricant to the threaded connection.

Thread Size	Key[1]	Tightening Torque (Nxcm)
T04	MM KEY 4X3	400
T04	MM KEY 6x4	400
T05	MM KEY 6x4	700
T06	MM KEY 8x5	1000
T08	MM KEY 10x7	1500
T10	MM KEY 13x8	2800
T12	MM KEY 16x9	2800
T15	MM KEY 20	4000
T21	MM WRENCH 24-21	11000

(1) Order separately



Do not apply lubricant to the threaded connection

SOLID CARBIDE ENDMILLS

SOLIDMILL PREMIUM LINE

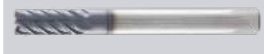
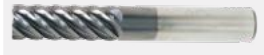
WORKPIECE MATERIAL	ISO	Page
STEEL	P	114
STAINLESS STEEL	M	118
CAST IRON	K	120
ALUMINUM / NON FERROUS MATERIALS	N	123
SUPERALLOYS / TITANIUM	S	125
HARD STEELS	H	127

P (Steel Materials)			
Tool Selection Priorities			
Tool	**Rough**	**Semi-Finish**	**Finish/H.S.M**
EC-H6/20	-	-	1
EC-E7/H7-CF	-	-	2
EFS-B44	5	6	-
EFS-E44-CF	4	5	-
ECR-B-MF	6	7	-
EC-E5L-CF	7	1	4
EC-E4L-CF	3	3	5
ECP-H4L-CF	2	4	-
EC-H4M-CF-E	1	2	3

ROUGHING

	Designation	Ø	LU (Neck)	A_p	ZEFF	Corner Type	Coolant	Page
	EC-H4M-CF-E	4-20	-	2xDC	4	CHWx45	NO	136
	ECP-H4L-CFR	10-20	3XDC	2xDC	4	RE	NO	137
	EC-E4L-CF	1-25	3XDC	2xDC	4	CHWx45	NO	151
	EFS-E44	6-25	-	2xDC	4	CHWx45	NO	148
	EFS-B44	4-25	3xDC	2xDC	4	CHWx45	NO	149
	ECR-B-MF	6-25	-	2xDC	4/6	CHWx45	NO	154
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	152

FINISHING

P (Steel Materials)								
	Designation	**Ø**	**LU (Neck)**	**A_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	152
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	145
	ECXL-B-4/6	10-20	-	6xDC	4/6	-	NO	184
	ECH-B-6	6-20	-	2xDC	6	-	NO	183

TROCHOIDAL / DYNAMIC MILLING

	Designation	**Ø**	**LU (Neck)**	**A_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	152

HIGH FEED MILLING

	Designation	**Ø**	**LU (Neck)**	**A_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	EFP-E4,5CF	6-20	-	2.5xDC	4/5	RE	NO	158
	EFF-S	1-20	3xDC	MIN.	2/4	RE	NO	158

SOLIDMILL PREMIUM LINE

CHAMFERING AND DEBURRING

	Designation	Ø	LU (Neck)	A_p	ZEFF	Corner Type	Coolant	Page
	ECF.../45	4-12	-	2.5xDC	4	-	NO	207
	ECD-S2	3-12	2xDC	0.5xDC	2	-	NO	208

P (Steel Materials)	
Tool Type	**Features**
EC-H4M-CF-E (ECO Type)	• Rough and finish operations • General use • Low power machines • CHATTER-FREE
ECP-H4L-CFR	• Rough operations • General use • Chip splitter CHATTER-FREE
EC-E4L-CF	• Rough and finish operations • Used for machining alloyed steel and general use • Low power machines CHATTER-FREE
EC-E5L-CF	• Rough and finish operations • Used for machining alloyed steel and general use • High material removal rates
ECR-B-MF	• Rough operations • Used in unstable components
EFS-E44	• Used for machining alloyed steel • Combination of VIBRAFREE and FINISH ROUGH
EFS-B44	• Unique design • Used for machining titanium, stainless and alloyed steel • Fully effective • Semi-finish surface quality
EC-E7/H7-CF	• For high speed machining • Trochoidal milling • Finish operations up to 10% X DC
EC-H-CF	• High speed machining • Multiflute solid endmill • Tools for super finish • Up to 5% X DC

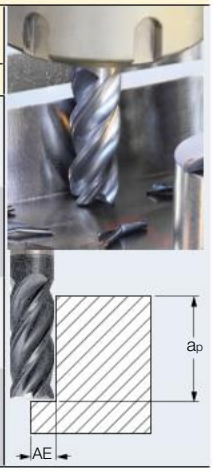
P (Steel Materials)

ROUGH: AE = 40% - Full Cut , A_p = 2 x DC

Material Group Parameters	Unalloyed Steel		Low Alloyed Steel		High Alloyed Steel		Martensitic Steels	Ferritic Steels
	1-4	5	6-7	8-9	10	11	12	13
V_c (IC900/608) (m/min)	160-180	140-150	120-160	130-150	130-150	70-90	80-100	60-90
F_z (Ø6-8) (mm/t)	0.025-0.035	0.025-0.035	0.02-0.03	0.02-0.03	0.02-0.03	0.02-0.03	0.02-0.035	0.02-0.035
F_z (Ø10-12) (mm/t)	0.03-0.045	0.03-0.045	0.03-0.045	0.03-0.045	0.03-0.045	0.03-0.045	0.03-0.04	0.03-0.04
F_z (Ø16-20) (mm/t)	0.04-0.055	0.04-0.055	0.04-0.055	0.04-0.055	0.04-0.055	0.04-0.055	0.035-0.045	0.035-0.045

SEMI-FINISH: AE = 10% - 40%, A_p = 2 x DC

Material Group Parameters	Unalloyed Steel		Low Alloyed Steel		High Alloyed Steel		Martensitic Steels	Ferritic Steels
	1-4	5	6-7	8-9	10	11	12	13
V_c (IC900/608) (m/min)	200-220	150-170	160-180	150-170	150-160	90-110	100-130	90-120
F_z (Ø6-8) (mm/t)	0.03-0.06	0.03-0.06	0.02-0.05	0.02-0.05	0.02-0.05	0.02-0.05	0.025-0.04	0.025-0.04
F_z (Ø10-12) (mm/t)	0.06-0.07	0.06-0.07	0.04-0.065	0.04-0.065	0.04-0.065	0.04-0.065	0.035-0.045	0.035-0.045
F_z (Ø16-20) (mm/t)	0.07-0.08	0.07-0.08	0.045-0.07	0.045-0.07	0.045-0.07	0.045-0.07	0.04-0.05	0.04-0.05



FINISH: AE = 5% - 10%, A_p = Max. Cutting Length

Material Group Parameters	Unalloyed Steel		Low Alloyed Steel		High Alloyed Steel		Martensitic Steels	Ferritic Steels
	1-4	5	6-7	8-9	10	11	12	13
V_c (IC900/608) (m/min)	220-280	170-180	180-220	170-180	160-180	110-120	130-160	120-150
V_c (IC902/903/702) (m/min)	230-290	180-200	190-230	180-230	170-190	120-130	140-170	130-160
F_z (Ø6-8) (mm/t)	0.05-0.07	0.05-0.07	0.05-0.07	0.05-0.07	0.05-0.07	0.05-0.07	0.03-0.045	0.03-0.045
F_z (Ø10-12) (mm/t)	0.07-0.08	0.07-0.08	0.07-0.08	0.07-0.08	0.07-0.08	0.07-0.08	0.04-0.05	0.04-0.05
F_z (Ø16-20) (mm/t)	0.08-0.1	0.08-0.1	0.08-0.1	0.08-0.1	0.08-0.1	0.08-0.1	0.045-0.06	0.045-0.06

SOLIDMILL PREMIUM LINE

M (Stainless Steel)			
Tool Selection Priorities			
Tool	**Rough**	**Semi-Finish**	**Finish/H.S.M**
ECY-S5-CFR	1	1	-
EC-H-CF	-	-	1
EC-E7/H7-CF	-	-	2
EFS-B44	6	7	-
ECP-E4L	5	6	-
EC-H5M-CFR	-	4	3
EC-H4M-CFR	4	5	5
ECP-H4L-CFR	3	3	-
EC-H4M-CF-E	2	2	4

ROUGHING

	Designation	Ø	LU (Neck)	A_p	ZEFF	Corner Type	Coolant	Page
	ECY-S5-CFR	5-16	-	2xDC	5	RE	NO	140
	EC-H4M-CF-E	4-20	-	2xDC	4	CHWx45	NO	136
	ECP-H4L-CFR	10-20	3XDC	2xDC	4	RE	NO	137
	EC-H5M-CFR	4-20	-	2xDC	5	RE	NO	139
	EC-H4-L/M/XL-CFR	3-25	-	2xDC	-	RE	NO	137-138
	EFS-B44	6-25	3xDC	2xDC	4	CHWx45	NO	149
	ECP-E4L	5-20	3xDC	2xDC	4	CHWx45	NO	155

FINISHING

	Designation	Ø	LU (Neck)	A_p	ZEFF	Corner Type	Coolant	Page
	ECY-S5-CFR	5-16	-	2xDC	5	RE	NO	140
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	152
	EC-H5M-CFR	4-20	-	2xDC	5	RE	NO	139
	ECXL-B-4/6	10-20	-	6xDC	7	-	NO	184
	ECH-B-6	6-20	-	2xDC	6	-	NO	183

SOLIDMILL PREMIUM LINE

TROCHOIDAL / DYNAMIC MILLING

	Designation	Ø	LU (Neck)	A_p	ZEFF	Corner Type	Coolant	Page
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	152

HIGH FEED MILLING

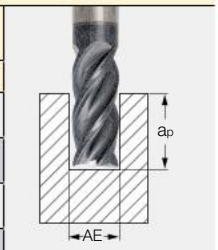
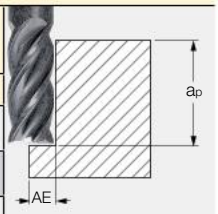
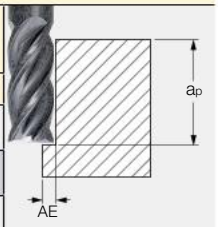
M (Stainless Steel)								
	Designation	Ø	LU (Neck)	A_p	ZEFF	Corner Type	Coolant	Page
	EFP-E4,5CF	6-20	-	2.5xDC	4/5	RE	NO	158
	EFF-S	1-20	3xDC	MIN.	2/4	RE	NO	158

CHAMFERING AND DEBURRING

M (Stainless Steel)								
	Designation	Ø	LU (Neck)	A_p	ZEFF	Corner Type	Coolant	Page
	ECF.../45	4-12	-	2.5xDC	4	-	NO	207
	ECD-S2	3-12	2xDC	0.5xDC	2	-	NO	208

Tool Type	Features
ECY-S5-CFR	• Unique design • Used for machining stainless steel • Rough and finish operations • High material removal rates
EC-H4M-CF-E (ECO Type)	• Rough and finish operations • General use • Low power machines • CHATTER-FREE
ECP-H4L-CFR	• Rough operations • General use • Chip splitter CHATTER-FREE
EC-H4M-CFR	• Rough and finish operations • Used for machining stainless steel • High material removal rates
EC-H5M-CFR	• Rough and finish operations • Used for machining stainless steel • High material removal rates
ECP-E4L	• Used for machining stainless steel and high-temperature alloys • Chip Splitter
EFS-B44	• Unique design • Used for machining titanium, stainless and alloyed steel • Fully effective • Semi-finish surface quality
EC-E7/H7-CF	• For high speed machining • Trochoidal milling • Finish operations up to 10% X DC
EC-H-CF	• High speed machining • Multiflute solid endmill • Tools for super finish • Up to 5% X DC

SOLIDMILL PREMIUM LINE

M (Stainless Steel)		
ROUGH: AE = 40% - Full Cut , A_p = 2 x DC		
Material Group Parameters	**Austenitic Steels**	
	14	
V_c (IC900/608) (m/min)	60-80	
F_z (Ø6-8) (mm/t)	0.02-0.035	
F_z (Ø10-12) (mm/t)	0.03-0.04	
F_z (Ø16-20) (mm/t)	0.035-0.045	
SEMI-FINISH: AE = 10% - 40%, A_p = 2 x DC		
Material Group Parameters	**Austenitic Steels**	
	14	
V_c (IC900/608) (m/min)	80-100	
F_z (Ø6-8) (mm/t)	0.025-0.04	
F_z (Ø10-12) (mm/t)	0.035-0.045	
F_z (Ø16-20) (mm/t)	0.04-0.05	
FINISH / H.S.M: AE = 5% - 10%, A_p = Max. Cutting Length		
Material Group Parameters	**Austenitic Steels**	
	14	
V_c (IC900/608) (m/min)	100-120	
V_c (IC902/903/702) (m/min)	110-130	
F_z (Ø6-8) (mm/t)	0.03-0.045	
F_z (Ø10-12) (mm/t)	0.04-0.05	
F_z (Ø16-20) (mm/t)	0.045-0.06	

K (Cast Iron)			
Tool Selection Priorities			
Tool	**Rough**	**Semi-Finish**	**Finish/HSM**
EC-H-CF	-	-	1
EC-E7/H7-CF	-	-	2
EFS-B44	2	7	-
EFS-E44	5	6	-
ECR-B-MF	4	3	-
EC-E5L-CF	7	1	4
EC-E4L-CF	6	5	5
ECP-H4L-CFR	3	4	-
EC-H4M-CF-E	1	2	3

SOLIDMILL PREMIUM LINE

ROUGHING

	Designation	Ø	LU (Neck)	A_p	ZEFF	Corner Type	Coolant	Page
	EC-H4M-CF-E	4-20	-	2xDC	4	CHWx45	NO	136
	ECP-H4L-CFR	10-20	3XDC	2xDC	4	RE	NO	137
	EC-E4L-CF	1-25	3XDC	2xDC	4	CHWx45	NO	151
	EFS-E44	6-25	-	2xDC	4	CHWx45	NO	148
	EFS-B44	4-25	3xDC	2xDC	4	CHWx45	NO	149
	ECR-B-MF	6-20	-	2xDC	4/6	CHWx45	NO	149
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	152

FINISHING

	Designation	Ø	LU (Neck)	A_p	ZEFF	Corner Type	Coolant	Page
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	152
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	152
	ECXL-B-4/6	10-20	-	6xDC	4/6	-	NO	184
	ECH-B-6	6-20	-	2xDC	6	-	NO	183

TROCHOIDAL / DYNAMIC MILLING

	Designation	Ø	LU (Neck)	A_p	ZEFF	Corner Type	Coolant	Page
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	152

SOLIDMILL PREMIUM LINE

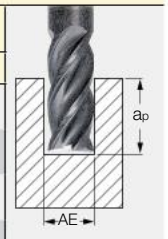
HIGH FEED MILLING

K (Cast Iron)								
	Designation	**Ø**	**LU (Neck)**	**A_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	EFP-E4,5CF	6-20	-	2.5xDC	4/5	RE	NO	158
	EFF-S	1-20	3xDC	MIN.	2/4	RE	NO	158

CHAMFERING AND DEBURRING

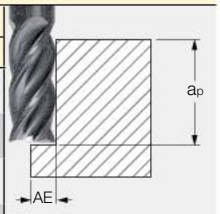
	Designation	**Ø**	**LU (Neck)**	**A_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	ECF.../45	4-12	-	2.5xDC	4	-	NO	207
	ECD-S2	3-12	2xDC	0.5xDC	2	-	NO	208

Tool Type	**Features**
EC-H4M-CF-E (ECO Type)	• Rough and finish operations • General use • Low power machines • CHATTER-FREE
ECP-H4L-CFR	• Rough operations • General use • Chip splitter CHATTER-FREE
EC-E4L-CF	• Rough and finish operations • Used for machining alloyed steel and general use • Low power machines no vibrations
EC-E5L-CF	• Rough and finish operations • Used for machining alloyed steel and general use • High material removal rates
ECR-B-MF	• Rough operations • Used on unstable components
EFS-E44	• Used for machining alloyed steel • Combination of VIBRAFREE and FINISHROUGH
EFS-B44	• Unique design • Used for machining titanium, stainless and alloyed steel • Fully effective • Semi-finish surface quality
EC-E7/H7-CF	• For high speed machining • Trochoidal milling • Finish operations up to 10% X DC
EC-H-CF	• High speed machining • Multiflute solid endmill • Tools for Super-Finish • Up to 5% X DC

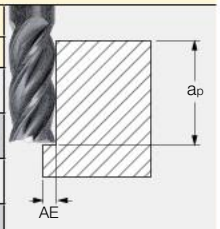
ROUGH: AE = 40% - Full Cut , A_p = 2 x DC				
Material Group Parameters	**Grey Cast Iron**	**Ductile Cast Iron**	**Malleable Cast Iron**	
	15-16	**17-18**	**19-20**	
V_c (IC900/608) (m/min)	80-130	90-130	140-180	
F_z (Ø6–8) (mm/t)	0.02-0.04	0.02-0.04	0.02-0.04	
F_z (Ø10-12) (mm/t)	0.03-0.05	0.03-0.05	0.03-0.05	
F_z (Ø16-20) (mm/t)	0.04-0.06	0.04-0.06	0.04-0.06	

SOLIDMILL PREMIUM LINE

K (Cast Iron)			
SEMI-FINISH: AE = 10% - 40%, A_p = 2 x DC			
Material Group Parameters	**Grey Cast Iron**	**Ductile Cast Iron**	**Malleable Cast Iron**
	15-16	**17-18**	**19-20**
V_c (IC900/608) (m/min)	130-180	130-200	180-220
F_z (Ø6–8) (mm/t)	0.03-0.05	0.03-0.05	0.03-0.05
F_z (Ø 10-12) (mm/t)	0.04-0.06	0.04-0.06	0.04-0.06
F_z (Ø16-20) (mm/t)	0.06-0.07	0.06-0.07	0.06-0.07



FINISH / H.S.M: AE = 5% - 10%, A_p = Max. Cutting Length			
Material Group Parameters	**Grey Cast Iron**	**Ductile Cast Iron**	**Malleable Cast Iron**
	15-16	**17-18**	**19-20**
V_c (IC900/608) (m/min)	180-260	200-280	220-280
V_c (IC902/903/702) (m/min)	190-270	210-290	220-290
F_z (Ø6–8) (mm/t)	0.035-0.06	0.035-0.06	0.035-0.06
F_z (Ø10-12) (mm/t)	0.06-0.065	0.06-0.065	0.06-0.065
F_z (Ø16-20) (mm/t)	0.065-0.08	0.065-0.08	0.065-0.08



N (Non-Ferrous Metals)			
Tool Selection Priorities			
Tool	**Rough**	**Semi-Finish**	**Finish/H.S.M**
ECR-B3-R	5	6	-
ECA-B-3	6	3	3
ECA-H4-CF	2	1	1
ECAP-H3-CF	3	4	-
ECA-H3-CF	4	5	4

ROUGHING

	Designation	**Ø**	**LU (Neck)**	**A_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	ECA-H3-CF	1.5-25	3XDC	2xDC	3	RE	NO	186-188
	ECAP-H3-CF	10-25	5XDC	2xDC	3	RE	YES	189
	ECA-H4-CF	6-25	5XDC	2xDC	4	RE	NO	188
	ECA-B-3	4-20	4xDC	2xDC	3	RE	NO	192
	ECR-B3-R	6-20	-	1xDC	3	RE	NO	190

SOLIDMILL PREMIUM LINE

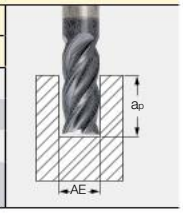
FINISHING

	Designation	Ø	LU (Neck)	A_p	ZEFF	Corner Type	Coolant	Page
	ECA-H3-CF	1-25	3XDC	2xDC	3	RE	NO	186-188
	ECA-H4-CF	6-25	5XDC	2xDC	4	RE	NO	188
	ECA-B-3	4-20	4xDC	2xDC	3	RE	NO	192

N (Non-Ferrous Metals)	
Tool Type	**Features**
ECA-H3-CF	• Suitable for roughing and finishing operations • CHATTER-FREE • Full slot up to 1.5XDC and 2XDC * • Excellent solution for low power machines
ECAP-H3-CF	• Suitable for roughing • Chip splitter CHATTER-FREE • Internal coolant for better chip evacuation in deep cavity
ECA-H4-CF	• Suitable for roughing and finishing operations • CHATTER-FREE • Full slot up to 1XDC
ECA-B-3	• Suitable for roughing and finishing operations • Excellent surface finish
ECR-B3-R	• Suitable for roughing • Good cheap evacuation

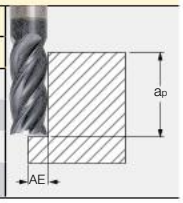
D 2x ROUGH: AE = 40% - Full Cut , A_p = 1.5xDC*

Material Group Parameters	Alu Wrought Alloy	Alu Cast Alloy	Copper Alloy	Electrolitic Copper	Non-Metallic
	21-22	23-25	26-27	28	29-30
V_c (IC08) (m/min)	700-760	400-550	500-520	350-360	350-360
F_z (Ø6–8) (mm/t)	0.02-0.04	0.02-0.04	0.02-0.04	0.02-0.04	0.02-0.04
F_z (Ø10-12) (mm/t)	0.03-0.05	0.03-0.05	0.03-0.05	0.03-0.05	0.03-0.05
F_z (Ø 16-20) (mm/t)	0.03-0.07	0.03-0.07	0.03-0.07	0.03-0.07	0.03-0.07



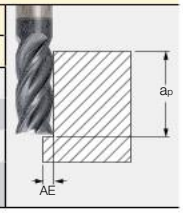
SEMI-FINISH: AE = 10% - 40%, A_p = 2 x DC

Material Group Parameters	Alu Wrought Alloy	Alu Cast Alloy	Copper Alloy	Electrolitic Copper	Non-Metallic
	21-22	23-25	26-27	28	29-30
V_c (IC08) (m/min)	760-840	550-700	520-530	360-370	360-370
F_z (Ø6–8) (mm/t)	0.04-0.06	0.04-0.06	0.03-0.05	0.03-0.05	0.03-0.05
F_z (Ø 10-12) (mm/t)	0.06-0.08	0.06-0.08	0.045-0.055	0.045-0.055	0.045-0.055
F_z (Ø 16-20) (mm/t)	0.08-0.1	0.08-0.1	0.055-0.07	0.055-0.07	0.055-0.07



FINISH / H.S.M: AE = 5% - 10%, A_p = Max. Cutting Length

Material Group Parameters	Alu Wrought Alloy	Alu Cast Alloy	Copper Alloy	Electrolitic Copper	Non-Metallic
	21-22	23-25	26-27	28	29-30
V_c (IC08) (m/min)	840-900	700-900	530-550	370-380	370-380
F_z (Ø6–8)(mm/t)	0.045-0.07	0.045-0.07	0.035-0.06	0.035-0.06	0.035-0.06
F_z (Ø10-12) (mm/t)	0.07-0.1	0.07-0.1	0.06-0.07	0.06-0.07	0.06-0.07
F_z (Ø16-20) (mm/t)	0.1-0.15	0.1-015	0.065-0.08	0.065-0.08	0.065-0.08

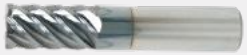


S (High Heat Resistant Alloys)			
Tool Selection Priorities			
Tool	**Rough**	**Semi-Finish**	**Finish/H.S.M**
EC-H-CF	-	-	1
EC-E7/H7-CF	-	-	2
ECK-H4M-CFR	3	3	-
ECR-B-MF	2	2	-
EC-H5M-CFR	7	4	3
EC-H4M-CFR	6	7	5
ECP-H4L-CFR	4	5	-
EC-H4M-CF-E	5	6	4

ROUGHING

	Designation	Ø	LU (Neck)	A_p	ZEFF	Corner Type	Coolant	Page
	EC-H4M-CF-E	4-20	-	2xDC	4	CHWx45	NO	136
	ECP-H4L-CFR	10-20	3XDC	2xDC	4	RE	NO	137
	EC-E4L-CF	1-25	3XDC	2xDC	4	CHWx45	NO	151
	ECK-H4M-CFR	6-20	-	2xDC	4	-	NO / YES	146
	EFS-B44	4-25	3xDC	2xDC	4	CHWx45	NO	149
	ECR-B-MF	6-25	-	2xDC	4/6	CHWx45	NO	149
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	152

FINISHING

	Designation	Ø	LU (Neck)	A_p	ZEFF	Corner Type	Coolant	Page
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	152
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	152
	ECXL-B-4/6	10-20	-	6xDC	4/6	-	NO	184
	ECH-B-6	6-20	-	2xDC	6	-	NO	183

SOLIDMILL PREMIUM LINE

TROCHOIDAL / DYNAMIC MILLING

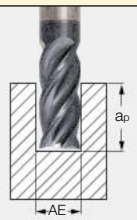
S (High Heat Resistant Alloys)								
	Designation	**Ø**	**LU (Neck)**	**A_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	152

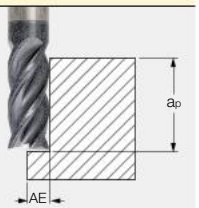
HIGH FEED MILLING

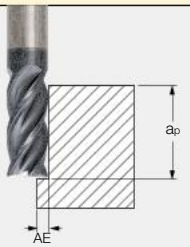
	Designation	**Ø**	**LU (Neck)**	**A_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	EFP-E4,5CF	6-20	-	2.5xDC	4/5	RE	NO	158
	EFF-S	1-20	3xDC	MIN.	2/4	RE	NO	158

CHAMFERING AND DEBURRING

	Designation	**Ø**	**LU (Neck)**	**A_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	ECF.../45	4-12	-	2.5xDC	4	-	NO	207
	ECD-S2	3-12	2xDC	0.5xDC	2	-	NO	208

***ROUGH: AE = 40% - Full Cut , A_p = 1.5 x DC**			
Material Group Parameters	**Nickel Based Alloys**	**Titanium and Ti Alloys**	
	31-35	**36-37**	
V_c (IC900/608) (m/min)	20-40	30-50	
F_z (Ø6–8) (mm/t)	0.02-0.03	0.02-0.03	
F_z (Ø 10-12) (mm/t)	0.03-0.04	0.03-0.04	
F_z (Ø 16-20) (mm/t)	0.03-0.07	0.03-0.07	

SEMI-FINISH: AE = 10% - 40%, A_p = 2 x DC			
Material Group Parameters	**Nickel Based Alloys**	**Titanium and Ti Alloys**	
	31-35	**36-37**	
V_c (IC900/608) (m/min)	40-50	50-60	
F_z (Ø6–8) (mm/t)	0.03-0.04	0.03-0.04	
F_z (Ø 10-12) (mm/t)	0.035-0.05	0.035-0.05	
F_z (Ø 16-20) (mm/t)	0.05-0.08	0.05-0.08	

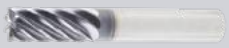
FINISH / H.S.M: AE = 5% - 10%, A_p = Max. Cutting Length			
Material Group Parameters	**Nickel Based Alloys**	**Titanium and Ti Alloys**	
	31-35	**36-37**	
V_c (IC900/608) (m/min)	50-70	60-70	
V_c (IC902/903/702) (m/min)	55-80	65-80	
F_z (Ø6–8) (mm/t)	0.035-0.05	0.035-0.05	
F_z (Ø 10-12) (mm/t)	0.04-0.06	0.04-0.06	
F_z (Ø 16-20) (mm/t)	0.06-0.085	0.06-0.085	

H (Hard Materials)			
Tool Selection Priorities			
Tool	**Rough**	**Semi-Finish**	**Finish/H.S.M**
EC-H-CF	-	-	1
EC-E7/H7-CF	-	-	2
EFS-B44	2	3	-
ECR-B-MF	1	1	-
EC-E5L-CF	6	2	3
EC-E4L-CF	5	6	5
ECP-H4L-CFR	3	4	-
EC-H4M-CF-E	4	5	4

ROUGHING

	Designation	**Ø**	**LU (Neck)**	**A_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	EC-H4M-CF-E	4-20	-	2xDC	4	CHWx45	NO	136
	ECP-H4L-CFR	10-20	3XDC	2xDC	4	RE	NO	137
	EC-E4L-CF	1-25	3XDC	2xDC	4	CHWx45	NO	151
	EFS-B44	4-25	3xDC	2xDC	4	CHWx45	NO	149
	ECR-B-MF	6-25	-	2xDC	4/6	CHWx45	NO	149
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	152

FINISHING

	Designation	**Ø**	**LU (Neck)**	**A_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	152
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	152
	ECXL-B-4/6	10-20	-	6xDC	4/6	-	NO	184
	ECH-B-6	6-20	-	2xDC	6	-	NO	183

SOLIDMILL PREMIUM LINE

TROCHOIDAL / DYNAMIC MILLING

H (Hard Materials)								
	Designation	**Ø**	**LU (Neck)**	**A_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	141-142
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	152

HIGH FEED MILLING

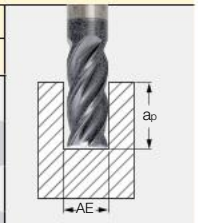
	Designation	**Ø**	**LU (Neck)**	**A_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	EFP-E4,5CF	6-20	-	2.5xDC	4/5	RE	NO	158
	EFF-S	1-20	3xDC	MIN.	2/4	RE	NO	158

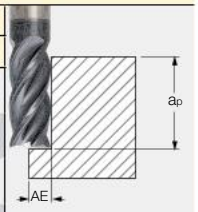
CHAMFERING AND DEBURRING

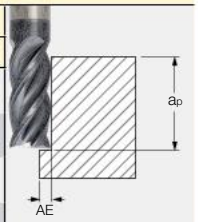
	Designation	**Ø**	**LU (Neck)**	**A_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	ECF.../45	4-12	-	2.5xDC	4	-	NO	207
	ECD-S2	3-12	2xDC	0.5xDC	2	-	NO	208

Tool Type	**Features**
EC-H4M-CF-E (ECO Type)	• Rough and finish operations • General use • Low power machines • CHATTER-FREE
ECP-H4L-CFR	• Rough operations • General use • Chip splitter CHATTER-FREE
EC-E4L-CF	• Rough and finish operations • Used for machining alloyed steel and general use • Low power machines no vibrations
EC-E5L-CF	• Rough and finish operations • Used for machining alloyed steel and general use • High material removal rates
ECR-B-MF	• Rough operations • Used on unstable components
EFS-B44	• Unique design • Used for machining titanium, stainless and alloyed steel • Fully effective • Semi-finish surface quality
EC-E7/H7-CF	• For high speed machining • Trochoidal milling • Finish operations up to 10% X DC
EC-H-CF	• High speed machining • Multiflute solid endmill • Tools for super finish • Up to 5% X DC

SOLIDMILL PREMIUM LINE

H (Hard Materials)				
ROUGH: AE = 40% - Full Cut , Ap = 2 x DC				
Material Group Parameters	**Hardened Steel**	**Chilled Cast Iron**	**Cast Iron**	
	38-39	**40**	**41**	
V_c (IC900/608) (m/min)	20-30	60-65	30-35	
F_z (Ø6 – 8) (mm/z)	0.01-0.015	0.01-0.015	0.01-0.015	
F_z (Ø 10 -12) (mm/z)	0.03-0.045	0.03-0.045	0.03-0.045	
F_z (Ø 16 -20) (mm/z)	0.04-0.05	0.04-0.05	0.04-0.05	

SEMI-FINISH: AE = 10% - 40%, Ap = 2 x DC				
Material Group Parameters	**Hardened Steel**	**Chilled Cast Iron**	**Cast Iron**	
	38-39	**40**	**41**	
V_c (IC900/608) (m/min)	30-40	65-70	35-40	
F_z (Ø6 – 8) (mm/z)	0.015-0.035	0.015-0.035	0.015-0.035	
F_z (Ø 10 -12) (mm/z)	0.035-0.055	0.035-0.055	0.035-0.055	
F_z (Ø 16 -20) (mm/z)	0.045-0.06	0.045-0.06	0.045-0.06	

FINISH / H.S.M: AE = 5% - 10%, Ap = Max. Cutting Length				
Material Group Parameters	**Hardened Steel**	**Chilled Cast Iron**	**Cast Iron**	
	38-39	**40**	**41**	
V_c (IC900/608) (m/min)	40-50	70-80	40-50	
V_c (IC902/903/702) (m/min)	45-60	75-90	45-60	
F_z (Ø6 – 8) (mm/z)	0.02-0.04	0.02-0.04	0.02-0.04	
F_z (Ø 10 -12) (mm/z)	0.04-0.06	0.04-0.06	0.04-0.06	
F_z (Ø 16 -20) (mm/z)	0.05-0.07	0.05-0.07	0.05-0.07	

SOLIDMILL PREMIUM LINE

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Type	Helix Angle	Cutting Length	Workpiece Hardness HRc	No. of Flutes	Diameter Range	Remarks	Page	
EFS-E44	38º	2DC	<45	4	6-25		148	
ECK-H4M-CFR	different helix with variable pitch	2DC	Titanium	4	4-20		146	
ECK-H7/9-CFR	different helix with variable pitch	2DC	Titanium	7-9	6-20		147	
EFS-B44	45º	2DC	<55	4	4-25		149	
EC-H4S-CF	different helix with variable pitch	DC	<55	4	6-20		135	
EC-H4M-CF-E	different helix with variable pitch	2DC	<55	4	4-20		136	
EC-H4-L/M/XL/-CFR EC-H5M-CFR	different helix with variable pitch	-	<55	4	3-25		137-138 139	
ECP-H4L-CFR	different helix with variable pitch	2DC	<55	4	10-20		137	
EC-E7/H7-CF	different helix with variable pitch	2DC, 4DC	<55	7	2-20		141-142	
EC-H-CF	different helix with variable pitch	2DC	<55	6-20	6-20		152	
EC-E4L-CF EC-E4M-CF	38º helix with variable pitch	2DC	<45	4	1-25		151 150	
EC-E5L-CF	38º helix with variable pitch	2.5DC	<45	5	6-20		152	
EFP-E4,5CF	38º helix with variable pitch	2DC	<55	4-5	6-20	high feed at small D.O.C.	158	
ECR-B-X/L/M/S	45º	1-2DC	<55	4-7	5-20		153	
ECR-B-MF	45º	2DC	<65	4,6	6-25	excellent for hardened steel	149	
ECP-E-L	38º	2DC	<45	3,4	5-20	recommended for stainless steel	155	
ERF-A/E-3,4,6	30º, 38º	2DC	<55	3-6	4-25	fine pitch steel alloys	156	
ECR-T-M	20º	2DC	<55	4	6-20		157	

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Type	Helix Angle	Cutting Length	Workpiece Hardness HRc	No. of Flutes	Diameter Range	Remarks	Page	
EBRF-T	20º	2DC	<55	3,4	6-20		157	
EFF-S	0º	0.05DC	<65	4	1-20		158	
ETR-A2	30º	1DC	<45	2	2-10		159	
EC-A2 (economical Short/ Medium/extra Long)	30º	1-10DC	<45	2	1-20		161	
EC/ECC-A-2	30º	2-3.5DC	<45	2	2-20	reinforced	160	
ECS/ECCS-E-3	38º	1-1.5DC	<45	3	2-20		159	
EC-B3 (economical-Short/ Medium)	45º	1-2DC	<45	3	1.5-20		163	
EC-E-3	38º	1-2.5DC	<45	3	1-20		164	
ECC-E-3	38º	2-3.5DC	<45	3	2-20	reinforced	165	
ECU-E-3	38º	2DC	<45	3	2.8-19.7	undersized for keyholes	165	
ECU-E-3-R	38º	1.25DC	<45	3	3.8-11.7	undersized for keyholes with corner radii	166	
EC-B-3/3R	45º	2-3.5DC	<45	3	2-20		167	
EC-B-4/4R	45º	2-3.5DC	<45	4	2-20		168	
EC-A-4/4R	30º	2-3.5DC	<45	4	2-20		169	
EC-A4 (economical-Medium & Extra Long)	30º	2-10DC	<45	4	2-20		171	
ECC-A-4	30º	2-3.5DC	<45	4	2-20	reinforced	170	
EC-A2-M EC-A2-T	30º	1-1.5DC	<65	2	0.3-6		179-180 172-177	
EC-A2-R/H	30°	1.5DC	<65	2	0.1-12		177-178	

SOLIDMILL PREMIUM LINE

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Type	Helix Angle	Cutting Length	Workpiece Hardness HRc	No. of Flutes	Diameter Range	Remarks	Page	
EC-A2 (medium Length)	30º	2DC	<65	2	1-25		181	
EC-A4	30º	2-3DC	<65	4	2-25		182	
ECH-B-6	45º	2DC	<65	6	6-20	high temp. alloys	183	
ECL-B-4/6	45º	3-5DC	<45	4,6	6-20		183	
ECXL-B-4,6	45º	4-6DC	<45	4,6	10-20		184	
EC-D6	50º	2DC	<65	6	6-20		184	
EC-B6-H	45º	2DC	<65	6	6-20		185	
EC-B6	45º	4DC	<65	6	6-25		185	
EPN-F	15º	2-4DC	CFRP composites	9-12	3-12		193	
EPNC	15º	2-4DC	CFRP composites	10	8-12		194	
EPND	15º	2-4DC	CFRP composites	6-10	1.6-12		194	
EPX	15º	2DC	CFRP composites	6-8	6-12		195	
ECA-H3-CF	39-41° variable helix	2DC	aluminum	3	1-25		186-188	
ECA-H4-CF	different helix with variable pitch	1.5-2DC	aluminum	4	6-25		188	
ECAP-H3-CF	different helix with variable pitch	1.5-2DC	aluminum	3	10-25		189	
ERC-E-3	38º	2DC	aluminum	3	6-25		189	
ECR-B3-R	45º	1-3DC	aluminum	3	6-20		190	
ECR-B3-R-C	45º	DC	aluminum	3	8-25		190	

SOLIDMILL PREMIUM LINE

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Type	Helix Angle	Cutting Length	Workpiece Hardness HRc	No. of Flutes	Diameter Range	Remarks	Page	
ECA-B-2	45	2-3DC	Aluminum	2	4-20	high speed machining on aluminum	191	
ECA-B-3	45°	2-3DC	Aluminum	3	4-20	high speed machining on aluminum	192	
ECA-F-2	55°	2-5DC	Aluminum	2	4-25	high speed machining on aluminum	193	
EB-H-CF	different helix with variable pitch	2DC	<55	3-5	6-20		196	
EB-E4L-CF	38°	2DC	<45	4	3-16		197	
EB-A-2	30°	1-2DC	<45	2	2-20		197	
EB-A2 (stub Cut Length)	30°	1DC	<70	2	1-25	stub cut length	198	
EB-A2 (rib Processing)	30°	1.5DC	<65	2	0.4-6		203-204	
EB-A2-H (rib Processing)	30°	0.8-1DC	<65	2	0.1-4.0		202	
EB-A2 (long With Neck)	30°	2-3DC	<65	2	3-25	long overhang length	204	
EB-A2 (extra Long)	30°	2-3DC	<65	2	2-20	extra long overhang length	205	
EB-A2 (tapered Flute & Neck)	30°	2DC	<65	2	1-12	tapered neck	205	
EB-A2 (precision Stub Cut)	30°	1DC	<65	2	1-25	precision stub cut	206	
ESB-A2	30°	0.75DC	<65	2	3-16	long overhand length	207	
ESB-A4	30°	0.75DC	<65	4	5-16		207	
EBM-A-2	30°	2-3DC	<45	2	0.4-2	miniature	206	
EB-A2 (economical)	30°	2-3DC	<45	2	2-20		199	
EB-A2 (economical- Extra Long)	30°	3.5-10DC	<45	2	3-20		199	

SOLIDMILL PREMIUM LINE

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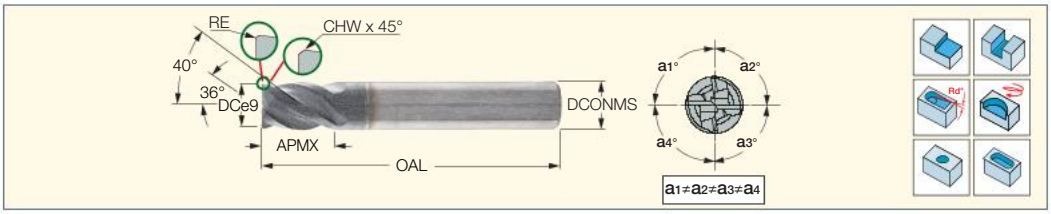
Type	Helix Angle	Cutting Length	Workpiece Hardness HRc	No. of Flutes	Diameter Range	Remarks	Page	
EB-A-3	30º	1.25DC	<45	3	1.6-12		200	
EB-A4 (economical-Short)	30º	1-2DC	<45	4	2-20		200	
EB-A-4 (short Length)	30º	1-1.5DC	<45	4	2-20		201	
EB-A-4 (medium Length)	30º	2-2.5DC	<45	4	3-20		201	
EBL-A-4	30º	2-3DC	<45	4	4-16		202	
ECF../45		1.5-2.5DC	<65	4	4-12		207	
ECD-S2	straight	-	-	2	3-12		208	
EOB		2.5-3D	<45	4	8-12	3d profiling	209	
ETB		1D	<45	4	8-12	3d profiling	210	
ELB		0.7D	<45	4,6	8-12	3d profiling	208	
ER-S4 R				4	6-12	for rounding corners	210	

CHATTERFREE SOLID MILL LINE

EC-H4S-CF

Short 4 Flute Endmills with Different Helix and Variable Pitch for Chatter Dampening



Designation	Dimensions										Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	RE	RMPX°(2)	Shank(3)	CHW	KCH	IC900	IC608	f_z (mm/t)
EC-H4S 06-06C06CF-E50	6.00	6.00	6.00	50.00	4	-	5.0	C	0.25	45.0	●	●	0.03-0.08
EC-H4S 06-06C06CFR.2E50	6.00	6.00	6.00	50.00	4	0.20	5.0	C	-	-	●	●	0.03-0.08
EC-H4S 06-06W06CF-E50	6.00	6.00	6.00	50.00	4	-	5.0	W	0.25	45.0	●	●	0.03-0.08
EC-H4S 08-08C08CF-E63	8.00	8.00	8.00	63.00	4	-	5.0	C	0.30	45.0	●	●	0.03-0.08
EC-H4S 08-08C08CFR.4E63	8.00	8.00	8.00	63.00	4	0.40	5.0	C	-	-	●	●	0.03-0.08
EC-H4S 08-08W08CF-E63	8.00	8.00	8.00	63.00	4	-	5.0	W	0.30	45.0	●	●	0.03-0.08
EC-H4S 10-10C10CF-E66	10.00	10.00	10.00	66.00	4	-	5.0	C	0.40	45.0	●	●	0.03-0.10
EC-H4S 10-10C10CFR.5E66	10.00	10.00	10.00	66.00	4	0.50	5.0	C	-	-	●	●	0.03-0.10
EC-H4S 10-10W10CF-E66	10.00	10.00	10.00	66.00	4	-	5.0	W	0.40	45.0	●	●	0.03-0.10
EC-H4S 12-12C12CF-E73	12.00	12.00	12.00	73.00	4	-	5.0	C	0.50	45.0	●	●	0.04-0.10
EC-H4S 12-12C12CFR.6E73	12.00	12.00	12.00	73.00	4	0.60	5.0	C	-	-	●	●	0.04-0.10
EC-H4S 12-12W12CF-E73	12.00	12.00	12.00	73.00	4	-	5.0	W	0.50	45.0	●	●	0.04-0.10
EC-H4S 16-16C16CF-E82	16.00	16.00	16.00	82.00	4	-	5.0	C	0.60	45.0	●	●	0.05-0.11
EC-H4S 16-16W16CF-E82	16.00	16.00	16.00	82.00	4	-	5.0	W	0.60	45.0	●	●	0.05-0.11
EC-H4S 20-20C20CF-E92	20.00	20.00	20.00	92.00	4	-	5.0	C	0.60	45.0	●	●	0.05-0.11
EC-H4S 20-20W20CF-E92	20.00	20.00	20.00	92.00	4	-	5.0	W	0.60	45.0	●	●	0.05-0.11

• For user guide, see pages 211-218

(1) Number of flutes

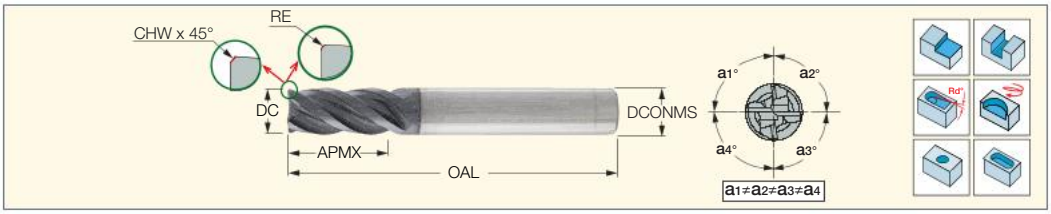
(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

CHATTERFREE SOLID MILL LINE

EC-H4M-CF-E

4 Flute Endmills with Different Helix and Variable Pitch for Chatter Dampening



Designation	Dimensions										IC900	Recommended Machining Data
	DC	DCONMS	APMX	RE	KCH	OAL	NOF(1)	RMPX°(2)	Shank(3)	CHW		f_z (mm/t)
EC-H4M 04-08C4CF-E50	4.00	4.00	8.00	-	45.0	50.00	4	5.0	C	0.15	●	0.03-0.05
EC-H4M 06-12C06CF-E57	6.00	6.00	12.00	-	45.0	57.00	4	5.0	C	0.25	●	0.03-0.07
EC-H4M 06-12C06CFR0.2-E57	6.00	6.00	12.00	0.20	-	57.00	4	5.0	C	-	●	0.03-0.07
EC-H4M 06-12C06CFR0.5-E57	6.00	6.00	12.00	0.50	-	57.00	4	5.0	C	-	●	0.03-0.07
EC-H4M 06-12C06CFR1-E57	6.00	6.00	12.00	1.00	-	57.00	4	5.0	C	-	●	0.03-0.07
EC-H4M 06-12W06CF-E57	6.00	6.00	12.00	-	45.0	57.00	4	5.0	W	0.25	●	0.03-0.07
EC-H4M 08-16C08CF-E63	8.00	8.00	16.00	-	45.0	63.00	4	5.0	C	0.30	●	0.03-0.09
EC-H4M 08-16C08CFR0.3-E63	8.00	8.00	16.00	0.30	-	63.00	4	5.0	C	-	●	0.03-0.09
EC-H4M 08-16C08CFR0.5-E63	8.00	8.00	16.00	0.50	-	63.00	4	5.0	C	-	●	0.03-0.09
EC-H4M 08-16C08CFR1.5-E63	8.00	8.00	16.00	1.50	-	63.00	4	5.0	C	-	●	0.03-0.09
EC-H4M 08-16C08CFR1-E63	8.00	8.00	16.00	1.00	-	63.00	4	5.0	C	-	●	0.03-0.09
EC-H4M 08-16W08CF-E63	8.00	8.00	16.00	-	45.0	63.00	4	5.0	W	0.30	●	0.03-0.09
EC-H4M 10-20C10CF-E72	10.00	10.00	20.00	-	45.0	72.00	4	5.0	C	0.40	●	0.03-0.09
EC-H4M 10-20C10CFR0.3-E72	10.00	10.00	20.00	0.30	-	72.00	4	5.0	C	-	●	0.03-0.09
EC-H4M 10-20C10CFR0.5-E72	10.00	10.00	20.00	0.50	-	72.00	4	5.0	C	-	●	0.03-0.09
EC-H4M 10-20C10CFR1.5-E72	10.00	10.00	20.00	1.50	-	72.00	4	5.0	C	-	●	0.03-0.09
EC-H4M 10-20C10CFR1-E72	10.00	10.00	20.00	1.00	-	72.00	4	5.0	C	-	●	0.03-0.09
EC-H4M 10-20W10CF-E72	10.00	10.00	20.00	-	45.0	72.00	4	5.0	W	0.40	●	0.03-0.09
EC-H4M 12-24C12CF-E83	12.00	12.00	24.00	-	45.0	83.00	4	5.0	C	0.50	●	0.04-0.10
EC-H4M 12-24C12CFR0.5-E83	12.00	12.00	24.00	0.50	-	83.00	4	5.0	C	-	●	0.04-0.10
EC-H4M 12-24C12CFR1.5-E83	12.00	12.00	24.00	1.50	-	83.00	4	5.0	C	-	●	0.04-0.10
EC-H4M 12-24C12CFR2-E83	12.00	12.00	24.00	2.00	-	83.00	4	5.0	C	-	●	0.04-0.10
EC-H4M 12-24C12CFR3-E83	12.00	12.00	24.00	3.00	-	83.00	4	5.0	C	-	●	0.04-0.10
EC-H4M 12-24W12CF-E83	12.00	12.00	24.00	-	45.0	83.00	4	5.0	W	0.50	●	0.04-0.10
EC-H4M 16-32C16CF-E92	16.00	16.00	32.00	-	45.0	92.00	4	5.0	C	0.60	●	0.05-0.11
EC-H4M 16-32C16CFR0.5-E92	16.00	16.00	32.00	0.50	-	92.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 16-32C16CFR1.5-E92	16.00	16.00	32.00	1.50	-	92.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 16-32C16CFR2-E92	16.00	16.00	32.00	2.00	-	92.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 16-32C16CFR3-E92	16.00	16.00	32.00	3.00	-	92.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 16-32C16CFR4-E92	16.00	16.00	32.00	4.00	-	92.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 16-32W16CF-E92	16.00	16.00	32.00	-	45.0	92.00	4	5.0	W	0.60	●	0.05-0.11
EC-H4M 20-40C20CF-E104	20.00	20.00	40.00	-	45.0	104.00	4	5.0	C	0.60	●	0.05-0.11
EC-H4M 20-40C20CFR0.5E104	20.00	20.00	40.00	0.50	-	104.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 20-40C20CFR1.5E104	20.00	20.00	40.00	1.50	-	104.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 20-40C20CFR2-E104	20.00	20.00	40.00	2.00	-	104.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 20-40C20CFR3-E104	20.00	20.00	40.00	3.00	-	104.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 20-40C20CFR5-E104	20.00	20.00	40.00	5.00	-	104.00	4	5.0	C	-	●	0.05-0.11
EC-H4M 20-40W20CF-E104	20.00	20.00	40.00	-	45.0	104.00	4	5.0	W	0.60	●	0.05-0.11

• For user guide, see pages 211-218

(1) Number of flutes

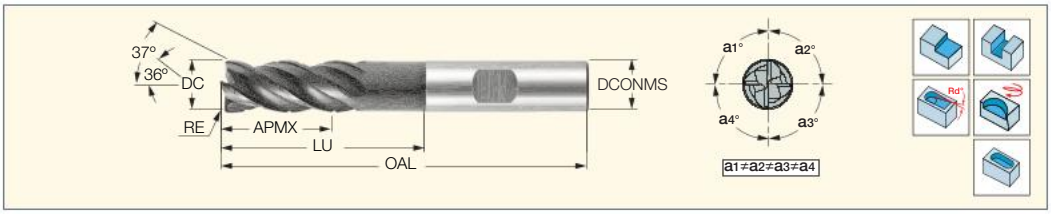
(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

CHATTERFREE SOLID MILL LINE

ECP-H4L-CFR

4 Flute Solid Carbide Endmills with Different Helix, Variable Pitch and Chip Splitting Cutting Edges for Roughing



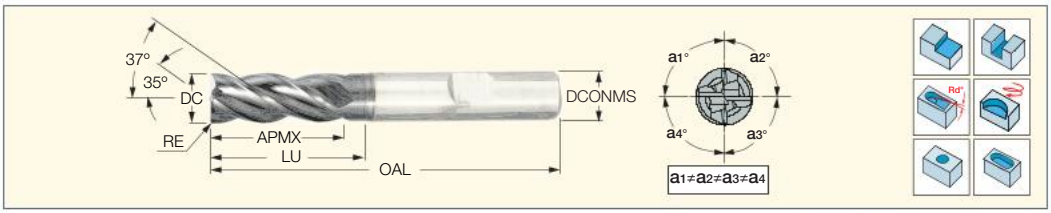
Designation	Dimensions									IC900
	DC	DCONMS	APMX	LU	OAL	NOF(1)	Shank(2)	RE	RMPX°(3)	
ECP-H4L 10-22/32W10CFR.5	10.00	10.00	22.00	32.0	72.00	4	W	0.50	5.0	●
ECP-H4L 10-22/40W10CFR.5	10.00	10.00	22.00	40.0	80.00	4	W	0.50	5.0	●
ECP-H4L 12-26/38W12CFR.5	12.00	12.00	26.00	38.0	83.00	4	W	0.50	5.0	●
ECP-H4L 12-26/50W12CFR.5	12.00	12.00	26.00	50.0	95.00	4	W	0.50	5.0	●
ECP-H4L 16-34/50W16CFR1	16.00	16.00	34.00	50.0	100.00	4	W	1.00	5.0	●
ECP-H4L 16-34/64W16CFR1	16.00	16.00	34.00	64.0	116.00	4	W	1.00	5.0	●
ECP-H4L 20-42/62W20CFR1	20.00	20.00	42.00	62.0	112.00	4	W	1.00	5.0	●
ECP-H4L 20-42/75W20CFR1	20.00	20.00	42.00	75.0	125.00	4	W	1.00	5.0	●

(1) Number of flutes
(2) C-Cylindrical, W-Weldon
(3) Maximum ramping angle

CHATTERFREE SOLID MILL LINE

EC-H4-L/M/XL-CFR

4 Flute Endmills with Different Helix and Variable Pitch for Chatter Dampening with Assorted Radii



Designation	Dimensions										Tough ↔ Hard IC900	Recommended Machining Data f_z (mm/t)
	DC	DCONMS	APMX	LU	OAL	NOF(1)	RE	RMPX°(2)	Shank(3)	CSP(4)		
EC-H4L 03-08/10C6CFR.2	3.00	6.00	8.00	10.00	52.00	4	0.20	5.0	C	0	●	0.03-0.06
EC-H4L 04-11/13C6CFR.2	4.00	6.00	11.00	13.00	52.00	4	0.20	5.0	C	0	●	0.03-0.06
EC-H4L 05-13/20C6CFR.2	5.00	6.00	13.00	20.00	57.00	4	0.20	5.0	C	0	●	0.03-0.06
EC-H4L 06-14/20C6CFR.2	6.00	6.00	14.00	20.00	52.00	4	0.20	5.0	C	0	●	0.03-0.06
EC-H4L 06-14/20C6CFR.2C	6.00	6.00	14.00	20.00	52.00	4	0.20	5.0	C	1	●	0.03-0.06
EC-H4L 06-14/25C6CFR.2	6.00	6.00	14.00	25.00	57.00	4	0.20	5.0	C	0	●	0.03-0.06
EC-H4L 06-14/25C6CFR.2C	6.00	6.00	14.00	25.00	57.00	4	0.20	5.0	C	1	●	0.03-0.06
EC-H4M 06-12C06CFR0.2-57	6.00	6.00	12.00	-	57.00	4	0.20	5.0	C	0	●	0.03-0.06
EC-H4M 06-12C06CFR0.5-57	6.00	6.00	12.00	-	57.00	4	0.50	5.0	C	0	●	0.03-0.06
EC-H4M 06-12W06CFR0.2-57	6.00	6.00	12.00	-	57.00	4	0.20	5.0	W	0	●	0.03-0.06
EC-H4XL 06-12/25C06CFR.2	6.00	6.00	12.00	25.00	61.00	4	0.20	5.0	C	0	●	0.03-0.06
EC-H4XL 06-12/25W06CFR.2	6.00	6.00	12.00	25.00	61.00	4	0.20	5.0	W	0	●	0.03-0.06
EC-H4L 08-18/26W8CFR.3	8.00	8.00	18.00	26.00	63.00	4	0.30	5.0	W	0	●	0.03-0.08
EC-H4L 08-18/26W8CFR.3C	8.00	8.00	18.00	26.00	63.00	4	0.30	5.0	W	1	●	0.03-0.08
EC-H4L 08-18/32W8CFR.3	8.00	8.00	18.00	32.00	63.00	4	0.30	5.0	W	0	●	0.03-0.08
EC-H4L 08-18/32W8CFR.3C	8.00	8.00	18.00	32.00	63.00	4	0.30	5.0	W	1	●	0.03-0.08
EC-H4M 08-16C08CFR0.4-63	8.00	8.00	16.00	-	63.00	4	0.40	5.0	C	0	●	0.03-0.08
EC-H4M 08-16C08CFR0.5-63	8.00	8.00	16.00	-	63.00	4	0.50	5.0	C	0	●	0.03-0.08
EC-H4M 08-16C08CFR1-63	8.00	8.00	16.00	-	63.00	4	1.00	5.0	C	0	●	0.03-0.08
EC-H4M 08-16W08CFR0.4-63	8.00	8.00	16.00	-	63.00	4	0.40	5.0	W	0	●	0.03-0.08
EC-H4M 08-16W08CFR1.5-63	8.00	8.00	16.00	-	63.00	4	1.50	5.0	W	0	●	0.03-0.08
EC-H4XL 08-16/32C08CFR.4	8.00	8.00	16.00	32.00	68.00	4	0.40	5.0	C	0	●	0.03-0.08
EC-H4XL 08-16/32W08CFR.4	8.00	8.00	16.00	32.00	68.00	4	0.40	5.0	W	0	●	0.03-0.08
EC-H4L 10-22/32W10CFR.5	10.00	10.00	22.00	32.00	72.00	4	0.50	5.0	W	0	●	0.03-0.09
EC-H4L 10-22/32W10CFR.5C	10.00	10.00	22.00	32.00	72.00	4	0.50	5.0	W	1	●	0.03-0.09
EC-H4L 10-22/40W10CFR.5	10.00	10.00	22.00	40.00	80.00	4	0.50	5.0	W	0	●	0.03-0.09
EC-H4L 10-22/40W10CFR.5C	10.00	10.00	22.00	40.00	80.00	4	0.50	5.0	W	1	●	0.03-0.09
EC-H4M 10-20C10CFR0.5-72	10.00	10.00	20.00	-	72.00	4	0.50	5.0	C	0	●	0.03-0.09

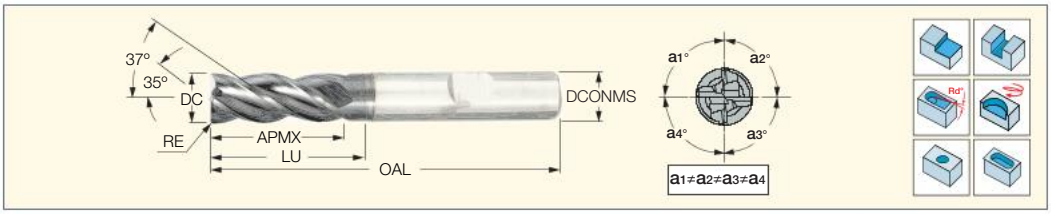
• For user guide, see pages 211-218
(1) Number of flutes
(2) Maximum ramping angle
(3) C-Cylindrical, W-Weldon

Continued

CHATTERFREE SOLID MILL LINE

EC-H4-L/M/XL-CFR

4 Flute Endmills with Different Helix and Variable Pitch for Chatter Dampening with Assorted Radii



Designation	Dimensions										Tough ↔ Hard	Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	NOF(1)	RE	RMPX°(2)	Shank(3)	CSP(4)	IC900	f_z (mm/t)
EC-H4M 10-20W10CFR0.5-72	10.00	10.00	20.00	-	72.00	4	0.50	5.0	W	0	●	0.03-0.09
EC-H4M 10-20W10CFR1.5-72	10.00	10.00	20.00	-	72.00	4	1.50	5.0	W	0	●	0.03-0.09
EC-H4M 10-20W10CFR1-72	10.00	10.00	20.00	-	72.00	4	1.00	5.0	W	0	●	0.03-0.09
EC-H4XL 10-20/40C10CFR.5	10.00	10.00	20.00	40.00	80.00	4	0.50	5.0	C	0	●	0.03-0.09
EC-H4XL 10-20/40W10CFR.5	10.00	10.00	20.00	40.00	80.00	4	0.50	5.0	W	0	●	0.03-0.09
EC-H4L 12-26/38W12CFR.5	12.00	12.00	26.00	38.00	83.00	4	0.50	5.0	W	0	●	0.04-0.10
EC-H4L 12-26/38W12CFR.5C	12.00	12.00	26.00	38.00	83.00	4	0.50	5.0	W	1	●	0.04-0.10
EC-H4L 12-26/50W12CFR.5	12.00	12.00	26.00	50.00	95.00	4	0.50	5.0	W	0	●	0.04-0.10
EC-H4L 12-26/50W12CFR.5C	12.00	12.00	26.00	50.00	95.00	4	0.50	5.0	W	1	●	0.04-0.10
EC-H4M 12-24C12CFR0.6-83	12.00	12.00	24.00	-	83.00	4	0.60	5.0	C	0	●	0.04-0.10
EC-H4M 12-24W12CFR0.6-83	12.00	12.00	24.00	-	83.00	4	0.60	5.0	W	0	●	0.04-0.10
EC-H4M 12-24W12CFR1.5-83	12.00	12.00	24.00	-	83.00	4	1.50	5.0	W	0	●	0.04-0.10
EC-H4M 12-24W12CFR1-83	12.00	12.00	24.00	-	83.00	4	1.00	5.0	W	0	●	0.04-0.10
EC-H4M 12-24W12CFR2-83	12.00	12.00	24.00	-	83.00	4	2.00	5.0	W	0	●	0.04-0.10
EC-H4M 12-24W12CFR3-83	12.00	12.00	24.00	-	83.00	4	3.00	5.0	W	0	●	0.04-0.10
EC-H4XL 12-24/50C12CFR.6	12.00	12.00	24.00	50.00	95.00	4	0.60	5.0	C	0	●	0.04-0.10
EC-H4XL 12-24/50W12CFR.6	12.00	12.00	24.00	50.00	95.00	4	0.60	5.0	W	0	●	0.04-0.10
EC-H4M 14-28C14CFR0.7-83	14.00	14.00	28.00	-	83.00	4	0.70	5.0	C	0	●	0.04-0.11
EC-H4M 14-28W14CFR0.7-83	14.00	14.00	28.00	-	83.00	4	0.70	5.0	W	0	●	0.04-0.11
EC-H4L 16-34/50W16CFR1	16.00	16.00	34.00	50.00	100.00	4	1.00	5.0	W	0	●	0.05-0.11
EC-H4L 16-34/50W16CFR1C	16.00	16.00	34.00	50.00	100.00	4	1.00	5.0	W	1	●	0.05-0.11
EC-H4L 16-34/64W16CFR1	16.00	16.00	34.00	64.00	116.00	4	1.00	5.0	W	0	●	0.05-0.11
EC-H4L 16-34/64W16CFR1C	16.00	16.00	34.00	64.00	116.00	4	1.00	5.0	W	1	●	0.05-0.11
EC-H4M 16-32C16CFR0.8-92	16.00	16.00	32.00	-	92.00	4	0.80	5.0	C	0	●	0.05-0.11
EC-H4M 16-32W16CFR0.5-92	16.00	16.00	32.00	-	92.00	4	0.50	5.0	W	0	●	0.05-0.11
EC-H4M 16-32W16CFR0.8-92	16.00	16.00	32.00	-	92.00	4	0.80	5.0	W	0	●	0.05-0.11
EC-H4M 16-32W16CFR1.5-92	16.00	16.00	32.00	-	92.00	4	1.50	5.0	W	0	●	0.05-0.11
EC-H4M 16-32W16CFR1-92	16.00	16.00	32.00	-	92.00	4	1.00	5.0	W	0	●	0.05-0.11
EC-H4M 16-32W16CFR2-92	16.00	16.00	32.00	-	92.00	4	2.00	5.0	W	0	●	0.05-0.11
EC-H4M 16-32W16CFR3-92	16.00	16.00	32.00	-	92.00	4	3.00	5.0	W	0	●	0.05-0.11
EC-H4M 16-32W16CFR4-92	16.00	16.00	32.00	-	92.00	4	4.00	5.0	W	0	●	0.05-0.11
EC-H4XL 16-32/64C16CFR.8	16.00	16.00	32.00	64.00	115.00	4	0.80	5.0	C	0	●	0.05-0.11
EC-H4XL 16-32/64W16CFR.8	16.00	16.00	32.00	64.00	115.00	4	0.80	5.0	W	0	●	0.05-0.11
EC-H4L 20-42/64W20CFR1	20.00	20.00	42.00	64.00	116.00	4	1.00	5.0	W	0	●	0.05-0.11
EC-H4L 20-42/64W20CFR1C	20.00	20.00	42.00	64.00	112.00	4	1.00	5.0	W	1	●	0.05-0.11
EC-H4L 20-42/75W20CFR1	20.00	20.00	42.00	75.00	125.00	4	1.00	5.0	W	0	●	0.05-0.11
EC-H4L 20-42/75W20CFR1C	20.00	20.00	42.00	75.00	125.00	4	1.00	5.0	W	1	●	0.05-0.11
EC-H4M 20-40C20CFR1.0-104	20.00	20.00	40.00	-	104.00	4	1.00	5.0	C	0	●	0.05-0.11
EC-H4M 20-40W20CFR1.0-104	20.00	20.00	40.00	-	104.00	4	1.00	5.0	W	0	●	0.05-0.11
EC-H4M 20-40W20CFR1.5-104	20.00	20.00	40.00	-	104.00	4	1.50	5.0	W	0	●	0.05-0.11
EC-H4M 20-40W20CFR3-104	20.00	20.00	40.00	-	104.00	4	3.00	5.0	W	0	●	0.05-0.11
EC-H4M 20-40W20CFR5-104	20.00	20.00	40.00	-	104.00	4	5.00	5.0	W	0	●	0.05-0.11
EC-H4XL 20-40/75C20CFR1.0	20.00	20.00	40.00	75.00	125.00	4	1.00	5.0	C	0	●	0.05-0.11
EC-H4XL 20-40/75W20CFR1.0	20.00	20.00	40.00	75.00	125.00	4	1.00	5.0	W	0	●	0.05-0.11
EC-H4M 25-50C25CFR1.2-121	25.00	25.00	50.00	-	121.00	4	1.20	5.0	C	0	●	0.06-0.11
EC-H4M 25-50W25CFR1.2-121	25.00	25.00	50.00	-	121.00	4	1.20	5.0	W	0	●	0.06-0.11

• For user guide, see pages 211-218

(1) Number of flutes

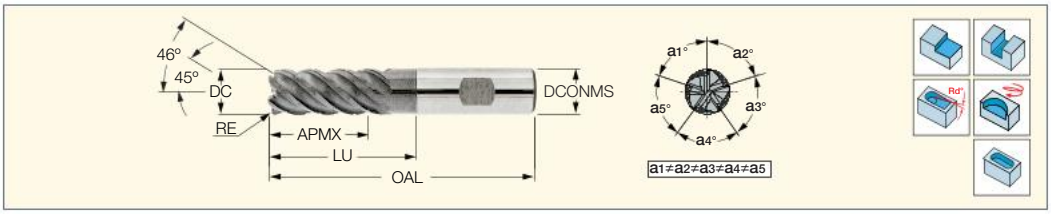
(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

CHATTERFREE SOLID MILL LINE

ECP-H5L-CFR

5 Flute Solid Carbide Endmills with Different Helix, Variable Pitch and Chip Splitting Cutting Edges for Roughing



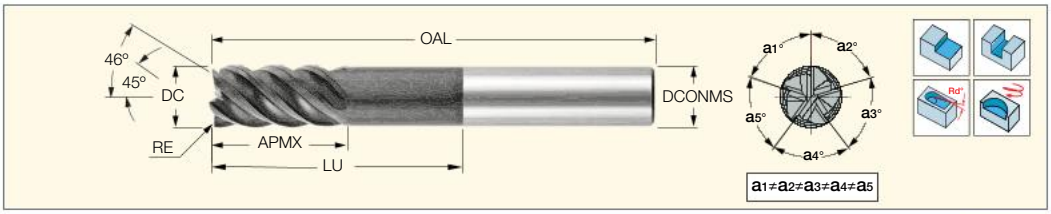
Designation	Dimensions DC	DCONMS	APMX	LU	OAL	NOF(1)	Shank	RE	RMPX°(2)	IC900	Recommended Machining Data f_z (mm/t)
ECP-H5L 08-18/26W08CFR.3	8.00	8.00	18.00	26.0	63.00	5	W	0.30	5.0	•	0.03-0.08
ECP-H5L 08-18/32W08CFR.3	8.00	8.00	18.00	32.0	68.00	5	W	0.30	5.0	•	0.03-0.08
ECP-H5L 10-22/32W10CFR.5	10.00	10.00	22.00	32.0	72.00	5	W	0.50	5.0	•	0.04-0.11
ECP-H5L 10-22/40W10CFR.5	10.00	10.00	22.00	40.0	80.00	5	W	0.50	5.0	•	0.04-0.11
ECP-H5L 12-26/38W12CFR.5	12.00	12.00	26.00	38.0	83.00	5	W	0.50	5.0	•	0.04-0.11
ECP-H5L 12-26/50W12CFR.5	12.00	12.00	26.00	50.0	95.00	5	W	0.50	5.0	•	0.04-0.11
ECP-H5L 16-34/50W16CFR1	16.00	16.00	34.00	50.0	100.00	5	W	1.00	5.0	•	0.05-0.17
ECP-H5L 16-34/64W16CFR1	16.00	16.00	34.00	64.0	116.00	5	W	1.00	5.0	•	0.05-0.17
ECP-H5L 20-42/62W20CFR1	20.00	20.00	42.00	62.0	112.00	5	W	1.00	5.0	•	0.05-0.17
ECP-H5L 20-42/75W20CFR1	20.00	20.00	42.00	75.0	125.00	5	W	1.00	5.0	•	0.05-0.17

(1) Number of flutes
(2) Maximum ramping angle

CHATTERFREE SOLID MILL LINE

EC-H5M-CFR

5 Flute Endmills with Different Helix and Variable Pitch for Chatter Dampening with Assorted Radius Dimensionsii



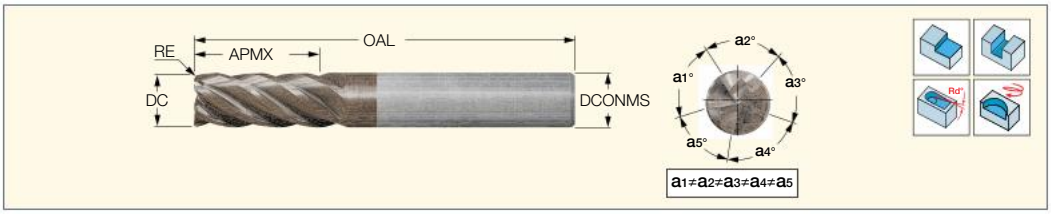
Designation	Dimensions DC	DCONMS	APMX	LU	OAL	NOF(1)	RE	RMPX°(2)	Shank(3)	CSP(4)	IC900
EC-H5M 04-09C06CFR0.2-57	4.00	6.00	9.00	12.00	57.00	5	0.20	2.0	C	0	•
EC-H5M 05-11C06CFR0.2-57	5.00	6.00	11.00	14.50	57.00	5	0.20	2.0	C	0	•
EC-H5M 06-10/25C06CFR.1	6.00	6.00	10.00	25.00	61.00	5	0.10	2.0	C	0	•
EC-H5M 06-10/25C06CFR.1C	6.00	6.00	10.00	25.00	61.00	5	0.10	2.0	C	1	•
EC-H5M 06-13/19C06CFR.1	6.00	6.00	13.00	19.00	55.00	5	0.10	2.0	C	0	•
EC-H5M 06-13/19C06CFR.1C	6.00	6.00	13.00	19.00	55.00	5	0.10	2.0	C	1	•
EC-H5M 08-13/33C08CFR.1	8.00	8.00	13.00	33.00	69.00	5	0.10	2.0	C	0	•
EC-H5M 08-13/33C08CFR.1C	8.00	8.00	13.00	33.00	69.00	5	0.10	2.0	C	1	•
EC-H5M 08-17/25C08CFR.1	8.00	8.00	17.00	25.00	61.00	5	0.10	2.0	C	0	•
EC-H5M 08-17/25C08CFR.1C	8.00	8.00	17.00	25.00	61.00	5	0.10	2.0	C	1	•
EC-H5M 10-17/42C10CFR.1	10.00	10.00	17.00	42.00	82.00	5	0.10	2.0	C	0	•
EC-H5M 10-17/42C10CFR.1C	10.00	10.00	17.00	42.00	82.00	5	0.10	2.0	C	1	•
EC-H5M 10-22/32C10CFR.1	10.00	10.00	22.00	32.00	72.00	5	0.10	2.0	C	0	•
EC-H5M 10-22/32C10CFR.1C	10.00	10.00	22.00	32.00	72.00	5	0.10	2.0	C	1	•
EC-H5M 12-20/50C12CFR.2	12.00	12.00	20.00	50.00	95.00	5	0.20	2.0	C	0	•
EC-H5M 12-20/50C12CFR.2C	12.00	12.00	20.00	50.00	95.00	5	0.20	2.0	C	1	•
EC-H5M 12-26/38C12CFR.2	12.00	12.00	26.00	38.00	83.00	5	0.20	2.0	C	0	•
EC-H5M 12-26/38C12CFR.2C	12.00	12.00	26.00	38.00	83.00	5	0.20	2.0	C	1	•
EC-H5M 16-26/66C16CFR.2	16.00	16.00	26.00	66.00	116.00	5	0.20	2.0	C	0	•
EC-H5M 16-26/66C16CFR.2C	16.00	16.00	26.00	66.00	114.00	5	0.20	2.0	C	1	•
EC-H5M 16-34/50C16CFR.2	16.00	16.00	34.00	50.00	98.00	5	0.20	2.0	C	0	•
EC-H5M 16-34/50C16CFR.2C	16.00	16.00	34.00	50.00	98.00	5	0.20	2.0	C	1	•
EC-H5M 20-32/82C20CFR.2	20.00	20.00	32.00	82.00	132.00	5	0.20	2.0	C	0	•
EC-H5M 20-32/82C20CFR.2C	20.00	20.00	32.00	82.00	132.00	5	0.20	2.0	C	1	•
EC-H5M 20-42/62C20CFR.2	20.00	20.00	42.00	62.00	112.00	5	0.20	2.0	C	0	•
EC-H5M 20-42/62C20CFR.2C	20.00	20.00	42.00	62.00	112.00	5	0.20	2.0	C	1	•

• For user guide, see pages 211-218
(1) Number of flutes
(2) Maximum ramping angle
(3) C-Cylindrical
(4) 0 - Without coolant supply, 1 - With coolant supply

CHATTERFREE SOL'D MILL LINE

ECY-S5-CFR

5 Flute Endmills with Different Helix for Milling Austenitic, Duplex, Cast and Precipitation Hardening Stainless Steels



Designation	Dimensions								IC608	Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	RE	RMPX°(2)	Shank		f_z (mm/t)
ECY-S5 05-11C06CFR.2-57	5.00	6.00	11.00	57.00	5	0.20	5.0	C	●	0.03-0.06
ECY-S5 06-13C06CFR.2-57	6.00	6.00	13.00	57.00	5	0.20	5.0	C	●	0.03-0.08
ECY-S5 08-19C08CFR.4-63 6	8.00	8.00	19.00	63.00	5	0.40	5.0	C	●	0.03-0.12
ECY-S5 10-22C10CFR.5-72 6	10.00	10.00	22.00	72.00	5	0.50	5.0	C	●	0.03-0.12
ECY-S5 12-26C12CFR.6-83 6	12.00	12.00	26.00	83.00	5	0.60	5.0	C	●	0.04-0.13
ECY-S5 16-32C16CFR.8-92 6	16.00	16.00	32.00	92.00	5	0.80	5.0	C	●	0.04-0.13

New

• For user guide, see pages 211-218

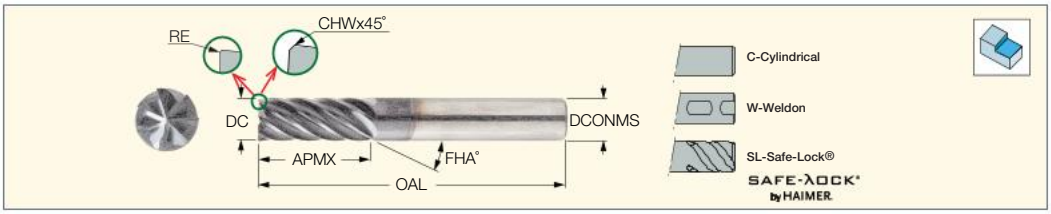
(1) Number of flutes

(2) Maximum ramping angle

CHATTERFREE SOLID MILL LINE

EC-E7/H7-CF

7 Flute Endmills with Different Helix and Variable Pitch for CHATTER-FREE High Speed Finish Milling



Designation	Dimensions												Tough ↔ Hard	Recommended Machining Data
	DC	DCONMS	APMX	OAL	Shank[2]	NOF[3]	FHA	RE	RETOL[4]	CHW	KCH	RMPX[5]	IC902	f_z (mm/t)
EC-E7 02-04C06CF-M57	2.00	6.00	4.00	57.00	C	7	38.0	-	-	0.05	45.0	3.0	•	0.01-0.02
EC-E7 03-06C06CF-M57	3.00	6.00	6.00	57.00	C	7	38.0	-	-	0.10	45.0	3.0	•	0.02-0.05
EC-E7 04-08C06CF-M57	4.00	6.00	8.00	57.00	C	7	38.0	-	-	0.10	45.0	3.0	•	0.02-0.05
EC-E7 05-10C06CF-M57	5.00	6.00	10.00	57.00	C	7	38.0	-	-	0.20	45.0	3.0	•	0.03-0.07
EC-H7 06-12C06CF-M57	6.00	6.00	12.00	57.00	C	7	37.0	0.00	-	-	-	3.0	•	0.03-0.07
EC-H7 06-12C06CFR.2M57	6.00	6.00	12.00	57.00	C	7	37.0	0.20	0.050	-	-	3.0	•	0.03-0.10
EC-H7 06-18C06CF-M65	6.00	6.00	18.00	65.00	C	7	37.0	-	-	0.20	45.0	3.0	•	0.03-0.07
EC-H7 06-24C06CF-70	6.00	6.00	24.00	70.00	C	7	37.0	-	-	0.20	45.0	3.0	•	0.03-0.07
EC-H7 06-36C06CF-90	6.00	6.00	36.00	90.00	C	7	37.0	-	-	0.20	45.0	3.0	•	0.03-0.07
EC-H7 08-16C08CF-M63	8.00	8.00	16.00	63.00	C	7	37.0	0.00	-	-	-	3.0	•	0.03-0.09
EC-H7 08-16C08CFR.4M63	8.00	8.00	16.00	63.00	C	7	37.0	0.40	0.050	-	-	3.0	•	0.04-0.12
EC-H7 08-24C08CF-M90	8.00	8.00	24.00	90.00	C	7	37.0	-	-	0.20	45.0	3.0	•	0.03-0.08
EC-H7 08-32C08CF-90	8.00	8.00	32.00	90.00	C	7	37.0	-	-	0.20	45.0	3.0	•	0.03-0.09
EC-H7 08-48C08CF-110	8.00	8.00	48.00	110.00	C	7	37.0	-	-	0.20	45.0	3.0	•	0.03-0.08
EC-H7 10-20C10CF-M72	10.00	10.00	20.00	72.00	C	7	37.0	0.00	-	-	-	3.0	•	0.03-0.10
EC-H7 10-20C10CFR.5M72	10.00	10.00	20.00	72.00	C	7	37.0	0.50	-	-	-	3.0	•	0.03-0.10
EC-H7 10-20C10CFR1.6-M72	10.00	10.00	20.00	72.00	C	7	37.0	1.60	0.050	-	-	3.0	•	0.03-0.10
EC-H7 10-20C10CFR2.0-M72	10.00	10.00	20.00	72.00	C	7	37.0	2.00	0.050	-	-	3.0	•	0.03-0.10
EC-H7 10-20C10CFR2.5-M72	10.00	10.00	20.00	72.00	C	7	37.0	2.50	0.050	-	-	3.0	•	0.03-0.10
EC-H7 10-20C10CFR3.0-M72	10.00	10.00	20.00	72.00	C	7	37.0	3.00	0.070	-	-	3.0	•	0.03-0.10
EC-H7 10-20W10CF-M72	10.00	10.00	20.00	72.00	W	7	37.0	0.00	-	-	-	3.0	•	0.03-0.10
EC-H7 10-30C10CF-M100	10.00	10.00	30.00	85.00	C	7	37.0	-	-	0.30	45.0	3.0	•	0.03-0.10
EC-H7 10-30C10CFR0.5-M85	10.00	10.00	30.00	85.00	C	7	37.0	0.50	0.050	-	-	3.0	•	0.03-0.10
EC-H7 10-30C10CFR1.6-M85	10.00	10.00	30.00	85.00	C	7	37.0	1.60	0.050	-	-	3.0	•	0.03-0.10
EC-H7 10-30C10CFR2.0-M85	10.00	10.00	30.00	85.00	C	7	37.0	2.00	0.050	-	-	3.0	•	0.03-0.10
EC-H7 10-30C10CFR2.5-M85	10.00	10.00	30.00	85.00	C	7	37.0	2.50	0.050	-	-	3.0	•	0.03-0.10
EC-H7 10-30C10CFR3.0-M85	10.00	10.00	30.00	85.00	C	7	37.0	3.00	0.070	-	-	3.0	•	0.03-0.10
EC-H7 10-40C10CF-100	10.00	10.00	40.00	100.00	C	7	37.0	-	-	0.30	45.0	3.0	•	0.03-0.10
EC-H7 10-40C10CFR0.5-M100	10.00	10.00	40.00	100.00	C	7	37.0	0.50	0.050	-	-	3.0	•	0.03-0.10
EC-H7 10-40C10CFR1.6-M100	10.00	10.00	40.00	100.00	C	7	37.0	1.60	0.070	-	-	3.0	•	0.03-0.10
EC-H7 10-40C10CFR2.0-M100	10.00	10.00	40.00	100.00	C	7	37.0	2.00	0.070	-	-	3.0	•	0.03-0.10
EC-H7 10-40C10CFR2.5-M100	10.00	10.00	40.00	100.00	C	7	37.0	2.50	0.070	-	-	3.0	•	0.03-0.10
EC-H7 10-40C10CFR3.0-M100	10.00	10.00	40.00	100.00	C	7	37.0	3.00	0.080	-	-	3.0	•	0.03-0.10
EC-H7 10-60C10CF-130	10.00	10.00	60.00	130.00	C	7	37.0	-	-	0.30	45.0	3.0	•	0.03-0.10
EC-H7 10-60C10CFR0.5-M130	10.00	10.00	60.00	130.00	C	7	37.0	0.50	0.050	-	-	3.0	•	0.03-0.10
EC-H7 10-60C10CFR1.0-M130	10.00	10.00	60.00	130.00	C	7	37.0	1.00	0.050	-	-	3.0	•	0.03-0.10
EC-H7 12-24C12CF-M83	12.00	12.00	24.00	83.00	C	7	37.0	0.00	-	-	-	3.0	•	0.04-0.11
EC-H7 12-24C12CFR.6M83	12.00	12.00	24.00	83.00	C	7	37.0	0.60	-	-	-	3.0	•	0.04-0.11
EC-H7 12-24C12CFR1.6-M83	12.00	12.00	24.00	83.00	C	7	37.0	1.60	-	-	-	3.0	•	0.04-0.11
EC-H7 12-24C12CFR2.0-M83	12.00	12.00	24.00	83.00	C	7	37.0	2.00	-	-	-	3.0	•	0.04-0.11
EC-H7 12-24C12CFR2.5-M83	12.00	12.00	24.00	83.00	C	7	37.0	2.50	-	-	-	3.0	•	0.04-0.11
EC-H7 12-24C12CFR3.0-M83	12.00	12.00	24.00	83.00	C	7	37.0	3.00	-	-	-	3.0	•	0.04-0.11
EC-H7 12-24SL12CF-M83 (1)	12.00	12.00	24.00	83.00	SL	7	37.0	0.00	-	-	-	3.0	•	0.04-0.12
EC-H7 12-24SL12CFR.6M83 (1)	12.00	12.00	24.00	83.00	SL	7	37.0	0.60	-	-	-	3.0	•	0.04-0.12
EC-H7 12-24W12CF-M83	12.00	12.00	24.00	83.00	W	7	37.0	0.00	-	-	-	3.0	•	0.04-0.12
EC-H7 12-36C12CF-M95	12.00	12.00	36.00	95.00	C	7	37.0	-	-	0.30	45.0	3.0	•	0.04-0.12
EC-H7 12-36C12CFR0.6-M95	12.00	12.00	36.00	95.00	C	7	37.0	0.60	0.050	-	-	3.0	•	0.04-0.11
EC-H7 12-36C12CFR1.6-M95	12.00	12.00	36.00	95.00	C	7	37.0	1.60	0.050	-	-	3.0	•	0.04-0.11
EC-H7 12-36C12CFR2.0-M95	12.00	12.00	36.00	95.00	C	7	37.0	2.00	0.050	-	-	3.0	•	0.04-0.11
EC-H7 12-36C12CFR2.5-M95	12.00	12.00	36.00	95.00	C	7	37.0	2.50	0.050	-	-	3.0	•	0.04-0.11
EC-H7 12-36C12CFR3.0-M95	12.00	12.00	36.00	95.00	C	7	37.0	3.00	0.070	-	-	3.0	•	0.04-0.11
EC-H7 12-36SL12CF-M95 (1)	12.00	12.00	36.00	95.00	SL	7	37.0	-	-	-	-	3.0	•	0.04-0.12
EC-H7 12-48C12CF-110	12.00	12.00	48.00	110.00	C	7	37.0	-	-	0.30	45.0	3.0	•	0.04-0.11
EC-H7 12-48C12CFR0.6-M110	12.00	12.00	48.00	110.00	C	7	37.0	0.60	0.050	-	-	3.0	•	0.04-0.11
EC-H7 12-48C12CFR1.6-M110	12.00	12.00	48.00	110.00	C	7	37.0	1.60	0.070	-	-	3.0	•	0.04-0.11

• Enables processing at a radial width of cut (AE) of up to 0.10xDC ,For user guide,see pages 211-218

(1) With Safe-Lock® (by Haimer) pull-out prevention helical grooves

(2) C-Cylindrical, W-Weldon, SL-Safe-Lock® (by Haimer)

(3) Number of flutes

(4) Corner radius tolerance (+/-)

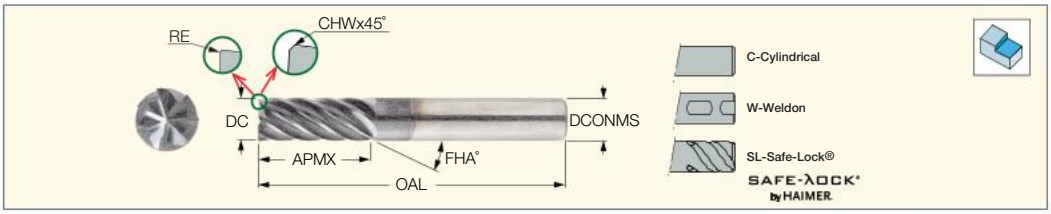
(5) Maximum ramping angle

Continued

CHATTERFREE SOLID MILL LINE

EC-E7/H7-CF

7 Flute Endmills with Different Helix and Variable Pitch for CHATTER-FREE High Speed Finish Milling



Designation	Dimensions												Tough ↔ Hard	Recommended Machining Data
	DC	DCONMS	APMX	OAL	Shank(2)	NOF(3)	FHA	RE	RETOL(4)	CHW	KCH	RMPX(5)	IC902	f_z (mm/t)
EC-H7 12-48C12CFR2.0-M110	12.00	12.00	48.00	110.00	C	7	37.0	2.00	0.070	-	-	3.0	•	0.04-0.11
EC-H7 12-48C12CFR2.5-M110	12.00	12.00	48.00	110.00	C	7	37.0	2.50	0.070	-	-	3.0	•	0.04-0.11
EC-H7 12-48C12CFR3.0-M110	12.00	12.00	48.00	110.00	C	7	37.0	3.00	0.080	-	-	3.0	•	0.04-0.11
EC-H7 12-48SL12CF-110 (1)	12.00	12.00	48.00	110.00	SL	7	37.0	-	-	0.30	45.0	3.0	•	0.04-0.12
EC-H7 12-72C12CF-140	12.00	12.00	72.00	140.00	C	7	37.0	-	-	0.30	45.0	3.0	•	0.04-0.12
EC-H7 12-72C12CFR1.0-M140	12.00	12.00	72.00	140.00	C	7	37.0	1.00	0.050	-	-	3.0	•	0.04-0.11
EC-H7 12-72SL12CF-140 (1)	12.00	12.00	72.00	140.00	SL	7	37.0	-	-	0.30	45.0	3.0	•	0.04-0.12
EC-H7 16-32C16CF-M92	16.00	16.00	32.00	92.00	C	7	37.0	0.00	-	-	-	3.0	•	0.05-0.13
EC-H7 16-32C16CFR.8M92	16.00	16.00	32.00	92.00	C	7	37.0	0.80	-	-	-	3.0	•	0.05-0.13
EC-H7 16-32C16CFR1.6-M92	16.00	16.00	32.00	92.00	C	7	37.0	1.60	-	-	-	3.0	•	0.04-0.12
EC-H7 16-32C16CFR2.0-M92	16.00	16.00	32.00	92.00	C	7	37.0	2.00	-	-	-	3.0	•	0.04-0.12
EC-H7 16-32C16CFR2.5-M92	16.00	16.00	32.00	92.00	C	7	37.0	2.50	-	-	-	3.0	•	0.04-0.12
EC-H7 16-32C16CFR3.0-M92	16.00	16.00	32.00	92.00	C	7	37.0	3.00	-	-	-	3.0	•	0.04-0.12
EC-H7 16-32C16CFR4.0-M92	16.00	16.00	32.00	92.00	C	7	37.0	4.00	-	-	-	3.0	•	0.04-0.12
EC-H7 16-32SL16CF-M92 (1)	16.00	16.00	32.00	92.00	SL	7	37.0	-	-	-	-	3.0	•	0.04-0.12
EC-H7 16-32SL16CFR.8M92 (1)	16.00	16.00	32.00	92.00	SL	7	37.0	0.80	-	-	-	3.0	•	0.04-0.12
EC-H7 16-32W16CF-M92	16.00	16.00	32.00	92.00	W	7	37.0	0.00	-	-	-	3.0	•	0.05-0.13
EC-H7 16-48C16CF-M110	16.00	16.00	48.00	110.00	C	7	37.0	-	-	0.30	45.0	3.0	•	0.05-0.13
EC-H7 16-48C16CFR0.8-M110	16.00	16.00	48.00	110.00	C	7	37.0	0.80	0.050	-	-	3.0	•	0.05-0.13
EC-H7 16-48C16CFR1.6-M110	16.00	16.00	48.00	110.00	C	7	37.0	1.60	0.050	-	-	3.0	•	0.05-0.13
EC-H7 16-48C16CFR2.0-M110	16.00	16.00	48.00	110.00	C	7	37.0	2.00	0.050	-	-	3.0	•	0.05-0.13
EC-H7 16-48C16CFR2.5-M110	16.00	16.00	48.00	110.00	C	7	37.0	2.50	0.050	-	-	3.0	•	0.05-0.13
EC-H7 16-48C16CFR3.0-M110	16.00	16.00	48.00	110.00	C	7	37.0	3.00	0.070	-	-	3.0	•	0.05-0.13
EC-H7 16-48C16CFR4.0-M110	16.00	16.00	48.00	110.00	C	7	37.0	4.00	0.070	-	-	3.0	•	0.05-0.13
EC-H7 16-48SL16CF-M110 (1)	16.00	16.00	48.00	110.00	SL	7	37.0	-	-	0.30	45.0	3.0	•	0.04-0.12
EC-H7 16-64C16CF-131	16.00	16.00	64.00	131.00	C	7	37.0	-	-	0.30	45.0	3.0	•	0.05-0.13
EC-H7 16-64C16CFR0.8-M131	16.00	16.00	64.00	131.00	C	7	37.0	0.80	0.050	-	-	3.0	•	0.05-0.13
EC-H7 16-64C16CFR1.6-M131	16.00	16.00	64.00	131.00	C	7	37.0	1.60	0.070	-	-	3.0	•	0.05-0.13
EC-H7 16-64C16CFR2.0-M131	16.00	16.00	64.00	131.00	C	7	37.0	2.00	0.070	-	-	3.0	•	0.05-0.13
EC-H7 16-64C16CFR2.5-M131	16.00	16.00	64.00	131.00	C	7	37.0	2.50	0.070	-	-	3.0	•	0.05-0.13
EC-H7 16-64C16CFR3.0-M131	16.00	16.00	64.00	131.00	C	7	37.0	3.00	0.080	-	-	3.0	•	0.05-0.13
EC-H7 16-64C16CFR4.0-M131	16.00	16.00	64.00	131.00	C	7	37.0	4.00	0.080	-	-	3.0	•	0.05-0.13
EC-H7 16-64SL16CF-131 (1)	16.00	16.00	64.00	131.00	SL	7	37.0	-	-	0.30	45.0	3.0	•	0.04-0.12
EC-H7 16-96C16CF-175	16.00	16.00	96.00	175.00	C	7	37.0	-	-	0.30	45.0	3.0	•	0.05-0.13
EC-H7 16-96C16CFR1.0M175	16.00	16.00	96.00	175.00	C	7	37.0	1.00	0.050	-	-	3.0	•	0.05-0.13
EC-H7 16-96SL16CF-175 (1)	16.00	16.00	96.00	175.00	SL	7	37.0	-	-	0.30	45.0	3.0	•	0.04-0.12
EC-H7 20-40C20CF-M104	20.00	20.00	40.00	104.00	C	7	37.0	0.00	-	-	-	3.0	•	0.05-0.13
EC-H7 20-40C20CFR1.6-M104	20.00	20.00	40.00	104.00	C	7	37.0	1.60	0.060	-	-	3.0	•	0.05-0.13
EC-H7 20-40C20CFR1M104	20.00	20.00	40.00	104.00	C	7	37.0	1.00	-	-	-	3.0	•	0.05-0.13
EC-H7 20-40C20CFR2.0-M104	20.00	20.00	40.00	104.00	C	7	37.0	2.00	0.060	-	-	3.0	•	0.05-0.13
EC-H7 20-40C20CFR2.5-M104	20.00	20.00	40.00	104.00	C	7	37.0	2.50	0.060	-	-	3.0	•	0.05-0.13
EC-H7 20-40C20CFR3.0-M104	20.00	20.00	40.00	104.00	C	7	37.0	3.00	0.060	-	-	3.0	•	0.05-0.13
EC-H7 20-40C20CFR4.0-M104	20.00	20.00	40.00	104.00	C	7	37.0	4.00	0.080	-	-	3.0	•	0.05-0.13
EC-H7 20-40SL20CF-M104 (1)	20.00	20.00	40.00	104.00	SL	7	37.0	0.00	-	-	-	3.0	•	0.04-0.12
EC-H7 20-40SL20CFR1M104 (1)	20.00	20.00	40.00	104.00	SL	7	37.0	1.00	-	-	-	3.0	•	0.05-0.15
EC-H7 20-40W20CF-M104	20.00	20.00	40.00	104.00	W	7	37.0	0.00	-	-	-	3.0	•	0.05-0.13
EC-H7 20-60C20CF-M140	20.00	20.00	60.00	140.00	C	7	37.0	-	-	0.40	45.0	3.0	•	0.05-0.13
EC-H7 20-60C20CFR1.0-M140	20.00	20.00	60.00	140.00	C	7	37.0	1.00	0.060	-	-	3.0	•	0.05-0.13
EC-H7 20-60C20CFR2.0-M140	20.00	20.00	60.00	140.00	C	7	37.0	2.00	0.060	-	-	3.0	•	0.05-0.13
EC-H7 20-60C20CFR2.5-M140	20.00	20.00	60.00	140.00	C	7	37.0	2.50	0.060	-	-	3.0	•	0.05-0.13
EC-H7 20-60C20CFR3.0-M140	20.00	20.00	60.00	140.00	C	7	37.0	3.00	0.060	-	-	3.0	•	0.05-0.13
EC-H7 20-60C20CFR4.0-M140	20.00	20.00	60.00	140.00	C	7	37.0	4.00	0.080	-	-	3.0	•	0.05-0.13
EC-H7 20-60SL20CF-M140 (1)	20.00	20.00	60.00	140.00	SL	7	37.0	-	-	0.40	45.0	3.0	•	0.05-0.15
EC-H7 20-80C20CF-140	20.00	20.00	80.00	140.00	C	7	37.0	-	-	0.40	45.0	3.0	•	0.05-0.13
EC-H7 20-80C20CFR1.0-M140	20.00	20.00	80.00	140.00	C	7	37.0	1.00	0.060	-	-	3.0	•	0.05-0.13

• Enables processing at a radial width of cut (AE) of up to 0.10xDC ,For user guide,see pages 211-218

(1) With Safe-Lock® (by Haimer) pull-out prevention helical grooves

(2) C-Cylindrical, W-Weldon, SL-Safe-Lock® (by Haimer)

(3) Number of flutes

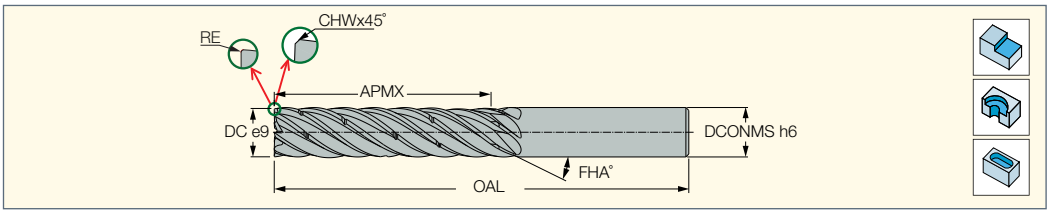
(4) Corner radius tolerance (+/-)

(5) Maximum ramping angle

CHATTERFREE SOLID MILL LINE

ECP-H7-CF

7 Flute Solid Carbide Endmills with Different Helix, Variable Pitch and Chip Splitting Cutting Edges



Designation	Dimensions											Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RE	RETOL(3)	CHW	KCH	IC900	IC902	f_z (mm/t)
ECP-H7 06-18C06CF-65	6.00	6.00	18.00	65.00	7	36.0	C	-	-	0.20	45.0		●	0.02-0.07
ECP-H7 06-18W06CF-65	6.00	6.00	18.00	65.00	7	36.0	W	-	-	0.20	45.0		●	0.02-0.07
ECP-H7 06-24C06CF-70	6.00	6.00	24.00	70.00	7	36.0	C	-	-	0.20	45.0		●	0.02-0.07
ECP-H7 06-24W06CF-70	6.00	6.00	24.00	70.00	7	36.0	W	-	-	0.20	45.0		●	0.02-0.07
ECP-H7 06-36C06CF-90	6.00	6.00	36.00	90.00	7	36.0	C	-	-	0.20	45.0		●	0.02-0.07
ECP-H7 06-36W06CF-90	6.00	6.00	36.00	90.00	7	36.0	W	-	-	0.20	45.0		●	0.02-0.07
ECP-H7 08-24C08CF-90	8.00	8.00	24.00	90.00	7	36.0	C	-	-	0.20	45.0		●	0.02-0.08
ECP-H7 08-24W08CF-90	8.00	8.00	24.00	90.00	7	36.0	W	-	-	0.20	45.0		●	0.02-0.08
ECP-H7 08-32C08CF-90	8.00	8.00	32.00	90.00	7	36.0	C	-	-	0.20	45.0		●	0.02-0.09
ECP-H7 08-32W08CF-90	8.00	8.00	32.00	90.00	7	36.0	W	-	-	0.20	45.0		●	0.02-0.09
ECP-H7 08-48C08CF-110	8.00	8.00	48.00	110.00	7	36.0	C	-	-	0.20	45.0		●	0.02-0.08
ECP-H7 10-30C10CF-85	10.00	10.00	30.00	85.00	7	36.0	C	-	-	0.30	45.0		●	0.02-0.10
ECP-H7 10-30C10CFR0.5-85	10.00	10.00	30.00	85.00	7	36.0	C	0.50	0.050	-	-		●	0.02-0.10
ECP-H7 10-30W10CFR0.5-85	10.00	10.00	30.00	85.00	7	36.0	W	0.50	0.050	-	-		●	0.02-0.10
ECP-H7 10-30C10CFR1.6-85	10.00	10.00	30.00	85.00	7	36.0	C	1.60	0.050	-	-		●	0.02-0.10
ECP-H7 10-30C10CFR2.0-85	10.00	10.00	30.00	85.00	7	36.0	C	2.00	0.080	-	-		●	0.02-0.10
ECP-H7 10-30C10CFR2.5-85	10.00	10.00	30.00	85.00	7	36.0	C	2.50	0.080	-	-		●	0.02-0.10
ECP-H7 10-30C10CFR3.0-85	10.00	10.00	30.00	85.00	7	36.0	C	3.00	0.080	-	-		●	0.02-0.10
ECP-H7 10-40C10CF-100	10.00	10.00	40.00	100.00	7	36.0	C	-	-	0.30	45.0		●	0.02-0.10
ECP-H7 10-40C10CFR0.5-100	10.00	10.00	40.00	100.00	7	36.0	C	0.50	0.050	-	-		●	0.02-0.10
ECP-H7 10-40W10CFR0.5-100	10.00	10.00	40.00	100.00	7	36.0	W	0.50	0.050	-	-		●	0.02-0.10
ECP-H7 10-40C10CFR1.6-100	10.00	10.00	40.00	100.00	7	36.0	C	1.60	0.050	-	-		●	0.02-0.10
ECP-H7 10-40C10CFR2.0-100	10.00	10.00	40.00	100.00	7	36.0	C	2.00	0.080	-	-		●	0.02-0.10
ECP-H7 10-40C10CFR2.5-100	10.00	10.00	40.00	100.00	7	36.0	C	2.50	0.080	-	-		●	0.02-0.10
ECP-H7 10-40C10CFR3.0-100	10.00	10.00	40.00	100.00	7	36.0	C	3.00	0.080	-	-		●	0.02-0.10
ECP-H7 10-60C10CF-130	10.00	10.00	60.00	130.00	7	36.0	C	-	-	0.30	45.0		●	0.02-0.10
ECP-H7 10-60C10CFR0.5-130	10.00	10.00	60.00	130.00	7	36.0	C	0.50	0.050	-	-		●	0.04-0.12
ECP-H7 10-60C10CFR1.0-130	10.00	10.00	60.00	130.00	7	36.0	C	1.00	0.050	-	-		●	0.05-0.13
ECP-H7 12-36C12CF-95	12.00	12.00	36.00	95.00	7	36.0	C	-	-	0.30	45.0		●	0.04-0.12
ECP-H7 12-36C12CFR0.6-95	12.00	12.00	36.00	95.00	7	36.0	C	0.60	0.050	-	-		●	0.05-0.13
ECP-H7 12-36W12CFR0.6-95	12.00	12.00	36.00	95.00	7	36.0	W	0.60	0.050	-	-		●	0.05-0.05
ECP-H7 12-36C12CFR1.6-95	12.00	12.00	36.00	95.00	7	36.0	C	1.60	0.070	-	-		●	0.05-0.13
ECP-H7 12-36C12CFR2.0-95	12.00	12.00	36.00	95.00	7	36.0	C	2.00	0.050	-	-		●	0.05-0.13
ECP-H7 12-36C12CFR2.5-95	12.00	12.00	36.00	95.00	7	36.0	C	2.50	0.050	-	-		●	0.05-0.13
ECP-H7 12-36C12CFR3.0-95	12.00	12.00	36.00	95.00	7	36.0	C	3.00	0.070	-	-		●	0.05-0.13
ECP-H7 12-36C12CFR4.0-95	12.00	12.00	36.00	110.00	7	36.0	C	4.00	0.080	-	-		●	0.05-0.13
ECP-H7 12-48C12CF-110	12.00	12.00	48.00	110.00	7	36.0	C	-	-	0.30	45.0		●	0.04-0.11
ECP-H7 12-48C12CFR0.6-110	12.00	12.00	48.00	110.00	7	36.0	C	0.60	0.050	-	-		●	0.05-0.13
ECP-H7 12-48W12CFR0.6-110	12.00	12.00	48.00	110.00	7	36.0	W	0.60	0.050	-	-		●	0.05-0.13
ECP-H7 12-48C12CFR1.6-110	12.00	12.00	48.00	110.00	7	36.0	C	1.60	0.070	-	-		●	0.05-0.13
ECP-H7 12-48C12CFR2.0-110	12.00	12.00	48.00	110.00	7	36.0	C	2.00	0.060	-	-		●	0.05-0.13
ECP-H7 12-48C12CFR2.5-110	12.00	12.00	48.00	110.00	7	36.0	C	2.50	0.050	-	-		●	0.05-0.13
ECP-H7 12-48C12CFR3.0-110	12.00	12.00	48.00	110.00	7	36.0	C	3.00	0.070	-	-		●	0.05-0.13
ECP-H7 12-48C12CFR4.0-110	12.00	12.00	48.00	110.00	7	36.0	C	4.00	0.080	-	-		●	0.05-0.13
ECP-H7 12-72C12CF-140	12.00	12.00	72.00	140.00	7	36.0	C	-	-	0.30	45.0		●	0.04-0.12
ECP-H7 12-72C12CFR1.0-140	12.00	12.00	72.00	140.00	7	36.0	C	1.00	0.050	-	-		●	0.05-0.13
ECP-H6 16-32W16CFR0.8	16.00	16.00	32.00	92.00	6	-	W	0.80	0.050	-	-	●		0.05-0.13
ECP-H7 16-48C16CF-110	16.00	16.00	48.00	110.00	7	36.0	C	-	-	0.30	45.0		●	0.05-0.13
ECP-H7 16-48C16CFR0.8-110	16.00	16.00	48.00	110.00	7	36.0	C	0.80	0.050	-	-		●	0.05-0.13
ECP-H7 16-48C16CFR1.6-110	16.00	16.00	48.00	110.00	7	36.0	C	1.60	0.050	-	-		●	0.05-0.13
ECP-H7 16-48C16CFR2.0-110	16.00	16.00	48.00	110.00	7	36.0	C	2.00	0.050	-	-		●	0.05-0.13
ECP-H7 16-48C16CFR2.5-110	16.00	16.00	48.00	110.00	7	36.0	C	2.50	0.050	-	-		●	0.05-0.13
ECP-H7 16-48C16CFR3.0-110	16.00	16.00	48.00	110.00	7	36.0	C	3.00	0.070	-	-		●	0.05-0.13
ECP-H7 16-48C16CFR4.0-110	16.00	16.00	48.00	110.00	7	36.0	C	4.00	0.070	-	-		●	0.05-0.13
ECP-H7 16-64C16CF-131	16.00	16.00	64.00	131.00	7	36.0	C	-	-	0.30	45.0		●	0.05-0.13
ECP-H7 16-64C16CFR0.8-131	16.00	16.00	64.00	131.00	7	36.0	C	0.80	0.050	-	-		●	0.05-0.13
ECP-H7 16-64W16CFR0.8-131	16.00	16.00	64.00	131.00	7	36.0	W	0.80	0.050	-	-		●	0.05-0.13
ECP-H7 16-96C16CF-175	16.00	16.00	96.00	175.00	7	36.0	C	-	-	0.30	45.0		●	0.05-0.13

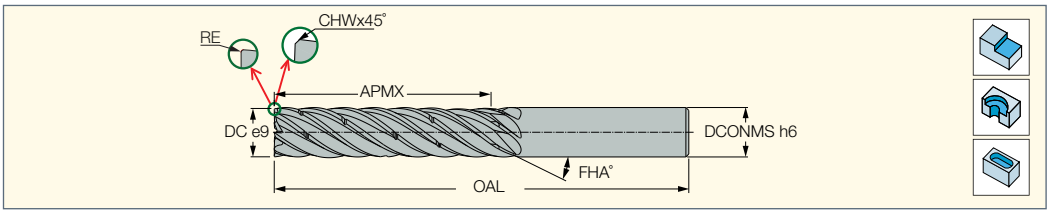
(1) Number of flutes
(2) C-Cylindrical, W-Weldon
(3) Corner radius tolerance (+/-)

Continued

CHATTERFREE SOLID MILL LINE

ECP-H7-CF

7 Flute Solid Carbide Endmills with Different Helix, Variable Pitch and Chip Splitting Cutting Edges



Designation	Dimensions											Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RE	RETOL(3)	CHW	KCH	IC900	IC902	f_z (mm/t)
ECP-H7 16-96C16CFR1.0-175	16.00	16.00	96.00	175.00	7	36.0	C	1.00	0.050	-	-		●	0.05-0.13
ECP-H7 20-40C20CFR1.0	20.00	20.00	40.00	104.00	7	36.0	C	1.00	0.050	-	-	●		0.07-0.20
ECP-H7 20-40W20CFR1.0	20.00	20.00	40.00	104.00	7	36.0	W	1.00	0.050	-	-	●		0.07-0.20
ECP-H7 20-60C20CF-140	20.00	20.00	60.00	140.00	7	36.0	C	-	-	0.40	45.0		●	0.07-0.20
ECP-H7 20-60C20CFR1.0-140	20.00	20.00	60.00	140.00	7	36.0	C	1.00	0.050	-	-		●	0.07-0.20
ECP-H7 20-60W20CFR1.0-140	20.00	20.00	60.00	140.00	7	36.0	W	1.00	0.050	-	-		●	0.07-0.20
ECP-H7 20-60C20CFR2.0-140	20.00	20.00	60.00	140.00	7	36.0	C	2.00	0.050	-	-		●	0.07-0.20
ECP-H7 20-60C20CFR2.5-140	20.00	20.00	60.00	140.00	7	36.0	C	2.50	0.050	-	-		●	0.07-0.20
ECP-H7 20-60C20CFR3.0-140	20.00	20.00	60.00	140.00	7	36.0	C	3.00	0.050	-	-		●	0.07-0.20
ECP-H7 20-60C20CFR4.0-140	20.00	20.00	60.00	140.00	7	36.0	C	4.00	0.080	-	-		●	0.07-0.20
ECP-H7 20-80C20CF-140	20.00	20.00	80.00	140.00	7	36.0	C	-	-	0.40	45.0		●	0.05-0.20
ECP-H7 20-80W20CFR1.0-140	20.00	20.00	80.00	140.00	7	36.0	W	1.00	0.050	-	-		●	0.05-0.20

(1) Number of flutes

(2) C-Cylindrical, W-Weldon

(3) Corner radius tolerance (+/-)

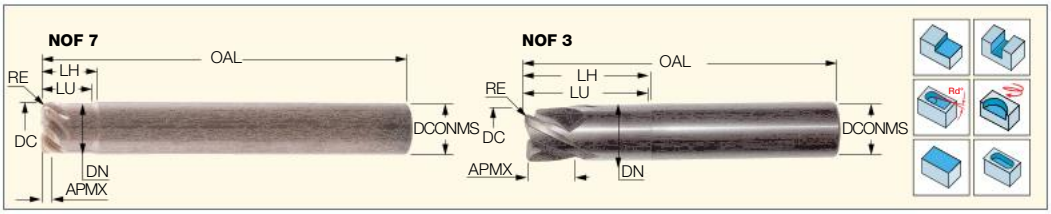
Table - Average Cutting Data for ECP-H7...

ISO class DIN/ ISO 513	Material		Condition	Hardness HB	Material Group No.	Typical Materials		Cutting Speed v_c [m/min]	f_z [mm/tooth]		Coolant
						AISI/SAE/ ASTM	DIN W.-Nr.		Starting	Range	
P	non-alloy steel and cast steel, free cutting steel	<0.25% C	annealed	125	1	1020	1.1151	210-300	0.12	0.05-0.2	dry
		≥0.25% C	annealed	190	2	1040	1.0511	200-280	0.12	0.05-0.2	
		<0.55% C	quenched and tempered	250	3	1040	1.1186	200-260	0.1	0.05-0.2	
		≥0.55% C	annealed	220	4	1060	1.0601	180-250	0.1	0.05-0.2	
			quenched and tempered	300	5	E 360	1.0070	180-240	0.1	0.05-0.2	
	low alloy and cast steel (less than 5% of alloying elements)		annealed	200	6	5120	1.0841	170-240	0.1	0.05-0.2	
			quenched and tempered	275	7	4340	1.6565	160-230	0.1	0.05-0.2	
				300	8	6150	1.8159	150-230	0.1	0.05-0.2	
				350	9		1.4882	140-220	0.1	0.05-0.2	
	high alloyed steel, cast steel and tool steel		annealed	200	10	H13	1.2344	120-210	0.08	0.05-0.2	
			quenched and tempered	325	11	T15	1.3243	110-170	0.08	0.05-0.2	
	stainless steel and cast steel		ferritic/martensitic	200	12	420	1.4028	150-230	0.08	0.03-0.16	dry / wet
			martensitic	240	13	430	1.4021	140-220	0.08	0.03-0.16	
M	stainless steel and cast steel		austenitic, duplex	180	14	304L	1.4306	100-160	0.06	0.03-0.16	wet
K	gray cast iron (GG)		ferritic / pearlitic	180	15	CLASS25	0.6015	150-250	0.1	0.03-0.16	dry
			pearlitic / martensitic	260	16	CLASS45	0.6030	120-200	0.1	0.03-0.16	
	nodular cast iron (GGG)		ferritic	160	17	80-55-06	0.7050	150-300	0.08	0.03-0.16	
			pearlitic	250	18	100/70/03	0.7070	100-250	0.08	0.03-0.16	
	malleable cast iron		ferritic	130	19	32510	0.8135	150-300	0.08	0.03-0.16	
			pearlitic	230	20	90001	0.8170	100-220	0.08	0.03-0.16	
S	high temperature alloys	Fe based	annealed	200	31	330	1.4864	50-60	0.08	0.02-0.16	wet
			hardened	280	32		1.4977	40-50	0.03	0.02-0.16	
		Ni or Co based	annealed	250	33	Inconel 625	2.4856	35-50	0.04	0.02-0.16	
			hardened	350	34	Inconel 718	2.4668	25-35	0.03	0.02-0.16	
			cast	320	35	Inconel X-750	2.4669	30-40	0.03	0.02-0.16	
	titanium alloys		pure	HRC 30-32	36	AMS 5397	2.4674	65-110	0.1	0.02-0.16	
			alpha+beta alloys, hardened	HRC 30-32	37	AMS R56400	3.7165	35-70	0.08	0.02-0.16	
H	hardened steel		hardened	HRC 45-49	38.1	4340	1.6565	55-75	0.03	0.02-0.16	dry
			hardened	HRC 50-55	38.2	P20	1.2330	55-75	---	---	

SOLIDMILL CERAMIC ENDMILL

EC-E3/E7-CE (CER)

3 and 7 Flute Solid Ceramic Endmills with Relieved Necks for Machining Nickel Based Alloys,Cast Iron and Graphite



Designation	Dimensions DC	APMX	LU	LH	DN	RE(1)	NOF(2)	DCONMS	RMPX°(3)	OAL	Shank(4)	Tough ↔ Hard IS35	IS6	Recommended Machining Data f_z (mm/t)
EC-E3 06-06/15C06R.4N50CE	6.00	6.00	14.50	15.0	5.50	0.42	3	6.00	3.0	50.00	C	●		0.02-0.03
EC-E3 08-08/20C08R.5N57CE	8.00	8.00	19.50	20.0	7.50	0.56	3	8.00	3.0	57.00	C	●		0.02-0.03
EC-E3 10-10/25C10R.7N65CE	10.00	10.00	24.50	25.0	9.50	0.70	3	10.00	3.0	65.00	C	●		0.02-0.03
EC-E3 12-12/30C12R1.N72CE	12.00	12.00	29.50	30.0	11.50	1.10	3	12.00	3.0	72.00	C	●		0.02-0.03
EC-E3 16-16/35C16R2.N83CE	16.00	16.00	34.50	35.0	15.50	1.90	3	16.00	3.0	83.00	C	●		0.02-0.04
EC-E7 08-02C08R1.0N63CE	8.00	0.40	8.00	9.5	7.50	1.00	7	8.00	3.0	63.00	C		●	0.02-0.03
EC-E7 10-02C10R1.5N72CE	10.00	0.70	10.00	11.5	9.50	1.50	7	10.00	3.0	72.00	C		●	0.02-0.03
EC-E7 12-02C12R1.5N83CE	12.00	1.30	10.00	12.0	11.50	1.50	7	12.00	3.0	83.00	C		●	0.02-0.03

• Recommended cutting speed on high temperature nickel-based superalloys: 250-1000 m/min • Maximum width of cut for the 3 flute cutters is 0.1xDC • Maximum width of cut for the 7 flute cutters is DC • Only air coolant should be used

(1) Programming radius

(2) Number of flutes

(3) Maximum ramping angle

(4) C-Cylindrical

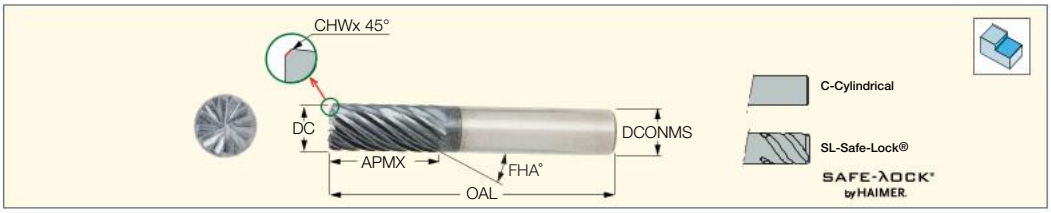
P	M	K	N(K)	S(M)	H(P/K)
		+	+	+	

+ recommended

CHATTERFREE SOLID MILL LINE

EC-H-CF

6-20 Flute Endmills with Different Helix and Variable Pitch for CHATTER-FREE High Speed Finish Milling



Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(2)	FHA	Shank(3)	CHW	KCH	IC902	Recommended Machining Data f_z (mm/t)
EC-H6 06-12C06CF-H57	6.00	6.00	12.00	57.00	6	45.0	C	0.20	45.0	●	0.03-0.07
EC-H8 08-16C08CF-H63	8.00	8.00	16.00	63.00	8	45.0	C	0.20	45.0	●	0.03-0.09
EC-H10 10-20C10CF-H72	10.00	10.00	20.00	72.00	10	35.0	C	0.30	45.0	●	0.03-0.10
EC-H10 10-20SL10CF-H72 (1)	10.00	10.00	20.00	72.00	10	35.0	SL	-	-	●	0.03-0.10
EC-H12 12-24C12CF-H83	12.00	12.00	24.00	83.00	12	35.0	C	0.30	45.0	●	0.04-0.11
EC-H12 12-24SL12CF-H83 (1)	12.00	12.00	20.00	83.00	12	35.0	SL	-	-	●	0.04-0.11
EC-H16 16-32C16CF-H92	16.00	16.00	32.00	92.00	16	35.0	C	0.30	45.0	●	0.05-0.13
EC-H16 16-32SL16CF-H92 (1)	16.00	16.00	32.00	92.00	16	35.0	SL	-	-	●	0.05-0.13
EC-H20 20-40C20CFH104	20.00	20.00	40.00	104.00	20	30.0	C	0.40	45.0	●	0.05-0.13
EC-H20 20-40SL20CFH104 (1)	20.00	20.00	41.00	105.00	20	30.0	SL	-	-	●	0.05-0.13

• Enables processing at a radial width of cut (AE) of up to 0.06xDC .For user guide,see pages 211-218

(1) With Safe-Lock® (by Haimer) pull-out prevention helical grooves

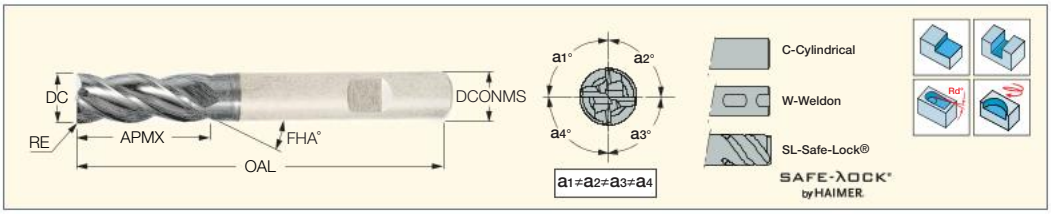
(2) Number of flutes

(3) C-Cylindrical, SL-Safe-Lock® (by Haimer)

TI-TURBO SOLID MILL LINE

ECK-H4M-CFR

Endmills with Different Helix, Chamfered Edges and Variable Pitch for Chatter Dampening on Titanium



Designation	Dimensions DC	DCONMS	APMX	OAL	NOF[2]	RE	FHA	RMPX°[3]	Shank[4]	CSP[5]	IC900	Recommended Machining Data f_z (mm/t)
ECK-H4M 04-08C06CFR0.2-57	4.00	6.00	8.00	57.00	4	0.20	36.0	5.0	C	0	●	0.02-0.05
ECK-H4M 04-08C06CFR0.5-57	4.00	6.00	8.00	57.00	4	0.50	36.0	5.0	C	0	●	0.02-0.05
ECK-H4M 05-10C06CFR0.2-57	5.00	6.00	10.00	57.00	4	0.20	36.0	5.0	C	0	●	0.02-0.05
ECK-H4M 06-12C06CFR0.2-57	6.00	6.00	12.00	57.00	4	0.20	36.0	5.0	C	0	●	0.03-0.06
ECK-H4M 06-12C06CFR0.5-57	6.00	6.00	12.00	57.00	4	0.50	36.0	5.0	C	0	●	0.03-0.06
ECK-H4M 06-12C06CFR1-57	6.00	6.00	12.00	57.00	4	1.00	36.0	5.0	C	0	●	0.03-0.06
ECK-H4M 06-12W06CFR0.2-57	6.00	6.00	12.00	57.00	4	0.20	36.0	5.0	W	0	●	0.03-0.06
ECK-H4M 08-16C08CFR0.4-63	8.00	8.00	16.00	63.00	4	0.40	36.0	5.0	C	0	●	0.03-0.06
ECK-H4M 08-16C08CFR0.5-63	8.00	8.00	16.00	63.00	4	0.50	36.0	5.0	C	0	●	0.03-0.06
ECK-H4M 08-16C08CFR1-63	8.00	8.00	16.00	63.00	4	1.00	36.0	5.0	C	0	●	0.03-0.06
ECK-H4M 08-16W08CFR0.4-63	8.00	8.00	16.00	63.00	4	0.40	36.0	5.0	W	0	●	0.03-0.06
ECK-H4 10-20SL10CFR.5-72C [1]	10.00	10.00	20.00	72.00	4	0.50	36.0	5.0	SL	1	●	0.03-0.07
ECK-H4 10-20SL10CFR0.5-72 [1]	10.00	10.00	20.00	72.00	4	0.50	36.0	5.0	SL	0	●	0.03-0.07
ECK-H4M 10-20C10CFR0.5-72	10.00	10.00	20.00	72.00	4	0.50	36.0	5.0	C	0	●	0.03-0.07
ECK-H4M 10-20C10CFR1-72	10.00	10.00	20.00	72.00	4	1.00	36.0	5.0	C	0	●	0.03-0.07
ECK-H4M 10-20C10CFR2-72	10.00	10.00	20.00	72.00	4	2.00	36.0	5.0	C	0	●	0.03-0.07
ECK-H4M 10-20C10CFR3-72	10.00	10.00	20.00	72.00	4	3.00	36.0	5.0	C	0	●	0.03-0.07
ECK-H4M 10-20W10CFR0.5-72	10.00	10.00	20.00	72.00	4	0.50	36.0	5.0	W	0	●	0.03-0.07
ECK-H4 12-24SL12CFR0.6-83 [1]	12.00	12.00	24.00	83.00	4	0.60	36.0	5.0	SL	0	●	0.04-0.08
ECK-H4M 12-24C12CFR0.6-83	12.00	12.00	24.00	83.00	4	0.60	36.0	5.0	C	0	●	0.04-0.08
ECK-H4M 12-24C12CFR1-83	12.00	12.00	24.00	83.00	4	1.00	36.0	5.0	C	0	●	0.04-0.08
ECK-H4M 12-24C12CFR2-83	12.00	12.00	24.00	83.00	4	2.00	36.0	5.0	C	0	●	0.04-0.08
ECK-H4M 12-24C12CFR3-83	12.00	12.00	24.00	83.00	4	3.00	36.0	5.0	C	0	●	0.04-0.08
ECK-H4M 12-24W12CFR0.6-83	12.00	12.00	24.00	83.00	4	0.60	36.0	5.0	W	0	●	0.04-0.08
ECK-H4 16-32SL16CFR.8-92C [1]	16.00	16.00	32.00	92.00	4	0.80	36.0	5.0	SL	1	●	0.05-0.08
ECK-H4 16-32SL16CFR0.8-92 [1]	16.00	16.00	32.00	92.00	4	0.80	36.0	5.0	SL	0	●	0.05-0.08
ECK-H4M 16-32C16CFR0.8-92	16.00	16.00	32.00	92.00	4	0.80	36.0	5.0	C	0	●	0.05-0.08
ECK-H4M 16-32C16CFR1-92	16.00	16.00	32.00	92.00	4	1.00	36.0	5.0	C	0	●	0.05-0.08
ECK-H4M 16-32C16CFR2-92	16.00	16.00	32.00	92.00	4	2.00	36.0	5.0	C	0	●	0.05-0.08
ECK-H4M 16-32C16CFR3-92	16.00	16.00	32.00	92.00	4	3.00	36.0	5.0	C	0	●	0.05-0.08
ECK-H4M 16-32C16CFR4-92	16.00	16.00	32.00	92.00	4	4.00	36.0	5.0	C	0	●	0.05-0.08
ECK-H4M 16-32W16CFR0.8-92	16.00	16.00	32.00	92.00	4	0.80	36.0	5.0	W	0	●	0.05-0.08
ECK-H4 20-40SL20CFR1.-104 [1]	20.00	20.00	40.00	104.00	4	1.00	36.0	5.0	SL	0	●	0.05-0.08
ECK-H4M 20-40C20CFR1.-104	20.00	20.00	40.00	104.00	4	1.00	36.0	5.0	C	0	●	0.05-0.08
ECK-H4M 20-40W20CFR1.-104	20.00	20.00	40.00	104.00	4	1.00	36.0	5.0	W	0	●	0.05-0.08

• For user guide, see pages 211-218

[1] With Safe-Lock® (by Haimer) pull-out prevention helical grooves

[2] Number of flutes

[3] Maximum ramping angle

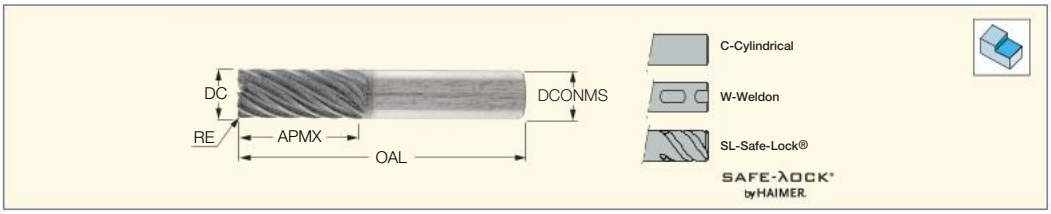
[4] C-Cylindrical, W-Weldon, SL-Safe-Lock® (by Haimer)

[5] 0 - Without coolant supply, 1 - With coolant supply

Ti-TURBO
SOLID MILL LINE

ECK-H7/9-CFR

7 and 9 Flute Endmills with Different Helix and Variable Pitch for Chatter Dampening on Titanium



Designation	Dimensions								IC900
	DC	DCONMS	APMX	OAL	NOF[2]	RE	RMPX°[3]	Shank[4]	
ECK-H7 06-13C06CFR0.2T57	6.00	6.00	13.00	57.00	7	0.20	5.0	C	●
ECK-H7 06-13W06CFR0.2T57	6.00	6.00	13.00	57.00	7	0.20	5.0	W	●
ECK-H7 08-19C08CFR0.4T63	8.00	8.00	19.00	63.00	7	0.40	5.0	C	●
ECK-H7 08-19W08CFR0.4T63	8.00	8.00	19.00	63.00	7	0.40	5.0	W	●
ECK-H7 10-22C10CFR0.5T72	10.00	10.00	22.00	72.00	7	0.50	5.0	C	●
ECK-H7 10-22W10CFR0.5T72	10.00	10.00	22.00	72.00	7	0.50	5.0	W	●
ECK-H7 12-26C12CFR0.6T83	12.00	12.00	26.00	83.00	7	0.60	3.0	C	●
ECK-H7 12-26SL12CFR0.6T83 [1]	12.00	12.00	26.00	83.00	7	0.60	5.0	SL	●
ECK-H7 12-26W12CFR0.6T83	12.00	12.00	26.00	83.00	7	0.60	5.0	W	●
ECK-H9 16-32C16CFR0.8T92	16.00	16.00	32.00	92.00	9	0.80	5.0	C	●
ECK-H9 16-32SL16CFR0.8T92 [1]	16.00	16.00	32.00	92.00	9	0.80	5.0	SL	●
ECK-H9 16-32W16CFR0.8T92	16.00	16.00	32.00	92.00	9	0.80	5.0	W	●
ECK-H9 20-38C20CFR1T104	20.00	20.00	38.00	104.00	9	1.00	5.0	C	●
ECK-H9 20-38SL20CFR1T104 [1]	20.00	20.00	38.00	104.00	9	1.00	5.0	SL	●
ECK-H9 20-38W20CFR1T104	20.00	20.00	38.00	104.00	9	1.00	5.0	W	●

• Enables processing at a radial width of cut (AE) of up to 0.10xDC ,For user guide,see pages 211-218

[1] With Safe-Lock® (by Haimer) pull-out prevention helical grooves

[2] Number of flutes

[3] Maximum ramping angle

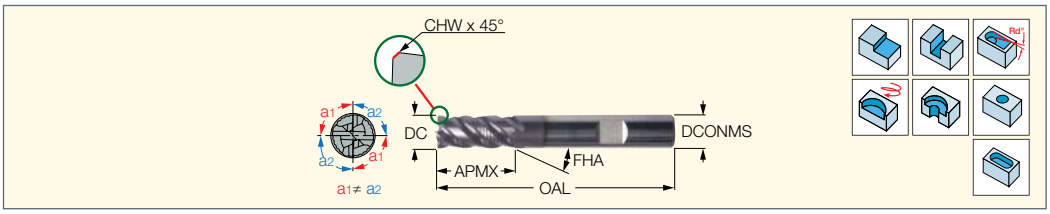
[4] C-Cylindrical, W-Weldon, SL-Safe-Lock® (by Haimer)

Feed Recommendations

Designation	Finishing		High Speed Machining	
	$f_{z\ (min)}$ mm/t	$f_{z\ (max)}$ mm/t	$f_{z\ (min)}$ mm/t	$f_{z\ (max)}$ mm/t
ECK-H7 06-13C06CFR0.2T57	0.02	0.04	0.08	0.15
ECK-H7 06-13W06CFR0.2T57	0.02	0.04	0.08	0.15
ECK-H7 08-19C08CFR0.4T63	0.02	0.04	0.08	0.15
ECK-H7 08-19W08CFR0.4T63	0.02	0.04	0.08	0.15
ECK-H7 10-22C10CFR0.5T72	0.03	0.05	0.1	0.25
ECK-H7 10-22W10CFR0.5T72	0.03	0.05	0.1	0.25
ECK-H7 12-26C12CFR0.6T83	0.03	0.05	0.1	0.25
ECK-H7 12-26W12CFR0.6T83	0.03	0.05	0.1	0.25
ECK-H9 16-32C16CFR0.8T92	0.04	0.07	0.15	0.3
ECK-H9 16-32W16CFR0.8T92	0.04	0.07	0.15	0.3
ECK-H9 20-38C20CFR1T104	0.04	0.07	0.15	0.3
ECK-H9 20-38W20CFR1T104	0.04	0.07	0.15	0.3

FINISHRED

EFS-E44
Combination of Roughing and Finishing Solid Carbide Endmills with Variable Pitch for Chatter Free Milling



Designation	Dimensions										IC900	Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF[1]	FHA	RMPX°[2]	Shank[3]	CHW	KCH		f_z (mm/t)
EFS-E44 06-14C06CF57	6.00	6.00	14.00	57.00	4	38.0	5.0	C	0.25	45.0	●	0.03-0.06
EFS-E44 06-14W06CF57	6.00	6.00	14.00	57.00	4	38.0	5.0	W	0.25	45.0	●	0.03-0.06
EFS-E44 08-18C08CF63	8.00	8.00	18.00	63.00	4	38.0	5.0	C	0.30	45.0	●	0.03-0.08
EFS-E44 08-18W08CF63	8.00	8.00	18.00	63.00	4	38.0	5.0	W	0.30	45.0	●	0.03-0.08
EFS-E44 10-22C10CF72	10.00	10.00	22.00	72.00	4	38.0	5.0	C	0.40	45.0	●	0.03-0.09
EFS-E44 10-22W10CF72	10.00	10.00	22.00	72.00	4	38.0	5.0	W	0.40	45.0	●	0.03-0.09
EFS-E44 12-26C12CF83	12.00	12.00	26.00	83.00	4	38.0	5.0	C	0.50	45.0	●	0.04-0.10
EFS-E44 12-26W12CF83	12.00	12.00	26.00	83.00	4	38.0	5.0	W	0.50	45.0	●	0.04-0.10
EFS-E44 14-30C14CF83	14.00	14.00	30.00	83.00	4	38.0	5.0	C	0.50	45.0	●	0.04-0.11
EFS-E44 14-30W14CF83	14.00	14.00	30.00	83.00	4	38.0	5.0	W	0.50	45.0	●	0.04-0.11
EFS-E44 16-34C16CF92	16.00	16.00	34.00	92.00	4	38.0	5.0	C	0.60	45.0	●	0.05-0.11
EFS-E44 16-34W16CF92	16.00	16.00	34.00	92.00	4	38.0	5.0	W	0.60	45.0	●	0.05-0.11
EFS-E44 20-42C20CF104	20.00	20.00	42.00	104.00	4	38.0	5.0	C	0.60	45.0	●	0.05-0.11
EFS-E44 20-42W20CF104	20.00	20.00	42.00	104.00	4	38.0	5.0	W	0.60	45.0	●	0.05-0.11
EFS-E44 25-52C25CF121	25.00	25.00	52.00	121.00	4	38.0	5.0	C	0.60	45.0	●	0.06-0.11
EFS-E44 25-52W25CF121	25.00	25.00	52.00	121.00	4	38.0	5.0	W	0.60	45.0	●	0.06-0.11

• Minimum width of cut for semi-finishing operation >= 0.05 x DC • For user guide, see pages 211-218

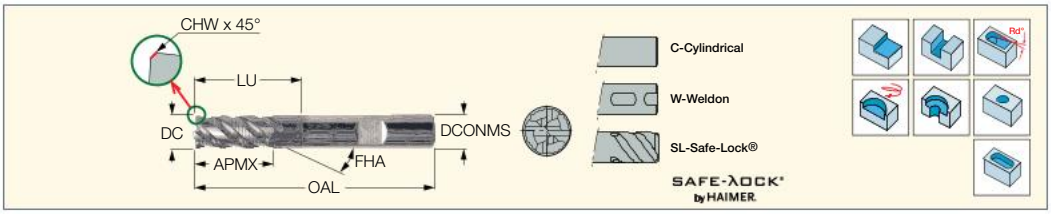
[1] Number of flutes

[2] Maximum ramping angle

[3] C-Cylindrical, W-Weldon

FINISHRED

EFS-B44
Combination of Roughing and Finishing Solid Carbide Endmills with a Single Tool



Designation	Dimensions												Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	NOF[2]	FHA	RMPX°[3]	Shank[4]	CSP[5]	CHW	KCH	IC900	IC608	f_z (mm/t)
EFS-B44 04-10C06-57	4.00	6.00	10.00	-	57.00	4	45.0	5.0	C	0	0.12	45.0	●		0.03-0.05
EFS-B44 05-12C06-57	5.00	6.00	12.00	-	57.00	4	45.0	5.0	C	0	0.18	45.0	●		0.03-0.06
EFS-B44 06-14/20C06-57	6.00	6.00	14.00	20.0	57.00	4	45.0	5.0	C	0	0.25	45.0	●		0.03-0.06
EFS-B44 06-14/20W06-57	6.00	6.00	14.00	20.0	57.00	4	45.0	5.0	W	0	0.25	45.0	●		0.03-0.06
EFS-B44 06-14C06-57	6.00	6.00	14.00	-	57.00	4	45.0	5.0	C	0	0.25	45.0	●	●	0.03-0.06
EFS-B44 06-14W06-57	6.00	6.00	14.00	-	57.00	4	45.0	5.0	W	0	0.25	45.0	●	●	0.03-0.06
EFS-B44 08-18/26C08-63	8.00	8.00	18.00	26.0	63.00	4	45.0	5.0	C	0	0.30	45.0	●		0.03-0.08
EFS-B44 08-18/26W08-63	8.00	8.00	18.00	26.0	63.00	4	45.0	5.0	W	0	0.30	45.0	●		0.03-0.08
EFS-B44 08-18C08-63	8.00	8.00	18.00	-	63.00	4	45.0	5.0	C	0	0.30	45.0	●	●	0.03-0.08
EFS-B44 08-18W08-63	8.00	8.00	18.00	-	63.00	4	45.0	5.0	W	0	0.30	45.0	●	●	0.03-0.08
EFS-B44 10-22/32C10-72	10.00	10.00	22.00	32.0	72.00	4	45.0	5.0	C	0	0.30	45.0	●		0.03-0.09
EFS-B44 10-22/32SL10-72 [1]	10.00	10.00	22.00	32.0	72.00	4	45.0	5.0	SL	0	0.00	45.0	●		0.03-0.09
EFS-B44 10-22/32W10-72	10.00	10.00	22.00	32.0	72.00	4	45.0	5.0	W	0	0.30	45.0	●		0.03-0.09
EFS-B44 10-22C10-72	10.00	10.00	22.00	-	72.00	4	45.0	5.0	C	0	0.30	45.0	●	●	0.03-0.09
EFS-B44 10-22SL10-72 [1]	10.00	10.00	22.00	-	72.00	4	45.0	5.0	SL	0	0.30	45.0	●		0.03-0.09
EFS-B44 10-22SL10-72C [1]	10.00	10.00	22.00	-	72.00	4	45.0	5.0	SL	1	0.30	45.0	●		0.04-0.07
EFS-B44 10-22W10-72	10.00	10.00	22.00	-	72.00	4	45.0	5.0	W	0	0.30	45.0	●	●	0.03-0.09
EFS-B44 12-26/38C12-83	12.00	12.00	26.00	38.0	83.00	4	45.0	5.0	C	0	0.40	45.0	●		0.04-0.10
EFS-B44 12-26/38SL12-83 [1]	12.00	12.00	26.00	38.0	83.00	4	45.0	5.0	SL	0	0.40	45.0	●		0.04-0.10
EFS-B44 12-26/38W12-83	12.00	12.00	26.00	38.0	83.00	4	45.0	5.0	W	0	0.40	45.0	●		0.04-0.10
EFS-B44 12-26C12-83	12.00	12.00	26.00	-	83.00	4	45.0	5.0	C	0	0.40	45.0	●	●	0.04-0.10
EFS-B44 12-26SL12-83 [1]	12.00	12.00	26.00	-	83.00	4	45.0	5.0	SL	0	0.40	45.0	●		0.04-0.10
EFS-B44 12-26SL12-83C [1]	12.00	12.00	26.00	-	83.00	4	45.0	5.0	SL	1	0.40	45.0	●		0.04-0.08
EFS-B44 12-26W12-83	12.00	12.00	26.00	-	83.00	4	45.0	5.0	W	0	0.40	45.0	●	●	0.04-0.10
EFS-B44 14-30C14-83	14.00	14.00	30.00	-	83.00	4	45.0	5.0	C	0	0.40	45.0	●	●	0.04-0.11
EFS-B44 14-30W14-83	14.00	14.00	30.00	-	83.00	4	45.0	5.0	W	0	0.40	45.0	●	●	0.04-0.11
EFS-B44 16-34/50C16-100	16.00	16.00	34.00	50.0	100.00	4	45.0	5.0	C	0	0.60	45.0	●		0.05-0.11
EFS-B44 16-34/50SL16-100 [1]	16.00	16.00	34.00	50.0	100.00	4	45.0	5.0	SL	0	0.60	45.0	●		0.05-0.11
EFS-B44 16-34/50W16-100	16.00	16.00	34.00	50.0	100.00	4	45.0	5.0	W	0	0.60	45.0	●		0.05-0.11
EFS-B44 16-34C16-92	16.00	16.00	34.00	-	92.00	4	45.0	5.0	C	0	0.60	45.0	●	●	0.05-0.11
EFS-B44 16-34SL16-92 [1]	16.00	16.00	34.00	-	92.00	4	45.0	5.0	SL	0	0.60	45.0	●		0.05-0.11
EFS-B44 16-34SL16-92C [1]	16.00	16.00	34.00	-	92.00	4	45.0	5.0	SL	1	0.60	45.0	●		0.05-0.08
EFS-B44 16-34W16-92	16.00	16.00	34.00	-	92.00	4	45.0	5.0	W	0	0.60	45.0	●	●	0.05-0.11
EFS-B44 20-42/62C20-125	20.00	20.00	42.00	62.0	125.00	4	45.0	5.0	C	0	0.60	45.0	●		0.05-0.11
EFS-B44 20-42/62SL20-125 [1]	20.00	20.00	42.00	62.0	125.00	4	45.0	5.0	SL	0	0.60	45.0	●		0.05-0.11
EFS-B44 20-42/62W20-125	20.00	20.00	42.00	62.0	125.00	4	45.0	5.0	W	0	0.60	45.0	●		0.05-0.11
EFS-B44 20-42C20-104	20.00	20.00	42.00	-	104.00	4	45.0	5.0	C	0	0.60	45.0	●	●	0.05-0.11
EFS-B44 20-42SL20-104 [1]	20.00	20.00	42.00	-	104.00	4	45.0	5.0	SL	0	0.60	45.0	●		0.05-0.11
EFS-B44 20-42W20-104	20.00	20.00	42.00	-	104.00	4	45.0	5.0	W	0	0.60	45.0	●	●	0.05-0.11
EFS-B44 25-52C25-121	25.00	25.00	52.00	-	121.00	4	45.0	5.0	C	0	0.60	45.0	●	●	0.06-0.11
EFS-B44 25-52SL25-121 [1]	25.00	25.00	52.00	-	121.00	4	45.0	5.0	SL	0	0.60	45.0	●		0.06-0.11
EFS-B44 25-52W25-121	25.00	25.00	52.00	-	121.00	4	45.0	5.0	W	0	0.60	45.0	●	●	0.06-0.11

• Minimum width of cut for semi-finishing operations>= 0.05 x DC • For user guide, see pages 211-218

[1] With Safe-Lock® (by Haimer) pull-out prevention helical grooves

[2] Number of flutes

[3] Maximum ramping angle

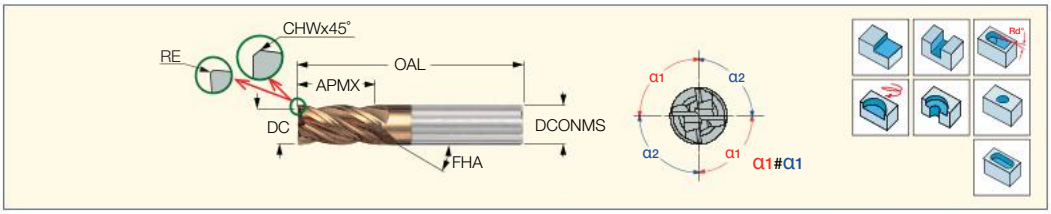
[4] C-Cylindrical, W-Weldon, SL-Safe-Lock® (by Haimer)

[5] 0 - Without coolant supply, 1 - With coolant supply

CHATTERFREE SOL'D MILL LINE

EC-E4M-CF

4 Flute, 38° Helix Endmills, up to 2XD depth of cut with Variable Pitch for Chatter Dampening



Designation	Dimensions											IC608	Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank	CHW	KCH	RE		f_z (mm/t)
EC-E4M 06-12C06CF-57	6.00	6.00	12.00	57.00	4	38.0	5.0	C	0.25	45.0	-	●	0.03-0.07
EC-E4M 06-12C06CFR0.5-57	6.00	6.00	12.00	50.00	4	38.0	5.0	C	-	-	0.50	●	0.03-0.07
EC-E4M 06-12C06CFR1-57	6.00	6.00	12.00	50.00	4	38.0	5.0	C	-	-	1.00	●	0.03-0.07
EC-E4M 08-16C08CF-63	8.00	8.00	16.00	63.00	4	38.0	5.0	C	0.30	45.0	-	●	0.03-0.09
EC-E4M 08-16C08CFR0.5-63	8.00	8.00	16.00	63.00	4	38.0	5.0	C	-	-	0.50	●	0.03-0.09
EC-E4M 08-16C08CFR1-63	8.00	8.00	16.00	63.00	4	38.0	5.0	C	-	-	1.00	●	0.03-0.09
EC-E4M 10-20C10CF-72	10.00	10.00	20.00	72.00	4	38.0	5.0	C	0.40	45.0	-	●	0.03-0.10
EC-E4M 10-20C10CFR0.5-72	10.00	10.00	20.00	72.00	4	38.0	5.0	C	-	-	0.50	●	0.03-0.10
EC-E4M 10-20C10CFR1-72	10.00	10.00	20.00	72.00	4	38.0	5.0	C	-	-	1.00	●	0.03-0.10
EC-E4M 10-20C10CFR2-72	10.00	10.00	20.00	72.00	4	38.0	5.0	C	-	-	2.00	●	0.03-0.10
EC-E4M 10-20C10CFR3-72	10.00	10.00	20.00	72.00	4	38.0	5.0	C	-	-	3.00	●	0.03-0.10
EC-E4M 12-24C12CF-83	12.00	12.00	24.00	83.00	4	38.0	5.0	C	0.50	45.0	-	●	0.04-0.11
EC-E4M 12-24C12CFR0.5-83	12.00	12.00	24.00	83.00	4	38.0	5.0	C	-	-	0.50	●	0.04-0.11
EC-E4M 12-24C12CFR1-83	12.00	12.00	24.00	83.00	4	38.0	5.0	C	-	-	1.00	●	0.04-0.11
EC-E4M 12-24C12CFR2-83	12.00	12.00	24.00	83.00	4	38.0	5.0	C	-	-	2.00	●	0.04-0.11
EC-E4M 12-24C12CFR3-83	12.00	12.00	24.00	83.00	4	38.0	5.0	C	-	-	3.00	●	0.04-0.11
EC-E4M 12-24W12CF-83	12.00	12.00	24.00	83.00	4	38.0	5.0	W	0.50	45.0	-	●	0.04-0.11
EC-E4M 16-32C16CF-100	16.00	16.00	32.00	100.00	4	38.0	5.0	C	0.60	45.0	-	●	0.05-0.13
EC-E4M 16-32C16CFR3-100	16.00	16.00	32.00	100.00	4	38.0	5.0	C	-	-	3.00	●	0.05-0.13
EC-E4M 16-32W16CF-100	16.00	16.00	32.00	100.00	4	38.0	5.0	W	0.60	45.0	-	●	0.05-0.13

New

- For user guide , see pages 211-218

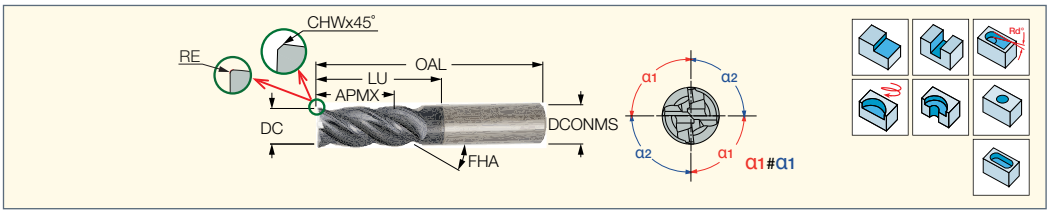
(1) Number of flutes

(2) Maximum ramping angle

CHATTERFREE SOLID MILL LINE

EC-E4L-CF

4 Flute, 38° Helix Endmills with 3xD Relieved Neck and Variable Pitch for Chatter Dampening



Designation	Dimensions												Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	NOF(1)	FHA	RMPX°(2)	RE	Shank(3)	CHW	KCH	IC900	IC608	f_z (mm/t)
EC-E4L 01-2/04C04CF50	1.00	4.00	2.00	4.00	50.00	4	38.0	5.0	-	C	0.04	45.0	●		0.02-0.05
EC-E4L 02-4/06C04CF50	2.00	4.00	4.00	6.00	50.00	4	38.0	5.0	-	C	0.08	45.0	●		0.02-0.05
EC-E4L 03-8/11C06CF57	3.00	6.00	8.00	11.00	57.00	4	38.0	5.0	-	C	0.10	45.0	●	●	0.02-0.05
EC-E4L 04-10/14C06CF57	4.00	6.00	10.00	14.00	57.00	4	38.0	5.0	-	C	0.15	45.0	●	●	0.02-0.05
EC-E4L 05-12/17C06CF57	5.00	6.00	12.00	17.00	57.00	4	38.0	5.0	-	C	0.18	45.0	●	●	0.02-0.06
EC-E4L 06-14/20C06CFR0.2	6.00	6.00	14.00	20.00	57.00	4	38.0	5.0	0.20	C	-	-	●		0.03-0.07
EC-E4L 06-14/20C06CFR0.5	6.00	6.00	14.00	20.00	57.00	4	38.0	5.0	0.50	C	-	-	●		0.03-0.07
EC-E4L 06-14/20C06CFR1	6.00	6.00	14.00	20.00	57.00	4	38.0	5.0	1.00	C	-	-	●		0.03-0.07
EC-E4L 06-14/20C06CF57	6.00	6.00	14.00	20.00	57.00	4	38.0	5.0	-	C	0.25	45.0	●	●	0.03-0.07
EC-E4L 06-14/20W06CF57	6.00	6.00	14.00	20.00	57.00	4	38.0	5.0	-	W	0.25	45.0	●	●	0.03-0.07
EC-E4L 08-18/26C08CFR0.3	8.00	8.00	18.00	26.00	63.00	4	38.0	5.0	0.30	C	-	-	●		0.03-0.08
EC-E4L 08-18/26C08CFR0.5	8.00	8.00	18.00	26.00	63.00	4	38.0	5.0	0.50	C	-	-	●		0.03-0.08
EC-E4L 08-18/26C08CFR1	8.00	8.00	18.00	26.00	63.00	4	38.0	5.0	1.00	C	-	-	●		0.03-0.08
EC-E4L 08-18/26C08CFR1.5	8.00	8.00	18.00	26.00	63.00	4	38.0	5.0	1.50	C	-	-	●		0.03-0.08
EC-E4L 08-18/26C08CFS63	8.00	8.00	18.00	26.00	63.00	4	38.0	5.0	-	C	-	-	●		0.03-0.08
EC-E4L 08-18/26C08CF63	8.00	8.00	18.00	26.00	63.00	4	38.0	5.0	-	C	0.30	45.0	●	●	0.03-0.09
EC-E4L 08-18/26W08CF63	8.00	8.00	18.00	26.00	63.00	4	38.0	5.0	-	W	0.30	45.0	●	●	0.03-0.09
EC-E4L 10-22/32C10CFR0.5	10.00	10.00	22.00	32.00	72.00	4	38.0	5.0	0.50	C	-	-	●		0.03-0.10
EC-E4L 10-22/32C10CFR1	10.00	10.00	22.00	65.00	72.00	4	38.0	5.0	1.00	C	-	-	●		0.03-0.10
EC-E4L 10-22/32C10CFR1.5	10.00	10.00	22.00	32.00	72.00	4	38.0	5.0	1.50	C	-	-	●		0.03-0.10
EC-E4L 10-22/32C10CFR2	10.00	10.00	22.00	32.00	72.00	4	38.0	5.0	2.00	C	-	-	●		0.03-0.10
EC-E4L 10-22/32C10CFR3	10.00	10.00	22.00	32.00	72.00	4	38.0	5.0	3.00	C	-	-	●		0.03-0.10
EC-E4L 10-22/32C10CFS72	10.00	10.00	22.00	32.00	72.00	4	38.0	5.0	-	C	-	-	●		0.03-0.09
EC-E4L 10-22/32C10CF72	10.00	10.00	22.00	32.00	72.00	4	38.0	5.0	-	C	0.40	45.0	●	●	0.03-0.10
EC-E4L 10-22/32W10CF72	10.00	10.00	22.00	32.00	72.00	4	38.0	5.0	-	W	0.40	45.0	●	●	0.03-0.10
EC-E4L 12-26/38C12CFR0.5	12.00	12.00	26.00	38.00	83.00	4	38.0	5.0	0.50	C	-	-	●		0.04-0.11
EC-E4L 12-26/38C12CFR1	12.00	12.00	26.00	38.00	83.00	4	38.0	5.0	1.00	C	-	-	●		0.04-0.11
EC-E4L 12-26/38C12CFR1.5	12.00	12.00	26.00	38.00	83.00	4	38.0	5.0	1.50	C	-	-	●		0.04-0.11
EC-E4L 12-26/38C12CFR2	12.00	12.00	26.00	38.00	83.00	4	38.0	5.0	2.00	C	-	-	●		0.04-0.11
EC-E4L 12-26/38C12CFR3	12.00	12.00	26.00	38.00	83.00	4	38.0	5.0	3.00	C	-	-	●		0.04-0.11
EC-E4L 12-26/38C12CFR4	12.00	12.00	26.00	38.00	83.00	4	38.0	5.0	4.00	C	-	-	●		0.04-0.11
EC-E4L 12-26/38C12CFS83	12.00	12.00	26.00	38.00	83.00	4	38.0	5.0	-	C	-	-	●		0.04-0.10
EC-E4L 12-26/38C12CF83	12.00	12.00	26.00	38.00	83.00	4	38.0	5.0	-	C	0.50	45.0	●	●	0.04-0.11
EC-E4L 12-26/38W12CF83	12.00	12.00	26.00	38.00	83.00	4	38.0	5.0	-	W	0.50	45.0	●	●	0.04-0.11
EC-E4L 16-34/50C16CFR2	16.00	16.00	34.00	50.00	100.00	4	38.0	5.0	2.00	C	-	-	●		0.05-0.13
EC-E4L 16-34/50C16CFR3	16.00	16.00	34.00	50.00	100.00	4	38.0	5.0	3.00	C	-	-	●		0.05-0.13
EC-E4L 16-34/50C16CFR5	16.00	16.00	34.00	50.00	100.00	4	38.0	5.0	5.00	C	-	-	●		0.05-0.13
EC-E4L 16-34/50C16CF100	16.00	16.00	34.00	50.00	100.00	4	38.0	5.0	-	C	0.60	45.0	●	●	0.05-0.13
EC-E4L 16-34/50W16CF100	16.00	16.00	34.00	50.00	100.00	4	38.0	5.0	1.00	W	0.60	45.0	●	●	0.05-0.13
EC-E4L 20-42/60C20CFR2	20.00	20.00	42.00	60.00	110.00	4	38.0	5.0	2.00	C	-	-	●		0.05-0.17
EC-E4L 20-42/60C20CFR3	20.00	20.00	42.00	60.00	110.00	4	38.0	5.0	3.00	C	-	-	●		0.05-0.17
EC-E4L 20-42/60C20CFR5	20.00	20.00	42.00	60.00	110.00	4	38.0	5.0	5.00	C	-	-	●		0.05-0.17
EC-E4L 20-42/60C20CF110	20.00	20.00	42.00	60.00	110.00	4	38.0	5.0	-	C	0.60	45.0	●	●	0.05-0.17
EC-E4L 20-42/60W20CF110	20.00	20.00	42.00	60.00	110.00	4	38.0	5.0	-	W	0.60	45.0	●	●	0.05-0.17
EC-E4L 25-50/65C25CFR2	25.00	25.00	50.00	65.00	121.00	4	38.0	5.0	2.00	C	-	-	●		0.05-0.17
EC-E4L 25-50/65C25CFR3	25.00	25.00	50.00	65.00	121.00	4	38.0	5.0	3.00	C	-	-	●		0.05-0.17
EC-E4L 25-50/65C25CFR5	25.00	25.00	50.00	65.00	121.00	4	38.0	5.0	5.00	C	-	-	●		0.05-0.17
EC-E4L 25-50/65C25CF121	25.00	25.00	50.00	65.00	121.00	4	38.0	5.0	-	C	0.60	45.0	●		0.05-0.17
EC-E4L 25-50/65W25CFR5	25.00	25.00	50.00	65.00	121.00	4	38.0	5.0	5.00	W	-	-	●		0.05-0.17
EC-E4L 25-50/65W25CF121	25.00	25.00	50.00	65.00	121.00	4	38.0	5.0	-	W	0.60	45.0	●		0.05-0.17

• For user guide, see pages 211-218

(1) Number of flutes

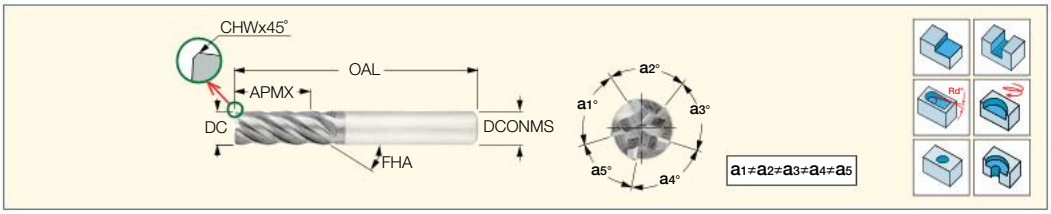
(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

CHATTERFREE SOLID MILL LINE

EC-E5L-CF

5 Flute, 38° Helix Medium Length (2.5xD) Variable Pitch Endmills



Designation	Dimensions										IC900	Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF[1]	FHA	RMPX°[2]	Shank[3]	CHW	KCH		f_z (mm/t)
EC-E5L 06-15C06CF57	6.00	6.00	15.00	57.00	5	38.0	5.0	C	0.20	45.0	●	0.03-0.07
EC-E5L 06-15W06CF57	6.00	6.00	15.00	57.00	5	38.0	5.0	W	0.20	45.0	●	0.03-0.07
EC-E5L 08-20C08CF63	8.00	8.00	20.00	63.00	5	38.0	5.0	C	0.25	45.0	●	0.03-0.09
EC-E5L 08-20W08CF63	8.00	8.00	20.00	63.00	5	38.0	5.0	W	0.25	45.0	●	0.03-0.09
EC-E5L 10-25C10CF72	10.00	10.00	25.00	72.00	5	38.0	5.0	C	0.30	45.0	●	0.03-0.10
EC-E5L 10-25W10CF72	10.00	10.00	25.00	72.00	5	38.0	5.0	W	0.30	45.0	●	0.03-0.10
EC-E5L 12-30C12CF83	12.00	12.00	30.00	83.00	5	38.0	5.0	C	0.40	45.0	●	0.04-0.11
EC-E5L 12-30W12CF83	12.00	12.00	30.00	83.00	5	38.0	5.0	W	0.40	45.0	●	0.04-0.11
EC-E5L 16-40C16CF100	16.00	16.00	40.00	100.00	5	38.0	5.0	C	0.50	45.0	●	0.05-0.13
EC-E5L 16-40W16CF100	16.00	16.00	40.00	100.00	5	38.0	5.0	W	0.50	45.0	●	0.05-0.13
EC-E5L 20-50C20CF125	20.00	20.00	50.00	125.00	5	38.0	5.0	C	0.50	45.0	●	0.05-0.17
EC-E5L 20-50W20CF125	20.00	20.00	50.00	125.00	5	38.0	5.0	W	0.50	45.0	●	0.05-0.17

• For user guide, see pages 211-218

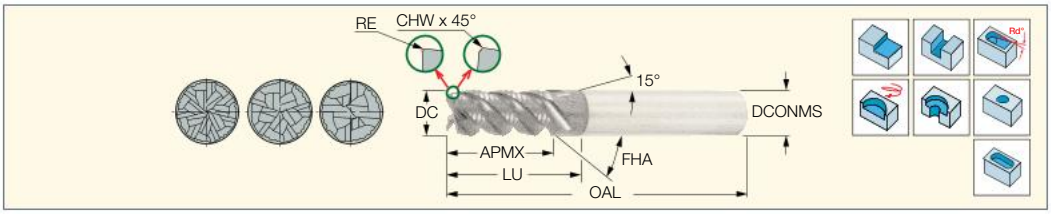
[1] Number of flutes

[2] Maximum ramping angle

[3] C-Cylindrical, W-Weldon

SOLIDSHRED

ECR-B-X/L/M/S
4-7 Flute, 45° Helix with Different Length Solid Carbide Roughing Endmills



Designation	Dimensions												IC900	Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	NOF[2]	FHA	RMPX°[3]	Shank[4]	RE	CHW	KCH		f_z (mm/t)
ECR-B4M 05-10C06-57	5.00	6.00	10.00	15.00	57.00	4	45.0	5.0	C	-	0.20	45.0	●	0.02-0.05
ECR-B4M 05-10W06-57	5.00	6.00	10.00	15.00	57.00	4	45.0	5.0	W	-	0.20	45.0	●	0.02-0.05
ECR-B4S 05-05C06-57	5.00	6.00	5.00	10.00	57.00	4	45.0	5.0	C	-	0.20	45.0	●	0.02-0.05
ECR-B4S 05-05W06-57	5.00	6.00	5.00	10.00	57.00	4	45.0	5.0	W	-	0.20	45.0	●	0.02-0.05
ECR-B4L 06-12/18C06-57	6.00	6.00	12.00	18.00	57.00	4	45.0	5.0	C	-	0.25	45.0	●	0.03-0.06
ECR-B4L 06-12/18W06-57	6.00	6.00	12.00	18.00	57.00	4	45.0	5.0	W	-	0.25	45.0	●	0.03-0.06
ECR-B4M 06-12C06-57	6.00	6.00	12.00	-	57.00	4	45.0	5.0	C	-	0.25	45.0	●	0.03-0.06
ECR-B4M 06-12W06-57	6.00	6.00	12.00	-	57.00	4	45.0	5.0	W	-	0.25	45.0	●	0.03-0.06
ECR-B4S 06-06C06-57	6.00	6.00	6.00	-	57.00	4	45.0	5.0	C	-	0.25	45.0	●	0.03-0.06
ECR-B4S 06-06W06-57	6.00	6.00	6.00	-	57.00	4	45.0	5.0	W	-	0.25	45.0	●	0.03-0.06
ECR-B4S 07-07C08-63	7.00	8.00	7.00	14.10	63.00	4	45.0	5.0	C	-	0.25	45.0	●	0.03-0.07
ECR-B4L 08-16/24C08-63	8.00	8.00	16.00	24.00	63.00	4	45.0	5.0	C	-	0.25	45.0	●	0.03-0.08
ECR-B4L 08-16/24W08-63	8.00	8.00	16.00	24.00	63.00	4	45.0	5.0	W	-	0.25	45.0	●	0.03-0.08
ECR-B4M 08-16C08-63	8.00	8.00	16.00	-	63.00	4	45.0	5.0	C	-	0.25	45.0	●	0.03-0.08
ECR-B4M 08-16W08-63	8.00	8.00	16.00	-	63.00	4	45.0	5.0	W	-	0.25	45.0	●	0.03-0.08
ECR-B4S 08-08C08-63	8.00	8.00	8.00	-	63.00	4	45.0	5.0	C	-	0.25	45.0	●	0.03-0.08
ECR-B4S 08-08W08-63	8.00	8.00	8.00	-	63.00	4	45.0	5.0	W	-	0.25	45.0	●	0.03-0.08
ECR-B4X 08-12/32C08-68	8.00	8.00	12.00	32.00	68.00	4	45.0	5.0	C	-	0.25	45.0	●	0.03-0.08
ECR-B4X 08-12/32W08-68	8.00	8.00	12.00	32.00	68.00	4	45.0	5.0	W	-	0.25	45.0	●	0.03-0.08
ECR-B4L 10-20/30C10-72	10.00	10.00	20.00	30.00	72.00	4	45.0	5.0	C	-	0.30	45.0	●	0.03-0.09
ECR-B4L 10-20/30W10-72	10.00	10.00	20.00	30.00	72.00	4	45.0	5.0	W	-	0.30	45.0	●	0.03-0.09
ECR-B4M 10-20C10-72	10.00	10.00	20.00	-	72.00	4	45.0	5.0	C	-	0.30	45.0	●	0.03-0.09
ECR-B4M 10-20C10-72R1.0	10.00	10.00	20.00	-	72.00	4	45.0	5.0	C	1.00	-	-	●	0.03-0.09
ECR-B4M 10-20W10-72	10.00	10.00	20.00	-	72.00	4	45.0	5.0	W	-	0.30	45.0	●	0.03-0.09
ECR-B4S 10-10C10-72	10.00	10.00	10.00	-	72.00	4	45.0	5.0	C	-	0.30	45.0	●	0.03-0.09
ECR-B4S 10-10W10-72	10.00	10.00	10.00	-	72.00	4	45.0	5.0	W	-	0.30	45.0	●	0.03-0.09
ECR-B4X 10-15/40C10-80 90	10.00	10.00	15.00	40.00	80.00	4	45.0	5.0	C	-	0.30	45.0	●	0.03-0.09
ECR-B4X 10-15/40W10-80 90	10.00	10.00	15.00	40.00	80.00	4	45.0	5.0	W	-	0.30	45.0	●	0.03-0.09
ECR-B4L 12-24/36C12-83	12.00	12.00	24.00	36.00	83.00	4	45.0	5.0	C	-	0.35	45.0	●	0.04-0.10
ECR-B4L 12-24/36W12-83	12.00	12.00	24.00	36.00	83.00	4	45.0	5.0	W	-	0.35	45.0	●	0.04-0.10
ECR-B4M 12-24C12-83	12.00	12.00	24.00	-	83.00	4	45.0	5.0	C	-	0.35	45.0	●	0.04-0.10
ECR-B4M 12-24C12-83R1.2	12.00	12.00	24.00	-	83.00	4	45.0	5.0	C	1.20	-	-	●	0.04-0.10
ECR-B4M 12-24W12-83	12.00	12.00	24.00	-	83.00	4	45.0	5.0	W	-	0.35	45.0	●	0.04-0.10
ECR-B4M 12-24W12-83R1.2	12.00	12.00	24.00	-	83.00	4	45.0	5.0	W	1.20	-	-	●	0.04-0.10
ECR-B4S 12-12C12-83	12.00	12.00	12.00	-	83.00	4	45.0	5.0	C	-	0.35	45.0	●	0.04-0.10
ECR-B4S 12-12W12-83	12.00	12.00	12.00	-	83.00	4	45.0	5.0	W	-	0.35	45.0	●	0.04-0.10
ECR-B4X 12-18/48C12-100	12.00	12.00	18.00	48.00	100.00	4	45.0	5.0	C	-	0.35	45.0	●	0.04-0.10
ECR-B4X 12-18/48W12-100	12.00	12.00	18.00	48.00	100.00	4	45.0	5.0	W	-	0.35	45.0	●	0.05-0.11
ECR-B5L 16-32/48C16-100 [1]	16.00	16.00	32.00	48.00	100.00	5	45.0	5.0	C	-	0.40	45.0	●	0.05-0.11
ECR-B5L 16-32/48W16-100 [1]	16.00	16.00	32.00	48.00	100.00	5	45.0	5.0	W	-	0.40	45.0	●	0.05-0.11
ECR-B5M 16-32C16-92 [1]	16.00	16.00	32.00	-	92.00	5	45.0	5.0	C	-	0.40	45.0	●	0.05-0.11
ECR-B5M 16-32C16-92R1.6 [1]	16.00	16.00	32.00	-	92.00	5	45.0	5.0	C	1.60	-	-	●	0.05-0.11
ECR-B5M 16-32W16-92 [1]	16.00	16.00	32.00	-	92.00	5	45.0	5.0	W	-	0.40	45.0	●	0.05-0.11
ECR-B5M 16-32W16-92R1.6 [1]	16.00	16.00	32.00	-	92.00	5	45.0	5.0	W	1.60	-	-	●	0.05-0.11
ECR-B5S 16-16C16-92 [1]	16.00	16.00	16.00	-	92.00	5	45.0	5.0	C	-	0.40	45.0	●	0.05-0.11
ECR-B5S 16-16W16-92 [1]	16.00	16.00	16.00	-	92.00	5	45.0	5.0	W	-	0.40	45.0	●	0.05-0.11
ECR-B5X 16-24/64C16-115 [1]	16.00	16.00	24.00	64.00	115.00	5	45.0	5.0	C	-	0.40	45.0	●	0.05-0.11
ECR-B5X 16-24/64W16-115 [1]	16.00	16.00	24.00	64.00	115.00	5	45.0	5.0	W	-	0.40	45.0	●	0.05-0.11
ECR-B7L 20-40/60C20-110 [1]	20.00	20.00	40.00	60.00	110.00	7	45.0	5.0	C	-	0.40	45.0	●	0.05-0.11
ECR-B7L 20-40/60W20-110 [1]	20.00	20.00	40.00	60.00	110.00	7	45.0	5.0	W	-	0.40	45.0	●	0.05-0.11
ECR-B7M 20-40C20-104 [1]	20.00	20.00	40.00	-	104.00	7	45.0	5.0	C	-	0.40	45.0	●	0.05-0.11
ECR-B7M 20-40W20-104 [1]	20.00	20.00	40.00	-	104.00	7	45.0	5.0	W	-	0.40	45.0	●	0.05-0.11
ECR-B7S 20-20C20-104 [1]	20.00	20.00	20.00	-	104.00	7	45.0	5.0	C	-	0.40	45.0	●	0.05-0.11
ECR-B7S 20-20W20-104 [1]	20.00	20.00	20.00	-	104.00	7	45.0	5.0	W	-	0.40	45.0	●	0.05-0.11

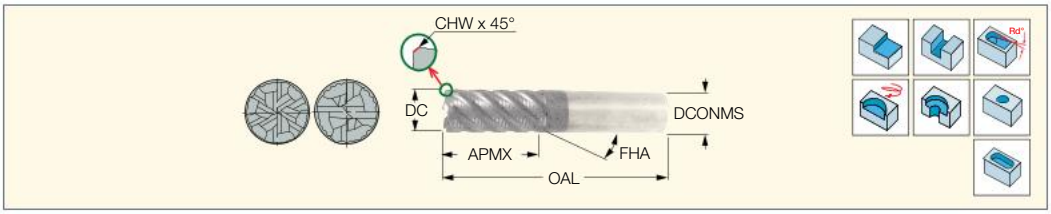
• For user guide, see pages 211-218

[1] Cannot be used for plunging application
[2] Number of flutes
[3] Maximum ramping angle
[4] C-Cylindrical, W-Weldon

SOLIDSHRED

ECR-B-MF

4 and 6 Flute, 45° Helix
Medium Length Solid Carbide
Roughing Endmills for
Materials up to 65 HRC



Designation	Dimensions										IC900	Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF[2]	FHA	RMPX°[3]	Shank[4]	CHW	KCH		f_z (mm/t)
ECR-B4MF 06-14C06-57	6.00	6.00	14.00	57.00	4	45.0	5.0	C	0.25	45.0	●	0.03-0.06
ECR-B4MF 06-14W06-57	6.00	6.00	14.00	57.00	4	45.0	5.0	W	0.25	45.0	●	0.03-0.06
ECR-B4MF 08-18C08-63	8.00	8.00	18.00	63.00	4	45.0	5.0	C	0.30	45.0	●	0.03-0.08
ECR-B4MF 08-18W08-63	8.00	8.00	18.00	63.00	4	45.0	5.0	W	0.30	45.0	●	0.03-0.08
ECR-B4MF 10-22C10-72	10.00	10.00	22.00	72.00	4	45.0	5.0	C	0.30	45.0	●	0.03-0.09
ECR-B4MF 10-22W10-72	10.00	10.00	22.00	72.00	4	45.0	5.0	W	0.30	45.0	●	0.03-0.09
ECR-B4MF 12-26C12-83	12.00	12.00	26.00	83.00	4	45.0	5.0	C	0.40	45.0	●	0.04-0.10
ECR-B4MF 12-26W12-83	12.00	12.00	26.00	83.00	4	45.0	5.0	W	0.40	45.0	●	0.04-0.10
ECR-B4MF 14-30C14-83	14.00	14.00	30.00	83.00	4	45.0	5.0	C	0.40	45.0	●	0.04-0.11
ECR-B4MF 14-30W14-83	14.00	14.00	30.00	83.00	4	45.0	5.0	W	0.40	45.0	●	0.04-0.11
ECR-B6MF 16-34C16-92 [1]	16.00	16.00	34.00	92.00	6	45.0	5.0	C	0.50	45.0	●	0.05-0.11
ECR-B6MF 16-34W16-92 [1]	16.00	16.00	34.00	92.00	6	45.0	5.0	W	0.50	45.0	●	0.05-0.11
ECR-B6MF 20-42C20-104 [1]	20.00	20.00	42.00	104.00	6	45.0	5.0	C	0.70	45.0	●	0.05-0.11
ECR-B6MF 20-42W20-104 [1]	20.00	20.00	42.00	104.00	6	45.0	5.0	W	0.70	45.0	●	0.05-0.11
ECR-B6MF 25-52C25-121 [1]	25.00	25.00	52.00	121.00	6	45.0	5.0	C	0.90	45.0	●	0.06-0.11
ECR-B6MF 25-52W25-121 [1]	25.00	25.00	52.00	121.00	6	45.0	5.0	W	0.90	45.0	●	0.06-0.11

• The rougher's cutting edge profile has shallow serrations. • A very durable design which leaves only a small amount of material for the finishing cut. • For user guide, see pages 211-218

[1] Cannot be used for plunging application

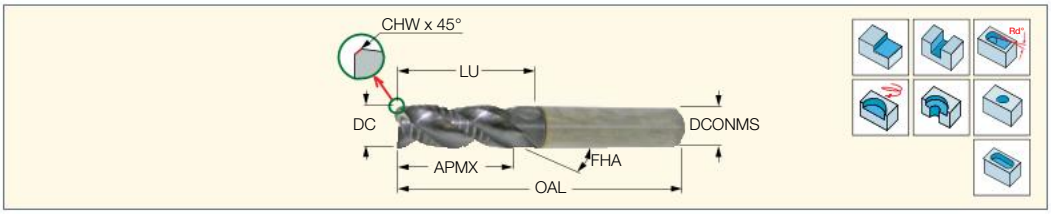
[2] Number of flutes

[3] Maximum ramping angle

[4] C-Cylindrical, W-Weldon

SOLIDSHRED

ECP-E3L
3 Flute, 38° Helix Solid Carbide Roughing Endmills with 3xD Relieved Necks and Chip Splitting Cutting Edges

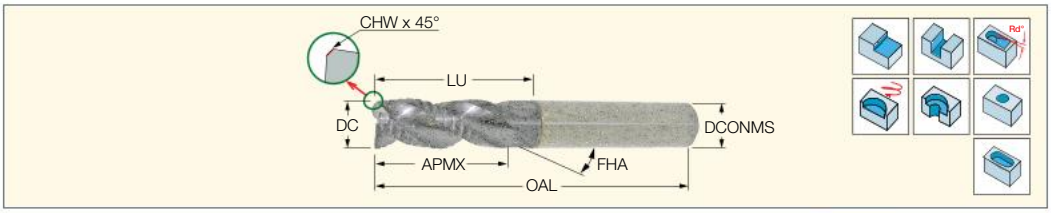


Designation	Dimensions DC	DCONMS	APMX	LU	OAL	NOF(1)	RMPX°(2)	FHA	Shank(3)	CHW	KCH	IC900	Recommended Machining Data f_z (mm/t)
ECP-E3L 05-12/17C06S57	5.00	6.00	12.00	17.0	57.00	3	5.0	38.0	C	0.20	45.0	•	0.02-0.05
ECP-E3L 05-12/17W06S57	5.00	6.00	12.00	17.0	57.00	3	5.0	38.0	W	0.20	45.0	•	0.02-0.05
ECP-E3L 06-14/20C06S57	6.00	6.00	14.00	20.0	57.00	3	5.0	38.0	C	0.30	45.0	•	0.03-0.06
ECP-E3L 06-14/20W06S57	6.00	6.00	14.00	20.0	57.00	3	5.0	38.0	W	0.30	45.0	•	0.03-0.06
ECP-E3L 08-18/26C08S63	8.00	8.00	18.00	26.0	63.00	3	5.0	38.0	C	0.40	45.0	•	0.03-0.08
ECP-E3L 08-18/26W08S63	8.00	8.00	18.00	26.0	63.00	3	5.0	38.0	W	0.40	45.0	•	0.03-0.08
ECP-E3L 10-22/32C10S72	10.00	10.00	22.00	32.0	72.00	3	5.0	38.0	C	0.40	45.0	•	0.03-0.09
ECP-E3L 10-22/32W10S72	10.00	10.00	22.00	32.0	72.00	3	5.0	38.0	W	0.40	45.0	•	0.03-0.09
ECP-E3L 12-26/38C12S83	12.00	12.00	26.00	38.0	83.00	3	5.0	38.0	C	0.40	45.0	•	0.04-0.10
ECP-E3L 12-26/38W12S83	12.00	12.00	26.00	38.0	83.00	3	5.0	38.0	W	0.40	45.0	•	0.04-0.10
ECP-E3L 14-30/44C14S100	14.00	14.00	30.00	44.0	100.00	3	5.0	38.0	C	0.50	45.0	•	0.05-0.11
ECP-E3L 14-30/44W14S100	14.00	14.00	30.00	44.0	100.00	3	5.0	38.0	W	0.50	45.0	•	0.05-0.11
ECP-E3L 16-34/50C16S100	16.00	16.00	34.00	50.0	100.00	3	5.0	38.0	C	0.50	45.0	•	0.05-0.11
ECP-E3L 16-34/50W16S100	16.00	16.00	34.00	50.0	100.00	3	5.0	38.0	W	0.50	45.0	•	0.05-0.11
ECP-E3L 20-42/62C20S125	20.00	20.00	42.00	62.0	125.00	3	5.0	38.0	C	0.50	45.0	•	0.05-0.11
ECP-E3L 20-42/62W20S125	20.00	20.00	42.00	62.0	125.00	3	5.0	38.0	W	0.50	45.0	•	0.05-0.11

• Most recommended for machining stainless steel. • For user guide, see pages 211-218
(1) Number of flutes
(2) Maximum ramping angle
(3) C-Cylindrical, W-Weldon

SOLIDSHRED

ECP-E4L
4 Flute, 38° Helix Solid Carbide Roughing Endmills with 3xD Relieved Necks and Chip Splitting Cutting Edges

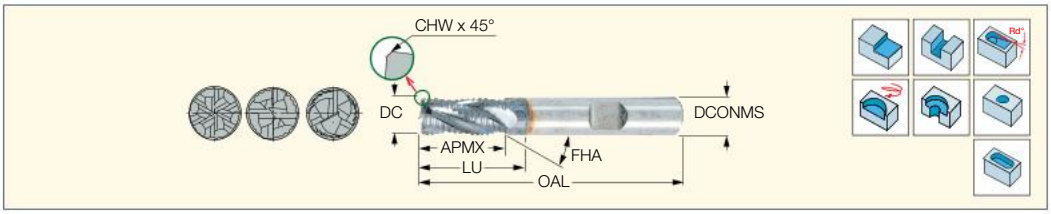


Designation	Dimensions DC	DCONMS	APMX	LU	OAL	NOF(1)	FHA	Shank(2)	RMPX°(3)	CHW	KCH	IC900	Recommended Machining Data f_z (mm/t)
ECP-E4L 05-12/17C06S57	5.00	6.00	12.00	17.0	57.00	4	38.0	C	5.0	0.20	45.0	•	0.02-0.05
ECP-E4L 05-12/17W06S57	5.00	6.00	12.00	17.0	57.00	4	38.0	W	5.0	0.20	45.0	•	0.02-0.05
ECP-E4L 06-14/20C06S57	6.00	6.00	14.00	20.0	57.00	4	38.0	C	5.0	0.30	45.0	•	0.03-0.06
ECP-E4L 06-14/20W06S57	6.00	6.00	14.00	20.0	57.00	4	38.0	W	5.0	0.30	45.0	•	0.03-0.06
ECP-E4L 08-18/26C08S63	8.00	8.00	18.00	26.0	63.00	4	38.0	C	5.0	0.40	45.0	•	0.03-0.08
ECP-E4L 08-18/26W08S63	8.00	8.00	18.00	26.0	63.00	4	38.0	W	5.0	0.40	45.0	•	0.03-0.08
ECP-E4L 10-22/32C10S72	10.00	10.00	22.00	32.0	72.00	4	38.0	C	5.0	0.40	45.0	•	0.03-0.09
ECP-E4L 10-22/32W10S72	10.00	10.00	22.00	32.0	72.00	4	38.0	W	5.0	0.40	45.0	•	0.03-0.09
ECP-E4L 12-26/38C12S83	12.00	12.00	26.00	38.0	83.00	4	38.0	C	5.0	0.40	45.0	•	0.04-0.10
ECP-E4L 12-26/38W12S83	12.00	12.00	26.00	38.0	83.00	4	38.0	W	5.0	0.40	45.0	•	0.04-0.10
ECP-E4L 14-30/44C14S100	14.00	14.00	30.00	44.0	100.00	4	38.0	C	5.0	0.50	45.0	•	0.04-0.11
ECP-E4L 14-30/44W14S100	14.00	14.00	30.00	44.0	100.00	4	38.0	W	5.0	0.50	45.0	•	0.04-0.11
ECP-E4L 16-34/50C16S100	16.00	16.00	34.00	50.0	100.00	4	38.0	C	5.0	0.50	45.0	•	0.05-0.12
ECP-E4L 16-34/50W16S100	16.00	16.00	34.00	50.0	100.00	4	38.0	W	5.0	0.50	45.0	•	0.05-0.12
ECP-E4L 20-42/62C20S125	20.00	20.00	42.00	62.0	125.00	4	38.0	C	5.0	0.50	45.0	•	0.05-0.15
ECP-E4L 20-42/62W20S125	20.00	20.00	42.00	62.0	125.00	4	38.0	W	5.0	0.50	45.0	•	0.05-0.15

• Most recommended for machining stainless steel. • For user guide, see pages 211-218
(1) Number of flutes
(2) C-Cylindrical, W-Weldon
(3) Maximum ramping angle

SOLIDSHRED

ERF-A/E-3,4,6
3, 4, and 6 Flute, 30° and 38° Helix Solid Carbide Roughing Endmills with 3xD Relieved Neck for Alloy Steel



Designation	Dimensions											IC900	Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	NOF[2]	FHA	RMPX°[3]	Shank[4]	CHW	KCH		f_z (mm/t)
ERF040E08-3C06	4.00	6.00	8.00	13.00	57.00	3	38.0	5.0	C	0.25	45.0	●	0.02-0.05
ERF050E10-3C06	5.00	6.00	10.00	17.00	57.00	3	38.0	5.0	C	0.30	45.0	●	0.02-0.05
ERF060E13-3C06	6.00	6.00	13.00	21.00	57.00	3	38.0	5.0	C	0.30	45.0	●	0.03-0.06
ERF060E13-3W06	6.00	6.00	13.00	21.00	57.00	3	38.0	5.0	W	0.30	45.0	●	0.03-0.06
ERF070E20-3C08	7.00	8.00	20.00	26.00	63.00	3	38.0	5.0	C	0.30	45.0	●	0.03-0.07
ERF080E20-3C08	8.00	8.00	20.00	28.00	63.00	3	38.0	5.0	C	0.30	45.0	●	0.03-0.08
ERF080E20-3W08	8.00	8.00	20.00	28.00	63.00	3	38.0	5.0	W	0.30	45.0	●	0.03-0.08
ERF090A22-4C10	9.00	10.00	22.00	30.00	72.00	4	30.0	5.0	C	0.30	45.0	●	0.03-0.08
ERF100A22-4C10	10.00	10.00	22.00	30.00	72.00	4	30.0	5.0	C	0.30	45.0	●	0.03-0.09
ERF100A22-4W10	10.00	10.00	22.00	30.00	72.00	4	30.0	5.0	W	0.30	45.0	●	0.03-0.09
ERF110A25-4C12	11.00	12.00	25.00	31.00	83.00	4	30.0	5.0	C	0.30	45.0	●	0.03-0.09
ERF120A25-4C12	12.00	12.00	25.00	37.00	83.00	4	30.0	5.0	C	0.40	45.0	●	0.04-0.10
ERF120A25-4W12	12.00	12.00	25.00	37.00	83.00	4	30.0	5.0	W	0.40	45.0	●	0.04-0.10
ERF130A25-4C14	13.00	14.00	25.00	32.00	83.00	4	30.0	5.0	C	0.40	45.0	●	0.04-0.10
ERF140A25-4C14	14.00	14.00	25.00	37.00	83.00	4	30.0	5.0	C	0.50	45.0	●	0.04-0.11
ERF140A25-4W14	14.00	14.00	25.00	37.00	83.00	4	30.0	5.0	W	0.50	45.0	●	0.04-0.11
ERF160A32-4C16	16.00	16.00	32.00	44.00	92.00	4	30.0	5.0	C	0.50	45.0	●	0.05-0.11
ERF160A32-4W16	16.00	16.00	32.00	44.00	92.00	4	30.0	5.0	W	0.50	45.0	●	0.05-0.11
ERF180A32-4C18	18.00	18.00	32.00	44.00	92.00	4	30.0	5.0	C	0.50	45.0	●	0.05-0.11
ERF180A32-4W18	18.00	18.00	32.00	44.00	92.00	4	30.0	5.0	W	0.50	45.0	●	0.05-0.11
ERF200A38-4C20	20.00	20.00	38.00	55.00	104.00	4	30.0	5.0	C	0.60	45.0	●	0.05-0.11
ERF200A38-4W20	20.00	20.00	38.00	55.00	104.00	4	30.0	5.0	W	0.60	45.0	●	0.05-0.11
ERF250A45-6W25 [1]	25.00	25.00	45.00	64.00	121.00	6	30.0	5.0	W	0.60	45.0	●	0.06-0.11

• For user guide, see pages 211-218

[1] No center cutting • Cannot be used for plunging application

[2] Number of flutes

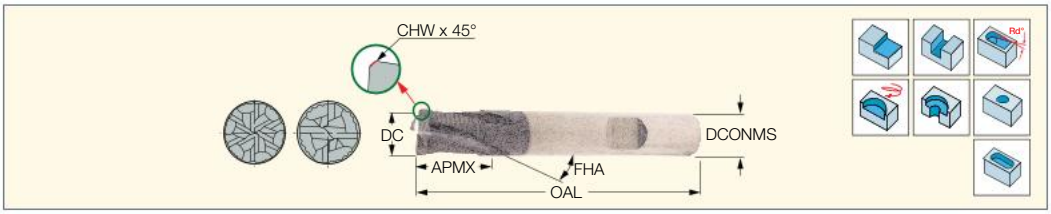
[3] Maximum ramping angle

[4] C-Cylindrical, W-Weldon

SOLIDSHRED

ECR-T-M

4 Flute, 20° Helix Medium Length Solid Carbide Roughing Endmills for High Stock Removal Rates



Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	CHW	KCH	IC900	Recommended Machining Data f_z (mm/t)
ECR-T4M 06-10-C06-57	6.00	6.00	10.00	57.00	4	20.0	5.0	C	0.30	45.0	●	0.03-0.06
ECR-T4M 06-10-W06-57	6.00	6.00	10.00	57.00	4	20.0	5.0	W	0.30	45.0	●	0.03-0.06
ECR-T4M 08-16-C08-63	8.00	8.00	16.00	63.00	4	20.0	5.0	C	0.40	45.0	●	0.03-0.08
ECR-T4M 08-16-W08-63	8.00	8.00	16.00	63.00	4	20.0	5.0	W	0.40	45.0	●	0.03-0.08
ECR-T4M 10-20-C10-72	10.00	10.00	20.00	72.00	4	20.0	5.0	C	0.40	45.0	●	0.03-0.09
ECR-T4M 10-20-W10-72	10.00	10.00	20.00	72.00	4	20.0	5.0	W	0.40	45.0	●	0.03-0.09
ECR-T4M 12-24-C12-83	12.00	12.00	24.00	83.00	4	20.0	5.0	C	0.40	45.0	●	0.04-0.10
ECR-T4M 12-24-W12-83	12.00	12.00	24.00	83.00	4	20.0	5.0	W	0.40	45.0	●	0.04-0.10
ECR-T4M 16-32-C16-92	16.00	16.00	32.00	92.00	4	20.0	5.0	C	0.50	45.0	●	0.05-0.11
ECR-T4M 16-32-W16-92	16.00	16.00	32.00	92.00	4	20.0	5.0	W	0.50	45.0	●	0.05-0.11
ECR-T4M 20-40-C20-104	20.00	20.00	40.00	104.00	4	20.0	5.0	C	0.50	45.0	●	0.05-0.11
ECR-T4M 20-40-W20-104	20.00	20.00	40.00	104.00	4	20.0	5.0	W	0.50	45.0	●	0.05-0.11

• For user guide, see pages 211-218

(1) Number of flutes

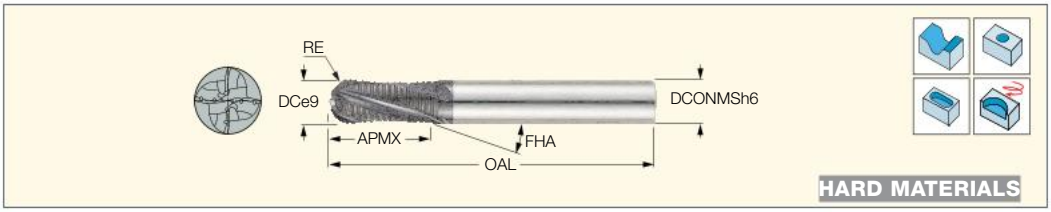
(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

SOLIDSHRED

EBRF-T

3, 4 Flute, 20° Helix Long Solid Carbide Ball Nose Endmills for Roughing Materials up to 55 HRC



Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RE	RETOL(3)	IC903
EBRF-T3 06-16C06M57	6.00	6.00	16.00	57.00	3	20.0	C	3.00	0.010	●
EBRF-T3 08-16C08M63	8.00	8.00	16.00	63.00	3	20.0	C	4.00	0.010	●
EBRF-T4 10-22C10M72	10.00	10.00	22.00	72.00	4	20.0	C	5.00	0.010	●
EBRF-T4 12-26C12M83	12.00	12.00	26.00	83.00	4	20.0	C	6.00	0.012	●
EBRF-T4 14-26C14M83	14.00	14.00	26.00	83.00	4	20.0	C	7.00	0.012	●
EBRF-T4 16-32C16M92	16.00	16.00	32.00	92.00	4	20.0	C	8.00	0.012	●
EBRF-T4 20-38C20M104	20.00	20.00	38.00	104.00	4	20.0	C	10.00	0.012	●

• For user guide, see pages 211-218

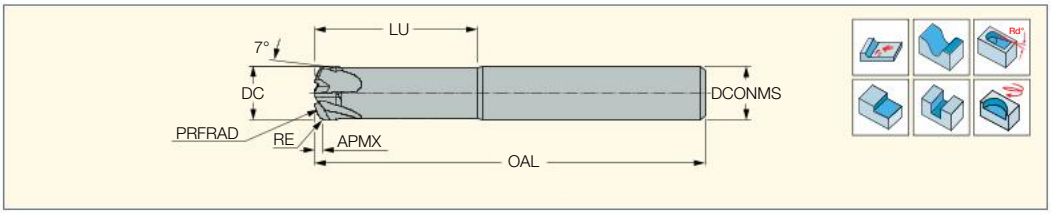
(1) Number of flutes

(2) C-Cylindrical

(3) Corner radius tolerance (+/-)

SOLID FEED MILL

EFF-S2/S4/S6
Solid Carbide Endmills with Relieved Necks for Fast Feed High Productivity



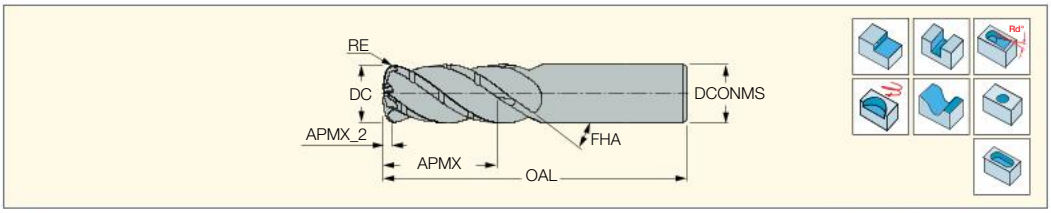
Designation	Dimensions DC	DCONMS	OAL	NOF(1)	LU	RE(2)	PRFRAD	APMX	Shank(3)	Tough ↔ Hard IC903	IC902	Recommended Machining Data f_z (mm/t)
EFF-S2 01-04/03C6RP.15M50	1.00	6.00	50.00	2	3.0	0.15	0.8	0.06	C		●	0.02-0.05
EFF-S2 02-07/06C6RP0.3M50	2.00	6.00	50.00	2	6.0	0.30	1.6	0.11	C		●	0.10-0.14
EFF-S2 03-1/09C06RP0.5M50	3.00	6.00	50.00	2	9.0	0.50	2.4	0.18	C		●	0.10-0.20
EFF-S4-04 020/14C06M57	4.00	6.00	57.00	4	14.0	0.70	3.8	0.20	C		●	0.10-0.25
EFF-S4-05 022/17C06M57	5.00	6.00	57.00	4	17.0	0.90	4.0	0.31	C		●	0.10-0.30
EFF-S4-06 030/20C06R1.0M	6.00	6.00	57.00	4	20.0	1.23	5.3	0.29	C	●		0.10-0.30
EFF-S6-06 025/20C06R0.7M	6.00	6.00	57.00	6	20.0	0.70	5.0	0.33	C		●	0.10-0.25
EFF-S4-08 035/26C08R1.3M	8.00	8.00	63.00	4	26.0	1.62	7.0	0.40	C	●		0.10-0.40
EFF-S6-08 025/26C08R0.86M	8.00	8.00	63.00	6	26.0	0.86	6.0	0.40	C		●	0.10-0.35
EFF-S4-10 040/30C10R1.6M	10.00	10.00	72.00	4	30.0	2.01	8.8	0.50	C	●		0.15-0.50
EFF-S6-10 025/30C10R1.0M	10.00	10.00	72.00	6	30.0	1.00	6.0	0.50	C		●	0.15-0.45
EFF-S4-12 045/34C12R2.0M	12.00	12.00	83.00	4	34.0	2.46	10.6	0.57	C	●		0.15-0.50
EFF-S6-12 030/34C12R1.2M	12.00	12.00	83.00	6	34.0	1.20	10.0	0.65	C		●	0.15-0.45
EFF-S4-16 055/42C16R2.6M	16.00	16.00	92.00	4	42.0	3.25	14.0	0.80	C	●		0.20-0.60
EFF-S6-16 045/42C16R2.0M	16.00	16.00	92.00	6	42.0	2.00	16.0	1.10	C		●	0.20-0.55
EFF-S4-20 060/46C20R3.2M	20.00	20.00	104.00	4	46.0	4.01	17.7	1.00	C	●		0.20-0.70

- For user guide, see pages 211-218

(1) Number of flutes
(2) To be used for programming
(3) C-Cylindrical

SOLID FEED MILL

EFP-E4,5CF
Solid Carbide Roughing Endmills with Chip Splitting, Cutting Edges, Variable Pitch and Large Radius Front Edge



Designation	Dimensions DC	DCONMS	OAL	RE(2)	NOF(3)	FHA	APMX_2(4)	APMX	RMPX°(5)	Shank(6)	IC903	Recommended Machining Data f_z (mm/t)
EFP-E4CF 06-12C06R1.0M57	6.00	6.00	57.00	1.00	4	38.0	0.30	12.00	5.0	C	●	0.02-0.30
EFP-E4CF 08-16C08R1.4M63	8.00	8.00	63.00	1.40	4	38.0	0.40	16.00	5.0	C	●	0.03-0.40
EFP-E4CF 10-20C10R1.7M72	10.00	10.00	72.00	1.70	4	38.0	0.50	20.00	5.0	C	●	0.03-0.50
EFP-E4CF 12-25C12R2.0M83	12.00	12.00	83.00	2.00	4	38.0	0.60	24.00	5.0	C	●	0.04-0.50
EFP-E4CF 16-32C16R2.7M92	16.00	16.00	92.00	2.70	4	38.0	0.80	32.00	5.0	C	●	0.05-0.60
EFP-E5CF 16-40C16R2.7M92 (1)	16.00	16.00	92.00	2.70	5	38.0	0.80	40.00	5.0	C	●	0.05-0.60
EFP-E4CF 20-40C20R3.4M104	20.00	20.00	104.00	3.40	4	38.0	1.00	40.00	5.0	C	●	0.05-0.70
EFP-E5CF 20-48C20R3.4M104 (1)	20.00	20.00	104.00	3.40	5	38.0	1.00	48.00	5.0	C	●	0.05-0.70

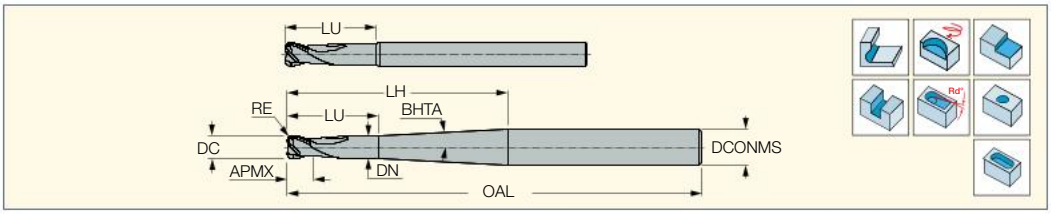
- For user guide, see pages 211-218

(1) Cannot be used for plunging application
(2) Used for programming
(3) Number of flutes
(4) Maximum D.O.C. for high feed milling (FEEDMILL)
(5) Maximum ramping angle
(6) C-Cylindrical

SOLIDMILL PREMIUM LINE

ETR-A2

2 Flute Toroidal Endmills



Designation	Dimensions												IC900	Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF[1]	LU	DN	LH	BHTA	RMPX°[2]	RE	Shank[3]		f_z (mm/t)
ETR-A2 02-2/08C06R.5M80	2.00	6.00	2.00	80.00	2	8.0	1.90	40.0	3.6	5.0	0.50	C	●	0.01-0.03
ETR-A2 03-2/12C06R.5M80	3.00	6.00	2.00	80.00	2	12.0	2.80	40.0	3.3	5.0	0.50	C	●	0.01-0.04
ETR-A2 04-3/16C06R1M80	4.00	6.00	3.00	80.00	2	16.0	3.70	40.0	2.8	5.0	1.00	C	●	0.02-0.05
ETR-A2 06-4/25C08R2M100	6.00	8.00	4.00	100.00	2	25.0	5.60	66.0	2.0	5.0	2.00	C	●	0.03-0.07
ETR-A2 10-6/40C12R3M160	10.00	12.00	6.00	158.00	2	40.0	9.60	110.0	1.0	5.0	3.00	C	●	0.03-0.10

- For user guide, see pages 211-218

(1) Number of flutes

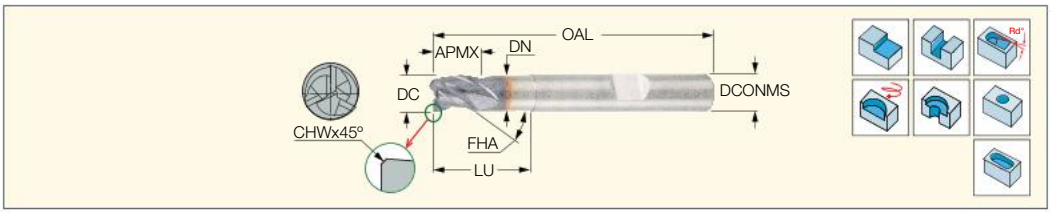
(2) Maximum ramping angle

(3) C-Cylindrical

SOLIDMILL PREMIUM LINE

ECS/ECCS-E-3

3 Flute, 38° Helix Short Solid Carbide Slot / Drill Endmills with 3xD Relieved Necks and Chamfered Corners



Designation	Dimensions												IC900	Recommended Machining Data
	DC	DCONMS	APMX	LU	DN	OAL	NOF[1]	FHA	RMPX°[2]	Shank[3]	CHW	KCH		f_z (mm/t)
ECS020E03-3W06-57	2.00	6.00	3.00	8.00	1.90	57.00	3	38.0	5.0	W	-	-	●	0.01-0.03
ECS025E03-3W06-57	2.50	6.00	3.00	8.00	2.40	57.00	3	38.0	5.0	W	-	-	●	0.01-0.03
ECS030E04-3W06-57	3.00	6.00	4.00	9.00	2.90	57.00	3	38.0	5.0	W	-	-	●	0.01-0.04
ECS035E04-3W06-57	3.50	6.00	4.00	12.00	3.40	57.00	3	38.0	5.0	W	-	-	●	0.01-0.04
ECS040E05-3W06-57	4.00	6.00	5.00	13.00	3.90	57.00	3	38.0	5.0	W	-	-	●	0.02-0.05
ECS050E06-3W06-57	5.00	6.00	6.00	14.00	4.90	57.00	3	38.0	5.0	W	-	-	●	0.02-0.06
ECCS060E07-3W06-57	6.00	6.00	7.00	15.00	5.90	57.00	3	38.0	5.0	W	0.15	45.0	●	0.03-0.07
ECCS070E08-3W08-63	7.00	8.00	8.00	20.00	6.70	63.00	3	38.0	5.0	W	0.15	45.0	●	0.03-0.08
ECCS080E09-3W08-63	8.00	8.00	9.00	21.00	7.60	63.00	3	38.0	5.0	W	0.15	45.0	●	0.03-0.09
ECCS090E10-3W10-72	9.00	10.00	10.00	22.00	8.60	72.00	3	38.0	5.0	W	0.15	45.0	●	0.03-0.09
ECCS100E11-3W10-72	10.00	10.00	11.00	23.00	9.50	72.00	3	38.0	5.0	W	0.25	45.0	●	0.03-0.10
ECCS120E12-3W12-83	12.00	12.00	12.00	24.00	11.30	83.00	3	38.0	5.0	W	0.25	45.0	●	0.04-0.11
ECCS160E16-3W16-92	16.00	16.00	16.00	33.00	15.20	92.00	3	38.0	5.0	W	0.25	45.0	●	0.05-0.13

- For user guide, see pages 211-218

(1) Number of flutes

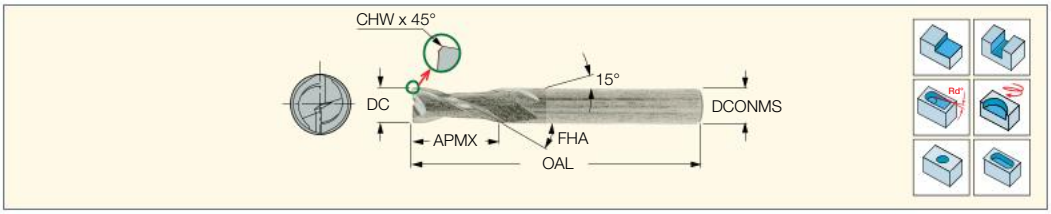
(2) Maximum ramping angle

(3) W-Weldon

SOLIDMILL PREMIUM LINE

EC/ECC-A-2

2 Flute, 30 and 45° Helix
Medium Length Solid Carbide
Slot / Drill Endmills



Designation	Dimensions										Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF[1]	FHA	RMPX°[2]	Shank[3]	KCH	CHW	IC08	IC900	f_z (mm/t)
ECC020B07-2C03	2.00	3.00	7.00	38.00	2	45.0	5.0	C	45.0	0.10		●	0.01-0.03
EC020B07-2C03	2.00	3.00	7.00	38.00	2	45.0	5.0	C	-	-	●		0.01-0.03
EC020B07-2C06	2.00	6.00	7.00	57.00	2	45.0	5.0	C	-	-		●	0.01-0.03
ECC025A07-2C03	2.50	3.00	7.00	38.00	2	30.0	5.0	C	45.0	0.10		●	0.01-0.03
EC025A07-2C03	2.50	3.00	7.00	38.00	2	30.0	5.0	C	-	-	●		0.01-0.03
ECC030A10-2C03	3.00	3.00	10.00	38.00	2	30.0	5.0	C	45.0	0.10		●	0.01-0.04
EC030A10-2C03	3.00	3.00	10.00	38.00	2	30.0	5.0	C	-	-	●		0.01-0.04
EC030A10-2C06	3.00	6.00	10.00	57.00	2	30.0	5.0	C	-	-		●	0.01-0.04
EC035A12-2C04	3.50	4.00	12.00	50.00	2	30.0	5.0	C	-	-	●		0.01-0.04
ECC040A12-2C04	4.00	4.00	12.00	50.00	2	30.0	5.0	C	45.0	0.15		●	0.02-0.05
EC040A12-2C04	4.00	4.00	12.00	50.00	2	30.0	5.0	C	-	-	●	●	0.02-0.05
EC040A12-2C06	4.00	6.00	12.00	57.00	2	30.0	5.0	C	-	-	●	●	0.02-0.05
ECC050A14-2C05	5.00	5.00	14.00	50.00	2	30.0	5.0	C	0.15	45.0		●	0.02-0.06
EC050A14-2C05	5.00	5.00	14.00	50.00	2	30.0	5.0	C	-	-	●		0.02-0.06
EC050A14-2C06	5.00	6.00	14.00	57.00	2	30.0	5.0	C	-	-		●	0.02-0.06
ECC060A16-2C06	6.00	6.00	16.00	57.00	2	30.0	5.0	C	0.15	45.0		●	0.03-0.07
EC060A16-2C06	6.00	6.00	16.00	57.00	2	30.0	5.0	C	-	-	●	●	0.03-0.07
EC060A16-2W06	6.00	6.00	16.00	57.00	2	30.0	5.0	W	-	-		●	0.03-0.07
EC070A20-2C07	7.00	7.00	20.00	60.00	2	30.0	5.0	C	-	-	●		0.03-0.08
ECC080A20-2C08	8.00	8.00	20.00	63.00	2	30.0	5.0	C	45.0	0.15		●	0.03-0.09
EC080A20-2C08	8.00	8.00	20.00	63.00	2	30.0	5.0	C	-	-	●	●	0.03-0.09
EC080A20-2W08	8.00	8.00	20.00	63.00	2	30.0	5.0	W	-	-		●	0.03-0.09
ECC100A22-2C10	10.00	10.00	22.00	72.00	2	30.0	5.0	C	45.0	0.25		●	0.03-0.10
EC100A22-2C10	10.00	10.00	22.00	72.00	2	30.0	5.0	C	-	-	●	●	0.03-0.10
ECC120A25-2C12	12.00	12.00	25.00	83.00	2	30.0	5.0	C	0.25	45.0		●	0.04-0.11
EC120A25-2C12	12.00	12.00	25.00	83.00	2	30.0	5.0	C	-	-	●	●	0.04-0.11
EC140A25-2C14	14.00	14.00	25.00	83.00	2	30.0	5.0	C	-	-	●	●	0.04-0.12
ECC160A32-2C16	16.00	16.00	32.00	92.00	2	30.0	5.0	C	45.0	0.25		●	0.05-0.13
EC160A32-2C16	16.00	16.00	32.00	92.00	2	30.0	5.0	C	-	-		●	0.05-0.13
EC180A32-2C18	18.00	18.00	32.00	92.00	2	30.0	5.0	C	-	-	●		0.05-0.13
ECC200A38-2C20	20.00	20.00	38.00	104.00	2	30.0	5.0	C	45.0	0.25		●	0.05-0.13
EC200A38-2C20	20.00	20.00	38.00	104.00	2	30.0	5.0	C	-	-	●	●	0.05-0.13

• For user guide, see pages 211-218

(1) Number of flutes

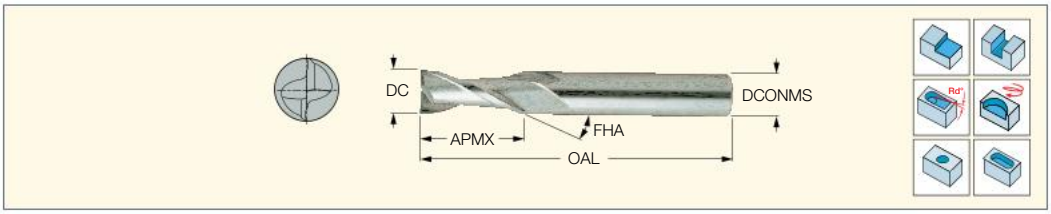
(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

SOLIDMILL TEC LINE

EC-A2 (economical-short/ medium/extra long)

Economical Type 2 Flute, 30° Helix Center Cutting, Short, Medium, and Extra Long Length Solid Carbide Endmills



Designation	Dimensions								Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF[1]	FHA	RMPX°[2]	Shank[3]	IC08	IC900	f_z (mm/t)
EC-A2 01-03C04E50	1.00	4.00	3.00	50.00	2	30.0	5.0	C	●	●	0.0050-0.0100
EC-A2 015-045C04E50	1.50	4.00	4.50	50.00	2	30.0	5.0	C	●	●	0.0050-0.0200
EC-A2 02-08C02E32	2.00	2.00	8.00	32.00	2	30.0	5.0	C	●	●	0.0100-0.0300
EC-A2 02-03W06E50	2.00	6.00	3.00	50.00	2	30.0	5.0	W	●	●	0.0100-0.0300
EC-A2 025-08C025E32	2.50	2.50	8.00	32.00	2	30.0	5.0	C	●	●	0.0100-0.0300
EC-A2 03-12C03E38	3.00	3.00	12.00	38.00	2	30.0	5.0	C	●	●	0.0100-0.0400
EC-A2 03-30C03E75	3.00	3.00	30.00	75.00	2	30.0	5.0	C	●	●	0.0100-0.0400
EC-A2 03-04W06E50	3.00	6.00	4.00	50.00	2	30.0	5.0	W	●	●	0.0100-0.0400
EC-A2 035-12C035E32	3.50	3.50	12.00	32.00	2	30.0	5.0	C	●	●	0.0100-0.0400
EC-A2 04-12C04E50	4.00	4.00	12.00	50.00	2	30.0	5.0	C	●	●	0.0200-0.0500
EC-A2 04-30C04E75	4.00	4.00	30.00	75.00	2	30.0	5.0	C	●	●	0.0200-0.0500
EC-A2 04-05W06E54	4.00	6.00	5.00	54.00	2	30.0	5.0	W	●	●	0.0200-0.0500
EC-A2 045-05W06E54	4.50	6.00	5.00	54.00	2	30.0	5.0	W	●	●	0.0200-0.0500
EC-A2 05-14C05E50	5.00	5.00	14.00	50.00	2	30.0	5.0	C	●	●	0.0200-0.0600
EC-A2 05-40C05E100	5.00	5.00	40.00	100.00	2	30.0	5.0	C	●	●	0.0200-0.0600
EC-A2 05-06W06E54	5.00	6.00	6.00	54.00	2	30.0	5.0	W	●	●	0.0200-0.0600
EC-A2 055-16C055E50	5.50	5.50	16.00	50.00	2	30.0	5.0	C	●	●	0.0200-0.0600
EC-A2 06-07W06E54	6.00	6.00	7.00	54.00	2	30.0	5.0	W	●	●	0.0300-0.0700
EC-A2 06-16C06E50	6.00	6.00	16.00	50.00	2	30.0	5.0	C	●	●	0.0300-0.0700
EC-A2 06-50C06E150	6.00	6.00	50.00	150.00	2	30.0	5.0	C	●	●	0.0300-0.0700
EC-A2 07-20C07E60	7.00	7.00	20.00	60.00	2	30.0	5.0	C	●	●	0.0300-0.0800
EC-A2 08-09W08E58	8.00	8.00	9.00	58.00	2	30.0	5.0	W	●	●	0.0300-0.0900
EC-A2 08-20C08E63	8.00	8.00	20.00	63.00	2	30.0	5.0	C	●	●	0.0300-0.0900
EC-A2 08-50C08E150	8.00	8.00	50.00	150.00	2	30.0	5.0	C	●	●	0.0300-0.0900
EC-A2 09-20C09E60	9.00	9.00	20.00	60.00	2	30.0	5.0	C	●	●	0.0300-0.0900
EC-A2 10-11W10E66	10.00	10.00	11.00	66.00	2	30.0	5.0	W	●	●	0.0300-0.1000
EC-A2 10-22C10E72	10.00	10.00	22.00	72.00	2	30.0	5.0	C	●	●	0.0300-0.1000
EC-A2 10-60C10E150	10.00	10.00	60.00	150.00	2	30.0	5.0	C	●	●	0.0300-0.1000
EC-A2 12-22C12E73	12.00	12.00	22.00	73.00	2	30.0	5.0	C	●	●	0.0400-0.1100
EC-A2 12-75C12E150	12.00	12.00	75.00	150.00	2	30.0	5.0	C	●	●	0.0400-0.1100
EC-A2 14-25C14E75	14.00	14.00	25.00	75.00	2	30.0	5.0	C		●	0.0400-0.1200
EC-A2 14-65C14E150	14.00	14.00	65.00	150.00	2	30.0	5.0	C	●	●	0.0400-0.1200
EC-A2 16-25C16E92	16.00	16.00	25.00	92.00	2	30.0	5.0	C	●	●	0.0500-0.1300
EC-A2 16-65C16E150	16.00	16.00	65.00	150.00	2	30.0	5.0	C	●	●	0.0500-0.1300
EC-A2 18-18W18E84	18.00	18.00	18.00	84.00	2	30.0	5.0	W	●		0.0500-0.1300
EC-A2 20-20W20E92	20.00	20.00	20.00	92.00	2	30.0	5.0	W	●	●	0.0500-0.1300
EC-A2 20-32C20E100	20.00	20.00	32.00	100.00	2	30.0	5.0	C	●	●	0.0500-0.1300
EC-A2 20-65C20E150	20.00	20.00	65.00	150.00	2	30.0	5.0	C	●	●	0.0500-0.1300

• For user guide, see pages 211-218

(1) Number of flutes

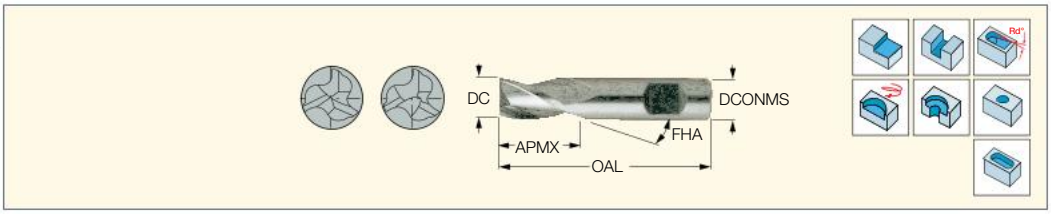
(2) Maximum ramping angle

(3) C-Cylindrical,W-Weldon

SOLIDMILL TEC LINE

EC-A3/E3 (economical-short/ medium)

Economical Type 3 Flute, 30° and 38° Helix, Center Cutting, Short, Mediun Length Solid Carbide Endmills



Designation	Dimensions								Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	IC08	IC900	f_z (mm/t)
EC-A3 005-015C03E38	0.50	3.00	1.50	38.00	3	30.0	5.0	C	●	●	0.0070-0.0100
EC-A3 008-02C03E38	0.80	3.00	2.00	38.00	3	30.0	5.0	C	●	●	0.0070-0.0100
EC-A3 01-02C03E38	1.00	3.00	2.00	38.00	3	30.0	5.0	C	●		0.0100-0.0300
EC-A3 012-02C03E38	1.20	3.00	2.00	38.00	3	30.0	5.0	C	●	●	0.0100-0.0300
EC-A3 015-02C03E38	1.50	3.00	2.00	38.00	3	30.0	5.0	C	●	●	0.0100-0.0300
EC-A3 018-02C03E38	1.80	3.00	2.00	38.00	3	30.0	5.0	C	●	●	0.0100-0.0300
EC-E3 02-08C02E32	2.00	2.00	8.00	32.00	3	38.0	5.0	C	●	●	0.0100-0.0300
EC-E3 02-04C06E35	2.00	6.00	4.00	35.00	3	38.0	5.0	C	●	●	0.0100-0.0300
EC-E3 025-08C025E32	2.50	2.50	8.00	32.00	3	38.0	5.0	C	●	●	0.0100-0.0300
EC-E3 025-05C06E36	2.50	6.00	5.00	36.00	3	38.0	5.0	C	●	●	0.0100-0.0300
EC-E3 03-12C03E38	3.00	3.00	12.00	38.00	3	38.0	5.0	C	●	●	0.0100-0.0400
EC-E3 03-05C06E36	3.00	6.00	5.00	36.00	3	38.0	5.0	C	●	●	0.0100-0.0400
EC-A3 035-12C035E32	3.50	3.50	12.00	32.00	3	30.0	5.0	C	●	●	0.0100-0.0400
EC-A3 035-06W06E37	3.50	6.00	6.00	37.00	3	30.0	5.0	W	●	●	0.0100-0.0400
EC-E3 04-12C04E50	4.00	4.00	12.00	50.00	3	38.0	5.0	C	●	●	0.0200-0.0500
EC-E3 04-07C06E39	4.00	6.00	7.00	39.00	3	38.0	5.0	C	●	●	0.0200-0.0500
EC-A3 045-14C045E50	4.50	4.50	14.00	50.00	3	30.0	5.0	C	●	●	0.0200-0.0500
EC-A3 045-08W06E38	4.50	6.00	8.00	38.00	3	30.0	5.0	W	●	●	0.0200-0.0500
EC-E3 05-14C05E50	5.00	5.00	14.00	50.00	3	38.0	5.0	C	●	●	0.0200-0.0600
EC-E3 05-08C06E39	5.00	6.00	8.00	39.00	3	30.0	5.0	C		●	0.0200-0.0600
EC-A3 055-16C055E50	5.50	5.50	16.00	50.00	3	30.0	5.0	C	●	●	0.0200-0.0600
EC-A3 055-08W06E39	5.50	6.00	8.00	39.00	3	30.0	5.0	W	●	●	0.0200-0.0600
EC-E3 06-08C06E39	6.00	6.00	8.00	39.00	3	38.0	5.0	C	●	●	0.0300-0.0700
EC-E3 06-16C06E50	6.00	6.00	16.00	50.00	3	38.0	5.0	C	●	●	0.0300-0.0700
EC-A3 0675-10W08E42	6.75	8.00	10.00	42.00	3	30.0	5.0	W	●	●	0.0300-0.0700
EC-E3 07-20C07E60	7.00	7.00	20.00	60.00	3	30.0	5.0	C	●	●	0.0300-0.0800
EC-A3 07-10W08E42	7.00	8.00	10.00	42.00	3	30.0	5.0	W	●	●	0.0300-0.0800
EC-E3 08-11C08E43	8.00	8.00	11.00	43.00	3	38.0	5.0	C	●	●	0.0300-0.0900
EC-E3 08-20C08E63	8.00	8.00	20.00	63.00	3	38.0	5.0	C	●	●	0.0300-0.0900
EC-A3 09-20C09E60	9.00	9.00	20.00	60.00	3	30.0	5.0	C	●	●	0.0300-0.0900
EC-A3 09-11W10E48	9.00	10.00	11.00	48.00	3	30.0	5.0	W	●	●	0.0300-0.0900
EC-A3 097-11W10E48	9.70	10.00	11.00	48.00	3	30.0	5.0	W	●	●	0.0300-0.0900
EC-E3 10-13C10E50	10.00	10.00	13.00	50.00	3	38.0	5.0	C	●	●	0.0300-0.1000
EC-E3 10-22C10E72	10.00	10.00	22.00	72.00	3	38.0	5.0	C	●	●	0.0300-0.1000
EC-E3 12-15C12E55	12.00	12.00	15.00	55.00	3	30.0	5.0	C	●	●	0.0400-0.1100
EC-E3 12-22C12E73	12.00	12.00	22.00	73.00	3	38.0	5.0	C	●	●	0.0400-0.1100
EC-A3 14-25C14E75	14.00	14.00	25.00	75.00	3	30.0	5.0	C	●	●	0.0400-0.1200
EC-A3 16-18W16E62	16.00	16.00	18.00	62.00	3	30.0	5.0	W	●	●	0.0500-0.1300
EC-A3 16-25C16E75	16.00	16.00	25.00	75.00	3	30.0	5.0	C	●	●	0.0500-0.1300
EC-E3 20-32C20E104	20.00	20.00	32.00	104.00	3	38.0	5.0	C	●		0.0500-0.1300

• For user guide, see pages 211-218

(1) Number of flutes

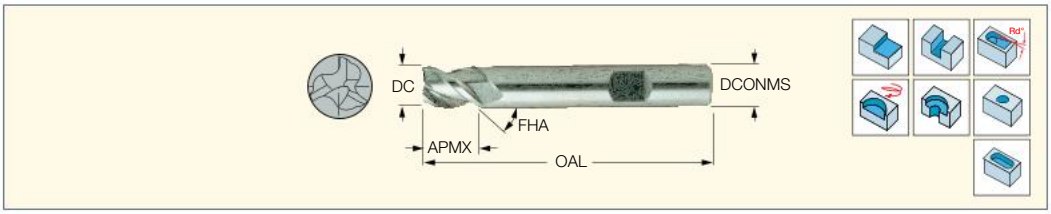
(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

SOLIDMILL TEC LINE

EC-B3 (economical-short/ medium)

Economical Type 3 Flute, 45° Helix, Center Cutting, Short, Medium Length Solid Carbide Endmills



Designation	Dimensions								Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	IC08	IC900	f_z (mm/t)
EC-B3 015-03C03E38	1.50	3.00	3.00	38.00	3	45.0	5.0	C	●	●	0.00-0.02
EC-B3 02-03W06E50	2.00	6.00	3.00	50.00	3	45.0	5.0	W	●	●	0.01-0.03
EC-B3 03-04W06E50	3.00	6.00	4.00	50.00	3	45.0	5.0	W	●	●	0.01-0.04
EC-B3 03-08C06E50	3.00	6.00	8.00	50.00	3	45.0	5.0	C	●	●	0.01-0.04
EC-B3 035-04W06E50	3.50	6.00	4.00	50.00	3	45.0	5.0	W	●	●	0.01-0.04
EC-B3 04-05W06E54	4.00	6.00	5.00	54.00	3	45.0	5.0	W	●	●	0.02-0.05
EC-B3 04-11C06E50	4.00	6.00	11.00	50.00	3	45.0	5.0	C	●	●	0.02-0.05
EC-B3 045-05W06E54	4.50	6.00	5.00	54.00	3	45.0	5.0	W	●	●	0.02-0.05
EC-B3 05-06C06E57	5.00	6.00	6.00	57.00	3	45.0	5.0	C	●	●	0.02-0.06
EC-B3 05-13C06E50	5.00	6.00	13.00	50.00	3	45.0	5.0	C	●	●	0.02-0.06
EC-B3 06-07W06E54	6.00	6.00	7.00	54.00	3	45.0	5.0	W	●	●	0.03-0.07
EC-B3 06-13C06E50	6.00	6.00	13.00	50.00	3	45.0	5.0	C	●	●	0.03-0.07
EC-B3 08-09W08E58	8.00	8.00	9.00	58.00	3	45.0	5.0	W	●	●	0.03-0.09
EC-B3 08-19C08E63	8.00	8.00	19.00	63.00	3	45.0	5.0	C	●	●	0.03-0.09
EC-B3 09-10W10E66	9.00	10.00	10.00	66.00	3	45.0	5.0	W	●	●	0.03-0.09
EC-B3 10-11W10E66	10.00	10.00	11.00	66.00	3	45.0	5.0	W	●	●	0.03-0.10
EC-B3 10-22C10E72	10.00	10.00	22.00	72.00	3	45.0	5.0	C	●	●	0.03-0.10
EC-B3 12-12W12E73	12.00	12.00	12.00	73.00	3	45.0	5.0	W	●	●	0.04-0.11
EC-B3 12-26C12E73	12.00	12.00	26.00	73.00	3	45.0	5.0	C	●	●	0.04-0.11
EC-B3 14-26C14E75	14.00	14.00	26.00	75.00	3	45.0	5.0	C	●	●	0.04-0.12
EC-B3 16-16W16E82	16.00	16.00	16.00	82.00	3	45.0	5.0	W	●	●	0.05-0.13
EC-B3 16-25C16E92	16.00	16.00	25.00	92.00	3	45.0	5.0	C	●	●	0.05-0.13
EC-B3 20-20W20E92	20.00	20.00	20.00	92.00	3	45.0	5.0	W	●	●	0.05-0.13
EC-B3 20-32C20E104	20.00	20.00	32.00	104.00	3	45.0	5.0	C	●	●	0.05-0.13

• For user guide, see pages 211-218

(1) Number of flutes

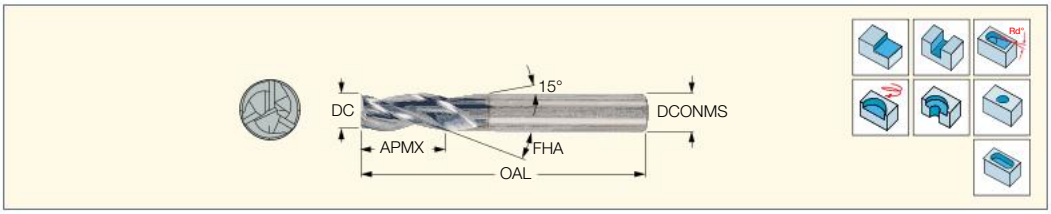
(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

SOLIDMILL PREMIUM LINE

EC-E-3

3 Flute, 38° Helix Medium Length Solid Carbide Endmills



Designation	Dimensions								Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF[1]	FHA	RMPX°[2]	Shank[3]	IC08	IC900	f_z (mm/t)
EC010E025-3C03	1.00	3.00	2.50	38.00	3	38.0	5.0	C		●	0.01-0.01
EC015E04-3C04	1.50	4.00	4.00	50.00	3	38.0	5.0	C		●	0.01-0.02
EC025E07-3C03	2.50	3.00	7.00	38.00	3	38.0	5.0	C		●	0.01-0.03
EC030E10-3C03	3.00	3.00	10.00	38.00	3	38.0	5.0	C	●	●	0.01-0.04
EC030E10-3C06	3.00	6.00	10.00	57.00	3	38.0	5.0	C		●	0.01-0.04
EC035E12-3C04	3.50	4.00	12.00	50.00	3	38.0	5.0	C	●	●	0.01-0.04
EC040E12-3C04	4.00	4.00	12.00	50.00	3	38.0	5.0	C	●	●	0.02-0.05
EC040E12-3C06	4.00	6.00	12.00	57.00	3	38.0	5.0	C		●	0.02-0.05
EC045E14-3C06	4.50	6.00	14.00	57.00	3	38.0	5.0	C	●	●	0.02-0.05
EC050E14-3C05	5.00	5.00	14.00	50.00	3	38.0	5.0	C	●	●	0.02-0.06
EC050E14-3C06	5.00	6.00	14.00	57.00	3	38.0	5.0	C		●	0.02-0.06
EC050E14-3W06	5.00	6.00	14.00	57.00	3	38.0	5.0	W		●	0.02-0.06
EC060E16-3C06	6.00	6.00	16.00	57.00	3	38.0	5.0	C	●	●	0.03-0.07
EC060E16-3W06	6.00	6.00	16.00	57.00	3	38.0	5.0	W		●	0.03-0.07
EC070E20-3C07	7.00	7.00	20.00	60.00	3	38.0	5.0	C	●	●	0.03-0.08
EC080E20-3C08	8.00	8.00	20.00	63.00	3	38.0	5.0	C	●	●	0.03-0.09
EC080E20-3W08	8.00	8.00	20.00	63.00	3	38.0	5.0	W		●	0.03-0.09
EC100E22-3C10	10.00	10.00	22.00	72.00	3	38.0	5.0	C	●	●	0.03-0.10
EC100E22-3W10	10.00	10.00	22.00	72.00	3	38.0	5.0	W		●	0.03-0.10
EC120E25-3C12	12.00	12.00	25.00	83.00	3	38.0	5.0	C	●	●	0.04-0.11
EC120E25-3W12	12.00	12.00	25.00	83.00	3	38.0	5.0	W		●	0.04-0.11
EC140E25-3C14	14.00	14.00	25.00	83.00	3	38.0	5.0	C		●	0.04-0.12
EC140E25-3W14	14.00	14.00	25.00	83.00	3	38.0	5.0	W		●	0.04-0.12
EC160E32-3C16	16.00	16.00	32.00	92.00	3	38.0	5.0	C	●	●	0.05-0.13
EC160E32-3W16	16.00	16.00	32.00	92.00	3	38.0	5.0	W		●	0.05-0.13
EC180E32-3C18	18.00	18.00	32.00	92.00	3	38.0	5.0	C		●	0.05-0.13
EC180E32-3W18	18.00	18.00	32.00	92.00	3	38.0	5.0	W		●	0.05-0.13
EC200E38-3C20	20.00	20.00	38.00	104.00	3	38.0	5.0	C		●	0.05-0.13
EC200E38-3W20	20.00	20.00	38.00	104.00	3	38.0	5.0	W		●	0.05-0.13

• Multi-purpose endmill. • Suitable for deep slotting. • For user guide, see pages 211-218

(1) Number of flutes

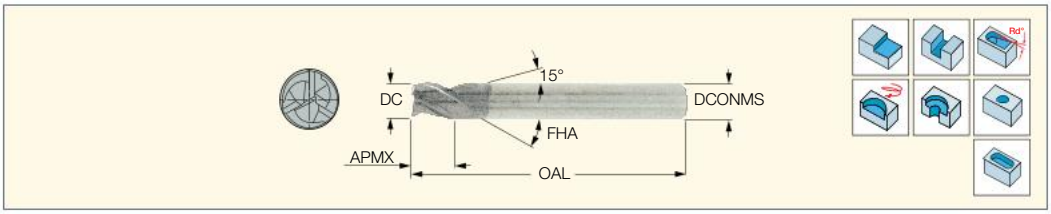
(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

SOLIDMILL PREMIUM LINE

ECU-E-3

3 Flute, 38° Helix Short Undersized Slot / Drill Solid Carbide Endmills



Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	IC900	Recommended Machining Data f_z (mm/t)
ECU028E04-3W06-57	2.80	6.00	4.00	57.00	3	38.0	5.0	W	●	0.01-0.04
ECU038E05-3W06-57	3.80	6.00	5.00	57.00	3	38.0	5.0	W	●	0.01-0.04
ECU048E06-3W06-57	4.80	6.00	6.00	57.00	3	38.0	5.0	W	●	0.02-0.05
ECU057E07-3W06-57	5.70	6.00	7.00	57.00	3	38.0	5.0	W	●	0.02-0.06
ECU067E08-3W08-63	6.70	8.00	8.00	63.00	3	38.0	5.0	W	●	0.03-0.07
ECU077E09-3W08-63	7.70	8.00	9.00	63.00	3	38.0	5.0	W	●	0.03-0.08
ECU097E11-3W10-72	9.70	10.00	11.00	72.00	3	38.0	5.0	W	●	0.03-0.09
ECU117E12-3W12-73	11.70	12.00	12.00	73.00	3	38.0	5.0	W	●	0.03-0.10
ECU137E16-3W14-83	13.70	14.00	14.00	83.00	3	38.0	5.0	W	●	0.04-0.11
ECU157E16-3W16-92	15.70	16.00	16.00	92.00	3	38.0	5.0	W	●	0.04-0.12
ECU177E18-3W18-92	17.70	18.00	18.00	92.00	3	38.0	5.0	W	●	0.05-0.13

• Undersized short design for keyholes • For user guide, see pages 211-218

(1) Number of flutes

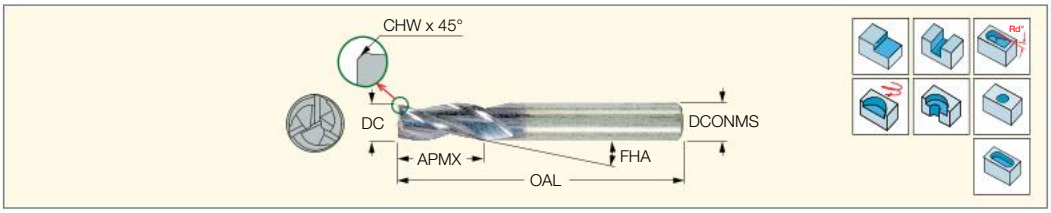
(2) Maximum ramping angle

(3) W-Weldon

SOLIDMILL PREMIUM LINE

ECC-E-3

3 Flute, 38° Helix Medium Length Slot / Drill Solid Carbide Endmills with Chamfered Corners



Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	CHW	KCH	IC900	Recommended Machining Data f_z (mm/t)
ECC030E10-3C03	3.00	3.00	10.00	38.00	3	38.0	5.0	C	0.10	45.0	●	0.01-0.04
ECC035E12-3C04	3.50	4.00	12.00	50.00	3	38.0	5.0	C	0.10	45.0	●	0.01-0.04
ECC040E12-3C04	4.00	4.00	12.00	50.00	3	38.0	5.0	C	0.15	45.0	●	0.02-0.05
ECC050E14-3C05	5.00	5.00	14.00	50.00	3	38.0	5.0	C	0.15	45.0	●	0.02-0.06
ECC060E16-3C06	6.00	6.00	16.00	57.00	3	38.0	5.0	C	0.15	45.0	●	0.03-0.07
ECC060E16-3W06	6.00	6.00	16.00	57.00	3	38.0	5.0	W	0.15	45.0	●	0.03-0.07
ECC080E20-3C08	8.00	8.00	20.00	63.00	3	38.0	5.0	C	0.15	45.0	●	0.03-0.09
ECC080E20-3W08	8.00	8.00	20.00	63.00	3	38.0	5.0	W	0.15	45.0	●	0.03-0.09
ECC100E22-3C10	10.00	10.00	22.00	72.00	3	38.0	5.0	C	0.25	45.0	●	0.03-0.10
ECC100E22-3W10	10.00	10.00	22.00	72.00	3	38.0	5.0	W	0.25	45.0	●	0.03-0.10
ECC120E25-3C12	12.00	12.00	25.00	83.00	3	38.0	5.0	C	0.25	45.0	●	0.04-0.11
ECC120E25-3W12	12.00	12.00	25.00	83.00	3	38.0	5.0	W	0.25	45.0	●	0.04-0.11
ECC160E32-3C16	16.00	16.00	32.00	92.00	3	38.0	5.0	C	0.25	45.0	●	0.05-0.13
ECC160E32-3W16	16.00	16.00	32.00	92.00	3	38.0	5.0	W	0.25	45.0	●	0.05-0.13
ECC200E38-3C20	20.00	20.00	38.00	104.00	3	38.0	5.0	C	0.25	45.0	●	0.05-0.13
ECC200E38-3W20	20.00	20.00	38.00	104.00	3	38.0	5.0	W	0.25	45.0	●	0.05-0.13

• Multi-purpose endmill • Suitable for deep slotting • For user guide, see pages 211-218

(1) Number of flutes

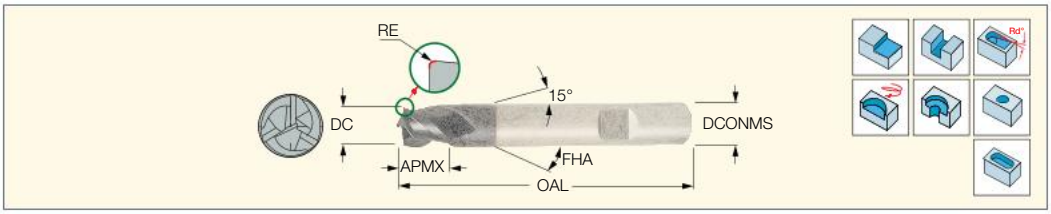
(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

SOLIDMILL PREMIUM LINE

ECU-E-3-R

3 Flute, 38° Helix Short Undersized Slot / Drill Solid Carbide Endmills with Various Radii According to DIN 6885



Designation	Dimensions									IC900	Recommended Machining Data
	DC	DCONMS	APMX	RE	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)		f_z (mm/t)
ECU038E05-3W06R01L57	3.80	6.00	5.00	0.10	57.00	3	38.0	5.0	W	●	0.01-0.04
ECU048E06-3W06R02L57	4.80	6.00	6.00	0.20	57.00	3	38.0	5.0	W	●	0.02-0.05
ECU057E07-3W06R02L57	5.70	6.00	7.00	0.20	57.00	3	38.0	5.0	W	●	0.02-0.06
ECU077E09-3W08R02L63	7.70	8.00	9.00	0.20	63.00	3	38.0	5.0	W	●	0.03-0.08
ECU097E11-3W10R03L72	9.70	10.00	11.00	0.30	72.00	3	38.0	5.0	W	●	0.03-0.09
ECU117E12-3W12R03L83	11.70	12.00	12.00	0.30	83.00	3	38.0	5.0	W	●	0.03-0.10

• For user guide, see pages 211-218

(1) Number of flutes

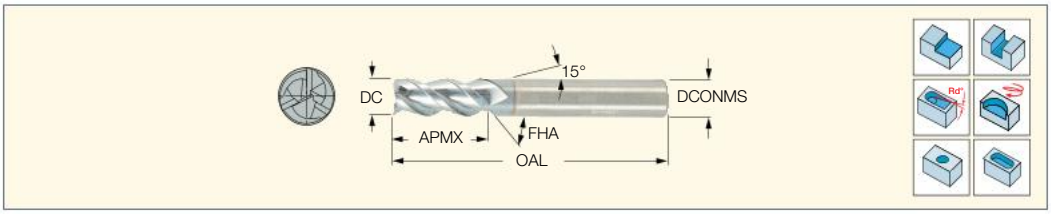
(2) Maximum ramping angle

(3) W-Weldon

SOLIDMILL PREMIUM LINE

EC-B-3/3R

3 Flute, 45° Helix Medium Length Slot / Drill Solid Carbide Endmills



Designation	Dimensions									Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	RE	IC08	IC900	f_z (mm/t)
EC020B07-3C03	2.00	3.00	7.00	38.00	3	45.0	5.0	C	-	●	●	0.01-0.03
EC020B07-3C06	2.00	6.00	7.00	57.00	3	45.0	5.0	C	-		●	0.01-0.03
EC025B07-3C03	2.50	3.00	7.00	38.00	3	45.0	5.0	C	-	●	●	0.01-0.03
EC030B10-3C03	3.00	3.00	10.00	38.00	3	45.0	5.0	C	-		●	0.01-0.04
EC030B10-3C06	3.00	6.00	10.00	57.00	3	45.0	5.0	C	-		●	0.01-0.04
EC040B12-3C04	4.00	4.00	12.00	50.00	3	45.0	5.0	C	-		●	0.02-0.05
EC040B12-3C06	4.00	6.00	12.00	57.00	3	45.0	5.0	C	-		●	0.02-0.05
EC050B14-3C05	5.00	5.00	14.00	50.00	3	45.0	5.0	C	-		●	0.02-0.06
EC050B14-3C06	5.00	6.00	14.00	57.00	3	45.0	5.0	C	-		●	0.02-0.06
EC060B13-3C06R0.5	6.00	6.00	13.00	57.00	3	45.0	5.0	C	0.50		●	0.03-0.07
EC060B13-3C06R1.0	6.00	6.00	13.00	57.00	3	45.0	5.0	C	1.00		●	0.03-0.07
EC060B16-3C06	6.00	6.00	16.00	57.00	3	45.0	5.0	C	-		●	0.03-0.07
EC060B16-3W06	6.00	6.00	16.00	57.00	3	45.0	5.0	W	-		●	0.03-0.07
EC070B16-3C07	7.00	7.00	16.00	60.00	3	45.0	5.0	C	-		●	0.03-0.08
EC080B20-3C08	8.00	8.00	20.00	63.00	3	45.0	5.0	C	-		●	0.03-0.09
EC080B20-3C08R0.5	8.00	8.00	20.00	63.00	3	45.0	5.0	C	0.50		●	0.03-0.09
EC080B20-3C08R1	8.00	8.00	20.00	63.00	3	45.0	5.0	C	1.00		●	0.03-0.09
EC080B20-3C08R1.5	8.00	8.00	20.00	63.00	3	45.0	5.0	C	1.50		●	0.03-0.09
EC080B20-3C08R2	8.00	8.00	20.00	63.00	3	45.0	5.0	C	2.00		●	0.03-0.09
EC080B20-3W08	8.00	8.00	20.00	63.00	3	45.0	5.0	W	-		●	0.03-0.09
EC090B20-3C09	9.00	9.00	20.00	67.00	3	45.0	5.0	C	-		●	0.03-0.09
EC100B22-3C10	10.00	10.00	22.00	72.00	3	45.0	5.0	C	-		●	0.03-0.10
EC100B22-3C10R0.5	10.00	10.00	22.00	72.00	3	45.0	5.0	C	0.50		●	0.03-0.10
EC100B22-3C10R1	10.00	10.00	22.00	72.00	3	45.0	5.0	C	1.00		●	0.03-0.10
EC100B22-3C10R1.5	10.00	10.00	22.00	72.00	3	45.0	5.0	C	1.50		●	0.03-0.10
EC100B22-3C10R2	10.00	10.00	22.00	72.00	3	45.0	5.0	C	2.00		●	0.03-0.10
EC100B22-3C10R3	10.00	10.00	22.00	72.00	3	45.0	5.0	C	3.00		●	0.03-0.10
EC100B22-3W10	10.00	10.00	22.00	72.00	3	45.0	5.0	W	-		●	0.03-0.10
EC120B25-3C12	12.00	12.00	25.00	83.00	3	45.0	5.0	C	-		●	0.04-0.11
EC120B25-3C12R0.5	12.00	12.00	25.00	83.00	3	45.0	5.0	C	0.50		●	0.04-0.11
EC120B25-3C12R1	12.00	12.00	25.00	83.00	3	45.0	5.0	C	1.00		●	0.04-0.11
EC120B25-3C12R1.5	12.00	12.00	25.00	83.00	3	45.0	5.0	C	1.50		●	0.04-0.11
EC120B25-3C12R2	12.00	12.00	25.00	83.00	3	45.0	5.0	C	2.00		●	0.04-0.11
EC120B25-3C12R3	12.00	12.00	25.00	83.00	3	45.0	5.0	C	3.00		●	0.04-0.11
EC120B25-3W12	12.00	12.00	25.00	83.00	3	45.0	5.0	W	-		●	0.04-0.11
EC140B25-3C14	14.00	14.00	25.00	83.00	3	45.0	5.0	C	-		●	0.04-0.12
EC140B25-3W14	14.00	14.00	25.00	83.00	3	45.0	5.0	W	-		●	0.04-0.12
EC160B32-3C16	16.00	16.00	32.00	92.00	3	45.0	5.0	C	-		●	0.05-0.13
EC160B32-3C16R0.5	16.00	16.00	32.00	92.00	3	45.0	5.0	C	0.50		●	0.05-0.13
EC160B32-3C16R1	16.00	16.00	32.00	92.00	3	45.0	5.0	C	1.00		●	0.05-0.13
EC160B32-3C16R2	16.00	16.00	32.00	92.00	3	45.0	5.0	C	2.00		●	0.05-0.13
EC160B32-3C16R3	16.00	16.00	32.00	92.00	3	45.0	5.0	C	3.00		●	0.05-0.13
EC160B32-3W16	16.00	16.00	32.00	92.00	3	45.0	5.0	W	-		●	0.05-0.13
EC180B32-3C18	18.00	18.00	32.00	92.00	3	45.0	5.0	C	-		●	0.05-0.13
EC180B32-3W18	18.00	18.00	32.00	92.00	3	45.0	5.0	W	-		●	0.05-0.13
EC200B38-3C20	20.00	20.00	38.00	104.00	3	45.0	5.0	C	-		●	0.05-0.13
EC200B38-3C20R0.5	20.00	20.00	38.00	104.00	3	45.0	5.0	C	0.50		●	0.05-0.13
EC200B38-3C20R1	20.00	20.00	38.00	104.00	3	45.0	5.0	C	1.00		●	0.05-0.13
EC200B38-3C20R2	20.00	20.00	38.00	104.00	3	45.0	5.0	C	2.00		●	0.05-0.13
EC200B38-3C20R3	20.00	20.00	38.00	104.00	3	45.0	5.0	C	3.00		●	0.05-0.13
EC200B38-3C20R4	20.00	20.00	38.00	104.00	3	45.0	5.0	C	4.00		●	0.05-0.13
EC200B38-3W20	20.00	20.00	38.00	104.00	3	45.0	5.0	W	-		●	0.05-0.13

• Excellent for deep slotting and shouldering. • For user guide, see pages 211-218

(1) Number of flutes

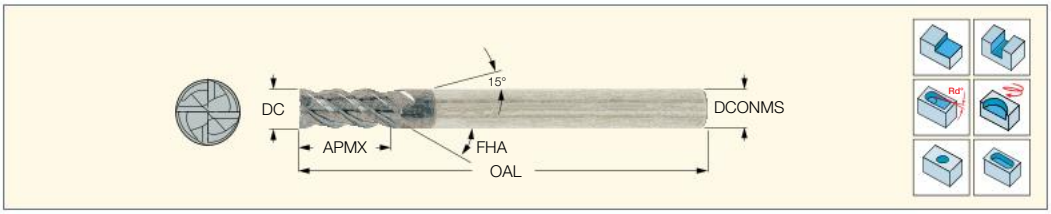
(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

SOLIDMILL PREMIUM LINE

EC-B-4/4R

4 Flute, 45° Helix Medium Length Solid Carbide Endmills



Designation	Dimensions									Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF[1]	FHA	RMPX°[2]	Shank[3]	RE	IC900	IC902	f_z (mm/t)
EC020B07-4C03	2.00	3.00	7.00	38.00	4	45.0	5.0	C	-	•		0.01-0.03
EC020B07-4C03R0.25-38	2.00	3.00	7.00	38.00	4	45.0	5.0	C	0.25		•	0.01-0.03
EC020B07-4C06	2.00	6.00	7.00	57.00	4	45.0	5.0	C	-	•		0.01-0.03
EC030B10-4C03	3.00	3.00	10.00	38.00	4	45.0	5.0	C	-	•		0.01-0.04
EC030B10-4C06	3.00	6.00	10.00	57.00	4	45.0	5.0	C	-	•		0.01-0.04
EC040B12-4C04	4.00	4.00	12.00	50.00	4	45.0	5.0	C	-	•		0.02-0.05
EC040B12-4C06	4.00	6.00	12.00	57.00	4	45.0	5.0	C	-	•		0.02-0.05
EC050B14-4C05	5.00	5.00	14.00	50.00	4	45.0	5.0	C	-	•		0.02-0.06
EC050B14-4C06	5.00	6.00	14.00	57.00	4	45.0	5.0	C	-	•		0.02-0.06
EC060B16-4C06	6.00	6.00	16.00	57.00	4	45.0	5.0	C	-	•		0.03-0.07
EC060B16-4C06R0.5	6.00	6.00	16.00	57.00	4	45.0	5.0	C	0.50	•		0.03-0.07
EC060B16-4C06R1	6.00	6.00	16.00	57.00	4	45.0	5.0	C	1.00	•		0.03-0.07
EC060B16-4W06	6.00	6.00	16.00	57.00	4	45.0	5.0	W	-	•		0.03-0.07
EC070B16-4C07	7.00	7.00	16.00	60.00	4	45.0	5.0	C	-	•		0.03-0.08
EC080B20-4C08	8.00	8.00	20.00	63.00	4	45.0	5.0	C	-	•		0.03-0.09
EC080B20-4C08R0.5	8.00	8.00	20.00	63.00	4	45.0	5.0	C	0.50	•		0.03-0.09
EC080B20-4C08R1	8.00	8.00	20.00	63.00	4	45.0	5.0	C	1.00	•		0.03-0.09
EC080B20-4C08R1.5	8.00	8.00	20.00	63.00	4	45.0	5.0	C	1.50	•		0.03-0.09
EC080B20-4C08R2	8.00	8.00	20.00	63.00	4	45.0	5.0	C	2.00	•		0.03-0.09
EC080B20-4W08	8.00	8.00	20.00	63.00	4	45.0	5.0	W	-	•		0.03-0.09
EC090B20-4C09	9.00	9.00	20.00	67.00	4	45.0	5.0	C	-	•		0.03-0.09
EC100B22-4C10	10.00	10.00	22.00	72.00	4	45.0	5.0	C	-	•		0.03-0.10
EC100B22-4C10R0.5	10.00	10.00	22.00	72.00	4	45.0	5.0	C	0.50	•		0.03-0.10
EC100B22-4C10R1	10.00	10.00	22.00	72.00	4	45.0	5.0	C	1.00	•		0.03-0.10
EC100B22-4C10R1.5	10.00	10.00	22.00	72.00	4	45.0	5.0	C	1.50	•		0.03-0.10
EC100B22-4C10R2	10.00	10.00	22.00	72.00	4	45.0	5.0	C	2.00	•		0.03-0.10
EC100B22-4C10R3	10.00	10.00	22.00	72.00	4	45.0	5.0	C	3.00	•		0.03-0.10
EC100B22-4W10	10.00	10.00	22.00	72.00	4	45.0	5.0	W	-	•		0.03-0.10
EC120B25-4C12	12.00	12.00	25.00	83.00	4	45.0	5.0	C	-	•		0.04-0.11
EC120B25-4C12R0.5	12.00	12.00	25.00	83.00	4	45.0	5.0	C	0.50	•		0.04-0.11
EC120B25-4C12R1	12.00	12.00	25.00	83.00	4	45.0	5.0	C	1.00	•		0.04-0.11
EC120B25-4C12R1.5	12.00	12.00	25.00	83.00	4	45.0	5.0	C	1.50	•		0.04-0.11
EC120B25-4C12R2	12.00	12.00	25.00	83.00	4	45.0	5.0	C	2.00	•		0.04-0.11
EC120B25-4C12R3	12.00	12.00	25.00	83.00	4	45.0	5.0	C	3.00	•		0.04-0.11
EC120B25-4W12	12.00	12.00	25.00	83.00	4	45.0	5.0	W	-	•		0.04-0.11
EC140B25-4C14	14.00	14.00	25.00	83.00	4	45.0	5.0	C	-	•		0.04-0.12
EC160B32-4C16	16.00	16.00	32.00	92.00	4	45.0	5.0	C	-	•		0.05-0.13
EC160B32-4C16R0.5	16.00	16.00	32.00	92.00	4	45.0	5.0	C	0.50	•		0.05-0.13
EC160B32-4C16R1	16.00	16.00	32.00	92.00	4	45.0	5.0	C	1.00	•		0.05-0.13
EC160B32-4C16R1.5	16.00	16.00	32.00	92.00	4	45.0	5.0	C	1.50	•		0.05-0.13
EC160B32-4C16R2	16.00	16.00	32.00	92.00	4	45.0	5.0	C	2.00	•		0.05-0.13
EC160B32-4C16R2.5	16.00	16.00	32.00	92.00	4	45.0	5.0	C	2.50	•		0.05-0.13
EC160B32-4C16R3	16.00	16.00	32.00	92.00	4	45.0	5.0	C	3.00	•		0.05-0.13
EC160B32-4W16	16.00	16.00	32.00	92.00	4	45.0	5.0	W	-	•		0.05-0.13
EC180B32-4C18	18.00	18.00	32.00	92.00	4	45.0	5.0	C	-	•		0.05-0.13
EC200B38-4C20	20.00	20.00	38.00	104.00	4	45.0	5.0	C	-	•		0.05-0.13
EC200B38-4C20R0.5	20.00	20.00	38.00	104.00	4	45.0	5.0	C	0.50	•		0.05-0.13
EC200B38-4C20R1	20.00	20.00	38.00	104.00	4	45.0	5.0	C	1.00	•		0.05-0.13
EC200B38-4C20R1.5	20.00	20.00	38.00	104.00	4	45.0	5.0	C	1.50	•		0.05-0.13
EC200B38-4C20R2	20.00	20.00	38.00	104.00	4	45.0	5.0	C	2.00	•		0.05-0.13
EC200B38-4C20R2.5	20.00	20.00	38.00	104.00	4	45.0	5.0	C	2.50	•		0.05-0.13
EC200B38-4C20R3	20.00	20.00	38.00	104.00	4	45.0	5.0	C	3.00	•		0.05-0.13
EC200B38-4C20R4	20.00	20.00	38.00	104.00	4	45.0	5.0	C	4.00	•		0.05-0.13
EC200B38-4C20R5	20.00	20.00	38.00	104.00	4	45.0	5.0	C	5.00	•		0.05-0.13
EC200B38-4W20	20.00	20.00	38.00	104.00	4	45.0	5.0	W	-	•		0.05-0.13

• For user guide, see pages 211-218

(1) Number of flutes

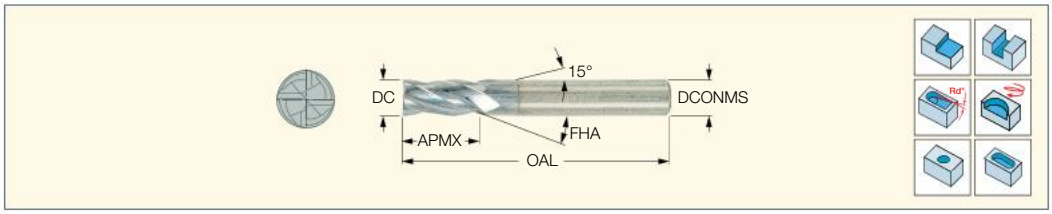
(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

SOLIDMILL PREMIUM LINE

EC-A-4/4R

4 Flute, 30° Helix Medium Length Solid Carbide Endmills with Different Radii Dimensions



Designation	Dimensions									Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	RE	IC08	IC900	f_z (mm/t)
EC020A07-4C03	2.00	3.00	7.00	38.00	4	30.0	5.0	C	-		•	0.01-0.03
EC020A10-4C05R0.4	2.00	5.00	10.00	50.00	4	30.0	5.0	C	0.40		•	0.01-0.04
EC025A07-4C03	2.50	3.00	7.00	38.00	4	30.0	5.0	C	-		•	0.01-0.03
EC030A10-4C03	3.00	3.00	10.00	38.00	4	30.0	5.0	C	-		•	0.01-0.04
EC030A10-4C03R0.6	3.00	3.00	10.00	38.00	4	30.0	5.0	C	0.60		•	0.01-0.04
EC030A10-4C03R0.8	3.00	3.00	10.00	38.00	4	30.0	5.0	C	0.80		•	0.01-0.04
EC030A10-4C04R0.4	3.00	4.00	10.00	50.00	4	30.0	5.0	C	0.40		•	0.01-0.04
EC030A10-4C06	3.00	6.00	10.00	57.00	4	30.0	5.0	C	-		•	0.01-0.04
EC035A12-4C04	3.50	4.00	12.00	50.00	4	30.0	5.0	C	-		•	0.01-0.04
EC035A12-4C04R0.4	3.50	4.00	12.00	50.00	4	30.0	5.0	C	0.40		•	0.01-0.04
EC040A07-4C04R0.4	4.00	4.00	7.00	50.00	4	30.0	5.0	C	0.40		•	0.02-0.05
EC040A10-4C04R1.0	4.00	4.00	10.00	50.00	4	30.0	5.0	C	1.00		•	0.02-0.05
EC040A12-4C04	4.00	4.00	12.00	50.00	4	30.0	5.0	C	-		•	0.02-0.05
EC040A12-4C04R0.4	4.00	4.00	12.00	50.00	4	30.0	5.0	C	0.40		•	0.02-0.05
EC040A12-4C04R0.8	4.00	4.00	12.00	50.00	4	30.0	5.0	C	0.80		•	0.02-0.05
EC040A12-4C06	4.00	6.00	12.00	57.00	4	30.0	5.0	C	-		•	0.02-0.05
EC045A14-4C06	4.50	6.00	14.00	57.00	4	30.0	5.0	C	-		•	0.02-0.05
EC050A14-4C05	5.00	5.00	14.00	50.00	4	30.0	5.0	C	-		•	0.02-0.06
EC050A14-4C05R0.5	5.00	5.00	14.00	50.00	4	30.0	5.0	C	0.50		•	0.02-0.06
EC050A20-4C05R0.8	5.00	5.00	20.00	50.00	4	30.0	5.0	C	0.80		•	0.02-0.06
EC050A14-4C06	5.00	6.00	14.00	57.00	4	30.0	5.0	C	-		•	0.02-0.06
EC060A16-4C06	6.00	6.00	16.00	57.00	4	30.0	5.0	C	-	•	•	0.03-0.07
EC060A16-4C06R0.4	6.00	6.00	16.00	57.00	4	30.0	5.0	C	0.40		•	0.03-0.07
EC060A16-4C06R0.8	6.00	6.00	16.00	57.00	4	30.0	5.0	C	0.80		•	0.03-0.07
EC060A16-4W06	6.00	6.00	16.00	57.00	4	30.0	5.0	W	-		•	0.03-0.07
EC070A20-4C07	7.00	7.00	20.00	60.00	4	30.0	5.0	C	-	•	•	0.03-0.08
EC075A20-4C08	7.50	8.00	20.00	63.00	4	30.0	5.0	C	-		•	0.03-0.08
EC080A20-4C08	8.00	8.00	20.00	63.00	4	30.0	5.0	C	-	•	•	0.03-0.09
EC080A20-4C08R0.8	8.00	8.00	20.00	63.00	4	30.0	5.0	C	0.80		•	0.03-0.09
EC080A20-4W08	8.00	8.00	20.00	63.00	4	30.0	5.0	W	-		•	0.03-0.09
EC100A22-4C10	10.00	10.00	22.00	72.00	4	30.0	5.0	C	-	•	•	0.03-0.10
EC100A22-4W10	10.00	10.00	22.00	72.00	4	30.0	5.0	W	-		•	0.03-0.10
EC120A25-4C12	12.00	12.00	25.00	83.00	4	30.0	5.0	C	-	•	•	0.04-0.11
EC120A25-4W12	12.00	12.00	25.00	83.00	4	30.0	5.0	W	-		•	0.04-0.11
EC140A25-4C14	14.00	14.00	25.00	83.00	4	30.0	5.0	C	-	•	•	0.04-0.12
EC140A32-4C14	14.00	14.00	32.00	83.00	4	30.0	5.0	C	-		•	0.04-0.12
EC160A32-4C16	16.00	16.00	32.00	92.00	4	30.0	5.0	C	-	•	•	0.05-0.13
EC160A32-4W16	16.00	16.00	32.00	92.00	4	30.0	5.0	W	-		•	0.05-0.13
EC160A40-4C16-92	16.00	16.00	40.00	92.00	4	30.0	5.0	C	-		•	0.05-0.13
EC180A32-4C18	18.00	18.00	32.00	92.00	4	30.0	5.0	C	-		•	0.05-0.13
EC200A38-4C20	20.00	20.00	38.00	104.00	4	30.0	5.0	C	-		•	0.05-0.13
EC200A38-4W20	20.00	20.00	38.00	104.00	4	30.0	5.0	W	-		•	0.05-0.13

• For user guide, see pages 211-218

(1) Number of flutes

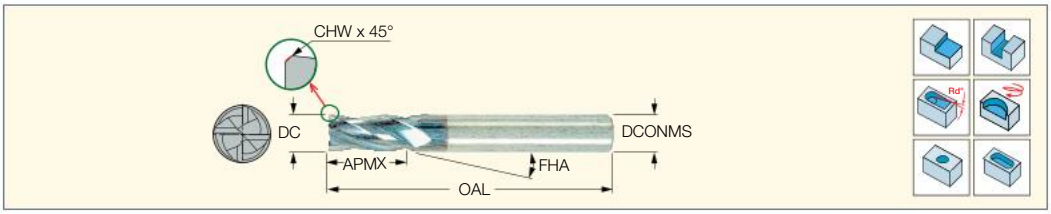
(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

SOLIDMILL PREMIUM LINE

ECC-A-4

4 Flute, 30° Helix Medium Length Solid Carbide Endmills with Chamfered Corners



Designation	Dimensions										IC900	Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF[1]	FHA	RMPX°[2]	Shank[3]	CHW	KCH		f_z (mm/t)
ECC020B07-4C03	2.00	3.00	7.00	38.00	4	45.0	5.0	C	0.10	45.0	●	0.01-0.03
ECC025A07-4C03	2.50	3.00	7.00	38.00	4	30.0	5.0	C	0.10	45.0	●	0.01-0.03
ECC030A10-4C03	3.00	3.00	10.00	38.00	4	30.0	5.0	C	0.10	45.0	●	0.01-0.04
ECC035A12-4C04	3.50	4.00	12.00	50.00	4	30.0	5.0	C	0.10	45.0	●	0.01-0.04
ECC040A12-4C04	4.00	4.00	12.00	50.00	4	30.0	5.0	C	0.15	45.0	●	0.02-0.05
ECC050A14-4C05	5.00	5.00	14.00	50.00	4	30.0	5.0	C	0.15	45.0	●	0.02-0.06
ECC060A16-4C06	6.00	6.00	16.00	57.00	4	30.0	5.0	C	0.15	45.0	●	0.03-0.07
ECC080A20-4C08	8.00	8.00	20.00	63.00	4	30.0	5.0	C	0.15	45.0	●	0.03-0.09
ECC080A20-4W08	8.00	8.00	20.00	63.00	4	30.0	5.0	W	0.15	45.0	●	0.03-0.09
ECC100A22-4C10	10.00	10.00	22.00	72.00	4	30.0	5.0	C	0.25	45.0	●	0.03-0.10
ECC100A22-4W10	10.00	10.00	22.00	72.00	4	30.0	5.0	W	0.25	45.0	●	0.03-0.10
ECC120A25-4C12	12.00	12.00	25.00	83.00	4	30.0	5.0	C	0.25	45.0	●	0.04-0.11
ECC120A25-4W12	12.00	12.00	25.00	83.00	4	30.0	5.0	W	0.25	45.0	●	0.04-0.11
ECC160A32-4C16	16.00	16.00	32.00	92.00	4	30.0	5.0	C	0.25	45.0	●	0.05-0.13
ECC160A32-4W16	16.00	16.00	32.00	92.00	4	30.0	5.0	W	0.25	45.0	●	0.05-0.13
ECC200A38 4W20	20.00	20.00	38.00	104.00	4	30.0	5.0	W	0.25	45.0	●	0.05-0.13
ECC200A38-4C20	20.00	20.00	38.00	104.00	4	30.0	5.0	C	0.25	45.0	●	0.05-0.13

• For user guide, see pages 211-218

[1] Number of flutes

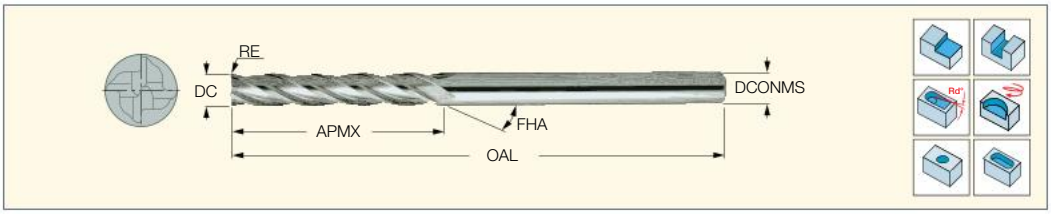
[2] Maximum ramping angle

[3] C-Cylindrical, W-Weldon

SOLIDMILL TEC LINE

EC-A4 (economical-medium & extra long)

Economical Type 4 Flute, 30° Helix, Center Cutting, Medium & Extra Long Solid Carbide Endmills



Designation	Dimensions									Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	RE	IC08	IC900	f_z (mm/t)
EC-A4 02-08C02E32	2.00	2.00	8.00	32.00	4	30.0	5.0	C	0.00	●	●	0.01-0.03
EC-A4 025-08C025E32	2.50	2.50	8.00	32.00	4	30.0	5.0	C	0.00	●	●	0.01-0.03
EC-A4 03-12C03E38	3.00	3.00	12.00	38.00	4	30.0	5.0	C	0.00	●	●	0.01-0.04
EC-A4 03-30C03E75	3.00	3.00	30.00	75.00	4	30.0	5.0	C	0.00	●	●	0.01-0.04
EC-A4 04-12C04E50	4.00	4.00	12.00	50.00	4	30.0	5.0	C	0.00	●	●	0.02-0.05
EC-A4 04-30C04E75	4.00	4.00	30.00	75.00	4	30.0	5.0	C	0.00	●	●	0.02-0.05
EC-A4 05-14C05E50	5.00	5.00	14.00	50.00	4	30.0	5.0	C	0.00	●	●	0.02-0.06
EC-A4 05-40C05E100	5.00	5.00	40.00	100.00	4	30.0	5.0	C	0.00	●	●	0.02-0.06
EC-A4 055-16C055E50	5.50	5.50	16.00	50.00	4	30.0	5.0	C	0.00	●	●	0.02-0.06
EC-A4 06-16C06E50	6.00	6.00	16.00	50.00	4	30.0	5.0	C	0.00	●	●	0.03-0.07
EC-A4 06-18C06E61	6.00	6.00	18.00	61.00	4	30.0	5.0	C	0.00	●	●	0.03-0.07
EC-A4 06-50C06E150	6.00	6.00	50.00	150.00	4	30.0	5.0	C	0.00	●	●	0.03-0.07
EC-A4 07-20C07E60	7.00	7.00	20.00	60.00	4	30.0	5.0	C	0.00	●	●	0.03-0.08
EC-A4 08-20C08E63	8.00	8.00	20.00	63.00	4	30.0	5.0	C	0.00	●	●	0.03-0.09
EC-A4 08-20C08R.5E63	8.00	8.00	20.00	63.00	4	30.0	5.0	C	0.50		●	0.03-0.09
EC-A4 08-20C08R1E63	8.00	8.00	20.00	63.00	4	30.0	5.0	C	1.00		●	0.03-0.09
EC-A4 08-20C08R1.5E63	8.00	8.00	20.00	63.00	4	30.0	5.0	C	1.50		●	0.03-0.09
EC-A4 08-20C08R2-63	8.00	8.00	20.00	63.00	4	30.0	5.0	C	2.00		●	0.03-0.09
EC-A4 08-24C08E69	8.00	8.00	24.00	69.00	4	30.0	5.0	C	0.00	●	●	0.03-0.09
EC-A4 08-50C08E150	8.00	8.00	50.00	150.00	4	30.0	5.0	C	0.00	●	●	0.03-0.09
EC-A4 09-20C09E60	9.00	9.00	20.00	60.00	4	30.0	5.0	C	0.00	●	●	0.03-0.09
EC-A4 10-22C10E72	10.00	10.00	22.00	70.00	4	30.0	5.0	C	0.00	●	●	0.03-0.10
EC-A4 10-22C10R.5E72	10.00	10.00	22.00	72.00	4	30.0	5.0	C	0.50		●	0.03-0.10
EC-A4 10-22C10R.8E72	10.00	10.00	22.00	72.00	4	30.0	5.0	C	0.80		●	0.03-0.10
EC-A4 10-22C10R1E72	10.00	10.00	22.00	72.00	4	30.0	5.0	C	1.00		●	0.03-0.10
EC-A4 10-22C10R1.5E72	10.00	10.00	22.00	72.00	4	30.0	5.0	C	1.50		●	0.03-0.10
EC-A4 10-22C10R2E72	10.00	10.00	22.00	72.00	4	30.0	5.0	C	2.00		●	0.03-0.10
EC-A4 10-30C10E81	10.00	10.00	30.00	81.00	4	30.0	5.0	C	0.00	●	●	0.03-0.10
EC-A4 10-60C10E150	10.00	10.00	60.00	150.00	4	30.0	5.0	C	0.00	●	●	0.03-0.10
EC-A4 12-22C12E73	12.00	12.00	22.00	73.00	4	30.0	5.0	C	0.00	●	●	0.04-0.11
EC-A4 12-22C12R.5E73	12.00	12.00	22.00	73.00	4	30.0	5.0	C	0.50		●	0.04-0.11
EC-A4 12-22C12R.8E73	12.00	12.00	22.00	73.00	4	30.0	5.0	C	0.80		●	0.04-0.11
EC-A4 12-22C12R1.5E73	12.00	12.00	22.00	73.00	4	30.0	5.0	C	1.50		●	0.04-0.11
EC-A4 12-22C12R1E73	12.00	12.00	22.00	73.00	4	30.0	5.0	C	1.00		●	0.04-0.11
EC-A4 12-22C12R2E73	12.00	12.00	22.00	73.00	4	30.0	5.0	C	2.00		●	0.04-0.11
EC-A4 12-36C12E94	12.00	12.00	36.00	94.00	4	30.0	5.0	C	0.00	●	●	0.04-0.11
EC-A4 12-75C12E150	12.00	12.00	75.00	150.00	4	30.0	5.0	C	0.00	●	●	0.04-0.11
EC-A4 14-25C14E83	14.00	14.00	25.00	83.00	4	30.0	5.0	C	0.00	●	●	0.04-0.12
EC-A4 14-65C14E150	14.00	14.00	65.00	150.00	4	30.0	5.0	C	0.00	●	●	0.04-0.12
EC-A4 16-25C16E82	16.00	16.00	25.00	82.00	4	30.0	5.0	C	0.00	●	●	0.05-0.13
EC-A4 16-42C16E116	16.00	16.00	42.00	116.00	4	30.0	5.0	C	0.00	●		0.05-0.13
EC-A4 16-48C16E116	16.00	16.00	48.00	116.00	4	30.0	5.0	C	0.00		●	0.05-0.13
EC-A4 16-65C16E150	16.00	16.00	65.00	150.00	4	30.0	5.0	C	0.00	●	●	0.05-0.13
EC-A4 18-65C18E150	18.00	18.00	65.00	150.00	4	30.0	5.0	C	0.00	●	●	0.05-0.13
EC-A4 20-32C20E104	20.00	20.00	32.00	104.00	4	30.0	5.0	C	0.00	●	●	0.05-0.13
EC-A4 20-65C20E150	20.00	20.00	65.00	150.00	4	30.0	5.0	C	0.00	●	●	0.05-0.13

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(1) Number of flutes

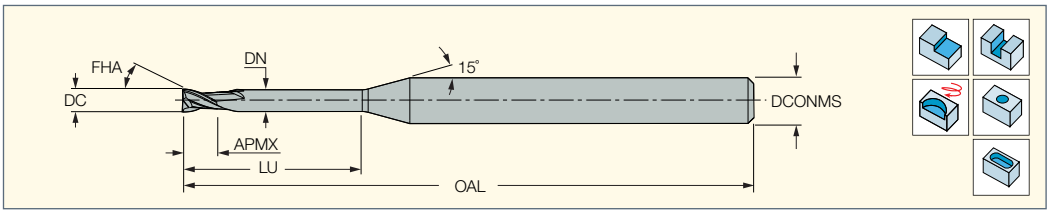
(2) Maximum ramping angle

(3) C-Cylindrical

SOLIDMILL PREMIUM LINE

EC-A2-T

2 Flute Endmill for
High-Speed Machining Hardened
Steel of Up to 65 HRc



Designation	Dimensions									Tough ↔ Hard	Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	DN	NOF(1)	FHA	Shank	IC602	f_z (mm/t)
EC-A2 003-04/1C4H45T	0.30	4.00	0.40	1.0	45.00	0.27	2	30.0	C	●	0.0060-0.0100
EC-A2 003-04/15C4H45T	0.30	4.00	0.40	1.5	45.00	0.27	2	30.0	C	●	0.0060-0.0100
EC-A2 003-04/2C4H45T	0.30	4.00	0.40	2.0	45.00	0.27	2	30.0	C	●	0.0060-0.0100
EC-A2 003-04/25C4H45T	0.30	4.00	0.40	2.5	45.00	0.27	2	30.0	C	●	0.0060-0.0100
EC-A2 003-04/3C4H45T	0.30	4.00	0.40	3.0	45.00	0.27	2	30.0	C	●	0.0060-0.0100
EC-A2 003-04/4C4H45T	0.30	4.00	0.40	4.0	45.00	0.27	2	30.0	C	●	0.0050-0.0080
EC-A2 003-04/5C4H45T	0.30	4.00	0.40	5.0	45.00	0.27	2	30.0	C	●	0.0050-0.0080
EC-A2 004-06/1C4H45T	0.40	4.00	0.60	1.0	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/15C4H45T	0.40	4.00	0.60	1.5	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/2C4H45T	0.40	4.00	0.60	2.0	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/25C4H45T	0.40	4.00	0.60	2.5	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/3C4H45T	0.40	4.00	0.60	3.0	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/4C4H45T	0.40	4.00	0.60	4.0	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/5C4H45T	0.40	4.00	0.60	5.0	45.00	0.37	2	30.0	C	●	0.0050-0.0080
EC-A2 004-06/6C4H45T	0.40	4.00	0.60	6.0	45.00	0.37	2	30.0	C	●	0.0050-0.0080
EC-A2 005-07/1C4H45T	0.50	4.00	0.70	1.0	45.00	0.45	2	30.0	C	●	0.0060-0.0100
EC-A2 005-07/15C4H45T	0.50	4.00	0.70	1.5	45.00	0.45	2	30.0	C	●	0.0060-0.0100
EC-A2 005-07/2C4H45T	0.50	4.00	0.70	2.0	45.00	0.45	2	30.0	C	●	0.0060-0.0100
EC-A2 005-07/25C4H45T	0.50	4.00	0.70	2.5	45.00	0.45	2	30.0	C	●	0.0060-0.0090
EC-A2 005-07/3C4H45T	0.50	4.00	0.70	3.0	45.00	0.45	2	30.0	C	●	0.0060-0.0090
EC-A2 005-07/4C4H45T	0.50	4.00	0.70	4.0	45.00	0.45	2	30.0	C	●	0.0060-0.0080
EC-A2 005-07/5C4H45T	0.50	4.00	0.70	5.0	45.00	0.45	2	30.0	C	●	0.0060-0.0080
EC-A2 005-07/6C4H45T	0.50	4.00	0.70	6.0	45.00	0.45	2	30.0	C	●	0.0050-0.0070
EC-A2 005-07/8C4H45T	0.50	4.00	0.70	8.0	45.00	0.45	2	30.0	C	●	0.0050-0.0070
EC-A2 006-09/10C4H45T	0.60	4.00	0.90	10.0	45.00	0.55	2	30.0	C	●	0.0060-0.0100
EC-A2 006-09/2C4H45T	0.60	4.00	0.90	2.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/3C4H45T	0.60	4.00	0.90	3.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/4C4H45T	0.60	4.00	0.90	4.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/5C4H45T	0.60	4.00	0.90	5.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/6C4H45T	0.60	4.00	0.90	6.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/8C4H45T	0.60	4.00	0.90	8.0	45.00	0.55	2	30.0	C	●	0.0060-0.0100
EC-A2 007-12/10C4H45T	0.70	4.00	1.20	10.0	45.00	0.65	2	30.0	C	●	0.0060-0.0100
EC-A2 007-12/12C4H45T	0.70	4.00	1.20	12.0	45.00	0.65	2	30.0	C	●	0.0060-0.0100
EC-A2 007-12/2C4H45T	0.70	4.00	1.20	2.0	45.00	0.65	2	30.0	C	●	0.0080-0.0130
EC-A2 007-12/4C4H45T	0.70	4.00	1.20	4.0	45.00	0.65	2	30.0	C	●	0.0080-0.0130
EC-A2 007-12/6C4H45T	0.70	4.00	1.20	6.0	45.00	0.65	2	30.0	C	●	0.0080-0.0130
EC-A2 007-12/8C4H45T	0.70	4.00	1.20	8.0	45.00	0.65	2	30.0	C	●	0.0080-0.0130
EC-A2 008-12/10C4H45T	0.80	4.00	1.20	10.0	45.00	0.73	2	30.0	C	●	0.0070-0.0120
EC-A2 008-12/12C4H45T	0.80	4.00	1.20	12.0	45.00	0.73	2	30.0	C	●	0.0070-0.0120
EC-A2 008-12/2C4H45T	0.80	4.00	1.20	2.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/3C4H45T	0.80	4.00	1.20	3.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/4C4H45T	0.80	4.00	1.20	4.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/5C4H45T	0.80	4.00	1.20	5.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/6C4H45T	0.80	4.00	1.20	6.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/8C4H45T	0.80	4.00	1.20	8.0	45.00	0.73	2	30.0	C	●	0.0070-0.0130
EC-A2 010-15/10C4H50T	1.00	4.00	1.50	10.0	50.00	0.95	2	30.0	C	●	0.0090-0.0160
EC-A2 010-15/12C4H50T	1.00	4.00	1.50	12.0	50.00	0.93	2	30.0	C	●	0.0080-0.0140
EC-A2 010-15/14C4H50T	1.00	4.00	1.50	14.0	50.00	0.93	2	30.0	C	●	0.0080-0.0140
EC-A2 010-15/16C4H50T	1.00	4.00	1.50	16.0	50.00	0.91	2	30.0	C	●	0.0080-0.0140
EC-A2 010-15/18C4H55T	1.00	4.00	1.50	18.0	55.00	0.91	2	30.0	C	●	0.0080-0.0120
EC-A2 010-15/20C4H55T	1.00	4.00	1.50	20.0	55.00	0.85	2	30.0	C	●	0.0080-0.0120
EC-A2 010-15/3C4H50T	1.00	4.00	1.50	3.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-15/4C4H50T	1.00	4.00	1.50	4.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-15/5C4H50T	1.00	4.00	1.50	5.0	50.00	0.97	2	30.0	C	●	0.0090-0.0180
EC-A2 010-15/6C4H50T	1.00	4.00	1.50	6.0	50.00	0.97	2	30.0	C	●	0.0090-0.0180
EC-A2 010-15/7C4H50T	1.00	4.00	1.50	7.0	50.00	0.97	2	30.0	C	●	0.0090-0.0180
EC-A2 010-15/8C4H50T	1.00	4.00	1.50	8.0	50.00	0.95	2	30.0	C	●	0.0090-0.0180
EC-A2 012-18/10C4H50T	1.20	4.00	1.80	10.0	50.00	1.15	2	30.0	C	●	0.0100-0.0190

New

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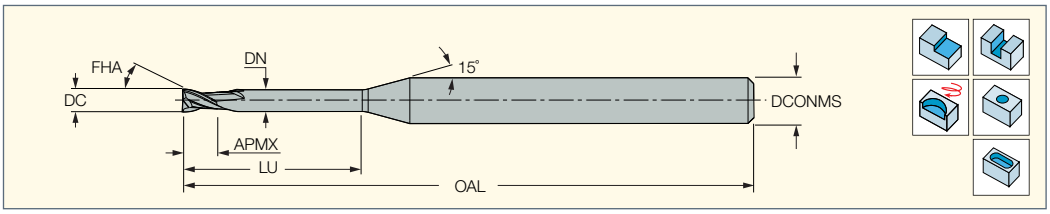
(1) Number of flutes

Continued

SOLIDMILL PREMIUM LINE

EC-A2-T

2 Flute Endmill for High-Speed Machining Hardened Steel of Up to 65 HRc



Designation	Dimensions									Tough ↔ Hard IC602	Recommended Machining Data f_z (mm/t)
	DC	DCONMS	APMX	LU	OAL	DN	NOF(1)	FHA	Shank		
EC-A2 012-18/12C4H50T	1.20	4.00	1.80	12.0	50.00	1.15	2	30.0	C	●	0.0100-0.0180
EC-A2 012-18/16C4H50T	1.20	4.00	1.80	16.0	50.00	1.13	2	30.0	C	●	0.0100-0.0180
EC-A2 012-18/4C4H50T	1.20	4.00	1.80	4.0	50.00	1.17	2	30.0	C	●	0.0100-0.0200
EC-A2 012-18/6C4H50T	1.20	4.00	1.80	6.0	50.00	1.17	2	30.0	C	●	0.0100-0.0200
EC-A2 012-18/8C4H50T	1.20	4.00	1.80	8.0	50.00	1.15	2	30.0	C	●	0.0100-0.0200
EC-A2 015-23/10C4H50T	1.50	4.00	2.30	10.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-23/12C4H50T	1.50	4.00	2.30	12.0	50.00	1.43	2	30.0	C	●	0.0130-0.0250
EC-A2 015-23/14C4H50T	1.50	4.00	2.30	14.0	50.00	1.43	2	30.0	C	●	0.0130-0.0250
EC-A2 015-23/16C4H50T	1.50	4.00	2.30	16.0	50.00	1.41	2	30.0	C	●	0.0110-0.0150
EC-A2 015-23/18C4H55T	1.50	4.00	2.30	18.0	55.00	1.41	2	30.0	C	●	0.0110-0.0150
EC-A2 015-23/20C4H55T	1.50	4.00	2.30	20.0	55.00	1.41	2	30.0	C	●	0.0110-0.0150
EC-A2 015-23/4C4H50T	1.50	4.00	2.30	4.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-23/6C4H50T	1.50	4.00	2.30	6.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-23/8C4H50T	1.50	4.00	2.30	8.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 020-30/10C4H50T	2.00	4.00	3.00	10.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/12C4H50T	2.00	4.00	3.00	12.0	50.00	1.93	2	30.0	C	●	0.0160-0.0250
EC-A2 020-30/14C4H50T	2.00	4.00	3.00	14.0	50.00	1.93	2	30.0	C	●	0.0160-0.0250
EC-A2 020-30/16C4H50T	2.00	4.00	3.00	16.0	50.00	1.91	2	30.0	C	●	0.0150-0.0220
EC-A2 020-30/18C4H55T	2.00	4.00	3.00	18.0	55.00	1.91	2	30.0	C	●	0.0150-0.0220
EC-A2 020-30/20C4H55T	2.00	4.00	3.00	20.0	55.00	1.91	2	30.0	C	●	0.0130-0.0190
EC-A2 020-30/25C4H60T	2.00	4.00	3.00	25.0	60.00	1.91	2	30.0	C	●	0.0130-0.0190
EC-A2 020-30/30C4H70T	2.00	4.00	3.00	30.0	70.00	1.91	2	30.0	C	●	0.0100-0.0150
EC-A2 020-30/4C4H50T	2.00	4.00	3.00	4.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/6C4H50T	2.00	4.00	3.00	6.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/8C4H50T	2.00	4.00	3.00	8.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 025-40/10C4H50T	2.50	4.00	4.00	10.0	50.00	2.40	2	30.0	C	●	0.0190-0.0450
EC-A2 025-40/12C4H50T	2.50	4.00	4.00	12.0	50.00	2.40	2	30.0	C	●	0.0170-0.0400
EC-A2 025-40/16C4H50T	2.50	4.00	4.00	16.0	50.00	2.40	2	30.0	C	●	0.0150-0.0300
EC-A2 025-40/20C4H55T	2.50	4.00	4.00	20.0	55.00	2.40	2	30.0	C	●	0.0130-0.0200
EC-A2 025-40/8C4H50T	2.50	4.00	4.00	8.0	50.00	2.40	2	30.0	C	●	0.0190-0.0450
EC-A2 030-45/10C6H55T	3.00	6.00	4.50	10.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/12C6H55T	3.00	6.00	4.50	12.0	55.00	2.85	2	30.0	C	●	0.0180-0.0500
EC-A2 030-45/14C6H55T	3.00	6.00	4.50	14.0	55.00	2.85	2	30.0	C	●	0.0180-0.0450
EC-A2 030-45/16C6H55T	3.00	6.00	4.50	16.0	55.00	2.85	2	30.0	C	●	0.0180-0.0450
EC-A2 030-45/18C6H60T	3.00	6.00	4.50	18.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/20C6H60T	3.00	6.00	4.50	20.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/25C6H60T	3.00	6.00	4.50	25.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/30C6H70T	3.00	6.00	4.50	30.0	70.00	2.85	2	30.0	C	●	0.0150-0.0380
EC-A2 030-45/35C6H75T	3.00	6.00	4.50	35.0	75.00	2.85	2	30.0	C	●	0.0150-0.0380
EC-A2 030-45/40C6H80T	3.00	6.00	4.50	40.0	80.00	2.85	2	30.0	C	●	0.0150-0.0300
EC-A2 030-45/8C6H55T	3.00	6.00	4.50	8.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 040-60/10C6H55T	4.00	6.00	6.00	10.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/12C6H55T	4.00	6.00	6.00	12.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/16C6H55T	4.00	6.00	6.00	16.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/20C6H60T	4.00	6.00	6.00	20.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/25C6H60T	4.00	6.00	6.00	25.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/30C6H70T	4.00	6.00	6.00	30.0	70.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/35C6H75T	4.00	6.00	6.00	35.0	75.00	3.90	2	30.0	C	●	0.0300-0.0680
EC-A2 040-60/40C6H80T	4.00	6.00	6.00	40.0	80.00	3.90	2	30.0	C	●	0.0300-0.0680

New

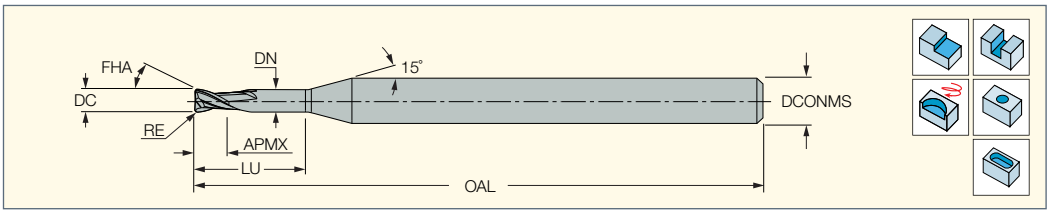
- For user guide, see pages 211-218

(1) Number of flutes

SOLIDMILL PREMIUM LINE

EC-A2-R-T

2 Flute Endmill with a Corner Radius for High Speed Machining Hardened Steel of Up to 65 HRc



Designation	Dimensions										Tough ↔ Hard	Recommended Machining Data
	DC	DCONMS	APMX	RE	LU	OAL	DN	NOF(1)	FHA	Shank	IC602	f_z (mm/t)
EC-A2 003-04/1C4R005H45T	0.30	4.00	0.40	0.05	1.0	45.00	0.27	2	30.0	C	●	0.0060-0.0100
EC-A2 003-04/2C4R005H45T	0.30	4.00	0.40	0.05	2.0	45.00	0.27	2	30.0	C	●	0.0060-0.0100
EC-A2 003-04/3C4R005H45T	0.30	4.00	0.40	0.05	3.0	45.00	0.27	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/1C4R005H45T	0.40	4.00	0.60	0.05	1.0	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/15C4R005H45T	0.40	4.00	0.60	0.05	1.5	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/25C4R005H45T	0.40	4.00	0.60	0.05	2.5	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/3C4R005H45T	0.40	4.00	0.60	0.05	3.0	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 004-06/4C4R005H45T	0.40	4.00	0.60	0.05	4.0	45.00	0.37	2	30.0	C	●	0.0060-0.0100
EC-A2 005-07/1C4R005H45T	0.50	4.00	0.70	0.05	1.0	45.00	0.45	2	30.0	C	●	0.0060-0.0100
EC-A2 005-07/15C4R005H45T	0.50	4.00	0.70	0.05	1.5	45.00	0.45	2	30.0	C	●	0.0060-0.0100
EC-A2 005-07/25C4R005H45T	0.50	4.00	0.70	0.05	2.5	45.00	0.45	2	30.0	C	●	0.0060-0.0090
EC-A2 005-07/3C4R005H45T	0.50	4.00	0.70	0.05	3.0	45.00	0.45	2	30.0	C	●	0.0060-0.0090
EC-A2 005-07/4C4R005H45T	0.50	4.00	0.70	0.05	4.0	45.00	0.45	2	30.0	C	●	0.0060-0.0080
EC-A2 006-09/2C4R005H45T	0.60	4.00	0.90	0.05	2.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/2C4R010H45T	0.60	4.00	0.90	0.10	2.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/2C4R020H45T	0.60	4.00	0.90	0.20	2.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/4C4R005H45T	0.60	4.00	0.90	0.05	4.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/4C4R010H45T	0.60	4.00	0.90	0.10	4.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/4C4R020H45T	0.60	4.00	0.90	0.20	4.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/6C4R005H45T	0.60	4.00	0.90	0.05	6.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/6C4R010H45T	0.60	4.00	0.90	0.10	6.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 006-09/6C4R020H45T	0.60	4.00	0.90	0.20	6.0	45.00	0.55	2	30.0	C	●	0.0080-0.0130
EC-A2 008-12/2C4R005H45T	0.80	4.00	1.20	0.05	2.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/2C4R010H45T	0.80	4.00	1.20	0.10	2.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/2C4R020H45T	0.80	4.00	1.20	0.20	2.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/4C4R005H45T	0.80	4.00	1.20	0.05	4.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/4C4R010H45T	0.80	4.00	1.20	0.10	4.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/4C4R020H45T	0.80	4.00	1.20	0.20	4.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/6C4R005H45T	0.80	4.00	1.20	0.05	6.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/6C4R010H45T	0.80	4.00	1.20	0.10	6.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/6C4R020H45T	0.80	4.00	1.20	0.20	6.0	45.00	0.75	2	30.0	C	●	0.0070-0.0150
EC-A2 008-12/8C4R005H45T	0.80	4.00	1.20	0.05	8.0	45.00	0.73	2	30.0	C	●	0.0070-0.0130
EC-A2 008-12/8C4R010H45T	0.80	4.00	1.20	0.10	8.0	45.00	0.73	2	30.0	C	●	0.0070-0.0130
EC-A2 008-12/8C4R020H45T	0.80	4.00	1.20	0.20	8.0	45.00	0.73	2	30.0	C	●	0.0070-0.0130
EC-A2 010-20/10C4R005H50T	1.00	4.00	2.00	0.05	10.0	50.00	0.95	2	30.0	C	●	0.0090-0.0160
EC-A2 010-20/10C4R010H50T	1.00	4.00	2.00	0.10	10.0	50.00	0.95	2	30.0	C	●	0.0090-0.0160
EC-A2 010-20/10C4R020H50T	1.00	4.00	2.00	0.20	10.0	50.00	0.95	2	30.0	C	●	0.0090-0.0160
EC-A2 010-20/10C4R030H50T	1.00	4.00	2.00	0.30	10.0	50.00	0.95	2	30.0	C	●	0.0090-0.0160
EC-A2 010-20/3C4R005H50T	1.00	4.00	2.00	0.05	3.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-20/3C4R010H50T	1.00	4.00	2.00	0.10	3.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-20/3C4R020H50T	1.00	4.00	2.00	0.20	3.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-20/3C4R030H50T	1.00	4.00	2.00	0.30	3.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-20/4C4R005H50T	1.00	4.00	2.00	0.05	4.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-20/4C4R010H50T	1.00	4.00	2.00	0.10	4.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-20/4C4R020H50T	1.00	4.00	2.00	0.20	4.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-20/4C4R030H50T	1.00	4.00	2.00	0.30	4.0	50.00	0.97	2	30.0	C	●	0.0090-0.0200
EC-A2 010-20/6C4R005H50T	1.00	4.00	2.00	0.05	6.0	50.00	0.97	2	30.0	C	●	0.0090-0.0180
EC-A2 010-20/6C4R010H50T	1.00	4.00	2.00	0.10	6.0	50.00	0.97	2	30.0	C	●	0.0090-0.0180
EC-A2 010-20/6C4R020H50T	1.00	4.00	2.00	0.20	6.0	50.00	0.97	2	30.0	C	●	0.0090-0.0180
EC-A2 010-20/6C4R030H50T	1.00	4.00	2.00	0.30	6.0	50.00	0.97	2	30.0	C	●	0.0090-0.0180
EC-A2 010-20/8C4R005H50T	1.00	4.00	2.00	0.05	8.0	50.00	0.95	2	30.0	C	●	0.0090-0.0180
EC-A2 010-20/8C4R010H50T	1.00	4.00	2.00	0.10	8.0	50.00	0.95	2	30.0	C	●	0.0090-0.0180
EC-A2 010-20/8C4R020H50T	1.00	4.00	2.00	0.20	8.0	50.00	0.95	2	30.0	C	●	0.0090-0.0180
EC-A2 010-20/8C4R030H50T	1.00	4.00	2.00	0.30	8.0	50.00	0.95	2	30.0	C	●	0.0090-0.0180
EC-A2 012-22/10C4R010H50T	1.20	4.00	2.20	0.10	10.0	50.00	1.15	2	30.0	C	●	0.0100-0.0190
EC-A2 012-22/10C4R020H50T	1.20	4.00	2.20	0.20	10.0	50.00	1.15	2	30.0	C	●	0.0100-0.0190
EC-A2 012-22/10C4R030H50T	1.20	4.00	2.20	0.30	10.0	50.00	1.15	2	30.0	C	●	0.0100-0.0190

New

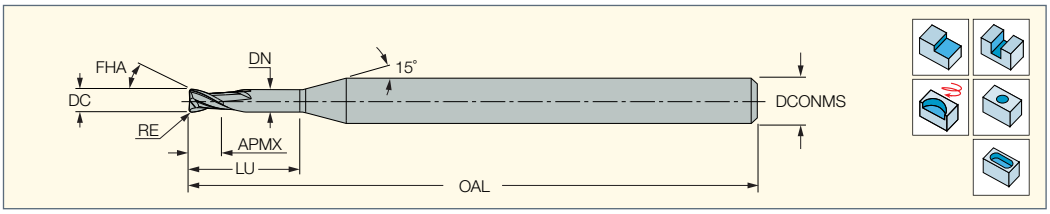
• For user guide, see pages 211-218

(1) Number of flutes

SOLIDMILL PREMIUM LINE

EC-A2-R-T

2 Flute Endmill with a Corner Radius for High Speed Machining Hardened Steel of Up to 65 HRc



Designation	Dimensions										Tough ↔ Hard	Recommended Machining Data
	DC	DCONMS	APMX	RE	LU	OAL	DN	NOF(1)	FHA	Shank	IC602	f_z (mm/t)
EC-A2 012-22/4C4R010H50T	1.20	4.00	2.20	0.10	4.0	50.00	1.17	2	30.0	C	●	0.0100-0.0200
EC-A2 012-22/4C4R020H50T	1.20	4.00	2.20	0.20	4.0	50.00	1.17	2	30.0	C	●	0.0100-0.0200
EC-A2 012-22/4C4R030H50T	1.20	4.00	2.20	0.30	4.0	50.00	1.17	2	30.0	C	●	0.0100-0.0200
EC-A2 012-22/6C4R010H50T	1.20	4.00	2.20	0.10	6.0	50.00	1.17	2	30.0	C	●	0.0100-0.0200
EC-A2 012-22/6C4R020H50T	1.20	4.00	2.20	0.20	6.0	50.00	1.17	2	30.0	C	●	0.0100-0.0200
EC-A2 012-22/6C4R030H50T	1.20	4.00	2.20	0.30	6.0	50.00	1.17	2	30.0	C	●	0.0100-0.0200
EC-A2 012-22/8C4R010H50T	1.20	4.00	2.20	0.10	8.0	50.00	1.15	2	30.0	C	●	0.0100-0.0200
EC-A2 012-22/8C4R020H50T	1.20	4.00	2.20	0.20	8.0	50.00	1.15	2	30.0	C	●	0.0100-0.0200
EC-A2 012-22/8C4R030H50T	1.20	4.00	2.20	0.30	8.0	50.00	1.15	2	30.0	C	●	0.0100-0.0200
EC-A2 015-25/10C4R005H50T	1.50	4.00	2.50	0.05	10.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/10C4R010H50T	1.50	4.00	2.50	0.10	10.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/10C4R020H50T	1.50	4.00	2.50	0.20	10.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/10C4R030H50T	1.50	4.00	2.50	0.30	10.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/10C4R050H50T	1.50	4.00	2.50	0.50	10.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/12C4R005H50T	1.50	4.00	2.50	0.05	12.0	50.00	1.43	2	30.0	C	●	0.0130-0.0250
EC-A2 015-25/12C4R010H50T	1.50	4.00	2.50	0.10	12.0	50.00	1.43	2	30.0	C	●	0.0130-0.0250
EC-A2 015-25/12C4R020H50T	1.50	4.00	2.50	0.20	12.0	50.00	1.43	2	30.0	C	●	0.0130-0.0250
EC-A2 015-25/12C4R030H50T	1.50	4.00	2.50	0.30	12.0	50.00	1.43	2	30.0	C	●	0.0130-0.0250
EC-A2 015-25/12C4R050H50T	1.50	4.00	2.50	0.50	12.0	50.00	1.43	2	30.0	C	●	0.0130-0.0250
EC-A2 015-25/4C4R010H50T	1.50	4.00	2.50	0.10	4.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/4C4R020H50T	1.50	4.00	2.50	0.20	4.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/4C4R030H50T	1.50	4.00	2.50	0.30	4.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/4C4R050H50T	1.50	4.00	2.50	0.50	4.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/6C4R005H50T	1.50	4.00	2.50	0.05	6.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/6C4R010H50T	1.50	4.00	2.50	0.10	6.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/6C4R020H50T	1.50	4.00	2.50	0.20	6.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/6C4R030H50T	1.50	4.00	2.50	0.30	6.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/6C4R050H50T	1.50	4.00	2.50	0.50	6.0	50.00	1.47	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/8C4R005H50T	1.50	4.00	2.50	0.05	8.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/8C4R010H50T	1.50	4.00	2.50	0.10	8.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/8C4R020H50T	1.50	4.00	2.50	0.20	8.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/8C4R030H50T	1.50	4.00	2.50	0.30	8.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 015-25/8C4R050H50T	1.50	4.00	2.50	0.50	8.0	50.00	1.45	2	30.0	C	●	0.0150-0.0250
EC-A2 020-30/10C4R010H50T	2.00	4.00	3.00	0.10	10.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/10C4R020H50T	2.00	4.00	3.00	0.20	10.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/10C4R030H50T	2.00	4.00	3.00	0.30	10.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/10C4R050H50T	2.00	4.00	3.00	0.50	10.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/12C4R010H50T	2.00	4.00	3.00	0.10	12.0	50.00	1.93	2	30.0	C	●	0.0160-0.0250
EC-A2 020-30/12C4R020H50T	2.00	4.00	3.00	0.20	12.0	50.00	1.93	2	30.0	C	●	0.0160-0.0250
EC-A2 020-30/12C4R030H50T	2.00	4.00	3.00	0.30	12.0	50.00	1.93	2	30.0	C	●	0.0160-0.0250
EC-A2 020-30/12C4R050H50T	2.00	4.00	3.00	0.50	12.0	50.00	1.93	2	30.0	C	●	0.0160-0.0250
EC-A2 020-30/16C4R010H50T	2.00	4.00	3.00	0.10	16.0	50.00	1.91	2	30.0	C	●	0.0150-0.0220
EC-A2 020-30/16C4R020H50T	2.00	4.00	3.00	0.20	16.0	50.00	1.91	2	30.0	C	●	0.0150-0.0220
EC-A2 020-30/16C4R030H50T	2.00	4.00	3.00	0.30	16.0	50.00	1.91	2	30.0	C	●	0.0150-0.0220
EC-A2 020-30/16C4R050H50T	2.00	4.00	3.00	0.50	16.0	50.00	1.91	2	30.0	C	●	0.0150-0.0220
EC-A2 020-30/20C4R010H50T	2.00	4.00	3.00	0.10	20.0	50.00	1.91	2	30.0	C	●	0.0130-0.0190
EC-A2 020-30/20C4R020H50T	2.00	4.00	3.00	0.20	20.0	50.00	1.91	2	30.0	C	●	0.0130-0.0190
EC-A2 020-30/20C4R030H50T	2.00	4.00	3.00	0.30	20.0	50.00	1.91	2	30.0	C	●	0.0130-0.0190
EC-A2 020-30/20C4R050H50T	2.00	4.00	3.00	0.50	20.0	50.00	1.91	2	30.0	C	●	0.0130-0.0190
EC-A2 020-30/6C4R010H50T	2.00	4.00	3.00	0.10	6.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/6C4R020H50T	2.00	4.00	3.00	0.20	6.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/6C4R030H50T	2.00	4.00	3.00	0.30	6.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/6C4R050H50T	2.00	4.00	3.00	0.50	6.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/8C4R010H50T	2.00	4.00	3.00	0.10	8.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/8C4R020H50T	2.00	4.00	3.00	0.20	8.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/8C4R030H50T	2.00	4.00	3.00	0.30	8.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400
EC-A2 020-30/8C4R050H50T	2.00	4.00	3.00	0.50	8.0	50.00	1.95	2	30.0	C	●	0.0180-0.0400

New

- For user guide, see pages 211-218

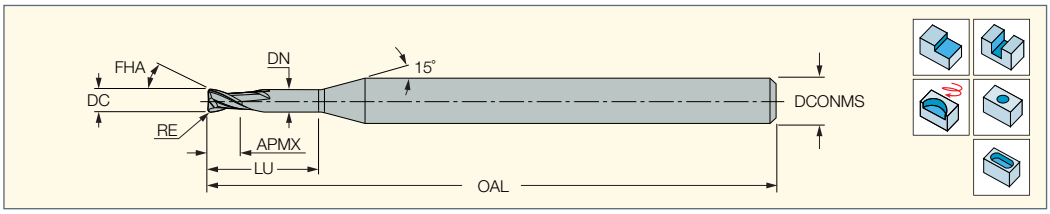
(1) Number of flutes

Continued

SOLIDMILL PREMIUM LINE

EC-A2-R-T

2 Flute Endmill with a Corner Radius for High Speed Machining Hardened Steel of Up to 65 HRc



Designation	Dimensions										Tough ↔ Hard	Recommended Machining Data
	DC	DCONMS	APMX	RE	LU	OAL	DN	NOF(1)	FHA	Shank	IC602	f_z (mm/t)
EC-A2 025-35/10C4R020H55T	2.50	4.00	3.50	0.20	10.0	55.00	2.40	2	30.0	C	●	0.0190-0.0450
EC-A2 025-35/10C4R030H55T	2.50	4.00	3.50	0.30	10.0	55.00	2.40	2	30.0	C	●	0.0190-0.0450
EC-A2 025-35/10C4R050H55T	2.50	4.00	3.50	0.50	10.0	55.00	2.40	2	30.0	C	●	0.0190-0.0450
EC-A2 025-35/12C4R020H55T	2.50	4.00	3.50	0.20	12.0	55.00	2.40	2	30.0	C	●	0.0170-0.0400
EC-A2 025-35/12C4R030H55T	2.50	4.00	3.50	0.30	12.0	55.00	2.40	2	30.0	C	●	0.0170-0.0400
EC-A2 025-35/12C4R050H55T	2.50	4.00	3.50	0.50	12.0	55.00	2.40	2	30.0	C	●	0.0170-0.0400
EC-A2 025-35/16C4R020H55T	2.50	4.00	3.50	0.20	16.0	55.00	2.40	2	30.0	C	●	0.0150-0.0300
EC-A2 025-35/16C4R030H55T	2.50	4.00	3.50	0.30	16.0	55.00	2.40	2	30.0	C	●	0.0150-0.0300
EC-A2 025-35/16C4R050H55T	2.50	4.00	3.50	0.50	16.0	55.00	2.40	2	30.0	C	●	0.0150-0.0300
EC-A2 025-35/8C4R020H55T	2.50	4.00	3.50	0.20	8.0	55.00	2.40	2	30.0	C	●	0.0190-0.0450
EC-A2 025-35/8C4R030H55T	2.50	4.00	3.50	0.30	8.0	55.00	2.40	2	30.0	C	●	0.0190-0.0450
EC-A2 025-35/8C4R050H55T	2.50	4.00	3.50	0.50	8.0	55.00	2.40	2	30.0	C	●	0.0190-0.0450
EC-A2 030-45/10C6R010H55T	3.00	6.00	4.50	0.10	10.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/10C6R020H55T	3.00	6.00	4.50	0.20	10.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/10C6R030H55T	3.00	6.00	4.50	0.30	10.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/10C6R050H55T	3.00	6.00	4.50	0.50	10.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/10C6R100H55T	3.00	6.00	4.50	1.00	10.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/12C6R010H55T	3.00	6.00	4.50	0.10	12.0	55.00	2.85	2	30.0	C	●	0.0180-0.0500
EC-A2 030-45/12C6R020H55T	3.00	6.00	4.50	0.20	12.0	55.00	2.85	2	30.0	C	●	0.0180-0.0500
EC-A2 030-45/12C6R030H55T	3.00	6.00	4.50	0.30	12.0	55.00	2.85	2	30.0	C	●	0.0180-0.0500
EC-A2 030-45/12C6R050H55T	3.00	6.00	4.50	0.50	12.0	55.00	2.85	2	30.0	C	●	0.0180-0.0500
EC-A2 030-45/12C6R100H55T	3.00	6.00	4.50	1.00	12.0	55.00	2.85	2	30.0	C	●	0.0180-0.0500
EC-A2 030-45/16C6R010H55T	3.00	6.00	4.50	0.10	16.0	55.00	2.85	2	30.0	C	●	0.0180-0.0450
EC-A2 030-45/16C6R020H55T	3.00	6.00	4.50	0.20	16.0	55.00	2.85	2	30.0	C	●	0.0180-0.0450
EC-A2 030-45/16C6R030H55T	3.00	6.00	4.50	0.30	16.0	55.00	2.85	2	30.0	C	●	0.0180-0.0450
EC-A2 030-45/16C6R050H55T	3.00	6.00	4.50	0.50	16.0	55.00	2.85	2	30.0	C	●	0.0180-0.0450
EC-A2 030-45/16C6R100H55T	3.00	6.00	4.50	1.00	16.0	55.00	2.85	2	30.0	C	●	0.0180-0.0450
EC-A2 030-45/20C6R010H60T	3.00	6.00	4.50	0.10	20.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/20C6R020H60T	3.00	6.00	4.50	0.20	20.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/20C6R030H60T	3.00	6.00	4.50	0.30	20.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/20C6R050H60T	3.00	6.00	4.50	0.50	20.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/20C6R100H60T	3.00	6.00	4.50	0.00	20.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/25C6R010H60T	3.00	6.00	4.50	0.10	25.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/25C6R020H60T	3.00	6.00	4.50	0.20	25.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/25C6R030H60T	3.00	6.00	4.50	0.30	25.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/25C6R050H60T	3.00	6.00	4.50	0.50	25.0	60.00	2.85	2	30.0	C	●	0.0150-0.0400
EC-A2 030-45/8C6R010H55T	3.00	6.00	4.50	0.10	8.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/8C6R020H55T	3.00	6.00	4.50	0.20	8.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/8C6R030H55T	3.00	6.00	4.50	0.30	8.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/8C6R050H55T	3.00	6.00	4.50	0.50	8.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 030-45/8C6R100H55T	3.00	6.00	4.50	1.00	8.0	55.00	2.85	2	30.0	C	●	0.0210-0.0600
EC-A2 040-60/10C6R010H55T	4.00	6.00	6.00	0.10	10.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/10C6R020H55T	4.00	6.00	6.00	0.20	10.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/10C6R030H55T	4.00	6.00	6.00	0.30	10.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/10C6R050H55T	4.00	6.00	6.00	0.50	10.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/10C6R100H55T	4.00	6.00	6.00	1.00	10.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/12C6R010H55T	4.00	6.00	6.00	0.10	12.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/12C6R020H55T	4.00	6.00	6.00	0.20	12.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/12C6R030H55T	4.00	6.00	6.00	0.30	12.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/12C6R050H55T	4.00	6.00	6.00	0.50	12.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/12C6R100H55T	4.00	6.00	6.00	1.00	12.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/16C6R010H55T	4.00	6.00	6.00	0.10	16.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/16C6R020H55T	4.00	6.00	6.00	0.20	16.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/16C6R030H55T	4.00	6.00	6.00	0.30	16.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/16C6R050H55T	4.00	6.00	6.00	0.50	16.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/16C6R100H55T	4.00	6.00	6.00	1.00	16.0	55.00	3.90	2	30.0	C	●	0.0300-0.0750
EC-A2 040-60/20C6R010H60T	4.00	6.00	6.00	0.10	20.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700

New

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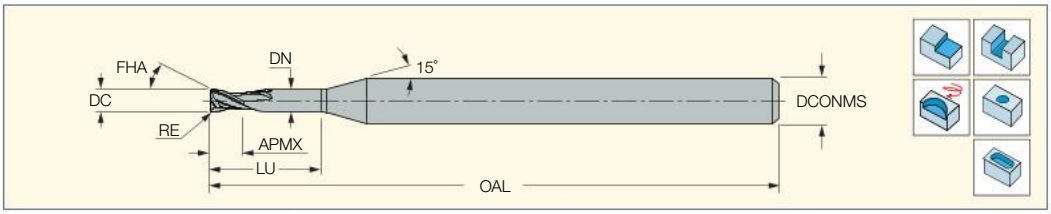
(1) Number of flutes

Continued

SOLIDMILL PREMIUM LINE

EC-A2-R-T

2 Flute Endmill with a Corner Radius for High Speed Machining Hardened Steel of Up to 65 HRc



Designation	Dimensions DC	DCONMS	APMX	RE	LU	OAL	DN	NOF(1)	FHA	Shank	Tough ↔ Hard IC602	Recommended Machining Data f_z (mm/t)
EC-A2 040-60/20C6R020H60T	4.00	6.00	6.00	0.20	20.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/20C6R030H60T	4.00	6.00	6.00	0.30	20.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/20C6R050H60T	4.00	6.00	6.00	0.50	20.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/20C6R100H60T	4.00	6.00	6.00	1.00	20.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/25C6R010H60T	4.00	6.00	6.00	0.10	25.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/25C6R020H60T	4.00	6.00	6.00	0.20	25.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/25C6R030H60T	4.00	6.00	6.00	0.30	25.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/25C6R050H60T	4.00	6.00	6.00	0.50	25.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/25C6R100H60T	4.00	6.00	6.00	1.00	25.0	60.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/30C6R010H70T	4.00	6.00	6.00	0.10	30.0	70.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/30C6R020H70T	4.00	6.00	6.00	0.20	30.0	70.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/30C6R030H70T	4.00	6.00	6.00	0.30	30.0	70.00	3.90	2	30.0	C	●	0.0300-0.0700
EC-A2 040-60/30C6R050H70T	4.00	6.00	6.00	0.50	30.0	70.00	3.90	2	30.0	C	●	0.0300-0.0700

New

- For user guide, see pages 211-218

(1) Number of flutes

SOLIDMILL PREMIUM LINE

EC-A2-R/H (rib processing)

2 Flute, 30° Helix and Corner Radii Solid Carbide Endmills for Rib Processing on Hard Materials up to 65 HRC

HARD MATERIALS

Designation	Dimensions DC	DCONMS	APMX	RE	LU	OAL	DN	NOF(1)	FHA	Shank(2)	Tough ↔ Hard IC702	Recommended Machining Data f_z (mm/t)
EC-A2 002-003/005C4H45	0.20	4.00	0.30	-	0.5	45.00	0.17	2	30.0	C	●	0.0030-0.0030
EC-A2 003-0045/01C4H45	0.30	4.00	0.45	-	1.0	45.00	0.27	2	30.0	C	●	0.0030-0.0040
EC-A2 003-0045/03C4H45	0.30	4.00	0.45	-	3.0	45.00	0.27	2	30.0	C	●	0.0030-0.0040
EC-A2 004-006/01C4H45	0.40	4.00	0.60	-	1.0	45.00	0.37	2	30.0	C	●	0.0030-0.0050
EC-A2 004-006/02C4H45	0.40	4.00	0.60	-	2.0	45.00	0.37	2	30.0	C	●	0.0030-0.0050
EC-A2 005-007/02C4H45	0.50	4.00	0.70	-	2.0	45.00	0.45	2	30.0	C	●	0.0030-0.0050
EC-A2 005-007/1.5C4R05H45	0.50	4.00	0.70	0.05	1.5	45.00	0.45	2	30.0	C	●	0.0010-0.0020
EC-A2 005-007/2.5C4R05H45	0.50	4.00	0.70	0.05	2.5	45.00	0.45	2	30.0	C	●	0.0010-0.0020
EC-A2 006-009/02C4H45	0.60	4.00	0.90	-	2.0	45.00	0.55	2	30.0	C	●	0.0030-0.0070
EC-A2 006-009/3C4R05H45	0.60	4.00	0.90	0.05	3.0	45.00	0.55	2	30.0	C	●	0.0010-0.0020
EC-A2 007-010/4C4R.1H45	0.70	4.00	1.00	0.10	4.0	45.00	0.65	2	30.0	C	●	0.0010-0.0030
EC-A2 008-012/04C4H45	0.80	4.00	1.20	-	4.0	45.00	0.75	2	30.0	C	●	0.0030-0.0080
EC-A2 008-012/06C4H45	0.80	4.00	1.20	-	6.0	45.00	0.75	2	30.0	C	●	0.0030-0.0090
EC-A2 008-012/4C4R.1H45	0.80	4.00	1.20	0.10	4.0	45.00	0.75	2	30.0	C	●	0.0010-0.0030
EC-A2 008-012/6C4R.1H45	0.80	4.00	1.20	0.10	6.0	45.00	0.75	2	30.0	C	●	0.0010-0.0030
EC-A2 010-015/04C4H45	1.00	4.00	1.50	-	4.0	45.00	0.97	2	30.0	C	●	0.0040-0.0120
EC-A2 010-015/06C4H45	1.00	4.00	1.50	-	6.0	45.00	0.97	2	30.0	C	●	0.0040-0.0120
EC-A2 010-015/08C4H45	1.00	4.00	1.50	-	8.0	45.00	0.95	2	30.0	C	●	0.0040-0.0120
EC-A2 010-015/10C4H45	1.00	4.00	1.50	-	10.0	45.00	0.95	2	30.0	C	●	0.0040-0.0120
EC-A2 010-015/12C4H45	1.00	4.00	1.50	-	12.0	45.00	0.93	2	30.0	C	●	0.0040-0.0120
EC-A2 010-015/20C4H55	1.00	4.00	1.50	-	20.0	55.00	0.93	2	30.0	C	●	0.0040-0.0120
EC-A2 010-015/4C6R.1H50	1.00	6.00	1.50	0.10	4.0	50.00	0.95	2	30.0	C	●	0.0020-0.0060
EC-A2 010-015/4C6R.2H50	1.00	6.00	1.50	0.20	4.0	50.00	0.95	2	30.0	C	●	0.0020-0.0060
EC-A2 010-015/4C6R.3H50	1.00	6.00	1.50	0.30	4.0	50.00	0.95	2	30.0	C	●	0.0020-0.0060
EC-A2 010-015/6C6R.1H50	1.00	6.00	1.50	0.10	6.0	50.00	0.95	2	30.0	C	●	0.0020-0.0060
EC-A2 010-015/6C6R.2H50	1.00	6.00	1.50	0.20	6.0	50.00	0.95	2	30.0	C	●	0.0020-0.0060

- For user guide, see pages 211-218

(1) Number of flutes

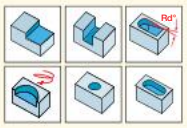
(2) C-Cylindrical

Continued

SOLIDMILL PREMIUM LINE

EC-A2-R/H (rib processing)

2 Flute, 30° Helix and Corner Radii Solid Carbide Endmills for Rib Processing on Hard Materials up to 65 HRC



HARD MATERIALS

Designation	Dimensions										Tough ↔ Hard	Recommended Machining Data
	DC	DCONMS	APMX	RE	LU	OAL	DN	NOF(1)	FHA	Shank(2)	IC702	f_z (mm/t)
EC-A2 010-015/6C6R.3H50	1.00	6.00	1.50	0.30	6.0	50.00	0.95	2	30.0	C	•	0.0020-0.0060
EC-A2 010-015/8C6R.3H50	1.00	6.00	1.50	0.30	8.0	50.00	0.95	2	30.0	C	•	0.0020-0.0060
EC-A2 012-018/06C4H45	1.20	4.00	1.80	-	6.0	45.00	1.17	2	30.0	C	•	0.0050-0.0150
EC-A2 015-023/06C4H45	1.50	4.00	2.30	-	6.0	45.00	1.47	2	30.0	C	•	0.0050-0.0150
EC-A2 015-023/08C4H45	1.50	4.00	2.30	-	8.0	45.00	1.45	2	30.0	C	•	0.0050-0.0150
EC-A2 015-023/10C4H45	1.50	4.00	2.30	-	10.0	45.00	1.45	2	30.0	C	•	0.0050-0.0150
EC-A2 015-023/12C4H45	1.50	4.00	2.30	-	12.0	45.00	1.41	2	30.0	C	•	0.0050-0.0150
EC-A2 015-025/10C6R.2H50	1.50	6.00	2.50	0.20	10.0	50.00	1.45	2	30.0	C	•	0.0030-0.0080
EC-A2 015-025/12C6R.2H50	1.50	6.00	2.50	0.20	12.0	50.00	1.45	2	30.0	C	•	0.0030-0.0080
EC-A2 015-025/4C6R.2H50	1.50	6.00	2.50	0.20	4.0	50.00	1.45	2	30.0	C	•	0.0030-0.0080
EC-A2 015-025/4C6R.3H50	1.50	6.00	2.50	0.30	4.0	50.00	1.45	2	30.0	C	•	0.0030-0.0080
EC-A2 015-025/6C6R.2H50	1.50	6.00	2.50	0.20	6.0	50.00	1.45	2	30.0	C	•	0.0030-0.0080
EC-A2 015-025/6C6R.3H50	1.50	6.00	2.50	0.30	6.0	50.00	1.45	2	30.0	C	•	0.0030-0.0080
EC-A2 015-025/8C6R.2H50	1.50	6.00	2.50	0.20	8.0	50.00	1.45	2	30.0	C	•	0.0030-0.0080
EC-A2 015-025/8C6R.3H50	1.50	6.00	2.50	0.30	8.0	50.00	1.45	2	30.0	C	•	0.0030-0.0080
EC-A2 020-030/06C4H45	2.00	4.00	3.00	-	6.0	45.00	1.97	2	30.0	C	•	0.0100-0.0200
EC-A2 020-030/08C4H45	2.00	4.00	3.00	-	8.0	45.00	1.95	2	30.0	C	•	0.0100-0.0200
EC-A2 020-030/10C4H45	2.00	4.00	3.00	-	10.0	45.00	1.95	2	30.0	C	•	0.0100-0.0200
EC-A2 020-030/12C4H45	2.00	4.00	3.00	-	12.0	45.00	1.93	2	30.0	C	•	0.0100-0.0200
EC-A2 020-030/14C4H50	2.00	4.00	3.00	-	14.0	50.00	1.93	2	30.0	C	•	0.0100-0.0200
EC-A2 020-030/16C4H50	2.00	4.00	3.00	-	16.0	50.00	1.91	2	30.0	C	•	0.0100-0.0200
EC-A2 020-030/20C4H55	2.00	4.00	3.00	-	20.0	55.00	1.89	2	30.0	C	•	0.0100-0.0200
EC-A2 020-030/25C4H60	2.00	4.00	3.00	-	25.0	60.00	1.89	2	30.0	C	•	0.0100-0.0200
EC-A2 020-030/10C6R.2H55	2.00	6.00	3.00	0.20	10.0	55.00	1.95	2	30.0	C	•	0.0040-0.0100
EC-A2 020-030/10C6R.3H55	2.00	6.00	3.00	0.30	10.0	55.00	1.95	2	30.0	C	•	0.0040-0.0100
EC-A2 020-030/10C6R.5H55	2.00	6.00	3.00	0.50	10.0	55.00	1.95	2	30.0	C	•	0.0040-0.0100
EC-A2 020-030/16C6R.3H55	2.00	6.00	3.00	0.30	16.0	55.00	1.95	2	30.0	C	•	0.0040-0.0100
EC-A2 020-030/6C6R.2H50	2.00	6.00	3.00	0.20	6.0	50.00	1.95	2	30.0	C	•	0.0040-0.0100
EC-A2 020-030/6C6R.3H50	2.00	6.00	3.00	0.30	6.0	50.00	1.95	2	30.0	C	•	0.0040-0.0100
EC-A2 020-030/6C6R.5H50	2.00	6.00	3.00	0.50	6.0	50.00	1.95	2	30.0	C	•	0.0040-0.0100
EC-A2 030-040/10C6R.2H55	3.00	6.00	4.00	0.20	10.0	55.00	2.85	2	30.0	C	•	0.0050-0.0150
EC-A2 030-040/10C6R.5H55	3.00	6.00	4.00	0.50	10.0	55.00	2.85	2	30.0	C	•	0.0050-0.0150
EC-A2 030-040/12C6R.2H55	3.00	6.00	4.00	0.20	12.0	55.00	2.85	2	30.0	C	•	0.0050-0.0150
EC-A2 030-040/12C6R.3H55	3.00	6.00	4.00	0.30	12.0	55.00	2.85	2	30.0	C	•	0.0050-0.0150
EC-A2 030-040/12C6R.5H55	3.00	6.00	4.00	0.50	12.0	55.00	2.85	2	30.0	C	•	0.0050-0.0150
EC-A2 030-040/16C6R.5H55	3.00	6.00	4.00	0.50	16.0	55.00	2.85	2	30.0	C	•	0.0050-0.0150
EC-A2 030-040/20C6R.5H55	3.00	6.00	4.00	0.50	20.0	55.00	2.85	2	30.0	C	•	0.0050-0.0150
EC-A2 030-040/8C6R.2H55	3.00	6.00	4.00	0.20	8.0	55.00	2.85	2	30.0	C	•	0.0050-0.0150
EC-A2 030-040/8C6R.3H55	3.00	6.00	4.00	0.30	8.0	55.00	2.85	2	30.0	C	•	0.0050-0.0150
EC-A2 030-045/12C6H45	3.00	6.00	4.50	-	12.0	45.00	2.85	2	30.0	C	•	0.0150-0.0300
EC-A2 030-045/16C6H55	3.00	6.00	4.50	-	16.0	55.00	2.85	2	30.0	C	•	0.0150-0.0300
EC-A2 040-050/12C6R.2H55	4.00	6.00	5.00	0.20	12.0	55.00	3.85	2	30.0	C	•	0.0060-0.0200
EC-A2 040-050/12C6R.5H55	4.00	6.00	5.00	0.50	12.0	55.00	3.85	2	30.0	C	•	0.0060-0.0200
EC-A2 040-050/12C6R1.H55	4.00	6.00	5.00	1.00	12.0	55.00	3.85	2	30.0	C	•	0.0060-0.0200
EC-A2 040-050/20C6R.2H55	4.00	6.00	5.00	0.20	20.0	55.00	3.85	2	30.0	C	•	0.0060-0.0200
EC-A2 040-050/20C6R.3H55	4.00	6.00	5.00	0.30	20.0	55.00	3.85	2	30.0	C	•	0.0060-0.0200
EC-A2 040-050/20C6R.5H55	4.00	6.00	5.00	0.50	20.0	55.00	3.85	2	30.0	C	•	0.0060-0.0200
EC-A2 040-060/16C6H60	4.00	6.00	6.00	-	16.0	60.00	3.80	2	30.0	C	•	0.0200-0.0500
EC-A2 060-070/20C6R.3H60	6.00	6.00	7.00	0.30	20.0	60.00	5.85	2	30.0	C	•	0.0080-0.0300
EC-A2 060-070/20C6R.5H60	6.00	6.00	7.00	0.50	20.0	60.00	5.85	2	30.0	C	•	0.0080-0.0300
EC-A2 060-070/20C6R1.H60	6.00	6.00	7.00	1.00	20.0	60.00	5.85	2	30.0	C	•	0.0080-0.0300
EC-A2 060-070/20C6R1.5H60	6.00	6.00	7.00	1.50	20.0	60.00	5.85	2	30.0	C	•	0.0080-0.0300
EC-A2 060-070/20C6R2.H60	6.00	6.00	7.00	2.00	20.0	60.00	5.85	2	30.0	C	•	0.0080-0.0300
EC-A2 080-090/25C8R1.H60	8.00	8.00	9.00	1.00	25.0	60.00	7.70	2	30.0	C	•	0.0100-0.0350
EC-A2 080-090/25C8R2.H60	8.00	8.00	9.00	2.00	25.0	60.00	7.70	2	30.0	C	•	0.0100-0.0350
EC-A2 100-090/32C10R.3H70	10.00	10.00	9.00	0.30	32.0	70.00	9.70	2	30.0	C	•	0.0100-0.0400
EC-A2 100-110/32C10R.5H70	10.00	10.00	11.00	0.50	32.0	70.00	9.70	2	30.0	C	•	0.0100-0.0400

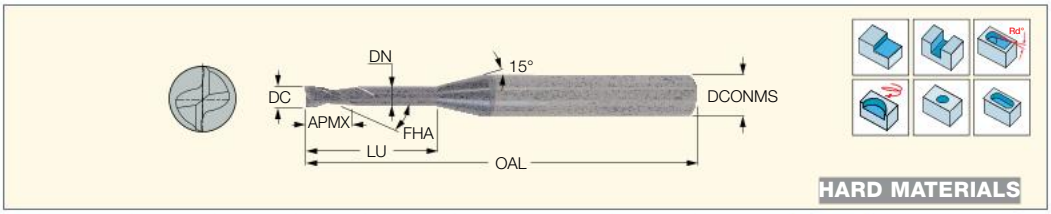
• For user guide, see pages 211-218

(1) Number of flutes

(2) C-Cylindrical

SOLIDMILL PREMIUM LINE

EC-A2-M (rib processing)
2 Flute, 30° Helix Solid Carbide Endmills for Rib Processing on Hard Materials up to 55 HRC



Designation	Dimensions										Tough ↔ Hard	Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	DN	NOF(1)	FHA	RMPX°(2)	Shank(3)	IC903	f_z (mm/t)
EC-A2 004-006/02C4M45	0.40	4.00	0.60	2.0	45.00	0.37	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 004-006/04C4M45	0.40	4.00	0.60	4.0	45.00	0.37	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 004-006/05C4M45	0.40	4.00	0.60	5.0	45.00	0.37	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 005-007/02C4M45	0.50	4.00	0.70	2.0	45.00	0.45	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 005-007/04C4M45	0.50	4.00	0.70	4.0	45.00	0.45	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 005-007/06C4M45	0.50	4.00	0.70	6.0	45.00	0.45	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 005-007/08C4M45	0.50	4.00	0.70	8.0	45.00	0.45	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 006-009/02C4M45	0.60	4.00	0.90	2.0	45.00	0.55	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 006-009/04C4M45	0.60	4.00	0.90	4.0	45.00	0.55	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 006-009/06C4M45	0.60	4.00	0.90	6.0	45.00	0.55	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 006-009/08C4M45	0.60	4.00	0.90	8.0	45.00	0.55	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 006-009/10C4M45	0.60	4.00	0.90	10.0	45.00	0.55	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 007-010/02C4M45	0.70	4.00	1.00	2.0	45.00	0.65	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 007-010/08C4M45	0.70	4.00	1.00	8.0	45.00	0.65	2	30.0	3.0	C	●	0.0010-0.0030
EC-A2 008-012/04C4M45	0.80	4.00	1.20	4.0	45.00	0.75	2	30.0	3.0	C	●	0.0020-0.0040
EC-A2 008-012/06C4M45	0.80	4.00	1.20	6.0	45.00	0.75	2	30.0	3.0	C	●	0.0020-0.0040
EC-A2 008-012/08C4M45	0.80	4.00	1.20	8.0	45.00	0.75	2	30.0	3.0	C	●	0.0020-0.0040
EC-A2 008-012/10C4M45	0.80	4.00	1.20	10.0	45.00	0.75	2	30.0	3.0	C	●	0.0020-0.0040
EC-A2 009-0135/06C4M45	0.90	4.00	1.35	6.0	45.00	0.85	2	30.0	3.0	C	●	0.0030-0.0050
EC-A2 009-0135/10C4M45	0.90	4.00	1.35	10.0	45.00	0.85	2	30.0	3.0	C	●	0.0030-0.0050
EC-A2 009-0135/15C4M50	0.90	4.00	1.35	15.0	50.00	0.85	2	30.0	3.0	C	●	0.0030-0.0050
EC-A2 010-015/04C4M45	1.00	4.00	1.50	4.0	45.00	0.97	2	30.0	3.0	C	●	0.0040-0.0060
EC-A2 010-015/06C4M45	1.00	4.00	1.50	6.0	45.00	0.97	2	30.0	3.0	C	●	0.0040-0.0060
EC-A2 010-015/08C4M45	1.00	4.00	1.50	8.0	45.00	0.95	2	30.0	3.0	C	●	0.0040-0.0060
EC-A2 010-015/10C4M45	1.00	4.00	1.50	10.0	45.00	0.95	2	30.0	3.0	C	●	0.0040-0.0060
EC-A2 010-015/12C4M45	1.00	4.00	1.50	12.0	45.00	0.93	2	30.0	3.0	C	●	0.0040-0.0060
EC-A2 010-015/16C4M50	1.00	4.00	1.50	16.0	50.00	0.93	2	30.0	3.0	C	●	0.0040-0.0060
EC-A2 010-015/20C4M55	1.00	4.00	1.50	20.0	55.00	0.93	2	30.0	3.0	C	●	0.0040-0.0060
EC-A2 012-018/06C4M45	1.20	4.00	1.80	6.0	45.00	1.17	2	30.0	3.0	C	●	0.0040-0.0075
EC-A2 012-018/08C4M45	1.20	4.00	1.80	8.0	45.00	1.15	2	30.0	3.0	C	●	0.0040-0.0075
EC-A2 012-018/10C4M45	1.20	4.00	1.80	10.0	45.00	1.15	2	30.0	3.0	C	●	0.0040-0.0075
EC-A2 012-018/16C4M50	1.20	4.00	1.80	16.0	50.00	1.13	2	30.0	3.0	C	●	0.0040-0.0075
EC-A2 014-021/06C4M45	1.40	4.00	2.10	6.0	45.00	1.35	2	30.0	3.0	C	●	0.0040-0.0080
EC-A2 014-021/08C4M45	1.40	4.00	2.10	8.0	45.00	1.35	2	30.0	3.0	C	●	0.0040-0.0080
EC-A2 014-021/10C4M45	1.40	4.00	2.10	10.0	45.00	1.35	2	30.0	3.0	C	●	0.0040-0.0080
EC-A2 015-023/06C4M45	1.50	4.00	2.30	6.0	45.00	1.47	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 015-023/08C4M45	1.50	4.00	2.30	8.0	45.00	1.45	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 015-023/10C4M45	1.50	4.00	2.30	10.0	45.00	1.45	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 015-023/12C4M45	1.50	4.00	2.30	12.0	45.00	1.41	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 015-023/14C4M50	1.50	4.00	2.30	14.0	50.00	1.41	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 015-023/16C4M50	1.50	4.00	2.30	16.0	50.00	1.41	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 015-023/20C4M55	1.50	4.00	2.30	20.0	55.00	1.41	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 016-024/06C4M45	1.60	4.00	2.40	6.0	45.00	1.57	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 016-024/08C4M45	1.60	4.00	2.40	8.0	45.00	1.55	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 016-024/10C4M45	1.60	4.00	2.40	10.0	45.00	1.55	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 016-024/18C4M55	1.60	4.00	2.40	18.0	55.00	1.53	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 016-024/26C4M60	1.60	4.00	2.40	26.0	60.00	1.53	2	30.0	3.0	C	●	0.0050-0.0100
EC-A2 018-027/06C4M45	1.80	4.00	2.70	6.0	45.00	1.77	2	30.0	3.0	C	●	0.0060-0.0100
EC-A2 018-027/08C4M45	1.80	4.00	2.70	8.0	45.00	1.75	2	30.0	3.0	C	●	0.0060-0.0100
EC-A2 018-027/10C4M45	1.80	4.00	2.70	10.0	45.00	1.75	2	30.0	3.0	C	●	0.0060-0.0100
EC-A2 018-027/12C4M45	1.80	4.00	2.70	12.0	45.00	1.73	2	30.0	3.0	C	●	0.0060-0.0100
EC-A2 018-027/14C4M50	1.80	4.00	2.70	14.0	50.00	1.73	2	30.0	3.0	C	●	0.0060-0.0100
EC-A2 020-030/06C4M45	2.00	4.00	3.00	6.0	45.00	1.97	2	30.0	3.0	C	●	0.0080-0.0150
EC-A2 020-030/08C4M45	2.00	4.00	3.00	8.0	45.00	1.95	2	30.0	3.0	C	●	0.0080-0.0150
EC-A2 020-030/10C4M45	2.00	4.00	3.00	10.0	45.00	1.95	2	30.0	3.0	C	●	0.0080-0.0150
EC-A2 020-030/12C4M45	2.00	4.00	3.00	12.0	45.00	1.93	2	30.0	3.0	C	●	0.0080-0.0150
EC-A2 020-030/14C4M50	2.00	4.00	3.00	14.0	50.00	1.93	2	30.0	3.0	C	●	0.0080-0.0150

• The DC tolerance is: 0 - -0.015 mm • For user guide, see pages 211-218

(1) Number of flutes

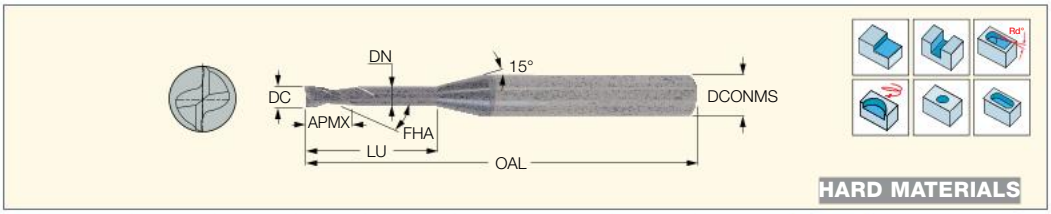
(2) Maximum ramping angle

(3) C-Cylindrical

Continued

SOLIDMILL PREMIUM LINE

EC-A2-M (rib processing)
2 Flute, 30° Helix Solid Carbide Endmills for Rib Processing on Hard Materials up to 55 HRC



Designation	Dimensions										Tough ↔ Hard	Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	DN	NOF[1]	FHA	RMPX°[2]	Shank[3]	IC903	f_z (mm/t)
EC-A2 020-030/16C4M50	2.00	4.00	3.00	16.0	50.00	1.91	2	30.0	3.0	C	●	0.0080-0.0150
EC-A2 020-030/18C4M55	2.00	4.00	3.00	18.0	55.00	1.91	2	30.0	3.0	C	●	0.0080-0.0150
EC-A2 020-030/20C4M55	2.00	4.00	3.00	20.0	55.00	1.89	2	30.0	3.0	C	●	0.0080-0.0150
EC-A2 020-030/25C4M60	2.00	4.00	3.00	25.0	60.00	1.89	2	30.0	3.0	C	●	0.0080-0.0150
EC-A2 020-030/30C4M70	2.00	4.00	3.00	30.0	70.00	1.89	2	30.0	3.0	C	●	0.0080-0.0150
EC-A2 025-037/08C4M45	2.50	4.00	3.70	8.0	45.00	2.40	2	30.0	3.0	C	●	0.0090-0.0180
EC-A2 025-037/10C4M45	2.50	4.00	3.70	10.0	45.00	2.40	2	30.0	3.0	C	●	0.0090-0.0180
EC-A2 025-037/12C4M45	2.50	4.00	3.70	12.0	45.00	2.40	2	30.0	3.0	C	●	0.0090-0.0180
EC-A2 025-037/14C4M50	2.50	4.00	3.70	14.0	50.00	2.40	2	30.0	3.0	C	●	0.0090-0.0180
EC-A2 025-037/16C4M55	2.50	4.00	3.70	16.0	55.00	2.40	2	30.0	3.0	C	●	0.0090-0.0180
EC-A2 025-037/18C4M55	2.50	4.00	3.70	18.0	55.00	2.40	2	30.0	3.0	C	●	0.0090-0.0180
EC-A2 025-037/20C4M60	2.50	4.00	3.70	20.0	60.00	2.40	2	30.0	3.0	C	●	0.0090-0.0180
EC-A2 025-037/25C4M70	2.50	4.00	3.70	25.0	70.00	2.40	2	30.0	3.0	C	●	0.0090-0.0180
EC-A2 025-037/30C4M80	2.50	4.00	3.70	30.0	80.00	2.40	2	30.0	3.0	C	●	0.0090-0.0180
EC-A2 030-045/08C6M45	3.00	6.00	4.50	8.0	45.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/10C6M45	3.00	6.00	4.50	10.0	45.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/12C6M45	3.00	6.00	4.50	12.0	45.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/14C6M50	3.00	6.00	4.50	14.0	50.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/16C6M55	3.00	6.00	4.50	16.0	55.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/18C6M55	3.00	6.00	4.50	18.0	55.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/20C6M60	3.00	6.00	4.50	20.0	60.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/25C6M65	3.00	6.00	4.50	25.0	65.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/30C6M70	3.00	6.00	4.50	30.0	70.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/35C6M80	3.00	6.00	4.50	35.0	80.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 030-045/40C6M90	3.00	6.00	4.50	40.0	90.00	2.85	2	30.0	3.0	C	●	0.0100-0.0180
EC-A2 040-060/12C6M50	4.00	6.00	6.00	12.0	50.00	3.80	2	30.0	3.0	C	●	0.0100-0.0200
EC-A2 040-060/16C6M60	4.00	6.00	6.00	16.0	60.00	3.80	2	30.0	3.0	C	●	0.0100-0.0200
EC-A2 040-060/20C6M60	4.00	6.00	6.00	20.0	60.00	3.80	2	30.0	3.0	C	●	0.0100-0.0200
EC-A2 040-060/25C6M70	4.00	6.00	6.00	25.0	70.00	3.80	2	30.0	3.0	C	●	0.0100-0.0200
EC-A2 040-060/30C6M70	4.00	6.00	6.00	30.0	70.00	3.80	2	30.0	3.0	C	●	0.0100-0.0200
EC-A2 040-060/35C6M80	4.00	6.00	6.00	35.0	80.00	3.80	2	30.0	3.0	C	●	0.0100-0.0200
EC-A2 040-060/40C6M90	4.00	6.00	6.00	40.0	90.00	3.80	2	30.0	3.0	C	●	0.0100-0.0200
EC-A2 040-060/45C6M90	4.00	6.00	6.00	45.0	90.00	3.80	2	30.0	3.0	C	●	0.0100-0.0200
EC-A2 040-060/50C6M100	4.00	6.00	6.00	50.0	100.00	3.80	2	30.0	3.0	C	●	0.0100-0.0200
EC-A2 050-075/16C6M60	5.00	6.00	7.50	16.0	60.00	4.80	2	30.0	3.0	C	●	0.0100-0.0250
EC-A2 050-075/20C6M60	5.00	6.00	7.50	20.0	60.00	4.80	2	30.0	3.0	C	●	0.0100-0.0250
EC-A2 050-075/25C6M70	5.00	6.00	7.50	25.0	70.00	4.80	2	30.0	3.0	C	●	0.0100-0.0250
EC-A2 050-075/30C6M80	5.00	6.00	7.50	30.0	80.00	4.80	2	30.0	3.0	C	●	0.0100-0.0250
EC-A2 050-075/35C6M80	5.00	6.00	7.50	35.0	80.00	4.80	2	30.0	3.0	C	●	0.0100-0.0250
EC-A2 050-075/40C6M80	5.00	6.00	7.50	40.0	80.00	4.80	2	30.0	3.0	C	●	0.0100-0.0250
EC-A2 050-075/50C6M110	5.00	6.00	7.50	50.0	110.00	4.80	2	30.0	3.0	C	●	0.0100-0.0250
EC-A2 060-090/20C6M80	6.00	6.00	9.00	20.0	80.00	5.70	2	30.0	3.0	C	●	0.0150-0.0300
EC-A2 060-090/30C6M90	6.00	6.00	9.00	30.0	90.00	5.70	2	30.0	3.0	C	●	0.0150-0.0300
EC-A2 060-090/40C6M100	6.00	6.00	9.00	40.0	100.00	5.60	2	30.0	3.0	C	●	0.0150-0.0300
EC-A2 060-090/50C6M110	6.00	6.00	9.00	50.0	110.00	5.60	2	30.0	3.0	C	●	0.0150-0.0300

• The DC tolerance is: 0 - -0.015 mm • For user guide, see pages 211-218

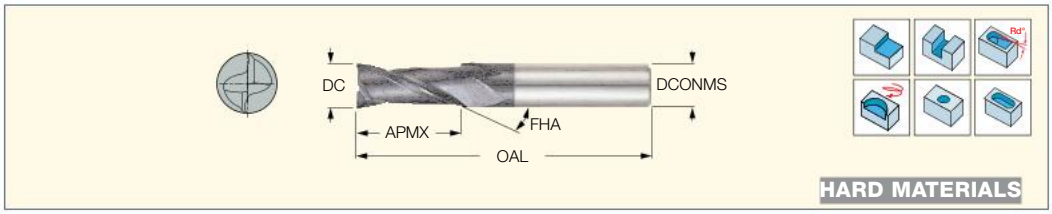
(1) Number of flutes

(2) Maximum ramping angle

(3) C-Cylindrical

SOLIDMILL PREMIUM LINE

EC-A2 (medium length)
2 Flute, 30° Helix Medium Length Solid Carbide Endmills for Hard Materials up to 65 HRC



Designation	Dimensions								IC903	Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF[1]	FHA	RMPX°[2]	Shank[3]		f_z (mm/t)
EC-A2 010-025C06-40	1.00	6.00	2.50	40.00	2	30.0	5.0	C	●	0.0050-0.0100
EC-A2 015-040C06-40	1.50	6.00	4.00	40.00	2	30.0	5.0	C	●	0.0050-0.0200
EC-A2 020-060C06-40	2.00	6.00	6.00	40.00	2	30.0	5.0	C	●	0.0100-0.0300
EC-A2 025-080C06-40	2.50	6.00	8.00	40.00	2	30.0	5.0	C	●	0.0100-0.0300
EC-A2 030-080C06-45	3.00	6.00	8.00	45.00	2	30.0	5.0	C	●	0.0100-0.0400
EC-A2 035-10C06M45	3.50	6.00	10.00	45.00	2	30.0	5.0	C	●	0.0100-0.0400
EC-A2 040-11C06-45	4.00	6.00	11.00	45.00	2	30.0	5.0	C	●	0.0200-0.0500
EC-A2 045-11C06-45	4.50	6.00	11.00	45.00	2	30.0	5.0	C	●	0.0200-0.0500
EC-A2 050-13C06-50	5.00	6.00	13.00	50.00	2	30.0	5.0	C	●	0.0200-0.0600
EC-A2 055-13C06-50	5.50	6.00	13.00	50.00	2	30.0	5.0	C	●	0.0200-0.0600
EC-A2 060-13C06-50	6.00	6.00	13.00	50.00	2	30.0	5.0	C	●	0.0300-0.0700
EC-A2 065-16C08-60	6.50	8.00	16.00	60.00	2	30.0	5.0	C	●	0.0300-0.0700
EC-A2 070-16C08-60	7.00	8.00	16.00	60.00	2	30.0	5.0	C	●	0.0300-0.0800
EC-A2 075-16C08-60	7.50	8.00	16.00	60.00	2	30.0	5.0	C	●	0.0300-0.0800
EC-A2 080-19C08-60	8.00	8.00	19.00	60.00	2	30.0	5.0	C	●	0.0300-0.0900
EC-A2 085-19C10-70	8.50	10.00	19.00	70.00	2	30.0	5.0	C	●	0.0300-0.0900
EC-A2 090-19C10-70	9.00	10.00	19.00	70.00	2	30.0	5.0	C	●	0.0300-0.0900
EC-A2 095-19C10-70	9.50	10.00	19.00	70.00	2	30.0	5.0	C	●	0.0300-0.0900
EC-A2 100-22C10-70	10.00	10.00	22.00	70.00	2	30.0	5.0	C	●	0.0300-0.1000
EC-A2 110-22C12-75	11.00	12.00	22.00	75.00	2	30.0	5.0	C	●	0.0300-0.1000
EC-A2 120-26C12-75	12.00	12.00	26.00	75.00	2	30.0	5.0	C	●	0.0400-0.1100
EC-A2 150-26C16-90	15.00	16.00	26.00	90.00	2	30.0	5.0	C	●	0.0400-0.1200
EC-A2 160-32C16-100	16.00	16.00	32.00	100.00	2	30.0	5.0	C	●	0.0500-0.1300
EC-A2 180-32C18-100	18.00	18.00	32.00	100.00	2	30.0	5.0	C	●	0.0500-0.1300
EC-A2 200-38C20-105	20.00	20.00	38.00	105.00	2	30.0	5.0	C	●	0.0500-0.1300
EC-A2 220-38C20-105	22.00	20.00	38.00	105.00	2	30.0	5.0	C	●	0.0500-0.1300

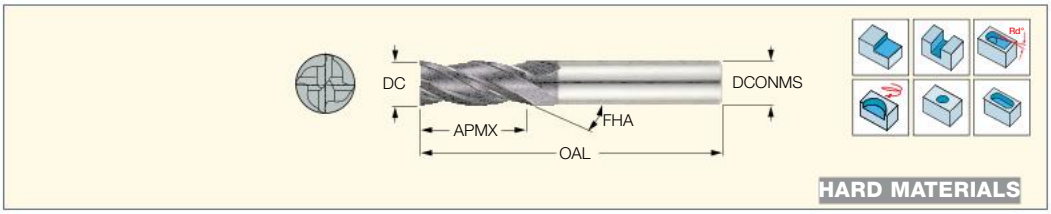
• For user guide, see pages 211-218

[1] Number of flutes
[2] Maximum ramping angle
[3] C-Cylindrical

SOLIDMILL PREMIUM LINE

EC-A4

4 Flute, 30° Helix Medium Length Solid Carbide Endmills for Hard Materials up to 65 HRC



Designation	Dimensions								IC903	Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF[1]	FHA	RMPX°[2]	Shank[3]		f_z (mm/t)
EC-A4 020-060C06-50	2.00	6.00	6.00	50.00	4	30.0	5.0	C	●	0.01-0.03
EC-A4 025-080C06-50	2.50	6.00	8.00	50.00	4	30.0	5.0	C	●	0.01-0.03
EC-A4 030-080C06-50	3.00	6.00	8.00	50.00	4	30.0	5.0	C	●	0.01-0.04
EC-A4 035-10C06-50	3.50	6.00	10.00	50.00	4	30.0	5.0	C	●	0.01-0.04
EC-A4 040-11C06-50	4.00	6.00	11.00	50.00	4	30.0	5.0	C	●	0.02-0.05
EC-A4 045-11C06-50	4.50	6.00	11.00	50.00	4	30.0	5.0	C	●	0.02-0.05
EC-A4 050-13C06-50	5.00	6.00	13.00	50.00	4	30.0	5.0	C	●	0.02-0.06
EC-A4 055-13C06-50	5.50	6.00	13.00	50.00	4	30.0	5.0	C	●	0.02-0.06
EC-A4 060-13C06-50	6.00	6.00	13.00	50.00	4	30.0	5.0	C	●	0.03-0.07
EC-A4 065-16C08-63	6.50	8.00	16.00	63.00	4	30.0	5.0	C	●	0.03-0.07
EC-A4 070-16C08-63	7.00	8.00	16.00	63.00	4	30.0	5.0	C	●	0.03-0.08
EC-A4 075-16C08-63	7.50	8.00	16.00	63.00	4	30.0	5.0	C	●	0.03-0.08
EC-A4 080-19C08-63	8.00	8.00	19.00	63.00	4	30.0	5.0	C	●	0.03-0.09
EC-A4 085-19C10-72	8.50	10.00	19.00	72.00	4	30.0	5.0	C	●	0.03-0.09
EC-A4 090-19C10-72	9.00	10.00	19.00	72.00	4	30.0	5.0	C	●	0.03-0.09
EC-A4 095-19C10-70	9.50	10.00	19.00	70.00	4	30.0	5.0	C	●	0.03-0.09
EC-A4 100-22C10-72	10.00	10.00	22.00	72.00	4	30.0	5.0	C	●	0.03-0.10
EC-A4 105-22C12-75	10.50	12.00	22.00	75.00	4	30.0	5.0	C	●	0.03-0.10
EC-A4 110-22C12-75	11.00	12.00	22.00	75.00	4	30.0	5.0	C	●	0.03-0.10
EC-A4 115-22C12-75	11.50	12.00	22.00	75.00	4	30.0	5.0	C	●	0.03-0.10
EC-A4 120-26C12-73	12.00	12.00	26.00	73.00	4	30.0	5.0	C	●	0.04-0.11
EC-A4 140-26C14-83	14.00	14.00	26.00	83.00	4	30.0	5.0	C	●	0.04-0.12
EC-A4 150-26C16-92	15.00	16.00	26.00	92.00	4	30.0	5.0	C	●	0.04-0.12
EC-A4 160-32C16-92	16.00	16.00	32.00	92.00	4	30.0	5.0	C	●	0.05-0.13
EC-A4 180-32C18-100	18.00	18.00	32.00	100.00	4	30.0	5.0	C	●	0.05-0.13
EC-A4 190-32C20-100	19.00	20.00	32.00	100.00	4	30.0	5.0	C	●	0.05-0.13
EC-A4 200-38C20-104	20.00	20.00	38.00	104.00	4	30.0	5.0	C	●	0.05-0.13
EC-A4 250-45C25-120	25.00	25.00	45.00	120.00	4	30.0	5.0	C	●	0.05-0.13

• The DC tolerance is: 0 - -0.03 mm • For user guide, see pages 211-218

(1) Number of flutes

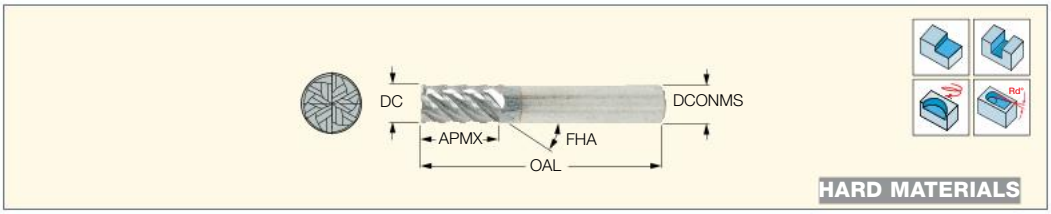
(2) Maximum ramping angle

(3) C-Cylindrical

SOLIDMILL PREMIUM LINE

ECH-B-6

6 Flute, 45° Helix Medium Length Solid Carbide Endmills for Finishing Hard Materials up to 65 HRC



Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RMPX°(3)	Tough ↔ Hard IC900	IC903	Recommended Machining Data f_z (mm/t)
ECH060B16-6C06	6.00	6.00	16.00	57.00	6	45.0	C	5.0	●	●	0.03-0.07
ECH060B16-6W06	6.00	6.00	16.00	57.00	6	45.0	W	5.0	●		0.03-0.07
ECH080B20-6C08	8.00	8.00	20.00	63.00	6	45.0	C	5.0	●	●	0.03-0.09
ECH080B20-6W08	8.00	8.00	20.00	63.00	6	45.0	W	5.0	●		0.03-0.09
ECH100B22-6C10	10.00	10.00	22.00	72.00	6	45.0	C	5.0	●	●	0.03-0.10
ECH100B22-6W10	10.00	10.00	22.00	72.00	6	45.0	W	5.0	●		0.03-0.10
ECH120B25-6C12	12.00	12.00	25.00	83.00	6	45.0	C	5.0	●	●	0.04-0.11
ECH120B25-6W12	12.00	12.00	25.00	83.00	6	45.0	W	5.0	●		0.04-0.11
ECH160B32-6C16	16.00	16.00	32.00	92.00	6	45.0	C	5.0	●	●	0.05-0.13
ECH160B32-6W16	16.00	16.00	32.00	92.00	6	45.0	W	5.0	●		0.05-0.13
ECH200B38-6C20	20.00	20.00	38.00	104.00	6	45.0	C	5.0	●	●	0.05-0.13
ECH200B38-6W20	20.00	20.00	38.00	104.00	6	45.0	W	5.0	●		0.05-0.13

• Use IC903 for machining hardened steel up to 65 HRC • For user guide, see pages 211-218

(1) Number of flutes

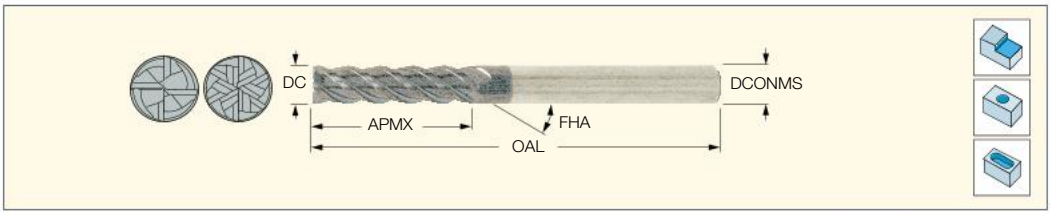
(2) C-Cylindrical, W-Weldon

(3) Maximum ramping angle

SOLIDMILL PREMIUM LINE

ECL-B-4/6

4 & 6 Flute, 45° Helix Long Solid Carbide Endmills



Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(2)	FHA	Shank(3)	IC900	Recommended Machining Data f_z (mm/t)
ECL060B24-4C06	6.00	6.00	24.00	65.00	4	45.0	C	●	0.03-0.07
ECL060B24-4W06	6.00	6.00	24.00	65.00	4	45.0	W	●	0.03-0.07
ECL080B32-4C08	8.00	8.00	32.00	79.00	4	45.0	C	●	0.03-0.09
ECL080B32-4W08	8.00	8.00	32.00	79.00	4	45.0	W	●	0.03-0.09
ECL100B40-4C10	10.00	10.00	40.00	100.00	4	45.0	C	●	0.03-0.10
ECL100B40-4W10	10.00	10.00	40.00	100.00	4	45.0	W	●	0.03-0.10
ECL120B48-4C12	12.00	12.00	48.00	100.00	4	45.0	C	●	0.04-0.11
ECL120B48-4W12	12.00	12.00	48.00	100.00	4	45.0	W	●	0.04-0.11
ECL140B50-4C14	14.00	14.00	50.00	100.00	4	45.0	C	●	0.04-0.12
ECL140B50-4W14	14.00	14.00	50.00	100.00	4	45.0	W	●	0.04-0.12
ECL160B56-6C16 (1)	16.00	16.00	56.00	115.00	6	45.0	C	●	0.05-0.13
ECL160B56-6W16 (1)	16.00	16.00	56.00	115.00	6	45.0	W	●	0.05-0.13
ECL200B60-6C20 (1)	20.00	20.00	60.00	125.00	6	45.0	C	●	0.05-0.13
ECL200B60-6W20 (1)	20.00	20.00	60.00	125.00	6	45.0	W	●	0.05-0.13

• Smooth cutting in extra long depth • For user guide, see pages 211-218

(1) Cannot be used for plunging application

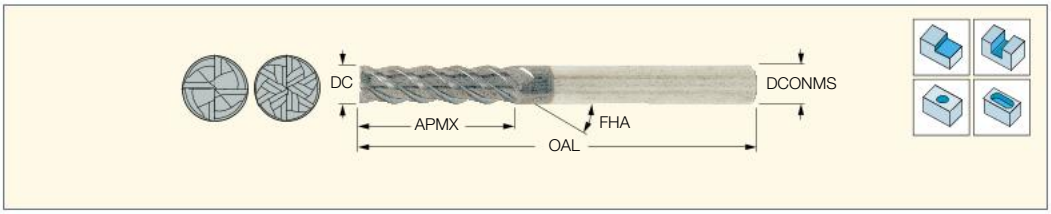
(2) Number of flutes

(3) C-Cylindrical, W-Weldon

SOLIDMILL PREMIUM LINE

ECXL-B-4/6

4 & 6 Flute, 45° Helix Extra Long Solid Carbide Endmills



Designation	Dimensions DC	DCONMS	APMX	OAL	NOF[2]	FHA	Shank[3]	IC900	Recommended Machining Data f_z (mm/t)
ECXL100B60-4C10	10.00	10.00	60.00	112.00	4	45.0	C	●	0.03-0.10
ECXL100B60-4W10	10.00	10.00	60.00	112.00	4	45.0	W	●	0.03-0.10
ECXL120B72-4C12	12.00	12.00	72.00	150.00	4	45.0	C	●	0.04-0.11
ECXL120B72-4W12	12.00	12.00	72.00	150.00	4	45.0	W	●	0.04-0.11
ECXL160B80-6C16 [1]	16.00	16.00	80.00	150.00	6	45.0	C	●	0.05-0.13
ECXL160B80-6W16 [1]	16.00	16.00	80.00	150.00	6	45.0	W	●	0.05-0.13
ECXL200B80-6C20 [1]	20.00	20.00	80.00	150.00	6	45.0	C	●	0.05-0.13

• Smooth cutting in extra long depth. • For user guide, see pages 211-218

[1] Cannot be used for plunging application

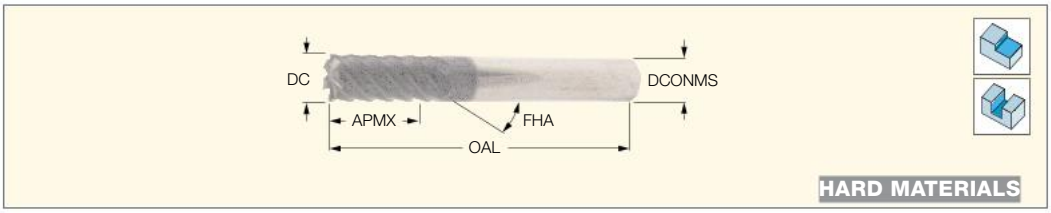
[2] Number of flutes

[3] C-Cylindrical, W-Weldon

SOLIDMILL PREMIUM LINE

EC-D6

6 Flute, 50° Helix Medium Length Solid Carbide Endmills for Finishing of Hard Materials up to 65 HRC



Designation	Dimensions DC	DCONMS	APMX	OAL	NOF[1]	FHA	Shank[2]	RMPX°[3]	IC903	Recommended Machining Data f_z (mm/t)
EC-D6 06-13C06H57	6.00	6.00	13.00	57.00	6	50.0	C	5.0	●	0.03-0.07
EC-D6 08-20C08H63	8.00	8.00	20.00	63.00	6	50.0	C	5.0	●	0.03-0.09
EC-D6 10-22C10H72	10.00	10.00	22.00	72.00	6	50.0	C	5.0	●	0.03-0.10
EC-D6 12-25C12H83	12.00	12.00	25.00	83.00	6	50.0	C	5.0	●	0.04-0.11
EC-D6 12-25W12H83	12.00	12.00	25.00	83.00	6	50.0	W	5.0	●	0.04-0.11
EC-D6 14-30C14H83	14.00	14.00	30.00	83.00	6	50.0	C	5.0	●	0.04-0.12
EC-D6 16-32C16H92	16.00	16.00	32.00	92.00	6	50.0	C	5.0	●	0.05-0.13
EC-D6 20-38C20H104	20.00	20.00	38.00	104.00	6	50.0	C	5.0	●	0.05-0.13

• For user guide, see pages 211-218

[1] Number of flutes

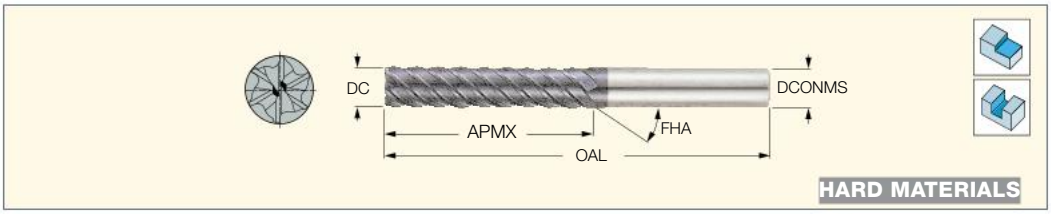
[2] C-Cylindrical, W-Weldon

[3] Maximum ramping angle

SOLIDMILL PREMIUM LINE

EC-B6

6 Flute, 45° Helix Extra Long Solid Carbide Endmills for Finishing Hard Materials up to 65 HRC



Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	IC903	Recommended Machining Data f_z (mm/t)
EC-B6 060-026C06-70	6.00	6.00	26.00	70.00	6	45.0	C	●	0.03-0.07
EC-B6 080-036C08-90	8.00	8.00	36.00	90.00	6	45.0	C	●	0.03-0.09
EC-B6 100-46C10-100	10.00	10.00	46.00	100.00	6	45.0	C	●	0.03-0.10
EC-B6 120-56C12-110	12.00	12.00	56.00	110.00	6	45.0	C	●	0.04-0.11
EC-B6 160-66C16-130	16.00	16.00	66.00	130.00	6	45.0	C	●	0.05-0.13
EC-B6 200-76C20-140	20.00	20.00	76.00	140.00	6	45.0	C	●	0.05-0.13
EC-B6 250-92C25-180	25.00	25.00	92.00	180.00	6	45.0	C	●	0.05-0.13

- For user guide, see pages 211-218

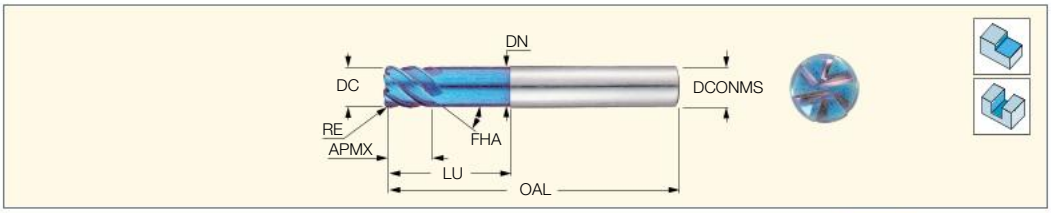
(1) Number of flutes

(2) C-Cylindrical

SOLIDMILL PREMIUM LINE

EC-B6-H

6 Flute, 45° Helix Extra Long Solid Carbide Endmills for Finishing Hard Materials up to 65 HRC



Designation	Dimensions DC	DCONMS	APMX	RE	DN	LU	OAL	NOF(1)	FHA	Shank(2)	IC702	Recommended Machining Data f_z (mm/t)
EC-B6 06-06/14C06R.25H50	6.00	6.00	6.00	0.25	5.85	14.00	50.00	6	45.0	C	●	0.03-0.07
EC-B6 06-06/14C06R.5H50	6.00	6.00	6.00	0.50	5.70	14.00	50.00	6	45.0	C	●	0.03-0.07
EC-B6 06-13C06R.5H70	6.00	6.00	13.00	0.50	6.00	-	70.00	6	45.0	C	●	0.03-0.07
EC-B6 06-26C06R.5H70	6.00	6.00	26.00	0.50	6.00	-	70.00	6	45.0	C	●	0.03-0.07
EC-B6 08-08/24C08R.5H60	8.00	8.00	8.00	0.50	7.70	24.00	60.00	6	45.0	C	●	0.03-0.09
EC-B6 08-19C08R.5H90	8.00	8.00	19.00	0.50	8.00	-	90.00	6	45.0	C	●	0.03-0.09
EC-B6 08-36C08R.5H90	8.00	8.00	36.00	0.50	8.00	-	90.00	6	45.0	C	●	0.03-0.09
EC-B6 10-22C10R.5H100	10.00	10.00	22.00	0.50	10.00	-	100.00	6	45.0	C	●	0.03-0.10
EC-B6 10-22C10R1H100	10.00	10.00	22.00	1.00	10.00	-	100.00	6	45.0	C	●	0.03-0.10
EC-B6 10-46C10R1H100	10.00	10.00	46.00	1.00	10.00	-	100.00	6	45.0	C	●	0.03-0.10
EC-B6 12-26C12R.5H110	12.00	12.00	26.00	0.50	12.00	-	110.00	6	45.0	C	●	0.04-0.11
EC-B6 12-26C12R1H110	12.00	12.00	26.00	1.00	12.00	-	110.00	6	45.0	C	●	0.04-0.11
EC-B6 12-56C12R1H110	12.00	12.00	56.00	1.00	12.00	-	110.00	6	45.0	C	●	0.04-0.11
EC-B6 20-38C20R2H140	20.00	20.00	38.00	2.00	20.00	-	140.00	6	45.0	C	●	0.05-0.13
EC-B6 20-76C20R2H140	20.00	20.00	76.00	2.00	20.00	-	140.00	6	45.0	C	●	0.05-0.13

- For user guide, see pages 211-218

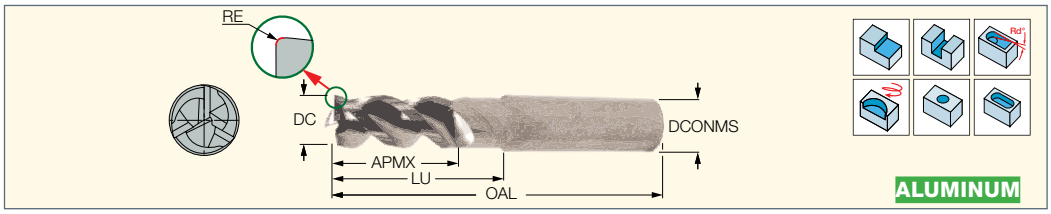
(1) Number of flutes

(2) C-Cylindrical

CHATTERFREE SOLID MILL LINE

ECA-H3-CF

Solid Carbide Endmills with Different Helix, Variable Pitch, and Relieved Neck for Machining Aluminum



Designation	Dimensions										Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	LU	RMPX°(2)	Shank(3)	CSP(4)	RE	IC08	IC1508	f_z (mm/t)
ECA-H3 01-04C06CF-R.05	1.00	6.00	4.00	57.00	3	5.40	5.0	wC	0	0.05	•		0.01-0.01
ECA-H3 015-04/06C06CF-R01	1.50	6.00	4.00	57.00	3	6.00	5.0	C	0	0.10	•		0.01-0.01
ECA-H3 02-05/08C06CF-R01	2.00	6.00	5.00	57.00	3	8.00	5.0	C	0	0.10	•		0.01-0.02
ECA-H3 025-05/08C06CF-R01	2.50	6.00	5.00	57.00	3	8.00	5.0	C	0	0.10	•		0.01-0.02
ECA-H3 03-07/12C06CF-R01	3.00	6.00	7.00	57.00	3	12.00	5.0	C	0	0.10	•		0.03-0.05
ECA-H3 04-10/16C06CF-R02	4.00	6.00	10.00	57.00	3	16.00	5.0	C	0	0.20	•		0.03-0.05
ECA-H3 05-12/20C06CF-R02	5.00	6.00	12.00	57.00	3	20.00	5.0	C	0	0.20	•		0.03-0.06
ECA-H3 06-09/18C06CF-R02	6.00	6.00	9.00	57.00	3	18.00	5.0	C	0	0.20	•		0.03-0.07
ECA-H3 06-09/18C06CF-R02D	6.00	6.00	9.00	57.00	3	18.00	5.0	C	0	0.20		•	0.03-0.07
ECA-H3 06-09/18C06CF-R04	6.00	6.00	9.00	57.00	3	18.00	5.0	C	0	0.40	•		0.03-0.07
ECA-H3 06-09/18C06CF-R08	6.00	6.00	9.00	57.00	3	18.00	5.0	C	0	0.80	•		0.03-0.07
ECA-H3 06-09/30C06CF-R02	6.00	6.00	9.00	65.00	3	30.00	5.0	C	0	0.20	•		0.03-0.07
ECA-H3 06-09/30C06CF-R02D	6.00	6.00	9.00	65.00	3	30.00	5.0	C	0	0.20		•	0.03-0.07
ECA-H3 06-09/30C06CF-R04	6.00	6.00	9.00	65.00	3	30.00	5.0	C	0	0.40	•		0.03-0.07
ECA-H3 06-09/30C06CF-R08	6.00	6.00	9.00	65.00	3	30.00	5.0	C	0	0.80	•		0.03-0.07
ECA-H3 06-09C06CF-R02-57	6.00	6.00	9.00	57.00	3	-	5.0	C	0	0.20	•		0.03-0.07
ECA-H3 06-12/18C06CF-R02C	6.00	6.00	12.00	57.00	3	18.00	5.0	C	1	0.20	•		0.03-0.07
ECA-H3 06-12/30C06CF-R02C	6.00	6.00	12.00	64.00	3	30.00	5.0	C	1	0.20	•		0.03-0.07
ECA-H3 06-14/24C06CF-R02	6.00	6.00	14.00	60.00	3	24.00	5.0	C	0	0.20	•		0.03-0.07
ECA-H3 06-14/24C06CF-R02D	6.00	6.00	14.00	60.00	3	24.00	5.0	C	0	0.20		•	0.03-0.07
ECA-H3 08-12/24C08CF-R02	8.00	8.00	12.00	63.00	3	24.00	5.0	C	0	0.20	•		0.03-0.09
ECA-H3 08-12/24C08CF-R02D	8.00	8.00	12.00	63.00	3	24.00	5.0	C	0	0.20		•	0.03-0.09
ECA-H3 08-12/24C08CF-R04	8.00	8.00	12.00	63.00	3	24.00	5.0	C	0	0.40	•		0.03-0.09
ECA-H3 08-12/24C08CF-R08	8.00	8.00	12.00	63.00	3	24.00	5.0	C	0	0.80	•		0.03-0.09
ECA-H3 08-12/24C08CF-R30	8.00	8.00	12.00	63.00	3	24.00	5.0	C	0	3.00	•		0.03-0.09
ECA-H3 08-12/40C08CF-R02	8.00	8.00	12.00	79.00	3	40.00	5.0	C	0	0.20	•		0.03-0.09
ECA-H3 08-12/40C08CF-R02D	8.00	8.00	12.00	79.00	3	40.00	5.0	C	0	0.20		•	0.03-0.09
ECA-H3 08-12/40C08CF-R04	8.00	8.00	12.00	79.00	3	40.00	5.0	C	0	0.40	•		0.03-0.09
ECA-H3 08-12/40C08CF-R08	8.00	8.00	12.00	79.00	3	40.00	5.0	C	0	0.80	•		0.03-0.09
ECA-H3 08-12C08CF-R02-63	8.00	8.00	12.00	63.00	3	-	5.0	C	0	0.20	•		0.03-0.09
ECA-H3 08-16/24C08CF-R02C	8.00	8.00	16.00	63.00	3	24.00	5.0	C	1	0.20	•		0.03-0.09
ECA-H3 08-16/40C08CF-R02C	8.00	8.00	16.00	78.00	3	40.00	5.0	C	1	0.20	•		0.03-0.09
ECA-H3 08-18/32C08CF-R02	8.00	8.00	18.00	68.00	3	32.00	5.0	C	0	0.20	•		0.03-0.09
ECA-H3 08-18/32C08CF-R02D	8.00	8.00	18.00	68.00	3	32.00	5.0	C	0	0.20		•	0.03-0.09
ECA-H3 10-15/30C10CF-R02	10.00	10.00	15.00	72.00	3	30.00	5.0	C	0	0.20	•		0.03-0.10
ECA-H3 10-15/30C10CF-R02D	10.00	10.00	15.00	72.00	3	30.00	5.0	C	0	0.20		•	0.03-0.10
ECA-H3 10-15/30C10CF-R04	10.00	10.00	15.00	72.00	3	30.00	5.0	C	0	0.40	•		0.03-0.10
ECA-H3 10-15/30C10CF-R08	10.00	10.00	15.00	72.00	3	30.00	5.0	C	0	0.80	•		0.03-0.10
ECA-H3 10-15/30C10CF-R16	10.00	10.00	15.00	72.00	3	30.00	5.0	C	0	1.60	•		0.03-0.10
ECA-H3 10-15/30C10CF-R30	10.00	10.00	15.00	72.00	3	30.00	5.0	C	0	3.00	•		0.03-0.10
ECA-H3 10-15/50C10CF-R02	10.00	10.00	15.00	92.00	3	50.00	5.0	C	0	0.20	•		0.03-0.10
ECA-H3 10-15/50C10CF-R02D	10.00	10.00	15.00	92.00	3	50.00	5.0	C	0	0.20		•	0.03-0.10
ECA-H3 10-15/50C10CF-R04	10.00	10.00	15.00	92.00	3	50.00	5.0	C	0	0.40	•		0.03-0.10
ECA-H3 10-15/50C10CF-R08	10.00	10.00	15.00	92.00	3	50.00	5.0	C	0	0.80	•		0.03-0.10
ECA-H3 10-15/50C10CF-R16	10.00	10.00	15.00	92.00	3	50.00	5.0	C	0	1.60	•		0.03-0.10
ECA-H3 10-15/50C10CF-R20	10.00	10.00	15.00	92.00	3	50.00	5.0	C	0	2.00	•		0.03-0.10
ECA-H3 10-15/50C10CF-R30	10.00	10.00	15.00	92.00	3	50.00	5.0	C	0	3.00	•		0.03-0.10
ECA-H3 10-15C10CF-R02-72	10.00	10.00	15.00	72.00	3	-	5.0	C	0	0.20	•		0.03-0.10
ECA-H3 10-20/30C10CF-R02C	10.00	10.00	20.00	72.00	3	30.00	5.0	C	1	0.20	•		0.03-0.10
ECA-H3 10-20/50C10CF-R02C	10.00	10.00	20.00	100.00	3	50.00	5.0	C	1	0.20	•		0.03-0.10
ECA-H3 10-22/40C10CF-R02	10.00	10.00	22.00	80.00	3	40.00	5.0	C	0	0.20	•		0.03-0.10
ECA-H3 10-22/40C10CF-R02D	10.00	10.00	22.00	80.00	3	40.00	5.0	C	0	0.20		•	0.03-0.10
ECA-H3 10-22/40C10CF-R30	10.00	10.00	22.00	80.00	3	40.00	5.0	C	0	3.00	•		0.03-0.10
ECA-H3 12-18/36C12CF-R02	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0	0.20	•		0.04-0.11
ECA-H3 12-18/36C12CF-R02D	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0	0.20		•	0.04-0.11
ECA-H3 12-18/36C12CF-R04	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0	0.40	•		0.04-0.11
ECA-H3 12-18/36C12CF-R08	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0	0.80	•		0.04-0.11
ECA-H3 12-18/36C12CF-R16	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0	1.60	•		0.04-0.11
ECA-H3 12-18/36C12CF-R20	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0	2.00	•		0.04-0.11

• For user guide, see pages 211-218 • Grade IC1508 - DLC Coating

(1) Number of flutes

(2) Maximum ramping angle

(3) C-Cylindrical

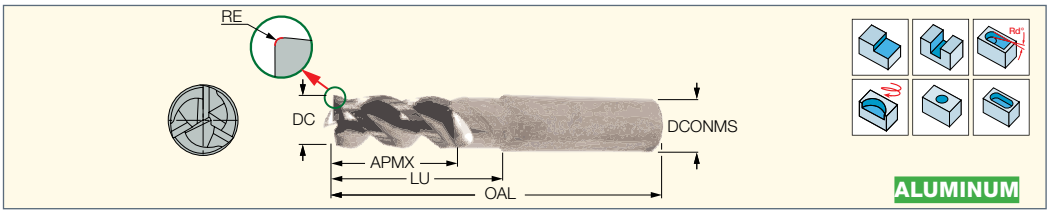
(4) 0 - Without coolant supply, 1 - With coolant supply

Continued

CHATTERFREE SOLID MILL LINE

ECA-H3-CF

Solid Carbide Endmills with Different Helix, Variable Pitch, and Relieved Neck for Machining Aluminum



Designation	Dimensions										Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	LU	RMPX°(2)	Shank(3)	CSP(4)	RE	IC08	IC1508	f_z (mm/t)
ECA-H3 12-18/36C12CF-R25	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0	2.50	•		0.04-0.11
ECA-H3 12-18/36C12CF-R30	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0	3.00	•		0.04-0.11
ECA-H3 12-18/60C12CF-R02	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0	0.20	•		0.04-0.11
ECA-H3 12-18/60C12CF-R02D	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0	0.20		•	0.04-0.11
ECA-H3 12-18/60C12CF-R04	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0	0.40	•		0.04-0.11
ECA-H3 12-18/60C12CF-R08	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0	0.80	•		0.04-0.11
ECA-H3 12-18/60C12CF-R16	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0	1.60	•		0.04-0.11
ECA-H3 12-18/60C12CF-R20	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0	2.00	•		0.04-0.11
ECA-H3 12-18/60C12CF-R25	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0	2.50	•		0.04-0.11
ECA-H3 12-18/60C12CF-R30	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0	3.00	•		0.04-0.11
ECA-H3 12-18C12CF-R02-83	12.00	12.00	18.00	83.00	3	-	5.0	C	0	0.20	•		0.04-0.11
ECA-H3 12-24/36C12CF-R02C	12.00	12.00	24.00	83.00	3	36.00	5.0	C	1	0.20	•		0.04-0.11
ECA-H3 12-24/60C12CF-R02C	12.00	12.00	24.00	100.00	3	60.00	5.0	C	1	0.20	•		0.04-0.11
ECA-H3 12-26/48C12CF-R02	12.00	12.00	26.00	93.00	3	48.00	5.0	C	0	0.20	•		0.04-0.11
ECA-H3 12-26/48C12CF-R02D	12.00	12.00	26.00	93.00	3	48.00	5.0	C	0	0.20		•	0.04-0.11
ECA-H3 16-24/48C16CF-R02	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	0.20	•		0.05-0.13
ECA-H3 16-24/48C16CF-R02D	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	0.20		•	0.05-0.13
ECA-H3 16-24/48C16CF-R04	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	0.40	•		0.05-0.13
ECA-H3 16-24/48C16CF-R08	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	0.80	•		0.05-0.13
ECA-H3 16-24/48C16CF-R16	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	1.60	•		0.05-0.13
ECA-H3 16-24/48C16CF-R20	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	2.00	•		0.05-0.13
ECA-H3 16-24/48C16CF-R25	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	2.50	•		0.05-0.13
ECA-H3 16-24/48C16CF-R30	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	3.00	•		0.05-0.13
ECA-H3 16-24/48C16CF-R32	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	3.20	•		0.05-0.13
ECA-H3 16-24/48C16CF-R40	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	4.00	•		0.05-0.13
ECA-H3 16-24/48C16CF-R50	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0	5.00	•		0.05-0.13
ECA-H3 16-24/80C16CF-R02	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	0.20	•		0.05-0.13
ECA-H3 16-24/80C16CF-R04	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	0.40	•		0.05-0.13
ECA-H3 16-24/80C16CF-R08	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	0.80	•		0.05-0.13
ECA-H3 16-24/80C16CF-R16	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	1.60	•		0.05-0.13
ECA-H3 16-24/80C16CF-R20	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	2.00	•		0.05-0.13
ECA-H3 16-24/80C16CF-R25	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	2.50	•		0.05-0.13
ECA-H3 16-24/80C16CF-R30	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	3.00	•		0.05-0.13
ECA-H3 16-24/80C16CF-R32	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	3.20	•		0.05-0.13
ECA-H3 16-24/80C16CF-R40	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	4.00	•		0.05-0.13
ECA-H3 16-24/80C16CF-R50	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0	5.00	•		0.05-0.13
ECA-H3 16-32/48C16CF-R02C	16.00	16.00	32.00	92.00	3	48.00	5.0	C	1	0.20	•		0.05-0.13
ECA-H3 16-32/80C16CF-R02C	16.00	16.00	32.00	127.00	3	80.00	5.0	C	1	0.20	•		0.05-0.13
ECA-H3 16-34/64C16CF-R02	16.00	16.00	34.00	115.00	3	64.00	5.0	C	0	0.20	•		0.05-0.13
ECA-H3 16-34/64C16CF-R02D	16.00	16.00	34.00	115.00	3	64.00	5.0	C	0	0.20		•	0.05-0.13
ECA-H3 20-30/100C20CF-R02	20.00	20.00	30.00	150.00	3	100.00	5.0	C	0	0.20	•		0.05-0.14
ECA-H3 20-30/100C20CF-R04	20.00	20.00	30.00	150.00	3	100.00	5.0	C	0	0.40	•		0.05-0.14
ECA-H3 20-30/100C20CF-R08	20.00	20.00	30.00	150.00	3	100.00	5.0	C	0	0.80	•		0.05-0.14
ECA-H3 20-30/100C20CF-R32	20.00	20.00	30.00	150.00	3	100.00	5.0	C	0	3.20	•		0.05-0.14
ECA-H3 20-30/100C20CF-R40	20.00	20.00	30.00	150.00	3	100.00	5.0	C	0	4.00	•		0.05-0.14
ECA-H3 20-30/100C20CF-R50	20.00	20.00	30.00	150.00	3	100.00	5.0	C	0	5.00	•		0.05-0.14
ECA-H3 20-30/60C20CF-R02	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0	0.20	•		0.05-0.14
ECA-H3 20-30/60C20CF-R02D	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0	0.20		•	0.05-0.14
ECA-H3 20-30/60C20CF-R04	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0	0.40	•		0.05-0.14
ECA-H3 20-30/60C20CF-R08	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0	0.80	•		0.05-0.14
ECA-H3 20-30/60C20CF-R16	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0	1.60	•		0.05-0.14
ECA-H3 20-30/60C20CF-R20	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0	2.00	•		0.05-0.14
ECA-H3 20-30/60C20CF-R32	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0	3.20	•		0.05-0.14
ECA-H3 20-30/60C20CF-R40	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0	4.00	•		0.05-0.14
ECA-H3 20-30/60C20CF-R50	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0	5.00	•		0.05-0.14
ECA-H3 20-40/60C20CF-R02C	20.00	20.00	40.00	109.00	3	60.00	5.0	C	1	0.20	•		0.05-0.14
ECA-H3 20-42/80C20CF-R02	20.00	20.00	42.00	130.00	3	80.00	5.0	C	0	0.20	•		0.05-0.14

• For user guide, see pages 211-218 • Grade IC1508 - DLC Coating

(1) Number of flutes

(2) Maximum ramping angle

(3) C-Cylindrical

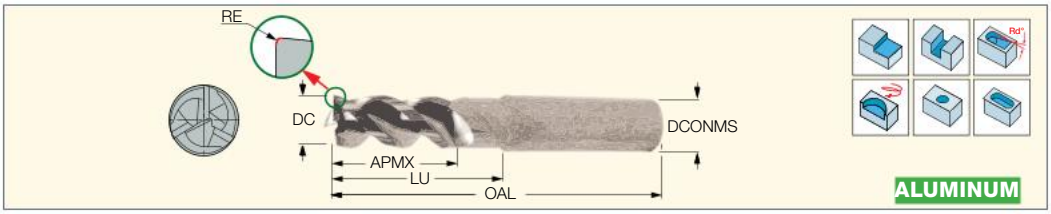
(4) 0 - Without coolant supply, 1 - With coolant supply

Continued

CHATTERFREE SOLID MILL LINE

ECA-H3-CF

Solid Carbide Endmills with Different Helix, Variable Pitch, and Relieved Neck for Machining Aluminum



Designation	Dimensions										Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	LU	RMPX°(2)	Shank(3)	CSP(4)	RE	IC08	IC1508	f_z (mm/t)
ECA-H3 20-42/80C20CF-R02D	20.00	20.00	42.00	130.00	3	80.00	5.0	C	0	0.20		•	0.05-0.14
ECA-H320-40/100C20CF-R02C	20.00	20.00	40.00	149.00	3	100.00	5.0	C	1	0.20	•		0.05-0.14
ECA-H3 25-38/125C25CF-R02	25.00	25.00	38.00	185.00	3	125.00	5.0	C	0	0.20	•		0.05-0.15
ECA-H3 25-38/125C25CF-R08	25.00	25.00	38.00	185.00	3	125.00	5.0	C	0	0.80	•		0.05-0.15
ECA-H3 25-38/125C25CF-R16	25.00	25.00	38.00	185.00	3	125.00	5.0	C	0	1.60	•		0.05-0.15
ECA-H3 25-38/125C25CF-R20	25.00	25.00	38.00	185.00	3	125.00	5.0	C	0	2.00	•		0.05-0.15
ECA-H3 25-38/125C25CF-R40	25.00	25.00	38.00	185.00	3	125.00	5.0	C	0	4.00	•		0.05-0.15
ECA-H3 25-38/125C25CF-R50	25.00	25.00	38.00	185.00	3	125.00	5.0	C	0	5.00	•		0.05-0.15
ECA-H3 25-38/75C25CF-R02	25.00	25.00	38.00	130.00	3	75.00	5.0	C	0	0.20	•		0.05-0.15
ECA-H3 25-38/75C25CF-R04	25.00	25.00	38.00	130.00	3	75.00	5.0	C	0	0.40	•		0.05-0.15
ECA-H3 25-38/75C25CF-R16	25.00	25.00	38.00	130.00	3	75.00	5.0	C	0	1.60	•		0.05-0.15
ECA-H3 25-38/75C25CF-R20	25.00	25.00	38.00	130.00	3	75.00	5.0	C	0	2.00	•		0.05-0.15
ECA-H3 25-38/75C25CF-R32	25.00	25.00	38.00	130.00	3	75.00	5.0	C	0	3.20	•		0.05-0.15
ECA-H3 25-38/75C25CF-R50	25.00	25.00	38.00	130.00	3	75.00	5.0	C	0	5.00	•		0.05-0.15
ECA-H3 25-50/75C25CF-R02C	25.00	25.00	50.00	128.00	3	75.00	5.0	C	1	0.20	•		0.05-0.15
ECA-H3 25-52/100C25CF-R02	25.00	25.00	52.00	156.00	3	100.00	5.0	C	0	0.20	•		0.05-0.15
ECA-H325-50/125C25CF-R02C	25.00	25.00	50.00	183.00	3	125.00	5.0	C	1	0.20	•		0.05-0.15

• For user guide, see pages 211-218 • Grade IC1508 - DLC Coating

(1) Number of flutes

(2) Maximum ramping angle

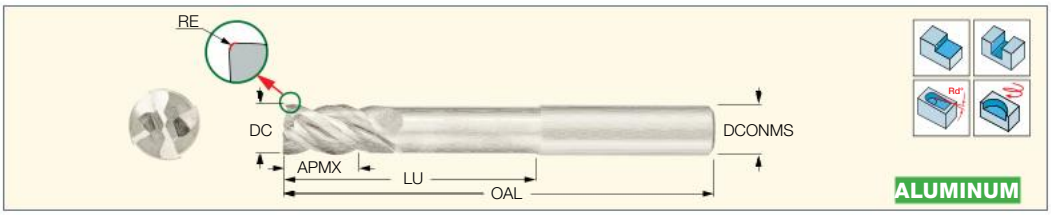
(3) C-Cylindrical

(4) 0 - Without coolant supply, 1 - With coolant supply

CHATTERFREE SOLID MILL LINE

ECA-H4-CF

Solid Carbide Endmills with Different Helix and Long Neck Relief for Machining Aluminum



Designation	Dimensions									IC08	Recommended Machining Data f_z (mm/t)
	DC	APMX	LU	OAL	DCONMS	RE	NOF(1)	RMPX°(2)	Shank(3)		
ECA-H4 06-09/30C06CFR02	6.00	9.00	30.00	65.00	6.00	0.20	4	5.0	C	•	0.03-0.07
ECA-H4 06-12/18C06CFR02	6.00	12.00	18.00	57.00	6.00	0.20	4	5.0	C	•	0.03-0.07
ECA-H4 08-12/40C08CFR02	8.00	12.00	40.00	79.00	8.00	0.20	4	5.0	C	•	0.03-0.09
ECA-H4 08-16/24C08CFR02	8.00	16.00	24.00	63.00	8.00	0.20	4	5.0	C	•	0.03-0.09
ECA-H4 10-15/50C10CFR02	10.00	15.00	50.00	92.00	10.00	0.20	4	5.0	C	•	0.04-0.10
ECA-H4 10-20/30C10CFR02	10.00	20.00	30.00	72.00	10.00	0.20	4	5.0	C	•	0.04-0.10
ECA-H4 12-18/60C12CFR02	12.00	18.00	60.00	100.00	12.00	0.20	4	5.0	C	•	0.04-0.11
ECA-H4 12-24/36C12CFR02	12.00	24.00	36.00	83.00	12.00	0.20	4	5.0	C	•	0.04-0.11
ECA-H4 16-24/80C16CFR02	16.00	24.00	80.00	128.00	16.00	0.20	4	5.0	C	•	0.05-0.13
ECA-H4 16-32/48C16CFR02	16.00	32.00	48.00	100.00	16.00	0.20	4	5.0	C	•	0.05-0.13
ECA-H4 20-30/100C20CFR02	20.00	30.00	100.00	150.00	20.00	0.20	4	5.0	C	•	0.05-0.14
ECA-H4 20-40/60C20CFR02	20.00	40.00	60.00	110.00	20.00	0.20	4	5.0	C	•	0.05-0.14
ECA-H4 25-38/125C25CFR02	25.00	38.00	125.00	185.00	25.00	0.20	4	5.0	C	•	0.08-0.14
ECA-H4 25-50/75C25CFR02	25.00	50.00	75.00	130.00	25.00	0.20	4	5.0	C	•	0.08-0.14

• For user guide, see pages 211-218

(1) Number of flutes

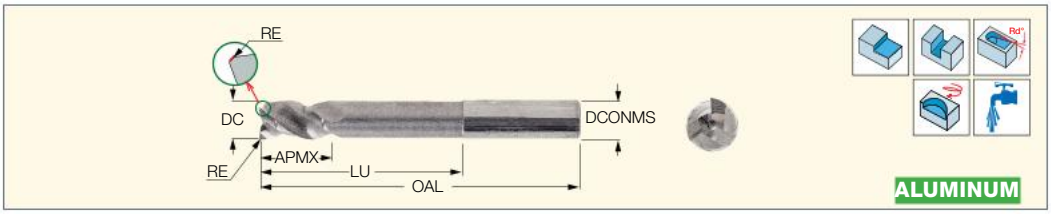
(2) Maximum ramping angle

(3) C-Cylindrical

CHATTERFREE SOLID MILL LINE

ECAP-H3-CF

Solid Carbide Endmills with Different Helix, Variable Pitch, Chip Splitters, and Coolant Holes for Machining Aluminum



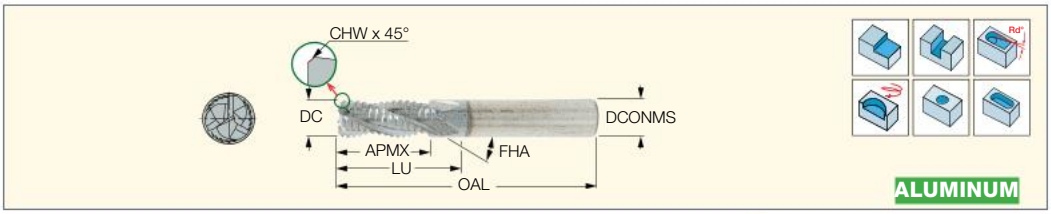
Designation	Dimensions DC	APMX	LU	OAL	DCONMS	RE	NOF(1)	RMPX°(2)	Shank(3)	IC08	Recommended Machining Data f_z (mm/t)
ECAP-H3 10-15/50C10CFR02C	10.00	15.00	50.0	92.00	10.00	0.20	3	5.0	C	●	0.03-0.10
ECAP-H3 10-22/40C10CFR02C	10.00	22.00	40.0	80.00	10.00	0.20	3	5.0	C	●	0.03-0.10
ECAP-H3 12-18/60C12CFR02C	12.00	18.00	60.0	100.00	12.00	0.20	3	5.0	C	●	0.04-0.11
ECAP-H3 12-26/48C12CFR02C	12.00	26.00	48.0	93.00	12.00	0.20	3	5.0	C	●	0.04-0.11
ECAP-H3 16-24/80C16CFR02C	16.00	24.00	80.0	128.00	16.00	0.20	3	5.0	C	●	0.05-0.13
ECAP-H3 16-34/64C16CFR02C	16.00	34.00	64.0	115.00	16.00	0.20	3	5.0	C	●	0.05-0.13
ECAP-H320-30/100C20CFR02C	20.00	30.00	100.0	150.00	20.00	0.20	3	5.0	C	●	0.05-0.14
ECAP-H3 20-42/80C20CFR02C	20.00	42.00	80.0	130.00	20.00	0.20	3	5.0	C	●	0.05-0.14
ECAP-H325-38/125C25CFR02C	25.00	38.00	125.0	185.00	25.00	0.20	3	5.0	C	●	0.05-0.14
ECAP-H325-52/100C25CFR02C	25.00	52.00	100.0	158.00	25.00	0.20	3	5.0	C	●	0.05-0.14

• For user guide, see pages 211-218
(1) Number of flutes
(2) Maximum ramping angle
(3) C-Cylindrical

SOLIDSHRED

ERC-E-3

3 Flute, 38° Helix Medium Length Solid Carbide Roughing Endmills with 3xD Relieved Necks for Machining Aluminum



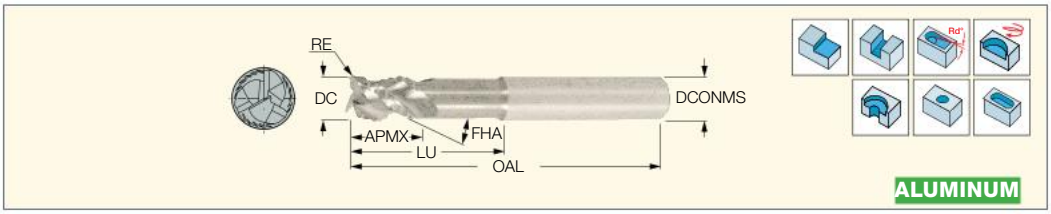
Designation	Dimensions DC	DCONMS	APMX	LU	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	CHW	KCH	Tough ↔ Hard IC08	IC1508	Recommended Machining Data f_z (mm/t)
ERC060E13-3C06	6.00	6.00	13.00	21.00	57.00	3	38.0	5.0	C	0.50	45.0	●		0.03-0.07
ERC060E13-3C06CH05DA57	6.00	6.00	13.00	21.00	57.00	3	38.0	5.0	C	0.50	45.0		●	0.03-0.07
ERC060E13-3W06	6.00	6.00	13.00	21.00	57.00	3	38.0	5.0	W	0.50	45.0	●		0.03-0.07
ERC080E20-3C08	8.00	8.00	20.00	28.00	63.00	3	38.0	5.0	C	0.50	45.0	●		0.03-0.15
ERC080E20-3C08CH05DA63	8.00	8.00	20.00	28.00	63.00	3	38.0	5.0	C	0.50	45.0		●	0.03-0.15
ERC080E20-3W08	8.00	8.00	20.00	28.00	63.00	3	38.0	5.0	W	0.50	45.0	●		0.03-0.15
ERC100E22-3C10	10.00	10.00	22.00	30.00	72.00	3	38.0	5.0	C	0.60	45.0	●		0.05-0.20
ERC100E22-3C10CH06DA72	10.00	10.00	22.00	30.00	72.00	3	38.0	5.0	C	0.60	45.0		●	0.05-0.20
ERC100E22-3W10	10.00	10.00	22.00	30.00	72.00	3	38.0	5.0	W	0.60	45.0	●		0.05-0.20
ERC120E25-3C12	12.00	12.00	25.00	37.00	83.00	3	38.0	5.0	C	0.60	45.0	●		0.07-0.22
ERC120E25-3C12CH06DA83	12.00	12.00	25.00	37.00	83.00	3	38.0	5.0	C	0.60	45.0		●	0.07-0.22
ERC120E25-3W12	12.00	12.00	25.00	37.00	83.00	3	38.0	5.0	W	0.60	45.0	●		0.07-0.22
ERC160E32-3C16	16.00	16.00	32.00	44.00	92.00	3	38.0	5.0	C	0.60	45.0	●		0.07-0.25
ERC160E32-3C16CH06DA92	16.00	16.00	32.00	44.00	92.00	3	38.0	5.0	C	0.60	45.0		●	0.07-0.25
ERC160E32-3W16	16.00	16.00	32.00	44.00	92.00	3	38.0	5.0	W	0.60	45.0	●		0.07-0.25
ERC200E38-3C20	20.00	20.00	38.00	55.00	104.00	3	38.0	5.0	C	0.70	45.0	●		0.07-0.25
ERC200E38-3W20	20.00	20.00	38.00	55.00	104.00	3	38.0	5.0	W	0.70	45.0	●		0.07-0.25
ERC250E45-3C25	25.00	25.00	45.00	64.00	121.00	3	38.0	5.0	C	0.70	45.0	●		0.07-0.25

• For user guide, see pages 211-218 • Grade IC1508 - DLC Coating
(1) Number of flutes
(2) Maximum ramping angle
(3) C-Cylindrical, W-Weldon

SOLIDSHRED

ECR-B3-R

3 Flute, 45° Helix Solid Carbide Roughing Endmills with 3xD Relieved Necks for High Stock Removal Rates of Aluminum



Designation	Dimensions DC	DCONMS	LU	OAL	NOF(1)	FHA	RMPX°(2)	APMX	Shank(3)	RE	Tough ↔ Hard IC08	IC1508	Recommended Machining Data f_z (mm/t)
ECR-B3 06-09/21C06R02A57	6.00	6.00	21.00	57.00	3	45.0	5.0	9.00	C	0.20	•		0.03-0.07
ECR-B3 06-09/21C06R02DA57	6.00	6.00	21.00	57.00	3	45.0	5.0	9.00	C	0.20		•	0.03-0.07
ECR-B3 06-09/21W06R02A57	6.00	6.00	21.00	57.00	3	45.0	5.0	9.00	W	0.20	•		0.03-0.07
ECR-B3 06-09/30C06R02A65	6.00	6.00	30.00	65.00	3	45.0	5.0	9.00	C	0.20	•		0.03-0.07
ECR-B3 06-09/30W06R02A65	6.00	6.00	30.00	65.00	3	45.0	5.0	9.00	W	0.20	•		0.03-0.07
ECR-B3 08-12/27C08R02A63	8.00	8.00	27.00	63.00	3	45.0	5.0	12.00	C	0.20	•		0.03-0.15
ECR-B3 08-12/27C08R02DA63	8.00	8.00	27.00	63.00	3	45.0	5.0	12.00	C	0.20		•	0.03-0.15
ECR-B3 08-12/27W08R02A63	8.00	8.00	27.00	63.00	3	45.0	5.0	12.00	W	0.20	•		0.03-0.15
ECR-B3 08-12/40C08R02A78	8.00	8.00	40.00	78.50	3	45.0	5.0	12.00	C	0.20	•		0.03-0.15
ECR-B3 08-12/40W08R02A78	8.00	8.00	40.00	78.50	3	45.0	5.0	12.00	W	0.20	•		0.03-0.15
ECR-B3 10-12/31C10R02A72	10.00	10.00	31.00	72.00	3	45.0	5.0	12.00	C	0.20	•		0.05-0.20
ECR-B3 10-12/31C10R02DA72	10.00	10.00	31.00	72.00	3	45.0	5.0	12.00	C	0.20		•	0.05-0.20
ECR-B3 10-12/31W10R02A72	10.00	10.00	31.00	72.00	3	45.0	5.0	12.00	W	0.20	•		0.05-0.20
ECR-B3 10-12/50C10R02A100	10.00	10.00	50.00	100.00	3	45.0	5.0	12.00	C	0.20	•		0.05-0.20
ECR-B3 10-12/50W10R02A100	10.00	10.00	50.00	100.00	3	45.0	5.0	12.00	W	0.20	•		0.05-0.20
ECR-B3 12-12/37C12R02A83	12.00	12.00	37.00	83.00	3	45.0	5.0	12.00	C	0.20	•		0.07-0.22
ECR-B3 12-12/37C12R02DA83	12.00	12.00	37.00	83.00	3	45.0	5.0	12.00	C	0.20		•	0.07-0.22
ECR-B3 12-12/37W12R02A83	12.00	12.00	37.00	83.00	3	45.0	5.0	12.00	W	0.20	•		0.07-0.22
ECR-B3 12-14/55C12R02A100	12.00	12.00	55.00	100.00	3	45.0	5.0	14.00	C	0.20	•		0.07-0.22
ECR-B3 12-14/55W12R02A100	12.00	12.00	55.00	100.00	3	45.0	5.0	14.00	W	0.20	•		0.07-0.22
ECR-B3 16-14/43C16R02A92	16.00	16.00	43.00	92.00	3	45.0	5.0	14.00	C	0.20	•		0.07-0.25
ECR-B3 16-14/43C16R02DA92	16.00	16.00	43.00	92.00	3	45.0	5.0	14.00	C	0.20		•	0.07-0.25
ECR-B3 16-14/43W16R02A92	16.00	16.00	43.00	92.00	3	45.0	5.0	14.00	W	0.20	•		0.07-0.25
ECR-B3 16-18/80C16R02A150	16.00	16.00	80.00	150.00	3	45.0	5.0	18.00	C	0.20	•		0.07-0.25
ECR-B3 16-18/80W16R02A150	16.00	16.00	80.00	150.00	3	45.0	5.0	18.00	W	0.20	•		0.07-0.25
ECR-B3 20-17/53C20R02A104	20.00	20.00	53.00	104.00	3	45.0	5.0	17.00	C	0.20	•		0.07-0.25
ECR-B3 20-17/53W20R02A104	20.00	20.00	53.00	104.00	3	45.0	5.0	17.00	W	0.20	•		0.07-0.25
ECR-B3 20-22/80C20R02A150	20.00	20.00	80.00	150.00	3	45.0	5.0	22.00	C	0.20	•		0.07-0.25
ECR-B3 20-22/80W20R02A150	20.00	20.00	80.00	150.00	3	45.0	5.0	22.00	W	0.20	•		0.07-0.25

• For user guide, see pages 211-218 • Grade IC1508 - DLC Coating

(1) Number of flutes

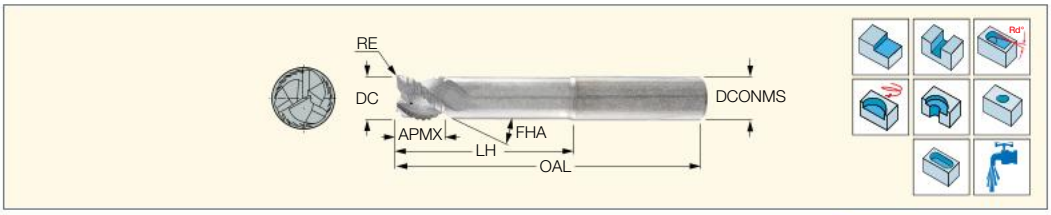
(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

SOLIDSHRED

ECR-B3-R-C

3 Flute, 45° Helix Solid Carbide Roughing Endmills with 3xD Relieved Necks and Coolant Channels for Aluminum



Designation	Dimensions DC	DCONMS	LH	OAL	NOF(1)	FHA	RMPX°(2)	APMX	Shank(3)	RE	IC08	Recommended Machining Data f_z (mm/t)
ECR-B3 08-12/41C08R02A83C	8.00	8.00	41.0	83.00	3	45.0	20.0	12.00	C	0.20	•	0.05-0.15
ECR-B3 08-12/41C08R20A83C	8.00	8.00	41.0	83.00	3	45.0	20.0	12.00	C	2.00	•	0.05-0.15
ECR-B3 10-12/41C10R.2A83C	10.00	10.00	41.0	83.00	3	45.0	20.0	12.00	C	0.20	•	0.07-0.20
ECR-B3 10-12/41C10R20A83C	10.00	10.00	41.0	83.00	3	45.0	20.0	12.00	C	2.00	•	0.07-0.20
ECR-B3 12-12/41C12R.2A87C	12.00	12.00	41.0	87.00	3	45.0	20.0	12.00	C	0.20	•	0.10-0.22
ECR-B3 16-14/60C16R2A109C	16.00	16.00	60.0	109.00	3	45.0	20.0	14.00	C	2.00	•	0.10-0.25
ECR-B316-14/60C16R.2A109C	16.00	16.00	60.0	109.00	3	45.0	20.0	14.00	C	0.20	•	0.10-0.25
ECR-B316-14/60C16R40A109C	16.00	16.00	60.0	109.00	3	45.0	20.0	14.00	C	4.00	•	0.10-0.25
ECR-B320-17/60C20R40A111C	20.00	20.00	60.0	111.00	3	45.0	20.0	17.00	C	4.00	•	0.10-0.25
ECR-B320-30/100C25R4A150C	20.00	20.00	100.0	150.00	3	45.0	20.0	30.00	C	4.00	•	0.10-0.25
ECR-B325-25/74C25R40A130C	25.00	25.00	74.0	130.00	3	45.0	20.0	25.00	C	4.00	•	0.10-0.25

• For user guide, see pages 211-218

(1) Number of flutes

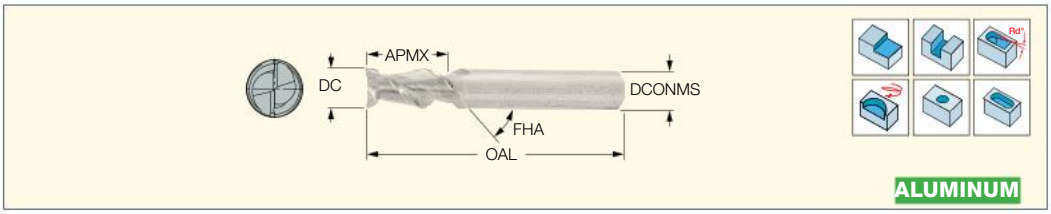
(2) Maximum ramping angle

(3) C-Cylindrical

SOLIDMILL PREMIUM LINE

ECA-B-2

2 Flute, 45° Helix Medium Length Solid Carbide Endmills for Machining Aluminum



Designation	Dimensions								IC08	Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)		f_z (mm/t)
ECA040B12-2C06	4.00	6.00	12.00	57.00	2	45.0	5.0	C	●	0.02-0.05
ECA050B14-2C06	5.00	6.00	14.00	57.00	2	45.0	5.0	C	●	0.02-0.06
ECA060B16-2C06	6.00	6.00	16.00	57.00	2	45.0	5.0	C	●	0.03-0.07
ECA080B20-2C08	8.00	8.00	20.00	63.00	2	45.0	5.0	C	●	0.03-0.09
ECA100B22-2C10	10.00	10.00	22.00	72.00	2	45.0	5.0	C	●	0.03-0.10
ECA120B25-2C12	12.00	12.00	25.00	83.00	2	45.0	5.0	C	●	0.04-0.11
ECA160B32-2C16	16.00	16.00	32.00	92.00	2	45.0	5.0	C	●	0.05-0.13
ECA200B38-2C20	20.00	20.00	38.00	104.00	2	45.0	5.0	C	●	0.05-0.13

• For user guide, see pages 211-218

(1) Number of flutes

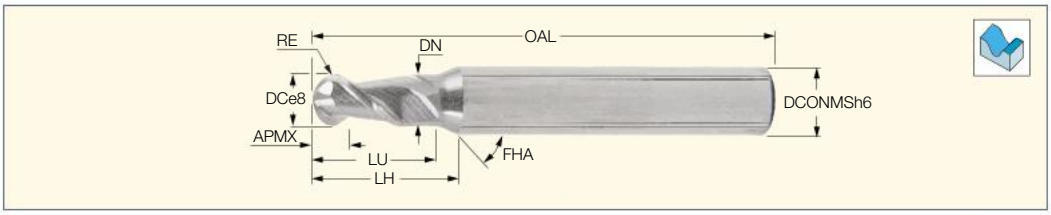
(2) Maximum ramping angle

(3) C-Cylindrical

SOLIDMILL PREMIUM LINE

EBA-B2

2 Flute High Precision Solid Carbide Ball Nose Endmills for Machining Aluminum



Designation	Dimensions													IC08
	DC	DCONMS	APMX	OAL	LU	LH	DN	RE	NOF(1)	FHA	Shank(2)	RETOLL(3)	RETOLU(4)	
EBA-B2 010-010/02C6-57	1.00	6.00	1.00	57.00	2.0	12.0	0.95	0.50	2	45.0	C	0.000	0.004	●
EBA-B2 020-020/04C6-57	2.00	6.00	2.00	57.00	4.0	12.0	1.80	1.00	2	45.0	C	0.000	0.005	●
EBA-B2 030-030/06C6-57	3.00	6.00	3.00	57.00	6.0	12.0	2.70	1.49	2	45.0	C	-0.010	0.010	●
EBA-B2 040-040/08C6-57	4.00	6.00	4.00	57.00	8.0	12.0	3.70	1.99	2	45.0	C	-0.010	0.010	●
EBA-B2 050-050/10C6-57	5.00	6.00	5.00	57.00	10.0	12.0	4.70	2.49	2	45.0	C	-0.010	0.010	●
EBA-B2 060-060/12C6-57	6.00	6.00	6.00	57.00	12.0	13.0	5.50	2.99	2	45.0	C	-0.010	0.010	●

• For user guide, see pages 211-218

(1) Number of flutes

(2) C-Cylindrical

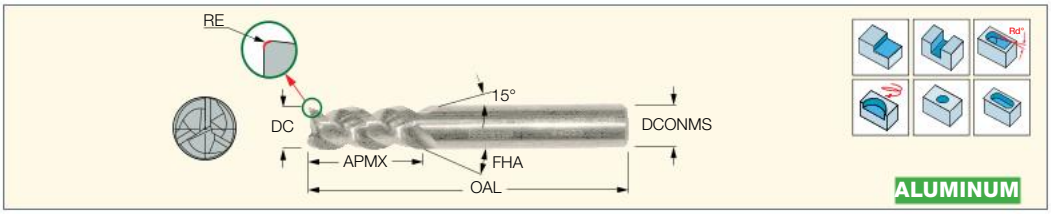
(3) Corner radius tolerance lower

(4) Corner radius tolerance upper

SOLIDMILL PREMIUM LINE

ECA-B-3

3 Flute, 45° Helix Medium Length Solid Carbide Endmills for Machining Aluminum



Designation	Dimensions									Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	RE	IC08	IC1508	f_z (mm/t)
ECA-B-3 04-12C06-57	4.00	6.00	12.00	57.00	3	45.0	5.0	C	0.10	●		0.02-0.05
ECA-B-3 04-12C06-57 R02D	4.00	6.00	12.00	57.00	3	45.0	5.0	C	0.20		●	0.02-0.05
ECA-B-3 04-12W06-57	4.00	6.00	12.00	57.00	3	45.0	5.0	W	0.10	●		0.02-0.05
ECA-B-3 05-14C06-57	5.00	6.00	14.00	57.00	3	45.0	5.0	C	0.20	●		0.02-0.06
ECA-B-3 05-14C06-57 R02D	5.00	6.00	14.00	57.00	3	45.0	5.0	C	0.20		●	0.02-0.06
ECA-B-3 05-14W06-57	5.00	6.00	14.00	57.00	3	45.0	5.0	W	0.20	●		0.02-0.06
ECA-B-3 06-16C06-57	6.00	6.00	16.00	57.00	3	45.0	5.0	C	0.20	●		0.03-0.07
ECA-B-3 06-16C06-57 R02D	6.00	6.00	16.00	57.00	3	45.0	5.0	C	0.20		●	0.03-0.07
ECA-B-3 06-16W06-57	6.00	6.00	16.00	57.00	3	45.0	5.0	W	0.20	●		0.03-0.07
ECA-B-3 06-24C06-65	6.00	6.00	24.00	65.00	3	45.0	3.0	C	0.20	●		0.03-0.07
ECA-B-3 08-20C08-63	8.00	8.00	20.00	63.00	3	45.0	5.0	C	0.20	●		0.03-0.09
ECA-B-3 08-20C08-63 R02D	8.00	8.00	20.00	63.00	3	45.0	5.0	C	0.20		●	0.03-0.09
ECA-B-3 08-20C08R3-63	8.00	8.00	20.00	63.00	3	45.0	5.0	C	3.00	●		0.03-0.09
ECA-B-3 08-20W08-63	8.00	8.00	20.00	63.00	3	45.0	5.0	W	0.20	●		0.03-0.09
ECA-B-3 08-32C08-79	8.00	8.00	32.00	79.00	3	45.0	3.0	C	0.20	●		0.03-0.08
ECA-B-3 10-22C10-72	10.00	10.00	22.00	72.00	3	45.0	5.0	C	0.20	●		0.03-0.10
ECA-B-3 10-22C10-72 R02D	10.00	10.00	22.00	72.00	3	45.0	5.0	C	0.20		●	0.03-0.10
ECA-B-3 10-22W10-72	10.00	10.00	22.00	72.00	3	45.0	5.0	W	0.20	●		0.03-0.10
ECA-B-3 10-25C10R3-72	10.00	10.00	25.00	72.00	3	45.0	5.0	C	3.00	●		0.03-0.10
ECA-B-3 10-25C10R4-72	10.00	10.00	25.00	72.00	3	45.0	5.0	C	4.00	●		0.03-0.10
ECA-B-3 10-40C10-92	10.00	10.00	40.00	92.00	3	45.0	3.0	C	0.20	●		0.03-0.09
ECA-B-3 12-25C12-83	12.00	12.00	25.00	83.00	3	45.0	5.0	C	0.20	●		0.04-0.11
ECA-B-3 12-25C12-83 R02D	12.00	12.00	25.00	83.00	3	45.0	5.0	C	0.20		●	0.04-0.11
ECA-B-3 12-25W12-83	12.00	12.00	25.00	83.00	3	45.0	5.0	W	0.20	●		0.04-0.11
ECA-B-3 12-30C12R3-83	12.00	12.00	30.00	83.00	3	45.0	5.0	C	3.00	●		0.04-0.11
ECA-B-3 12-30C12R4-83	12.00	12.00	30.00	83.00	3	45.0	5.0	C	4.00	●		0.04-0.11
ECA-B-3 12-48C12-100	12.00	12.00	48.00	100.00	3	45.0	3.0	C	0.20	●		0.03-0.11
ECA-B-3 14-30C14-83	14.00	14.00	30.00	83.00	3	45.0	5.0	C	0.20	●		0.04-0.12
ECA-B-3 14-30W14-83	14.00	14.00	30.00	83.00	3	45.0	5.0	W	0.20	●		0.04-0.12
ECA-B-3 16-32C16-92	16.00	16.00	32.00	92.00	3	45.0	5.0	C	0.20	●		0.05-0.13
ECA-B-3 16-32C16-92 R02D	16.00	16.00	32.00	92.00	3	45.0	5.0	C	0.20		●	0.05-0.13
ECA-B-3 16-32W16-92	16.00	16.00	32.00	92.00	3	45.0	5.0	W	0.20	●		0.05-0.13
ECA-B-3 20-38C20-104	20.00	20.00	38.00	104.00	3	45.0	5.0	C	0.20	●		0.05-0.13
ECA-B-3 20-38C20-104 R02D	20.00	20.00	38.00	104.00	3	45.0	5.0	C	0.20		●	0.05-0.13
ECA-B-3 20-38W20-104	20.00	20.00	38.00	104.00	3	45.0	5.0	W	0.20	●		0.05-0.13

• For user guide, see pages 211-218 • Grade IC1508 - DLC Coating

(1) Number of flutes

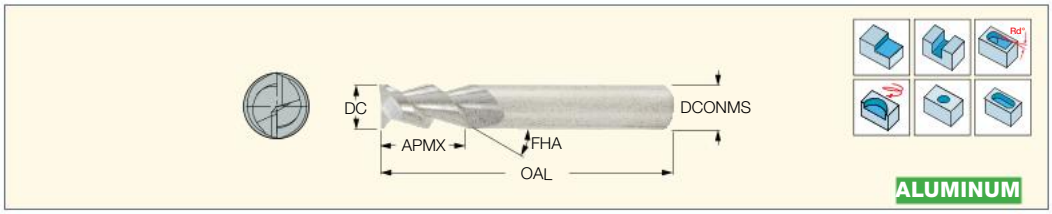
(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

SOLIDMILL PREMIUM LINE

ECA-F-2

2 Flute, 55° Helix Medium Length Solid Carbide Endmills for Machining Aluminum



Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	IC08	Recommended Machining Data f_z (mm/t)
ECA040F11-2C04	4.00	4.00	11.00	50.00	2	55.0	5.0	C	●	0.02-0.05
ECA060F13-2C06	6.00	6.00	13.00	57.00	2	55.0	5.0	C	●	0.03-0.07
ECA080F20-2C08	8.00	8.00	20.00	63.00	2	55.0	5.0	C	●	0.03-0.09
ECA100F22-2C10	10.00	10.00	22.00	72.00	2	55.0	5.0	C	●	0.03-0.10
ECA120F25-2C12	12.00	12.00	25.00	83.00	2	55.0	5.0	C	●	0.04-0.11
ECA160F32-2C16	16.00	16.00	32.00	92.00	2	55.0	5.0	C	●	0.05-0.13
ECA200F38-2C20	20.00	20.00	38.00	104.00	2	55.0	5.0	C	●	0.05-0.13
ECA250F45-2C25	25.00	25.00	45.00	121.00	2	55.0	5.0	C	●	0.05-0.13

• For user guide, see pages 211-218

(1) Number of flutes

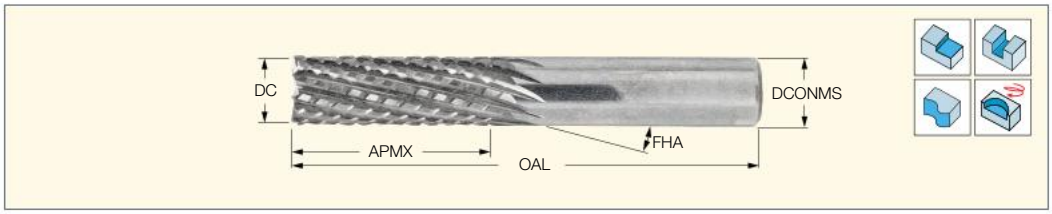
(2) Maximum ramping angle

(3) C-Cylindrical

SOLIDMILL PREMIUM LINE

EPN-F

Solid Endmills with a Special Edge Configuration for Machining Different Types of Composite Materials



Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(2)	FHA	Shank(3)	IC02	Recommended Machining Data f_z (mm/t)
EPN-F10 03-12C03F55	3.00	3.00	12.00	55.00	10	15.0	C	●	0.01-0.02
EPN-F10 04-16C04F55	4.00	4.00	16.00	55.00	10	15.0	C	●	0.01-0.02
EPN-F10 06-19C06F57	6.00	6.00	19.00	57.00	10	15.0	C	●	0.02-0.03
EPNF060S15-3L/9C06F57 (1)	6.00	6.00	15.00	57.00	9	15.0	C	●	0.02-0.04
EPN-F12 08-25C08F63	8.00	8.00	25.00	63.00	12	15.0	C	●	0.02-0.03
EPNF080S25-3L/10C8F72 (1)	8.00	8.00	25.00	72.00	10	15.0	C	●	0.02-0.04
EPN-F12 10-25C10F72	10.00	10.00	25.00	72.00	12	15.0	C	●	0.02-0.03
EPNF100S25-3L/12C10F72 (1)	10.00	10.00	25.00	72.00	12	15.0	C	●	0.02-0.04
EPN-F12 12-25C12F83	12.00	12.00	25.00	83.00	12	15.0	C	●	0.02-0.03

• Coated tools available on request • For user guide, see pages 211-218

(1) Deep chip gullets for eliminating chip jamming.

(2) Number of flutes

(3) C-Cylindrical

SOLIDMILL PREMIUM LINE

EPNC

Solid Carbide Endmill with Special Cutting Edges, for Machining Different Types of Composite Materials

Designation	Dimensions DC	DCONMS	APMX	OAL	NOF[1]	RMPX°[2]	Shank[3]	IC02	Recommended Machining Data f_z (mm/t)
EPNC-C10 08-25C08F63	8.00	8.00	25.00	63.00	10	5.0	C	●	0.02-0.08
EPNC-C10 10-25C10F72	10.00	10.00	25.00	72.00	10	5.0	C	●	0.02-0.08
EPNC-C10 12-25C12F83	12.00	12.00	25.00	83.00	10	5.0	C	●	0.02-0.08

• For user guide, see pages 211-218

[1] Number of flutes

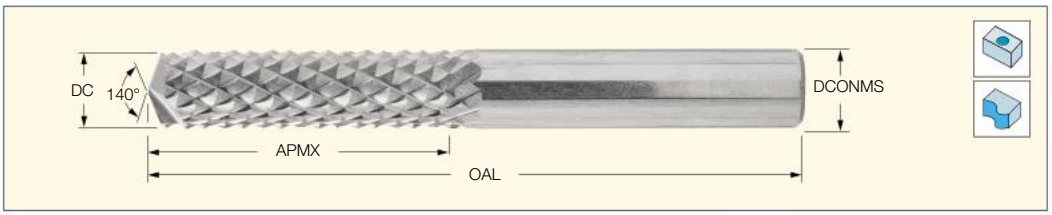
[2] Maximum ramping angle

[3] C-Cylindrical

SOLIDMILL PREMIUM LINE

EPND

Solid Carbide Endmills with Special Cutting Edges, also for Drill Mill Applications



Designation	Dimensions DC	DCONMS	APMX	OAL	NOF[1]	Shank[2]	IC02	Recommended Machining Data f_z (mm/t)
EPND-C6 016-5C03F55	1.60	3.00	5.00	55.00	6	C	●	0.0050-0.0100
EPND-C6 024-10C03F55	2.40	3.00	10.00	55.00	6	C	●	0.0050-0.0100
EPND-C8 03-12C03F55	3.00	3.00	12.00	55.00	8	C	●	0.0050-0.0120
EPND-C8 04-16C04F60	4.00	4.00	16.00	60.00	8	C	●	0.0050-0.0120
EPND-C10 06-19C06F65	6.00	6.00	19.00	65.00	10	C	●	0.0200-0.0800
EPND-C10 08-25C08F63	8.00	8.00	25.00	63.00	10	C	●	0.0200-0.0800
EPND-C10 10-25C10F72	10.00	10.00	25.00	72.00	10	C	●	0.0200-0.0800
EPND-C10 12-25C12F83	12.00	12.00	25.00	83.00	10	C	●	0.0200-0.0800

• For user guide, see pages 211-218

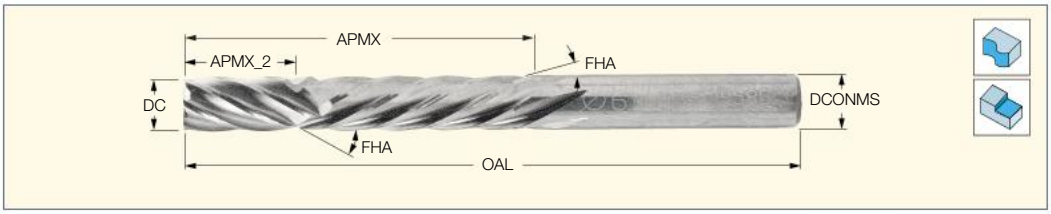
[1] Number of flutes

[2] C-Cylindrical

SOLIDMILL PREMIUM LINE

EPX

Solid Carbide Endmills with Right-and Left-Hand Helix Flutes Enables Changing Direction at Mid Cutting Height

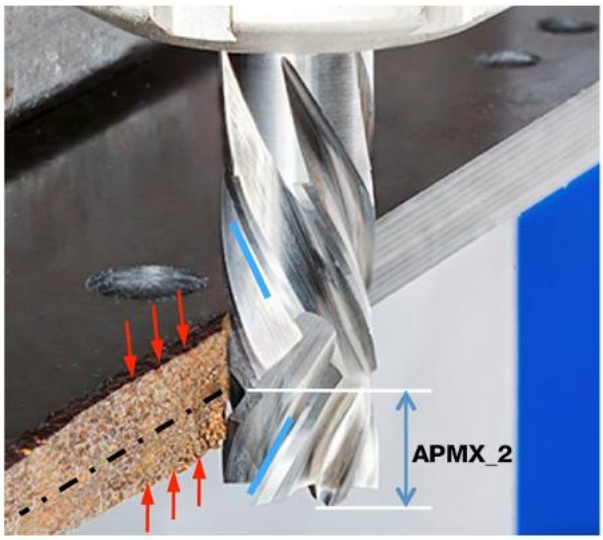


Designation	Dimensions								IC02	Recommended Machining Data
	DC	DCONMS	APMX	APMX_2	OAL	NOF[1]	FHA	Shank[2]		f_z (mm/t)
EPX-F6 06-12C06F57	6.00	6.00	12.00	5.30	57.00	6	30.0	C	●	0.02-0.06
EPX-F6 08-16C08F63	8.00	8.00	16.00	6.60	63.00	6	30.0	C	●	0.02-0.06
EPX-F6 10-20C10F72	10.00	10.00	20.00	8.70	72.00	6	30.0	C	●	0.02-0.06
EPX-F8 12-24C12F83	12.00	12.00	24.00	10.60	83.00	8	30.0	C	●	0.02-0.06

• Important: For best results, the intersection of the alternating flute directions (APMX_2) should be positioned in the middle of the workpiece height • Coated tools available on request • For user guide, see pages 211-218

(1) Number of flutes

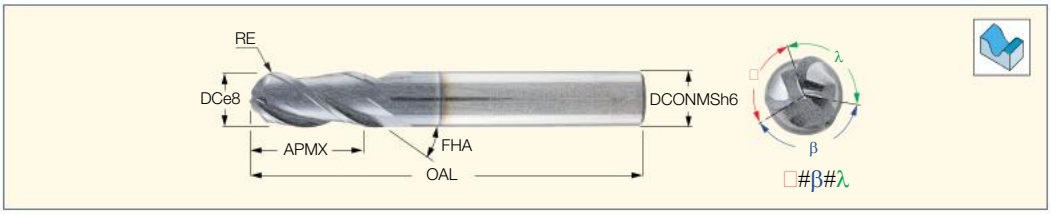
(2) C-Cylindrical



CHATTERFREE SOLID MILL LINE

EB-H-CF

3/5 Flute Solid Carbide Ball Nose Endmills with Different Helix and Variable Pitch for Materials up to 65 HRC



Designation	Dimensions									IC902
	DC	DCONMS	APMX	OAL	RE	NOF(1)	FHA	Shank(2)	RETOL(3)	
EB-H3 06-12C06CFH57	6.00	6.00	12.00	57.00	3.00	3	38.0	C	0.010	●
EB-H3 08-16C08CFH63	8.00	8.00	16.00	63.00	4.00	3	38.0	C	0.010	●
EB-H3 10-20C10CFH72	10.00	10.00	20.00	72.00	5.00	3	38.0	C	0.010	●
EB-H3 12-24C12CFH83	12.00	12.00	24.00	83.00	6.00	3	38.0	C	0.012	●
EB-H5 16-32C16CFH92	16.00	16.00	32.00	92.00	8.00	5	38.0	C	0.012	●
EB-H5 20-40C20CFH104	20.00	20.00	40.00	104.00	10.00	5	38.0	C	0.012	●

• For user guide, see pages 211-218

(1) Number of flutes

(2) C-Cylindrical

(3) Corner radius tolerance (+/-)

Effective Cutting Diameter As a Function of Depth of Cut

a_p(mm) \ Tool DC(mm)	8	10	12
0.2	2.1	2.5	2.8	3.1
0.3	2.6	3	3.4	3.7
0.5	3.3	3.9	4.3	4.8
0.7	3.8	4.5	5.1	5.6
1	4.5	5.3	6	6.6
2	5.6	6.9	8	8.9
3	6	7.7	9.1	10.4
4	-	8	9.8	11.3
5	-	-	10	11.8
6	-	-	-	12

Feed Recommendations

ISO Class DIN/ISO 513	Material Group	f_z (mm/tooth) for DC			
		6	8	10	12
P	1-4	0.055	0.062	0.07	0.08
	5	0.043	0.05	0.06	0.068
	6-7	0.04	0.048	0.057	0.062
	8-9	0.035	0.038	0.045	0.05
	10	0.03	0.032	0.038	0.042
	11	0.025	0.028	0.035	0.038
	12-13	0.03	0.032	0.038	0.042
K	15-16	0.058	0.065	0.073	0.085
	17-18	0.058	0.065	0.073	0.085
H	38.1	0.021	0.025	0.027	0.03
	38.2	0.008	0.009	0.01	0.013
	39	0.007	0.007	0.008	0.009

The table refers to rough and semi-finish milling applications
For semi-finish and finishing applications, the table values should be reduced by 10-20%.

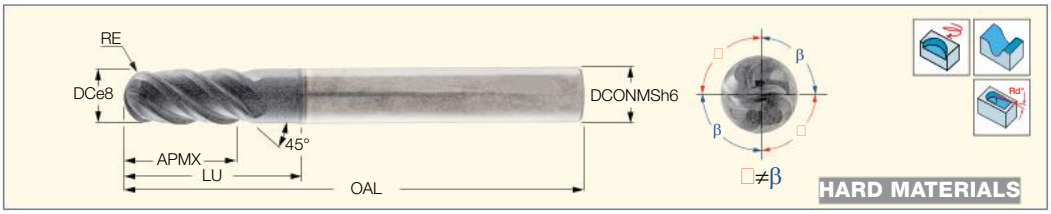
Cutting Speed Recommendations (IC902)

ISO Class DIN/ISO 513	Material Group	V_c (m/min)		
		Roughing	Semi-Finishing	Finishing
P	1	180	220	280
	2-4	150	170	200
	5	125	140	170
	6	130	150	190
	7-9	120	135	170
	10	115	130	165
	11	100	110	120
	12-13	110	110	150
K	15-16	160	180	220
	17-18	150	170	200
H	38.1	70	80	100
	38.2		40	50
	39		30	40

CHATTERFREE SOLID MILL LINE

EB-E4L-CF

4 Flute, 45° Helix Ball Nose Endmills with 3xD Relieved Necks and Variable Pitch for Chatter Dampening on Hard Materials



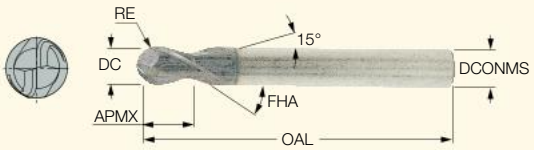
Designation	Dimensions									IC902
	DC	DCONMS	APMX	LU	OAL	RMPX°(1)	NOF(2)	RE	Shank(3)	
EB-E4L 03-06/09C06CFH57	3.00	6.00	6.00	9.00	57.00	5.0	4	1.50	C	●
EB-E4L 04-08/12C06CFH57	4.00	6.00	8.00	12.00	57.00	5.0	4	2.00	C	●
EB-E4L 05-10/15C06CFH57	5.00	6.00	10.00	15.00	57.00	5.0	4	2.50	C	●
EB-E4L 06-12/18C06CFH57	6.00	6.00	12.00	18.00	57.00	5.0	4	3.00	C	●
EB-E4L 08-16/24C08CFH63	8.00	8.00	16.00	24.00	63.00	5.0	4	4.00	C	●
EB-E4L 10-20/30C10CFH72	10.00	10.00	20.00	30.00	72.00	5.0	4	5.00	C	●
EB-E4L 12-24/36C12CFH83	12.00	12.00	24.00	36.00	83.00	5.0	4	6.00	C	●
EB-E4L 16-32/48C16CFH92	16.00	16.00	32.00	48.00	92.00	5.0	4	8.00	C	●

• For user guide, see pages 211-218
(1) Maximum ramping angle
(2) Number of flutes
(3) C-Cylindrical

SOLIDMILL PREMIUM LINE

EB-A-2

2 Flute, 30° Helix Short Solid Carbide Ball Nose Endmills

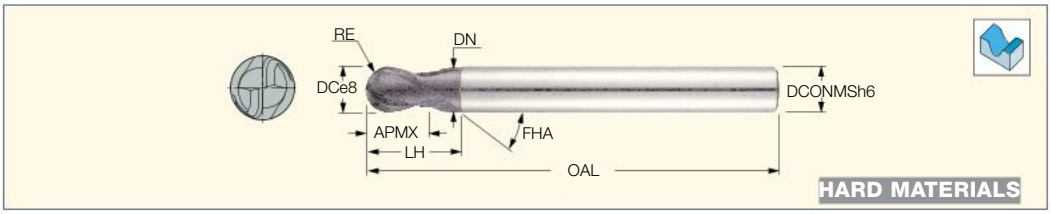


Designation	Dimensions										Tough ↔ Hard		
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RE	RETOLL(3)	RETOLU(4)	IC08	IC900	IC903
EB020A04-2C03	2.00	3.00	4.00	38.00	2	30.0	C	1.00	0.000	0.005		●	●
EB030A05-2C03	3.00	3.00	5.00	38.00	2	30.0	C	1.50	-0.010	0.010		●	
EB030A05-2C06	3.00	6.00	5.00	57.00	2	30.0	C	1.50	-0.010	0.010	●	●	●
EB040A07-2C04	4.00	4.00	7.00	50.00	2	30.0	C	2.00	-0.010	0.010		●	
EB040A07-2C06	4.00	6.00	7.00	57.00	2	30.0	C	2.00	-0.010	0.010	●	●	●
EB050A08-2C05	5.00	5.00	8.00	50.00	2	30.0	C	2.50	-0.010	0.010		●	
EB050A08-2C06	5.00	6.00	8.00	57.00	2	30.0	C	2.50	-0.010	0.010	●	●	●
EB060A08-2C06	6.00	6.00	8.00	57.00	2	30.0	C	3.00	-0.010	0.010	●	●	●
EB080A11-2C08	8.00	8.00	11.00	63.00	2	30.0	C	4.00	-0.010	0.010	●	●	●
EB100A13-2C10	10.00	10.00	13.00	72.00	2	30.0	C	5.00	-0.010	0.010	●	●	●
EB120A14-2C12	12.00	12.00	14.00	83.00	2	30.0	C	6.00	-0.012	0.012		●	●
EB160A16-2C16	16.00	16.00	16.00	92.00	2	30.0	C	8.00	-0.012	0.012		●	●
EB200A20-2C20	20.00	20.00	20.00	104.00	2	30.0	C	10.00	-0.012	0.012		●	

• Short and stable design for profiling (roughing). • For user guide, see pages 211-218
(1) Number of flutes
(2) C-Cylindrical
(3) Corner radius tolerance lower
(4) Corner radius tolerance upper

SOLIDMILL PREMIUM LINE

EB-A2 (stub cut length)
2 Flute, 30° Helix Stub Cut Length Ball Nose Solid Carbide Endmills for Materials up to 55-70 HRC



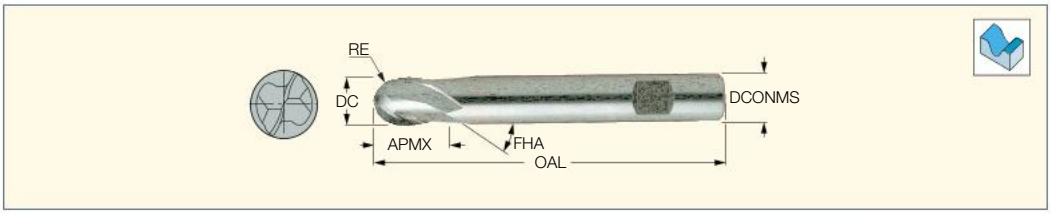
Designation	Dimensions												IC903
	DC	RE	DCONMS	APMX	OAL	LH	DN	NOF(1)	FHA	Shank(2)	RETOLL(3)	RETOLU(4)	
EB-A2 01-01/02C04H50	1.00	0.50	4.00	1.00	50.00	2.2	0.95	2	30.0	C	0.000	0.004	●
EB-A2 012-012/02C04H50	1.20	0.60	4.00	1.20	50.00	2.6	1.10	2	30.0	C	-0.010	0.010	●
EB-A2 015-015/03C04H50	1.50	0.75	4.00	1.50	50.00	3.0	1.40	2	30.0	C	-0.010	0.010	●
EB-A2 02-02/04C06H50	2.00	1.00	6.00	2.00	50.00	4.0	1.90	2	30.0	C	0.000	0.005	●
EB-A2 03-03/06C06H60	3.00	1.50	6.00	3.00	60.00	6.0	2.90	2	30.0	C	-0.010	0.010	●
EB-A2 04-04/08C06H70	4.00	2.00	6.00	4.00	70.00	8.0	3.90	2	30.0	C	-0.010	0.010	●
EB-A2 05-05/10C06H80	5.00	2.50	6.00	5.00	80.00	10.0	4.90	2	30.0	C	-0.010	0.010	●
EB-A2 06-06/12C06H90	6.00	3.00	6.00	6.00	90.00	12.0	5.90	2	30.0	C	-0.010	0.010	●
EB-A2 07-07/14C08H90	7.00	3.50	8.00	7.00	90.00	14.0	6.90	2	30.0	C	-0.010	0.010	●
EB-A2 08-08/16C08H100	8.00	4.00	8.00	8.00	100.00	16.0	7.90	2	30.0	C	-0.010	0.010	●
EB-A2 10-10/20C10H100	10.00	5.00	10.00	10.00	100.00	20.0	9.90	2	30.0	C	-0.010	0.010	●
EB-A2 12-12/24C12H110	12.00	6.00	12.00	12.00	110.00	24.0	11.90	2	30.0	C	-0.012	0.012	●
EB-A2 14-14/28C14H110	14.00	7.00	14.00	14.00	110.00	28.0	13.80	2	30.0	C	-0.012	0.012	●
EB-A2 20-20/40C20H160	20.00	10.00	20.00	20.00	160.00	40.0	19.80	2	30.0	C	-0.012	0.012	●

• For user guide, see pages 211-218

(1) Number of flutes
(2) C-Cylindrical
(3) Lower tolerance corner radius
(4) Upper tolerance corner radius

SOLIDMILL TEC LINE

EB-A2 (economical)
Economical Type 2 Flute, 30° Helix Ball Nose Solid Carbide Endmills

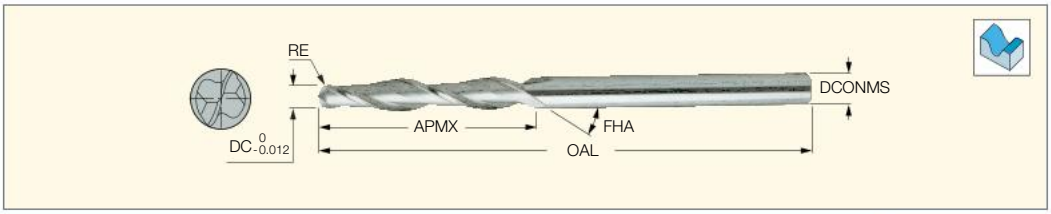


Designation	Dimensions								Tough ↔ Hard	
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RE	IC08	IC900
EB-A2 02-06C03E38	2.00	3.00	6.00	38.00	2	30.0	C	1.00	●	●
EB-A2 02-04C06E48	2.00	6.00	4.00	48.00	2	30.0	C	1.00	●	●
EB-A2 025-04C06E48	2.50	6.00	4.00	48.00	2	30.0	C	1.25	●	●
EB-A2 03-04C06E48	3.00	6.00	4.00	48.00	2	30.0	C	1.50	●	●
EB-A2 03-07W06E57	3.00	6.00	7.00	57.00	2	30.0	W	1.50	●	●
EB-A2 04-06C06E50	4.00	6.00	6.00	50.00	2	30.0	C	2.00	●	●
EB-A2 04-08W06E57	4.00	6.00	8.00	57.00	2	30.0	W	2.00	●	●
EB-A2 05-07C06E51	5.00	6.00	7.00	51.00	2	30.0	C	2.50	●	
EB-A2 05-10W06E57	5.00	6.00	10.00	57.00	2	30.0	W	2.50	●	●
EB-A2 06-07C06E51	6.00	6.00	7.00	51.00	2	30.0	C	3.00	●	●
EB-A2 06-10W06E57	6.00	6.00	10.00	57.00	2	30.0	W	3.00	●	●
EB-A2 08-09C08E63	8.00	8.00	9.00	63.00	2	30.0	C	4.00	●	●
EB-A2 08-16W08E63	8.00	8.00	16.00	63.00	2	30.0	W	4.00	●	●
EB-A2 10-10C10E66	10.00	10.00	10.00	66.00	2	30.0	C	5.00	●	●
EB-A2 10-19W10E72	10.00	10.00	19.00	72.00	2	30.0	W	5.00	●	●
EB-A2 12-14C12E71	12.00	12.00	14.00	71.00	2	30.0	C	6.00	●	●
EB-A2 12-22W12E83	12.00	12.00	22.00	83.00	2	30.0	W	6.00	●	●
EB-A2 16-26W16E92	16.00	16.00	26.00	92.00	2	30.0	W	8.00	●	
EB-A2 18-26W18E92	18.00	18.00	26.00	92.00	2	30.0	W	9.00	●	
EB-A2 20-20C20E82	20.00	20.00	20.00	82.00	2	30.0	C	10.00	●	●
EB-A2 20-32W20E104	20.00	20.00	32.00	104.00	2	30.0	W	10.00	●	●

• For user guide, see pages 211-218
(1) Number of flutes
(2) C-Cylindrical, W-Weldon

SOLIDMILL TEC LINE

EB-A2 (economical-extra long)
Economical Type 2 Flute, 30° Helix Ball Nose Extra Long Solid Carbide Endmills

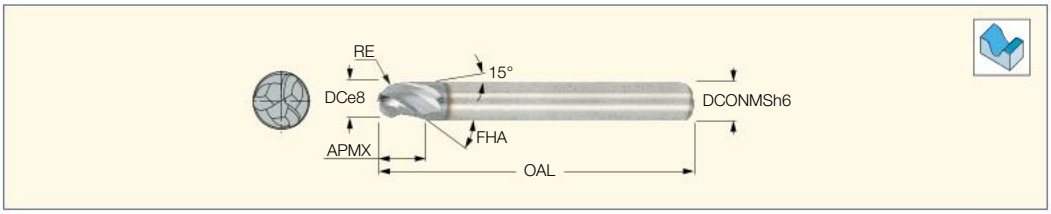


Designation	Dimensions									Tough ↔ Hard	
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RE	RETOL(3)	IC08	IC900
EB-A2 03-30C03E75	3.00	3.00	30.00	75.00	2	30.0	C	1.50	0.020	●	●
EB-A2 04-30C04E75	4.00	4.00	30.00	75.00	2	30.0	C	2.00	0.020	●	●
EB-A2 05-40C05E100	5.00	5.00	40.00	100.00	2	30.0	C	2.50	0.020	●	●
EB-A2 06-50C06E150	6.00	6.00	50.00	150.00	2	30.0	C	3.00	0.020	●	●
EB-A2 08-50C08E150	8.00	8.00	50.00	150.00	2	30.0	C	4.00	0.020	●	●
EB-A2 10-60C10E150	10.00	10.00	60.00	150.00	2	30.0	C	5.00	0.020	●	●
EB-A2 12-75C12E150	12.00	12.00	75.00	150.00	2	30.0	C	6.00	0.020	●	●
EB-A2 16-75C16E150	16.00	16.00	75.00	150.00	2	30.0	C	8.00	0.020	●	●

• For user guide, see pages 211-218
(1) Number of flutes
(2) C-Cylindrical
(3) Corner radius tolerance (+/-)

SOLIDMILL PREMIUM LINE

EB-A-3
3 Flute, 30° Helix Short Solid Carbide Ball Nose Endmills

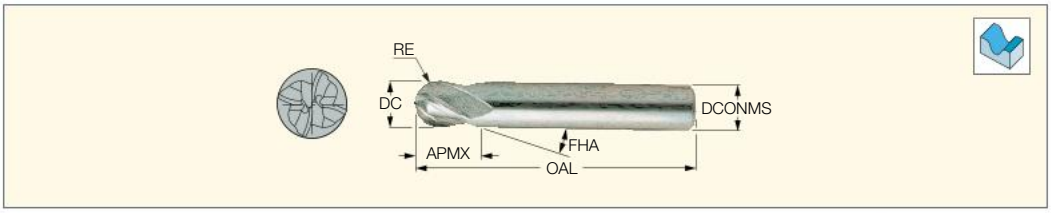


Designation	Dimensions									IC900
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RE	RETOL(3)	
EB016A020-3C03	1.60	3.00	2.00	38.00	3	30.0	C	0.80	0.006	●
EB030A05-3C03	3.00	3.00	5.00	38.00	3	30.0	C	1.50	0.010	●
EB030A05-3C06	3.00	6.00	5.00	57.00	3	30.0	C	1.50	0.010	●
EB040A07-3C04	4.00	4.00	7.00	50.00	3	30.0	C	2.00	0.010	●
EB040A07-3C06	4.00	6.00	7.00	57.00	3	30.0	C	2.00	0.010	●
EB050A08-3C05	5.00	5.00	8.00	50.00	3	30.0	C	2.50	0.010	●
EB050A08-3C06	5.00	6.00	8.00	57.00	3	30.0	C	2.50	0.010	●
EB060A08-3C06	6.00	6.00	8.00	57.00	3	30.0	C	3.00	0.010	●
EB080A11-3C08	8.00	8.00	11.00	63.00	3	30.0	C	4.00	0.010	●
EB100A13-3C10	10.00	10.00	13.00	72.00	3	30.0	C	5.00	0.010	●
EB120A14-3C12	12.00	12.00	14.00	83.00	3	30.0	C	6.00	0.012	●

• Short and stable design for profiling (roughing). • For user guide, see pages 211-218
(1) Number of flutes
(2) C-Cylindrical
(3) Corner radius tolerance (+/-)

SOLIDMILL TEC LINE

EB-A4 (economical-short)
Economical Type 4 Flute, 30° Helix Ball Nose Short Solid Carbide Endmills

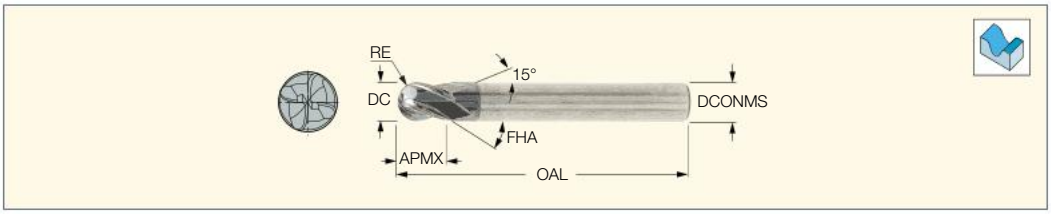


Designation	Dimensions										Tough ↔ Hard	
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	RE	Shank(2)	RETOLL(3)	RETOLU(4)	IC08	IC900
EB-A4 02-04C06E50	2.00	6.00	4.00	50.00	4	30.0	1.00	C	0.000	0.005	●	●
EB-A4 03-04C06E50	3.00	6.00	4.00	50.00	4	30.0	1.50	C	-0.010	0.010		●
EB-A4 04-06C06E50	4.00	6.00	6.00	50.00	4	30.0	2.00	C	-0.010	0.010		●
EB-A4 05-07C06E51	5.00	6.00	7.00	51.00	4	30.0	2.50	C	-0.010	0.010	●	●
EB-A4 06-07C06E50	6.00	6.00	7.00	50.00	4	30.0	3.00	C	-0.010	0.010	●	
EB-A4 06-07C06E51	6.00	6.00	7.00	51.00	4	30.0	3.00	C	-0.010	0.010		●
EB-A4 08-09C08E59	8.00	8.00	9.00	59.00	4	30.0	4.00	C	-0.010	0.010	●	●
EB-A4 10-10C10E66	10.00	10.00	10.00	66.00	4	30.0	5.00	C	-0.010	0.010	●	●
EB-A4 12-14C12E71	12.00	12.00	14.00	71.00	4	30.0	6.00	C	-0.012	0.012	●	●
EB-A4 16-16C16E76	16.00	16.00	16.00	76.00	4	30.0	8.00	C	-0.012	0.012	●	●
EB-A4 18-18C18E76	18.00	18.00	18.00	76.00	4	30.0	9.00	C	-0.012	0.012	●	●
EB-A4 20-20C20E82	20.00	20.00	20.00	82.00	4	30.0	10.00	C	-0.012	0.012	●	●

• For user guide, see pages 211-218
(1) Number of flutes
(2) C-Cylindrical
(3) Lower tolerance limit
(4) Upper tolerance limit

SOLIDMILL PREMIUM LINE

EB-A-4 (short length)
4 Flute, 30° Helix Short Solid Carbide Ball Nose Endmills

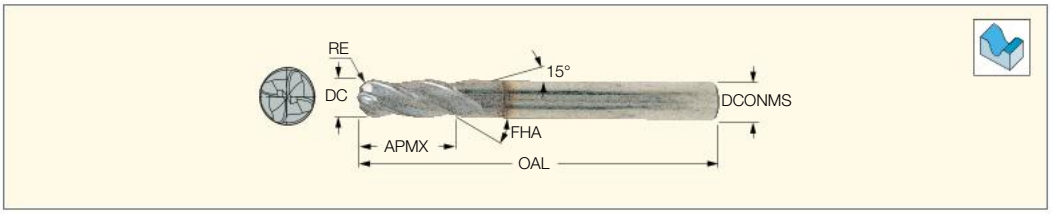


Designation	Dimensions									IC900
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RE	RETOL(3)	
EB020A03/06-4C03L38	2.00	3.00	3.00	38.00	4	30.0	C	1.00	0.006	●
EB030A05-4C03	3.00	3.00	5.00	38.00	4	30.0	C	1.50	0.010	●
EB030A05-4C06	3.00	6.00	5.00	57.00	4	30.0	C	1.50	0.010	●
EB040A07-4C04	4.00	4.00	7.00	50.00	4	30.0	C	2.00	0.010	●
EB040A07-4C06	4.00	6.00	7.00	57.00	4	30.0	C	2.00	0.010	●
EB050A08-4C06	5.00	6.00	8.00	57.00	4	30.0	C	2.50	0.010	●
EB060A08-4C06	6.00	6.00	8.00	57.00	4	30.0	C	3.00	0.010	●
EB080A11-4C08	8.00	8.00	11.00	63.00	4	30.0	C	4.00	0.010	●
EB100A13-4C10	10.00	10.00	13.00	72.00	4	30.0	C	5.00	0.010	●
EB120A14-4C12	12.00	12.00	14.00	83.00	4	30.0	C	6.00	0.012	●
EB140A14-4C14	14.00	14.00	14.00	83.00	4	30.0	C	7.00	0.012	●
EB160A16-4C16	16.00	16.00	16.00	92.00	4	30.0	C	8.00	0.012	●
EB200A20-4C20	20.00	20.00	20.00	104.00	4	30.0	C	10.00	0.012	●

• Short and stable design for profiling (finishing). • For user guide, see pages 211-218
(1) Number of flutes
(2) C-Cylindrical
(3) Corner radius tolerance (+/-)

SOLIDMILL PREMIUM LINE

EB-A-4 (medium length)
4 Flute, 30° Helix Medium Length Solid Carbide Ball Nose Endmills

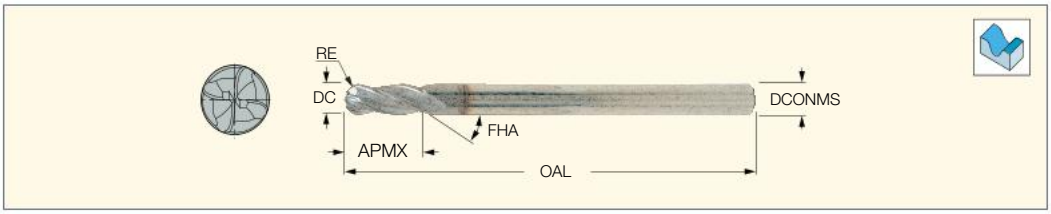


Designation	Dimensions								Tough ↔ Hard	
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RE	IC900	IC902
EB030A08-4C04	3.00	4.00	8.00	50.00	4	30.0	C	1.50	●	
EB040A12-4C04	4.00	4.00	12.00	50.00	4	30.0	C	2.00	●	●
EB050A14-4C05	5.00	5.00	14.00	50.00	4	30.0	C	2.50	●	
EB060A16-4C06	6.00	6.00	16.00	57.00	4	30.0	C	3.00	●	●
EB080A20-4C08	8.00	8.00	20.00	63.00	4	30.0	C	4.00	●	
EB090A11-4C09	9.00	9.00	11.00	67.00	4	30.0	C	4.50	●	
EB100A22-4C10	10.00	10.00	22.00	72.00	4	30.0	C	5.00	●	
EB120A25-4C12	12.00	12.00	25.00	83.00	4	30.0	C	6.00	●	
EB160A32-4C16	16.00	16.00	32.00	92.00	4	30.0	C	8.00	●	
EB200A38-4C20	20.00	20.00	38.00	104.00	4	30.0	C	10.00	●	

• For user guide, see pages 211-218
(1) Number of flutes
(2) C-Cylindrical

SOLIDMILL PREMIUM LINE

EBL-A-4
4 Flute, 30° Helix Long Solid Carbide Ball Nose Endmills

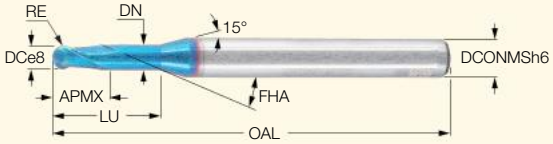


Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RE	RETOL(3)	IC900
EBL040A12-4C04	4.00	4.00	12.00	80.00	4	30.0	C	2.00	0.010	●
EBL060A16-4C06	6.00	6.00	16.00	100.00	4	30.0	C	3.00	0.010	●
EBL070A16-4C07	7.00	7.00	16.00	100.00	4	30.0	C	3.50	0.010	●
EBL080A20-4C08	8.00	8.00	20.00	100.00	4	30.0	C	4.00	0.010	●
EBL090A20-4C09	9.00	9.00	20.00	100.00	4	30.0	C	4.50	0.010	●
EBL100A22-4C10	10.00	10.00	22.00	100.00	4	30.0	C	5.00	0.010	●
EBL120A25-4C12	12.00	12.00	25.00	100.00	4	30.0	C	6.00	0.012	●
EBL160A32-4C16	16.00	16.00	32.00	125.00	4	30.0	C	8.00	0.012	●

• Profiling in deep cavities • For user guide, see pages 211-218
(1) Number of flutes
(2) C-Cylindrical
(3) Corner radius tolerance (+/-)

SOLIDMILL PREMIUM LINE

EB-A2-H (rib processing)
2 Flute, 30° Helix Rib Processing Solid Carbide Ball Nose Endmills for Materials up to 65 HRC



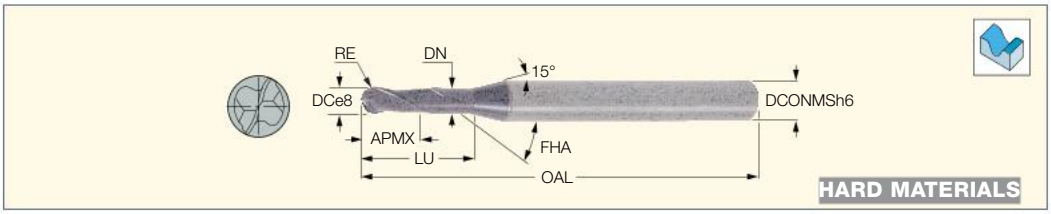
Designation	Dimensions DC	DCONMS	APMX	OAL	LU	DN	RE	NOF(1)	FHA	Shank(2)	RETOL(3)	IC702	Recommended Machining Data f_z (mm/t)
EB-A2 004-004/03C4H45	0.40	4.00	0.40	45.00	3.0	0.37	0.20	2	30.0	C	0.005	●	0.0100-0.0150
EB-A2 005-004/04C4H45	0.50	4.00	0.40	45.00	4.0	0.45	0.25	2	30.0	C	0.005	●	0.0100-0.0150
EB-A2 005-004/08C4H45	0.50	4.00	0.40	45.00	8.0	0.45	0.25	2	30.0	C	0.005	●	0.0100-0.0150
EB-A2 006-005/02C4H45	0.60	4.00	0.50	45.00	2.0	0.55	0.30	2	30.0	C	0.005	●	0.0100-0.0150
EB-A2 006-005/04C4H45	0.60	4.00	0.50	45.00	4.0	0.55	0.30	2	30.0	C	0.005	●	0.0100-0.0150
EB-A2 006-005/08C4H45	0.60	4.00	0.50	45.00	8.0	0.55	0.30	2	30.0	C	0.005	●	0.0100-0.0150
EB-A2 008-006/02C4H45	0.80	4.00	0.60	45.00	2.0	0.75	0.40	2	30.0	C	0.005	●	0.0150-0.0250
EB-A2 008-006/04C4H45	0.80	4.00	0.60	45.00	4.0	0.75	0.40	2	30.0	C	0.005	●	0.0150-0.0250
EB-A2 008-006/06C4H45	0.80	4.00	0.60	45.00	6.0	0.75	0.40	2	30.0	C	0.005	●	0.0150-0.0250
EB-A2 010-008/03C4H45	1.00	4.00	0.80	45.00	3.0	0.95	0.50	2	30.0	C	0.005	●	0.0200-0.0350
EB-A2 010-008/04C4H45	1.00	4.00	0.80	45.00	4.0	0.95	0.50	2	30.0	C	0.005	●	0.0200-0.0350
EB-A2 010-008/06C4H45	1.00	4.00	0.80	45.00	6.0	0.95	0.50	2	30.0	C	0.005	●	0.0200-0.0350
EB-A2 010-008/08C4H45	1.00	4.00	0.80	45.00	8.0	0.95	0.50	2	30.0	C	0.005	●	0.0200-0.0350
EB-A2 010-008/10C4H45	1.00	4.00	0.80	45.00	10.0	0.95	0.50	2	30.0	C	0.005	●	0.0200-0.0350
EB-A2 010-008/20C4M55	1.00	4.00	0.80	55.00	20.0	0.95	0.50	2	30.0	C	0.005	●	0.0200-0.0350
EB-A2 012-010/08C4H45	1.20	4.00	1.00	45.00	8.0	1.15	0.60	2	30.0	C	0.005	●	0.0200-0.0450
EB-A2 015-012/06C4H45	1.50	4.00	1.20	45.00	6.0	1.45	0.75	2	30.0	C	0.005	●	0.0200-0.0450
EB-A2 015-012/10C4H45	1.50	4.00	1.20	45.00	10.0	1.45	0.75	2	30.0	C	0.005	●	0.0200-0.0450
EB-A2 015-012/12C4H45	1.50	4.00	1.20	45.00	12.0	1.45	0.75	2	30.0	C	0.005	●	0.0200-0.0450
EB-A2 015-012/20C4H55	1.50	4.00	1.20	55.00	20.0	1.45	0.75	2	30.0	C	0.005	●	0.0200-0.0450
EB-A2 020-016/04C4H45	2.00	4.00	1.60	45.00	4.0	1.95	1.00	2	30.0	C	0.005	●	0.0300-0.0700
EB-A2 020-016/06C4H45	2.00	4.00	1.60	45.00	6.0	1.95	1.00	2	30.0	C	0.005	●	0.0300-0.0700
EB-A2 020-016/10C4H45	2.00	4.00	1.60	45.00	10.0	1.95	1.00	2	30.0	C	0.005	●	0.0300-0.0700
EB-A2 020-016/12C4H50	2.00	4.00	1.60	50.00	12.0	1.95	1.00	2	30.0	C	0.005	●	0.0300-0.0700
EB-A2 020-016/14C4H50	2.00	4.00	1.60	50.00	14.0	1.95	1.00	2	30.0	C	0.005	●	0.0300-0.0700
EB-A2 020-016/16C4H50	2.00	4.00	1.60	50.00	16.0	1.95	1.00	2	30.0	C	0.005	●	0.0300-0.0700
EB-A2 020-016/20C4H55	2.00	4.00	1.60	55.00	20.0	1.95	1.00	2	30.0	C	0.005	●	0.0300-0.0700
EB-A2 030-024/12C6H50	3.00	6.00	2.40	50.00	12.0	2.85	1.50	2	30.0	C	0.005	●	0.0500-0.1000
EB-A2 030-024/16C6H55	3.00	6.00	2.40	55.00	16.0	2.85	1.50	2	30.0	C	0.005	●	0.0500-0.1000
EB-A2 030-024/20C6H60	3.00	6.00	2.40	60.00	20.0	2.85	1.50	2	30.0	C	0.005	●	0.0500-0.1000
EB-A2 030-024/25C6H65	3.00	6.00	2.40	65.00	25.0	2.85	1.50	2	30.0	C	0.005	●	0.0500-0.1000
EB-A2 040-032/16C6H60	4.00	6.00	3.20	60.00	16.0	3.85	2.00	2	30.0	C	0.005	●	0.0600-0.1500
EB-A2 040-032/20C6H65	4.00	6.00	3.20	65.00	20.0	3.85	2.00	2	30.0	C	0.005	●	0.0600-0.1500
EB-A2 040-032/25C6H70	4.00	6.00	3.20	70.00	25.0	3.85	2.00	2	30.0	C	0.005	●	0.0600-0.1500

• For user guide, see pages 211-218
(1) Number of flutes
(2) C-Cylindrical
(3) Corner radius tolerance (+/-)

SOLIDMILL PREMIUM LINE

EB-A2 (rib processing)

2 Flute, 30° Helix Rib Processing Solid Carbide Ball Nose Endmills for Materials up to 55 HRC



Designation	Dimensions											Tough ↔ Hard IC903	Recommended Machining Data f_z (mm/t)
	DC	DCONMS	APMX	OAL	LU	DN	RE	NOF(1)	FHA	Shank(2)	RETOL(3)		
EB-A2 004-006/01C4M45	0.40	4.00	0.60	45.00	1.0	0.36	0.20	2	30.0	C	0.010	•	0.0030-0.0060
EB-A2 004-006/02C4M45	0.40	4.00	0.60	45.00	2.0	0.36	0.20	2	30.0	C	0.010	•	0.0030-0.0060
EB-A2 004-006/03C4M45	0.40	4.00	0.60	45.00	3.0	0.36	0.20	2	30.0	C	0.010	•	0.0030-0.0060
EB-A2 005-007/02C4M45	0.50	4.00	0.70	45.00	2.0	0.45	0.25	2	30.0	C	0.010	•	0.0030-0.0060
EB-A2 005-007/04C4M45	0.50	4.00	0.70	45.00	4.0	0.45	0.25	2	30.0	C	0.010	•	0.0030-0.0060
EB-A2 005-007/06C4M45	0.50	4.00	0.70	45.00	6.0	0.45	0.25	2	30.0	C	0.010	•	0.0030-0.0060
EB-A2 005-007/08C4M45	0.50	4.00	0.70	45.00	8.0	0.45	0.25	2	30.0	C	0.010	•	0.0030-0.0060
EB-A2 006-009/02C4M45	0.60	4.00	0.90	45.00	2.0	0.55	0.30	2	30.0	C	0.010	•	0.0040-0.0080
EB-A2 006-009/04C4M45	0.60	4.00	0.90	45.00	4.0	0.55	0.30	2	30.0	C	0.010	•	0.0040-0.0080
EB-A2 008-012/02C4M45	0.80	4.00	1.20	45.00	2.0	0.75	0.40	2	30.0	C	0.010	•	0.0040-0.0080
EB-A2 008-012/04C4M45	0.80	4.00	1.20	45.00	4.0	0.75	0.40	2	30.0	C	0.010	•	0.0040-0.0080
EB-A2 008-012/06C4M45	0.80	4.00	1.20	45.00	6.0	0.75	0.40	2	30.0	C	0.010	•	0.0040-0.0080
EB-A2 008-012/10C4M45	0.80	4.00	1.20	45.00	10.0	0.75	0.40	2	30.0	C	0.010	•	0.0040-0.0080
EB-A2 010-015/03C4M45	1.00	4.00	1.50	45.00	3.0	0.97	0.50	2	30.0	C	0.010	•	0.0050-0.0100
EB-A2 010-015/04C4M45	1.00	4.00	1.50	45.00	4.0	0.97	0.50	2	30.0	C	0.010	•	0.0050-0.0100
EB-A2 010-015/05C4M45	1.00	4.00	1.50	45.00	5.0	0.97	0.50	2	30.0	C	0.010	•	0.0050-0.0100
EB-A2 010-015/06C4M45	1.00	4.00	1.50	45.00	6.0	0.97	0.50	2	30.0	C	0.010	•	0.0050-0.0100
EB-A2 010-015/07C4M45	1.00	4.00	1.50	45.00	7.0	0.95	0.50	2	30.0	C	0.010	•	0.0050-0.0100
EB-A2 010-015/08C4M45	1.00	4.00	1.50	45.00	8.0	0.95	0.50	2	30.0	C	0.010	•	0.0050-0.0100
EB-A2 010-015/10C4M45	1.00	4.00	1.50	45.00	10.0	0.95	0.50	2	30.0	C	0.010	•	0.0050-0.0100
EB-A2 010-015/12C4M45	1.00	4.00	1.50	45.00	12.0	0.93	0.50	2	30.0	C	0.010	•	0.0050-0.0100
EB-A2 010-015/14C4M50	1.00	4.00	1.50	50.00	14.0	0.93	0.50	2	30.0	C	0.010	•	0.0050-0.0100
EB-A2 010-015/16C4M50	1.00	4.00	1.50	50.00	16.0	0.93	0.50	2	30.0	C	0.010	•	0.0050-0.0100
EB-A2 010-015/20C4M55	1.00	4.00	1.50	55.00	20.0	0.93	0.50	2	30.0	C	0.010	•	0.0050-0.0100
EB-A2 012-018/08C4M45	1.20	4.00	1.80	45.00	8.0	1.17	0.60	2	30.0	C	0.010	•	0.0060-0.0150
EB-A2 012-018/12C4M45	1.20	4.00	1.80	45.00	12.0	1.13	0.60	2	30.0	C	0.010	•	0.0060-0.0150
EB-A2 014-021/08C4M45	1.40	4.00	2.10	45.00	8.0	1.35	0.70	2	30.0	C	0.010	•	0.0060-0.0150
EB-A2 014-021/16C4M50	1.40	4.00	2.10	50.00	16.0	1.31	0.70	2	30.0	C	0.010	•	0.0060-0.0150
EB-A2 015-015/03C04M50	1.50	4.00	1.50	50.00	3.0	1.47	0.75	2	30.0	C	0.010	•	0.0070-0.0160
EB-A2 015-023/06C4M45	1.50	4.00	2.30	45.00	6.0	1.47	0.75	2	30.0	C	0.010	•	0.0070-0.0160
EB-A2 015-023/08C4M45	1.50	4.00	2.30	45.00	8.0	1.45	0.75	2	30.0	C	0.010	•	0.0070-0.0160
EB-A2 015-023/10C4M45	1.50	4.00	2.30	45.00	10.0	1.45	0.75	2	30.0	C	0.010	•	0.0070-0.0160
EB-A2 015-023/12C4M45	1.50	4.00	2.30	45.00	12.0	1.43	0.75	2	30.0	C	0.010	•	0.0070-0.0160
EB-A2 015-023/20C4M55	1.50	4.00	2.30	55.00	20.0	1.39	0.75	2	30.0	C	0.010	•	0.0070-0.0160
EB-A2 016-024/08C4M45	1.60	4.00	2.40	45.00	8.0	1.55	0.80	2	30.0	C	0.010	•	0.0080-0.0170
EB-A2 016-024/12C4M45	1.60	4.00	2.40	45.00	12.0	1.53	0.80	2	30.0	C	0.010	•	0.0080-0.0170
EB-A2 018-027/08C4M45	1.80	4.00	2.70	45.00	8.0	1.75	0.90	2	30.0	C	0.010	•	0.0080-0.0180
EB-A2 018-027/12C4M45	1.80	4.00	2.70	45.00	12.0	1.73	0.90	2	30.0	C	0.010	•	0.0080-0.0180
EB-A2 018-027/16C4M50	1.80	4.00	2.70	50.00	16.0	1.71	0.90	2	30.0	C	0.010	•	0.0080-0.0180
EB-A2 020-030/04C4M45	2.00	4.00	3.00	45.00	4.0	1.97	1.00	2	30.0	C	0.010	•	0.0100-0.0210
EB-A2 020-030/06C4M45	2.00	4.00	3.00	45.00	6.0	1.97	1.00	2	30.0	C	0.010	•	0.0100-0.0210
EB-A2 020-030/10C4M45	2.00	4.00	3.00	45.00	10.0	1.93	1.00	2	30.0	C	0.010	•	0.0100-0.0210
EB-A2 020-030/12C4M50	2.00	4.00	3.00	50.00	12.0	1.93	1.00	2	30.0	C	0.010	•	0.0100-0.0210
EB-A2 020-030/14C4M50	2.00	4.00	3.00	50.00	14.0	1.93	1.00	2	30.0	C	0.010	•	0.0100-0.0210
EB-A2 020-030/16C4M50	2.00	4.00	3.00	50.00	16.0	1.91	1.00	2	30.0	C	0.010	•	0.0100-0.0210
EB-A2 020-030/20C4M55	2.00	4.00	3.00	55.00	20.0	1.89	1.00	2	30.0	C	0.010	•	0.0100-0.0210
EB-A2 020-030/25C4M60	2.00	4.00	3.00	60.00	25.0	1.89	1.00	2	30.0	C	0.010	•	0.0100-0.0210
EB-A2 020-030/30C4M70	2.00	4.00	3.00	70.00	30.0	1.89	1.00	2	30.0	C	0.010	•	0.0100-0.0210
EB-A2 030-045/08C6M50	3.00	6.00	4.50	50.00	8.0	2.85	1.50	2	30.0	C	0.010	•	0.0120-0.0300
EB-A2 030-045/10C6M50	3.00	6.00	4.50	50.00	10.0	2.85	1.50	2	30.0	C	0.010	•	0.0120-0.0300
EB-A2 030-045/12C6M50	3.00	6.00	4.50	50.00	12.0	2.85	1.50	2	30.0	C	0.010	•	0.0120-0.0300
EB-A2 030-045/16C6M55	3.00	6.00	4.50	55.00	16.0	2.85	1.50	2	30.0	C	0.010	•	0.0120-0.0300
EB-A2 030-045/20C6M60	3.00	6.00	4.50	60.00	20.0	2.85	1.50	2	30.0	C	0.010	•	0.0120-0.0300
EB-A2 030-045/25C6M65	3.00	6.00	4.50	65.00	25.0	2.85	1.50	2	30.0	C	0.010	•	0.0120-0.0300
EB-A2 030-045/30C6M70	3.00	6.00	4.50	70.00	30.0	2.85	1.50	2	30.0	C	0.010	•	0.0120-0.0300
EB-A2 030-045/35C6M80	3.00	6.00	4.50	80.00	35.0	2.85	1.50	2	30.0	C	0.010	•	0.0120-0.0300
EB-A2 040-060/10C6M60	4.00	6.00	6.00	60.00	10.0	3.80	2.00	2	30.0	C	0.010	•	0.0150-0.0350

• For user guide, see pages 211-218

(1) Number of flutes

(2) C-Cylindrical

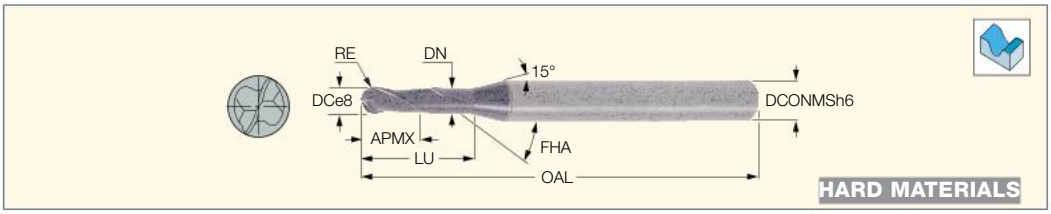
(3) Corner radius tolerance (+/-)

Continued

SOLIDMILL PREMIUM LINE

EB-A2 (rib processing)

2 Flute, 30° Helix Rib Processing Solid Carbide Ball Nose Endmills for Materials up to 55 HRC



Designation	Dimensions DC	DCONMS	APMX	OAL	LU	DN	RE	NOF(1)	FHA	Shank(2)	RETOL(3)	Tough ↔ Hard IC903	Recommended Machining Data f_z (mm/t)
EB-A2 040-060/12C6M60	4.00	6.00	6.00	60.00	12.0	3.80	2.00	2	30.0	C	0.010	•	0.0150-0.0350
EB-A2 040-060/16C6M60	4.00	6.00	6.00	60.00	16.0	3.80	2.00	2	30.0	C	0.010	•	0.0150-0.0350
EB-A2 040-060/20C6M65	4.00	6.00	6.00	65.00	20.0	3.80	2.00	2	30.0	C	0.010	•	0.0150-0.0350
EB-A2 040-060/25C6M70	4.00	6.00	6.00	70.00	25.0	3.80	2.00	2	30.0	C	0.010	•	0.0150-0.0350
EB-A2 040-060/30C6M70	4.00	6.00	6.00	70.00	30.0	3.80	2.00	2	30.0	C	0.010	•	0.0150-0.0350
EB-A2 040-060/35C6M80	4.00	6.00	6.00	80.00	35.0	3.80	2.00	2	30.0	C	0.010	•	0.0150-0.0350
EB-A2 040-060/45C6M90	4.00	6.00	6.00	90.00	45.0	3.80	2.00	2	30.0	C	0.010	•	0.0150-0.0350
EB-A2 050-075/20C6M60	5.00	6.00	7.50	60.00	20.0	4.80	2.50	2	30.0	C	0.010	•	0.0180-0.0440
EB-A2 050-075/25C6M70	5.00	6.00	7.50	70.00	25.0	4.80	2.50	2	30.0	C	0.010	•	0.0180-0.0440
EB-A2 050-075/30C6M80	5.00	6.00	7.50	80.00	30.0	4.80	2.50	2	30.0	C	0.010	•	0.0180-0.0440
EB-A2 050-075/35C6M80	5.00	6.00	7.50	80.00	35.0	4.80	2.50	2	30.0	C	0.010	•	0.0180-0.0440
EB-A2 060-090/20C6M80	6.00	6.00	9.00	80.00	20.0	5.80	3.00	2	30.0	C	0.010	•	0.0200-0.0500
EB-A2 060-090/30C6M90	6.00	6.00	9.00	90.00	30.0	5.80	3.00	2	30.0	C	0.010	•	0.0200-0.0500
EB-A2 060-090/40C6M100	6.00	6.00	9.00	100.00	40.0	5.80	3.00	2	30.0	C	0.010	•	0.0200-0.0500

• For user guide, see pages 211-218

(1) Number of flutes

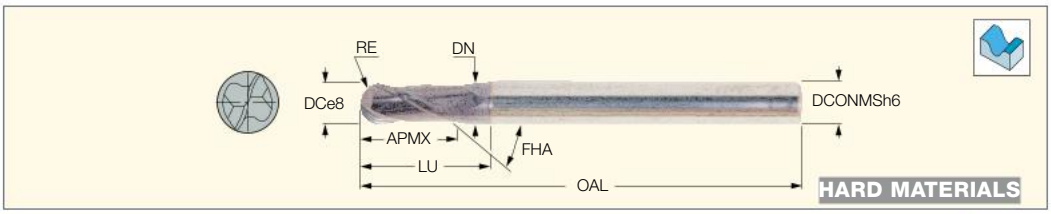
(2) C-Cylindrical

(3) Corner radius tolerance (+/-)

SOLIDMILL PREMIUM LINE

EB-A2 (long with neck)

2 Flute, 30° Helix Long Solid Carbide Ball Nose Endmills with Relieved Necks for Materials up to 65 HRC



Designation	Dimensions DC	RE	DCONMS	APMX	OAL	LU	DN	NOF(1)	FHA	Shank(2)	RETOL(3)	IC903
EB-A2 03-08C06M70	3.00	1.50	6.00	8.00	70.00	-	-	2	30.0	C	0.010	•
EB-A2 04-08C06M70	4.00	2.00	6.00	8.00	70.00	-	-	2	30.0	C	0.010	•
EB-A2 05-12C06M80	5.00	2.50	6.00	12.00	80.00	-	-	2	30.0	C	0.010	•
EB-A2 06-12/22C06M80	6.00	3.00	6.00	12.00	80.00	22.00	5.80	2	30.0	C	0.010	•
EB-A2 07-14C08M90	7.00	3.50	8.00	14.00	90.00	-	-	2	30.0	C	0.020	•
EB-A2 08-14/27C08M90	8.00	4.00	8.00	14.00	90.00	27.00	7.80	2	30.0	C	0.020	•
EB-A2 10-18/31C10M100	10.00	5.00	10.00	18.00	100.00	31.00	9.80	2	30.0	C	0.020	•
EB-A2 12-22/35C12M110	12.00	6.00	12.00	22.00	110.00	35.00	11.80	2	30.0	C	0.020	•
EB-A2 16-30/50C16M140	16.00	8.00	16.00	30.00	140.00	50.00	15.80	2	30.0	C	0.020	•

• For user guide, see pages 211-218

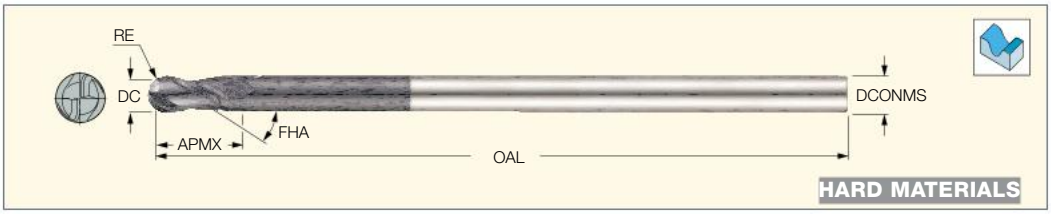
(1) Number of flutes

(2) C-Cylindrical

(3) Corner radius tolerance (+/-)

SOLIDMILL PREMIUM LINE

EB-A2 (extra long)
2 Flute, 30° Helix Extra Long Solid Carbide Ball Nose Endmills for Materials up to 65 HRC

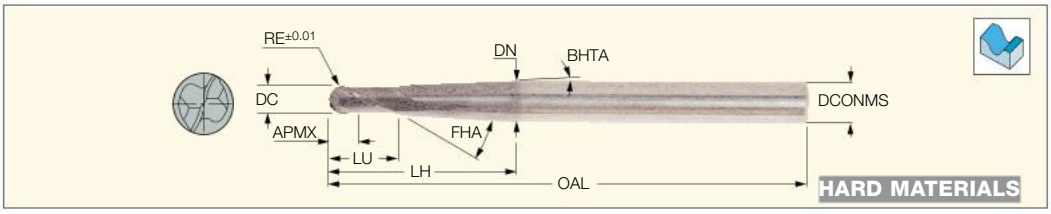


Designation	Dimensions DC	RE	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	IC903
EB-A2 02-06C03M80	2.00	1.00	3.00	6.00	80.00	2	30.0	C	●
EB-A2 03-08C03M100	3.00	1.50	3.00	8.00	100.00	2	30.0	C	●
EB-A2 04-08C04M100	4.00	2.00	4.00	8.00	100.00	2	30.0	C	●
EB-A2 06-10C06M120	6.00	3.00	6.00	10.00	120.00	2	30.0	C	●
EB-A2 08-14C08M140	8.00	4.00	8.00	14.00	140.00	2	30.0	C	●
EB-A2 10-18C10M180	10.00	5.00	10.00	18.00	180.00	2	30.0	C	●
EB-A2 12-22C12M200	12.00	6.00	12.00	22.00	200.00	2	30.0	C	●
EB-A2 16-30C16M250	16.00	8.00	16.00	30.00	250.00	2	30.0	C	●
EB-A2 20-38C20M250	20.00	10.00	20.00	38.00	250.00	2	30.0	C	●

• The DC tolerance is: 0 - -0.030 mm • For user guide, see pages 211-218
(1) Number of flutes
(2) C-Cylindrical

SOLIDMILL PREMIUM LINE

EB-A2 (tapered flute & neck)
2 Tapered Flutes, 30° Helix Solid Carbide Ball Nose Endmills with Relieved Necks for Materials up to 65 HRC

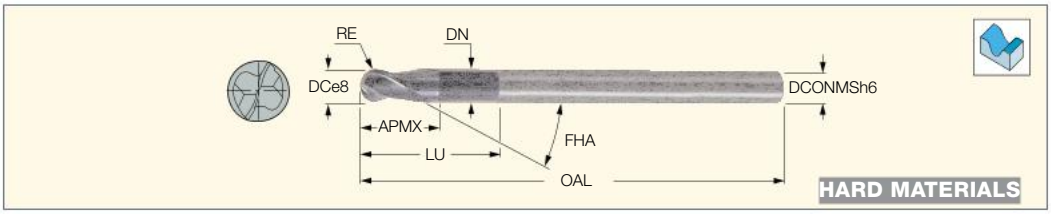


Designation	Dimensions DC	RE	DCONMS	APMX	LU	LH	DN	BHTA	OAL	NOF(1)	FHA	Shank(2)	IC903
EB-A2 01-02/04/1.5C06M60	1.00	0.50	6.00	2.00	4.0	23.0	2.00	1.5	60.00	2	30.0	C	●
EB-A2 01-02/04/3.0C06M80	1.00	0.50	6.00	2.00	4.0	42.0	5.00	3.0	80.00	2	30.0	C	●
EB-A2 01-02/04/5.0C06M60	1.00	0.50	6.00	2.00	4.0	23.0	4.30	5.0	60.00	2	30.0	C	●
EB-A2 02-04/06/1.5C06M60	2.00	1.00	6.00	4.00	6.0	23.0	2.90	1.5	60.00	2	30.0	C	●
EB-A2 02-04/06/3.0C06M80	2.00	1.00	6.00	4.00	6.0	41.0	5.70	3.0	80.00	2	30.0	C	●
EB-A2 02-04/06/5.0C06M60	2.00	1.00	6.00	4.00	6.0	23.0	5.00	5.0	60.00	2	30.0	C	●
EB-A2 03-06/08/1.5C06M90	3.00	1.50	6.00	6.00	8.0	52.0	5.30	1.5	90.00	2	30.0	C	●
EB-A2 03-06/08/3.0C06M70	3.00	1.50	6.00	6.00	8.0	32.0	5.60	3.0	70.00	2	30.0	C	●
EB-A2 04-08/10/1.5C06M90	4.00	2.00	6.00	8.00	10.0	49.0	6.00	1.5	90.00	2	30.0	C	●
EB-A2 04-08/10/3.0C06M70	4.00	2.00	6.00	8.00	10.0	28.0	6.00	3.0	70.00	2	30.0	C	●
EB-A2 05-10/12/1.5C08M110	5.00	2.50	8.00	10.00	12.0	61.0	7.60	1.5	110.00	2	30.0	C	●
EB-A2 06-12/15/1.5C08M110	6.00	3.00	8.00	12.00	15.0	53.0	8.00	1.5	110.00	2	30.0	C	●
EB-A2 06-12/15/3.0C08M90	6.00	3.00	8.00	12.00	15.0	34.0	8.00	3.0	90.00	2	30.0	C	●
EB-A2 08-14/17/1.5C10M120	8.00	4.00	10.00	14.00	17.0	55.0	10.00	1.5	120.00	2	30.0	C	●
EB-A2 08-14/17/3.0C10M100	8.00	4.00	10.00	14.00	17.0	36.0	10.00	3.0	100.00	2	30.0	C	●
EB-A2 10-18/21/1.5C12M130	10.00	5.00	12.00	18.00	21.0	59.0	12.00	1.5	130.00	2	30.0	C	●
EB-A2 10-18/21/3.0C12M110	10.00	5.00	12.00	18.00	21.0	40.0	12.00	3.0	110.00	2	30.0	C	●

• For user guide, see pages 211-218
(1) Number of flutes
(2) C-Cylindrical

SOLIDMILL PREMIUM LINE

EB-A2 (precision stub cut)
2 Flute, 30° Helix Stub Cut Length High Precision Ball Nose Endmills with Relieved Necks for Materials up to 65 HRC

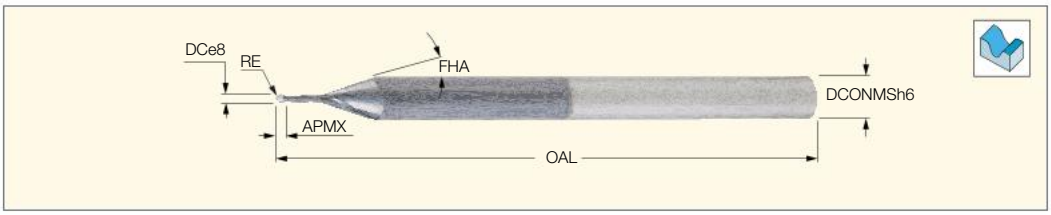


Designation	Dimensions												IC903
	DC	RE	DCONMS	APMX	LU	OAL	DN	NOF(1)	FHA	Shank(2)	RETOLL(3)	RETOLU(4)	
EB-A2 01-01/02C04M50	1.00	0.50	4.00	1.00	2.20	50.00	0.95	2	30.0	C	0.000	0.004	●
EB-A2 01-01/02C06M50	1.00	0.50	6.00	1.00	2.20	50.00	0.95	2	30.0	C	-0.010	0.010	●
EB-A2 012-012/02C04M50	1.20	0.60	4.00	1.20	2.60	50.00	1.10	2	30.0	C	-0.010	0.010	●
EB-A2 02-02/04C06M50	2.00	1.00	6.00	2.00	4.00	50.00	1.90	2	30.0	C	-0.010	0.010	●
EB-A2 025-025/05C06M60	2.50	1.25	6.00	2.50	5.00	60.00	2.40	2	30.0	C	0.000	0.006	●
EB-A2 03-03/06C06M60	3.00	1.50	6.00	3.00	6.00	60.00	2.90	2	30.0	C	-0.010	0.010	●
EB-A2 04-04/08C06M70	4.00	2.00	6.00	4.00	8.00	70.00	3.90	2	30.0	C	-0.010	0.010	●
EB-A2 05-05/10C06M80	5.00	2.50	6.00	5.00	10.00	80.00	4.90	2	30.0	C	-0.010	0.010	●
EB-A2 06-06/12C06M90	6.00	3.00	6.00	6.00	12.00	90.00	5.90	2	30.0	C	-0.010	0.010	●
EB-A2 07-07/14C08M90	7.00	3.50	8.00	7.00	14.00	90.00	6.90	2	30.0	C	-0.010	0.010	●
EB-A2 08-08/16C08M100	8.00	4.00	8.00	8.00	16.00	100.00	7.90	2	30.0	C	-0.010	0.010	●
EB-A2 09-09/18C10M100	9.00	4.50	10.00	9.00	18.00	100.00	8.90	2	30.0	C	-0.010	0.010	●
EB-A2 10-10/20C10M100	10.00	5.00	10.00	10.00	20.00	100.00	9.90	2	30.0	C	-0.010	0.010	●
EB-A2 12-12/24C12M110	12.00	6.00	12.00	12.00	24.00	110.00	11.90	2	30.0	C	-0.012	0.012	●
EB-A2 14-14/28C14M110	14.00	7.00	14.00	14.00	28.00	110.00	13.80	2	30.0	C	-0.012	0.012	●
EB-A2 16-16/32C16M140	16.00	8.00	16.00	16.00	32.00	140.00	15.80	2	30.0	C	-0.012	0.012	●
EB-A2 25-25/50C25M180	25.00	12.50	25.00	25.00	50.00	180.00	24.80	2	30.0	C	-0.015	0.015	●

• For user guide, see pages 211-218
(1) Number of flutes
(2) C-Cylindrical
(3) Corner radius tolerance lower
(4) Corner radius tolerance upper

SOLIDMILL PREMIUM LINE

EBM-A-2
2 Flute, 30° Helix Medium Length Solid Carbide Miniature Ball Nose Endmills



Designation	Dimensions										Tough ↔ Hard	
	DC	RE	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RETOLL(3)	RETOLU(4)	IC08	IC900
EBM004A008-2C03	0.40	0.20	3.00	0.80	38.00	2	30.0	C	0.000	0.004	●	●
EBM005A010-2C03	0.50	0.25	3.00	1.00	38.00	2	30.0	C	0.000	0.004	●	●
EBM006A012-2C03	0.60	0.30	3.00	1.20	38.00	2	30.0	C	0.000	0.004	●	●
EBM007A014-2C03	0.70	0.35	3.00	1.40	38.00	2	30.0	C	0.000	0.004	●	
EBM008A016-2C03	0.80	0.40	3.00	1.60	38.00	2	30.0	C	0.000	0.004	●	●
EBM010A025-2C04	1.00	0.50	4.00	2.50	50.00	2	30.0	C	0.000	0.004	●	●
EBM012A030-2C04	1.20	0.60	4.00	3.00	50.00	2	30.0	C	0.000	0.004	●	●
EBM016A040-2C04	1.60	0.80	4.00	4.00	50.00	2	30.0	C	0.000	0.004	●	●
EBM020A060-2C04	2.00	1.00	4.00	6.00	50.00	2	30.0	C	0.000	0.004	●	●

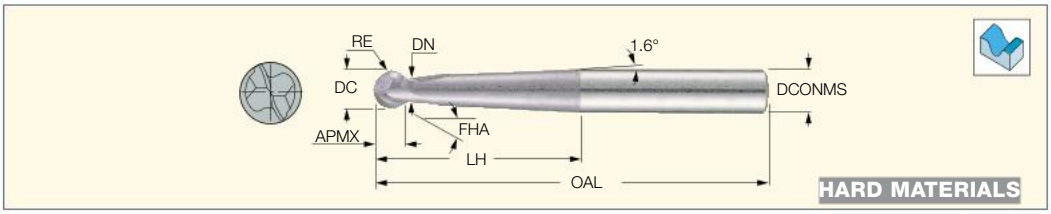
• Short and stable design for profiling (roughing). • For user guide, see pages 211-218
(1) Number of flutes
(2) C-Cylindrical
(3) Corner radius tolerance lower
(4) Corner radius tolerance upper

DC	Tolerance	
DC≤0.6	DC	0.000 -0.010
0.6<DC≤2	DC	0.000 -0.012

SOLIDMILL PREMIUM LINE

ESB-A2

2 Flute, 30° Helix Spherical Long Solid Carbide Ball Nose Endmills for Materials up to 65 HRC



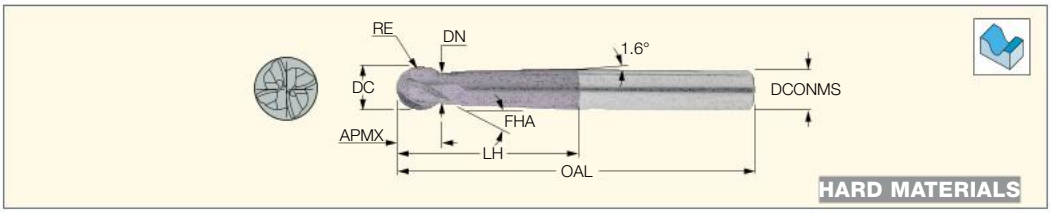
Designation	Dimensions										IC903
	DC	RE	DCONMS	APMX	LH	DN	OAL	NOF(1)	FHA	Shank(2)	
ESB-A2 03 02/30C06M80	3.00	1.50	6.00	2.30	30.0	2.50	80.00	2	30.0	C	•
ESB-A2 04 03/30C06M80	4.00	2.00	6.00	3.10	30.0	3.30	80.00	2	30.0	C	•
ESB-A2 05 03/38C06M80	5.00	2.50	6.00	3.90	38.0	4.10	80.00	2	30.0	C	•
ESB-A2 06 04/28C06M100	6.00	3.00	6.00	4.90	28.0	4.70	100.00	2	30.0	C	•
ESB-A2 08 06/33C08M100	8.00	4.00	8.00	6.30	33.0	6.50	100.00	2	30.0	C	•
ESB-A2 10 07/40C10M100	10.00	5.00	10.00	7.90	40.0	8.20	100.00	2	30.0	C	•
ESB-A2 16 12/59C16M150	16.00	8.00	16.00	12.40	59.0	13.40	150.00	2	30.0	C	•

• For user guide, see pages 211-218
(1) Number of flutes
(2) C-Cylindrical

SOLIDMILL PREMIUM LINE

ESB-A4

4 Flute, 30° Helix Spherical Long Solid Carbide Ball Nose Endmills for Materials up to 65 HRC



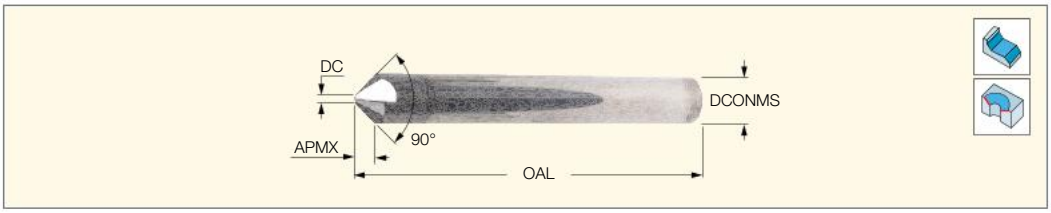
Designation	Dimensions										IC903
	DC	RE	DCONMS	APMX	LH	DN	OAL	NOF(1)	FHA	Shank(2)	
ESB-A4 05 3/38C06M80	5.00	2.50	6.00	3.90	38.0	4.10	80.00	4	30.0	C	•
ESB-A4 06 4/28C06M100	6.00	3.00	6.00	4.90	28.0	4.70	100.00	4	30.0	C	•
ESB-A4 08 6/33C08M100	8.00	4.00	8.00	6.30	33.0	6.30	100.00	4	30.0	C	•
ESB-A4 10 7/40C10M100	10.00	5.00	10.00	7.90	40.0	8.20	100.00	4	30.0	C	•
ESB-A4 12 9/49C12M100	12.00	6.00	12.00	9.50	49.0	9.80	100.00	4	30.0	C	•

• For user guide, see pages 211-218
(1) Number of flutes
(2) C-Cylindrical

SOLIDMILL PREMIUM LINE

ECF../45

45° Chamfering and Countersinking Solid Carbide Endmills



Designation	Dimensions						IC900
	DC	DCONMS	APMX	OAL	NOF(1)	Shank(2)	
ECF D-1.5/45-4C04	1.00	4.00	1.50	50.00	4	C	•
ECF D-2/45-4C06	2.00	6.00	2.00	57.00	4	C	•
ECF D-3/45-4C08	2.00	8.00	3.00	63.00	4	C	•
ECF D-4/45-4C10	2.00	10.00	4.00	72.00	4	C	•
ECF D-5/45-4C12	2.00	12.00	5.00	83.00	4	C	•

• For user guide, see pages 211-218
(1) Number of flutes
(2) C-Cylindrical

SOLIDMILL PREMIUM LINE

ECD-S2

Chamfering and Spot Drilling Solid Carbide Tools

Designation	Dimensions							Tough ↔ Hard	
	DC	DCONMS	OAL	APMX	LU	Shank(1)	SIG	IC08	IC900
ECD-S2 030/90C03-38	3.00	3.00	38.00	1.37	6.00	C	90	•	•
ECD-S2 04/120C04-50	4.00	4.00	50.00	1.02	8.00	C	120	•	•
ECD-S2 040/60C04-50	4.00	4.00	50.00	2.75	7.80	C	60	•	•
ECD-S2 040/90C04-50	4.00	4.00	50.00	1.79	8.00	C	90	•	•
ECD-S2 05/120C05-50	5.00	5.00	50.00	1.28	10.00	C	120	•	•
ECD-S2 050/60C05-50	5.00	5.00	50.00	3.61	9.30	C	60	•	•
ECD-S2 050/90C05-50	5.00	5.00	50.00	2.24	10.00	C	90	•	•
ECD-S2 06/120C06-57	6.00	6.00	57.00	1.54	12.00	C	120	•	•
ECD-S2 060/60C06-57	6.00	6.00	57.00	4.34	10.70	C	60	•	•
ECD-S2 060/90C06-57	6.00	6.00	57.00	2.71	12.00	C	90	•	•
ECD-S2 08/120C08-63	8.00	8.00	63.00	2.05	16.00	C	120	•	•
ECD-S2 080/60C08-63	8.00	8.00	63.00	5.92	16.80	C	60	•	•
ECD-S2 080/90C08-63	8.00	8.00	63.00	3.63	16.00	C	90	•	•
ECD-S2 10/120C10-72	10.00	10.00	72.00	2.56	20.00	C	120	•	•
ECD-S2 100/60C10-72	10.00	10.00	72.00	7.21	19.30	C	60	•	•
ECD-S2 100/90C10-72	10.00	10.00	72.00	4.55	20.00	C	90	•	•
ECD-S2 12/120C12-73	12.00	12.00	73.00	3.08	24.00	C	120	•	•
ECD-S2 120/60C12-73	12.00	12.00	73.00	8.93	21.60	C	60	•	•
ECD-S2 120/90C12-73	12.00	12.00	73.00	5.47	24.00	C	90	•	•

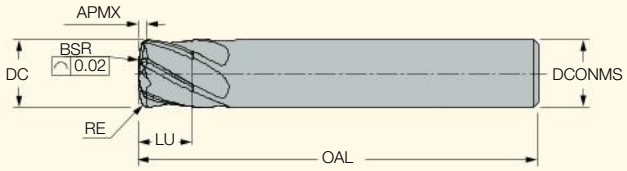
• For user guide, see pages 211-218

(1) C-Cylindrical

NEOBARREL PROFILE MILLING

ELB

Solid Carbide Lens-Shaped (Barrel) Endmills for 3D Profiling



Designation	Dimensions									IC902
	DC	BSR	RE	LU	APMX	DCONMS	NOF(1)	OAL	Shank(2)	
ELB-R0.75R16A5-6C8-63	8.00	15.00	0.75	5.00	1.10	8.00	6	63.00	C	•
ELB-R1R20A7-6C10-72	10.00	20.00	1.00	7.00	1.43	10.00	6	72.00	C	•
ELB-R1R25A9-6C12-83	12.00	25.00	1.00	9.00	1.53	12.00	6	83.00	C	•

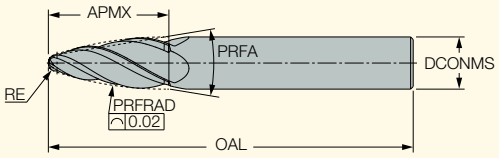
• For user guide, see pages 211-218

(1) Number of flutes

(2) C-Cylindrical

NEOBARREL PROFILE MILLING

EOB
Solid Carbide Oval-Shaped (Barrel) Endmills for 3D Profiling



Designation	Dimensions								Tough ↔ Hard	
	DCONMS	RE	PRFRAD	APMX	PRFA	NOF(1)	OAL	Shank(2)	IC08	IC902
EOB-R1.5R85A17/5-8C06-57	6.00	1.50	85.00	17.00	10.82	8	57.00	C		
EOB-R1R90A24/7-4C08-63	8.00	1.00	90.00	24.50	14.88	4	63.00	C		•
EOB-R2R90A20/7-4C08-63	8.00	2.00	90.00	21.50	12.18	4	63.00	C		•
EOB-AL-R2R85A20/9-4C10-72	10.00	2.00	85.00	21.00	18.68	4	72.00	C	•	
EOB-R2R85A24/8-4C10-72	10.00	2.00	85.00	24.50	15.46	4	72.00	C		•
EOB-R3R85A21/6-4C10-72	10.00	3.00	85.00	21.30	12.62	4	72.00	C		•
EOB-R2R80A27/9-4C12-83	12.00	2.00	80.00	27.10	18.38	4	83.00	C		•
EOB-AL-R3R85A24/8-4C12-83	12.00	3.00	85.00	25.00	16.12	4	83.00	C	•	
EOB-R3R80A24/8-4C12-83	12.00	3.00	80.00	24.50	15.98	4	83.00	C		•
EOB-R4R80A21/6-8C12-83	12.00	4.00	80.00	21.50	13.10	8	83.00	C		•
EOB-R4R80A21/7-4C12-83	12.00	4.00	80.00	21.50	13.10	4	83.00	C		•
EOB-R4R1000A28/10-4C16-92	16.00	4.00	1000.00	27.00	20.00	4	92.00	C		•

• For user guide, see pages 211-218
(1) Number of flutes
(2) C-Cylindrical

Recommended initial metric cutting parameters

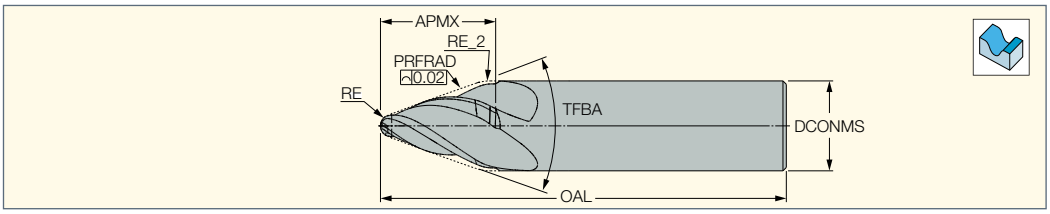
ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Material No.(1)	Cutting Parameters v_c [m/min]	f_z [mm/t]	f_z start [mm/t]
P	non-alloy steel and cast steel, free cutting steel	< 0.25 %C	annealed	420	125	1	210 - 300	0.005 - 0.01xD	0.006xD
		>= 0.25 %C	annealed	650	190	2	200 - 250	0.005 - 0.01xD	0.006xD
		< 0.55 %C	quenched and tempered	850	250	3	160 - 240	0.004 - 0.009xD	0.005xD
		>= 0.55 %C	annealed	750	220	4	160 - 240	0.003 - 0.008xD	0.004xD
			quenched and tempered	1000	300	5	140 - 200	0.004 - 0.009xD	0.005xD
	low alloy steel and cast steel (less than 5% of alloying elements)		annealed	600	200	6	160 - 240	0.003 - 0.008xD	0.004xD
			quenched and tempered	930	275	7	120 - 200	0.003 - 0.008xD	0.004xD
				1000	300	8	130 - 200	0.003 - 0.008xD	0.004xD
				1200	350	9	140 - 200	0.003 - 0.008xD	0.004xD
	high alloyed steel, cast steel, and tool steel		annealed	680	200	10	130 - 200	0.003 - 0.008xD	0.004xD
			quenched and tempered	1100	325	11	70 - 130	0.002 - 0.007xD	0.003xD
	stainless steel and cast steel		ferritic/martensitic	680	200	12	80 - 175	0.002 - 0.007xD	0.003xD
			martensitic	820	240	13	60 - 165	0.002 - 0.007xD	0.003xD
M	stainless steel and cast steel		austenitic	600	180	14	60 - 110	0.002 - 0.007xD	0.003xD
K	grey cast iron (GG)		ferritic/pearlitic		180	15	150 - 275	0.005 - 0.01xD	0.006xD
			pearlitic		260	16	150 - 265	0.005 - 0.01xD	0.006xD
	cast iron nodular (GGG)		ferritic		160	17	150 - 200	0.005 - 0.01xD	0.006xD
			pearlitic		250	18	90 - 150	0.004 - 0.009xD	0.005xD
	malleable cast iron		ferritic		130	19	150 - 200	0.005 - 0.01xD	0.006xD
			pearlitic		230	20	90 - 150	0.004 - 0.009xD	0.005xD
S	high temp. alloys	Fe based	annealed		200	31	20 - 45	0.002 - 0.004xD	0.003xD
			cured		280	32	20 - 35	0.002 - 0.004xD	0.003xD
		Ni or Co based	annealed		250	33	20 - 35	0.002 - 0.004xD	0.003xD
			cured		350	34	20 - 35	0.002 - 0.004xD	0.003xD
			cast		320	35	60 - 90	0.002 - 0.004xD	0.003xD
	titanium alloys		pure	Rm = 400		36	60 - 90	0.002 - 0.004xD	0.003xD
			alpha+beta alloys cured	Rm = 1050		37	60 - 90	0.002 - 0.004xD	0.003xD
H	hardened steel		hardened		55 HRC	38	40 - 80	0.001 - 0.003xD	0.002xD
			hardened		60 HRC	39			
	chilled cast iron		cast		400	40	40 - 80	0.001 - 0.003xD	0.002xD
	cast iron		hardened		55 HRC	41	40 - 80	0.001 - 0.003xD	0.002xD

(1) Based on ISO 513 and VDI 3323 Standards

NEOBARREL PROFILE MILLING

ETB

Solid Carbide Taper-Shaped (Barrel) Endmills for 3D Profiling



Designation	Dimensions									IC902
	PRFRAD	RE_2	RE	APMX	TFBA	DCONMS	NOF(1)	OAL	Shank(2)	
ETB-R1R250A10/20-4C08-63	250.00	4.00	1.00	10.00	40.00	8.00	4	63.00	C	●
ETB-R2R250A11/20-4C10-72	250.00	5.00	2.00	11.00	40.00	10.00	4	72.00	C	●
ETB-R3R250A12/20-4C12-83	250.00	6.00	3.00	12.00	40.00	12.00	4	83.00	C	●

- For user guide, see pages 211-218

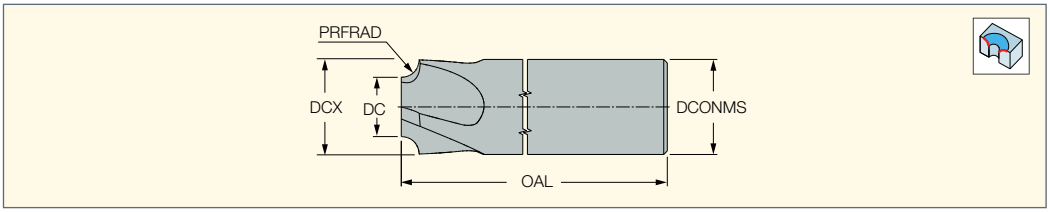
(1) Number of flutes

(2) C-Cylindrical

SOLIDMILL TEC LINE

ER-S4 R

4 Flutes Corner Rounding Solid Carbide Endmills



Designation	Dimensions						IC900
	PRFRAD	DC	DCX(1)	DCONMS	NOF(2)	OAL	
ER-S4 R0.5D5.0C06-50	0.50	5.00	6.00	6.00	4	50.00	●
ER-S4 R.75D4.5C06-50	0.75	4.50	6.00	6.00	4	50.00	●
ER-S4 R1.0D4.0C06-50	1.00	4.00	6.00	6.00	4	50.00	●
ER-S4 R1.5D5.0C08-63	1.50	5.00	8.00	8.00	4	63.00	●
ER-S4 R2.0D6.0C10-66	2.00	6.00	10.00	10.00	4	66.00	●
ER-S4 R2.5D5.0C10-66	2.50	5.00	10.00	10.00	4	66.00	●
ER-S4 R3.0D6.0C12-73	3.00	6.00	12.00	12.00	4	73.00	●

New

- For user guide, see pages 211-218

(1) Cutting diameter maximum

(2) Number of flutes

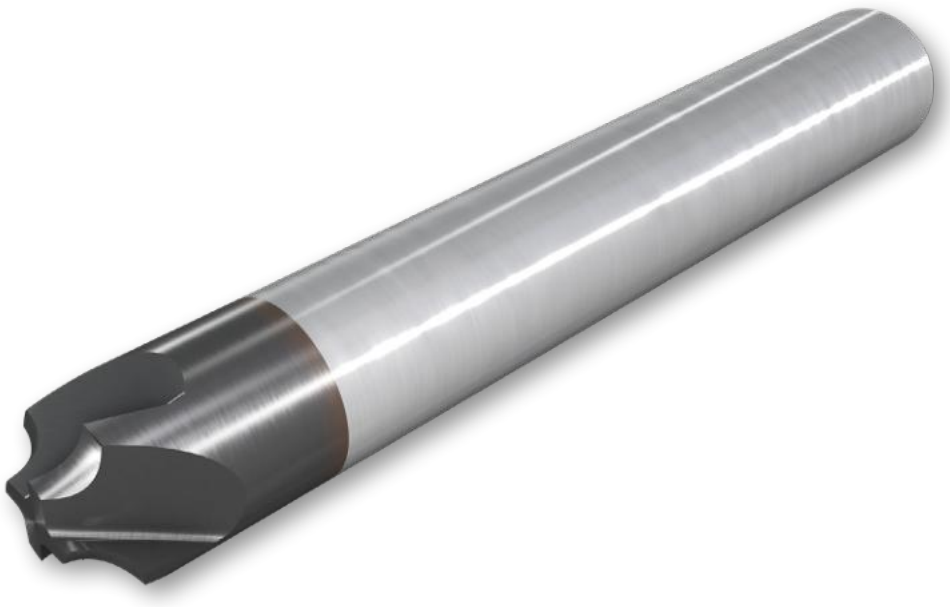


Table of Contents

Grade Priorities for Solid Carbide Endmills

Material Groups		ISO P		ISO M	ISO K	ISO N	ISO S	ISO H
		1 - 11	12 - 13	14	15 - 20	21 - 28	31 - 37	38 - 41
		Steel	Stainless Steel Ferritic & Martensitic	Stainless Steel Austenitic & Duplex (Ferritic-Austenitic)	Cast Iron	Nonferrous	High Temp Alloys	Hard Steel & Hardened Cast Iron
Solid & MULTI-MASTER Endmills	Harder	IC702	IC702	IC902	IS6*		IS6*	IC702
		IC902	IC902	IC903	IC902		IS902**	IC903
		IC903	IC903		**IC903**		IC903	
		IC608	IC608	**IC608**	IC608		**IC900 (908)**	IC608
		IC900 (908)	**IC900 (908)**	IC900 (908)	**IC900 (908)**			**IC900 (908)**
Roughing/ Semi-Finishing						**IC08**	IC08	
	Tougher							
Coolant		N	Y	Y	N	Y	Y	N
Solid & MULTI-MASTER Endmills	Harder	**IC702** **IC902**	**IC702** **IC902**	IC902	IS6*		**IC902** **IC903**	**IC702** **IC902**
				IC608	IC902			
		IC903	IC903		**IC903**		IC900 (908)	IC903
		IC608	IC608		IC608			IC608
		IC900 (908)	IC900 (908)	IC900 (908)	IC900 (908)			IC900 (908)
Finishing						**IC08**	IC08	
	Tougher							
Coolant		N	Y	Y	N	Y	Y	N

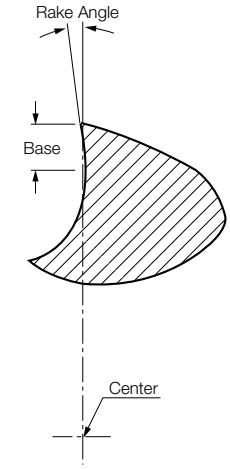
First choice
* SiAlON grade
** First choice for trochoidal milling

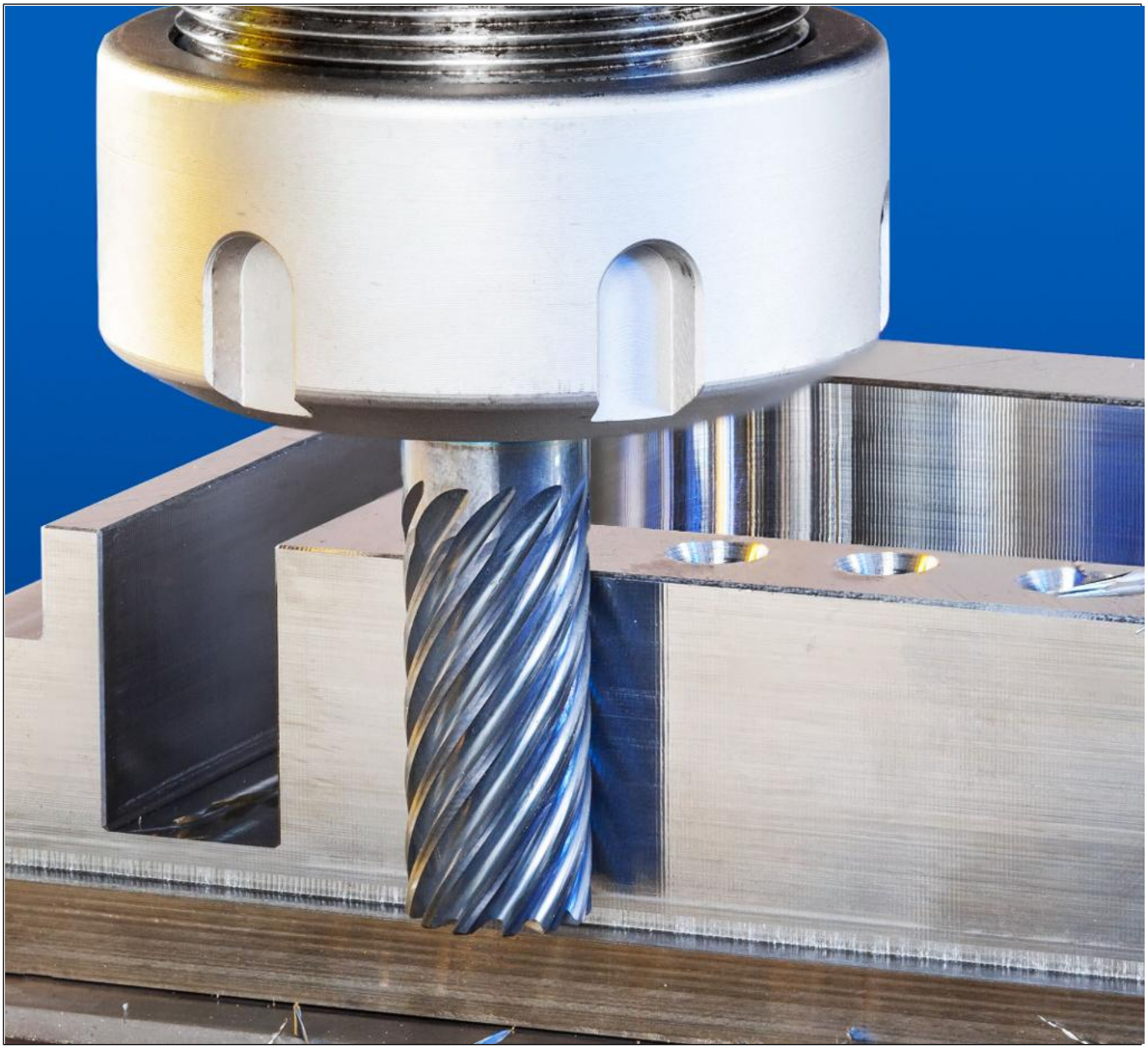
Machining Data for Solid Carbide and MULTI-MASTER Endmills

ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Material No.	Cutting Speed (m/min)		
							IC900/ IC608	IC903	IC08
P	non-alloy steel and cast steel, free cutting steel	< 0.25 %C	annealed	420	125	1	260-280	260-280	180-200
		>= 0.25 %C	annealed	650	190	2	200-230	200-230	140-160
		< 0.55 %C	quenched and tempered	850	250	3	160-220	160-220	110-150
		>= 0.55 %C	annealed	750	220	4	160-220	160-220	110-150
			quenched and tempered	1000	300	5	140-180	140-180	100-130
	low alloy and cast steel (less than 5% of alloying elements)		annealed	600	200	6	160-220	160-220	110-150
			quenched and tempered	930	275	7	120-180	120-180	80-130
				1000	300	8	130-180	130-180	90-130
				1200	350	9	140-180	140-180	100-130
	high alloyed steel, cast steel and tool steel		annealed	680	200	10	130-180	130-180	90-130
			quenched and tempered	1100	325	11	70-120	70-120	50-80
	stainless steel and cast steel		ferritic/martensitic.	680	200	12	80-160	80-160	60-110
			martensitic	820	240	13	60-150	60-150	40-100
M	stainless steel and cast steel		austenitic	600	180	14	60-120	60-120	40-80
K	grey cast iron (GG)		ferritic/pearlitic		180	15	80-260	80-250	60-180
			pearlitic/martensitic		260	16	130-240	130-240	90-170
	cast iron nodular (GGG)		ferritic		160	17	150-280	150-270	100-200
			pearlitic		250	18	90-280	90-270	60-200
	malleable cast iron		ferritic		130	19	150-280	150-270	100-200
			pearlitic		230	20	140-240	140-240	100-170
N	aluminum-wrought alloys		not cureable		60	21			800-900
			cured		100	22			700-800
	aluminum-cast-alloys	<=12% Si	not cureable		75	23			800-900
			cured		90	24			750-850
		>12% Si	high temperature		130	25			400-450
	copper alloys	>1% Pb	free cutting		110	26			500-550
			brass		90	27			500-550
			electrolitic copper		100	28			350-380
	non-metallic		duroplastics, fiber plastics			29			
			hard rubber			30			
S	high temp. alloys	Fe based	annealed		200	31	20-40	20-40	10-20
			cured		280	32	20-40	20-30	10-20
		Ni or Co based	annealed		250	33	20-50	20-30	20-50
			cured		350	34	20-70	20-30	20-50
			cast		320	35	30-70	30-80	20-50
	titanium ti alloys			RM 400		36	30-70	30-80	20-30
			alpha+beta alloys cured	RM 1050		37	30-70	30-80	20-30
H	hardened steel		hardened		55 HRC	38	30-50	30-60	40-60
			hardened		60 HRC	39	30-40	30-40	20-30
	chilled cast iron		cast		400	40	60-80	70-90	65-75
	cast iron		hardened		55 HRC	41	30-50	30-60	40-45

Regrinding Instructions for Solid Carbide Endmills (Continued)
Base Distance for Rake Angle Measurement

Tool Diameter Base Distance		Tool Diameter Base Distance	
mm	In	mm	In
0.5<d1≤0.7	.02<d1≤.03	0.03	.001181
0.7<d1≤0.8	.03<d1≤.032	0.04	.001574
0.8<d1≤1.0	.032<d1≤.04	0.05	.001968
1.0<d1≤1.2	.04<d1≤.05	0.065	.002559
1.2<d1≤1.4	.05<d1≤.055	0.075	.002952
1.4<d1≤1.6	.055<d1≤.063	0.085	.003346
1.6<d1≤2	.063<d1≤.08	0.1	.003937
2<d1≤4	.08<d1≤.158	0.2	.007874
4<d1≤6.35	.158<d1≤.25	0.3	.01181
6.35<d1≤8	.25<d1≤.315	0.4	.01574
8<d1≤13	.315<d1≤.512	0.5	.01968
13<d1≤21	.512<d1≤.827	0.6	.02362
21<d1≤27	.827<d1≤1.063	0.7	.02755
27<d1≤	1.063<d1	0.8	.03149





Circle Segment Lines for Advanced Finish Milling Operations

Barrel Endmill

ISCAR's Barrel line comprises a variety of solid carbide endmills and **MULTI-MASTER** heads in different shapes: Oval, Taper & Lens.
For more information, refer to NPA 22-2020

Solid Carbide Endmills

Oval Barrel – EOB
Taper Barrel – ETB
Lens Barrel – ELB

MULTI-MASTER Heads

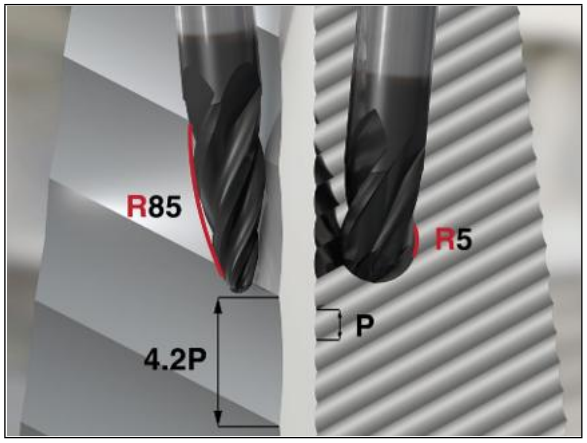
Oval Barrel – MM EOB
Lens Barrel – MM ELB

Barrel Endmills Are Intended for Finish and Semi-Finish Machining of 3D Surfaces

Blade Rough	Blade Finish

A prominent advantage of a Barrel endmill over a Ball-Nose is the number of stepovers and, subsequent, machining time can be significantly reduced without degradation of the surface finish parameters.

The large-diameter arc of the endmill cutting edge results in a substantial reduction of the cusp height.

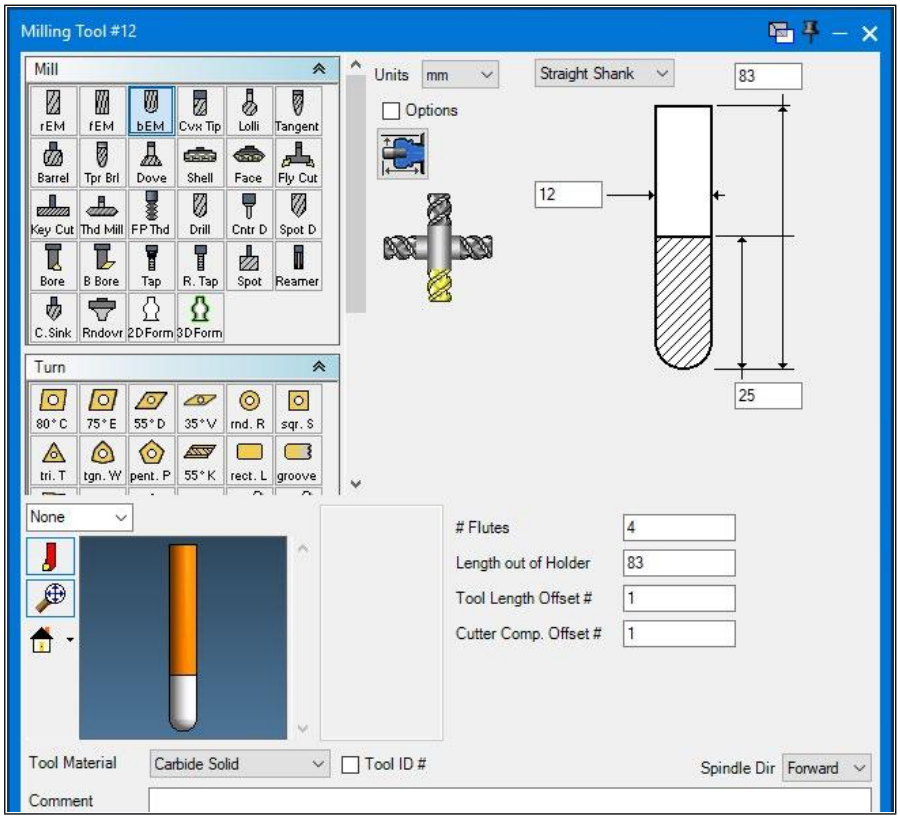


Machining Guidelines

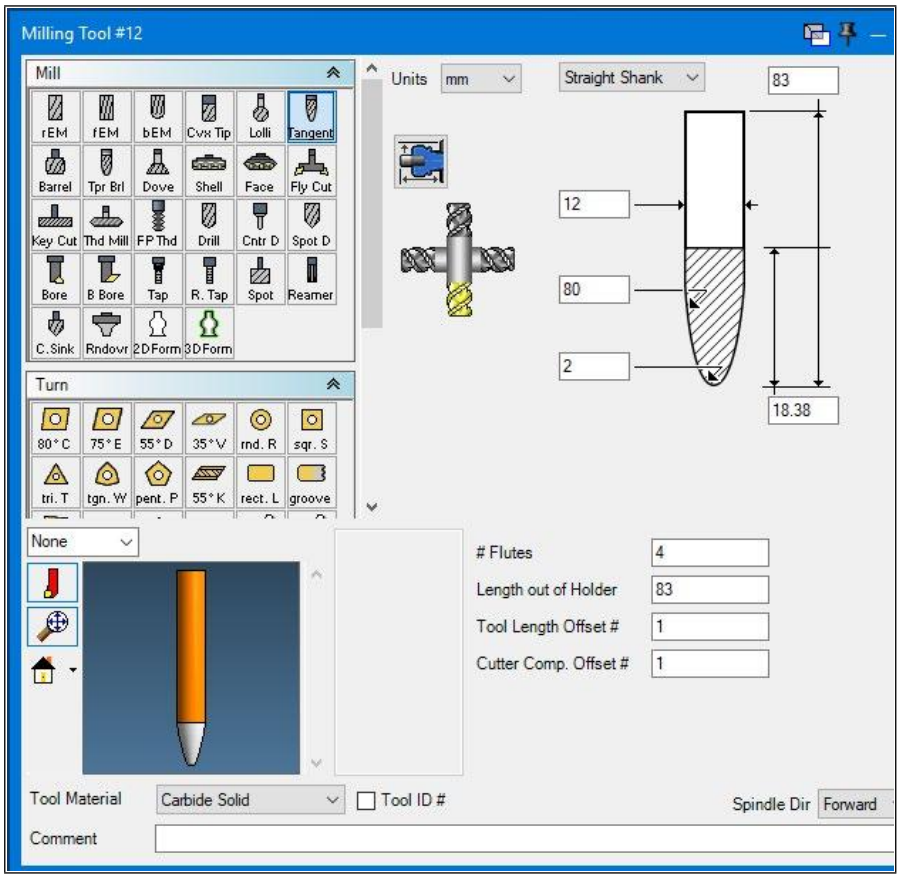
The Most Important Thing to Remember

Programming circle segment tooling requires a supporting CAM system

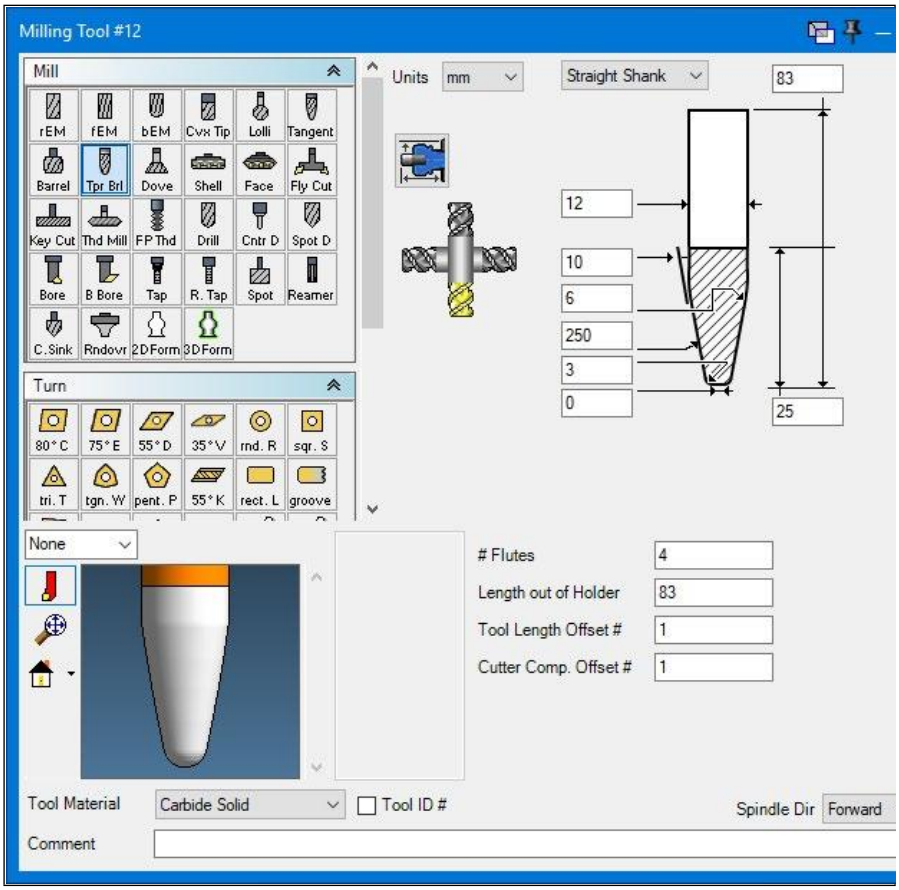
- **Step #1 – for Ball-Nose**
  Select a Ball-Nose tool configuration and define its parameters.



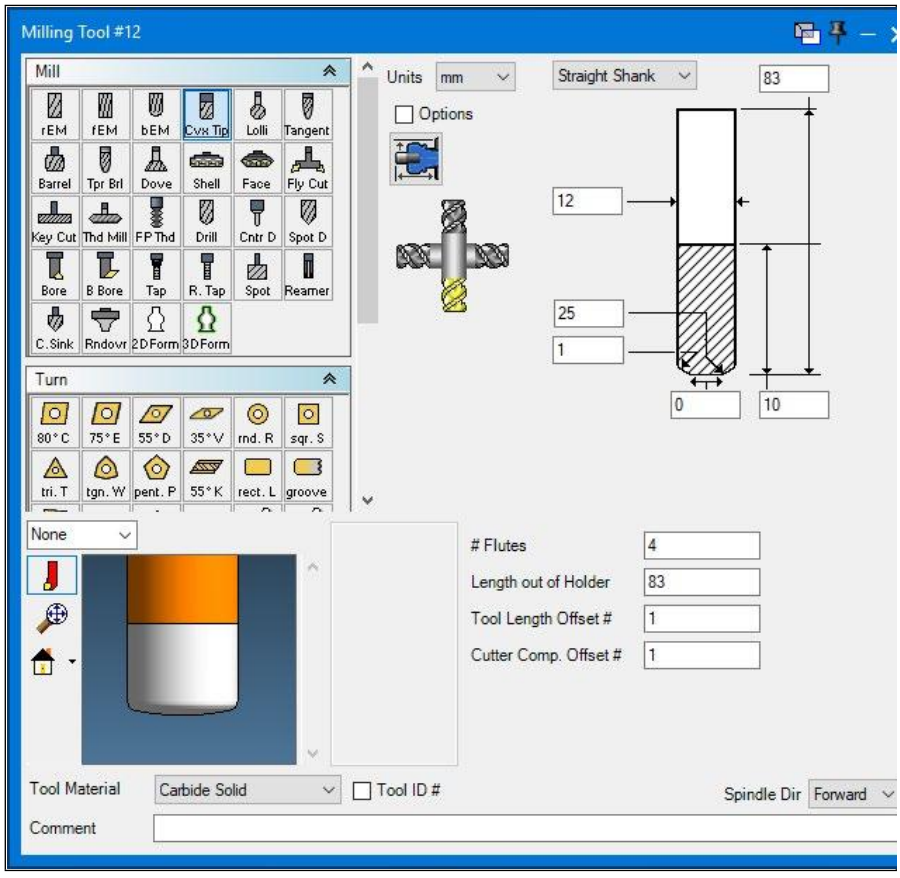
- **Step #1 – for Oval Shape**
  Select a Barrel tool configuration and define its parameters.



- **Step #1 – for Taper Shape**
  Select a Taper tool configuration and set its parameters.



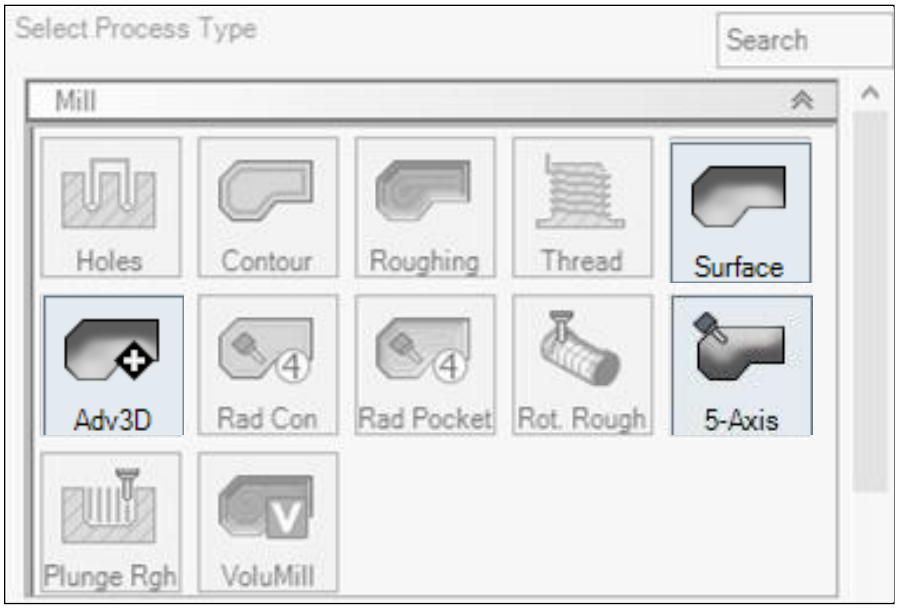
- **Step #1 – for Lens Shape**
  Select a Lens tool configuration and set its parameters.



- **Step #2**
  Select the process. Each CAM defines different relevant processes, for example:
  Surface, 5-Axis, Adv3D, etc.

Remember:

The advantage of barrel endmills is realized when used for 5 axis, finish milling operations



Important

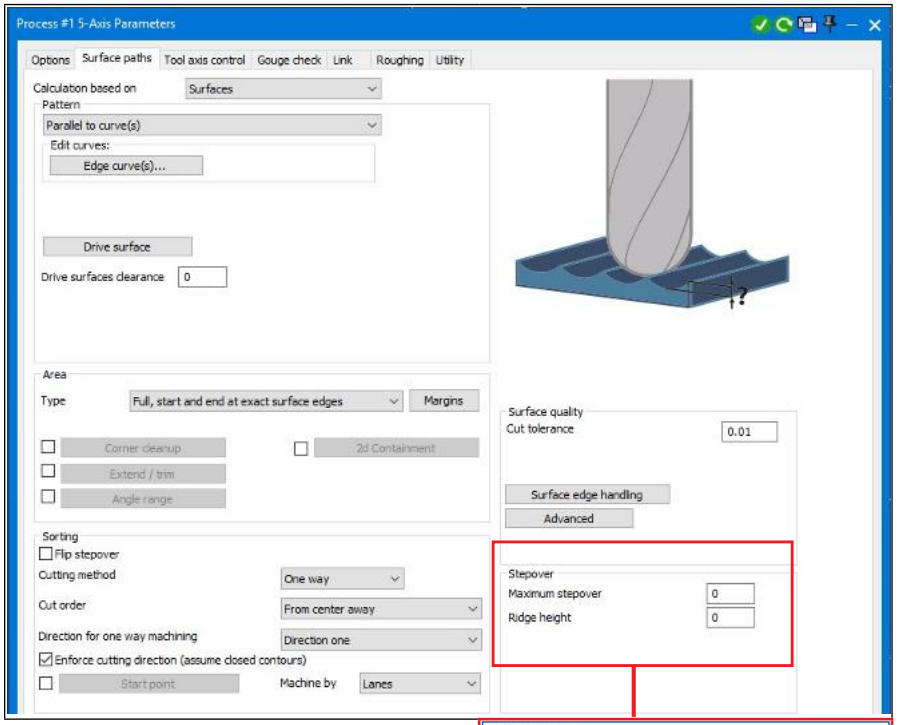
Each CAM software has its own features to configure the tools and their machining processes, but the definitions are similar.

The following example demonstrates only one way to define a Surface Finish (Ra) and is process dependent. In this example you will notice how many stepovers are required in order to obtain the same Ra with different tools.

There are many different options to define the required results from a tool.

Example

Same Ra – Different stepovers



Ball Nose Ø12 R6 [Ø.472" R.236"]	Stepover Maximum stepover 2
Oval Ø12 R80 [Ø.472" R3.15"]	Stepover Maximum stepover 7.4
Taper Ø12 R250 [Ø.472" R9.84"]	Stepover Maximum stepover 13.5
Lens Ø12 R25 [Ø.472" R.98"]	Stepover Maximum stepover 4.09

Take Into Consideration

Barrel milling should not always be considered the answer to finishing all 3D machined surfaces. Some part shapes are not conducive to Barrel milling operations. Sometimes, the blend radii of the machined part or the kinetics of the machine result in a complicated CAM tool path which may increase the cycle time compared to using a conventional Ball-Nose milling approach. This is where the need for a highly skilled programmer to make good and effective decisions comes into play.

Recommended Cutting Parameters to Start

ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Material No. (1)	Cutting Parameters		
							V_c m/min	F_z mm/t	F_z Start
P	non-alloy steel and cast steel, free cutting steel	< 0.25 %C	annealed	420	125	1	210-300	0.005-0.01xD	0.006xD
		>= 0.25 %C	annealed	650	190	2	200-250	0.005-0.01xD	0.006xD
		< 0.55 %C	quenched and tempered						
				850	250	3	160-240	0.004-0.009xD	0.005xD
		>= 0.55 %C	annealed	750	220	4	160-240	0.003-0.008xD	0.004xD
			quenched and tempered	1000	300	5	140-200	0.004-0.009xD	0.005xD
	low alloy and cast steel (less than 5% of alloying elements)		annealed	600	200	6	160-240	0.003-0.008xD	0.004xD
			quenched and tempered	930	275	7	120-200	0.003-0.008xD	0.004xD
				1000	300	8	130-200	0.003-0.008xD	0.004xD
				1200	350	9	140-200	0.003-0.008xD	0.004xD
	high alloyed steel, cast steel and tool steel		annealed	680	200	10	130-200	0.003-0.008xD	0.004xD
			quenched and tempered	1100	325	11	70-130	0.002-0.007xD	0.003xD
			ferritic/martensitic	680	200	12	80-175	0.002-0.007xD	0.003xD
	stainless steel and cast steel		martensitic	820	240	13	60-165	0.002-0.007xD	0.003xD
M	stainless steel and cast steel		austenitic	600	180	14	60-110	0.002-0.007xD	0.003xD
K	grey cast iron (GG)		ferritic/pearlitic		180	15	150-275	0.005-0.01xD	0.006xD
			pearlitic		260	16	150-265	0.005-0.01xD	0.006xD
	cast iron nodular (GGG)		ferritic		160	17	150-200	0.005-0.01xD	0.006xD
			pearlitic		250	18	90-150	0.004-0.009xD	0.005xD
	malleable cast iron		ferritic		130	19	150-200	0.005-0.01xD	0.006xD
			pearlitic		230	20	90-150	0.004-0.009xD	0.005xD
S	high temp. alloys	Fe based	annealed		200	31	20-45	0.002-0.004xD	0.003xD
			cured		280	32	20-35	0.002-0.004xD	0.003xD
		Ni or Co based	annealed		250	33	20-35	0.002-0.004xD	0.003xD
			cured		350	34	20-35	0.002-0.004xD	0.003xD
			cast		320	35	60-90	0.002-0.004xD	0.003xD
	titanium alloys		pure	Rm = 400		36	60-90	0.002-0.004xD	0.003xD
			alpha+beta alloys cured	Rm = 1050		37	60-90	0.002-0.004xD	0.003xD
H	hardened steel		hardened		55 HRC	38	40-80	0.001-0.003xD	0.002xD
			hardened		60 HRC	39			
	chilled cast iron		cast		400	40	40-80	0.001-0.003xD	0.002xD
	cast iron		hardened		55 HRC	41	40-80	0.001-0.003xD	0.002xD

FACE MILLS

Face Mills 90°

HELI-PLUS
HP F90AN-07
page 229

HELI-TANG
T490 FM/FLN
pages 226,231,238,244,250

HELI-QUAD
F90SP-10
page 234

HELI-2000
HM90 F90AP
pages 236-237

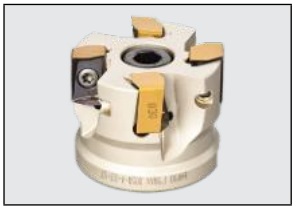
TANG-MILL
F90LN-N11
page 240

HELI-QUAD
F90SD-12
page 241

HELI-3-MILL
HM390 FT
pages 227,235,246,250

HELI-DO
H690 FWN
pages 227,230

HELI-DO
H690 F90AX
pages 238,252

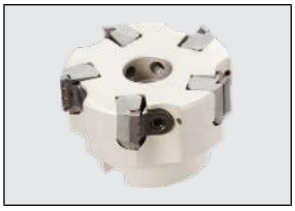


HELI-DO
H490 F90A
pages 232,243,251

TANG-MILL
F90LN-N15
page 245

SUMO-MILL
T290 FLN
pages 234,244

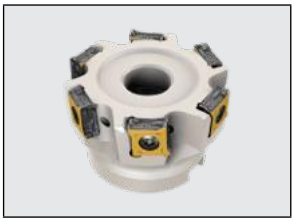
HELI-2000
HM90 F90A
pages 236-237



ISCAR-MILL
F90
page 252

MILL-SHRED
P290 FPW/FCT
page 253

HELI-PLUS
HP F90AT
pages 253-254



LOGIQ-8-TANG
T890HT-R13
page 239

NEO-DO
S890 FSZ-R08
page 228

Face Mills 88°, 75°, 65°, 45°

HELI-DO
S890 FSN-13
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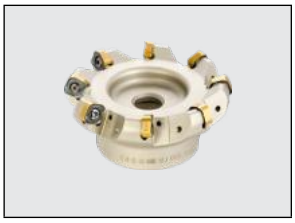
ISCAR-MILL
F75-M
page 254



HELI-DO
S865 FSN-13
page 255

HELI-OCTO
HOF/HOE...R06
page 256

HELI-OCTO
HOF...R07
page 257

16-MILL
F45WG
page 258

16-MILL
F45NM
page 259

ISCAR-MILL
F45E
page 263

ISCAR-MILL
F45ST
page 263

HELI-DO
S845 F45SX
page 265

DOVE-IQ-MILL
IQ845
pages 257,258,264

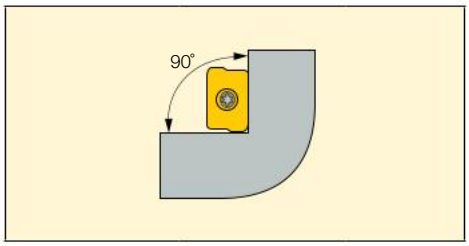
HELI-DO
SOF45
pages 260-261

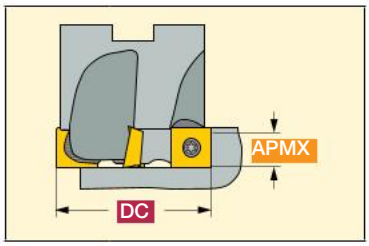
HELI-DO
SOF45-R18
page 267

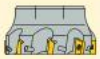
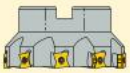
HELI-DO
SOF45-26
page 266

ISCARMILL

90° Face Mills Selection Guide

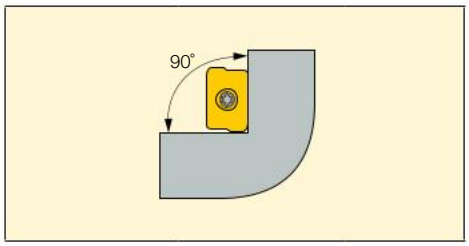


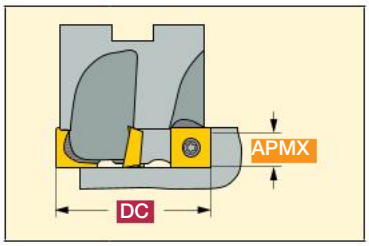


Tools		Pages	DC / APMX	25	32	40	50	63	80	100	125	160	200	250	315	Inserts	
				Number of Teeth (Effective)													
	H690 FWN	227 230	4 7		6	5 7	4 5 7 9	5 6 7 8 10	7 9	8 11	10						H690 WN..04../07..
	T490 FM-05	226	4	6	8	10	12										T490 LNMT 0502
	S890 FSZ-R08	228	5			5 6	6 8	7 10	8 12	10 14	12 18						S890 SZMU-08...
	HM390 FTC-07	227	5		4 5	5 6											HM390 TCKT 07..
	HP F90AN-07	229	7.7		6	8 10											HP AN..0702..
	T490 FLN-08	231	8		3 5	4 6	5 7 10	6 9	10								T490 LN..08..
	H490 F90AX-09	232	8		4 5	5 6	6 7	8 9									H490 AN..09..
	HM390 FTP-10	235	8			3 5	4 6	6 7	11	13							HM390 TP.. 10..
	T290 FLN-10	234	9		5	6											T290 LNMT 10
	F90SP-10	234	9.6			4	4 6	6 7	6 9								SPMT/R 10... QPMT/R 10.. XPMT 10.. SPCT 10...
	HM90 F90AP-10	236	10		3 5	5 6	4 6 7	6 7 9	8	9							HM90 AP..10 AP...10
	H690 F90AX-10	238	8		4 5	5 6	6 7	8									H690 TN.. 10..
	F90LN-N11	240	10			4 6	5 7	6 9	8 11	9 14	10 18						LN.. 11...
	T490 FLN-11	238	10			4 5	5 6	6 9	7 11	8 13							T490 LN.. 11...

ISCARMILL

90° Face Mills Selection Guide

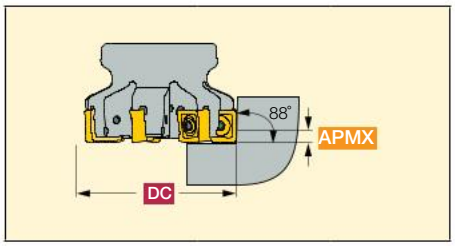


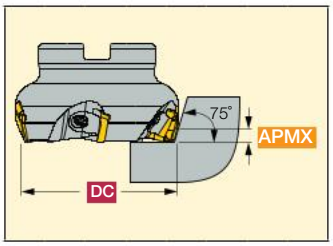


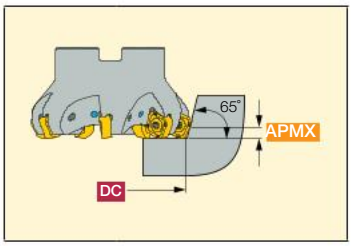
Tools	Pages	DC / APMX	25	32	40	50	63	80	100	125	160	200	250	315	Inserts
			Number of Teeth (Effective)												
F90SD-12	241	11.8				3 5	4 6	5	6 8	7 9	11	13			SDMT 12... SDMR 12... QDMT 12... QDCT 12...
H490 F90AX-12	243	12			4	3 5	4 6	5 7	6 9		9				H490 AN.. 12...
T490 FLN-13	244	12.5			4 5	5 6	6 8	7 10	8 13	9 17	12	15			T490 LNMT 13..
T890HT FLN-R13	239				3 4 5	4 5 6	6 7 8	6 7 9	8 12	9 15	12 20				T890 LN.T 1306
T290 FLN-15	244	14			4	5	6								T290 LN.. 15...
F90LN-N15	245	14				5	5 8	7 10	8 12	9 15	10 20	12 25	15		LN.. 15...
HM390 FTD-15	246	13			3 4	3 4 5	4 5 6	5 6 7	6 8	7 9	8 10	9			HM390 TD... 1505...
HM90 F90A-15	247	14.3			3 4	3 5	4 6	5 7	6 8	9					HM90 AD.. 15...
T490FLN-16	250	16				3 4	4 6	5 7	6 8	7 10	12	12			T490 LNMT 16...
HM390 FTD-19	250	16					5				10				HM390 TDKT 1907
H490 F90AX-17	251	16.3			3	3 4	4 6	5 7	5 8	7 10	8 12	10	12		H490 AN.. 17...
H690 F90AX-16	252	13.5				3 4	4 5	5 6	6 8	7 9	8 10	11			HM690 TNKX 1606
F90	252	18						6	8	8	10	12			TPK...22
P290 FPW/FCT	253	12 18		4	4 5	5 6	6	8	9						P290 ACCT P290 ACKT
HP F90AT-19	253	18				4									HP AD.. 19...
HP F90AT-22	254	21				3 4									HP AD.. 22...

ISCARMILL

88°, 75°, 65° Endmills and Face Mills Selection Guide

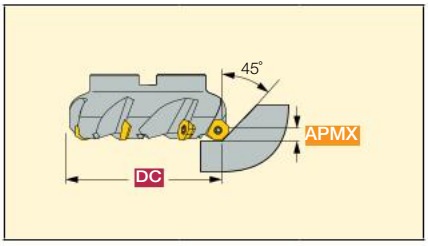


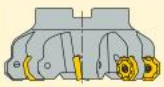




Tools	Pages	DC / APMX	25	32	40	50	63	80	100	125	160	200	250	315	Inserts
			Number of Teeth (Effective)												
S890 FSN-13	242	9 88°			4	4 5	5 7	7 9	8 11	9 14	10				S890 SN.. 13...
F75-M	254	9.5 75°				4	5	6	7	8					SPKN/SPKR 12...
S865 FSN-13	255	8 65°				4 6	6 8	7 10	8 12	10 16					S865 SNMU 13...

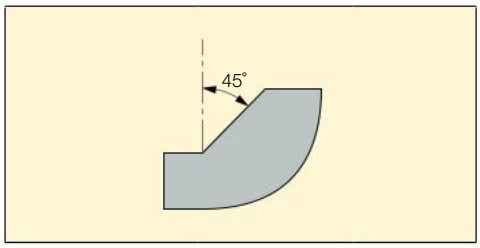
45° Endmills and Face Mills Selection Guide

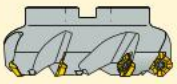
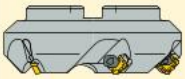
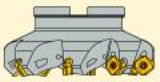
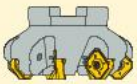
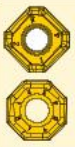


Tools	Pages	DC / APMX	25	32	40	50	63	80	100	125	160	200	250	315	Inserts
			Number of Teeth (Effective)												
HOE / HOF	256 257	2.5 5.5		3	4	3 4	4 5	5 6	6 7	8	10	12	15	18	OE.. 06.. OF.. 07... RF.. 19...
IQ845	257 258 264	2.6 4.6	3 4	4 5	4 5 6 7	4 5 9	5 7 11	6 8	7 10	9 12	11 15	14	17	20	IQ845 SYHU 05,07...
F45WG	258	5.5						10	14	18	22				ON.. 08...
 F45NM	259	5.5					5	6 8	7 10	8 12	10 15	12	14		ON.. 08...
SOF45	260	3.5 6.0			4	3 4 6	4 6 8	7 10	8 12	10 16	12	14	16	20	ON.. 05... S845 SN.. 13...

ISCARMILL

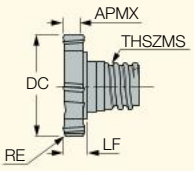
45° Face Mills Selection Guide

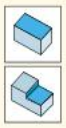


Tools	Pages	DC / APMX	25	32	40	50	63	80	100	125	160	200	250	315	Inserts
			Number of Teeth (Effective)												
 F45ST	263	6.5			3	4	5	6	6	7	7				SE.T 12...
 F45E	263	6.5				4	5	6	6	6	8				SE.. 12...
 S845 F45SX-16	265	7.1			4	4 5	5 7	9	7 11	8 14	10 18	12	15		S845 SX.. 16...
 SOF45-R18	267	5 8				4	5	6 7	7 9	8 12	10 15	12 18	14 21	18 24	 SNMU 18 ONMU 07
SOF45-R26	266	7 11						4	5 6	6 8	8 10	10 12	12 14	14 16	SNMU 26 ONMU 07

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM FM
Interchangeable Solid Carbide Face Milling Heads with MULTI-MASTER Threaded Connections



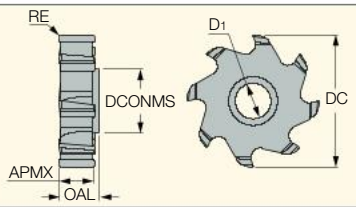


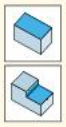
Designation	Dimensions DC	APMX	RE	NOF(1)	THSZMS	LF		IC908	Recommended Machining Data f_z (mm/t)
MM FM100-36R0.2-06T05	10.00	3.60	0.20	6	T05	4.40	T-20/3*	●	0.04-0.10
MM FM120-36R0.2-06T05	12.00	3.60	0.20	6	T05	4.40	T-20/3*	●	0.04-0.10
MM FM160-48R0.4-06T06	16.00	4.80	0.40	6	T06	5.60	T-25/3*	●	0.05-0.10
MM FM200-60R0.4-06T08	20.00	6.00	0.40	6	T08	6.80	T-40/3 L*	●	0.05-0.10
MM FM250-75R0.4-06T10	25.00	7.50	0.40	6	T10	8.40	T-50/3 L*	●	0.05-0.10

(1) Number of flutes
* Optional, to be ordered separately

T-FACE
FACEMILL

SD FM
Interchangeable Solid Carbide Face Milling Heads



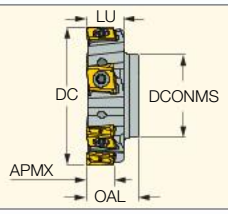


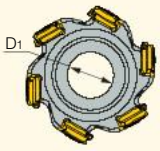
Designation	Dimensions DC	APMX	NOF(1)	RE	D1	DCONMS	OAL	IC908	Recommended Machining Data f_z (mm/t)
SD FM D32-8-R0.4-SP15	31.25	8.00	8	0.40	8.40	15.00	8.00	●	0.04-0.15
SD FM D40-10-R0.4SP17	39.25	10.00	10	0.40	9.80	17.00	10.00	●	0.04-0.15
SD FM D50-12-R0.4SP19	49.25	12.00	12	0.40	9.80	19.00	14.00	●	0.04-0.15

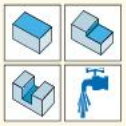
• For shanks, see page 227 • For user guide, see pages 616-621
(1) Number of flutes

HELITANG
T490 LINE

T490 FM-05
90° Face Mills with a SP Connection Carrying Tangentially Clamped Inserts with 4 Helical 4.6 mm Long Cutting Edges







Designation	DC	CICT(1)	APMX	OAL	LU	DCONMS	D1	MIID(2)
T490 FM D025-06-SP15-05	25.00	6	4.00	9.50	6.75	15.00	8.40	T490 LNMT 0502PNR-RD
T490 FM D032-08-SP17-05	32.00	8	4.00	10.50	6.75	17.00	9.80	T490 LNMT 0502PNR-RD
T490 FM D040-10-SP19-05	40.00	10	4.00	14.10	6.75	19.00	9.80	T490 LNMT 0502PNR-RD
T490 FM D050-12-SP19-05	50.00	12	4.00	14.10	6.75	19.00	9.80	T490 LNMT 0502PNR-RD

New

• For user guide, see pages 616-621
(1) Number of inserts (or edges for solid tool)
(2) Master insert identification

For inserts, see pages: T490 LNMT 0502 (543)

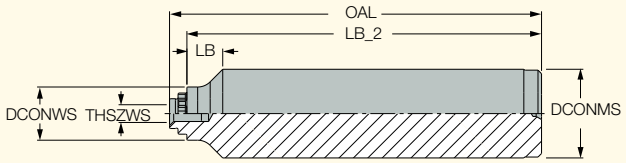
Spare Parts

Designation		
T490 FM-05	SR M2X0.4-4.8 IP6	T-6IP/51

T-FACE FACEMILL

SD FM-S-A-SP

Stepped Cylindrical Shanks for Interchangeable Solid Carbide Face Milling Heads



Designation	DCONMS	DCONWS	THSZWS	LB	LB_2	OAL	Shank(1)	kg
SD FM-S-A-L100-C25-SP15	25.00	15.00	M5x0.5	10.10	100.00	104.90	C	0.37
SD FM-S-A-L120-W25-SP15	25.00	15.00	M5x0.5	10.10	120.00	124.90	W	0.44
SD FM-S-A-L125-W32-SP17	32.00	17.00	M6x0.5	12.50	125.00	131.00	W	0.75
SD FM-S-A-L140-C32 SP17	32.00	17.00	M6x0.5	12.50	140.00	146.00	C	0.85
SD FM-S-A-L140-C32-SP19	32.00	19.00	M6x0.5	10.00	140.00	148.50	C	1.41
SD FM-S-A-L130-W40-SP19	40.00	19.00	M6x0.5	14.00	130.00	138.50	W	1.21

- Apply lubricant to the clamping screw

(1) C-Cylindrical, W-Weldon

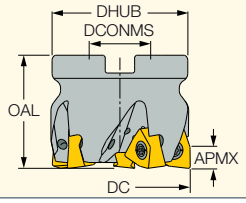
Spare Parts

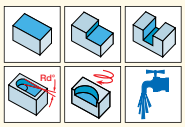
Designation			
SD FM-S-A-L100-C25-SP15	SR M5X0.5-SP15-IP20-HG	BLD IP20/S7	SW6-T-SH
SD FM-S-A-L120-W25-SP15	SR M5X0.5-SP15-IP20-HG	BLD IP20/S7	SW6-T-SH
SD FM-S-A-L125-W32-SP17	SR M6X0.5-SP1719-IP25-HG	BLD IP25/S7	SW6-T
SD FM-S-A-L140-C32 SP17	SR M6X0.5-SP1719-IP25-HG	BLD IP25/S7	SW6-T
SD FM-S-A-L140-C32-SP19	SR M6X0.5-SP1719-IP25-HG	BLD IP25/S7	SW6-T
SD FM-S-A-L130-W40-SP19	SR M6X0.5-SP1719-IP25-HG	BLD IP25/S7	SW6-T

HELIDO TRIGON LINE

H690 FWN-04

90° Face Mills Carrying H690 WNMU 0403 Double-Sided Trigonal Inserts with 6 Helical Cutting Edges





Designation	DC	CICT(1)	APMX	DHUB	DCONMS	OAL	Arbor(2)	RMPX°(3)	kg			
H690 FWN D32-06-16-R04	32.00	6	4.00	30.40	16.00	35.00	A	0.8	0.16	SR M8X27-CSH50	SR M2.5X6-T7-60	T-7/51
H690 FWN D40-05-16-R04	40.00	5	4.00	38.00	16.00	35.00	A	0.6	0.20	SR M8X25DIN912	SR M2.5X6-T7-60	T-7/51
H690 FWN D40-07-16-R04	40.00	7	4.00	38.00	16.00	35.00	A	0.6	0.21	SR M8X25DIN912	SR M2.5X6-T7-60	T-7/51
H690 FWN D50-07-22-R04	50.00	7	4.00	48.00	22.00	40.00	A	0.5	0.37	SR M10X25 DIN912	SR M2.5X6-T7-60	T-7/51
H690 FWN D50-09-22-R04	50.00	9	4.00	48.00	22.00	40.00	A	0.5	0.38	SR M10X25 DIN912	SR M2.5X6-T7-60	T-7/51
H690 FWN D63-08-27-R04	63.00	8	4.00	60.00	27.00	40.00	B	0.2	0.39		SR M2.5X6-T7-60	T-7/51
H690 FWN D63-10-27-R04	63.00	10	4.00	60.00	27.00	40.00	B	0.2	0.39		SR M2.5X6-T7-60	T-7/51

- Insert clamping screw must be lubricated every indexing. • Tightening torque 0.9 Nxm. • For user guide see pages 616-621

(1) Number of inserts (or edges for solid tool)

(2) For adaptation options, see page 622

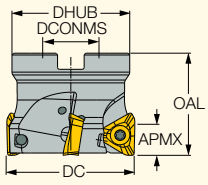
(3) Maximum ramping angle

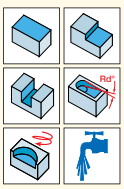
For inserts, see pages: H690 WNMU 0403 (536)

HELI3MILL HM390 LINE

HM390 FTC-07

90° Face Mills Carrying HM390 TCKT 0703 Triangular Inserts with 3 Helical Cutting Edges





Designation	DC	CICT(1)	APMX	OAL	DHUB	DCONMS	Arbor(2)	RMPX°(3)	kg			
HM390 FTC D032-4-16-07	32.00	4	5.00	35.00	30.40	16.00	A	0.8	0.11	SR M2.5X6-T7-60	T-7/51	SR M8X25DIN912
HM390 FTC D032-5-16-07	32.00	5	5.00	35.00	30.40	16.00	A	0.8	0.10	SR M2.5X6-T7-60	T-7/51	SR M8X25DIN912
HM390 FTC D040-5-16-07	40.00	5	5.00	35.00	38.00	16.00	A	0.6	0.20	SR M2.5X6-T7-60	T-7/51	SR M8X25DIN912
HM390 FTC D040-6-16-07	40.00	6	5.00	35.00	38.00	16.00	A	0.6	0.20	SR M2.5X6-T7-60	T-7/51	SR M8X25DIN912

- Insert clamping screw must be lubricated every indexing • Tightening torque 0.9 Nxm • For user guide see pages 616-621

(1) Number of inserts (or edges for solid tool)

(2) For adaptation options, see page 622

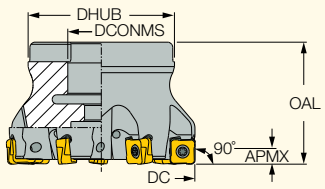
(3) Maximum ramping angle

For inserts, see pages: HM390 TCKT/CT 0703 (512)

NEODO S90° LINE

S890 FSZ-R08

Face Mills Carrying
Double-Sided Square Inserts
with 8 Cutting Edges



Designation	DC	APMX	OAL	CICT(1)	DCONMS	DHUB	Arbor	MIID(2)	kg
S890 FSZ D032-04-16-R08	32.00	5.00	32.00	4	16.00	30.00	A	S890 SZMU 0804...	0.20
S890 FSZ D040-05-16-R08	40.00	5.00	35.00	5	16.00	38.00	A	S890 SZMU 0804...	0.24
S890 FSZ D040-06-16-R08	40.00	5.00	35.00	6	16.00	38.00	A	S890 SZMU 0804...	0.34
S890 FSZ D050-06-22-R08	50.00	5.00	40.00	6	22.00	48.00	A	S890 SZMU 0804...	0.35
S890 FSZ D050-08-22-R08	50.00	5.00	40.00	8	22.00	48.00	A	S890 SZMU 0804...	0.39
S890 FSZ D063-07-22-R08	63.00	5.00	40.00	7	22.00	48.00	A	S890 SZMU 0804...	0.60
S890 FSZ D063-10-22-R08	63.00	5.00	40.00	10	22.00	48.00	A	S890 SZMU 0804...	0.58
S890 FSZ D080-08-27-R08	80.00	5.00	50.00	8	27.00	60.00	B	S890 SZMU 0804...	0.98
S890 FSZ D080-12-27-R08	80.00	5.00	50.00	12	27.00	60.00	B	S890 SZMU 0804...	0.93
S890 FSZ D100-10-32-R08	100.00	5.00	50.00	10	32.00	78.00	B	S890 SZMU 0804...	1.52
S890 FSZ D100-14-32-R08	100.00	5.00	50.00	14	32.00	78.00	B	S890 SZMU 0804...	1.50
S890 FSZ D125-12-40-R08	125.00	5.00	50.00	12	40.00	92.00	B	S890 SZMU 0804...	2.29
S890 FSZ D125-18-40-R08	125.00	5.00	50.00	18	40.00	92.00	B	S890 SZMU 0804...	2.32

- For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)

(2) Master insert identification

For inserts, see pages: S890 SZMU-0804PN (503)

When stepdown milling is performed by use of passes, the depth of cut per pass should not exceed the depth of cut as recommended in the ISCAR catalog.

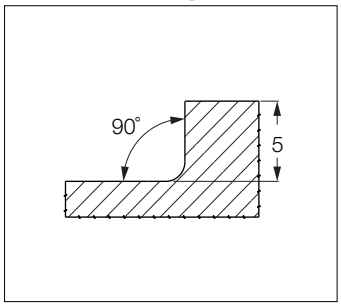


Fig. 1- Generated profile for a depth of cut of up to 5mm

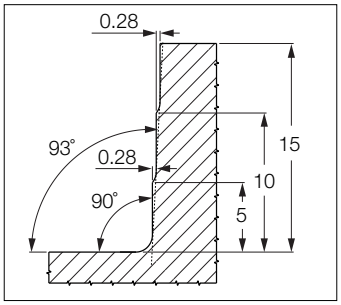


Fig. 2- Generated profile for a depth of cut in stepdown milling

Starting feed per tooth F_z for S890 face mills with inserts S890 SZMU 08...

ISO Class DIN/ISO 513	Description	Workpiece Material: Typical Representstive AISI/SAE/ASTM	Workpiece Material: Typical Representstive DIN W.-Nr.	Hardness, HB	ISCAR Mat. Group**	F_z, mm/Tooth for Grades*: IC 5100	IC810	IC808	IC845	IC5400
P	non-alloy steel	1020	1.044	130-180	1			0.1-0.25	0.1-0.25	0.1-0.25
	alloy steel	4340	1.658	260-300	8			0.1-0.2	0.1-0.2	0.1-0.2
		4340	1.658	HRC 35-42*	9			0.1-0.2	0.1-0.2	0.1-0.2
	high alloy steel	H13	1.234	200-220	10			0.08-0.15	0.08-0.15	0.08-0.15
	martensitic S.S	420	1.402	200	12			0.08-0.15	0.08-0.15	0.08-0.15
M	austenitic S.S.	304L	1.431	200	14			0.1-0.15	0.1-0.15	0.1-0.15
		316L	1.440	140	14			0.1-0.15	0.1-0.15	0.1-0.15
K	grey cast iron	class 40	0.6025 (GG25)	250	16	0.15-0.25	0.15-0.25			
	nodular cast iron	class 65-45-12	0.7050 (GGG50)	200	17	0.12-0.2	0.12-0.2			
H	hard steel and cast iron	H11	1.234	HRC 45-49	38.1			0.06-0.12	0.06-0.12	0.06-0.12
		P20	1.2330	HRC 50-55	38.2			0.05-0.1	0.05-0.1	0.05-0.1

* Quenched and tempered

** ISCAR material group in accordance with VDI 3323 standard

Spare Parts

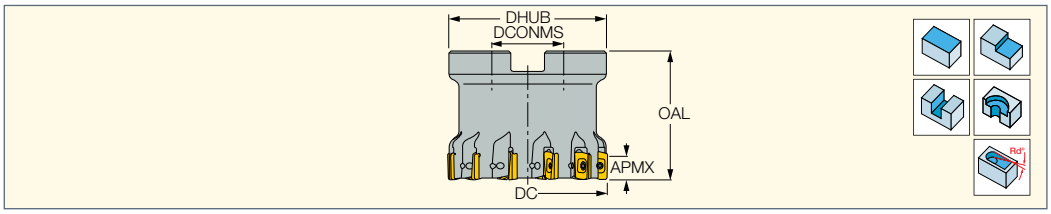
Designation			
S890 FSZ D032-04-16-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151(b)	SR M8X32 D11-C50-H6
S890 FSZ D040-05-16-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151(b)	SR M8X25DIN912
S890 FSZ D040-06-16-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151(b)	SR M8X25DIN912
S890 FSZ D050-06-22-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151(b)	SR M10X25 DIN912
S890 FSZ D050-08-22-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151(b)	SR M10X25 DIN912
S890 FSZ D063-07-22-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151(b)	SR M10X25 DIN912
S890 FSZ D063-10-22-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151(b)	SR M10X25 DIN912
S890 FSZ D080-08-27-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151(b)	
S890 FSZ D080-12-27-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151(b)	
S890 FSZ D100-10-32-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151(b)	
S890 FSZ D100-14-32-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151(b)	
S890 FSZ D125-12-40-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151(b)	
S890 FSZ D125-18-40-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151(b)	

(a) Recommended tightening torque:2 N*m

(b) For limiting torque, use optional 7007382 BLD 4 IP09-2.0NM blade & 7007320 HSD 4-2.0NM handle.

HELIPLUS

HP F90AN-07
90° Face Mills Carrying HP ANKT 0702.. Inserts



Designation	DC	CICT(1)	APMX	OAL	DHUB	DCONMS	RMPX°(2)	Arbor(3)	RPMX(4)	kg
HP F90AN D32-06-16-07	32.00	6	7.70	35.00	30.40	16.00	1.4	A	26610	0.10
HP F90AN D40-08-22-07	40.00	8	7.70	40.00	38.00	22.00	1.0	A	23800	0.16
HP F90AN D40-10-22-07	40.00	10	7.70	40.00	38.00	22.00	1.0	A	23800	0.17

• Insert tightening torque: 0.62 Nxm • For user guide, see pages 616-621
(1) Number of inserts (or edges for solid tool)
(2) Maximum ramping angle
(3) For adaptation options, see page 622
(4) Maximum RPM

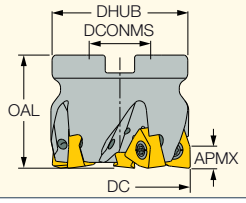
For inserts, see pages: HP ANCR 0702PNFR (509) • HP ANKT 0702-FF (510) • HP ANKT/ANCT 0702 PN-R/PNTR (508) • HP ANKW 070204PNTR (509)

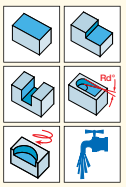
Spare Parts

Designation			
HP F90AN D32-06-16-07	SR 34-533/L/HG	T-6/51	SR M8X20DIN912
HP F90AN D40-08-22-07	SR 34-533/L/HG	T-6/51	SR M10X25 DIN912
HP F90AN D40-10-22-07	SR 34-533/L/HG	T-6/51	SR M10X25 DIN912

HELIDO TRIGON LINE

H690 FWN-07
90° Face Mills Carrying
H690 WNMU 0705
Double-Sided Trigonal Inserts
with 6 Helical Cutting Edges





Designation	DC	CICT(1)	APMX	DHUB	DCONMS	OAL	Arbor(2)	RMPX°(3)	kg
H690 FWN D050-04-22-R07	50.00	4	7.00	48.00	22.00	40.00	A	1.2	0.33
H690 FWN D050-05-22-R07	50.00	5	7.00	48.00	22.00	40.00	A	1.2	0.33
H690 FWN D063-05-22-R07	63.00	5	7.00	48.00	22.00	40.00	A	1.1	0.50
H690 FWN D063-06-27-R07	63.00	6	7.00	60.00	27.00	50.00	A	1.1	0.72
H690 FWN D063-07-22-R07	63.00	7	7.00	48.00	22.00	40.00	A	1.1	0.50
H690 FWN D080-07-27-R07	80.00	7	7.00	60.00	27.00	50.00	B	1.0	1.00
H690 FWN D080-09-27-R07	80.00	9	7.00	60.00	27.00	50.00	B	1.0	0.98
H690 FWN D100-08-32-R07	100.00	8	7.00	70.00	32.00	50.00	B	0.8	1.57
H690 FWN D100-11-32-R07	100.00	11	7.00	70.00	32.00	50.00	B	0.8	1.62
H690 FWN D125-10-40-R07	125.00	10	7.00	82.00	40.00	63.00	B	0.5	2.82

- For cutting speed recommendations, see pages 616-621

(1) Number of inserts (or edges for solid tool)
(2) For adaptation options, see page 622
(3) Maximum ramping angle

For inserts, see pages: H690 WNHU/WNMU 0705 (537)

Examples of Cutting Speed for H690 FWN/EWN...07 Cutters

ISO Class DIN/ ISO 513	Workpiece Material					Cutting Speed V_c, SFM, for Grades					
	Description	ISCAR Mat. Group*	Typical Materials AISI/SAE/ ASTM	Typical Materials DIN W.-Nr.	Hardness HB	IC808	IC5100	IC810	IC5400	IC830	IC330
P	non-alloy steel	1	1020	1.044	130-180	180-250		150-220	150-220	130-200	120-180
	alloy steel	8	4340	1.6582	260-300	150-200		130-180	130-180	120-170	100-140
	alloy steel	9	4340	1.6582	HRC 35-42**	100-170		100-150	100-150	100-130	100-120
	high alloy steel	10	H13	1.2344	200-220	100-170		100-150	100-150	100-130	100-120
	martensitic S.S.	12	420	1.4021	200	100-150				100-130	100-120
K	grey cast iron	16	class 40	0.6025 (GG25)	250	200-250	220-300	220-300		180-230	
	nodular cast iron	17	class 65-45-12	0.7050 (GGG50)	200	160-220	180-250	180-250		150-200	

* ISCAR material group in accordance with VDI 3323 standard
** Quenched and tempered
- First choice for grades

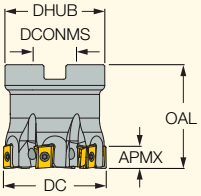
Spare Parts

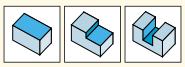
Designation				
H690 FWN D050-04-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
H690 FWN D050-05-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
H690 FWN D063-05-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
H690 FWN D063-06-27-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M12X30 DIN912
H690 FWN D063-07-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
H690 FWN D080-07-27-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
H690 FWN D080-09-27-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
H690 FWN D100-08-32-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
H690 FWN D100-11-32-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
H690 FWN D125-10-40-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	

HELITANG T490 LINE

T490 FLN-08

90° Face Mills with Tangentially Clamped Inserts





Designation	DC	CICT(1)	APMX	OAL	DHUB	DCONMS	Arbor(2)	CSP(3)	kg
T490 FLN D032-03-16-08	32.00	3	8.00	35.00	30.40	16.00	A	1	0.11
T490 FLN D032-05-16-08	32.00	5	8.00	35.00	30.40	16.00	A	1	0.11
T490 FLN D040-04-16-08	40.00	4	8.00	40.00	38.40	16.00	A	1	0.23
T490 FLN D040-06-16-08	40.00	6	8.00	40.00	38.40	16.00	A	1	0.32
T490 FLN D050-05-22-08	50.00	5	8.00	40.00	48.00	22.00	A	1	0.36
T490 FLN D050-07-22-08	50.00	7	8.00	40.00	48.00	22.00	A	1	0.37
T490 FLN D050-10-22-08	50.00	10	8.00	40.00	48.00	22.00	A	0	0.39
T490 FLN D063-06-27-08	63.00	6	8.00	40.00	60.00	27.00	A	1	0.60
T490 FLN D063-09-27-08	63.00	9	8.00	40.00	60.00	27.00	A	1	0.62
T490 FLN D080-10-27-08	80.00	10	8.00	50.00	60.00	27.00	B	0	0.84

• When machining slots, regular pitch cutters should be used • For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)

(2) For adaptation options, see page 622

(3) 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT/LNHT 0804 (544)

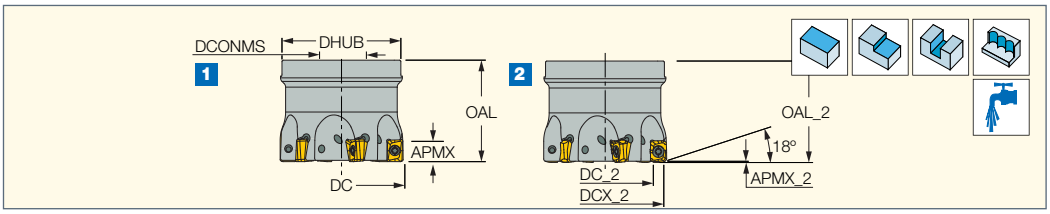
Spare Parts

Designation			
T490 FLN D032-03-16-08	SR 10502813-HG-M	IP-7/51	SR M8X20DIN912
T490 FLN D032-05-16-08	SR 10502813-HG-M	IP-7/51	SR M8X20DIN912
T490 FLN D040-04-16-08	SR 10502813-HG-M	IP-7/51	SR M8X30DIN912
T490 FLN D040-06-16-08	SR 10502813-HG-M	IP-7/51	SR M8X30DIN912
T490 FLN D050-05-22-08	SR 10502813-HG-M	IP-7/51	SR M10X25 DIN912
T490 FLN D050-07-22-08	SR 10502813-HG-M	IP-7/51	SR M10X25 DIN912
T490 FLN D050-10-22-08	SR 10502813-HG-M	IP-7/51	SR M10X20DIN912
T490 FLN D063-06-27-08	SR 10502813-HG-M	IP-7/51	SR M12X25 DIN 912
T490 FLN D063-09-27-08	SR 10502813-HG-M	IP-7/51	SR M12X25 DIN 912
T490 FLN D080-10-27-08	SR 10502813-HG-M	IP-7/51	

HELIDO 490 LINE

H490 F90AX-09

90° Face Mills Carrying H490 ANKX 09.. Double-Sided Rectangular Inserts with 4 Helical Cutting Edges



Designation	DC	DCX_2	DC_2	CICT(1)	APMX	APMX_2	AE(2)	DHUB	DCONMS	OAL	OAL_2
H490 F90AX D032-4-16-09	32.00	32.10	26.60	4	8.00	0.70	5.5	30.40	16.00	35.00	35.00
H490 F90AX D032-5-16-09	32.00	32.10	26.60	5	8.00	0.70	5.5	30.40	16.00	35.00	35.00
H490 F90AX D040-5-16-09	40.00	40.10	34.60	5	8.00	0.70	5.5	38.40	16.00	40.00	40.00
H490 F90AX D040-6-16-09	40.00	40.10	34.60	6	8.00	0.70	5.5	38.40	16.00	40.00	40.00
H490 F90AX D050-6-22-09	50.00	50.10	44.60	6	8.00	0.70	5.5	48.00	22.00	40.00	40.00
H490 F90AX D050-7-22-09	50.00	50.10	44.60	7	8.00	0.70	5.5	48.00	22.00	40.00	40.00
H490 F90AX D063-8-22-09	63.00	63.10	57.60	8	8.00	0.70	5.5	60.00	22.00	40.00	40.00
H490 F90AX D063-9-22-09	63.00	63.10	57.60	9	8.00	0.70	5.5	60.00	22.00	40.00	40.00

Designation	RMPX°_2(3)	MDN	MDX	Arbor(4)	MIID(5)	MIID_2(6)	kg
H490 F90AX D032-4-16-09	1.4	58.70	63.20	A	H490 ANCX 090404PDR	H490 ANKX 0904..-FF	0.10
H490 F90AX D032-5-16-09	1.4	58.70	63.20	A	H490 ANCX 090404PDR	H490 ANKX 0904..-FF	0.10
H490 F90AX D040-5-16-09	1.0	74.70	79.20	A	H490 ANCX 090404PDR	H490 ANKX 0904..-FF	0.22
H490 F90AX D040-6-16-09	1.0	74.70	79.20	A	H490 ANCX 090404PDR	H490 ANKX 0904..-FF	0.22
H490 F90AX D050-6-22-09	0.6	94.70	99.20	A	H490 ANCX 090404PDR	H490 ANKX 0904..-FF	0.36
H490 F90AX D050-7-22-09	0.6	94.70	99.20	A	H490 ANCX 090404PDR	H490 ANKX 0904..-FF	0.37
H490 F90AX D063-8-22-09	0.5	120.70	125.20	A	H490 ANCX 090404PDR	H490 ANKX 0904..-FF	0.62
H490 F90AX D063-9-22-09	0.5	120.70	125.20	A	H490 ANCX 090404PDR	H490 ANKX 0904..-FF	0.64

- For user guide, see pages 616-621 • 1- with standard square insert, 2- with FF (fast feed) insert
- Ramping angle is valid only when H490 ANKX 0904R12T-FF insert is used
- When assembled the H490 ANKX 0904R12T-FF insert, tool diameter enlarges by 0.1 mm

(1) Number of inserts (or edges for solid tool)
(2) Maximum side plunge
(3) Maximum ramping angle when using FF inserts
(4) For adaptation options, see page 622
(5) Master insert identification
(6) Master insert identification 2

For inserts, see pages: H490 ANKX 0904-FF (538) • H490 ANKX/ANCX-09 (537)

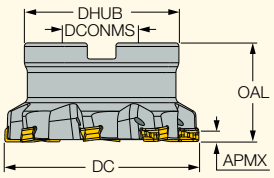
Spare Parts

Designation				
H490 F90AX D032-4-16-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X20DIN912
H490 F90AX D032-5-16-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X20DIN912
H490 F90AX D040-5-16-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X30DIN912
H490 F90AX D040-6-16-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X30DIN912
H490 F90AX D050-6-22-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M10X25 DIN912
H490 F90AX D050-7-22-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M10X25 DIN912
H490 F90AX D063-8-22-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M10X25 DIN912
H490 F90AX D063-9-22-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M10X25 DIN912

TANGFIN FINISH MILLING

HTF-R-LN10

Face Mills Carrying Tangentially Clamped Inserts with 4 Cutting Edges for Extra Fine Milling Applications



Designation	DC	APMX	CICT(1)	OAL	DHUB	DCONMS	Arbor(2)	CSP(3)	kg
HTF D050-05-22-R-LN10	50.00	0.25	5	40.00	48.00	22.00	A	1	0.31
HTF D063-06-22-R-LN10	63.00	0.30	6	40.00	48.00	22.00	A	1	0.43
HTF D080-07-27-R-LN10	80.00	0.35	7	50.00	60.00	27.00	B	1	0.81
HTF D100-08-32-R-LN10	100.00	0.40	8	50.00	78.00	32.00	B	1	1.44
HTF D125-09-40-R-LN10	125.00	0.45	9	63.00	92.00	40.00	B	1	2.55
HTF D160-10-40-R-LN10	160.00	0.50	10	63.00	95.00	40.00	C	0	3.75

• For best surface finish it is highly recommended to operate the cutter at maximal depth of cut • For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)

(2) For adaptation see page 622

(3) 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: HTP LN.. 1006 (611)

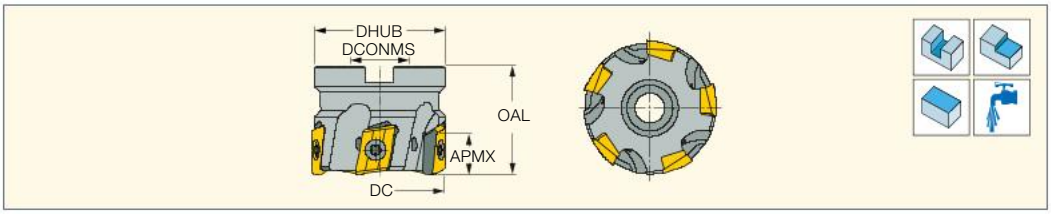
Spare Parts

Designation				
HTF D050-05-22-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	SR M10X25 DIN912
HTF D063-06-22-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	SR M10X25 DIN912
HTF D080-07-27-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	
HTF D100-08-32-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	
HTF D125-09-40-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	
HTF D160-10-40-R-LN10	SR 34-550	BLD T10/S7	SW6-SD	

SUMOMILL 290 LINE

T290 FLN-10

90° Face Mills Carrying T290 LNMT/LNHT 1004... Tangentially Clamped Inserts



Designation	DC	CICT[1]	APMX	OAL	DHUB	DCONMS	Arbor[2]	kg
T290 FLN D32-05-16-10	32.00	5	9.00	35.00	30.00	16.00	A	0.09
T290 FLN D40-06-16-10	40.00	6	9.00	35.00	34.00	16.00	A	0.16
T290 FLN D50-07-22-10	50.00	7	9.00	40.00	46.00	22.00	A	0.29

- For user guide, see pages 616-621

[1] Number of inserts (or edges for solid tool)

[2] For adaptation options, see page 622

For inserts, see pages: T290 LNMT/LNHT 1004 (542)

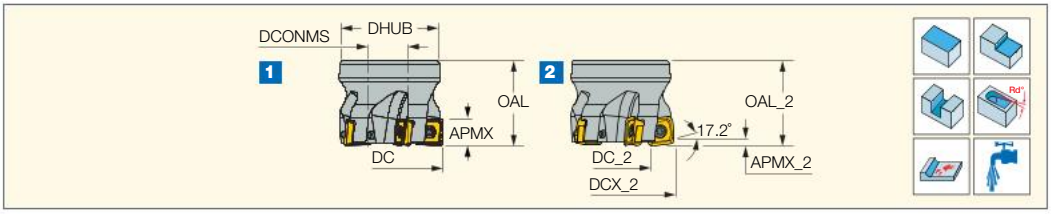
Spare Parts

Designation				
T290 FLN D32-05-16-10	SR 10504970	BLD IP15/M7	SW6-T-SH	SR M8X20DIN912
T290 FLN D40-06-16-10	SR 10504970	BLD IP15/M7	SW6-T-SH	SR M8X20DIN912
T290 FLN D50-07-22-10	SR 10504970	BLD IP15/M7	SW6-T-SH	SR M10X25 DIN912

HELIQUAD

F90SP-10

Face Mills Carrying Square Inserts



Designation	DC[1]	CICT[2]	DCONMS	DHUB	APMX	OAL	RMPX°[3]	DC_2	DCX_2	APMX_2	OAL_2	RMPX°_2[4]	Arbor[5]	kg
F90SP D40-04-16-10	40.00	4	16.00	38.00	9.60	40.00	1.5	23.30	40.45	1.27	40.26	3.5	A	0.42
F90SP D40-05-16-10	40.00	5	16.00	38.00	9.60	40.00	1.5	23.30	40.45	1.27	40.26	3.5	A	0.22
F90SP D50-04-22-10	50.00	4	22.00	48.00	9.60	40.00	1.0	33.30	50.45	1.27	40.26	3.0	A	0.37
F90SP D50-06-22-10	50.00	6	22.00	48.00	9.60	40.00	1.0	33.30	50.45	1.27	40.26	3.0	A	0.39
F90SP D63-06-22-10	63.00	6	22.00	48.00	9.60	40.00	0.8	46.30	63.45	1.27	40.26	2.8	A	0.48
F90SP D63-07-22-10	63.00	7	22.00	48.00	9.60	40.00	0.8	46.30	63.45	1.27	40.26	2.8	A	0.42
F90SP D80-06-27-10	80.00	6	27.00	60.00	9.60	50.00	0.8	63.30	80.45	1.27	50.26	2.8	B	0.88
F90SP D80-09-27-10	80.00	9	27.00	60.00	9.60	50.00	0.8	63.30	80.45	1.27	50.26	2.8	B	1.50

- 1- with standard square insert
- 2- with FF (fast feed) insert
- For user guide, see pages 616-621

[1] D is 0.2 mm larger when QPMT inserts are used

[2] Number of inserts (or edges for solid tool)

[3] Maximum ramping angle when using 90° inserts

[4] Maximum ramping angle when using FF inserts

[5] For adaptation options, see page 622

For inserts, see pages: QPMR 1004-HQ-M (561) • QPMT 100408PDTN (561) • SPCT/SPMR PDR (563) • SPMT-FF (562) • SPMT-HP (562) • SPMT-HQ (562) • XPMT-HQ (563)

Spare Parts

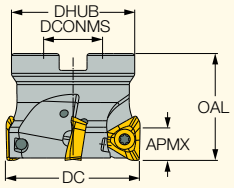
Designation				
F90SP D40-04-16-10	SR 10514114[a]	BLD IP15/M7	SW6-T-SH	SR M8X30DIN912
F90SP D40-05-16-10	SR 10514114[a]	BLD IP15/M7	SW6-T-SH	SR M8X30DIN912
F90SP D50-04-22-10	SR 10514114[a]	BLD IP15/M7	SW6-T-SH	SR M10X25 DIN912
F90SP D50-06-22-10	SR 10514114[a]	BLD IP15/M7	SW6-T-SH	SR M10X25 DIN912
F90SP D63-06-22-10	SR 10514114[a]	BLD IP15/M7	SW6-T-SH	SR M10X25 DIN912
F90SP D63-07-22-10	SR 10514114[a]	BLD IP15/M7	SW6-T-SH	SR M10X25 DIN912
F90SP D80-06-27-10	SR 10514114[a]	BLD IP15/M7	SW6-T-SH	
F90SP D80-09-27-10	SR 10514114[a]	BLD IP15/M7	SW6-T-SH	

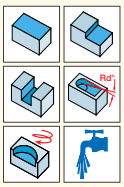
[a] Recommended tightening torque:4.8 N*m

HELI3MILL HM390 LINE

HM390 FTP-10

90° Face Mills Carrying HM390 TPKT 1003 Triangular Inserts with 3 Helical Cutting Edges





Designation	DC	CICT(1)	APMX	OAL	DHUB	DCONMS	Arbor(2)	RMPX°(3)	kg
HM390 FTP D040-3-16-10	40.00	3	8.00	40.00	38.40	16.00	A	1.6	0.50
HM390 FTP D040-5-16-10	40.00	5	8.00	40.00	38.40	16.00	A	1.6	0.23
HM390 FTP D050-4-22-10	50.00	4	8.00	40.00	48.00	22.00	A	1.2	0.33
HM390 FTP D050-6-22-10	50.00	6	8.00	40.00	48.00	22.00	A	1.2	0.34
HM390 FTP D050-7-22-10	50.00	7	8.00	40.00	48.00	22.00	A	1.2	0.35
HM390 FTP D063-6-22-10	63.00	6	8.00	45.00	59.00	22.00	A	0.9	0.69
HM390 FTP D063-6-27-10	63.00	6	8.00	45.00	61.00	27.00	A	0.9	0.63
HM390 FTP D063-7-22-10	63.00	7	8.00	45.00	61.00	22.00	A	0.9	0.69
HM390 FTP D063-7-27-10	63.00	7	8.00	45.00	61.00	27.00	A	0.9	0.68
HM390 FTP D080-11-27-10	80.00	11	8.00	50.00	60.00	27.00	A	0.8	0.98
HM390 FTP D100-13-27-10	100.00	13	8.00	50.00	60.00	27.00	A	0.8	1.38

- For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)

(2) For adaptation see page 622

(3) Maximum ramping angle

For inserts, see pages: HM390 TPCR 1003 (513) • HM390 TPKT/CT 1003 (512)

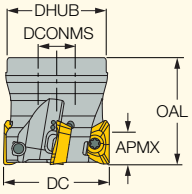
Spare Parts

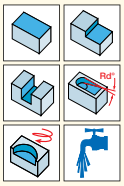
Designation				
HM390 FTP D040-3-16-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M8X25DIN912
HM390 FTP D040-5-16-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M8X25DIN912
HM390 FTP D050-4-22-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M10X25 DIN912
HM390 FTP D050-6-22-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M10X25 DIN912
HM390 FTP D050-7-22-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M10X25 DIN912
HM390 FTP D063-6-22-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M10X25 DIN912
HM390 FTP D063-6-27-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M12X35DIN912
HM390 FTP D063-7-22-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M10X25 DIN912
HM390 FTP D063-7-27-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M12X35DIN912
HM390 FTP D080-11-27-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M12X35DIN912
HM390 FTP D100-13-27-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M12X35DIN912

HELI3MILL HM390 LINE

HM390 FTP/C/D-JHP

90° JHP Face Mill with HM390 Triangular Inserts





Designation	DC	CICT(1)	APMX	OAL	DHUB	DCONMS	Arbor	RMPX°(2)	MIID(3)
HM390 FTC D32-5-16-07-JHP	32.00	5	5.00	35.00	30.40	16.00	A	2.1	HM390 TCKT 0703
HM390 FTP D40-5-16-10-JHP	40.00	5	8.00	40.00	38.00	16.00	A	1.6	HM390 TPKT 1003
HM390 FTP D50-6-22-10-JHP	50.00	6	8.00	40.00	48.00	22.00	A	1.2	HM390 TPKT 1003
HM390 FTP D63-7-27-10-JHP	63.00	7	8.00	45.00	60.00	27.00	A	0.9	HM390 TPKT 1003
HM390 FTD D40-4-16-15-JHP	40.00	4	13.00	40.00	38.00	16.00	A	2.0	HM390 TDKT 1505
HM390 FTD D50-5-22-15-JHP	50.00	5	13.00	40.00	48.00	22.00	A	1.6	HM390 TDKT 1505
HM390 FTD D63-6-27-15-JHP	63.00	6	13.00	45.00	60.00	27.00	A	1.2	HM390 TDKT 1505

New

- When assembled the HM390 TDKT 1505PDR-FW insert, tool diameter enlarges by 1.0 mm • For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)

(2) Maximum ramping angle

(3) Master insert identification

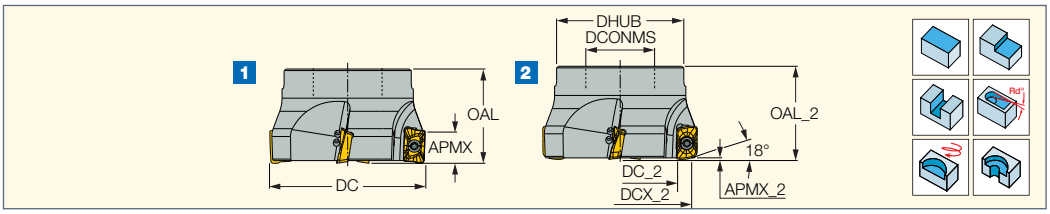
For inserts, see pages: HM390 TCKT/CT 0703 (512) • HM390 TDCR 1505 (514) • HM390 TDKT/CT 1505 (513) • HM390 TPCR 1003 (513) • HM390 TPKT/CT 1003 (512)

Spare Parts

Designation					
HM390 FTC D32-5-16-07-JHP	SR M2.5X6-T7-60	T-7/51			SR M8X25DIN912
HM390 FTP D40-5-16-10-JHP	SR 14-562/S		SW6-SD	BLD T10/S7	SR M8X37-1515
HM390 FTP D50-6-22-10-JHP	SR 14-562/S		SW6-SD	BLD T10/S7	SR M10X25 DIN912
HM390 FTP D63-7-27-10-JHP	SR 14-562/S		SW6-SD	BLD T10/S7	SR M12X35DIN912
HM390 FTD D40-4-16-15-JHP	SR 10511869		SW6-T	BLD IP20/S7	SR M8X37-1515
HM390 FTD D50-5-22-15-JHP	SR 10511869		SW6-T	BLD IP20/S7	SR M10X37-50DEG
HM390 FTD D63-6-27-15-JHP	SR 10505427		SW6-T	BLD IP20/S7	SR M12X35DIN912

HELI2000

HM90 F90AP-10
90° Face Mills Carrying HM90 APKT 1003... Inserts



Designation	DC	DC_2	DCX_2	CICT[2]	APMX	APMX_2	OAL	OAL_2	MDN	MDX	DHUB
HM90 F90AP D32-3-16	32.00	23.00	32.10	3	9.80	1.00	35.00	34.63	55.10	63.20	30.40
HM90 F90AP D32-5-16	32.00	23.00	32.10	5	9.80	1.00	35.00	34.63	55.10	63.20	30.40
HM90 F90AP D40-5-22	40.00	31.00	40.10	5	9.80	1.00	40.00	39.63	71.10	79.20	38.40
HM90 F90AP D40-6-22	40.00	31.00	40.10	6	9.80	1.00	40.00	39.63	71.10	79.20	38.40
HM90 F90AP D50-6-22	50.00	41.00	50.10	6	9.80	1.00	40.00	39.63	91.10	99.20	48.40
HM90 F90AP D50-7-22	50.00	41.00	50.10	7	9.80	1.00	40.00	39.63	91.10	99.20	48.40
HM90 F90AP D63-7-22 [1]	63.00	54.00	63.10	7	9.80	1.00	40.00	39.63	117.10	125.20	59.00
HM90 F90AP D63-9-22	63.00	54.00	63.10	9	9.80	1.00	40.00	39.63	117.10	125.20	59.00
HM90 F90AP D80-8-27 [1]	80.00	71.00	80.10	8	9.80	1.00	50.00	49.63	151.10	159.20	70.00
HM90 F90AP D100-9-32 [1]	100.00	91.00	100.10	9	9.80	1.00	50.00	49.63	191.10	199.20	78.00

Designation	MIID[3]	MIID_2[4]	RPMX[5]	DCONMS	RMPX°[6]	RMPX°_2	Arbor[7]	kg
HM90 F90AP D32-3-16	APKT 1003PDR-HM	APKT 1003R8T-FF	35355	16.00	2.2	2.2	A	0.10
HM90 F90AP D32-5-16	APKT 1003PDR-HM	APKT 1003R8T-FF	35355	16.00	2.2	2.2	A	0.10
HM90 F90AP D40-5-22	APKT 1003PDR-HM	APKT 1003R8T-FF	31623	22.00	1.9	1.9	A	0.19
HM90 F90AP D40-6-22	APKT 1003PDR-HM	APKT 1003R8T-FF	31623	22.00	1.9	1.9	A	0.18
HM90 F90AP D50-6-22	APKT 1003PDR-HM	APKT 1003R8T-FF	28284	22.00	1.4	1.4	A	0.34
HM90 F90AP D50-7-22	APKT 1003PDR-HM	APKT 1003R8T-FF	28284	22.00	1.4	1.4	A	0.35
HM90 F90AP D63-7-22 [1]	APKT 1003PDR-HM	APKT 1003R8T-FF	25198	22.00	1.0	1.0	B	0.52
HM90 F90AP D63-9-22	APKT 1003PDR-HM	APKT 1003R8T-FF	25198	22.00	1.0	1.0	B	0.52
HM90 F90AP D80-8-27 [1]	APKT 1003PDR-HM	APKT 1003R8T-FF	22361	27.00	0.9	0.9	B	0.94
HM90 F90AP D100-9-32 [1]	APKT 1003PDR-HM	APKT 1003R8T-FF	20100	32.00	0.7	0.7	B	1.51

• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-621

[1] For internal coolant through the holder, use a matching coolant set (should be ordered separately)

[2] Number of inserts (or edges for solid tool)

[3] Master insert identification

[4] Master insert identification 2

[5] Maximum RPM

[6] Maximum ramping angle

[7] For adaptation options, see page 622

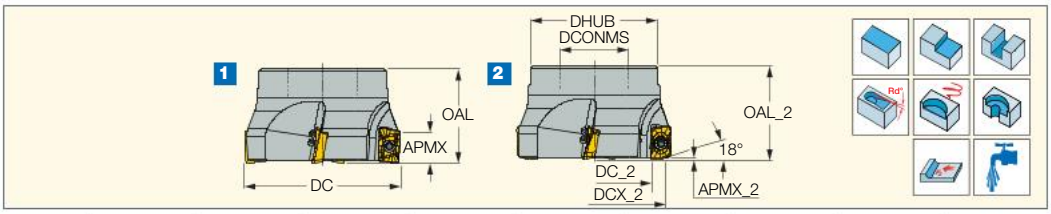
For inserts, see pages: APCR 1003PDFR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519) • APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518) • APKW 100304 PDR (PCD) (516) • HM90 APCR 100304PDFR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515) • HM90 APKT 1003PD-W (520) • HM90 APKW 1003PDR (519)

Spare Parts

Designation				
HM90 F90AP D32-3-16	SR 34-505/HG	SW4-SD	BLD T08/M7	SR M8X20DIN912
HM90 F90AP D32-5-16	SR 34-505/HG	SW4-SD	BLD T08/M7	SR M8X20DIN912
HM90 F90AP D40-5-22	SR 34-505/HG	SW4-SD	BLD T08/M7	SR M10X25 DIN912
HM90 F90AP D40-6-22	SR 34-505/HG	SW4-SD	BLD T08/M7	SR M10X25 DIN912
HM90 F90AP D50-6-22	SR 34-505/HG	SW4-SD	BLD T08/M7	SR M10X25 DIN912
HM90 F90AP D50-7-22	SR 34-505/HG	SW4-SD	BLD T08/M7	SR M10X25 DIN912
HM90 F90AP D63-7-22	SR 34-505/HG	SW4-SD	BLD T08/M7	
HM90 F90AP D63-9-22	SR 34-505/HG	SW4-SD	BLD T08/M7	
HM90 F90AP D80-8-27	SR 34-505/HG	SW4-SD	BLD T08/M7	
HM90 F90AP D100-9-32	SR 34-505/HG	SW4-SD	BLD T08/M7	

HELI2000

HM90 F90AP-AMT
90° Light Weight Face Cutters Carrying HM90 AP...T 1003 inserts



Designation	DC	DC_2	DCX_2	CICT(1)	APMX	APMX_2	OAL	OAL_2	DHUB	DCONMS
HM90 F90AP D50-4-22-AMT	50.00	41.00	50.10	4	9.80	1.00	30.00	29.63	42.00	22.00
HM90 F90AP D63-6-22-AMT	63.00	54.00	63.10	6	9.80	1.00	31.00	30.63	48.00	22.00

Designation	RMPX°(2)	RMPX°_2	MDN	MDX	MIID(3)	MIID_2(4)	Arbor	kg
HM90 F90AP D50-4-22-AMT	1.4	1.4	91.10	99.20	HM90 APCT 100302R-PDR	APKT 1003R8T-FF	A	0.13
HM90 F90AP D63-6-22-AMT	1.0	1.0	117.10	125.20	HM90 APCT 100302R-PDR	APKT 1003R8T-FF	A	0.20

New

• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-621
(1) Number of inserts (or edges for solid tool)
(2) Maximum ramping angle
(3) Master insert identification
(4) Master insert identification 2
For inserts, see pages: APCR 1003PDFR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519)
• APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518)
• APKW 100304 PDR (PCD) (516) • HM90 APCR 100304PDFR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515) • HM90 APKT 1003PD-W (520)
• HM90 APKW 1003PDR (519)

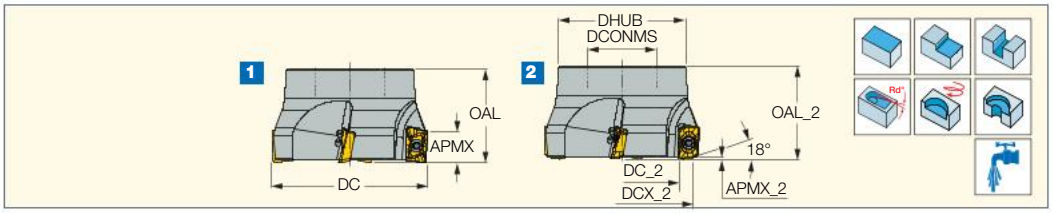
Spare Parts

Designation			
HM90 F90AP-AMT	SR 34-505/HG(a)	SW4-SD	BLD T08/M7

(a) Recommended tightening torque: 1.2 Nxm

HELI2000 JET LINE

HM90 F90AP-10-JHP
90° JHP Face Mills Carrying HELI-2000 and HELI-MILL Inserts



Designation	DC	DC_2	DCX_2	CICT(1)	APMX	APMX_2	OAL	OAL_2	DHUB	DCONMS	MDN	MDX
HM90 F90AP D032-5-16-JHP	32.00	23.00	32.10	5	9.80	1.00	45.00	44.63	30.40	16.00	55.10	63.20
HM90 F90AP D040-6-16-JHP	40.00	31.00	40.10	6	9.80	1.00	40.00	39.63	38.40	16.00	71.10	79.20
HM90 F90AP D040-6-22-JHP	40.00	31.00	40.10	6	9.80	1.00	40.00	39.63	38.00	22.00	71.10	79.20
HM90 F90AP D050-7-22-JHP	50.00	41.00	50.10	7	9.80	1.00	50.00	49.63	48.00	22.00	91.10	99.20

Designation	RPMX(2)	MIID(3)	MIID_2(4)	RMPX°(5)	RMPX°_2	Arbor	kg
HM90 F90AP D032-5-16-JHP	35300	APKT 1003PDR-HM	APKT 1003R8T-FF	2.2	2.2	A	0.17
HM90 F90AP D040-6-16-JHP	31600	APKT 1003PDR-HM	APKT 1003R8T-FF	1.9	1.9	A	0.29
HM90 F90AP D040-6-22-JHP	31600	APKT 1003PDR-HM	APKT 1003R8T-FF	1.9	1.9	A	0.27
HM90 F90AP D050-7-22-JHP	28200	APKT 1003PDR-HM	APKT 1003R8T-FF	1.4	1.4	A	0.49

• 1- with standard square insert • 2- with FF (fast feed) insert • Use adaptation only with face coolant outlets
• For user guide, see pages 616-621
(1) Number of inserts (or edges for solid tool)
(2) Maximum RPM
(3) Master insert identification
(4) Master insert identification 2
(5) Maximum ramping angle
For inserts, see pages: APCR 1003PDFR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003-FF (520) • APKT 1003..R (519)
• APKT 1003..TR-RM (519) • APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518)
• APKW 100304 PDR (PCD) (516) • HM90 APCR 100304PDFR-P/DP (515) • HM90 APCT 1003 (514) • HM90 APKT 1003 (515) • HM90 APKT 1003PD-W (520)
• HM90 APKW 1003PDR (519)

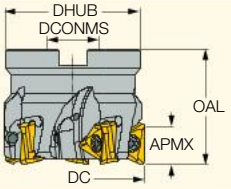
Spare Parts

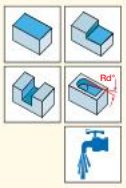
Designation				
HM90 F90AP D032-5-16-JHP	SR 34-505/HG(a)	SR PS 118-0416	BLD T08/M7	SW4-SD
HM90 F90AP D040-6-16-JHP	SR 34-505/HG	SR M8X25DIN912	BLD T08/M7	SW4-SD
HM90 F90AP D040-6-22-JHP	SR 34-505/HG(a)	SR PS 118-0273	BLD T08/M7	SW4-SD
HM90 F90AP D050-7-22-JHP	SR 34-505/HG(a)	SR PS 118-0271C	BLD T08/M7	SW4-SD

(a) Recommended tightening torque for this item: 1.2 Nxm

HELIDO 690 LINE

H690 F90AX-10
90° Face Mills Carrying H690 TNKX 1005.. Triangular Inserts with 6 Helical Cutting Edges





Designation	DC	CICT(1)	APMX	DHUB	DCONMS	OAL	Arbor(2)	RMPX°(3)	kg
H690 F90AX D032-4-16-10	32.00	4	8.00	30.40	16.00	35.00	A	1.6	0.10
H690 F90AX D032-5-16-10	32.00	5	8.00	30.40	16.00	35.00	A	1.6	0.10
H690 F90AX D040-5-16-10	40.00	5	8.00	38.00	16.00	40.00	A	1.1	0.22
H690 F90AX D040-6-16-10	40.00	6	8.00	38.00	16.00	40.00	A	1.1	0.21
H690 F90AX D050-6-22-10	50.00	6	8.00	48.00	22.00	40.00	A	1.0	0.35
H690 F90AX D050-7-22-10	50.00	7	8.00	48.00	22.00	40.00	A	1.0	0.36
H690 F90AX D063-8-22-10	63.00	8	8.00	48.00	22.00	40.00	A	0.7	0.47

(1) Number of inserts (or edges for solid tool)
(2) For adaptation options, see page 622
(3) Maximum ramping angle

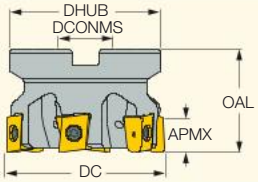
For inserts, see pages: H690 TNKX/TNCX 1005 (540)

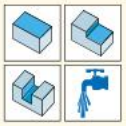
Spare Parts

Designation				
H690 F90AX D032-4-16-10	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X38-1515
H690 F90AX D032-5-16-10	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X38-1515
H690 F90AX D040-5-16-10	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X30DIN912
H690 F90AX D040-6-16-10	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X30DIN912
H690 F90AX D050-6-22-10	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M10X25 DIN912
H690 F90AX D050-7-22-10	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M10X25 DIN912
H690 F90AX D063-8-22-10	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M10X25 DIN912

HELITANG T490 LINE

T490 FLN-11
90° Face Mills Carrying T490 LNMT/LNHT 1106... Tangentially Clamped Inserts





Designation	DC	CICT(1)	APMX	OAL	DHUB	DCONMS	Arbor(2)	RMPX°(3)	kg
T490 FLN D040-04-16-R-11	40.00	4	9.00	40.00	38.00	16.00	A	1.4	0.23
T490 FLN D040-05-16-R-11	40.00	5	9.00	40.00	38.00	16.00	A	1.4	0.22
T490 FLN D050-05-22-R-11	50.00	5	9.00	40.00	48.00	22.00	A	1.1	0.33
T490 FLN D050-06-22-R-11	50.00	6	9.00	40.00	48.00	22.00	A	1.1	0.33
T490 FLN D063-06-22-R-11	63.00	6	9.00	40.00	59.20	22.00	A	0.7	0.55
T490 FLN D063-09-22-R-11	63.00	9	9.00	40.00	59.20	22.00	A	0.7	0.55
T490 FLN D080-07-27-R-11	80.00	7	9.00	50.00	70.00	27.00	A	-	1.01
T490 FLN D080-11-27-R-11	80.00	11	9.00	50.00	70.00	27.00	A	-	1.04
T490 FLN D100-08-32-R-11	100.00	8	9.00	50.00	78.00	32.00	B	-	1.48
T490 FLN D100-13-32-R-11	100.00	13	9.00	50.00	78.00	32.00	B	-	1.55

- For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)
(2) For adaptation options, see page 622
(3) Maximum ramping angle - valid only with T490 LNHT 1106PNTR-RD insert

For inserts, see pages: T490 LNMT/LNHT 1106 (545)

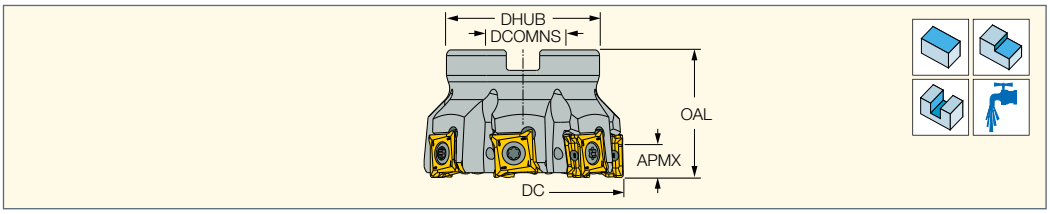
Spare Parts

Designation				
T490 FLN D040-04-16-R-11	SR 34-535-SN	BLD T15/S7(a)	SW6-SD	SR M8X30DIN912
T490 FLN D040-05-16-R-11	SR 34-535-SN	BLD T15/S7(a)	SW6-SD	SR M8X30DIN912
T490 FLN D050-05-22-R-11	SR 34-535-SN	BLD T15/S7(a)	SW6-SD	SR M10X25 DIN912
T490 FLN D050-06-22-R-11	SR 34-535-SN	BLD T15/S7(a)	SW6-SD	SR M10X25 DIN912
T490 FLN D063-06-22-R-11	SR 34-535-SN	BLD T15/S7(a)	SW6-SD	SR M10X25 DIN912
T490 FLN D063-09-22-R-11	SR 34-535-SN	BLD T15/S7(a)	SW6-SD	SR M10X25 DIN912
T490 FLN D080-07-27-R-11	SR 34-535-SN	BLD T15/S7(a)	SW6-SD	
T490 FLN D080-11-27-R-11	SR 34-535-SN	BLD T15/S7(a)	SW6-SD	
T490 FLN D100-08-32-R-11	SR 34-535-SN	BLD T15/S7(a)	SW6-SD	
T490 FLN D100-13-32-R-11	SR 34-535-SN	BLD T15/S7(a)	SW6-SD	

(a) Recommended key handle for limiting torque to 3.2 N*m for this item is HSD 4-3.2NM (to be used with BLD 4 T15-4.8 blade)

LOGIQ8TANG
T890 MILLING LINE

T890HT FLN-R13
90° Face Mills Carrying T890 LNHT/LNAT 1306...
Tangentially Clamped Inserts with 8 Cutting Edges



Designation	DC	APMX	CICT(1)	DCONMS	DHUB	OAL	Arbor	kg
T890HT FLN D040-03-16-R13	40.00	9.50	3	16.00	38.00	40.00	A	0.22
T890HT FLN D040-04-16-R13	40.00	9.50	4	16.00	38.00	40.00	A	0.21
T890HT FLN D040-05-16-R13	40.00	9.50	5	16.00	38.00	40.00	A	0.21
T890HT FLN D050-04-22-R13	50.00	9.50	4	22.00	48.00	40.00	A	0.33
T890HT FLN D050-05-22-R13	50.00	9.50	5	22.00	48.00	40.00	A	0.33
T890HT FLN D050-06-22-R13	50.00	9.50	6	22.00	48.00	40.00	A	0.35
T890HT FLN D063-06-22-R13	63.00	9.50	6	22.00	48.00	40.00	A	0.48
T890HT FLN D063-07-22-R13	63.00	9.50	7	22.00	48.00	40.00	A	0.48
T890HT FLN D063-08-22-R13	63.00	9.50	8	22.00	48.00	40.00	A	0.50
T890HT FLN D080-06-27-R13	80.00	9.50	6	27.00	60.00	50.00	B	0.88
T890HT FLN D080-07-27-R13	80.00	9.50	7	27.00	60.00	50.00	B	0.89
T890HT FLN D080-09-27-R13	80.00	9.50	9	27.00	60.00	50.00	B	0.91
T890HT FLN D100-08-32-R13	100.00	9.50	8	32.00	78.00	50.00	B	1.49
T890HT FLN D100-12-32-R13	100.00	9.50	12	32.00	78.00	50.00	B	1.62
T890HT FLN D125-09-40-R13	125.00	9.50	9	40.00	92.00	63.00	B	2.83
T890HT FLN D125-15-40-R13	125.00	9.50	15	40.00	92.00	63.00	B	2.93
T890HT FLN D160-12-40-R13	160.00	9.50	12	40.00	95.00	63.00	C	3.24
T890HT FLN D160-20-40-R13	160.00	9.50	20	40.00	95.00	63.00	C	3.53

- For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)

For inserts, see pages: T890 LN.. 1306 (543)

Spare Parts

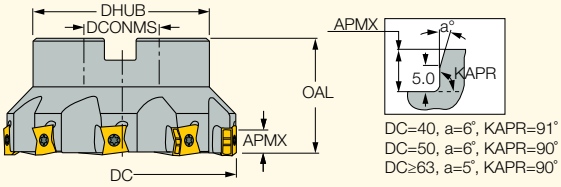
Designation				
T890HT FLN D040-03-16-R13	SR 10513105-L10.5(a)	BLD IP20/M7	SW6-T-SH	SR M8X30DIN912
T890HT FLN D040-04-16-R13	SR 10513105-L10.5(a)	BLD IP20/M7	SW6-T-SH	SR M8X30DIN912
T890HT FLN D040-05-16-R13	SR 10513105-L10.5(a)	BLD IP20/M7	SW6-T-SH	SR M8X30DIN912
T890HT FLN D050-04-22-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D050-05-22-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D050-06-22-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D063-06-22-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D063-07-22-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D063-08-22-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D080-06-27-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	
T890HT FLN D080-07-27-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	
T890HT FLN D080-09-27-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	
T890HT FLN D100-08-32-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	
T890HT FLN D100-12-32-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	
T890HT FLN D125-09-40-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	
T890HT FLN D125-15-40-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	
T890HT FLN D160-12-40-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	
T890HT FLN D160-20-40-R13	SR 10513105	BLD IP20/M7	SW6-T-SH	

(a) Recommended tightening torque: 9.0 N*m

TANGMILL TANGENTIAL LINE

F90LN-N11

90° Face Mills Carrying LN..1106... Tangentially Clamped Inserts



Designation	DC	CICT[2]	APMX	OAL	DHUB	DCONMS	Arbor[3]	kg
F90LN D040-04-16-R/L-N11	40.00	4	10.00	40.00	38.40	16.00	A	0.22
F90LN D040-06-16-L-N11	40.00	6	10.00	40.00	38.40	16.00	A	0.04
F90LN D040-06-16-R-N11	40.00	6	10.00	40.00	38.40	16.00	A	0.21
F90LN D050-05-22-R/L-N11	50.00	5	10.00	40.00	47.00	22.00	A	0.32
F90LN D050-07-22-L-N11	50.00	7	10.00	40.00	47.00	22.00	A	0.32
F90LN D050-07-22-R-N11	50.00	7	10.00	40.00	47.00	22.00	A	0.33
F90LN D063-06-22-R/L-N11	63.00	6	10.00	40.00	59.20	22.00	B	0.47
F90LN D063-09-22-R/L-N11	63.00	9	10.00	40.00	59.20	22.00	B	0.50
F90LN D080-08-27-R/L-N11 (1)	80.00	8	10.00	50.00	70.00	27.00	B	0.98
F90LN D080-11-27-R-N11 (1)	80.00	11	10.00	50.00	70.00	27.00	B	1.02
F90LN D100-09-32-L-N11 (1)	100.00	9	10.00	50.00	77.00	32.00	B	1.40
F90LN D100-09-32-R-N11 (1)	100.00	9	10.00	50.00	77.00	32.00	B	1.41
F90LN D100-14-32-R-N11 (1)	100.00	14	10.00	50.00	77.00	32.00	B	1.48
F90LN D125-10-40-L-N11 (1)	125.00	10	10.00	63.00	95.00	40.00	B	2.73
F90LN D125-10-40-R-N11 (1)	125.00	10	10.00	63.00	95.00	40.00	B	2.67
F90LN D125-18-40-R-N11 (1)	125.00	18	10.00	63.00	95.00	40.00	B	2.88

• For user guide, see pages 616-621

(1) For internal coolant through the holder, use a matching coolant set (should be ordered separately)

(2) Number of inserts (or edges for solid tool)

(3) For adaptation options, see page 622

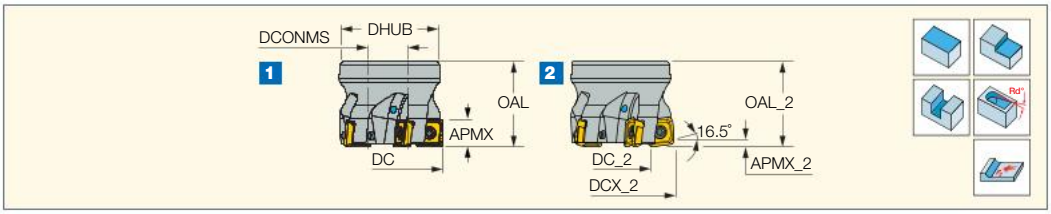
For inserts, see pages: LNAR 1106 (550) • LNAR 1106 (PCD) (551) • LNAR 1106PN-R-S-W (PCD) (551) • LNAT 1106-W (550) • LNAW-11 (CBN) (552) • LNHT 1106 PN-N HT (550) • LNHT 1106 PN-R HT (549) • LNKX/LNMT 1106 (549)

Spare Parts

Designation				
F90LN D040-04-16-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	SR M8X30DIN912
F90LN D040-06-16-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	SR M8X30DIN912
F90LN D050-05-22-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	SR M10X25 DIN912
F90LN D050-07-22-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	SR M10X25 DIN912
F90LN D063-06-22-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D063-09-22-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D080-08-27-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D080-11-27-R-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D100-09-32-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D100-14-32-R-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D125-10-40-R/L-N11	SR 34-550	SW6-SD	BLD T10/S7	
F90LN D125-18-40-R-N11	SR 34-550	SW6-SD	BLD T10/S7	

HELIQUAD

F90SD-12
Face Mills Carrying
Square Inserts



Designation	DC	CICT(1)	DCONMS	DHUB	APMX	OAL	DC_2	DCX_2	APMX_2	OAL_2	RMPX°_2(2)	Arbor(3)	CSP(4)	kg
F90SD D50-03-22-12	50.00	3	22.00	48.00	11.80	40.00	29.40	51.10	1.00	40.35	0.5	A	1	0.27
F90SD D50-05-22-12	50.00	5	22.00	48.00	11.80	40.00	29.40	51.10	1.00	40.35	0.5	A	1	0.28
F90SD D63-04-22-12	63.00	4	22.00	48.00	11.80	40.00	42.40	64.10	1.00	40.35	0.8	A	1	0.41
F90SD D63-06-22-12	63.00	6	22.00	48.00	11.80	40.00	42.40	64.40	1.00	40.35	0.8	A	1	0.43
F90SD D80-05-27-12	80.00	5	27.00	60.00	11.80	50.00	59.40	81.10	1.00	50.35	1.5	B	1	0.79
F90SD D100-06-32-12	100.00	6	32.00	78.00	11.80	50.00	79.40	101.10	1.00	50.35	1.1	B	1	1.44
F90SD D100-08-32-12	100.00	8	32.00	78.00	11.80	50.00	79.40	101.10	1.00	50.35	1.1	B	1	1.43
F90SD D125-07-40-12	125.00	7	40.00	92.00	11.80	50.00	104.40	126.10	1.00	50.35	0.8	B	1	2.13
F90SD D125-09-40-12	125.00	9	40.00	92.00	11.80	50.00	104.40	126.10	1.00	50.35	0.8	B	1	2.16
F90SD D160-11-40-12	160.00	11	40.00	95.00	11.80	50.00	139.40	161.10	1.00	50.35	0.6	C	0	2.95
F90SD D200-13-60-12	200.00	13	60.00	135.00	11.80	55.00	179.40	201.10	1.00	55.35	0.6	C	0	5.40

• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)

(2) Maximum ramping angle (FF inserts only)

(3) For adaptation options, see page 622

(4) 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: QDCT-PDN (565) • QDMT 1205..PDTN-M (565) • SDMR-HQ (564) • SDMT-FF (564) • SDMT-PDR-HQ (563) • SDMT-PDR-RM (564)

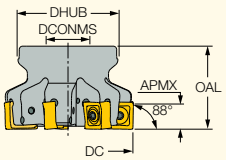
Spare Parts

Designation				
F90SD D50-03-22-12	SR M4X0.7-L9.6 IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
F90SD D50-05-22-12	SR M4X0.7-L9.6 IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
F90SD D63-04-22-12	SR M4X0.7-L9.6 IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
F90SD D63-06-22-12	SR M4X0.7-L9.6 IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
F90SD D80-05-27-12	SR M4X0.7-L9.6 IP15	BLD IP15/M7	SW6-T-SH	
F90SD D100-06-32-12	SR M4X0.7-L9.6 IP15	BLD IP15/M7	SW6-T-SH	
F90SD D100-08-32-12	SR M4X0.7-L9.6 IP15	BLD IP15/M7	SW6-T-SH	
F90SD D125-07-40-12	SR M4X0.7-L9.6 IP15	BLD IP15/M7	SW6-T-SH	
F90SD D125-09-40-12	SR M4X0.7-L9.6 IP15	BLD IP15/M7	SW6-T-SH	
F90SD D160-11-40-12	SR M4X0.7-L9.6 IP15	BLD IP15/L7	SW6-T-SH	
F90SD D200-13-60-12	SR M4X0.7-L9.6 IP15	BLD IP15/L7	SW6-T-SH	

HELIDO 890 LINE

S890 FSN-13

Face Mills Carrying Double Sided Square Inserts with 8 Cutting Edges



Designation	DC	APMX	OAL	CICT(1)	DCONMS	DHUB	Arbor(2)	CSP(3)	kg
S890 FSN D040-04-16-R13	40.00	9.00	40.00	4	16.00	38.00	A	1	0.19
S890 FSN D050-04-22-R13	50.00	9.00	40.00	4	22.00	48.00	A	1	0.28
S890 FSN D050-05-22-R13	50.00	9.00	40.00	5	22.00	48.00	A	1	0.29
S890 FSN D063-05-22-R13	63.00	9.00	40.00	5	22.00	48.00	A	1	0.39
S890 FSN D063-07-22-R13	63.00	9.00	40.00	7	22.00	48.00	A	1	0.39
S890 FSN D080-07-27-R13	80.00	9.00	50.00	7	27.00	60.00	B	1	0.74
S890 FSN D080-09-27-R13	80.00	9.00	50.00	9	27.00	60.00	B	1	0.74
S890 FSN D100-08-32-R13	100.00	9.00	50.00	8	32.00	70.00	B	1	1.25
S890 FSN D100-11-32-R13	100.00	9.00	50.00	11	32.00	70.00	B	1	1.27
S890 FSN D125-09-40-R13	125.00	9.00	63.00	9	40.00	82.00	B	1	2.29
S890 FSN D125-14-40-R13	125.00	9.00	63.00	14	40.00	82.00	B	1	2.30
S890 FSN D160-10-40-R13	160.00	9.00	63.00	10	40.00	106.00	C	0	4.28

• Use only Torx Plus keys • For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)

(2) For adaptation options, see page 622

(3) 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: S890 SNMU 1305PN (573)

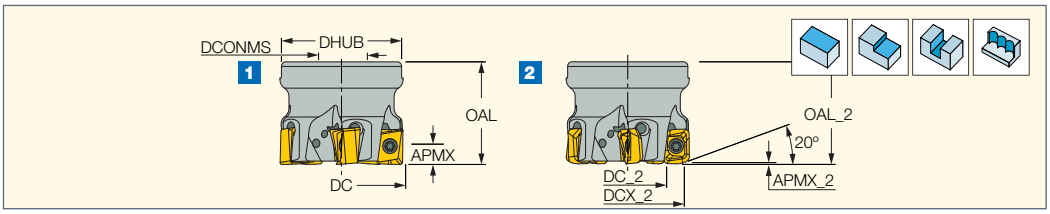
Spare Parts

Designation				
S890 FSN D040-04-16-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M8X38-1515
S890 FSN D050-04-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
S890 FSN D050-05-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
S890 FSN D063-05-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
S890 FSN D063-07-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
S890 FSN D080-07-27-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S890 FSN D080-09-27-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S890 FSN D100-08-32-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S890 FSN D100-11-32-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S890 FSN D125-09-40-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S890 FSN D125-14-40-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S890 FSN D160-10-40-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	

HELIDO 490 LINE

H490 F90AX-12

90° Face Mills Carrying H490 ANKX 12.. Double-Sided Rectangular Inserts with 4 Helical Cutting Edges



Designation	DC	DCX_2	DC_2	CICT(1)	APMX	APMX_2	AE(2)	OAL	OAL_2	DHUB	DCONMS	Arbor(3)
H490 F90AX D040-4-16-12	40.00	40.50	30.20	4	12.00	1.40	8.5	40.00	39.77	38.00	16.00	A
H490 F90AX D050-3-22-12	50.00	50.50	40.20	3	12.00	1.40	8.5	40.00	39.77	48.00	22.00	A
H490 F90AX D050-5-22-12	50.00	50.50	40.20	5	12.00	1.40	8.5	40.00	39.77	48.00	22.00	A
H490 F90AX D063-4-27-12	63.00	63.50	53.20	4	12.00	1.40	8.5	50.00	49.77	59.20	27.00	A
H490 F90AX D063-6-27-12	63.00	63.50	53.20	6	12.00	1.40	8.5	50.00	49.77	59.20	27.00	A
H490 F90AX D080-5-27-12	80.00	80.50	70.20	5	12.00	1.40	8.5	50.00	49.77	63.00	27.00	B
H490 F90AX D080-7-27-12	80.00	80.50	70.20	7	12.00	1.40	8.5	50.00	49.77	63.00	27.00	B
H490 F90AX D100-6-32-12	100.00	100.50	90.20	6	12.00	1.40	8.5	50.00	49.77	80.00	32.00	B
H490 F90AX D100-9-32-12	100.00	100.50	90.20	9	12.00	1.40	8.5	50.00	49.77	80.00	32.00	B
H490 F90AX D160-9-40-12	160.00	160.50	150.20	9	12.00	1.40	8.5	63.00	62.77	105.00	40.00	C

Designation	RMPX°_2(4)	MDN	MDX	CSP(5)	MIID(6)	MIID_2(7)	kg
H490 F90AX D040-4-16-12	2.3	70.70	80.00	1	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	0.20
H490 F90AX D050-3-22-12	1.6	90.70	100.00	1	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	0.33
H490 F90AX D050-5-22-12	1.6	90.70	100.00	1	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	0.32
H490 F90AX D063-4-27-12	1.2	116.70	126.00	1	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	0.68
H490 F90AX D063-6-27-12	1.2	116.70	126.00	1	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	0.65
H490 F90AX D080-5-27-12	0.9	150.70	160.00	1	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	0.83
H490 F90AX D080-7-27-12	0.9	150.70	160.00	1	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	0.85
H490 F90AX D100-6-32-12	0.6	190.70	200.00	1	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	1.41
H490 F90AX D100-9-32-12	0.6	190.70	200.00	1	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	1.47
H490 F90AX D160-9-40-12	0.3	310.70	320.00	0	H490 ANKX 1205PNTR-R	H490 ANCX 1205..-FF	3.87

- For user guide, see pages 616-621 • 1- with standard square insert, 2- with FF (fast feed) insert
- Ramping angle is valid only when H490 ANCX 1205R15T-FF insert is used
- When assembled the H490 ANCX 1205R15T-FF insert, tool diameter enlarges by 0.5 mm

(1) Number of inserts (or edges for solid tool)
(2) Maximum side plunge
(3) For adaptation options, see page 622
(4) Maximum ramping angle when using FF inserts
(5) 0 - Without coolant supply, 1 - With coolant supply
(6) Master insert identification
(7) Master insert identification 2

For inserts, see pages: H490 ANKX/ANCX 1205-FF (539) • H490 ANKX/ANCX-12 (538)

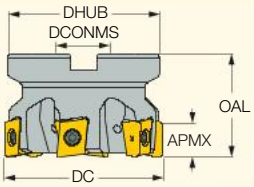
Spare Parts

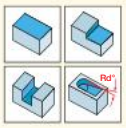
Designation				
H490 F90AX D040-4-16-12	SR 14-544	BLD T15/M7	SW6-T	SR M8X30DIN912
H490 F90AX D050-3-22-12	SR 14-544	BLD T15/M7	SW6-T	SR M10X30 DIN912
H490 F90AX D050-5-22-12	SR 14-544	BLD T15/M7	SW6-T	SR M10X30 DIN912
H490 F90AX D063-4-27-12	SR 14-544	BLD T15/M7	SW6-T	SR M12X35DIN912
H490 F90AX D063-6-27-12	SR 14-544	BLD T15/M7	SW6-T	SR M12X35DIN912
H490 F90AX D080-5-27-12	SR 14-544	BLD T15/M7	SW6-T	
H490 F90AX D080-7-27-12	SR 14-544	BLD T15/M7	SW6-T	
H490 F90AX D100-6-32-12	SR 14-544	BLD T15/M7	SW6-T	
H490 F90AX D100-9-32-12	SR 14-544	BLD T15/M7	SW6-T	
H490 F90AX D160-9-40-12	SR 14-544	BLD T15/M7	SW6-T	

HELITANG T490 LINE

T490 FLN-13

90° Face Mills Carrying Tangentially Clamped Inserts with 4 Helical 13mm Long Cutting Edges





Designation	DC	CICT(1)	APMX	OAL	DHUB	DCONMS	Arbor(2)	RMPX°(3)	CSP(4)	kg
T490 FLN D040-04-16-R-13	40.00	4	12.50	40.00	38.00	16.00	A	2.1	1	0.22
T490 FLN D040-05-16-R-13	40.00	5	12.50	40.00	38.00	16.00	A	2.1	1	0.22
T490 FLN D050-05-22-R-13	50.00	5	12.50	40.00	47.00	22.00	A	1.1	1	0.31
T490 FLN D050-06-22-R-13	50.00	6	12.50	40.00	47.00	22.00	A	1.1	1	0.31
T490 FLN D063-06-22-R-13	63.00	6	12.50	40.00	59.20	22.00	A	0.8	1	0.55
T490 FLN D063-08-22-R-13	63.00	8	12.50	40.00	59.20	22.00	A	0.8	1	0.56
T490 FLN D080-07-27-R-13	80.00	7	12.50	50.00	70.00	27.00	B	0.4	1	0.98
T490 FLN D080-10-27-R-13	80.00	10	12.50	50.00	70.00	27.00	B	0.4	1	1.00
T490 FLN D100-08-32-R-13	100.00	8	12.50	50.00	78.00	32.00	B	0.3	1	1.45
T490 FLN D100-13-32-R-13	100.00	13	12.50	50.00	78.00	32.00	B	0.3	1	1.49
T490 FLN D125-09-40-R-13	125.00	9	12.50	63.00	82.00	40.00	B	0.2	1	2.16
T490 FLN D125-17-40-R-13	125.00	17	12.50	63.00	82.00	40.00	B	0.2	1	2.30
T490 FLN D160-12-40-R-13	160.00	12	12.50	63.00	120.00	40.00	C	-	0	4.32
T490 FLN D200-15-60-R-13	200.00	15	12.50	63.00	135.00	60.00	C	-	0	5.84

• When machining slots, coarse pitch cutters should be used • For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)

(2) For adaptation options, see page 622

(3) Maximum ramping angle - valid only when the T490 LNHT 1306 PNTR-RD insert is used. For the -FF insert, refer to -FF insert information

(4) 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT 1306PNR-FF (547) • T490 LNMT 1306PNTR-FW (547) • T490 LNMT/LNHT/LNAR 1306 (546)

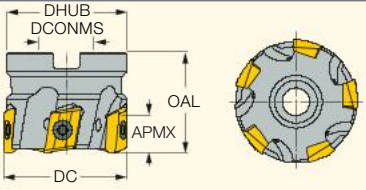
Spare Parts

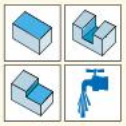
Designation				
T490 FLN D040-04-16-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M8X30DIN912
T490 FLN D040-05-16-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M8X30DIN912
T490 FLN D050-05-22-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M10X25 DIN912
T490 FLN D050-06-22-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M10X25 DIN912
T490 FLN D063-06-22-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M10X25 DIN912
T490 FLN D063-08-22-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M10X25 DIN912
T490 FLN D080-07-27-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	
T490 FLN D080-10-27-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	
T490 FLN D100-08-32-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	
T490 FLN D100-13-32-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	
T490 FLN D125-09-40-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	
T490 FLN D125-17-40-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	
T490 FLN D160-12-40-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	
T490 FLN D200-15-60-R-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	

SUMOMILL T290 LINE

T290 FLN-15

90° Face Mills Carrying T290 LNMT 1506... Tangentially Clamped Inserts





Designation	DC	CICT(1)	APMX	OAL	DHUB	DCONMS	Arbor(2)	kg				
T290 FLN D040-04-16-15	40.00	4	14.00	40.00	36.00	16.00	A	0.20	SR 10505427	BLD IP20/S7	SW6-T	SR M8X25DIN912
T290 FLN D050-05-22-15	50.00	5	14.00	40.00	48.00	22.00	A	0.33	SR 10505427	BLD IP20/S7	SW6-T	SR M10X25DIN7984

• For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)

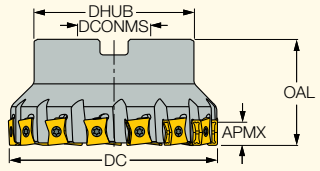
(2) For adaptation options, see page 622

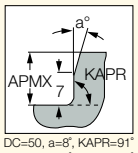
For inserts, see pages: T290 LNMT 1506 (542)

TANGMILL TANGENTIAL LINE

F90LN-N15

90° Face Mills Carrying LN..1506... Tangentially Clamped Inserts





DC=50, a=8°, KAPR=91°
DC=63, a=6°, KAPR=90°
DC≥100, a=4.5°, KAPR=90°

Designation	DC	CICT(2)	APMX	OAL	DHUB	DCONMS	Arbor(3)	kg
F90LN D050-05-22-R/L-N15	50.00	5	14.00	40.00	47.00	22.00	A	0.33
F90LN D063-05-22-R/L-N15	63.00	5	14.00	40.00	59.20	22.00	B	0.48
F90LN D063-08-22-R/L-N15	63.00	8	14.00	40.00	59.20	22.00	B	0.50
F90LN D080-07-27-L-N15 (1)	80.00	7	14.00	50.00	70.00	27.00	B	1.01
F90LN D080-07-27-R-N15 (1)	80.00	7	14.00	50.00	70.00	27.00	B	1.02
F90LN D080-10-27-L-N15 (1)	80.00	10	14.00	50.00	70.00	27.00	B	1.05
F90LN D080-10-27-R-N15 (1)	80.00	10	14.00	50.00	70.00	27.00	B	1.06
F90LN D100-08-32-L-N15 (1)	100.00	8	14.00	50.00	78.00	32.00	B	0.50
F90LN D100-08-32-R-N15 (1)	100.00	8	14.00	50.00	78.00	32.00	B	1.52
F90LN D100-12-32-L-N15 (1)	100.00	12	14.00	50.00	78.00	32.00	B	1.59
F90LN D100-12-32-R-N15 (1)	100.00	12	14.00	50.00	78.00	32.00	B	1.60
F90LN D125-09-40-R/L-N15 (1)	125.00	9	14.00	63.00	95.00	40.00	B	2.95
F90LN D125-15-40-L-N15 (1)	125.00	15	14.00	63.00	95.00	40.00	B	3.06
F90LN D125-15-40-R-N15 (1)	125.00	15	14.00	63.00	95.00	40.00	B	3.07
F90LN D160-10-40-L-N15	160.00	10	14.00	63.00	120.00	40.00	C	4.30
F90LN D160-10-40-R-N15	160.00	10	14.00	63.00	120.00	40.00	C	4.29
F90LN D160-20-40-L-N15	160.00	20	14.00	63.00	120.00	40.00	C	4.48
F90LN D160-20-40-R-N15	160.00	20	14.00	63.00	120.00	40.00	C	4.50
F90LN D200-12-60-L-N15	200.00	12	14.00	63.00	135.00	60.00	C	6.67
F90LN D200-12-60-R-N15	200.00	12	14.00	63.00	135.00	60.00	C	6.64
F90LN D250-15-60-R-N15	250.00	15	14.00	63.00	150.00	60.00	C	10.39
F90LN D250-30-60-R-N15	250.00	30	14.00	63.00	150.00	60.00	C	10.83

• Left-hand cutters are designated by a red groove • For user guide, see pages 616-621

(1) For internal coolant through the holder, use a matching coolant set (should be ordered separately)

(2) Number of inserts (or edges for solid tool)

(3) For adaptation options, see page 622

For inserts, see pages: LNAR 1506 (555) • LNAR 1506 PN-R-S (PCD) (556) • LNAT 1506-W (557) • LNAT 1506..PN-N MM (556) • LNAW-15 (CBN) (552) • LNHW 1506 PNTN (CER) (556) • LNKX 1506 1.5X45 PN-N (554) • LNKX 1506PN-N PL (554) • LNMT 1506PN-R-TS (553) • LNMT/LNHT 1506...-N HT (555) • LNMT/LNHT 1506PN-R HT (554) • LNMW 1506 PNTN (553)

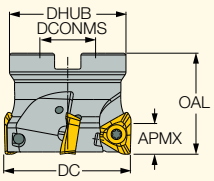
Spare Parts

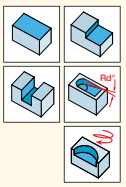
Designation				
F90LN D050-05-22-L-N15	SR 34-535	SW6-T	BLD T15/M7	SR M10X25 DIN912
F90LN D050-05-22-R-N15	SR 34-535	SW6-T-SH	BLD T15/M7	SR M10X25 DIN912
F90LN D063-05-22-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D063-08-22-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D080-07-27-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D080-10-27-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D100-08-32-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D100-12-32-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D125-09-40-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D125-15-40-L-N15	SR 34-535	SW6-T	BLD T15/M7	
F90LN D125-15-40-R-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D160-10-40-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D160-20-40-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D200-12-60-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D250-15-60-R-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D250-30-60-R-N15	SR 34-535	SW6-T-SH	BLD T15/M7	

HELI3MILL HM390 LINE

HM390 FTD-15

90° Face Mills Carrying HM390 TDKT 1505 Triangular Inserts with 3 Helical Cutting Edges





Designation	DC	CICT[2]	APMX	OAL	DHUB	DCONMS	Arbor[3]	RMPX°[4]	CSP[5]	kg
HM390 FTD D040-3-16-15	40.00	3	13.00	40.00	38.40	16.00	A	2.0	1	0.20
HM390 FTD D040-4-16-15	40.00	4	13.00	40.00	38.40	16.00	A	2.0	1	0.19
HM390 FTD D050-3-22-15	50.00	3	13.00	40.00	46.00	22.00	A	1.6	1	0.25
HM390 FTD D050-4-22-15	50.00	4	13.00	40.00	46.00	22.00	A	1.6	1	0.28
HM390 FTD D050-5-22-15	50.00	5	13.00	40.00	46.00	22.00	A	1.6	1	0.28
HM390 FTD D063-4-27-15	63.00	4	13.00	45.00	59.00	27.00	A	1.2	1	0.53
HM390 FTD D063-5-22-15	63.00	5	13.00	45.00	59.00	22.00	A	1.2	1	0.58
HM390 FTD D063-5-27-15	63.00	5	13.00	45.00	59.00	27.00	A	1.2	1	0.53
HM390 FTD D063-6-22-15	63.00	6	13.00	45.00	59.00	22.00	A	1.2	1	0.62
HM390 FTD D063-6-27-15	63.00	6	13.00	45.00	59.00	27.00	A	1.2	1	0.57
HM390 FTD D080-5-27-15	80.00	5	13.00	50.00	74.00	27.00	A	0.9	1	1.11
HM390 FTD D080-6-27-15	80.00	6	13.00	50.00	74.00	27.00	A	0.9	1	0.14
HM390 FTD D080-7-27-15	80.00	7	13.00	50.00	74.00	27.00	A	0.9	1	1.18
HM390 FTD D100-6-32-15	100.00	6	13.00	50.00	80.00	32.00	B	0.7	1	1.31
HM390 FTD D100-8-32-15	100.00	8	13.00	50.00	80.00	32.00	B	0.7	1	1.46
HM390 FTD D125-7-40-15	125.00	7	13.00	63.00	82.00	40.00	B	0.5	1	2.12
HM390 FTD D125-9-40-15	125.00	9	13.00	63.00	82.00	40.00	B	0.5	1	2.29
HM390 FTD D160-8-40-15 [1]	160.00	8	13.00	63.00	105.00	40.00	C	0.3	0	3.57
HM390 FTD D160-10-40-15 [1]	160.00	10	13.00	63.00	105.00	40.00	C	0.3	0	4.02
HM390 FTD D200-9-60-15	200.00	9	13.00	63.00	135.00	60.00	C	0.2	0	5.23

• When assembled the HM390 TDKT 1505PDR-FW insert, tool diameter enlarges by 1.0 mm • For user guide, see pages 616-621

[1] For internal coolant through the holder, use a matching coolant set (should be ordered separately)

[2] Number of inserts (or edges for solid tool)

[3] For adaptation options, see page 622

[4] Maximum ramping angle

[5] 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: HM390 TDCR 1505 (514) • HM390 TDKT/CT 1505 (513)

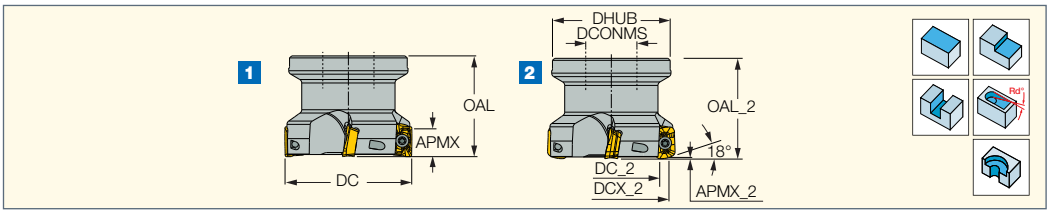
Spare Parts

Designation				
HM390 FTD D040-3-16-15	SR 10511869	BLD IP20/S7	SW6-T	SR M8X37-1515
HM390 FTD D040-4-16-15	SR 10511869	BLD IP20/S7	SW6-T	SR M8X37-1515
HM390 FTD D050-3-22-15	SR 10505427	BLD IP20/S7	SW6-T	SR M10X30 DIN912
HM390 FTD D050-4-22-15	SR 10505427	BLD IP20/S7	SW6-T	SR M10X30 DIN912
HM390 FTD D050-5-22-15	SR 10511869	BLD IP20/S7	SW6-T	SR M10X30 DIN912
HM390 FTD D063-4-27-15	SR 10505427	BLD IP20/S7	SW6-T	SR M12X35DIN912
HM390 FTD D063-5-22-15	SR 10511869	BLD IP20/S7	SW6-T	SR M10X30 DIN912
HM390 FTD D063-5-27-15	SR 10505427	BLD IP20/S7	SW6-T	SR M12X35DIN912
HM390 FTD D063-6-22-15	SR 10511869	BLD IP20/S7	SW6-T	SR M10X30 DIN912
HM390 FTD D063-6-27-15	SR 10505427	BLD IP20/S7	SW6-T	SR M12X35DIN912
HM390 FTD D080-5-27-15	SR 10505427	BLD IP20/S7	SW6-T	SR M12X40DIN912
HM390 FTD D080-6-27-15	SR 10505427	BLD IP20/S7	SW6-T	SR M12X40DIN912
HM390 FTD D080-7-27-15	SR 10505427	BLD IP20/S7	SW6-T	SR M12X40DIN912
HM390 FTD D100-6-32-15	SR 10505427	BLD IP20/S7	SW6-T	
HM390 FTD D100-8-32-15	SR 10505427	BLD IP20/S7	SW6-T	
HM390 FTD D125-7-40-15	SR 10505427	BLD IP20/S7	SW6-T	
HM390 FTD D125-9-40-15	SR 10505427	BLD IP20/S7	SW6-T	
HM390 FTD D160-8-40-15	SR 10505427	BLD IP20/S7	SW6-T	
HM390 FTD D160-10-40-15	SR 10505427	BLD IP20/S7	SW6-T	
HM390 FTD D200-9-60-15	SR 10505427	BLD IP20/S7	SW6-T	

HELI2000

HM90 F90A-15

90° Face Mills Carrying HM90 ADKT 1505... Inserts



Designation	DC	DC_2	DCX_2	APMX	APMX_2	OAL	OAL_2	DHUB	DCONMS	RMPX°(2)	RMPX°_2
HM90 F90A D 40-3-16	40.00	27.30	40.50	14.30	1.50	40.00	39.74	38.60	16.00	4.0	4.0
HM90 F90A D 40-4-16	40.00	27.30	40.50	14.30	1.50	40.00	39.74	38.60	16.00	4.0	4.0
HM90 F90A D 50-3-22	50.00	37.30	50.50	14.30	1.50	40.00	39.74	48.00	22.00	2.6	2.6
HM90 F90A D 50-5-22	50.00	37.30	50.50	14.30	1.50	40.00	39.74	48.00	22.00	2.6	2.6
HM90 F90A D 63-4-22	63.00	50.30	63.50	14.30	1.50	40.00	39.74	59.20	22.00	2.0	2.0
HM90 F90A D 63-6-22	63.00	50.30	63.50	14.30	1.50	40.00	39.74	59.20	22.00	2.0	2.0
HM90 F90A D 80-5-27 (1)	80.00	67.30	80.50	14.30	1.50	50.00	49.74	70.00	27.00	0.8	0.8
HM90 F90A D 80-7-27 (1)	80.00	67.30	80.50	14.30	1.50	50.00	49.74	70.00	27.00	0.8	0.8
HM90 F90A D100-6-32 (1)	100.00	87.30	100.50	14.30	1.50	50.00	49.74	78.00	32.00	0.7	0.7
HM90 F90A D100-8-32 (1)	100.00	87.30	100.50	14.30	1.50	50.00	49.74	78.00	32.00	0.7	0.7
HM90 F90A D125-9-40 (1)	125.00	112.30	125.50	14.30	1.50	63.00	62.74	90.00	40.00	0.5	0.5

Designation	Arbor(3)	MDN	MDX	RPMX(4)	MIID(5)	MIID_2(6)	kg
HM90 F90A D 40-3-16	A	67.80	80.00	25870	ADKT 1505PDTR	ADKT 1505R8T-FF	0.20
HM90 F90A D 40-4-16	A	67.80	80.00	25870	ADKT 1505PDTR	ADKT 1505R8T-FF	0.19
HM90 F90A D 50-3-22	A	87.80	100.00	23139	ADKT 1505PDTR	ADKT 1505R8T-FF	0.32
HM90 F90A D 50-5-22	A	87.80	100.00	23139	ADKT 1505PDTR	ADKT 1505R8T-FF	0.30
HM90 F90A D 63-4-22	A	113.80	126.00	20614	ADKT 1505PDTR	ADKT 1505R8T-FF	0.55
HM90 F90A D 63-6-22	A	113.80	126.00	20614	ADKT 1505PDTR	ADKT 1505R8T-FF	0.52
HM90 F90A D 80-5-27 (1)	B	147.80	160.00	18293	ADKT 1505PDTR	ADKT 1505R8T-FF	0.91
HM90 F90A D 80-7-27 (1)	B	147.80	160.00	19293	ADKT 1505PDTR	ADKT 1505R8T-FF	0.88
HM90 F90A D100-6-32 (1)	B	187.80	200.00	16362	ADKT 1505PDTR	ADKT 1505R8T-FF	1.54
HM90 F90A D100-8-32 (1)	B	187.80	200.00	16362	ADKT 1505PDTR	ADKT 1505R8T-FF	1.49
HM90 F90A D125-9-40 (1)	B	237.80	250.00	14635	ADKT 1505PDTR	ADKT 1505R8T-FF	2.95

• 1- with standard square insert • 2- with FF (fast feed) insert • For user guide, see pages 616-621

(1) For internal coolant through the holder, use a matching coolant set (should be ordered separately)

(2) Maximum ramping angle

(3) For adaptation options, see page 622

(4) Maximum RPM

(5) Master insert identification

(6) Master insert identification 2

For inserts, see pages: ADCR 1505PDFR (523) • ADCT 1505PDFR-HM (523) • ADKR 1505PDR/L (523) • ADKT 1505-FF (527) • ADKT 1505..R/L-HM (526) • ADKT 1505PD-W (527) • ADKT 1505PDR/L-HM (525) • ADKT 1505PDTR-76 (526) • ADKT 1505PDTR/L-RM (525) • ADKW (CBN) (524) • ADKW (PCD) (524) • ADMT 1505PDR-HS (525) • HM90 ADCR 1505PDFR-P (522) • HM90 ADCT 1505 (521) • HM90 ADCT 1505PDR-CF (522) • HM90 ADKT 1505 (521) • HM90 ADKT 1505PD-W (527) • HM90 ADKW 1505PDR (530)

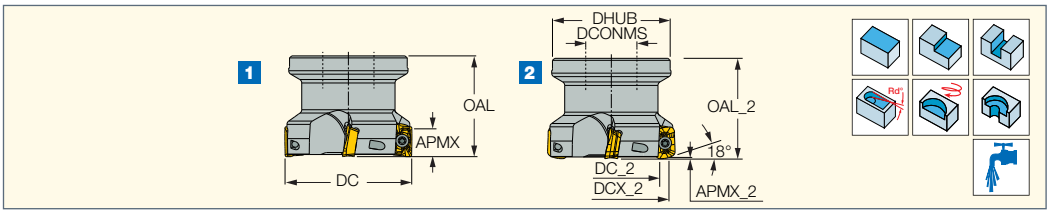
Spare Parts

Designation				
HM90 F90A D 40-3-16	SR 14-544/S	BLD T15/M7	SW6-T-SH	SR M8X25DIN912
HM90 F90A D 40-4-16	SR 14-544/S	BLD T15/M7	SW6-T-SH	SR M8X25DIN912
HM90 F90A D 50-3-22	SR 14-544/S	BLD T15/M7	SW6-T-SH	SR M10X25 DIN912
HM90 F90A D 50-5-22	SR 14-544/S	BLD T15/M7	SW6-T-SH	SR M10X25 DIN912
HM90 F90A D 63-4-22	SR 14-544	BLD T15/M7	SW6-T-SH	SR M10X25 DIN912
HM90 F90A D 63-6-22	SR 14-544	BLD T15/M7	SW6-T-SH	SR M10X25 DIN912
HM90 F90A D 80-5-27	SR 14-544	BLD T15/M7	SW6-T-SH	
HM90 F90A D 80-7-27	SR 14-544	BLD T15/M7	SW6-T-SH	
HM90 F90A D100-6-32	SR 14-544	BLD T15/M7	SW6-T-SH	
HM90 F90A D100-8-32	SR 14-544	BLD T15/M7	SW6-T-SH	
HM90 F90A D125-9-40	SR 14-544	BLD T15/M7	SW6-T-SH	

HELI2000 JET LINE

HM90 F90A-15-JHP

90° JHP Face Mills Carrying HELI-2000 and HELI-MILL Inserts



Designation	DC	DC_2	DCX_2	CICT(1)	APMX	APMX_2	OAL	OAL_2	DHUB	DCONMS	RPMX(2)
HM90 F90A D050-5-22-JHP	50.00	37.30	50.50	5	14.30	1.50	50.00	39.74	48.00	22.00	23100
HM90 F90A D063-6-22-JHP	63.00	50.30	63.50	6	14.30	1.50	50.00	49.74	48.00	22.00	20600

Designation	MDN	MDX	MIID(3)	MIID_2(4)	RMPX°(5)	RMPX°_2	Arbor	kg
HM90 F90A D050-5-22-JHP	87.80	100.00	ADKT 1505PDTR	ADKT 1505R8T-FF	2.6	2.6	A	0.50
HM90 F90A D063-6-22-JHP	113.80	126.00	ADKT 1505PDTR	ADKT 1505R8T-FF	2.0	2.0	A	0.76

- 1- with standard square insert
- 2- with FF (fast feed) insert
- Use adaptation only with face coolant outlets
- For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)
(2) Maximum RPM
(3) Master insert identification
(4) Master insert identification 2
(5) Maximum ramping angle

For inserts, see pages: ADCR 1505PDFR (523) • ADCT 1505PDFR-HM (523) • ADKR 1505PDR/L (523) • ADKT 1505-FF (527) • ADKT 1505..R/L-HM (526) • ADKT 1505PD-W (527) • ADKT 1505PDR/L-HM (525) • ADKT 1505PDTR-76 (526) • ADKT 1505PDTR/L-RM (525) • ADKW (CBN) (524) • ADKW (PCD) (524) • ADMT 1505PDR-HS (525) • HM90 ADCR 1505PDFR-P (522) • HM90 ADCT 1505 (521) • HM90 ADCT 1505PDR-CF (522) • HM90 ADKT 1505 (521) • HM90 ADKT 1505PD-W (527) • HM90 ADKW 1505PDR (530)

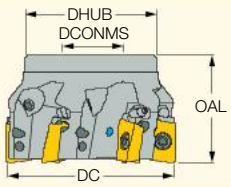
Spare Parts

Designation				
HM90 F90A D050-5-22-JHP	SR 14-544/S(a)	SR PS 118-0273	BLD T15/M7	SW6-T-SH
HM90 F90A D063-6-22-JHP	SR 14-544(a)	SR PS 118-0273	BLD T15/M7	SW6-T-SH

(a) Recommended tightening torque for this item: 4.8 Nxm

HELI2000

F90AD-SFR
Adjustable Face Mills (used mainly for PCD/CBN inserts)



Designation	DC	CICT(1)	OAL	DHUB	DCONMS	Arbor(2)	RPMX(3)	kg
F90AD D050-04-22-SFR	50.00	4	40.00	49.00	22.00	A	23000	0.31
F90AD D063-04-22-SFR	63.00	4	40.00	50.00	22.00	A	20600	0.43
F90AD D063-06-22-SFR	63.00	6	40.00	50.00	22.00	A	20600	0.49
F90AD D080-06-27-SFR	80.00	6	50.00	60.00	27.00	B	18200	0.89

- These tools may also be used for regular HELI-2000 AD.. 1505... inserts, for applications that require precise frontal edge adjustment
- For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)
(2) For adaptation options, see page 622
(3) Maximum RPM

For inserts, see pages: ADKW (CBN) (524) • ADKW (PCD) (524) • ADCR 1505PDFR (523) • ADCT 1505PDFR-HM (523) • ADKR 1505PDR/L (523) • ADKT 1505-FF (527) • ADKT 1505..R/L-HM (526) • ADKT 1505PD-W (527) • ADKT 1505PDR/L-HM (525) • ADKT 1505PDTR-76 (526) • ADKT 1505PDTR/L-RM (525) • ADMT 1505PDR-HS (525) • HM90 ADCR 1505PDFR-P (522) • HM90 ADCT 1505 (521) • HM90 ADCT 1505PDR-CF (522) • HM90 ADKT 1505 (521) • HM90 ADKT 1505PD-W (527) • HM90 ADKW 1505PDR (530)

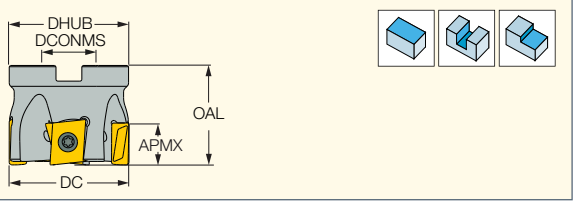
Spare Parts

Designation					
F90AD D050-04-22-SFR	SR 14-544/S	SR 11800782	BLD T15/S7	SW6-T-SH	SR M10X20DIN912
F90AD D063-04-22-SFR	SR 14-544/S	SR 11800782	BLD T15/S7	SW6-T-SH	SR M10X20DIN912
F90AD D063-06-22-SFR	SR 14-544/S	SR 11800782	BLD T15/S7	SW6-T-SH	SR M10X20DIN912
F90AD D080-06-27-SFR	SR 14-544/S	SR 11800782	BLD T15/S7	SW6-T-SH	

HELITANG T490 LINE

T490 FLN-16

90° Face Mills Carrying Tangentially Clamped Inserts with 4 Helical 16mm Long Cutting Edges



Designation	DC	CICT(1)	APMX	OAL	DHUB	DCONMS	Arbor(2)	CSP(3)	kg
T490 FLN D050-03-22-16	50.00	3	16.00	40.00	48.00	22.00	A	1	0.30
T490 FLN D050-04-22-16	50.00	4	16.00	40.00	48.00	22.00	A	1	0.32
T490 FLN D063-06-27-16	63.00	6	16.00	45.00	60.00	27.00	A	1	0.62
T490 FLN D080-05-27-16	80.00	5	16.00	50.00	63.00	27.00	B	1	0.84
T490 FLN D080-07-27-16	80.00	7	16.00	50.00	63.00	27.00	B	1	0.91
T490 FLN D100-06-32-16	100.00	6	16.00	50.00	80.00	32.00	B	1	1.44
T490 FLN D100-08-32-16	100.00	8	16.00	50.00	80.00	32.00	B	1	1.50
T490 FLN D125-07-40-16	125.00	7	16.00	63.00	82.00	40.00	B	1	2.42
T490 FLN D125-10-40-16	125.00	10	16.00	63.00	82.00	40.00	B	1	2.46
T490 FLN D160-12-40-16	160.00	12	16.00	63.00	105.00	40.00	C	0	4.28
T490 FLN D200-12-60-16	200.00	12	16.00	63.00	135.00	60.00	C	0	5.40

• When machining slots, regular pitch cutters should be used. • For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)

(2) For adaptation options, see page 622

(3) 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT/LNHT 1607 (548)

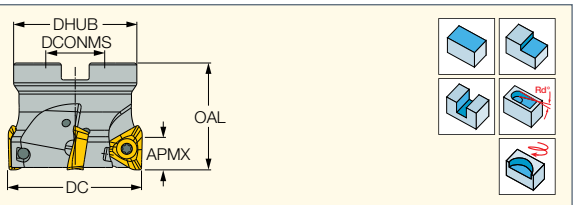
Spare Parts

Designation				
T490 FLN D050-03-22-16	SR 14-591	BLD T20/M7	SW6-T	SR M10X25DIN7984
T490 FLN D050-04-22-16	SR 14-591	BLD T20/M7	SW6-T	SR M10X25DIN7984
T490 FLN D063-06-27-16	SR 14-591	BLD T20/M7	SW6-T	SR M12X30DIN912
T490 FLN D080-05-27-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D080-07-27-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D100-06-32-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D100-08-32-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D125-07-40-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D125-10-40-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D160-12-40-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D200-12-60-16	SR 14-591	BLD T20/M7	SW6-T	

HELI3MILL HM390 LINE

HM390 FTD-19

90° Face Mills Carrying HM390 TDKT 1907 Triangular Inserts with 3 Helical Cutting Edges



Designation	DC	CICT(1)	APMX	OAL	DHUB	DCONMS	Arbor(2)	CSP(3)	RMPX°(4)	kg
HM390 FTD D063-5-27-19	63.00	5	16.00	50.00	60.00	27.00	A	1	1.1	0.63
HM390 FTD D160-10-40-19	160.00	10	16.00	63.00	105.00	40.00	C	0	0.4	4.22

• For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)

(2) For adaptation options, see page 622

(3) 0 - Without coolant supply, 1 - With coolant supply

(4) Maximum ramping angle

For inserts, see pages: HM390 TDKT 1907 (514)

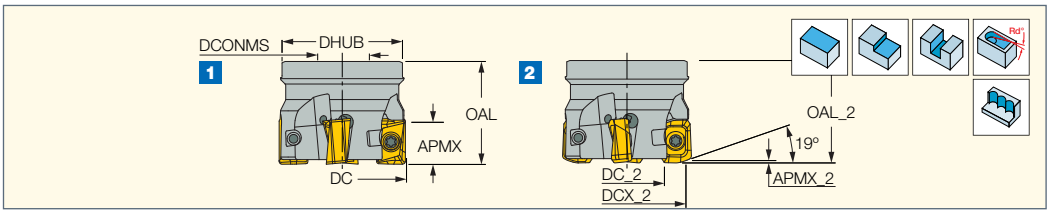
Spare Parts

Designation				
HM390 FTD D063-5-27-19	SR 14-591/H	BLD T20/S7	SW6-T	SR M12X25 DIN 912
HM390 FTD D160-10-40-19	SR 14-591/H	BLD T20/M7	SW6-T	

HELIDO 490 LINE

H490 F90AX-17

90° Face Mills Carrying H490 ANKX 17.. Double-Sided Rectangular Inserts with 4 Helical Cutting Edges



Designation	DC	DCX_2	DC_2	CICT(2)	APMX	APMX_2	AE(3)	OAL	OAL_2	DHUB	DCONMS	Arbor(4)
H490 F90AX D040-3-16-17	40.00	41.50	29.70	3	16.30	1.60	9.5	40.00	39.86	36.00	16.00	A
H490 F90AX D050-3-22-17	50.00	51.50	39.70	3	16.30	1.60	9.5	40.00	39.86	48.00	22.00	A
H490 F90AX D050-4-22-17	50.00	51.50	39.70	4	16.30	1.60	9.5	40.00	39.86	48.00	22.00	A
H490 F90AX D050-5-22-17	50.00	51.50	39.70	5	16.30	1.60	9.5	40.00	39.86	48.00	22.00	A
H490 F90AX D063-4-27-17	63.00	64.50	52.70	4	16.30	1.60	9.5	50.00	49.86	59.20	27.00	A
H490 F90AX D063-6-27-17	63.00	64.50	52.70	6	16.30	1.60	9.5	50.00	49.86	59.20	27.00	A
H490 F90AX D080-5-27-17	80.00	81.50	69.70	5	16.30	1.60	9.5	50.00	49.86	63.00	27.00	B
H490 F90AX D080-7-27-17	80.00	81.50	69.70	7	16.30	1.60	9.5	50.00	49.86	63.00	27.00	B
H490 F90AX D100-5-32-17	100.00	101.50	189.70	5	16.30	1.60	9.5	50.00	49.86	80.00	32.00	B
H490 F90AX D100-8-32-17	100.00	101.50	89.70	8	16.30	1.60	9.5	50.00	49.86	80.00	32.00	B
H490 F90AX D125-10-40-17	125.00	126.50	114.70	10	16.30	1.60	9.5	63.00	62.86	82.00	40.00	B
H490 F90AX D125-7-40-17	125.00	126.50	114.70	7	16.30	1.60	9.5	63.00	62.86	82.00	40.00	B
H490 F90AX D160-12-40-17 (1)	160.00	161.50	149.70	12	16.30	1.60	9.5	63.00	62.86	105.00	40.00	C
H490 F90AX D160-8-40-17 (1)	160.00	161.50	149.70	8	16.30	1.60	9.5	63.00	62.86	105.00	40.00	C
H490 F90AX D200-10-60-17	200.00	201.50	189.70	10	16.30	1.60	9.5	63.00	62.86	135.00	60.00	C
H490 F90AX D250-12-60-17	250.00	251.50	239.70	12	16.30	1.60	9.5	63.00	62.86	144.00	60.00	C

Designation	RMPX°_2(5)	MDN	MDX	CSP(6)	MIID(7)	MIID_2(8)	kg
H490 F90AX D040-3-16-17	3.7	71.20	82.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	0.18
H490 F90AX D050-3-22-17	2.5	91.20	102.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	0.32
H490 F90AX D050-4-22-17	2.5	91.20	102.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	0.30
H490 F90AX D050-5-22-17	2.5	91.20	102.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	0.48
H490 F90AX D063-4-27-17	1.7	117.20	128.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	0.63
H490 F90AX D063-6-27-17	1.7	117.20	128.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	0.67
H490 F90AX D080-5-27-17	1.3	151.20	162.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	0.79
H490 F90AX D080-7-27-17	1.3	151.20	162.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	0.80
H490 F90AX D100-5-32-17	1.0	191.20	202.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	1.39
H490 F90AX D100-8-32-17	1.0	191.20	202.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	1.47
H490 F90AX D125-10-40-17	0.8	241.20	252.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	5.41
H490 F90AX D125-7-40-17	0.8	241.20	252.00	1	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	2.24
H490 F90AX D160-12-40-17 (1)	0.6	311.20	322.00	0	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	4.09
H490 F90AX D160-8-40-17 (1)	0.6	311.20	322.00	0	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	3.64
H490 F90AX D200-10-60-17	0.5	391.20	402.00	0	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	5.99
H490 F90AX D250-12-60-17	0.4	491.20	502.00	0	H490 ANKX 170604PNTR	H490 ANKX 1706..-FF	9.36

- For user guide, see pages 616-621 • 1- with standard square insert, 2- with FF (fast feed) insert
- Ramping angle is valid only when H490 ANKX 1706R15T-FF insert is used
- When assembled the H490 ANKX 1706R15T-FF insert, tool diameter enlarges by 1.5 mm

(1) For internal coolant through the holder, use a matching coolant set (should be ordered separately)
(2) Number of inserts (or edges for solid tool)
(3) Maximum side plunge
(4) For adaptation options, see page 622
(5) Maximum ramping angle when using FF inserts
(6) 0 - Without coolant supply, 1 - With coolant supply
(7) Master insert identification
(8) Master insert identification 2

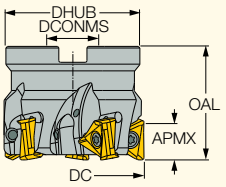
For inserts, see pages: H490 ANKX 1706-FF (540) • H490 ANKX/ANCX-17 (539)

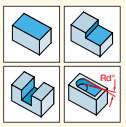
Spare Parts

Designation				
H490 F90AX D040-3-16-17	SR 14-591	BLD T20/M7	SW6-T	SR M8X25DIN912
H490 F90AX D050-3-22-17	SR 14-591	BLD T20/M7	SW6-T	SR M10X25 DIN912
H490 F90AX D050-4-22-17	SR 14-591	BLD T20/M7	SW6-T	SR M10X25 DIN912
H490 F90AX D050-5-22-17	SR 14-591	BLD T20/M7	SW6-T	SR M10X25 DIN912
H490 F90AX D063-4-27-17	SR 14-591	BLD T20/M7	SW6-T	SR M12X30DIN912
H490 F90AX D063-6-27-17	SR 14-591	BLD T20/M7	SW6-T	SR M12X30DIN912
H490 F90AX D080-5-27-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D080-7-27-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D100-5-32-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D100-8-32-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D125-10-40-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D125-7-40-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D160-12-40-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D160-8-40-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D200-10-60-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D250-12-60-17	SR 14-591	BLD T20/M7	SW6-T	

HELIDO 690 LINE

H690 F90AX-16
90° Face Mills Carrying H690 TNKX 1606.. Triangular Inserts with 6 Helical Cutting Edges





Designation	DC	CICT(1)	APMX	OAL	DHUB	DCONMS	Arbor(2)	RMPX°(3)	CSP(4)	kg
H690 F90AX D050-3-22-16	50.00	3	13.50	40.00	48.00	22.00	A	3.0	1	0.31
H690 F90AX D050-4-22-16	50.00	4	13.50	40.00	48.00	22.00	A	3.0	1	0.30
H690 F90AX D063-4-27-16	63.00	4	13.50	50.00	59.00	27.00	A	2.0	1	0.63
H690 F90AX D063-5-27-16	63.00	5	13.50	50.00	59.00	27.00	A	2.0	1	0.64
H690 F90AX D080-5-27-16	80.00	5	13.50	50.00	76.00	27.00	A	1.0	1	1.20
H690 F90AX D080-6-27-16	80.00	6	13.50	50.00	76.00	27.00	A	1.0	1	1.21
H690 F90AX D100-6-32-16	100.00	6	13.50	50.00	80.00	32.00	B	1.0	1	1.29
H690 F90AX D100-8-32-16	100.00	8	13.50	50.00	80.00	32.00	B	1.0	1	1.41
H690 F90AX D125-7-40-16	125.00	7	13.50	63.00	82.00	40.00	B	0.5	1	2.14
H690 F90AX D125-9-40-16	125.00	9	13.50	63.00	82.00	40.00	B	0.5	1	2.29
H690 F90AX D160-8-40-16	160.00	8	13.50	63.00	105.00	40.00	C	-	0	3.03
H690 F90AX D160-10-40-16	160.00	10	13.50	63.00	105.00	40.00	C	-	0	3.46
H690 F90AX D200-11-60-16	200.00	11	13.50	63.00	135.00	60.00	C	-	0	5.09

- For cutting speed recommendations, see pages 616-621

(1) Number of inserts (or edges for solid tool)
(2) For adaptation options, see page 622
(3) Maximum ramping angle
(4) 0 - Without coolant supply, 1 - With coolant supply

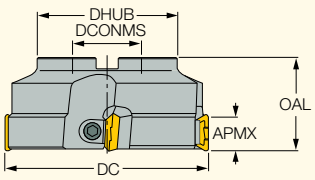
For inserts, see pages: H690 TNKX 1606 (540)

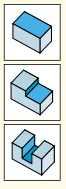
Spare Parts

Designation				
H690 F90AX D050-3-22-16	SR 14-591	BLD T20/M7	SW6-T	SR M10X40-1638
H690 F90AX D050-4-22-16	SR 14-591	BLD T20/M7	SW6-T	SR M10X40-1638
H690 F90AX D063-4-27-16	SR 14-591	BLD T20/M7	SW6-T	SR M12X30DIN912
H690 F90AX D063-5-27-16	SR 14-591	BLD T20/M7	SW6-T	SR M12X30DIN912
H690 F90AX D080-5-27-16	SR 14-591	BLD T20/M7	SW6-T	SR M12X35DIN912
H690 F90AX D080-6-27-16	SR 14-591	BLD T20/M7	SW6-T	SR M12X35DIN912
H690 F90AX D100-6-32-16	SR 14-591	BLD T20/M7	SW6-T	
H690 F90AX D100-8-32-16	SR 14-591	BLD T20/M7	SW6-T	
H690 F90AX D125-7-40-16	SR 14-591	BLD T20/M7	SW6-T	
H690 F90AX D125-9-40-16	SR 14-591	BLD T20/M7	SW6-T	
H690 F90AX D160-8-40-16	SR 14-591	BLD T20/M7	SW6-T	
H690 F90AX D160-10-40-16	SR 14-591	BLD T20/M7	SW6-T	
H690 F90AX D200-11-60-16	SR 14-591	BLD T20/M7	SW6-T	

ISCARMILL

F90
90° Face Mills Carrying TPKN/R Inserts





Designation	DC	CICT(1)	OAL	APMX	DHUB	DCONMS	Arbor(2)	kg
F90 D080-27	80.00	6	50.00	18.00	55.00	27.00	B	1.05
F90 D100-32	100.00	8	50.00	18.00	70.00	32.00	B	1.57

- For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)
(2) For adaptation options, see page 622

For inserts, see pages: TPKN/TPKR (536)

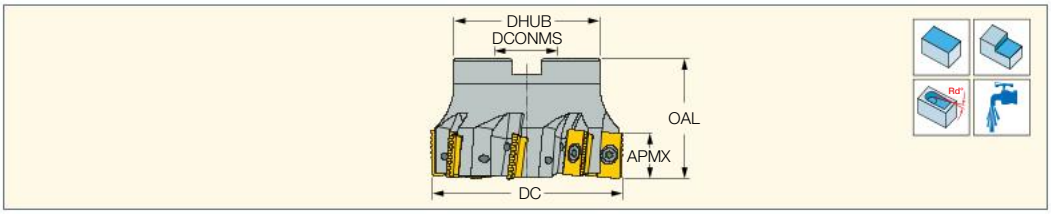
Spare Parts

Designation						
F90 D080-27	NTP 43-R	SR 35-342.3	HW 4P	LW 35-342 T	SR 35-343.4	HW 2.0
F90 D100-32	NTP 43-R	SR 35-342.3	HW 4P	LW 35-342 T	SR 35-403	HW 2.0

MILLSHRED P290 LINE

P290 FPW/FCT

90° Face Mills Carrying 12 and 18mm Long Edged Inserts



Designation	DC	APMX	CICT(2)	OAL	DHUB	DCONMS	Arbor(3)	RMPX°(4)	kg
P290 FPW D032-04-16-12	32.00	12.00	4	50.00	30.40	16.00	A	1.0	0.16
P290 FPW D040-05-16-12	40.00	12.00	5	35.00	38.00	16.00	A	0.7	0.17
P290 FPW D050-06-22-12	50.00	12.00	6	40.00	48.00	22.00	A	0.5	0.31
P290 FPW D040-04-16-18	40.00	18.00	4	40.00	35.00	16.00	A	1.5	0.15
P290 FPW D050-05-22-18	50.00	18.00	5	40.00	45.00	22.00	A	1.0	0.27
P290 FCT D050-05-22-18 (1)	50.00	18.00	5	40.00	45.00	22.00	A	1.0	0.27
P290 FPW D063-06-22-18	63.00	18.00	6	40.00	48.00	22.00	A	0.8	0.47
P290 FPW D080-08-27-18	80.00	18.00	8	50.00	60.00	27.00	B	0.5	1.02
P290 FPW D100-09-32-18	100.00	18.00	9	55.00	78.00	32.00	B	0.3	1.87

- For user guide, see pages 616-621

(1) To be used only with P290 ACCT 1806PDR-HL/TL straight-edged inserts
(2) Number of inserts (or edges for solid tool)
(3) For adaptation options, see page 622
(4) Maximum ramping angle

For inserts, see pages: P290 ACCT/KT (529) • P290 ACKT (529)

Spare Parts

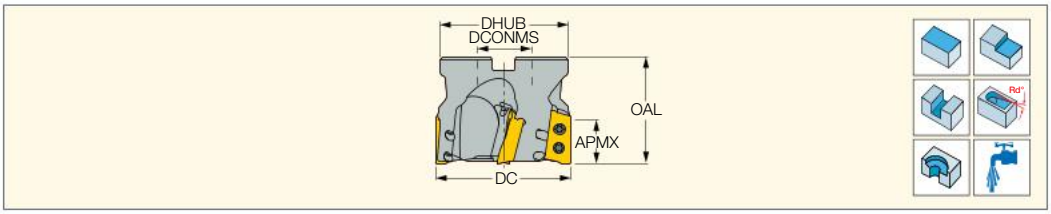
Designation					
P290 FPW D032-04-16-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151			SR M8X40-D11.5 DIN912
P290 FPW D040-05-16-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151			SR M8X25DIN912
P290 FPW D050-06-22-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151			SR M10X25 DIN912
P290 FPW D040-04-16-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M8X30DIN912
P290 FPW D050-05-22-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M10X25 DIN912
P290 FCT D050-05-22-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M10X25 DIN912
P290 FPW D063-06-22-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M10X25 DIN912
P290 FPW D080-08-27-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M12X30DIN912
P290 FPW D100-09-32-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M16X40DIN912

(a) Recommended tightening torque:2.0 N*m

HELIPLUS

HP F90AT-19

90° Face Mills Carrying HP AD.. 1906... Long Edged Inserts



Designation	DC	CICT(1)	APMX	OAL	DHUB	DCONMS	RMPX°(2)	RPMX(3)	Arbor(4)	kg
HP F90AT D50-4-22-19	50.00	4	18.10	50.00	46.50	22.00	5.0	14665	A	0.33

- Insert clamping/unclamping procedure: First loosely attach the rear clamping screw, then the face screw. In the same order, tighten them both.
- For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)
(2) Maximum ramping angle
(3) Maximum RPM
(4) For adaptation options, see page 622

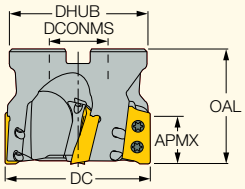
For inserts, see pages: HP ADCR 1906 (532) • HP ADKT/ADCT 1906 (532)

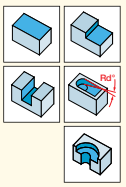
Spare Parts

Designation				
HP F90AT-19	SR 14-571/L	BLD T10/S7	SW6-SD	SR M10X30 DIN912

HELIPLUS

HP F90AT-22
90° Face Mills Carrying HP AD..
2207... Long Edged Inserts





Designation	DC	CICT(1)	APMX	OAL	DHUB	DCONMS	RMPX°(2)	RPMX(3)	Arbor(4)	CSP(5)	kg
HP F90AT D50-3-22-22	50.00	3	21.00	50.00	48.00	22.00	5.0	13990	A	1	0.36
HP F90AT D50-4-22-22	50.00	4	21.00	50.00	48.00	22.00	5.0	13990	A	0	0.33

- Insert clamping/unclamping procedure: First loosely attach the rear clamping screw, then the face screw. In the same order, tighten them both.
- For user guide,see pages 616-621

(1) Number of inserts (or edges for solid tool)
(2) Maximum ramping angle
(3) Maximum RPM
(4) For adaptation options, see page 622
(5) 0 - Without coolant supply, 1 - With coolant supply

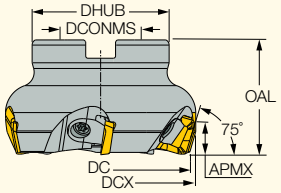
For inserts, see pages: HP ADCR 2207 (533) • HP ADKT/ADCT 2207 (532)

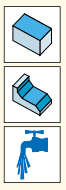
Spare Parts

Designation				
HP F90AT-22	SR 14-544	BLD T15/M7	SW6-T-SH	SR M10X30 DIN912

ISCARMILL

F75-M
75° Face Mills with
SPKN/SPKR 1203.. Inserts





Designation	DC	DCX(1)	CICT(2)	APMX	OAL	DHUB	DCONMS	Arbor	MIID(3)	kg
F75 D050-04-16-M	50.00	55.70	4	9.50	40.00	38.00	16.00	A	SPKN 1203EDTR	0.50
F75 D063-05-22-M	63.00	68.70	5	9.50	40.00	48.00	22.00	A	SPKN 1203EDTR	0.62
F75 D080-06-27-M	80.00	83.20	6	9.50	45.00	60.00	27.00	B	SPKN 1203EDTR	1.09
F75 D100-07-32-M	100.00	105.70	7	9.50	50.00	78.00	32.00	B	SPKN 1203EDTR	2.20
F75 D125-08-40-M	125.00	130.70	8	9.50	63.00	92.00	40.00	B	SPKN 1203EDTR	4.10

- For user guide see pages 616-621

(1) Cutting diameter maximum
(2) Cutting item count
(3) Master insert identification

For inserts, see pages: SPKN ED.. (583) • SPKR ED..-76 (584) • SPKR EDTR-HS (583)

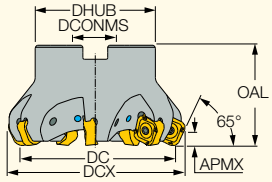
Spare Parts

Designation					
F75 D050-04-16-M	SR M8X30DIN912	BLD IP20/S7	SW6-T	LW35-475/8M	SR-118-069-CH
F75 D063-05-22-M	SR M10X25 DIN912	BLD IP20/S7	SW6-T	LW35-475/8M	SR-118-069-CH
F75 D080-06-27-M		BLD IP20/S7	SW6-T	LW35-475/8M	SR-118-069-CH
F75 D100-07-32-M		BLD IP20/S7	SW6-T	LW35-475/8M	SR-118-069-CH
F75 D125-08-40-M		BLD IP20/S7	SW6-T	LW35-475/8M	SR-118-069-CH

HELIDO 865 LINE

S865 FSN-13

65° Face Mills Carrying Inserts with 8 Cutting Edges



Designation	DC	DCX(1)	CICT(2)	OAL	DHUB	DCONMS	APMX(3)	Arbor(4)	kg
S865 FSN D050-04-22-R13	50.00	59.70	4	40.00	48.00	22.00	6.00	A	0.36
S865 FSN D050-06-22-R13	50.00	59.70	6	40.00	48.00	22.00	6.00	A	0.36
S865 FSN D063-06-22-R13	63.00	72.70	6	40.00	48.00	22.00	6.00	A	0.51
S865 FSN D063-08-22-R13	63.00	72.70	8	40.00	48.00	22.00	6.00	A	0.50
S865 FSN D080-07-27-R13	80.00	89.70	7	50.00	60.00	27.00	6.00	B	0.92
S865 FSN D080-10-27-R13	80.00	89.70	10	50.00	60.00	27.00	6.00	B	0.93
S865 FSN D100-08-32-R13	100.00	109.70	8	50.00	70.00	32.00	6.00	B	1.37
S865 FSN D100-12-32-R13	100.00	109.70	12	50.00	70.00	32.00	6.00	B	1.37
S865 FSN D125-10-40-R13	125.00	134.70	10	63.00	82.00	40.00	6.00	B	2.58
S865 FSN D125-16-40-R13	125.00	134.70	16	63.00	82.00	40.00	6.00	B	2.59

- For user guide, see pages 616-621

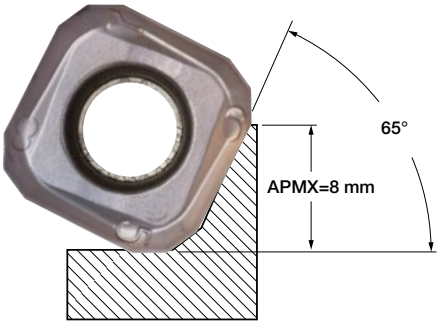
(1) Cutting diameter maximum

(2) Number of inserts (or edges for solid tool)

(3) Depth of cut on steel with coarse pitch cutters and on cast iron with fine pitch cutters may be increased to 8 mm.

(4) For adaptation options, see page 622

For inserts, see pages: S865 SNMU 1305ZNTR (571)

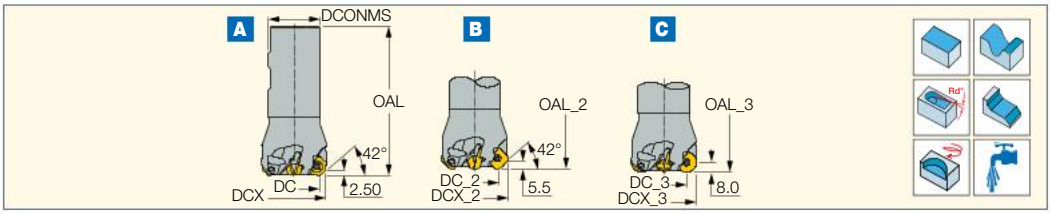


Spare Parts

Designation				
S865 FSN D050-04-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X20DIN912
S865 FSN D050-06-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X20DIN912
S865 FSN D063-06-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X20DIN912
S865 FSN D063-08-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X20DIN912
S865 FSN D080-07-27-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S865 FSN D080-10-27-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S865 FSN D100-08-32-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S865 FSN D100-12-32-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S865 FSN D125-10-40-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	
S865 FSN D125-16-40-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	

HELIOCTO

HOE-R06
Endmills Carrying Octagonal, Square and Round Inserts



Designation	DC	DCX[1]	OAL	RMPX°[2]	DC_2	DCX_2	OAL_2	RMPX°_2	DC_3	DCX_3	OAL_3	RMPX°_3	DCONMS	CICT[3]	kg
HOE D32-03-W32-R06	32.00	41.40	95.00	5.9	29.40	44.10	96.2	9.0	26.80	42.70	95.50	7.6	32.00	3	0.54
HOE D40-04-W40-R06	40.00	49.40	115.00	5.0	37.40	52.10	116.2	6.8	34.80	50.70	115.50	5.0	40.00	4	1.09
HOE D50-04-W40-R06	50.00	59.40	115.00	4.2	47.40	62.10	116.2	5.0	44.80	60.70	115.50	5.7	40.00	4	1.23

• A - with OEM. 060405... insert • B - with SECT/SEMT 1404... insert • C - with REM. 1505... round insert
[1] Cutting diameter maximum
[2] Maximum ramping angle
[3] Number of inserts (or edges for solid tool)

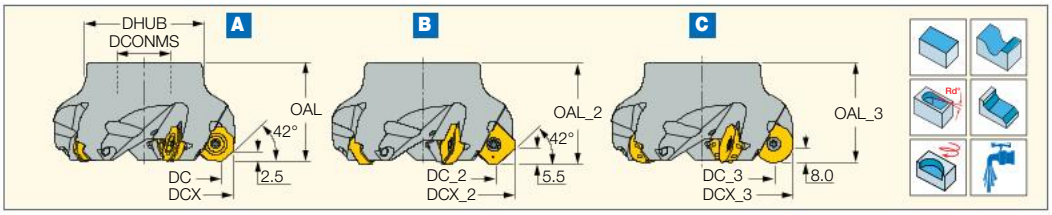
For inserts, see pages: OECR (575) • OEMT/OEKT 060405 (575) • OEMW-AETN (576) • REMT-76 (602) • SECT/SEMT 1404 (583)

Spare Parts

Designation			
HOE D32-03-W32-R06	SR 14-544/S	BLD T15/S7	SW6-T-SH
HOE D40-04-W40-R06	SR 14-544/S	BLD T15/S7	SW6-T-SH
HOE D50-04-W40-R06	SR 14-544	BLD T15/S7	SW6-T-SH

HELIOCTO

HOF-R06
Face Mills Carrying Octagonal, Square, and Round Inserts



Designation	DC	DCX[1]	OAL	RMPX°[2]	DC_2	DCX_2	OAL_2	RMPX°_2	DC_3	DCX_3	OAL_3	RMPX°_3	CICT[3]	DHUB	DCONMS	Arbor[4]	kg
HOF D040-04-22-R06	40.00	49.40	40.00	5.0	37.40	52.10	41.2	6.8	34.80	50.70	40.50	5.0	4	48.00	22.00	A	0.33
HOF D050-04-22-R06	50.00	59.40	40.00	4.2	47.40	62.10	41.2	5.0	44.80	60.70	40.50	5.7	4	48.00	22.00	A	0.44
HOF D063-05-22-R06	63.00	72.40	40.00	3.2	60.40	75.10	41.2	4.0	57.80	73.70	40.50	4.0	5	52.00	22.00	A	0.58
HOF D080-06-27-R06	80.00	89.40	50.00	2.5	77.40	92.10	51.2	3.0	74.80	90.70	50.50	3.0	6	60.00	27.00	B	1.13
HOF D100-07-32-R06	100.00	109.40	50.00	1.9	97.40	112.10	51.2	2.3	94.80	110.70	50.50	2.2	7	70.00	32.00	B	1.65
HOF D125-08-40-R06	125.00	134.40	63.00	1.4	122.40	137.10	64.2	1.8	119.80	135.70	63.50	1.6	8	82.00	40.00	B	3.19

• A - with OEM. 060405...\ OECR 06.. inserts • B - with SECT/SEMT 1404... inserts • C - with REM. 1505... round insert
[1] Cutting diameter maximum
[2] Maximum ramping angle
[3] Number of inserts (or edges for solid tool)
[4] For adaptation options, see page 622

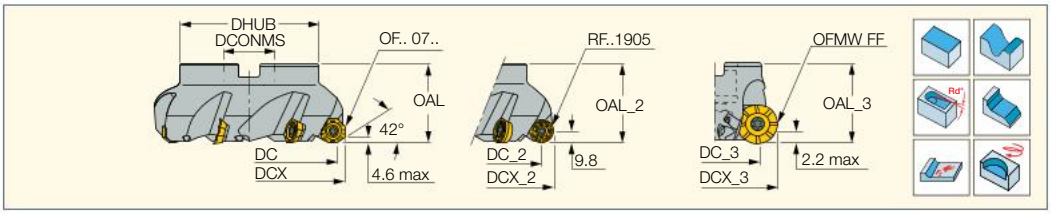
For inserts, see pages: OECR (575) • OEMT/OEKT 060405 (575) • OEMW-AETN (576) • REMT-76 (602) • SECT/SEMT 1404 (583)

Spare Parts

Designation				
HOF D040-04-22-R06	SR 14-544/S	BLD T15/S7	SW6-T-SH	SR M10X25DIN7984
HOF D050-04-22-R06	SR 14-544	BLD T15/S7	SW6-T-SH	SR M10X25 DIN912
HOF D063-05-22-R06	SR 14-544	BLD T15/S7	SW6-T-SH	SR M10X25 DIN912
HOF D080-06-27-R06	SR 14-544	BLD T15/M7	SW6-T-SH	
HOF D100-07-32-R06	SR 14-544	BLD T15/M7	SW6-T-SH	
HOF D125-08-40-R06	SR 14-544	BLD T15/M7	SW6-T-SH	

HELIOCTO

HOF-R07
Face Mills Carrying Octagonal Round and Fast Feed Segmented Round Inserts



Designation	DC	DCX[2]	OAL	RMPX°[3]	DCX_2	DC_2	OAL_2	RMPX°_2[4]	DC_3	DCX_3	OAL_3	RMPX°_3[5]	CICT[6]	DHUB	DCONMS	Arbor[7]	kg
HOF D050-03-22-R07	50.00	62.50	40.00	6.5	63.30	43.56	40.50	9.0	44.80	64.00	40.60	9.0	3	48.00	22.00	A	0.30
HOF D063-04-22-R07	63.00	75.50	40.00	5.0	76.30	56.56	40.50	6.0	57.80	77.00	40.60	6.0	4	48.00	22.00	A	0.48
HOF D080-05-27-R07 [1]	80.00	92.50	50.00	3.5	93.30	73.56	50.50	4.5	92.50	94.00	50.60	4.5	5	60.00	27.00	B	0.91
HOF D100-06-32-R07 [1]	100.00	112.50	50.00	2.5	113.30	93.56	50.50	3.0	94.80	114.00	50.60	3.0	6	70.00	32.00	B	1.33
HOF D125-08-40-R07 [1]	125.00	137.50	63.00	2.5	138.30	118.56	63.50	2.5	119.80	139.00	63.60	2.5	8	82.00	40.00	B	2.70
HOF D160-10-40-R07	160.00	172.50	63.00	1.9	173.30	153.56	63.50	1.9	154.80	174.00	63.60	-	10	92.00	40.00	C	3.83
HOF D200-12-60-R07	200.00	212.50	63.00	1.5	213.30	193.56	63.50	1.5	194.80	214.00	63.60	-	12	150.00	60.00	C	7.03
HOF D250-15-60-R07	250.00	262.50	63.00	1.2	263.30	243.56	63.50	1.2	244.80	264.00	63.60	-	15	150.00	60.00	C	10.08
HOF D315-18-60-R07	315.00	327.50	80.00	0.9	328.30	308.56	80.50	0.9	309.80	329.00	80.60	-	18	215.00	60.00	C	21.00

• Helical interpolation is applicable up to and including 100 mm diameter • For user guide, see pages 616-621
[1] For internal coolant through the holder, use a matching coolant set (should be ordered separately)
[2] Cutting diameter maximum
[3] Maximum ramping angle with OF..07.. inserts
[4] Dimensions with RF.. 1905 round inserts
[5] Dimensions with OFMW FF inserts
[6] Number of inserts (or edges for solid tool)
[7] For adaptation options, see page 622

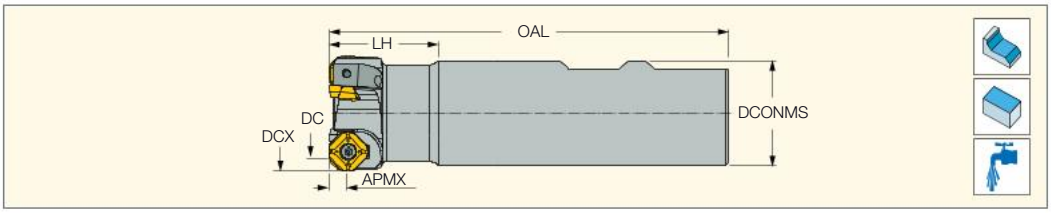
For inserts, see pages: OFCR/OFCT-AEN/AETN (577) • OFCR/OFCT-RW/AER (wiper) (577) • OFMT 07 (576) • OFMW-AETN (576) • OFMW-FF (578) • RFMT 1905-76 (604)

Spare Parts

Designation							
HOF D050-03-22-R07	SR 14-591/H	BLD T20/S7	SW6-T	THOF-07R	SR M2.5X8 DIN912 TUFLOK	HW 2.0	SR M10X25 DIN912
HOF D063-04-22-R07	SR 14-591/H	BLD T20/S7	SW6-T	THOF-07R	SR M2.5X10 DIN912 TUFLOK	HW 2.0	SR M10X25 DIN912
HOF D080-05-27-R07	SR 14-591/H	BLD T20/S7	SW6-T	THOF-07R	SR M2.5X8 DIN912 TUFLOK	HW 2.0	
HOF D100-06-32-R07	SR 14-591/H	BLD T20/M7	SW6-T	THOF-07R	SR M2.5X10 DIN912 TUFLOK	HW 2.0	
HOF D125-08-40-R07	SR 14-591/H	BLD T20/M7	SW6-T	THOF-07R	SR M2.5X10 DIN912 TUFLOK	HW 2.0	
HOF D160-10-40-R07	SR 14-591/H	BLD T20/L7	SW6-T	THOF-07R	SR M2.5X10 DIN912 TUFLOK	HW 2.0	
HOF D200-12-60-R07	SR 14-591/H	BLD T20/L7	SW6-T	THOF-07R	SR M2.5X10 DIN912 TUFLOK	HW 2.0	
HOF D250-15-60-R07	SR 14-591/H	BLD T20/L7	SW6-T	THOF-07R	SR M2.5X10 DIN912 TUFLOK	HW 2.0	
HOF D315-18-60-R07	SR 14-591/H	BLD T20/L7	SW6-T	THOF-07R	SR M2.5X10 DIN912 TUFLOK	HW 2.0	

DOVEIQMILL 845 LINE

IQ845 ESY-R05
50° Endmills Carrying Square Inserts with 8 Cutting Edges



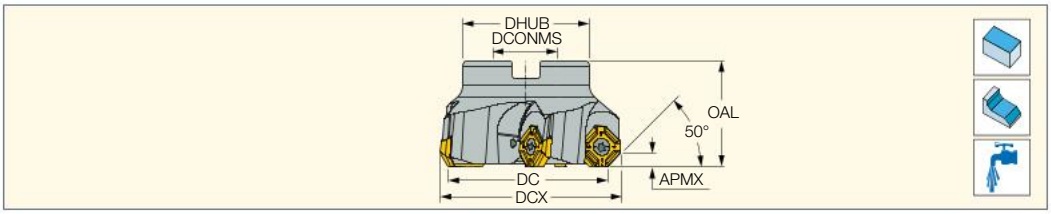
Designation	DC	DCX[1]	CICT[2]	APMX	OAL	LH	DCONMS	Shank[3]	kg		
IQ845 ESY D016-03-W20-R05	16.00	21.40	3	2.60	85.00	26.0	20.00	W	0.16	SR M2.5X6-T7-60	T-7/51
IQ845 ESY D020-03-W20-R05	20.00	25.50	3	2.60	90.00	26.0	20.00	W	0.19	SR M2.5X6-T7-60	T-7/51
IQ845 ESY D025-03-W25-R05	25.00	30.60	3	2.60	95.00	26.0	25.00	W	0.32	SR M2.5X6-T7-60	T-7/51
IQ845 ESY D025-04-W25-R05	25.00	30.60	4	2.60	95.00	26.0	25.00	W	0.31	SR M2.5X6-T7-60	T-7/51
IQ845 ESY D032-04-W32-R05	32.00	37.70	4	2.60	100.00	26.0	32.00	W	0.56	SR M2.5X6-T7-60	T-7/51
IQ845 ESY D032-05-W32-R05	32.00	37.70	5	2.60	100.00	26.0	32.00	W	0.56	SR M2.5X6-T7-60	T-7/51
IQ845 ESY D040-05-W40-R05	40.00	45.70	5	2.60	110.00	26.0	40.00	W	0.97	SR M2.5X6-T7-60	T-7/51
IQ845 ESY D040-06-W40-R05	40.00	45.70	6	2.60	110.00	26.0	40.00	W	1.05	SR M2.5X6-T7-60	T-7/51

• For user guide, see pages 616-621
[1] Cutting diameter maximum
[2] Number of inserts (or edges for solid tool)
[3] W-Weldon

For inserts, see pages: IQ845 SYHU-05 (567)

DOVE IQMILL 845 LINE

IQ845 FSY-R05
50° Face Mills Carrying Square Inserts with 8 Cutting Edges



Designation	DC	DCX(1)	CICT(2)	APMX	OAL	DHUB	DCONMS	Arbor(3)	kg			
IQ845 FSY D040-04-16-R05	40.00	45.70	4	2.60	40.00	38.00	16.00	A	0.28	SR M8X25DIN912	SR M2.5X6-T7-60	T-7/51
IQ845 FSY D040-07-16-R05	40.00	45.70	7	2.60	40.00	38.00	16.00	A	0.26	SR M8X25DIN912	SR M2.5X6-T7-60	T-7/51
IQ845 FSY D050-05-22-R05	50.00	55.80	5	2.60	40.00	48.00	22.00	A	0.44	SR M10X20DIN912	SR M2.5X6-T7-60	T-7/51
IQ845 FSY D050-09-22-R05	50.00	55.80	9	2.60	40.00	48.00	22.00	A	0.41	SR M10X20DIN912	SR M2.5X6-T7-60	T-7/51
IQ845 FSY D063-07-22-R05	63.00	68.80	7	2.60	40.00	48.00	22.00	B	0.57	SR M10X20DIN912	SR M2.5X6-T7-60	T-7/51
IQ845 FSY D063-11-22-R05	63.00	68.80	11	2.60	40.00	48.00	22.00	B	0.55	SR M10X20DIN912	SR M2.5X6-T7-60	T-7/51

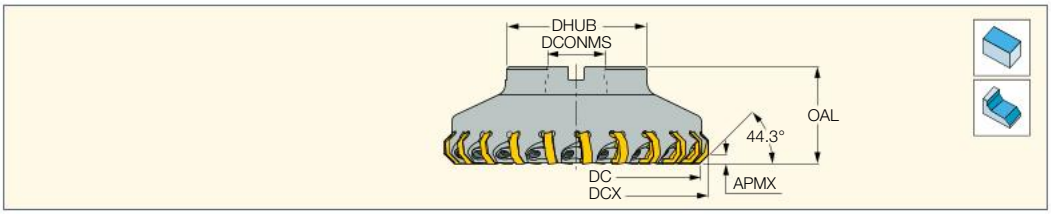
- For user guide, see pages 616-621

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) For adaptation options, see page 622

For inserts, see pages: IQ845 SYHU-05 (567)

16MILL

F45WG
45° Face Mills Carrying Octagonal ONHU/MU 0806... Inserts with 16 Cutting Edges



Designation	DC	DCX(2)	CICT(3)	APMX	OAL	DHUB	DCONMS	Arbor(4)	kg
F45WG D080-10-27-FX-R08 (1)	80.00	92.00	10	5.50	50.00	60.00	27.00	B	1.11
F45WG D100-14-32-FX-R08 (1)	100.00	112.00	14	5.50	50.00	70.00	32.00	B	1.64
F45WG D125-18-40-FX-R08 (1)	125.00	137.00	18	5.50	63.00	82.00	40.00	B	3.00
F45WG D160-22-40-FX-R08	160.00	172.00	22	5.50	63.00	92.00	40.00	C	4.58

- Note: Recommended wedge clamping torque: 8.5-9.0 Nxm
- For user guide, see pages 616-621

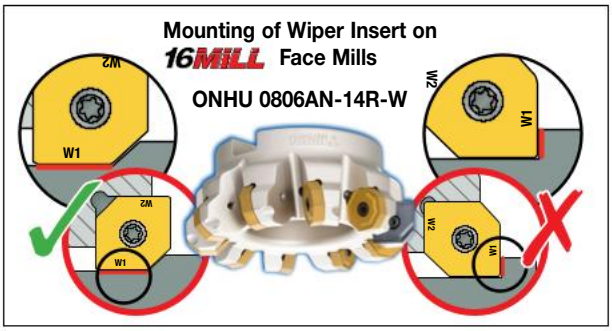
(1) For internal coolant through the holder, use a matching coolant set (should be ordered separately)
(2) Cutting diameter maximum
(3) Number of inserts (or edges for solid tool)
(4) For adaptation options, see page 622

For inserts, see pages: ONHQ-TN (587) • ONHU 0806-N-PL (588) • ONHU 0806AN-W (588) • ONHU/ONMU 080608 AN-N-HP (588) • ONHU/ONMU-08-TN-MM (587) • ONHU/ONMU-08-TN/HL (587)

Wiper Inserts

Wiper inserts are used on face mill cutters, providing improved surface finish and thus eliminating the use of other finishing cutters.
ONHU 0806AN-14R-W mounted on **F45WG** and **F45NM** milling cutters. This insert provides 4 right-hand wiper edges.

Mounting instructions have been included in each insert package to avoid incorrect clamping orientation. Only correct mounting will provide high surface finish!



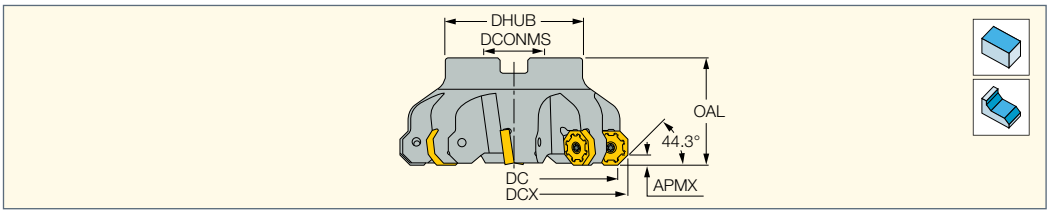
Spare Parts

Designation				
F45WG	SR 118-069	BLD IP20/S7	SW6-T	LW 35-475/M

16MILL

F45NM

45° Face Mills Carrying Octagonal ONHU/MU 0806... Inserts with 16 Cutting Edges



Designation	DC	DCX(2)	CICT(3)	APMX	OAL	DHUB	DCONMS	Arbor(4)	kg
F45NM D063-05-22-R08	63.00	75.00	5	5.50	40.00	48.00	22.00	A	0.46
F45NM D080-06-27-R08 (1)	80.00	92.00	6	5.50	50.00	60.00	27.00	B	0.95
F45NM D080-08-27-R08 (1)	80.00	92.00	8	5.50	50.00	60.00	27.00	B	0.92
F45NM D100-07-32-R08 (1)	100.00	112.00	7	5.50	50.00	70.00	32.00	B	1.40
F45NM D100-10-32-R08 (1)	100.00	112.00	10	5.50	50.00	70.00	32.00	B	1.39
F45NM D125-08-40-R08 (1)	125.00	137.00	8	5.50	63.00	82.00	40.00	B	2.68
F45NM D125-12-40-R08 (1)	125.00	137.00	12	5.50	63.00	82.00	40.00	B	2.63
F45NM D160-10-40-R08	160.00	172.00	10	5.50	63.00	92.00	40.00	C	4.10
F45NM D160-15-40-R08	160.00	172.00	15	5.50	63.00	92.00	40.00	C	4.17
F45NM D200-12-60-R08	200.00	212.00	12	5.50	63.00	150.00	60.00	C	7.12
F45NM D250-14-60-R08	250.00	262.00	14	5.50	63.00	137.00	60.00	C	8.95

- Wiper inserts are used on face mill cutters, providing improved surface finish, thus eliminating the use of other finishing cutters
- For user guide, see pages 616-621

(1) For internal coolant through the holder, use a matching coolant set (should be ordered separately)
(2) Cutting diameter maximum
(3) Number of inserts (or edges for solid tool)
(4) For adaptation options, see page 622

For inserts, see pages: ONHQ-TN (587) • ONHU 0806-N-PL (588) • ONHU 0806AN-W (588) • ONHU/ONMU 080608 AN-N-HP (588) • ONHU/ONMU-08-TN-MM (587) • ONHU/ONMU-08-TN/HL (587)

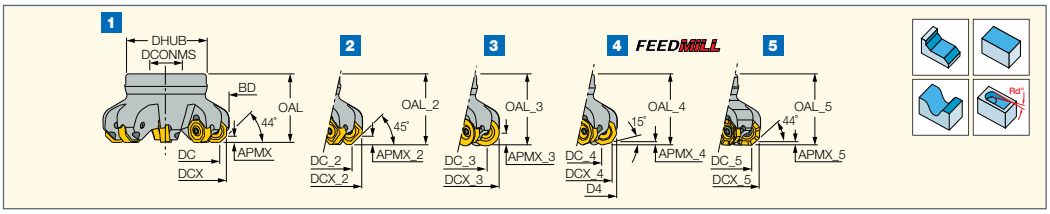
Spare Parts

Designation				
F45NM D063-05-22-R08	SR 14-591/H	BLD T20/S7	SW6-T	SR M10X25 DIN912
F45NM D080-06-27-R08	SR 14-591/H	BLD T20/S7	SW6-T	
F45NM D080-08-27-R08	SR 11800771	BLD IP15/S7	SW6-T-SH	
F45NM D100-07-32-R08	SR 14-591/H	BLD T20/S7	SW6-T	
F45NM D100-10-32-R08	SR 11800771	BLD IP15/S7	SW6-T-SH	
F45NM D125-08-40-R08	SR 14-591/H	BLD T20/S7	SW6-T	
F45NM D125-12-40-R08	SR 11800771	BLD IP15/S7	SW6-T-SH	
F45NM D160-10-40-R08	SR 14-591/H	BLD T20/L7	SW6-T	
F45NM D160-15-40-R08	SR 11800771	BLD IP15/M7	SW6-T-SH	
F45NM D200-12-60-R08	SR 14-591/H	BLD T20/L7	SW6-T	
F45NM D250-14-60-R08	SR 14-591/H	BLD T20/L7	SW6-T	

HELIDO 800 LINE

SOF45

Multifunction Face Mills for Octagonal, Square and Round Insert Contours with Various Entry Angles



Designation	BD	DC	DCX[1]	DC_2	DCX_2	DC_3	DCX_3	DC_4	DCX_4	D4	DC_5	DCX_5	APMX	APMX_2	APMX_3	APMX_4	APMX_5
SOF45 8/16-D040-04-22R	50.40	40.00	48.00	37.65	50.40	35.40	51.20	34.50	44.00	50.50	40.30	50.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D050-04-22R	60.40	50.00	58.00	47.65	60.40	45.40	61.20	44.50	54.00	60.50	50.30	60.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D050-06-22R	60.40	50.00	58.00	47.65	60.40	45.40	61.20	44.50	54.00	60.50	50.30	60.0	3.50	6.00	7.90	1.20	2.90
SOF45 D050-04-22-R13	62.75	52.35	60.35	50.00	62.75	47.75	63.55	46.95	56.35	62.90	52.65	62.4	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D063-04-22R	73.40	63.00	71.00	60.65	73.40	58.40	74.20	57.50	67.00	73.50	63.30	73.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D063-06-22R	73.40	63.00	71.00	60.65	73.40	58.40	74.20	57.50	67.00	73.50	63.30	73.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D063-08-22R	73.40	63.00	71.00	60.65	73.40	58.40	74.20	57.50	67.00	73.50	63.30	73.0	3.50	6.00	7.90	1.20	2.90
SOF45 D063-06-22-R13	75.75	65.35	72.35	63.00	75.75	60.75	76.55	59.95	69.35	75.90	63.65	75.3	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D080-07-27R	90.40	80.00	88.00	77.65	90.40	65.40	91.20	74.50	84.00	90.50	80.30	90.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D080-10-27R	90.40	80.00	88.00	77.65	90.40	65.40	91.20	74.50	84.00	90.50	80.30	90.0	3.50	6.00	7.90	1.20	2.90
SOF45 D080-07-27-R13	92.75	82.35	90.35	80.00	92.75	77.60	93.40	76.95	86.35	92.90	82.65	92.3	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D100-08-32R	110.40	100.00	108.00	97.65	110.40	95.40	111.20	94.50	104.00	110.50	100.30	110.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D100-12-32R	110.40	100.00	108.00	97.65	110.40	95.40	111.20	94.50	104.00	110.50	100.30	110.0	3.50	6.00	7.90	1.20	2.90
SOF45 D100-08-32-R13	112.75	102.35	110.35	100.00	112.75	97.75	113.55	96.95	106.35	112.90	102.65	112.3	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D125-10-40R	135.40	125.00	133.00	122.65	135.40	120.40	136.20	119.50	129.00	135.50	125.30	135.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D125-16-40R	135.40	125.00	133.00	122.65	135.40	120.40	136.20	119.50	129.00	135.50	125.30	135.0	3.50	6.00	7.90	1.20	2.90
SOF45 D125-10-40-R13	137.75	127.35	135.35	125.00	137.75	122.75	138.55	121.95	131.35	137.90	127.65	137.3	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D160-12-40R	170.40	160.00	168.00	157.65	170.40	155.40	171.20	154.50	164.00	171.50	160.30	170.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D200-14-60R	210.40	200.00	208.00	197.65	210.40	195.40	211.20	194.50	204.00	211.50	200.50	210.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D250-16-60R	260.40	250.00	258.00	247.65	260.40	245.40	261.20	244.50	254.00	261.50	250.30	260.0	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D315-20-60R	325.40	315.00	323.00	312.65	325.40	310.40	326.20	309.50	319.00	326.50	315.30	325.0	3.50	6.00	7.90	1.20	2.90

Designation	OAL	OAL_2	OAL_3	OAL_4	OAL_5	CICT[2]	DHUB	DCONMS	RMPX°_3[3]	Arbor[4]	CSP[5]
SOF45 8/16-D040-04-22R	40.00	41.2	41.60	41.30	41.20	4	45.00	22.00	3.7	A	1
SOF45 8/16-D050-04-22R	40.00	41.2	41.60	41.30	41.20	4	48.00	22.00	5.6	A	1
SOF45 8/16-D050-06-22R	40.00	41.2	41.60	41.30	41.20	6	48.00	22.00	5.6	A	1
SOF45 D050-04-22-R13	38.80	40.0	40.40	40.10	40.20	4	48.00	22.00	5.4	A	1
SOF45 8/16-D063-04-22R	40.00	41.2	41.60	41.30	41.20	4	48.00	22.00	6.3	A	1
SOF45 8/16-D063-06-22R	40.00	41.2	41.60	41.30	41.20	6	48.00	22.00	6.3	B	0
SOF45 8/16-D063-08-22R	40.00	41.2	41.60	41.30	41.20	8	48.00	22.00	6.3	B	0
SOF45 D063-06-22-R13	38.80	40.0	40.40	40.10	40.20	6	48.00	22.00	5.7	B	1
SOF45 8/16-D080-07-27R	50.00	51.2	51.60	51.30	51.20	7	60.00	27.00	6.2	B	0
SOF45 8/16-D080-10-27R	50.00	51.2	51.60	51.30	51.20	10	60.00	27.00	6.2	B	0
SOF45 D080-07-27-R13	48.80	50.0	50.40	50.10	50.20	7	60.00	27.00	6.0	B	1
SOF45 8/16-D100-08-32R	50.00	51.2	51.60	51.30	51.20	8	70.00	32.00	4.7	B	0
SOF45 8/16-D100-12-32R	50.00	51.2	51.60	51.30	51.20	12	70.00	32.00	4.7	B	0
SOF45 D100-08-32-R13	48.80	50.0	50.40	50.10	50.00	8	70.00	32.00	4.6	B	1
SOF45 8/16-D125-10-40R	63.00	64.2	64.60	64.30	64.20	10	82.00	40.00	3.6	B	0
SOF45 8/16-D125-16-40R	63.00	64.2	64.60	64.30	64.20	16	82.00	40.00	3.6	B	0
SOF45 D125-10-40-R13	61.80	63.0	63.40	63.10	63.20	10	82.00	40.00	3.5	B	1
SOF45 8/16-D160-12-40R	63.00	64.2	64.60	64.30	64.20	12	92.00	40.00	2.6	C	0
SOF45 8/16-D200-14-60R	63.00	64.2	64.60	64.30	64.20	14	135.00	60.00	2.0	C	0
SOF45 8/16-D250-16-60R	63.00	64.2	64.60	64.30	64.20	16	137.00	60.00	1.5	C	0
SOF45 8/16-D315-20-60R	80.00	81.2	81.60	81.30	81.20	20	222.00	60.00	1.0	C	0

- 1- with ONMU 0505... insert
- 2- with S845 SNMU 1305... insert
- 3- with RXMT 1607N insert
- 4- with OXMT 0507R08-FF insert
- 5- with OXMT 050705-R-HP insert
- Use only Torx Plus keys
- For user guide, see pages 616-621

[1] Cutting diameter maximum
[2] Number of inserts (or edges for solid tool)
[3] Valid only with RXMT 1607N insert
[4] For adaptation options, see page 622
[5] 0 - Without coolant supply, 1 - With coolant supply
[6] Master insert identification
[7] Master insert identification 2
[8] Master insert identification 3
[9] Master insert identification 4
[10] Master insert identification 5

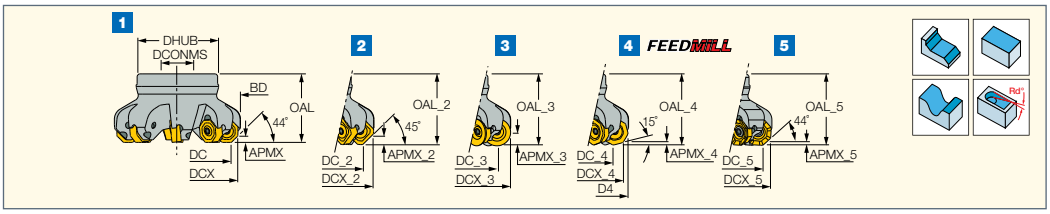
For inserts, see pages: ONHU 0505-W (574) • ONHU/ONMU-05 (574) • OXMT 0507 (575) • RXMT 1607 (602) • S845 SNHU 1305-W (569) • S845 SNMU/SNHU-13 (569)

Continued

HELIDO 800 LINE

SOF45

Multifunction Face Mills for Octagonal, Square and Round Insert Contours with Various Entry Angles



Designation	MIID[6]	MIID_2[7]	MIID_3[8]	MIID_4[9]	MIID_5[10]	kg
SOF45 8/16-D040-04-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	0.29
SOF45 8/16-D050-04-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	0.39
SOF45 8/16-D050-06-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	0.38
SOF45 D050-04-22-R13	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	0.38
SOF45 8/16-D063-04-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	0.54
SOF45 8/16-D063-06-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	0.47
SOF45 8/16-D063-08-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	0.46
SOF45 D063-06-22-R13	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	0.50
SOF45 8/16-D080-07-27R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	1.01
SOF45 8/16-D080-10-27R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	0.96
SOF45 D080-07-27-R13	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	1.00
SOF45 8/16-D100-08-32R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	1.39
SOF45 8/16-D100-12-32R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	1.35
SOF45 D100-08-32-R13	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	1.47
SOF45 8/16-D125-10-40R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	2.63
SOF45 8/16-D125-16-40R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	2.53
SOF45 D125-10-40-R13	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	2.63
SOF45 8/16-D160-12-40R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	3.35
SOF45 8/16-D200-14-60R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	5.77
SOF45 8/16-D250-16-60R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	7.98
SOF45 8/16-D315-20-60R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP	18.97

• 1- with ONMU 0505... insert • 2- with S845 SNMU 1305... insert • 3- with RXMT 1607N insert • 4- with OXMT 0507R08-FF insert
• 5- with OXMT 050705-R-HP insert • Use only Torx Plus keys • For user guide, see pages 616-621

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Valid only with RXMT 1607N insert
(4) For adaptation options, see page 622
(5) 0 - Without coolant supply, 1 - With coolant supply
(6) Master insert identification
(7) Master insert identification 2
(8) Master insert identification 3
(9) Master insert identification 4
(10) Master insert identification 5

For inserts, see pages: ONHU 0505-W (574) • ONHU/ONMU-05 (574) • OXMT 0507 (575) • RXMT 1607 (602) • S845 SNHU 1305-W (569) • S845 SNMU/SNHU-13 (569)

Spare Parts

Designation				
SOF45 8/16-D040-04-22R	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	SR M10X25 DIN912
SOF45 8/16-D050-04-22R	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	SR M10X20DIN912
SOF45 8/16-D050-06-22R	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	SR M10X20DIN912
SOF45 D050-04-22-R13	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	SR M10X20DIN912
SOF45 8/16-D063-04-22R	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	SR M10X25 DIN912
SOF45 8/16-D063-06-22R	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	
SOF45 8/16-D063-08-22R	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	
SOF45 D063-06-22-R13	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	
SOF45 8/16-D080-07-27R	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	
SOF45 8/16-D080-10-27R	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	
SOF45 D080-07-27-R13	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	
SOF45 8/16-D100-08-32R	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	
SOF45 8/16-D100-12-32R	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	
SOF45 D100-08-32-R13	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	
SOF45 8/16-D125-10-40R	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	
SOF45 8/16-D125-16-40R	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	
SOF45 D125-10-40-R13	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	
SOF45 8/16-D160-12-40R	SR 11800745	BLD IP15/M7[a]	SW6-T-SH	
SOF45 8/16-D200-14-60R	SR 11800745	BLD IP15/M7[a]	SW6-T-SH	
SOF45 8/16-D250-16-60R	SR 11800745	BLD IP15/M7[a]	SW6-T-SH	
SOF45 8/16-D315-20-60R	SR 11800745	BLD IP15/M7[a]	SW6-T-SH	

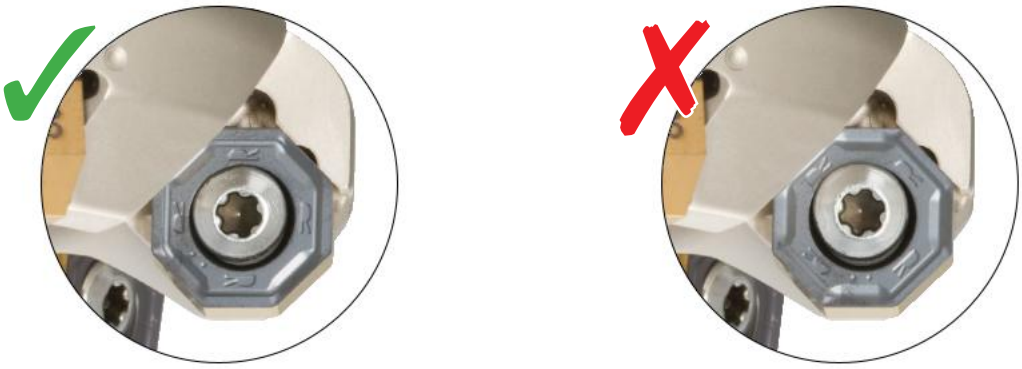
(a) IMPORTANT: Use only Torx Plus keys.

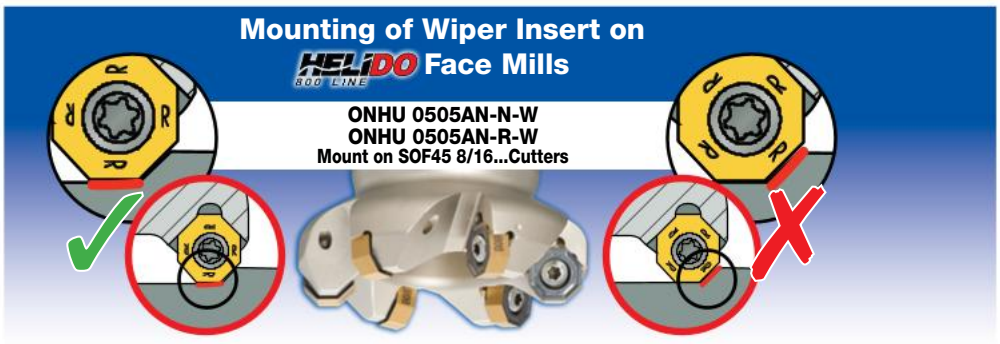
Wiper Inserts

Wiper inserts are used on face mill cutters, providing improved surface finish and thus eliminating the use of other finishing cutters.

ONHU 0505AN-R-W mounted on standard SOF45 milling cutters. This insert provides 8 right-hand wiper edges.

ONHU 0505AN-N-W mounted on SOF45 milling cutters. This insert provides 4 right-hand wiper edges to be used on standard tools and 4 left-hand wiper edges to be used on special left-hand SOF45 cutters.

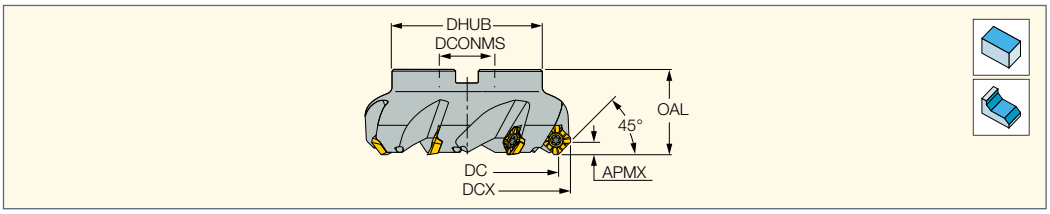




S845 SNHU 1305AN-N-W mounted on SOF45 milling cutters when the square S845 SNMU/HU 1305AN... inserts are used. This insert provides 2 right-hand and 2 left-hand wiper edges.

ISCARMILL

F45ST
45° Screw Clamped Face Mills
Carrying SEK/MT 12... Inserts



Designation	DC	DCX[2]	CICT[3]	APMX	OAL	DHUB	DCONMS	Arbor[4]	kg
F45ST D040-22	40.00	50.00	3	6.50	40.00	44.00	22.00	A	0.30
F45ST D050-22	50.00	62.70	4	6.50	40.00	41.80	22.00	A	0.35
F45ST D063-22	63.00	75.00	5	6.50	40.00	50.00	22.00	A	0.57
F45ST D080-27 [1]	80.00	90.90	6	6.50	50.00	63.00	27.00	B	1.08
F45ST D100-32 [1]	100.00	110.00	6	6.50	50.00	72.00	32.00	B	1.61
F45ST D125-40 [1]	125.00	135.00	7	6.50	62.50	75.00	40.00	B	2.70
F45ST D160-40 [1]	160.00	170.70	7	6.50	63.00	92.00	40.00	C	4.06

- SE..1204 inserts are mounted directly on the cutter • SE..12T3 optional thinner inserts are mounted on a seat - TSE 12T3-N
- For user guide, see pages 616-621

[1] For internal coolant through the holder, use a matching coolant set (should be ordered separately)
[2] Cutting diameter maximum
[3] Number of inserts (or edges for solid tool)
[4] For adaptation options, see page 622

For inserts, see pages: SEHT-AFN (581) • SEHW-AFTN (580) • SEKT-AF-R (579) • SEKT-AFTN (580) • SEMT 12..AFTN-76 (581) • SEMT 1204AF-R-HS (580)

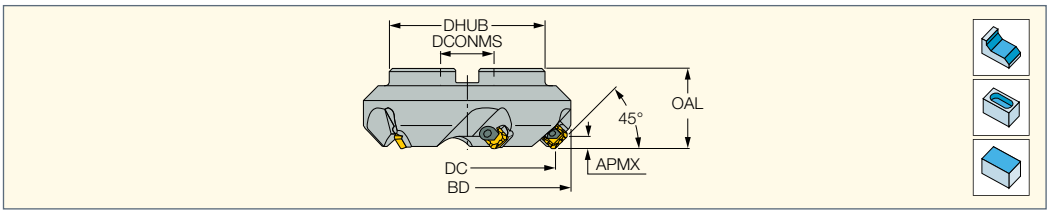
Spare Parts

Designation									
F45ST D040-22	SR 14-536/S	BLD T20/M7	SW6-T-SH	SR M10X25DIN7984	HW 7.0				
F45ST D050-22	SR 34-523	BLD T15/M7	SW6-T	SR M10X25DIN7984	HW 7.0	SR 14-601[a]*	TSE 12T3-N[a]*	SR TC-606[a]*	HW 3.5[a]*
F45ST D063-22	SR 34-523	BLD T15/M7	SW6-T	SR M10X25DIN7984	HW 7.0	SR 14-601[a]*	TSE 12T3-N[a]*	SR TC-606[a]*	HW 3.5[a]*
F45ST D080-27	SR 34-523	BLD T15/M7	SW6-T-SH			SR 14-601[a]*	TSE 12T3-N[a]*	SR TC-606[a]*	HW 3.5[a]*
F45ST D100-32	SR 34-523	BLD T15/M7	SW6-T			SR 14-601[a]*	TSE 12T3-N[a]*	SR TC-606[a]*	
F45ST D125-40	SR 34-523	BLD T15/M7	SW6-T			SR 14-601[a]*	TSE 12T3-N[a]*	SR TC-606[a]*	HW 3.5[a]*
F45ST D160-40	SR 34-523	BLD T15/M7	SW6-T			SR 14-601[a]*	TSE 12T3-N[a]*	SR TC-606[a]*	HW 3.5[a]*

* Optional, to be ordered separately
[a] Optional for insert SE..12T3

ISCARMILL

F45E
45° Face Mills Carrying
SEKN/R 12... Inserts



Designation	DC	BD	APMX	CICT[2]	OAL	DHUB	DCONMS	Arbor[3]	kg
F45E D 50-22	50.00	67.30	6.50	4	43.00	42.00	22.00	A	0.59
F45E D 63-22	63.00	81.20	6.50	5	40.00	42.50	22.00	A	0.81
F45E D 80-27 [1]	80.00	98.20	6.50	6	50.00	63.00	27.00	B	1.43
F45E D100-32 [1]	100.00	118.00	6.50	6	50.00	72.00	32.00	B	2.31
F45E D125-40 [1]	125.00	143.00	6.50	6	63.00	75.00	40.00	B	3.40
F45E D160-40	160.00	178.00	6.50	8	63.00	92.00	40.00	C	5.28

- For user guide, see pages 616-621

[1] For internal coolant through the holder, use a matching coolant set (should be ordered separately)
[2] Number of inserts (or edges for solid tool)
[3] For adaptation options, see page 622

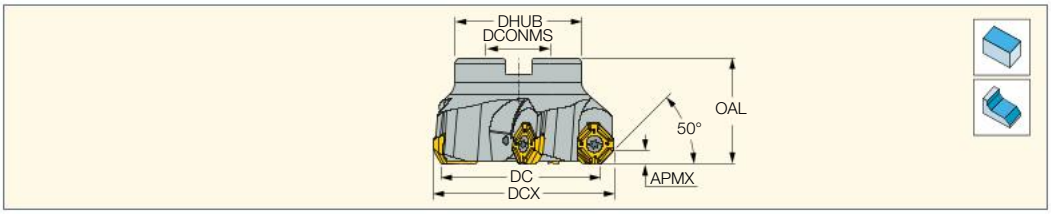
For inserts, see pages: SEKN-AF.. (581) • SEKR-AF-N-42 (582) • SEKR-AF..-76 (582) • SEKR-AFTR-HS (582)

Spare Parts

Designation								
F45E D 50-22	NSE 42-R	SR 35-343.4	HW 2.0	LW 35-2620-S	SR 35-2011	HW 3P	SR M10X25DIN7984	HW 7.0
F45E D 63-22	NSE 42-R	SR 35-343.4	HW 2.0	LW 35-2620-S	SR 35-2011	HW 3P	SR M10X25DIN7984	HW 7.0
F45E D 80-27	NSE 42-R	SR 35-343.4	HW 2.0	LW 35-2620-S	SR 35-2011	HW 3P		
F45E D100-32	NSE 42-R	SR 35-343.4	HW 2.0	LW 35-2620-S	SR 35-2011	HW 3P		
F45E D125-40	NSE 42-R	SR 35-343.4	HW 2.0	LW 35-2620-S	SR 35-2011	HW 3P		
F45E D160-40	NSE 42-R	SR 35-343.4	HW 2.0	LW 35-2620-S	SR 35-2011	HW 3P		

DOVEIQMILL 845 LINE

IQ845 FSY-R07
50° Face Mills Carrying Square Inserts with 8 Cutting Edges



Designation	DC	DCX(1)	CICT(2)	APMX	OAL	DHUB	DCONMS	Arbor(3)	CSP(4)	kg
IQ845 FSY D050-04-22-R07	50.00	59.40	4	4.60	40.00	48.00	22.00	A	1	0.39
IQ845 FSY D050-05-22-R07	50.00	59.40	5	4.60	40.00	48.00	22.00	A	1	0.38
IQ845 FSY D063-05-22-R07	63.00	72.40	5	4.60	40.00	48.00	22.00	A	1	0.51
IQ845 FSY D063-07-22-R07	63.00	72.40	7	4.60	40.00	48.00	22.00	A	1	0.47
IQ845 FSY D080-06-27-R07	80.00	89.40	6	4.60	50.00	60.00	27.00	B	1	1.00
IQ845 FSY D080-08-27-R07	80.00	89.40	8	4.60	50.00	60.00	27.00	B	1	0.95
IQ845 FSY D100-07-32-R07	100.00	109.40	7	4.60	50.00	70.00	32.00	B	1	1.36
IQ845 FSY D100-10-32-R07	100.00	109.40	10	4.60	50.00	70.00	32.00	B	1	1.34
IQ845 FSY D125-09-40-R07	125.00	134.40	9	4.60	63.00	82.00	40.00	B	1	2.52
IQ845 FSY D125-12-40-R07	125.00	134.40	12	4.60	63.00	82.00	40.00	B	1	2.49
IQ845 FSY D160-11-40-R07	160.00	169.40	11	4.60	63.00	92.00	40.00	C	0	3.31
IQ845 FSY D160-15-40-R07	160.00	169.40	15	4.60	63.00	92.00	40.00	C	0	3.28
IQ845 FSY D200-14-60-R07	200.00	209.40	14	4.60	63.00	135.00	60.00	C	0	5.80
IQ845 FSY D250-17-60-R07	250.00	259.40	17	4.60	63.00	135.00	60.00	C	0	8.18
IQ845 FSY D315-20-60-R07	315.00	324.40	20	4.60	80.00	220.00	60.00	D	0	16.87

- For user guide, see pages 616-621

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) For adaptation options, see page 622
(4) 0 - Without coolant supply, 1 - With coolant supply

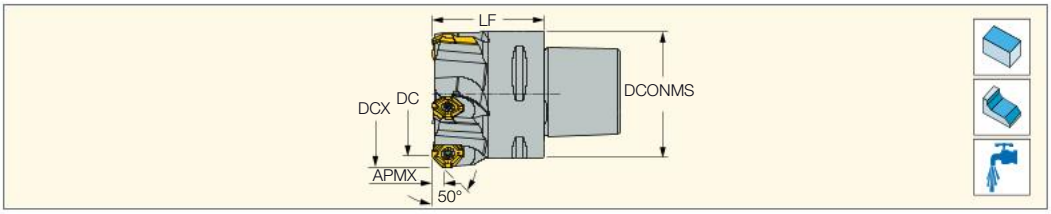
For inserts, see pages: IQ845 SYHU-07 (567)

Spare Parts

Designation				
IQ845 FSY D050-04-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X20DIN912
IQ845 FSY D050-05-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X20DIN912
IQ845 FSY D063-05-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
IQ845 FSY D063-07-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
IQ845 FSY D080-06-27-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D080-08-27-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D100-07-32-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D100-10-32-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D125-09-40-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D125-12-40-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D160-11-40-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D160-15-40-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D200-14-60-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D250-17-60-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	
IQ845 FSY D315-20-60-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	

DOVEIQMILL 845 LINE

IQ845 FSY-C#-R07
50° Face Mills Carrying Square Inserts with 8 Cutting Edges



Designation	DC	DCX(1)	CICT(2)	APMX	LF	SS	DCP(3)	kg			
IQ845 FSY D063-05-C6-R07	63.00	72.40	5	4.60	55.00	63	1	1.53	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH

- For user guide, see pages 616-621

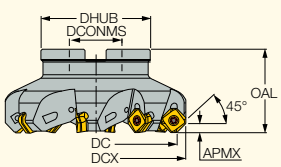
(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) 1 - Slot for data chip, 0 - Without slot for data chip

For inserts, see pages: IQ845 SYHU-07 (567)

HELIDO 845 LINE

S845 F45SX-16

45° Face Mills Carrying Economical Inserts with 8 Helical Right-Hand Cutting Edges



Designation	DC	DCX[2]	CICT[3]	APMX	OAL	DHUB	DCONMS	Arbor[4]	CSP[5]	kg
S845 F45SX D040-04-16-R16 [1]	40.00	54.80	4	7.15	45.00	48.00	16.00	A	1	0.39
S845 F45SX D050-04-22-R16	50.00	64.80	4	7.15	45.00	48.00	22.00	A	1	0.46
S845 F45SX D050-05-22-R16 [1]	50.00	64.80	5	7.15	45.00	48.00	22.00	A	1	0.44
S845 F45SX D063-05-22-R16	63.00	77.80	5	7.15	45.00	60.00	22.00	A	1	0.72
S845 F45SX D063-07-22-R16 [1]	63.00	77.90	7	7.15	45.00	60.00	22.00	A	1	0.72
S845 F45SX D080-09-27-R16 [1]	80.00	93.10	9	7.15	50.00	63.00	27.00	B	1	1.01
S845 F45SX D100-11-32-R16 [1]	100.00	114.60	11	7.15	50.00	80.00	32.00	B	1	1.65
S845 F45SX D100-07-32-R16	100.00	114.80	7	7.15	50.00	80.00	32.00	B	1	1.62
S845 F45SX D125-08-40-R16	125.00	139.80	8	7.15	63.00	82.00	40.00	B	1	2.68
S845 F45SX D125-14-40-R16 [1]	125.00	139.80	14	7.15	63.00	82.00	40.00	B	1	2.72
S845 F45SX D160-10-40-R16	160.00	174.80	10	7.15	63.00	105.00	40.00	C	0	4.16
S845 F45SX D160-18-40-R16 [1]	160.00	174.80	18	7.15	63.00	105.00	40.00	C	0	4.30
S845 F45SX D200-12-60-R16	200.00	214.80	12	7.15	63.00	135.00	60.00	C	0	5.82
S845 F45SX D250-15-60-R16	250.00	264.80	15	7.15	63.00	144.00	60.00	C	0	8.58

- Wiper inserts are used on face mill cutters, provide improved surface finish, eliminate the use of other finishing cutters.
- For user guide, see pages 616-621

[1] Fine pitch cutters, recommended for machining cast iron and for machining steel - up to 4 mm D.O.C.
[2] Cutting diameter maximum
[3] Number of inserts (or edges for solid tool)
[4] For adaptation options, see page 622
[5] 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: S845 SXHU 1606-W (570) • S845 SXMU/SXCU-16 (569)

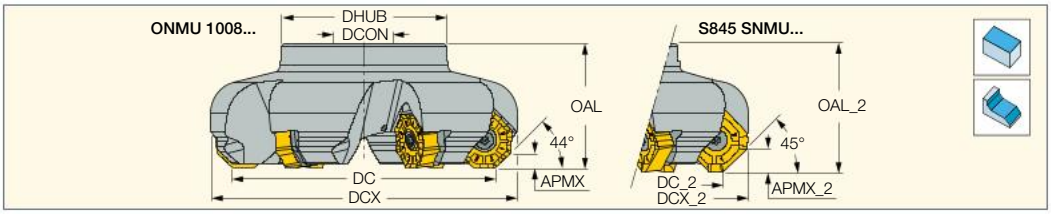
Spare Parts

Designation				
S845 F45SX D040-04-16-R16	SR 14-591	BLD T20/M7	SW6-T	SR M8X25DIN912
S845 F45SX D050-04-22-R16	SR 14-591	BLD T20/M7	SW6-T	SR M10X25DIN7984
S845 F45SX D050-05-22-R16	SR 14-591-M	BLD T20/M7	SW6-T	SR M10X25DIN7984
S845 F45SX D063-05-22-R16	SR 14-591	BLD T20/M7	SW6-T	SR M10X25DIN7984
S845 F45SX D063-07-22-R16	SR 14-591-M	BLD T20/M7	SW6-T	SR M10X25DIN7984
S845 F45SX D080-09-27-R16	SR 14-591-M	BLD T20/M7	SW6-T	
S845 F45SX D100-11-32-R16	SR 14-591-M	BLD T20/M7	SW6-T	
S845 F45SX D100-07-32-R16	SR 14-591	BLD T20/M7	SW6-T	
S845 F45SX D125-08-40-R16	SR 14-591	BLD T20/M7	SW6-T	
S845 F45SX D125-14-40-R16	SR 14-591-M	BLD T20/M7	SW6-T	
S845 F45SX D160-10-40-R16	SR 14-591	BLD T20/M7	SW6-T	
S845 F45SX D160-18-40-R16	SR 14-591-M	BLD T20/M7	SW6-T	
S845 F45SX D200-12-60-R16	SR 14-591	BLD T20/M7	SW6-T	
S845 F45SX D250-15-60-R16	SR 14-591	BLD T20/M7	SW6-T	

HELIDO 800 HD LINE

SOF45-26

Heavy Duty 45° Face Mills Carrying Square or Octagonal Double-Sided Inserts with 8/16 Cutting Edges



Designation	DC	DCX[1]	APMX	OAL	DC_2	APMX_2	OAL_2	CICT[2]	DHUB	DCONMS	Arbor[3]	CSP[4]	kg
SOF45 D080-04-32-R26	84.10	104.50	7.00	60.80	80.00	11.00	63.0	4	70.00	32.00	A	1	1.68
SOF45 D100-05-32-R26	104.10	124.50	7.00	60.80	100.00	11.00	63.0	5	70.00	32.00	B	1	2.25
SOF45 D125-06-40-R26	129.10	149.50	7.00	60.80	125.00	11.00	63.0	6	82.00	40.00	B	1	3.08
SOF45 D160-08-40-R26	164.10	184.50	7.00	60.80	160.00	11.00	63.0	8	92.00	40.00	C	0	4.05
SOF45 D200-10-60-R26	204.10	224.50	7.00	60.80	200.00	11.00	63.0	10	135.00	60.00	C	0	9.10
SOF45 D250-12-60-R26	254.10	274.50	7.00	60.80	250.00	11.00	63.0	12	135.00	60.00	C	0	13.50
SOF45 D315-14-60-R26	319.10	339.50	7.00	77.80	315.00	11.00	80.0	14	220.00	60.00	C	0	19.73

- For user guide, see pages 616-621

(1) Cutting diameter maximum

(2) Number of inserts (or edges for solid tool)

(3) For adaptation options, see page 622

(4) 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: ONMU 1008 (579) • S845 SNMU 2608 (571)

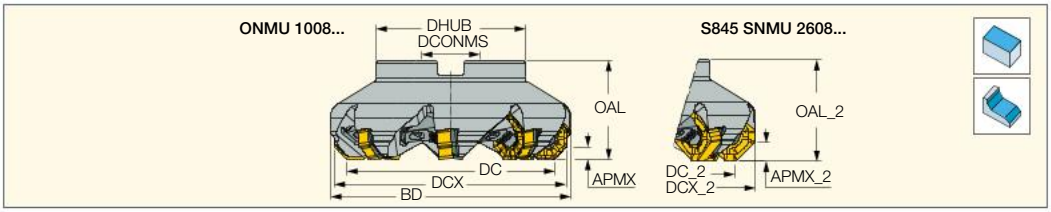
Spare Parts

Designation						
SOF45 D080-04-32-R26	SR 1/4-28XIP25	TSOF 26-N	SR M3.5X0.6-6.5 T10	BLD IP25/S7	SW6-T	SR M16-40C
SOF45 D100-05-32-R26	SR 1/4-28XIP25	TSOF 26-N	SR M3.5X0.6-6.5 T10	BLD IP25/S7	SW6-T	SR M16-40C
SOF45 D125-06-40-R26	SR 1/4-28XIP25	TSOF 26-N	SR M3.5X0.6-6.5 T10	BLD IP25/S7	SW6-T	
SOF45 D160-08-40-R26	SR 1/4-28XIP25	TSOF 26-N	SR M3.5X0.6-6.5 T10	BLD IP25/M7	SW6-T	
SOF45 D200-10-60-R26	SR 1/4-28XIP25	TSOF 26-N	SR M3.5X0.6-6.5 T10	BLD IP25/M7	SW6-T	
SOF45 D250-12-60-R26	SR 1/4-28XIP25	TSOF 26-N	SR M3.5X0.6-6.5 T10	BLD IP25/L7	SW6-T	
SOF45 D315-14-60-R26	SR 1/4-28XIP25	TSOF 26-N	SR M3.5X0.6-6.5 T10	BLD IP25/L7	SW6-T	

HELIDO 800 HD LINE

SOF45WG-R26

Heavy Duty 45° Face Mills Carrying Wedge Clamped Square or Octagonal Double-Sided Inserts with 8/16 Cutting Edges



Designation	DC	BD	DCX[1]	APMX	OAL	DC_2	DCX_2	APMX_2	OAL_2	DCONMS	DHUB	Arbor	kg
SOF45WG D100-05-32-R26	104.10	123.50	118.80	7.00	60.80	100.00	123.50	11.00	63.00	32.00	78.00	B	2.46
SOF45WG D100-06-32-R26	104.10	123.50	118.80	7.00	60.80	100.00	123.50	11.00	63.00	32.00	78.00	B	2.33
SOF45WG D125-08-40-R26	129.10	148.50	143.80	7.00	60.80	125.00	148.50	11.00	63.00	40.00	92.00	B	3.41
SOF45WG D160-08-40-R26	164.10	183.80	178.80	7.00	60.80	160.00	183.80	11.00	63.00	40.00	95.00	C	4.84
SOF45WG D160-10-40-R26	164.10	183.80	178.80	7.00	60.80	160.00	183.80	11.00	63.00	40.00	95.00	C	4.58
SOF45WG D200-10-60-R26	204.10	223.50	218.80	7.00	60.80	200.00	223.50	11.00	63.00	60.00	180.00	C	9.47
SOF45WG D200-12-60-R26	204.10	223.50	218.80	7.00	60.80	200.00	223.50	11.00	63.00	60.00	180.00	C	9.20
SOF45WG D250-12-60-R26	254.10	273.30	268.80	7.00	60.80	250.00	273.30	11.00	63.00	60.00	180.00	C	12.68
SOF45WG D250-14-60-R26	254.10	273.30	268.80	7.00	60.80	250.00	273.30	11.00	63.00	60.00	180.00	C	12.44

- For user guide see pages 616-621

(1) Cutting diameter maximum

For inserts, see pages: ONMU 1008 (579) • S845 SNMU 2608 (571)

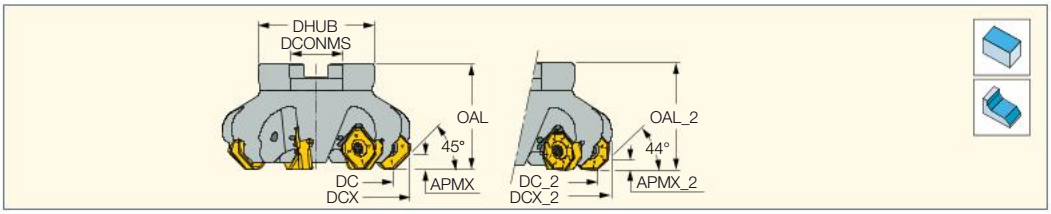
Spare Parts

Designation						
SOF45WG-R26	TSOF 26-N	SR M3.5X0.6-6.5 T10	LW CL-13 INJ	SR UNC 5/16-18X1 L/R	BLD IP25/S7	SW6-T

HELIDO 800 LINE

SOF45-R18

45° Face Mills Carrying Square or Octagonal Double-Sided Inserts with 8/16 Cutting Edges



Designation	DC	DCX[1]	APMX	OAL	DC_2	DCX_2	APMX_2	OAL_2	CICT[2]	DHUB	DCONMS	Arbor	CSP[3]	kg
SOF45 D050-04-22-R18	50.00	67.00	8.00	50.00	52.80	67.00	5.00	48.5	4	48.00	22.00	A	1	0.55
SOF45 D063-05-22-R18	63.00	80.00	8.00	50.00	65.80	80.00	5.00	48.5	5	52.00	22.00	A	1	0.80
SOF45 D063-05-27-R18	63.00	80.00	8.00	50.00	65.80	80.00	5.00	48.5	5	60.00	27.00	A	1	0.83
SOF45 D080-06-27-R18	80.00	97.00	8.00	55.00	82.80	97.00	5.00	53.5	6	60.00	27.00	A	1	1.29
SOF45 D080-07-27-R18	80.00	97.00	8.00	55.00	82.80	97.00	5.00	53.5	7	60.00	27.00	A	1	1.29
SOF45 D100-07-32-R18	100.00	117.00	8.00	55.00	102.80	117.00	5.00	53.5	7	78.00	32.00	B	1	1.95
SOF45 D100-09-32-R18	100.00	117.00	8.00	55.00	102.80	117.00	5.00	53.5	9	78.00	32.00	B	1	1.94
SOF45 D125-08-40-R18	125.00	142.00	8.00	63.00	127.80	142.00	5.00	61.5	8	92.00	40.00	B	1	3.38
SOF45 D125-12-40-R18	125.00	142.00	8.00	63.00	127.80	142.00	5.00	61.5	12	92.00	40.00	B	1	3.35
SOF45 D160-10-40-R18	160.00	177.00	8.00	63.00	162.80	177.00	5.00	61.5	10	95.00	40.00	C	0	4.20
SOF45 D160-15-40-R18	160.00	177.00	8.00	63.00	162.80	177.00	5.00	61.5	15	95.00	40.00	C	0	4.30
SOF45 D200-12-60-R18	200.00	217.00	8.00	63.00	202.80	217.00	5.00	61.5	12	135.00	60.00	C	0	6.88
SOF45 D200-18-60-R18	200.00	217.00	8.00	63.00	202.80	217.00	5.00	61.5	18	135.00	60.00	C	0	6.99
SOF45 D250-14-60-R18	250.00	267.00	8.00	63.00	252.80	267.00	5.00	61.5	14	135.00	60.00	C	0	10.50
SOF45 D250-21-60-R18	250.00	267.00	8.00	63.00	252.80	267.00	5.00	61.5	21	135.00	60.00	C	0	11.35
SOF45 D315-18-60-R18	315.00	332.00	8.00	80.00	317.80	332.00	5.00	78.5	18	230.00	60.00	C	0	22.36
SOF45 D315-24-60-R18	315.00	332.00	8.00	80.00	317.80	332.00	5.00	78.5	24	230.00	60.00	C	0	22.22

• For user guide, see pages 616-621

[1] Cutting diameter maximum

[2] Number of inserts (or edges for solid tool)

[3] 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: ONHU 0706AN-R-W (579) • ONMU/ONHU 0706 (578) • S845 SNHU 1806AN-N-W (570) • S845 SNMU/SNHU 1806 (570)

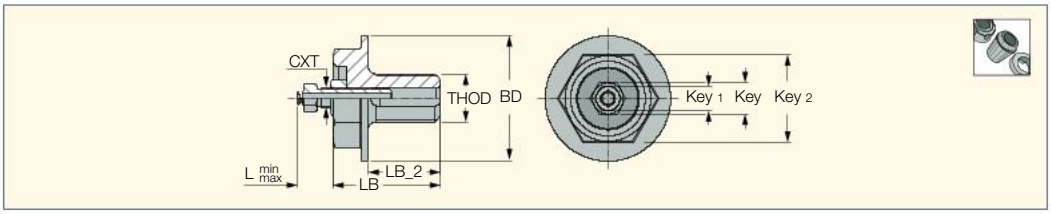
Spare Parts

Designation				
SOF45 D050-04-22-R18	SR M5X0.8 16 IP20[a]	BLD IP20/S7	SW6-T	SR M10X25 DIN912
SOF45 D063-05-22-R18	SR M5X0.8 16 IP20[a]	BLD IP20/S7	SW6-T	SR M10X25 DIN912
SOF45 D063-05-27-R18	SR M5X0.8 16 IP20[a]	BLD IP20/S7	SW6-T	SR M12X25 DIN 912
SOF45 D080-06-27-R18	SR M5X0.8 16 IP20[a]	BLD IP20/S7	SW6-T	SR M12X25 DIN 912
SOF45 D080-07-27-R18	SR M5X0.8 16 IP20[a]	BLD IP20/S7	SW6-T	SR M12X25 DIN 912
SOF45 D100-07-32-R18	SR M5X0.8 16 IP20[a]	BLD IP20/S7	SW6-T	
SOF45 D100-09-32-R18	SR M5X0.8 16 IP20[a]	BLD IP20/S7	SW6-T	
SOF45 D125-08-40-R18	SR M5X0.8 16 IP20[a]	BLD IP20/S7	SW6-T	
SOF45 D125-12-40-R18	SR M5X0.8 16 IP20[a]	BLD IP20/S7	SW6-T	
SOF45 D160-10-40-R18	SR M5X0.8 16 IP20[a]	BLD IP20/M7	SW6-T	
SOF45 D160-15-40-R18	SR M5X0.8 16 IP20[a]	BLD IP20/M7	SW6-T	
SOF45 D200-12-60-R18	SR M5X0.8 16 IP20[a]	BLD IP20/M7	SW6-T	
SOF45 D200-18-60-R18	SR M5X0.8 16 IP20[a]	BLD IP20/M7	SW6-T	
SOF45 D250-14-60-R18	SR M5X0.8 16 IP20[a]	BLD IP20/M7	SW6-T	
SOF45 D250-21-60-R18	SR M5X0.8 16 IP20[a]	BLD IP20/M7	SW6-T	
SOF45 D315-18-60-R18	SR M5X0.8 16 IP20[a]	BLD IP20/M7	SW6-T	
SOF45 D315-24-60-R18	SR M5X0.8 16 IP20[a]	BLD IP20/M7	SW6-T	

[a] Recommended tightening torque: 9 N*m

Accessories

COOLANT SET
Clamping Screws with Adjustable Protruding Nozzles for Shell-Type Face Mills



Designation	BD	THOD	CXT	LB	LB_2	L min	L max	Key(1)	Key 1(2)	DRVS(3)
COOLANT SET SR M10X1.5-22	28.00	M10	M4	25.00	18.00	2.0	17.0	7.00	6.00	21.00
COOLANT SET SRM12X1.75-27	35.00	M12	M4	31.00	22.00	2.0	17.0	7.00	6.00	27.00
COOLANT SET SR M16X2-32	42.00	M16	M8	37.00	26.00	3.0	25.0	13.00	10.00	30.00
COOLANT SET SR M20X2.5-40	52.00	M20	M8	45.00	30.00	3.0	25.0	13.00	10.00	36.00

(1) For the nut
(2) For the nozzle
(3) For the screw

Clamping Screws with Adjustable Protrusion Nozzles for Shell-Type Face Mills

The protrusion of the nozzle screw can be easily adjusted according to countersink depth, insert size or any other application requirement. The nozzle screw position can be secured by a locking nut.

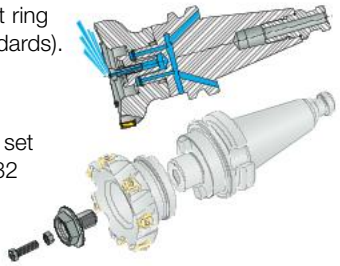
Tests show that cutting fluid supplied through the axis of a tool and directed radially at the bottom of the tool dramatically improves both the cooling effect and chip evacuation.

The screws are offered as sets, comprising a nozzle screw, locking screw, a locking nut and washers.

The locking nut can be tightened by a standard open-ended wrench, or preferably by an offset ring wrench (ISO 10104, DIN 838 or DIN 897 standards).

If desired, the following ring wrenches can also be ordered from **ISCAR**:

- 7000783 Ring Wrench 10X13 mm for coolant set SR M20X2.5-40 and Coolant set SR M16X2-32
- 7000788 Ring Wrench 6X7 mm for coolant set SRM12X1.75-27 and coolant set SR M10X1.5-22.



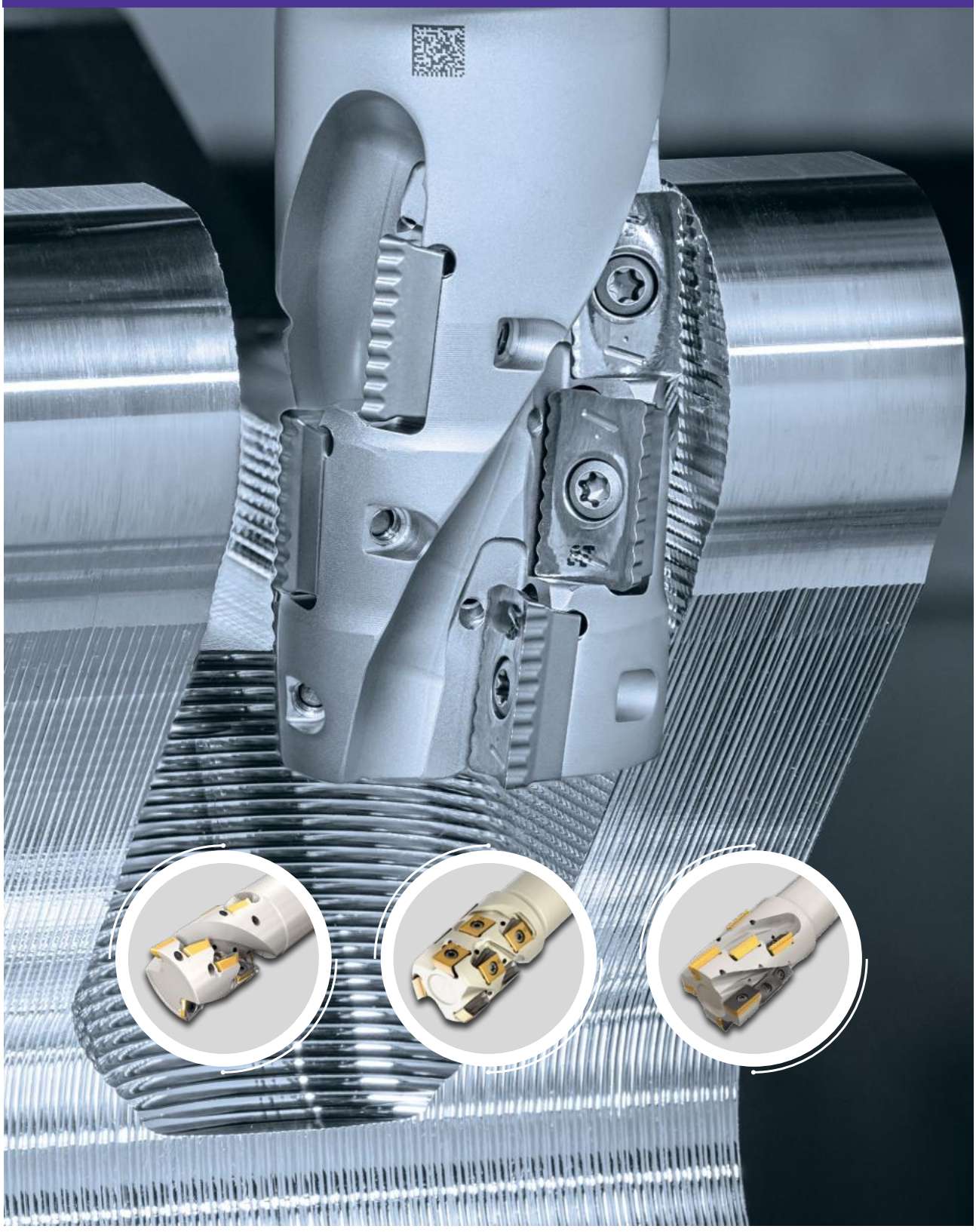
Assembly with a Lock Nut

Assembly without a Lock Nut

Spare Parts

Designation			
COOLANT SET SR M10X1.5-22	WASHER FLAT M4 DIN 433	SPRING PLUNGER	
COOLANT SET SRM12X1.75-27	WASHER FLAT M4 DIN 433	SPRING PLUNGER	
COOLANT SET SR M16X2-32	WASHER M8 DIN 433 A2	NOZZLE M8	NUT M8 DIN 934 A2
COOLANT SET SR M20X2.5-40	WASHER M8 DIN 433 A2	NOZZLE M8	NUT M8 DIN 934 A2

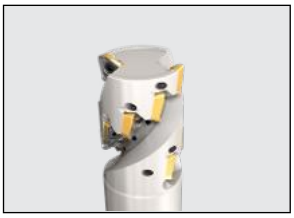
EXTENDED FLUTE CUTTERS



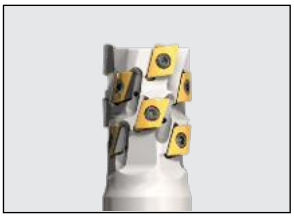
Extended Flute Mills

HELI-PLUS
HP ANK
page 274

HELI-DO
H490 ANK
page 274

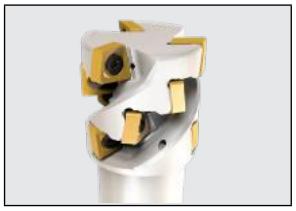


HELI-3-MILL
HM390 TPK/SM
pages 274-275



SUMO-MILL
T290 LNK
page 275

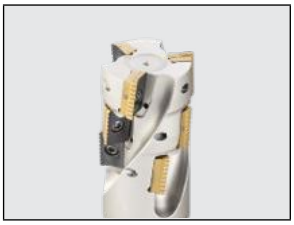
HELI-TANG
T490 LNK/LNM
pages 276-278,283-285



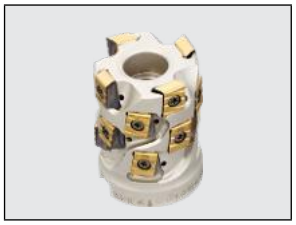
HELI-SLOT
XNK-XN13
page 279

HELI-MILL
APK-FE
page 279

HELI-QUAD
SPK
page 279



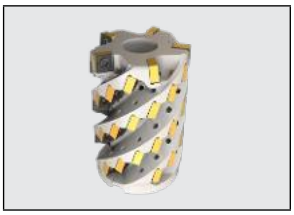
MILL-SHRED
P290 ACK/SM
pages 280-282



HELI-TANG
T490 SM
pages 283-284,289

HELI-DO
H490 SM
pages 283,290

HELI-SLOT
SM-XN13
page 286



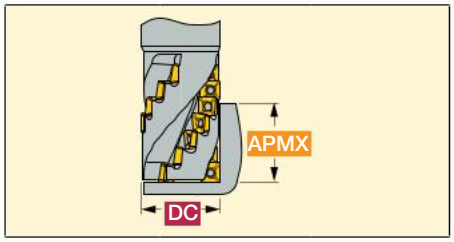
QUICK-X-FLUTE
S890 SM
page 290

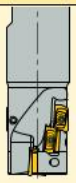
X-QUAD
SDK-C/HP
pages 290-291

HELI-MILL
SM
page 291

ISCARMILL

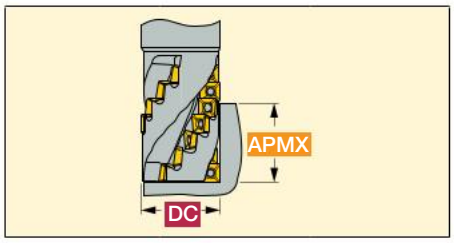
90° Extended Flute Mills Selection Guide

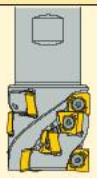
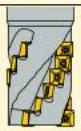
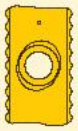
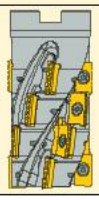
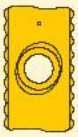


Tools		Pages	APMX / Flutes DC 20	25	32	40	50	63	80	100	Inserts	
	HP ANK-07	274	28/2									HP AN.. 07...
	H490 ANK-09	274		35/2	42/3							H490 AN..09..
	HM390 TPK-10	274		28/2	42/2	49/4						HM390 TP.. 10..
	HM390 SM-10	275				49/4	49/5					HM390 TP.. 10..
	T290 LNK-10	275		29/2	39/3	39/3 48/4						T290 LN..10..
	T490 LNM-08	276	15/2	30/2 30/3	36/3	44/4						T490 LN.T 08...
	T490 LNK-11	277			34/2	51/3	51/4					T490 LN..T1106
	T490 LNK-13	277				36/2 36/3 48/3	47/3 59/4 82/3 105/3	81/4 117/4	82/4 128/4			T490 LN.. 13...

ISCARMILL

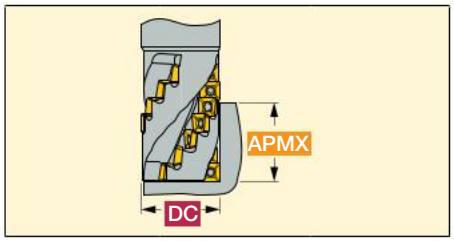
90° Extended Flute Mills Selection Guide

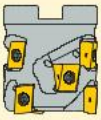
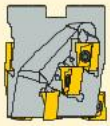
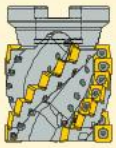


Tools		Pages	APMX / Flutes DC 20	25	32	40	50	63	80	100	Inserts	
	XNK-XN13	279					46/3					XNMU 13...
	APK-FE	279	29/1	37/2	46/2	55/3						AP.. 10... FPKT 10...
	SPK	279				43/3						SPMT 10... XPMT 10.. QPMT 10..
	P290 ACK	281		24/3 36/3	24/3 36/3 48/3 60/3 84/3	53/3 71/3 87/3 90/3 125/3	53/4 105/4 160/3	87/5				P290 AC...T
	P290 SM	282			24/3	24/4 36/4 48/4	36/4 53/4 71/4	53/5 71/5	71/6	36/6 71/7		P290 AC...T

ISCARMILL

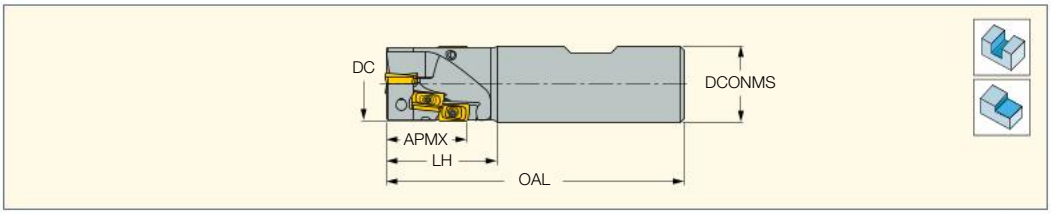
90° Extended Flute Mills Selection Guide



Tools	Pages	APMX / Flutes DC 20	25	32	40	50	63	80	100	Inserts
 T490 SM	283 284			36/3	24/2 36/3 44/4 51/3	36/2 36/3 44/5 47/4 51/3 59/4	36/4 47/4 59/4 59/5 68/5	58/5 70/5	59/6	T490 LN..
 H490 SM	283 290					35/3	46/3 47/4 58/3	46/4		H490 AN..
SM-XN13	286						69/3 69/4	69/5		XNMU 13
S890 SM	290						71/4	83/5		S890 SNMU 1306..
 SDK-C/HP	290 291					48/3 48/4	55/5 56/4 66/4 98/4	64/5 66/5 109/5	76/6 130/6	SD.. 10 SD..12 QD..12
SM	291					25/3	38/4			HM AD.. 15... AD.. 15...

HELIPLUS

HP ANK-07
Extended Flute Endmills
Carrying HP ANK-07... Inserts



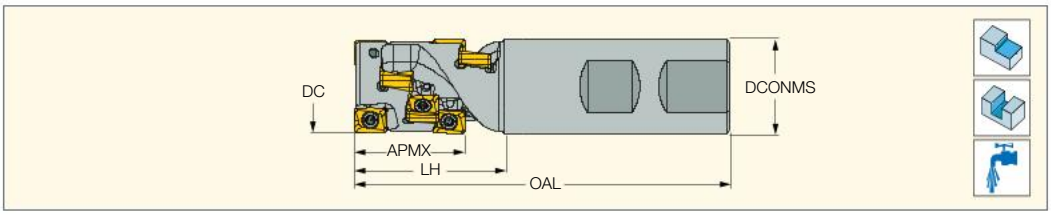
Designation	DC	APMX	NOF(1)	CICT(2)	LH	OAL	DCONMS	Shank(3)	RPMX(4)	kg		
HP ANK D20-28-02-W20-7	20.00	28.60	2	8	40.0	90.00	20.00	W	999	0.18	SR 34-533/L/HG	T-6/51

(1) Number of flutes
(2) Number of inserts (or edges for solid tool)
(3) W-Weldon
(4) Maximum RPM

For inserts, see pages: HP ANCR 0702PNFR (509) • HP ANKT/ANCT 0702 PN-R/PNTR (508) • HP ANKW 070204PNTR (509)

HELIDO 490 LINE

H490 ANK-09
Extended Flute Endmills Carrying
H490 ANKX 09...
Double-Sided Rectangular Inserts
with 4 Helical Cutting Edges



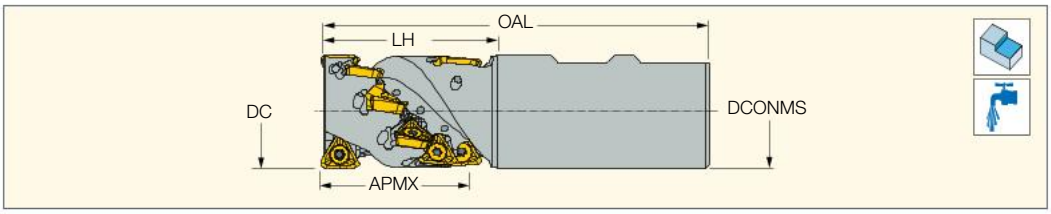
Designation	DC	APMX	NOF(1)	CICT(2)	LH	OAL	DCONMS	Shank(3)	kg			
H490 ANK D25-35-2-W25-09C	25.00	35.00	2	10	38.0	100.00	25.00	W	0.30	SR 10508082-HG	BLD T08/M7	SW4-SD
H490 ANK D32-42-3-W32-09C	32.00	42.00	3	18	50.0	115.00	32.00	W	0.52	SR 10508082-HG	BLD T08/M7	SW4-SD

• AE(max)=0.25xDC
(1) Number of flutes
(2) Number of inserts (or edges for solid tool)
(3) W-Weldon

For inserts, see pages: H490 ANKX/ANCX-09 (537)

HELI3MILL HM390 LINE

HM390 TPK-10
Extended Flute Endmills
Carrying HM390 TPKT
1003 Triangular Inserts with
3 Helical Cutting Edges

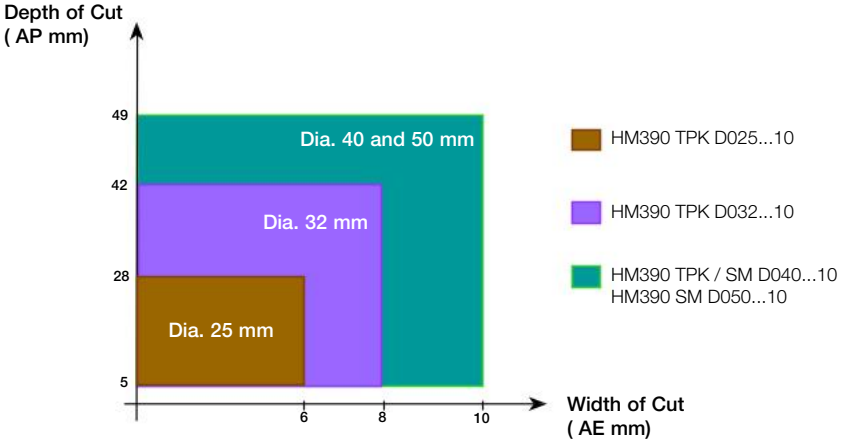


Designation	DC	APMX	NOF(1)	CICT(2)	LH	OAL	DCONMS	Shank(3)	RMPX°(4)	kg			
HM390 TPK D25-28-2-W25-10	25.00	28.00	2	8	35.0	95.00	25.00	W	2.9	0.30	SR 14-562/S[a]	BLD T10/S7	SW6-SD
HM390 TPK D32-42-2-W32-10	32.00	42.00	2	12	50.0	110.00	32.00	W	2.1	0.53	SR 14-562/S[a]	BLD T10/S7	SW6-SD
HM390 TPK D40-49-4-W32-10	40.00	49.00	4	28	59.0	125.00	32.00	W	1.6	0.75	SR 14-562/S[a]	BLD T10/S7	SW6-SD

(1) Number of flutes
(2) Number of inserts (or edges for solid tool)
(3) W-Weldon
(4) Maximum ramping angle
(a) Recommended tightening torque:3.2 Nxm

For inserts, see pages: HM390 TPCR 1003 (513) • HM390 TPKT/CT 1003 (512)

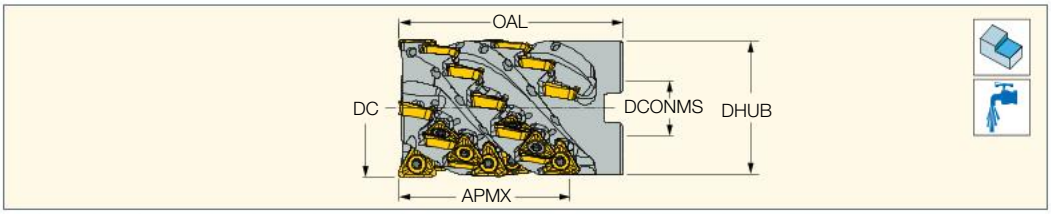
AP/AE Application Range for Extended Flute HELI-3-MILL HM390-10 Cutters with HM390 TPKT 1003... Inserts



HELI3MILL HM390 LINE

HM390 SM-10

Extended Flute Shell Mills
Carrying HM390 TPKT
1003 Triangular Inserts with
3 Helical Cutting Edges



Designation	DC	APMX	NOF(1)	CICT(2)	OAL	DHUB	DCONMS	Arbor(3)	RMPX°(4)	kg				
HM390 SM D040-49-4-16-10	40.00	49.00	4	28	65.00	38.80	16.00	A	1.6	0.30	SR 14-562/S(a)	SR M8X55DIN912	BLD T10/S7	SW6-SD
HM390 SM D050-49-5-22-10	50.00	49.00	5	35	66.00	48.80	22.00	A	1.2	0.58	SR 14-562/S(a)	SR M10X60DIN912	BLD T10/S7	SW6-SD

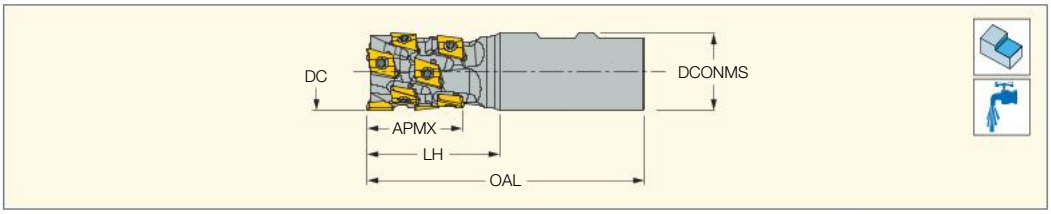
(1) Number of flutes
(2) Number of inserts (or edges for solid tool)
(3) For adaptation options, see page 622
(4) Maximum ramping angle
(a) Recommended tightening torque:3.2 Nxm

For inserts, see pages: HM390 TPCR 1003 (513) • HM390 TPKT/CT 1003 (512)

SUMOMILL 290 LINE

T290 LNK-10

Extended Flute Endmills
with T290 LNMT/HT 1004...
Tangentially Clamped Inserts



Designation	DC	CICT(2)	NOF(3)	APMX	LH	OAL	DCONMS	Shank	kg	MIID(4)
T290 LNK D25-29-02-W25-10	25.00	6	2	29.00	40.0	96.00	25.00	W	0.26	T290 LNMT 100405TR
T290 LNK D32-39-03-W32-10	32.00	12	3	39.00	55.0	115.00	32.00	W	0.54	T290 LNMT 100405TR
T290 LNK D40-39-03-W32-10 (1)	40.00	12	3	39.00	60.0	120.00	32.00	W	0.71	T290 LNMT 100405TR
T290 LNK D40-48-04-W32-10	40.00	20	4	48.00	67.0	127.00	32.00	W	0.73	T290 LNMT 100405TR

New

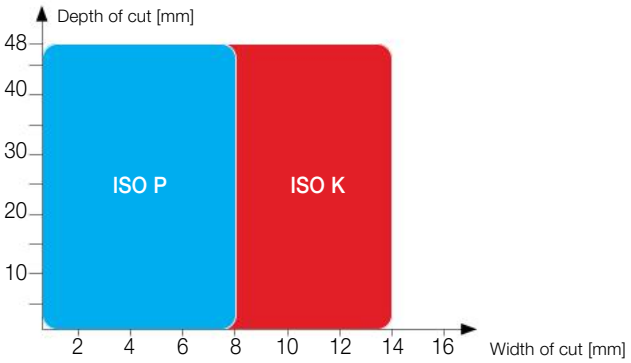
(1) High pressure coolant
(2) Number of inserts (or edges for solid tool)
(3) Number of flutes
(4) Master insert identification

For inserts, see pages: T290 LNMT/LNHT 1004 (542)

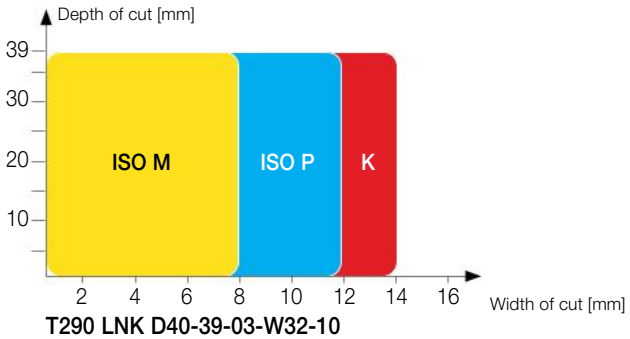
Spare Parts

Designation			
T290 LNK-10	SR 10504970	BLD IP15/M7	SW6-T-SH

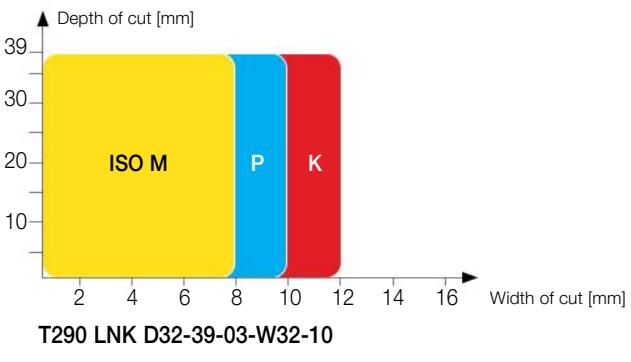
a_p/a_e Application Range for T290 LNK... Extended Flute Endmills



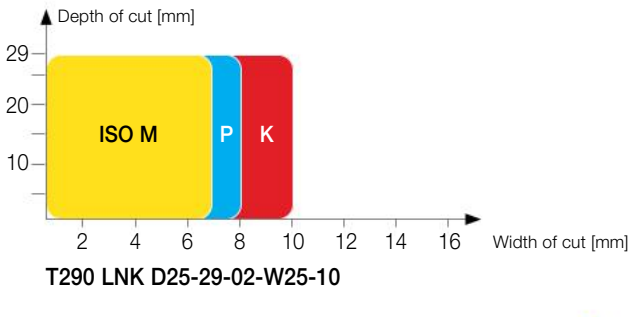
T290 LNK D40-48-04-W32-10



T290 LNK D40-39-03-W32-10



T290 LNK D32-39-03-W32-10

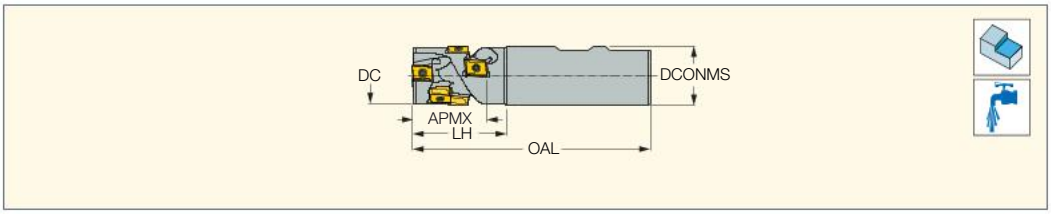


T290 LNK D25-29-02-W25-10

HELITANG T490 LINE

T490 LNM-08

Extended Flute Endmills
Carrying T490 LNMT/HT 08...
Tangentially Clamped Inserts

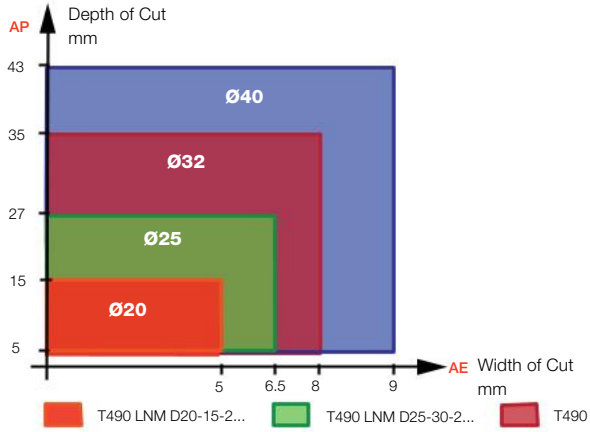


Designation	DC	APMX	NOF(1)	CICT(2)	LH	OAL	DCONMS	Shank(3)	kg		
T490 LNM D20-15-2-C20-08C	20.00	15.00	2	4	30.0	80.00	20.00	C	0.16	SR 10502813-HG-M	IP-7/51
T490 LNM D20-15-2-W20-08C	20.00	15.00	2	4	30.0	80.00	20.00	W	0.16	SR 10502813-HG-M	IP-7/51
T490 LNM D25-30-2-C25-08C	25.00	30.00	2	8	40.0	100.00	25.00	C	0.31	SR 10502813-HG-M	IP-7/51
T490 LNM D25-30-2-W25-08C	25.00	30.00	2	8	40.0	100.00	25.00	W	0.30	SR 10502813-HG-M	IP-7/51
T490 LNM D32-36-3-C32-08C	32.00	36.00	3	15	45.0	110.00	32.00	C	0.55	SR 10502813-HG-M	IP-7/51
T490 LNM D32-36-3-W32-08C	32.00	36.00	3	15	45.0	110.00	32.00	W	0.55	SR 10502813-HG-M	IP-7/51
T490 LNM D40-44-4-W32-08C	40.00	44.00	4	24	53.0	120.00	32.00	W	0.73	SR 10502813-HG-M	IP-7/51

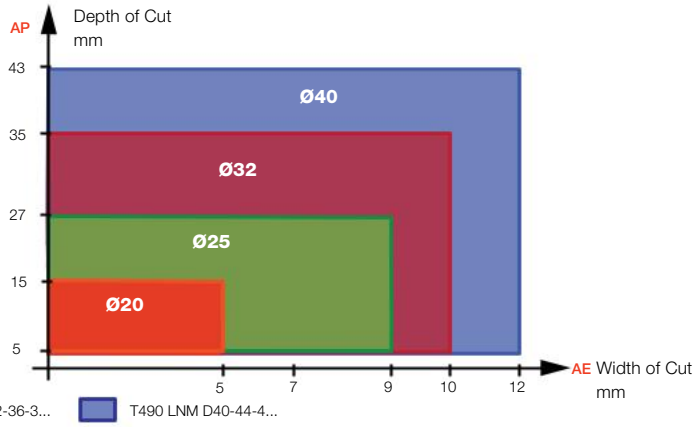
(1) Number of flutes
(2) Number of inserts (or edges for solid tool)
(3) W-Weldon, C-Cylindrical

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT/LNHT 0804 (544)

AP/AE Application Range with T490 LNMT 0804PNR Insert



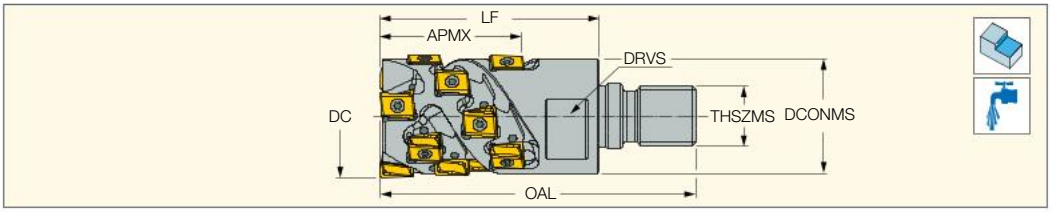
AP/AE Application Range with T490 LNMT080404-CS Chip Splitting Insert



HELITANG T490 LINE

T490 LNM-M-08

Extended Flute Endmills
with a FLEX-FIT Threaded
Adaptation Carrying
Tangentially Clamped Inserts



Designation	DC	APMX	NOF(1)	CICT(2)	LF	OAL	DCONMS	THSZMS	DRVS(3)	kg	TQ_3(4)		
T490 LNM D25-30-2-M12-08	25.00	30.00	2	8	52.00	74.00	21.00	M12	17.0	0.12	33	SR 10502813-HG-M	IP-7/51
T490 LNM D32-36-3-M16-08	32.00	36.00	3	15	57.00	82.00	30.00	M16	25.0	0.26	40	SR 10502813-HG-M	IP-7/51

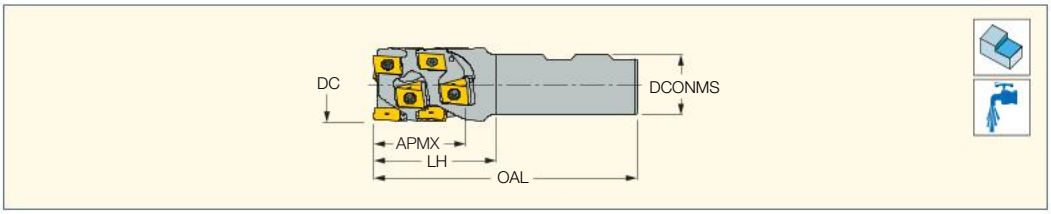
• For adaptation options, see page 356 • For user guide see pages 616-621
(1) Number of flutes
(2) Number of inserts (or edges for solid tool)
(3) Clamping wrench size
(4) Tool tightening torque Nxm (lbfxin)

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT/LNHT 0804 (544)
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

HELITANG T490 LINE

T490 LNK-11

Extended Flute Endmills
Carrying T490 LN#T 11...
Tangentially Clamped Inserts



Designation	DC	APMX	NOF(1)	CICT(2)	LH	OAL	DCONMS	Shank(3)	kg			
T490 LNK-D32-34-2-W32-11	32.00	34.00	2	8	45.0	105.00	32.00	W	0.49	SR 34-535/L10.5-SN	BLD T15/S7(a)	SW6-SD
T490 LNK-D40-51-3-C32-11	40.00	51.00	3	18	60.0	120.00	32.00	C	0.66	SR 34-535/L10.5-SN	BLD T15/S7(a)	SW6-SD
T490 LNK-D40-51-3-W32-11	40.00	51.00	3	18	60.0	120.00	32.00	W	0.66	SR 34-535/L10.5-SN	BLD T15/S7(a)	SW6-SD
T490 LNK-D50-51-4-C40-11	50.00	51.00	4	24	60.0	130.00	40.00	C	1.18	SR 34-535-SN	BLD T15/S7(a)	SW6-SD
T490 LNK-D50-51-4-W40-11	50.00	51.00	4	24	60.0	130.00	40.00	W	1.18	SR 34-535-SN	BLD T15/S7(a)	SW6-SD

- Important: Maximum clamping torque 3.2 Nxm

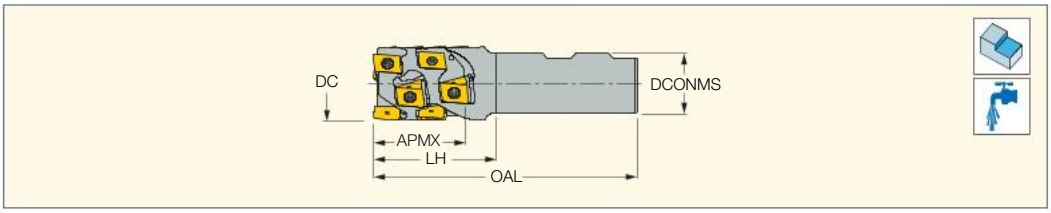
(1) Number of flutes
(2) Number of inserts (or edges for solid tool)
(3) C-Cylindrical, W-Weldon
(a) Recommended key handle for limiting torque to 3.2 Nxm for this item is HSD 4-3.2NM (to be used with BLD 4 T15-4.8 blade)

For inserts, see pages: T490 LNMT/LNHT 1106 (545)

HELITANG T490 LINE

T490 LNK-13

Extended Flute Endmills
Carrying T490 LNMT/HT 13...
Tangentially Clamped Inserts



Designation	DC	APMX	NOF(1)	CICT(2)	LH	OAL	DCONMS	Shank(3)	kg			
T490 LNK-D40-36-2-W32-13	40.00	36.00	2	6	50.0	115.00	32.00	W	0.68	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 LNK-D40-48-3-C32-13	40.00	48.00	3	12	65.0	140.00	32.00	C	0.80	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 LNK-D40-48-3-W32-13	40.00	48.00	3	12	65.0	125.00	32.00	W	0.70	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 LNK-D50-47-3-W40-13	50.00	47.00	3	12	65.0	135.00	40.00	W	1.24	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 LNK-D50-59-4-W40-13	50.00	59.00	4	20	65.0	135.00	40.00	W	1.21	SR 34-535-SN	BLD T15/S7	SW6-T-SH

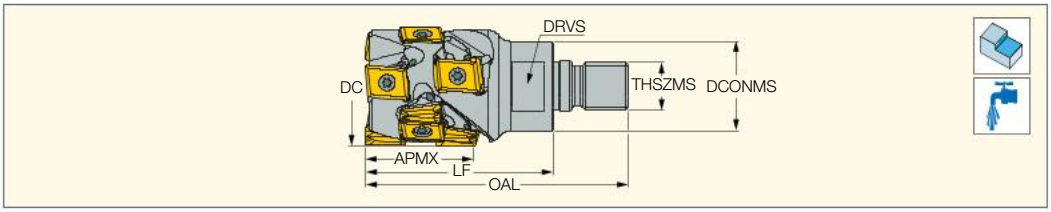
(1) Number of flutes
(2) Number of inserts (or edges for solid tool)
(3) C-Cylindrical, W-Weldon

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT 1306PNTR-FW (547) • T490 LNMT/LNHT/LNAR 1306 (546)

HELITANG T490 LINE

T490 LNK-M-13

Endmills with a FLEX-FIT
Threaded Adaptation Carrying
Tangentially Clamped Inserts



Designation	DC	APMX	NOF(1)	CICT(2)	LF	OAL	DCONMS	THSZMS	DRVS(3)	kg			
T490 LNK-D40-36-3-M16-13	40.00	36.00	3	9	63.00	88.00	30.00	M16	25.0	0.37	SR 34-535-SN	BLD T15/S7	SW6-T-SH

- For adaptation options, see page 356 • For user guide, see pages 616-621

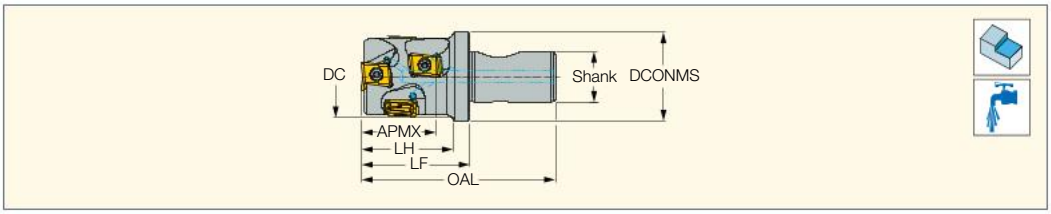
(1) Number of flutes
(2) Number of inserts (or edges for solid tool)
(3) Clamping wrench size

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT 1306PNTR-FW (547) • T490 LNMT/LNHT/LNAR 1306 (546)
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360)
• HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

HELITANG T490 LINE

T490 LNK-13-CF

Extended Flute Endmills with CLICK-FIT Shanks Carrying T490 LNMT/HT 1306... Tangentially Clamped Inserts



Designation	DC	APMX	NOF(1)	CICT(2)	LH	LF	OAL	DCONMS	Shank	kg			
T490 LNK-D50-59-4-CF4-13	50.00	59.00	4	20	-	73.00	115.00	44.00	CF4	0.82	SR 34-535-SN	BLD T15/S7	SW6-T-SH

(1) Number of flutes

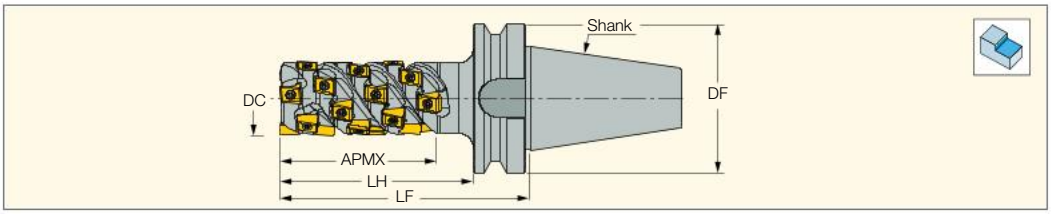
(2) Number of inserts (or edges for solid tool)

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT 1306PNTR-FW (547) • T490 LNMT/LNHT/LNAR 1306 (546)

HELITANG T490 LINE

T490 LNK-13-BT

Extended Flute Endmills with BT-MAS-403 Tapered Shanks Carrying T490 LNMT/HT 13... Tangentially Clamped Inserts



Designation	DC	APMX	NOF(1)	CICT(2)	LH	LF	Shank	DF	CSP(3)	kg			
T490LNK-D50-059-4-BT50-13	50.00	59.00	4	20	80.5	120.00	BT-MAS-403	100.00	1	4.34	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490LNK-D50-105-3-BT50-13	50.00	105.00	3	27	130.0	168.00	BT-MAS-403	100.00	0	4.99	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490LNK-D63-117-4-BT50-13	63.00	117.00	4	40	150.0	188.00	BT-MAS-403	100.00	1	6.07	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490LNK-D80-082-4-BT50-13	80.00	82.00	4	28	135.0	173.00	BT-MAS-403	100.00	1	7.65	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490LNK-D80-128-4-BT50-13	80.00	128.00	4	44	162.0	200.00	BT-MAS-403	100.00	1	8.25	SR 34-535-SN	BLD T15/S7	SW6-T-SH

(1) Number of flutes

(2) Number of inserts (or edges for solid tool)

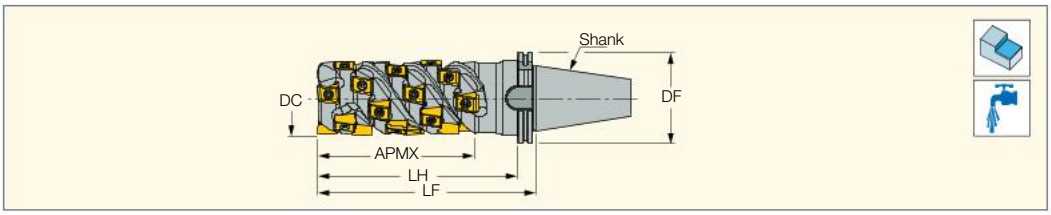
(3) 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT 1306PNTR-FW (547) • T490 LNMT/LNHT/LNAR 1306 (546)

HELITANG T490 LINE

T490 LNK-13-INT

Extended Flute Endmills with DIN69871 Tapered Shanks Carrying T490 LNMT/HT 13... Tangentially Clamped Inserts



Designation	DC	APMX	NOF(1)	CICT(2)	LH	LF	Shank	DF	kg			
T490LNKD50-082-3-INT50-13	50.00	82.00	3	21	126.0	145.00	DIN 69871	97.50	3.85	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490LNKD63-117-4-INT50-13	63.00	117.00	4	40	169.0	188.00	DIN 69871	97.50	5.46	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490LNKD80-082-4-INT50-13	80.00	82.00	4	28	154.0	173.00	DIN 69871	97.50	7.61	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490LNKD80-128-4-INT50-13	80.00	128.00	4	44	180.9	200.00	DIN 69871	97.50	7.92	SR 34-535-SN	BLD T15/S7	SW6-T-SH

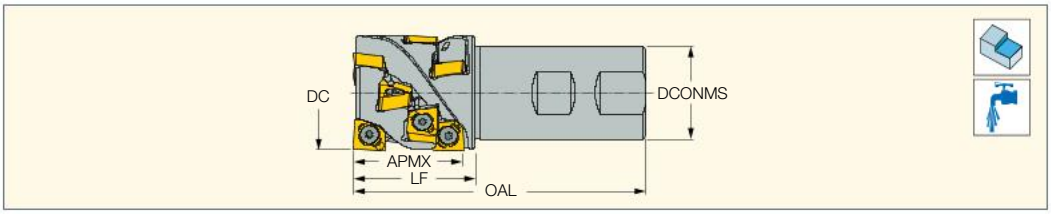
(1) Number of flutes

(2) Number of inserts (or edges for solid tool)

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT 1306PNTR-FW (547) • T490 LNMT/LNHT/LNAR 1306 (546)

HELISLOT

XNK-XN13
Extended Flute Endmills
Carrying XNMU 1306... Inserts



Designation	DC	APMX	LF	NOF(1)	CICT(2)	OAL	DCONMS	Shank(3)	kg			
XNK D050-46-3-W40 XN13	50.00	46.00	85.00	3	12	125.00	40.00	W	1.09	SR M4-L15-D4.5	BLD IP15/S7	SW6-T-SH

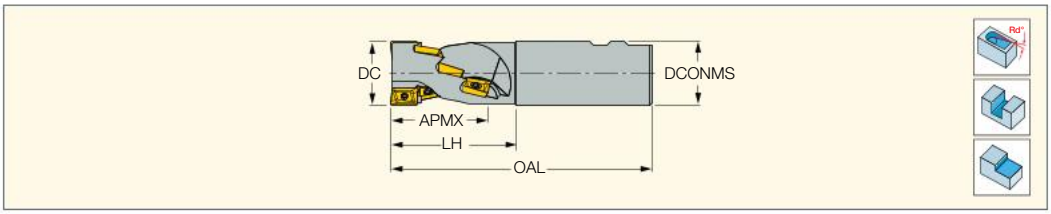
- Radial W.O.C. < 0.3xDC

(1) Number of flutes
(2) Number of inserts (or edges for solid tool)
(3) W-Weldon

For inserts, see pages: XNMU 13 (586)

HELIMILL

APK-FE
Extended Flute Endmills
Carrying APKT/R-10... Inserts



Designation	DC	APMX	NOF(1)	CICT(2)	LH	OAL	DCONMS	Shank(3)	RMPX°(4)	kg				
APK D20-28-W20-FE	20.00	29.00	1	4	36.0	87.00	20.00	W	4.0	0.17	SR 34-505/HG		SW4-SD	BLD T08/M7
APK D25-36-W25-FE	25.00	37.00	2	8	47.0	105.00	25.00	W	4.0	0.31	SR 34-505/MHG	T-8/53		
APK D32-45-W32-FE	32.00	46.00	2	12	55.0	115.00	32.00	W	1.4	0.57	SR 34-505/LHG	T-8/53		
APK D40-50-W32-FE	40.00	55.00	3	18	65.0	130.00	32.00	W	1.3	0.80	SR 34-505/LHG	T-8/53		

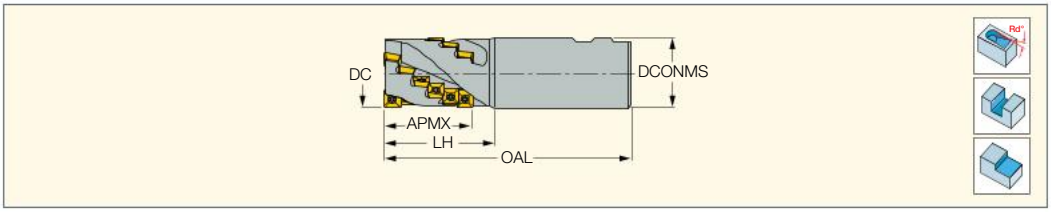
- Inserts with large corner radii can only be mounted in the face position of the cutter

(1) Number of flutes
(2) Number of inserts (or edges for solid tool)
(3) W-Weldon
(4) Maximum ramping angle

For inserts, see pages: APCR 1003PDFR-P (517) • APCT 1003PDR-HM (516) • APKR 1003PDR (517) • APKT 1003..R (519) • APKT 1003..TR-RM (519)
• APKT 1003PDR-HM (517) • APKT 1003PDR-HM-CS (518) • APKT 1003PDTR-76 (518) • APKT 1003PDTR/L-RM (518) • HM90 APCR 100304PDFR-P/DP (515)
• HM90 APKT 1003 (515) • HM90 APKW 1003PDR (519)

HELIQUAD

SPK
Extended Flute Endmills
Carrying Square Inserts



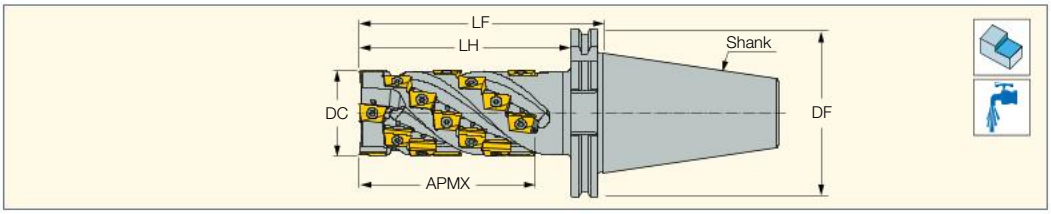
Designation	DC	APMX	NOF(1)	CICT(2)	LH	OAL	DCONMS	Shank(3)	RMPX°(4)	kg			
SPK D40-42-W32-10	40.00	43.00	3	15	55.0	125.00	32.00	W	1.5	0.70	SR 14-544/S	BLD T15/M7	SW6-SD

(1) Number of flutes
(2) Number of inserts (or edges for solid tool)
(3) W-Weldon
(4) Maximum ramping angle

For inserts, see pages: QPMR 1004-HQ-M (561) • QPMT 100408PDTN (561) • SPCT/SPMR PDR (563) • SPMT-HP (562) • SPMT-HQ (562)
• XPMT-HQ (563)

HELITANG

FIN LNK-INT
Extended Flute Endmills with Tangentially Clamped Inserts and DIN69871 Shanks for Semi-Finishing Long Shoulders



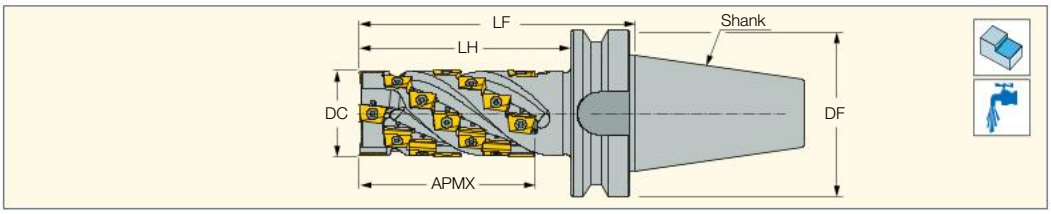
Designation	DC	APMX	NOF(1)	CICT(2)	LH	LF	DF	Shank	kg			
FIN LNK D050-100-4-INT50	50.00	102.00	4	28	123.2	142.30	97.50	DIN 69871	3.73	SR 34-535	BLD T15/M7	SW6-T
FIN LNK D063-130-4-INT50	63.00	130.00	4	36	157.0	176.10	97.50	DIN 69871	5.21	SR 34-535	BLD T15/M7	SW6-T

(1) Number of flutes
(2) Number of inserts (or edges for solid tool)

For inserts, see pages: FIN LNAT 1607PN-R (557)

HELITANG

FIN LNK-BT
Extended Flute Endmills with Tangentially Clamped Inserts and BT-MAS-403 Shanks for Semi-Finishing Long Shoulders



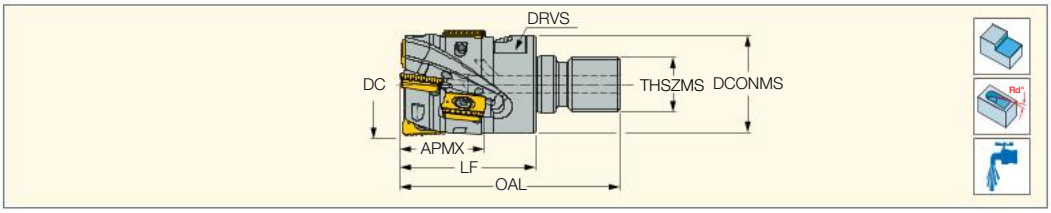
Designation	DC	APMX	NOF(1)	CICT(2)	LH	LPR	DF	Shank	kg			
FIN LNK D050-100-4-BT50	50.00	102.00	4	28	123.2	161.20	100.00	BT-MAS-403	4.72	SR 34-535	BLD T15/M7	SW6-T

(1) Number of flutes
(2) Number of inserts (or edges for solid tool)

For inserts, see pages: FIN LNAT 1607PN-R (557)

MILLSHRED P290 LINE

P290 ACK-M
Extended Flute Endmills with FLEX-FIT Threaded Adaptation Carrying 12 mm Long Edged Inserts



Designation	DC	APMX	NOF(1)	CICT(2)	LF	DCONMS	THSZMS	OAL	DRVS(3)	RMPX°(4)	TQ_3(5)	kg
P290 ACK D32-3-24-M16-12	32.00	24.00	3	6	40.00	29.00	M16	65.00	25.0	1.0	40	0.17

• For adaptation options, see page 356 • For user guide, see pages 616-621 • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Number of flutes
(2) Number of inserts (or edges for solid tool)
(3) Clamping wrench size
(4) Maximum ramping angle
(5) Tool tightening torque Nxm

For inserts, see pages: P290 ACCT/KT (529) • P290 ACKT (529)
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

Spare Parts

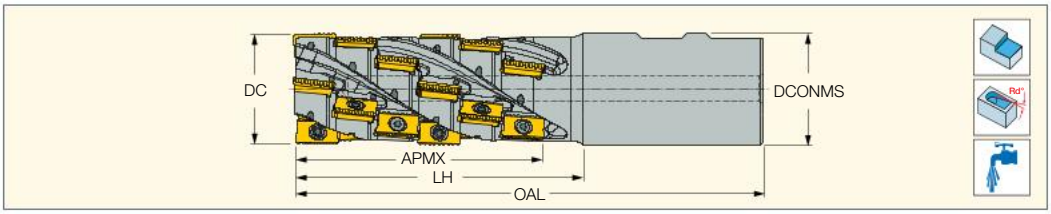
Designation		
P290 ACK-M	SR M3X0.5-L7.4 IP9(a)	IP-9/151

(a) Recommended tightening torque:2.0 N*m

MILLSHRED P290 LINE

P290 ACK

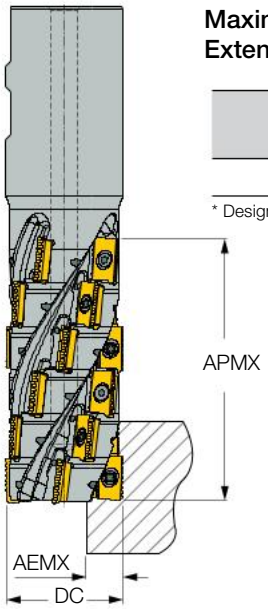
Extended Flute Endmills
Carrying 12 and 18 mm
Long Edged Inserts



Designation	DC	APMX	NOF(2)	CICT(3)	LH	OAL	DCONMS	RMPX°(4)	Shank(5)	kg
P290 ACK D25-3-24-W20-12	25.00	24.00	3	6	40.0	95.00	20.00	1.4	W	0.20
P290 ACK D25-3-36-W25-12	25.00	36.00	3	9	50.0	110.00	25.00	1.4	W	0.29
P290 ACK D32-3-36-W32-12	32.00	36.00	3	9	50.0	110.00	32.00	1.0	W	0.50
P290 ACK D32-3-48-W32-12	32.00	48.00	3	12	65.0	125.00	32.00	1.0	W	0.55
P290 ACK D32-3-60-W32-12	32.00	60.00	3	15	80.0	140.00	32.00	1.0	W	0.59
P290 ACK D32-3-84-W32-12	32.00	84.00	3	21	100.0	160.00	32.00	1.0	W	0.66
P290 ACK D32-3-36-W25-18 (1)	32.00	36.00	3	6	55.0	115.00	25.00	2.0	W	0.36
P290 ACK D40-3-53-W32-18	40.00	53.00	3	9	80.0	140.00	32.00	1.5	W	0.77
P290 ACK D40-3-71-W40-18	40.00	71.00	3	12	95.0	165.00	40.00	1.5	W	1.14
P290 ACK D40-3-90-W40-18	40.00	90.00	3	15	115.0	185.00	40.00	1.5	W	1.23
P290 ACK D40-3-125-W40-18	40.00	125.00	3	21	150.0	220.00	40.00	1.5	W	1.39
P290 ACK D50-4-53-W40-18	50.00	53.00	4	12	80.0	150.00	40.00	1.0	W	1.33
P290 ACK D50-4-105-W50-18	50.00	105.00	4	24	130.0	210.00	50.00	1.0	W	2.23
P290 ACK D50-3-160-W50-18	50.00	160.00	3	27	185.0	265.00	50.00	1.0	W	2.82

(1) Do not use with P290 ACKT...-FWR insert
(2) Number of flutes
(3) Number of inserts (or edges for solid tool)
(4) Maximum ramping angle
(5) W-Weldon

For inserts, see pages: P290 ACCT/KT (529) • P290 ACKT (529)



Maximum Width of Cut AE Max (AEMX)* for P290 ACK...
Extended Flute Cutters

APMX / DC	Up to 1.5	Over 1.5 up to 2.5	Over 2.5
AEMX	0.2xDC	0.15xDC	0.1xDC

* Designation in accordance with standard ISO 13399 are given in parentheses

Spare Parts

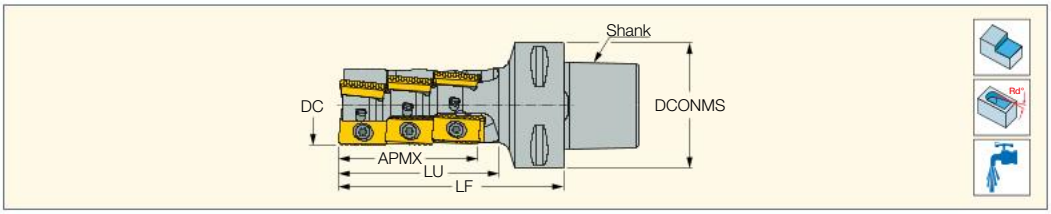
Designation				
P290 ACK D25-3-24-W20-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 ACK D25-3-36-W25-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 ACK D32-3-36-W32-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 ACK D32-3-48-W32-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 ACK D32-3-60-W32-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 ACK D32-3-84-W32-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 ACK D32-3-36-W25-18	SR 14-544/S		BLD T15/M7	SW6-T-SH
P290 ACK D40-3-53-W32-18	SR 14-544/S		BLD T15/M7	SW6-T-SH
P290 ACK D40-3-71-W40-18	SR 14-544/S		BLD T15/M7	SW6-T-SH
P290 ACK D40-3-90-W40-18	SR 14-544/S		BLD T15/M7	SW6-T-SH
P290 ACK D40-3-125-W40-18	SR 14-544/S		BLD T15/M7	SW6-T-SH
P290 ACK D50-4-53-W40-18	SR 14-544/S		BLD T15/M7	SW6-T-SH
P290 ACK D50-4-105-W50-18	SR 14-544/S		BLD T15/M7	SW6-T-SH
P290 ACK D50-3-160-W50-18	SR 14-544/S		BLD T15/M7	SW6-T-SH

(a) Recommended tightening torque:2.0 N*m

MILLSHRED P290 LINE

P290 ACK-C#-18

Extended Flute Endmills with CAMFIX Shanks Carrying 18 mm Long Edged Inserts



Designation	DC	APMX	NOF[2]	CICT[3]	LU	LF	RMPX°[4]	DCONMS	Shank	DCP[5]	kg			
P290 ACK D32-3-36-C5-18 [1]	32.00	36.00	3	6	64.0	90.00	2.0	50.00	CAMFIX	1	0.79	SR 14-544/S	BLD T15/M7	SW6-T-SH
P290 ACK D40-3-87-C6-18	40.00	87.00	3	15	106.0	134.60	1.5	63.00	CAMFIX	1	1.66	SR 14-544/S	BLD T15/M7	SW6-T-SH
P290 ACK D63-5-87-C8-18	63.00	87.00	5	25	104.0	140.00	0.8	80.00	CAMFIX	1	4.00	SR 14-544/S	BLD T15/M7	SW6-T-SH

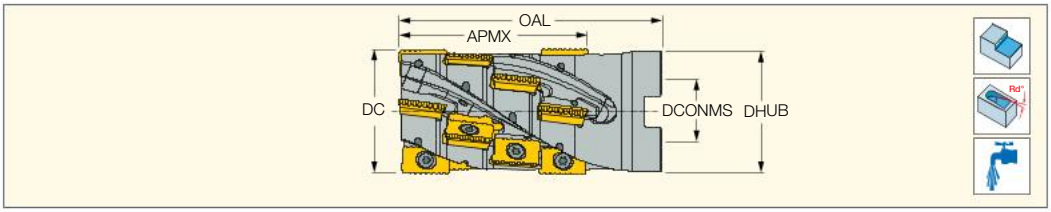
[1] Do not use with P290 ACKT...-FWR insert
[2] Number of flutes
[3] Number of inserts (or edges for solid tool)
[4] Maximum ramping angle
[5] 1 - Slot for data chip, 0 - Without slot for data chip

For inserts, see pages: P290 ACCT/KT (529) • P290 ACKT (529)

MILLSHRED P290 LINE

P290 SM

Extended Flute Shell Mills Carrying 12 and 18 mm Long Edged Inserts



Designation	DC	APMX	NOF[1]	CICT[2]	OAL	DHUB	DCONMS	RMPX°[3]	Arbor[4]	kg
P290 SM D032-03-24-16-12	32.00	24.00	3	6	65.00	38.00	16.00	1.0	A	0.27
P290 SM D040-04-24-16-12	40.00	24.00	4	8	45.00	38.00	16.00	0.7	A	0.23
P290 SM D040-04-36-16-12	40.00	36.00	4	12	60.00	38.00	16.00	0.7	A	0.30
P290 SM D040-04-48-22-12	40.00	48.00	4	16	85.00	48.00	22.00	0.7	A	0.47
P290 SM D050-04-36-22-18	50.00	36.00	4	8	65.00	46.40	22.00	1.0	A	0.47
P290 SM D050-04-53-22-18	50.00	53.00	4	12	80.00	46.40	22.00	1.0	A	0.57
P290 SM D050-04-71-27-18	50.00	71.00	4	16	105.00	48.00	27.00	1.0	A	0.73
P290 SM D063-05-53-27-18	63.00	53.00	5	15	80.00	55.00	27.00	0.8	A	1.00
P290 SM D063-05-71-27-18	63.00	71.00	5	20	100.00	55.00	27.00	0.8	A	1.30
P290 SM D080-06-71-32-18	80.00	71.00	6	24	100.00	74.00	32.00	0.5	A	2.21
P290 SM D100-06-36-32-18	100.00	36.00	6	12	70.00	78.00	32.00	0.3	A	2.48
P290 SM D100-07-71-40-18	100.00	71.00	7	28	100.00	85.00	40.00	0.3	A	3.50

• Note: recommended a_e up to 0.2xDC
[1] Number of flutes
[2] Number of inserts (or edges for solid tool)
[3] Maximum ramping angle
[4] For adaptation options, see page 622

For inserts, see pages: P290 ACCT/KT (529) • P290 ACKT (529)

Spare Parts

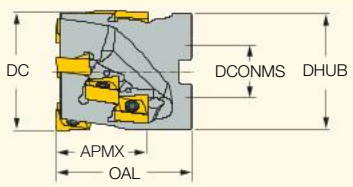
Designation					
P290 SM D032-03-24-16-12	SR M3X0.5-L7.4 IP9[a]	IP-9/151			SR M8X55-D11.5 DIN912
P290 SM D040-04-24-16-12	SR M3X0.5-L7.4 IP9[a]	IP-9/151			SR M8X35 DIN912
P290 SM D040-04-36-16-12	SR M3X0.5-L7.4 IP9[a]	IP-9/151			SR M8X45DIN912
P290 SM D040-04-48-22-12	SR M3X0.5-L7.4 IP9[a]	IP-9/151			SR M10X70DIN912
P290 SM D050-04-36-22-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M10X50 DIN 912
P290 SM D050-04-53-22-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M10X60DIN912
P290 SM D050-04-71-27-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M12X70DIN912
P290 SM D063-05-53-27-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M12X70DIN912
P290 SM D063-05-71-27-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M12X70DIN912
P290 SM D080-06-71-32-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M16X80 DIN 912
P290 SM D100-06-36-32-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M16X50 DIN912
P290 SM D100-07-71-40-18	SR 14-544/S		BLD T15/M7	SW6-T-SH	SR M20X80DIN912

[a] Recommended tightening torque:2.0 N*m

HELIDO 490 LINE

H490 SM-12

Extended Flute Shell Mills
Carrying H490 ANKX 12..
Double-Sided Rectangular Inserts
with 4 Helical Cutting Edges



Designation	DC	CICT(1)	NOF(2)	APMX	OAL	DHUB	DCONMS	Arbor(3)	CSP(4)	kg				
H490 SM D050-36-3-22-12	50.00	9	3	35.00	60.00	48.00	22.00	A	1	0.45	SR 14-544	BLD T15/M7	SW6-T	SR M10X40DIN912
H490 SM D050-47-4-22-12	50.00	16	4	47.00	68.00	48.00	22.00	A	0	0.54	SR 14-544/S	BLD T15/M7	SW6-T	SR M10X50 DIN 912
H490 SM D063-48-4-27-12	63.00	16	4	47.00	70.00	60.00	27.00	A	1	0.89	SR 14-544	BLD T15/M7	SW6-T	SR M12X50DIN912

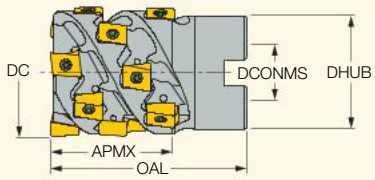
(1) Number of inserts (or edges for solid tool)
(2) Number of flutes
(3) For adaptation see page 622
(4) 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: H490 ANKX/ANCX-12 (538)

HELITANG T490 LINE

T490 SM-08

Extended Flute Shell Mills
Carrying T490 LNMT/HT 0804...
Tangentially Clamped Inserts



Designation	DC	APMX	NOF(1)	CICT(2)	OAL	DHUB	DCONMS	Arbor(3)	kg				
T490 SM D032-36-3-16-08	32.00	36.00	3	15	58.00	38.00	16.00	A	0.23	SR 10502813-HG-M	IP-7/51	SR M8X45DIN912	
T490 SM D040-44-4-16-08	40.00	44.00	4	24	65.00	38.00	16.00	A	0.38	SR 10502813-HG-M	IP-7/51	SR M8X55DIN912	
T490 SM D050-44-5-22-08	50.00	44.00	5	30	65.00	47.00	22.00	A	0.61	SR 10502813-HG-M	IP-7/51	SR M10X50 DIN 912	

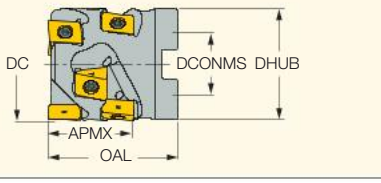
(1) Number of flutes
(2) Number of inserts (or edges for solid tool)
(3) For adaptation options, see page 622

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT/LNHT 0804 (544)

HELITANG T490 LINE

T490 SM-11

Extended Flute Shell Mills
Carrying T490 LN#T 11...
Tangentially Clamped Inserts



Designation	DC	APMX	NOF(1)	CICT(2)	OAL	DHUB	DCONMS	Arbor(3)	kg				
T490 SM-D40-51-3-22-11	40.00	51.00	3	18	72.00	38.00	22.00	A	0.31	SR 34-535/L10.5-SN	BLD T15/S7[a]	SW6-SD	SR M10X60DIN912
T490 SM-D50-51-3-22-11	50.00	51.00	3	18	71.00	48.00	22.00	A	0.59	SR 34-535-SN	BLD T15/S7[a]	SW6-SD	SR M10X60DIN912
T490 SM-D50-59-4-22-11	50.00	59.00	4	28	80.00	48.00	22.00	A	0.66	SR 34-535-SN	BLD T15/S7[a]	SW6-SD	SR M10X70DIN912
T490 SM-D63-59-4-27-11	63.00	59.00	4	28	81.00	60.00	27.00	A	1.16	SR 34-535-SN	BLD T15/S7[a]	SW6-SD	SR M12X70DIN912
T490 SM-D63-68-5-27-11	63.00	68.00	5	40	90.00	60.00	27.00	A	1.30	SR 34-535-SN	BLD T15/S7[a]	SW6-SD	SR M12X80DIN912

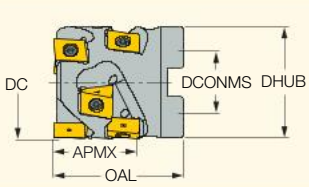
• Important: Maximum clamping torque 3.2 Nxm
(1) Number of flutes
(2) Number of inserts (or edges for solid tool)
(3) For adaptation see page 622
(a) Recommended key handle for limiting torque to 3.2 Nxm for this item is HSD 4-3.2NM (to be used with BLD 4 T15-4.8 blade)

For inserts, see pages: T490 LNMT/LNHT 1106 (545)

HELITANG T490 LINE

T490 SM-13

Extended Flute Shell Mills
Carrying T490 LNMT/HT 1306...
Tangentially Clamped Inserts



Designation	DC	APMX	NOF[2]	CICT[3]	OAL	DHUB	DCONMS	Arbor[4]	kg
T490 SM-D40-24-2-22-13 [1]	40.00	24.00	2	4	50.00	38.00	22.00	A	0.24
T490 SM-D40-36-3-22-13	40.00	36.00	3	9	62.00	38.00	22.00	A	0.29
T490 SM-D50-36-2-27-13 [1]	50.00	36.00	2	6	56.00	48.00	27.00	A	0.38
T490 SM-D50-36-3-22-13 [1]	50.00	36.00	3	9	56.00	48.00	22.00	A	0.43
T490 SM-D50-36-3-27-13 [1]	50.00	36.00	3	9	56.00	48.00	27.00	A	0.39
T490 SM-D50-47-4-22-13	50.00	47.00	4	16	68.00	48.00	22.00	A	0.54
T490 SM-D50-47-4-27-13	50.00	47.00	4	16	68.00	48.00	27.00	A	0.49
T490 SM-D63-36-4-27-13	63.00	36.00	4	12	60.00	58.00	27.00	A	0.79
T490 SM-D63-59-5-27-13	63.00	59.00	5	25	80.00	58.00	27.00	A	1.09
T490 SM-D80-58-5-32-13	80.00	58.00	5	25	75.00	74.00	32.00	A	1.73
T490 SM-D80-70-5-32-13	80.00	70.00	5	30	111.00	74.00	32.00	A	2.65
T490 SM-D100-59-6-40-13	100.00	59.00	6	30	86.00	88.00	40.00	A	3.11

[1] Can be applied for full slot applications
[2] Number of flutes
[3] Number of inserts (or edges for solid tool)
[4] For adaptation options, see page 622

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT 1306PNTR-FW (547) • T490 LNMT/LNHT/LNAR 1306 (546)

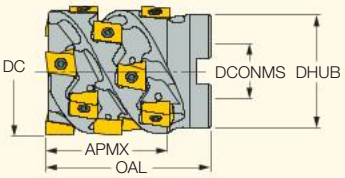
Spare Parts

Designation				
T490 SM-D40-24-2-22-13	SR 34-535/L10.5-SN	BLD T15/S7	SW6-T-SH	SR M10X40DIN912
T490 SM-D40-36-3-22-13	SR 34-535/L10.5-SN	BLD T15/S7	SW6-T-SH	SR M10X50 DIN 912
T490 SM-D50-36-2-27-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M12X45DIN912
T490 SM-D50-36-3-22-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M10X40DIN912
T490 SM-D50-36-3-27-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M12X45DIN912
T490 SM-D50-47-4-22-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M10X50 DIN 912
T490 SM-D50-47-4-27-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M12X50DIN912
T490 SM-D63-36-4-27-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M12X50DIN912
T490 SM-D63-59-5-27-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M12X70DIN912
T490 SM-D80-58-5-32-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M16X55DIN912
T490 SM-D80-70-5-32-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M16X90DIN912
T490 SM-D100-59-6-40-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M20X60DIN912

HELITANG T490 LINE

T490 SM-13FT

Basic Units for Modular
Extended Flute Shell Mills



Designation	DC	APMX	NOF[1]	CICT[2]	OAL	DHUB	DCONMS	Arbor[3]	kg
T490 SM-D50-47-2-27-13FT	50.00	47.00	2	8	66.50	58.00	27.00	A	0.59
T490 SM-D63-59-3-27-13FT	63.00	59.00	3	15	80.00	58.00	27.00	A	1.10
T490 SM-D80-70-4-32-13FT	80.00	70.00	4	24	95.00	74.00	32.00	A	2.23

• Assembly screw should be ordered separately
[1] Number of flutes
[2] Number of inserts (or edges for solid tool)
[3] For adaptation options, see page 622

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT 1306PNTR-FW (547) • T490 LNMT/LNHT/LNAR 1306 (546)

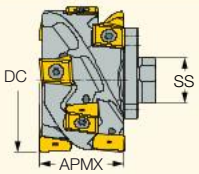
Spare Parts

Designation						
T490 SM-D50-47-2-27-13FT	SR 34-535-SN	BLD T15/S7	SW6-T-SH			SR M12X50DIN912
T490 SM-D63-59-3-27-13FT	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M3X0.5X10DIN7991 10.9	PG D63	SR M12X60DIN912
T490 SM-D80-70-4-32-13FT	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M3X0.5X10DIN7991 10.9	PG D63	SR M16X70DIN912

HELITANG T490 LINE

T490 CAP-13FT

Extension Units for Modular Extended Flute Shell Mills



Designation	DC	APMX	NOF(1)	CICT(2)	SS	kg		
T490 CAP-D50-24-2-20-13FT	50.00	24.00	2	4	20	0.21	SR 34-535-SN	
T490 CAP-D50-36-2-20-13FT	50.00	36.00	2	6	20	0.32	SR 34-535-SN	
T490 CAP-D63-24-3-20-13FT	63.00	24.00	3	6	20	0.33	SR 34-535-SN	
T490 CAP-D63-24-4-20-13FT	63.00	24.00	4	8	20	0.34	SR 34-535-SN	SR M6X6 DIN916
T490 CAP-D63-36-3-20-13FT	63.00	36.00	3	9	20	0.51	SR 34-535-SN	
T490 CAP-D63-36-4-20-13FT	63.00	36.00	4	12	20	0.50	SR 34-535-SN	SR M6X6 DIN916
T490 CAP-D80-24-4-25-13FT	80.00	24.00	4	8	25	0.59	SR 34-535-SN	SR M6X8 DIN916
T490 CAP-D80-36-4-25-13FT	80.00	36.00	4	12	25	0.88	SR 34-535-SN	SR M6X8 DIN916

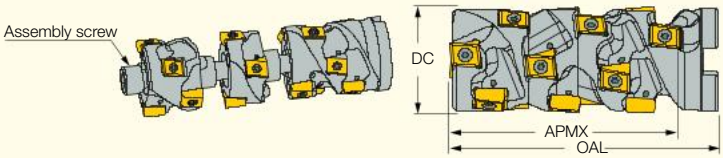
- Assembly screw should be ordered separately

(1) Number of flutes

(2) Number of inserts (or edges for solid tool)

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT 1306PNTR-FW (547) • T490 LNMT/LNHT/LNAR 1306 (546)

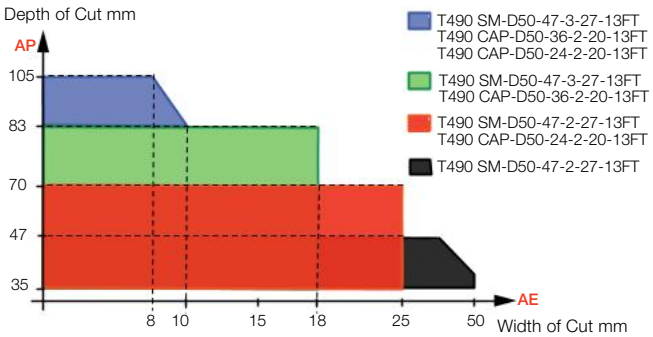
Modular Extended Flute Assembly



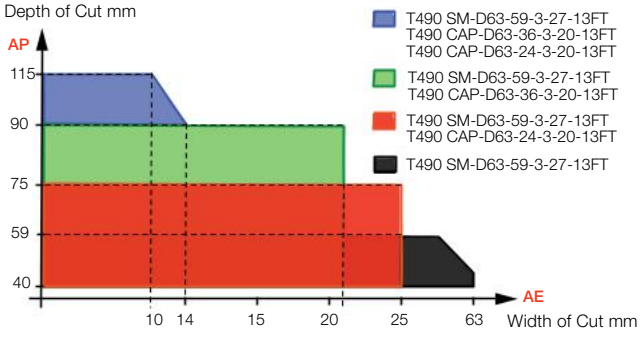
Shell Base Unit	Extension 1	Extension 2	DC	APMX	OAL	NOF	CICT	Assembly Screw
T490 SM-D50-47-2-27-13FT				47	66.5	2	8	SR M12x50 DIN912*
	T490 CAP-D50-24-2-20-13FT		50	71	90		12	SR M12x70 DIN912*
	T490 CAP-D50-36-2-20-13FT		50	83	102		14	SR M12x80 DIN912*
	T490 CAP-D50-24-2-20-13FT	T490 CAP-D50-24-2-20-13FT	50	94	113		16	SR M12x100 DIN912*
	T490 CAP-D50-24-2-20-13FT	T490 CAP-D50-36-2-20-13FT	50	106	125		18	SR M12x110 DIN912*
T490 SM-D63-59-3-27-13FT				59	80	3	15	SR M12x60 DIN912*
	T490 CAP-D63-24-3-20-13FT		63	82	103		21	SR M12x80 DIN912*
	T490 CAP-D63-36-3-20-13FT		63	94	115		24	SR M12x100 DIN912*
	T490 CAP-D63-24-3-20-13FT	T490 CAP-D63-24-3-20-13FT	63	106	127		27	SR M12x110 DIN912*
	T490 CAP-D63-24-3-20-13FT	T490 CAP-D63-36-3-20-13FT	63	117	138		30	SR M12x120 DIN912*
T490 SM-D80-70-4-32-13FT				70	95	4	24	SR M16x70 DIN912*
	T490 CAP-D80-24-4-25-13FT		80	94	118.4		32	SR M16x100 DIN912*
	T490 CAP-D80-36-4-25-13FT		80	106	130		36	SR M16x100 DIN912*
	T490 CAP-D80-24-4-25-13FT	T490 CAP-D80-24-4-25-13FT	80	118	143.2		40	SR M16x120 DIN912*
	T490 CAP-D80-24-4-25-13FT	T490 CAP-D80-36-4-25-13FT	80	130	154.8		44	SR M16x130 DIN912*

* Should be ordered separately.

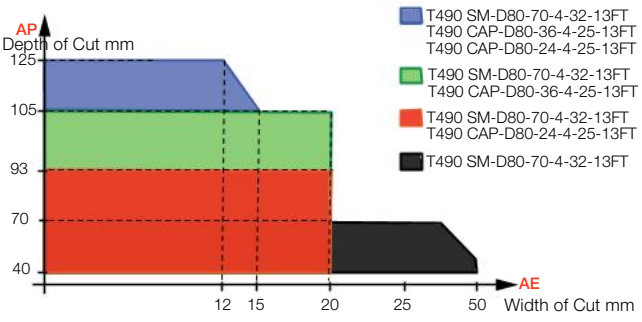
AP/AE Application Range for 50 mm Modular Extended Flute Cutters



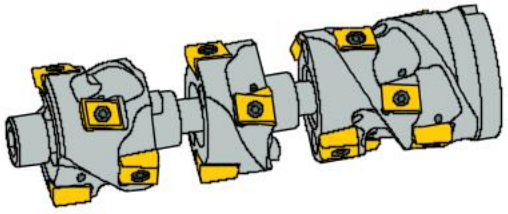
AP/AE Application Range for 63 mm Modular Extended Flute Cutters



AP/AE Application Range for 80 mm Modular Extended Flute Cutters

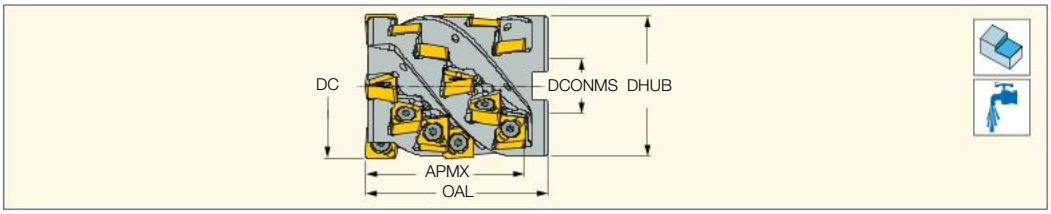


Workpiece: Alloy Steel



HELISLOT

SM-XN13
Extended Flute Shell Mills
Carrying XNMU 1306... Inserts



Designation	DC	APMX	NOF(1)	DCONMS	CICT(2)	LF	DHUB	Arbor	kg				
SM D063-69-3-27R XN13	63.00	69.00	3	27.00	18	80.00	61.30	A	1.05	SR M4-L15-D4.5	BLD IP15/S7	SW6-T-SH	SR M12X70DIN912
SM D063-69-4-27R XN13	63.00	69.00	4	27.00	24	80.00	61.30	A	0.95	SR M4-L15-D4.5	BLD IP15/S7	SW6-T-SH	SR M12X70DIN912
SM D080-69-5-32R XN13	80.00	69.00	5	32.00	30	85.00	78.30	A	1.81	SR M4-L15-D4.5	BLD IP15/M7	SW6-T-SH	SR M16X70DIN912

- Radial W.O.C. < 0.3xDC

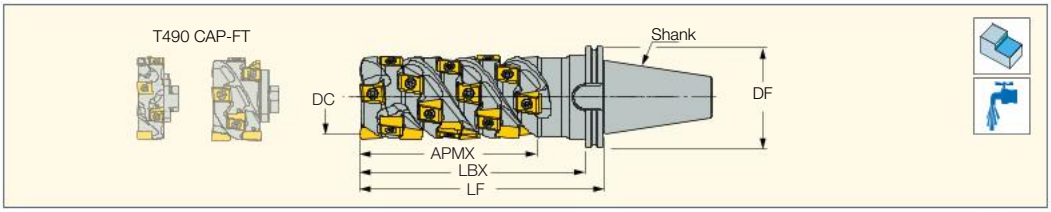
(1) Number of flutes

(2) Number of inserts (or edges for solid tool)

For inserts, see pages: XNMU 13 (586)

HELITANG T490 LINE

T490 LNK-INT50-FT
Basic Units of Modular Extended
Flute Endmills with DIN 69871
Tapered Shanks Carrying
T490 LNMT/HT 1306 Inserts



Designation	DC	APMX	LBX	LF	DF	NOF(1)	CICT(2)	Shank	kg
T490LNKD63-082-4-INT50-FT	63.00	82.00	125.9	145.00	97.50	4	28	DIN69871	5.15
T490LNK-D80-82-5-INT50-FT	80.00	82.00	125.5	144.60	97.50	5	35	DIN69871	6.08
T490LNKD80-105-4-INT50-FT	80.00	105.00	154.1	173.20	97.50	4	36	DIN69871	7.04

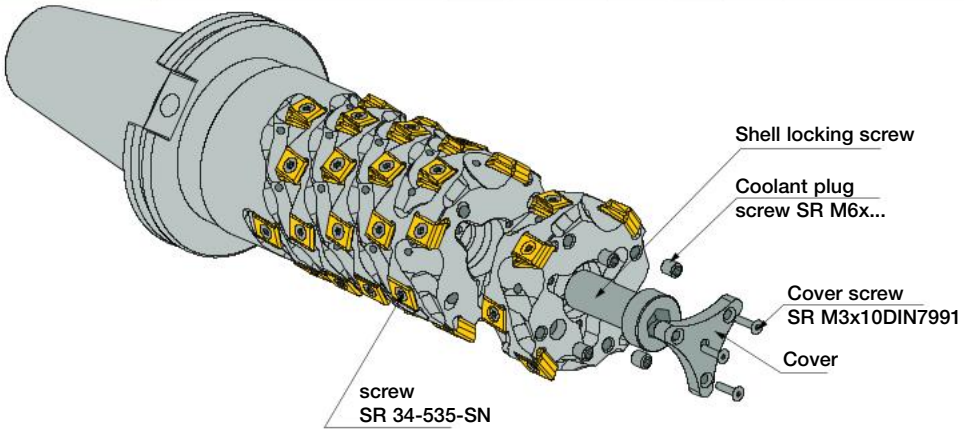
- Remove coolant plug screws (SR M6X..DIN916) prior to attaching extension units

(1) Number of flutes

(2) Number of inserts (or edges for solid tool)

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT 1306PNTR-FW (547) • T490 LNMT/LNHT/LNAR 1306 (546)

Shell Base Unit	Extension	DC	APMX	OAL	NOF	CICT	Assembly Screw
T490 LNK-D63-082-4-INT50-FT		63	82	126	4	28	
	T490 CAP-24-4-20-13FT		106	150		36	SR M12x30 DIN912
	T490 CAP-36-4-20-13FT		118	162		40	SR M12X45DIN912 12.9
T490 LNK-D80-082-5-INT50-FT		80	82	125	5	45	
	T490 CAP-D80-24-25-13FT		106	149		55	SR M16x40 DIN912
			105	135		36	
T490 LNK-D80-105-4-INT50-FT	T490 CAP-D80-24-4-25-13FT	80	129	159	4	44	SR M16x40 DIN912
	T490 CAP-D80-36-4-25-13FT		141	171		48	SR M16x40 DIN912



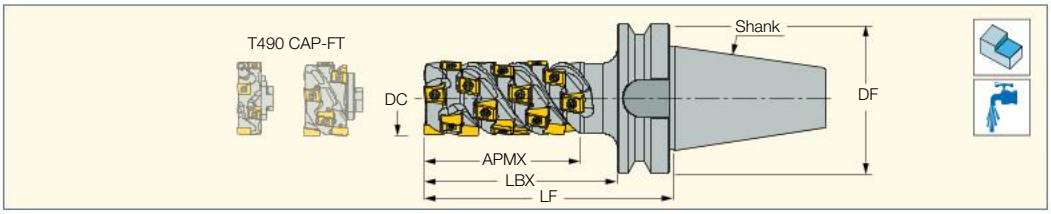
Spare Parts

Designation							
T490LNKD63-082-4-INT50-FT	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M6X6 DIN916	SR M12X12 DIN912		
T490LNK-D80-82-5-INT50-FT	SR 34-535-SN	BLD T15/S7	SW6-T-SH			PG D63	SR M3X0.5X10DIN7991 10.9
T490LNKD80-105-4-INT50-FT	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M6X8 DIN916		PG D63	SR M3X0.5X10DIN7991 10.9

HELITANG T490 LINE

T490 LNK-BT-FT

Basic Units of Modular Extended Flute Endmills with BT-MAS-403 Tapered Shanks Carrying T490 LNMT/HT 1306 Inserts



Designation	DC	APMX	LBX	LF	DF	NOF(1)	CICT(2)	Shank	kg
T490LNK-D63-082-4-BT50-FT	63.00	82.00	107.0	145.00	100.00	4	28	BT-MAS-403	5.32
T490LNK-D80-105-4-BT50-FT	80.00	105.00	135.2	173.20	100.00	4	36	BT-MAS-403	7.35

- Remove coolant plug screws (SR M6X..DIN916) prior to attaching extension units

(1) Number of flutes

(2) Number of inserts (or edges for solid tool)

For inserts, see pages: T490 LNAR-P (548) • T490 LNMT 1306PNTR-FW (547) • T490 LNMT/LNHT/LNAR 1306 (546)

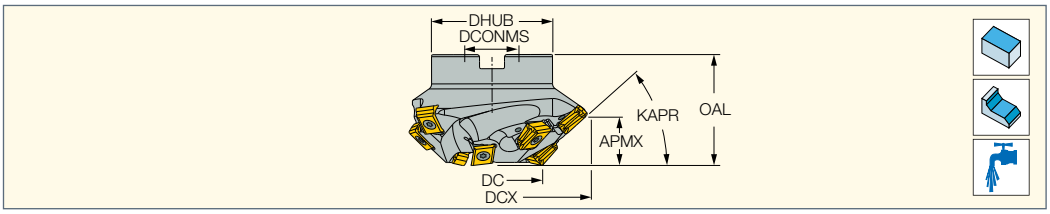
Shell Base Unit	Extension	DC	APMX	OAL	NOF	CICT	NOFAssembly Screw
T490 LNK-D63-082-4-BT50-FT		63	82	107	4	28	
	T490 CAP-D63-24-4-20-13FT		106	131		36	SR M12x30 DIN912
	T490 CAP-D63-36-4-20-13FT		118	143		40	SR M12X45DIN912 12.9
T490 LNK-D80-105-4-BT50-FT		80	105	135	4	36	
	T490 CAP-D80-24-4-25-13FT		129	159		44	SR M16x40 DIN912
	T490 CAP-D80-36-4-25-13FT		141	171		48	SR M16x40 DIN912

Spare Parts

Designation							
T490LNK-D63-082-4-BT50-FT	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M6X6 DIN916	SR M12X12 DIN912		
T490LNK-D80-105-4-BT50-FT	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M6X8 DIN916		PG D63	SR M3X0.5X10DIN7991 10.9

HELITANG

T4..-SM Conical Shell Mills
Conical Extended Flute Shell Mills
Carrying T490 LNMT/LNHT 13...
Tangentially Clamped Inserts



Designation	DC	KAPR[2]	APMX	DCX[3]	NOF[4]	ZNP[5]	OAL	DHUB	DCONMS	Arbor[6]	kg
T422 SM-D050-12-3-32-13	50.00	22.5	12.20	110.10	3	9	60.00	78.00	32.00	A	1.92
T425 SM-D050-13-3-32-13	50.00	25.0	13.55	109.20	3	9	60.00	78.00	32.00	A	1.85
T430 SM-D050-16-3-32-13	50.00	30.0	16.00	107.20	3	9	60.00	78.00	32.00	A	1.81
T440 SM-D050-28-3-27-13	50.00	40.0	28.88	118.80	3	12	65.00	60.00	27.00	A	1.99
T445 SM-D050-23-3-27-13	50.00	45.0	23.50	98.20	3	9	55.00	60.00	27.00	A	1.17
T445 SM-D050-47-3-32-13	50.00	45.0	47.50	145.60	3	18	76.00	80.00	32.00	A	3.41
T450 SM-D050-25-3-27-13	50.00	50.0	26.12	94.30	3	9	55.00	60.00	27.00	A	0.13
T460 SM-D050-30-3-27-13	50.00	60.0	30.00	85.20	3	9	55.00	60.00	27.00	A	0.96
T470 SM-D050-33-3-27-13	50.00	70.0	33.20	74.30	3	9	60.00	58.00	27.00	A	0.86
T475 SM-D050-34-3-27-13	50.00	75.0	34.50	68.60	3	9	55.00	60.00	27.00	A	0.73
T475 SM-D050-56-3-32-13	50.00	75.0	57.70	81.00	3	15	83.50	78.00	32.00	A	1.52

- Note: RPM should be considered according to the recommended speed applied on the outer diameter obtained by the specific D.O.C.
- For user guide, see pages 616-621

(1) Tool cutting edge angle
(2) Cutting diameter maximum
(3) Number of flutes
(4) Number of peripheral inserts
(5) For adaptation options, see page 622

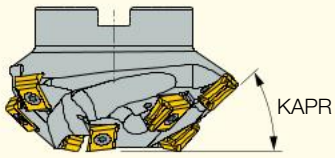
For inserts, see pages: T490 LNAR-P (548) • T490 LNMT 1306PNTR-FW (547) • T490 LNMT/LNHT/LNAR 1306 (546)

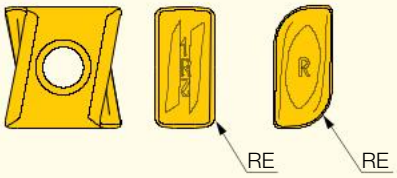
Spare Parts

Designation				
T422 SM-D050-12-3-32-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M16X40DIN912
T425 SM-D050-13-3-32-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M16X40DIN912
T430 SM-D050-16-3-32-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M16X40DIN912
T440 SM-D050-28-3-27-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M12X45DIN912
T445 SM-D050-23-3-27-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M12X35DIN912
T445 SM-D050-47-3-32-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M16X50 DIN912
T450 SM-D050-25-3-27-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M12X35DIN912
T460 SM-D050-30-3-27-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M12X35DIN912
T470 SM-D050-33-3-27-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M12X50DIN912
T475 SM-D050-34-3-27-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M12X35DIN912
T475 SM-D050-56-3-32-13	SR 34-535-SN	BLD T15/S7	SW6-T-SH	SR M16X60DIN912

Recommended Applications

The table and figures below show the applicability of the conical extended flute cutters carrying inserts with different corner radii.





Description	KAPR	Application Fig. for RE								
		0.8	1.2	1.6	2.4	3.1	4.0	5.0	6.0	6.4
T422 SM-D050-12-3-32-13	22.5	Fig. 1 & 2	Fig. 2	Fig. 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 2	Fig. 2	Fig. 2	Fig. 2
T425 SM-D050-13-3-32-13	25	Fig. 1 & 2	Fig. 2	Fig. 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2
T430 SM-D050-16-3-32-13	30	Fig. 1 & 2	Fig. 2	Fig. 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2
T440 SM-D050-28-3-27-13	40	Fig. 2	Fig. 2	Fig. 2	Fig. 2	Fig. 2	Fig. 2	Fig. 2	Fig. 2	Fig. 2
T445 SM-D050-23-3-27-13	45	Fig. 1 & 2	Fig. 2	Fig. 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 2	Fig. 2	Fig. 2	Fig. 2
T450 SM-D050-25-3-27-13	50	Fig. 1 & 2	Fig. 2	Fig. 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 2	Fig. 2	Fig. 2	Fig. 2
T460 SM-D050-30-3-27-13	60	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2
T470 SM-D050-33-3-27-13	70	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2
T475 SM-D050-34-3-27-13	75	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2	Fig. 1 & 2

KAPR - Tool cutting edge angle

Required to make a modification in the tool body

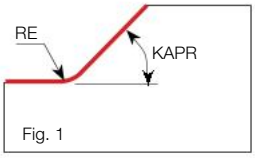


Fig. 1

Machined surface

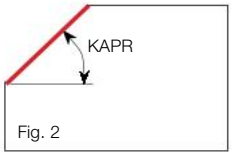


Fig. 2

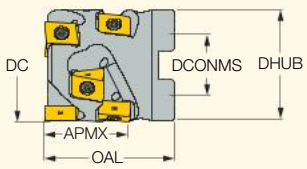
Fig. 3

For indexable inserts T490 LNHT 1306… with a corner radius of 4 mm and more, the tool body mast be modified according to Fig. 3.

HELITANG T490 LINE

T490 SM-16

Extended Flute Shell Mills
Carrying T490 LNMT/HT 1607...
Tangentially Clamped Inserts



Designation	DC	APMX	OAL	NOF(1)	CICT(2)	DHUB	DCONMS	Arbor(3)	kg			
T490 SM D63-47-3-27-16	63.00	47.00	68.00	3	9	58.00	27.00	A	0.93	SR 14-591	BLD T20/M7	SW6-T

(1) Number of flutes

(2) Number of inserts (or edges for solid tool)

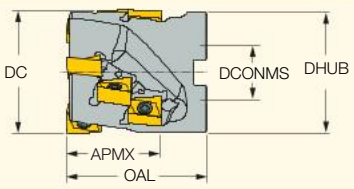
(3) For adaptation options, see page 622

For inserts, see pages: T490 LNAR-P (480) • T490 LNMT/LNHT 1607 (480)

HELIDO 490 LINE

H490 SM-17

Extended Flute Shell Mills Carrying H490 ANKX 17.. Double-Sided Rectangular Inserts with 4 Helical Cutting Edges



Designation	DC	APMX	NOF(1)	CICT(2)	OAL	DHUB	DCONMS	Arbor(3)	kg				
H490 SM D063-48-3-27-17C	63.00	46.50	3	9	70.00	59.40	27.00	A	1.93	SR 14-591	BLD T20/M7	SW6-T	SR M12X50DIN912
H490 SM D063-60-3-27-17C	63.00	58.50	3	12	85.00	59.40	27.00	A	1.13	SR 14-591	BLD T20/M7	SW6-T	SR M12X60DIN912
H490 SM D080-48-4-32-17C	80.00	46.50	4	12	70.00	76.40	32.00	A	1.56	SR 14-591	BLD T20/M7	SW6-T	SR M16X40DIN912

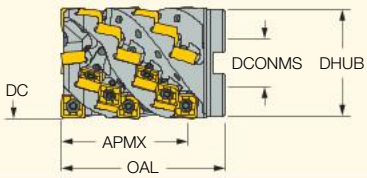
(1) Number of flutes
(2) Number of inserts (or edges for solid tool)
(3) For adaptation options, see page 622

For inserts, see pages: H490 ANKX/ANCX-17 (539)

QUICKXFLUTE

S890 SM

Extended Flute Cutters Carrying Double-Sided Square Inserts with 8 Cutting Edges



Designation	DC	APMX	NOF(1)	DCONMS	CICT(2)	OAL	DHUB	Arbor	kg
S890 SM D63-71-4-27-13	63.00	71.00	4	27.00	28	92.00	60.00	A	1.50
S890 SM D80-83-5-32-13	80.00	83.00	5	32.00	40	100.00	78.00	A	1.89

New

- When using inserts with a corner radius of above 3.2mm, the pockets in the first row of the tool body should be modified to accommodate larger insert corners.

(1) Number of flutes
(2) Number of inserts (or edges for solid tool)

For inserts, see pages: S890 SNMU 1306HP (573)

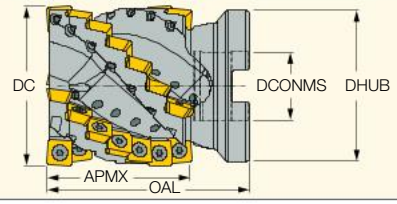
Spare Parts

Designation					
S890 SM D63-71-4-27-13	SR 10513105-L10.5	BLD IP20/S7-4MM	SW6-T-SH	SR M12X80DIN912	NOZZLE 1.2 569102604 L5.5
S890 SM D80-83-5-32-13	SR 10513105-L10.5	BLD IP20/S7-4MM	SW6-T-SH	SR M16X84DIN912	NOZZLE 1.2 569102604 L5.5

XQUAD EXTENDED FLUTE

SDK-10-C/HP

Extended Flute Shell Mills Carrying SDHW/T 100408... Inserts



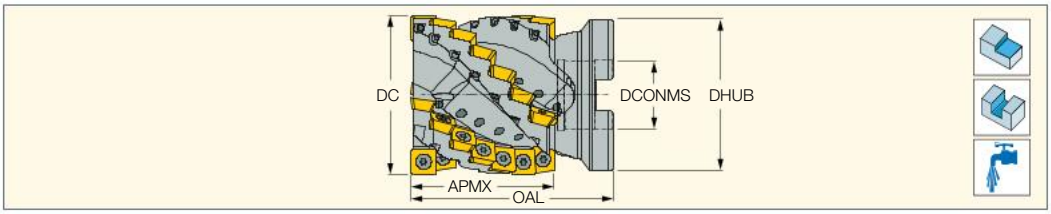
Designation	DC	APMX	NOF(2)	DCONMS	CICT(3)	OAL	DHUB	Arbor(4)	kg					
SDK D050-48-03-22-10-C	50.00	48.00	3	22.00	18	75.00	48.00	A	0.54	SR M3.5X0.6-L8.5 IP10	BLD IP10/S7	SW6-SD	SR M10X60DIN912
SDK D050-48-03-27-10-C	50.00	48.00	3	27.00	18	80.00	49.00	A	0.57	SR M3.5X0.6-L8.5 IP10	BLD IP10/S7	SW6-SD	SR M12X65 DIN912
SDK D050-48-04-27-10-C	50.00	48.00	4	27.00	24	75.90	49.00	A	0.56	SR M3.5X0.6-L8.5 IP10	BLD IP10/S7	SW6-SD	SR M12X60DIN912
SDK D050-48-04-27-10-HP (1)	50.00	48.00	4	27.00	24	80.00	49.00	A	0.57	SR M3.5X0.6-L8.5 IP10	BLD IP10/S7	SW6-SD	SR M12X65 DIN912
SDK D063-56-04-27-10-C	63.00	56.00	4	27.00	28	80.00	60.00	A	0.90	SR M3.5X0.6-L8.5 IP10	BLD IP10/S7	SW6-SD	SR M12X65 DIN912
SDK D080-64-05-32-10-C	80.00	64.00	5	32.00	40	85.00	78.00	A	1.61	SR M3.5X0.6-L8.5 IP10	BLD IP10/S7	SW6-SD	SR M16X65 DIN912

(1) Designed with coolant nozzles for high pressure coolant
(2) Number of flutes
(3) Number of inserts (or edges for solid tool)
(4) For adaptation see page 622

For inserts, see pages: SDHT/HW/MT 1004 (566)

XQUAD EXTENDED FLUTE

SDK-12-C/HP
Extended Flute Shell Mills
Carrying SDHT 1205... Inserts



Designation	DC	APMX	NOF(2)	DCONMS	CICT(3)	OAL	DHUB	Arbor(4)	kg
SDK D63-55-05-27-12-C	63.00	55.00	5	27.00	25	80.00	60.00	A	0.94
SDK D63-55-05-27-12-HP (1)	63.00	55.00	5	27.00	25	80.00	60.00	A	0.94
SDK D63-66-04-27-12-C	63.00	66.00	4	27.00	24	93.00	60.00	A	1.07
SDK D63-98-04-27-12-C	63.00	98.00	4	27.00	36	125.00	60.00	A	1.38
SDK D80-66-05-32-12-C	80.00	66.00	5	32.00	30	95.00	77.60	A	2.06
SDK D80-109-05-32-12-C	80.00	109.00	5	32.00	50	143.00	77.60	A	3.06
SDK D100-76-06-40-12-C	100.00	76.00	6	40.00	42	110.00	92.00	A	3.97
SDK D100-130-06-40-12-C	100.00	130.00	6	40.00	72	165.00	92.00	A	5.87

(1) With coolant nozzles for high pressure coolant
(2) Number of flutes
(3) Number of inserts (or edges for solid tool)
(4) For adaptation see page 622

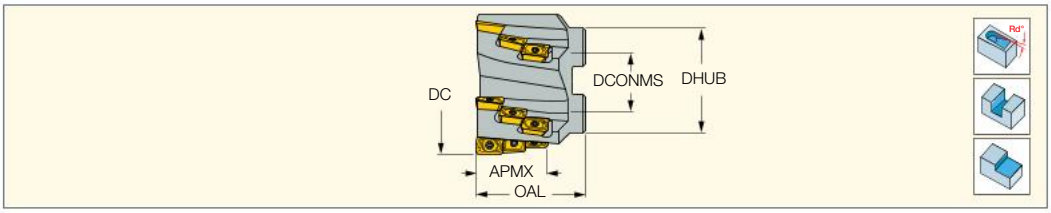
For inserts, see pages: QDCT-PDN (565) • QDMT 1205..PDTN-M (565) • SDHT/X 120508 (566) • SDMT-PDR-HQ (563) • SDMT-PDR-RM (564)

Spare Parts

Designation				
SDK D63-55-05-27-12-C	SR M4X0.7-L9.5 IP15-4623	BLD IP15/M7	SW6-T-SH	SR M12X65 DIN912
SDK D63-55-05-27-12-HP	SR M4X0.7-L9.5 IP15-4623	BLD IP15/M7	SW6-T	SR M12X65 DIN912
SDK D63-66-04-27-12-C	SR M4X0.7-L9.5 IP15-4623	BLD IP15/M7	SW6-T-SH	SR M12X80DIN912
SDK D63-98-04-27-12-C	SR M4X0.7-L9.5 IP15-4623	BLD IP15/M7	SW6-T-SH	SR M12X110DIN912
SDK D80-66-05-32-12-C	SR M4X0.7-L9.5 IP15-4623	BLD IP15/M7	SW6-T-SH	SR M16X70DIN912
SDK D80-109-05-32-12-C	SR M4X0.7-L9.5 IP15-4623	BLD IP15/M7	SW6-T-SH	SR M16X120 DIN912
SDK D100-76-06-40-12-C	SR M4X0.7-L9.5 IP15-4623	BLD IP15/M7	SW6-T-SH	SR M20X85 DIN912
SDK D100-130-06-40-12-C	SR M4X0.7-L9.5 IP15-4623	BLD IP15/M7	SW6-T-SH	SR M20X140 DIN912

HELIMILL

SM
Extended Flute Shell
Mills Carrying HM90
ADKT 1505... Inserts



Designation	DC	APMX	NOF(1)	CICT(2)	OAL	DHUB	DCONMS	Arbor(3)	RMPX°(4)	kg
SM D50-25-27-M	50.00	25.00	3	6	56.00	47.70	27.00	A	0.9	0.43
SM D63-38-27-M	63.00	38.00	4	12	60.00	55.00	27.00	A	0.7	0.67

(1) Number of flutes
(2) Number of inserts (or edges for solid tool)
(3) For adaptation options, see page 622
(4) Maximum ramping angle

For inserts, see pages: ADCR 1505PDFR (523) • ADCT 1505PDFR-HM (523) • ADKR 1505PDR/L (523) • ADKT 1505..R/L-HM (526) • ADKT 1505PDR/L-HM (525) • ADKT 1505PDTR-76 (526) • ADKT 1505PDTR/L-RM (525) • ADMT 1505PDR-HS (525) • HM90 ADCT 1505 (521) • HM90 ADCT 1505PDR-CF (522) • HM90 ADKT 1505 (521) • HM90 ADKW 1505PDR (530)

Spare Parts

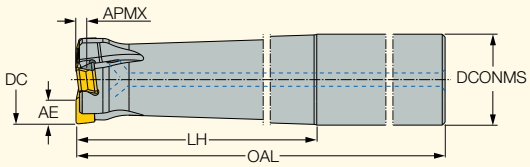
Designation				
SM D50-25-27-M	SR 14-544/S	BLD T15/M7	SW6-T-SH	SR M12X50DIN912
SM D63-38-27-M	SR 14-544/S	BLD T15/M7	SW6-T-SH	

PLUNGING CUTTERS

TANGPLUNGE PLUNGING LINE

HTP-LN06

Side Plungers Carrying Tangentially Clamped Inserts with 4 Cutting Edges



Designation	DC	AE	APMX	CICT(1)	LH	OAL	DCONMS	Shank(2)	kg		
HTP D016-2-L120-C16-LN06	16.00	4.5	2.50	2	32.0	120.00	16.00	C	0.17	SR 14-560-HG	T-8/53
HTP D020-3-L150-C20-LN06	20.00	5.0	2.50	3	40.0	150.00	20.00	C	0.33	SR 14-560-HG	T-8/53
HTP D025-3-L150-C25-LN06	25.00	5.0	2.50	3	50.0	150.00	25.00	C	0.51	SR 14-560-HG	T-8/53
HTP D025-4-L130-C25-LN06	25.00	5.0	2.50	4	50.0	130.00	25.00	C	0.44	SR 14-560-HG	T-8/53

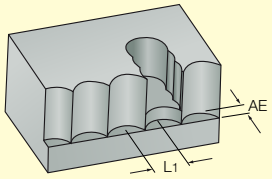
• 5 mm side plunging capacity and 2.5 mm maximum face milling DOC • For user guide, see pages 296-298

(1) Number of inserts (or edges for solid tool)

(2) C-Cylindrical

For inserts, see pages: HTP LN.. 0604 (610)

Side Step as a Function of the Width of the Plunge



AE - Width of plunge (mm)	Cutter Diameter (mm) 16	20	25
	L1 max - Step (effective diameter)		
1	7.75	8.72	9.80
2	10.58	12.00	13.56
3	12.49	1428	16.25
4	13.86	16.00	18.33
5	14.83	17.32	20.00

The relationship between the maximal step L1 max and the width of plunge AE is given by the following formula:

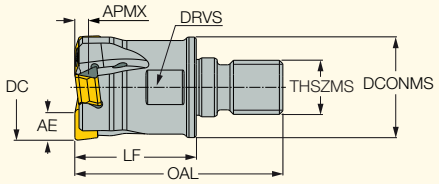
$L1\ max = 2x \sqrt{DC \times AE - AE^2}$

DC: cutter diameter

TANGPLUNGE PLUNGING LINE

HTP-M-LN06

Side Plungers with FLEX-FIT Threaded Connection Carrying Tangentially Clamped Inserts with 4 Cutting Edges



Designation	DC	AE	APMX	NOF(1)	LF	OAL	DCONMS	THSZMS	DRVS(2)	TQ_3(3)	kg		
HTP D16/.62-2-M08-LN06	15.95	4.5	2.50	2	30.00	47.50	13.00	M08	10.0	20	0.03	SR 14-560-HG	T-8/53
HTP D20-3-M10-LN06	20.00	5.0	2.50	3	30.00	50.00	18.00	M10	15.0	29	0.06	SR 14-560-HG	T-8/53
HTP D25/1.00-3-M12-LN06	25.20	5.0	2.50	3	35.00	57.00	21.00	M12	17.0	33	0.10	SR 14-560-HG	T-8/53

• 5 mm side plunging capacity and 2.5 mm maximum face milling DOC • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter • For user guide, see pages 296-298

(1) Number of flutes

(2) Clamping wrench size

(3) Tool tightening torque Nxm

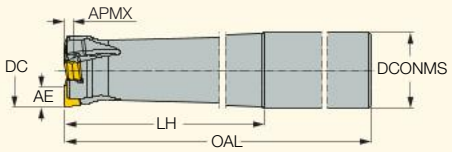
For inserts, see pages: HTP LN.. 0604 (610)

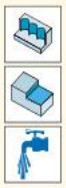
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

TANGPLUNGE PLUNGING LINE

HTP-LN10

Side Plungers Carrying Tangentially Clamped Inserts with 4 Cutting Edges





Designation	DC	AE	APMX	CICT(1)	LH	OAL	DCONMS	Shank(2)	kg			
HTP D025-2-L200-C25-LN10	25.00	7.0	3.00	2	120.0	200.00	25.00	C	0.64	SR 34-550	BLD T10/S7	SW6-SD
HTP D032-3-L190-C25-LN10	32.00	8.0	3.00	3	50.0	190.00	25.00	C	0.68	SR 34-550	BLD T10/S7	SW6-SD
HTP D032-3-L210-C32-LN10	32.00	8.0	3.00	3	120.0	210.00	32.00	C	1.09	SR 34-550	BLD T10/S7	SW6-SD
HTP D032-3-L210-W32-LN10	32.00	8.0	3.00	3	120.0	210.00	32.00	W	1.09	SR 34-550	BLD T10/S7	SW6-SD
HTP D040-4-L250-C32-LN10	40.00	8.0	3.00	4	50.0	250.00	32.00	C	1.49	SR 34-550	BLD T10/S7	SW6-SD

• 8 mm side plunging capacity and 3 mm maximum face milling DOC • For user guide, see pages 296-298

(1) Number of inserts (or edges for solid tool)

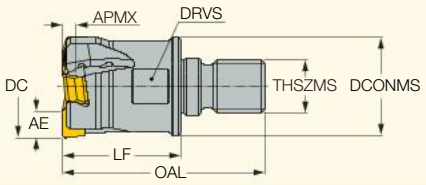
(2) C-Cylindrical, W-Weldon

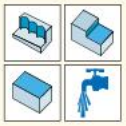
For inserts, see pages: HTP LN.. 1006 (611)

TANGPLUNGE PLUNGING LINE

HTP-M-LN10

Side Plungers with FLEX-FIT Threaded Connection Carrying Tangentially Clamped Inserts with 4 Cutting Edges





Designation	DC	AE	APMX	CICT(1)	LF	OAL	DCONMS	THSZMS	DRVS(2)	TQ_3(3)	kg			
HTP D025-2-M12-LN10	25.00	7.0	3.00	2	35.00	57.00	21.00	M12	17.0	33	0.09	SR 34-550	BLD T10/S7	SW6-SD
HTP D032-3-M16-LN10	32.00	8.0	3.00	3	35.00	60.00	29.00	M16	25.0	40	0.16	SR 34-550	BLD T10/S7	SW6-SD
HTP D035-3-M16-LN10	35.00	8.0	3.00	3	43.00	68.00	29.00	M16	25.0	40	0.22	SR 34-550	BLD T10/S7	SW6-SD
HTP D042-4-M16-LN10	42.00	8.0	3.00	4	43.00	68.00	29.00	M16	25.0	40	0.26	SR 34-550	BLD T10/S7	SW6-SD

• 8 mm side plunging capacity and 3 mm maximum face milling DOC • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter • For user guide, see pages 296-298

(1) Number of inserts (or edges for solid tool)

(2) Clamping wrench size

(3) Tool tightening torque Nxm

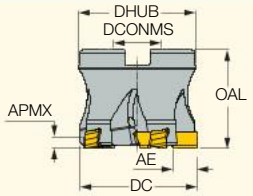
For inserts, see pages: HTP LN.. 1006 (611)

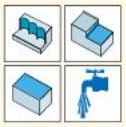
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

TANGPLUNGE PLUNGING LINE

HTP-R-LN10

Shell Mill Plungers Carrying Tangentially Clamped Inserts with 4 Cutting Edges



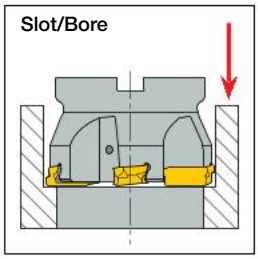


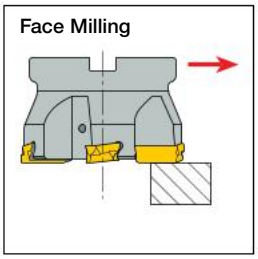
Designation	DC	APMX	AE	CICT(1)	OAL	DHUB	DCONMS	Arbor(2)	kg				
HTP D040-4-16-R-LN10	40.00	3.00	8.0	4	40.00	38.00	16.00	A	0.20	SR 34-550	BLD T10/S7	SW6-SD	SR M8X30DIN912
HTP D050-5-22-R-LN10	50.00	3.00	8.0	5	40.00	48.00	22.00	A	0.31	SR 34-550	BLD T10/S7	SW6-SD	SR M10X25C
HTP D052-5-22-R-LN10	52.00	3.00	8.0	5	40.00	48.00	22.00	A	0.34	SR 34-550	BLD T10/S7	SW6-SD	SR M10X25C

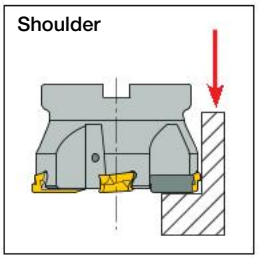
• 8 mm side plunging capacity and 3 mm maximum face milling DOC • For user guide, see pages 296-298

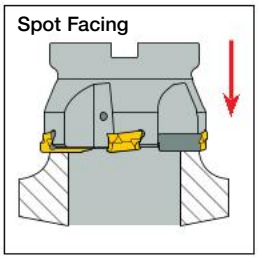
(1) Number of inserts (or edges for solid tool)

For inserts, see pages: HTP LN.. 1006 (611)





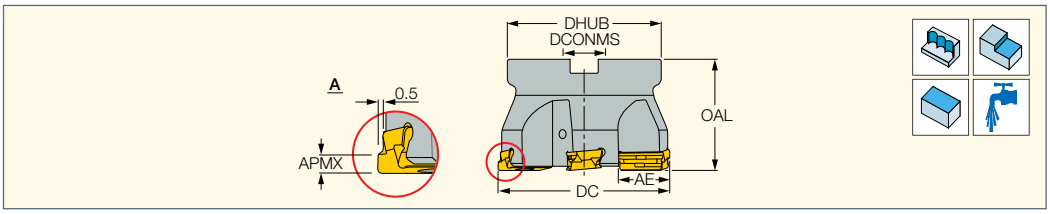




TANGPLUNGE
PLUNGING LINE

HTP-R-LN16

Shell Mill Plungers Carrying Tangentially Clamped Inserts with 4 Cutting Edges

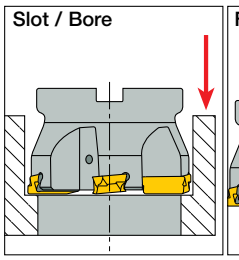


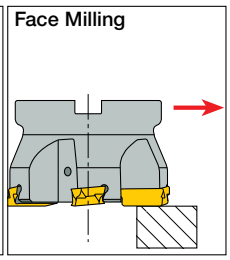
Designation	DC	AE	APMX	CICT(1)	OAL	DHUB	DCONMS	Arbor(2)	kg				
HTP D050-04-22-R-LN16	50.00	13.0	3.00	4	50.00	48.00	22.00	A	0.37	SR 34-535	BLD T15/S7	SW6-T-SH	SR PS 118-0271C
HTP D052-04-22-R-LN16	52.00	13.0	3.00	4	50.00	48.00	22.00	A	0.39	SR 34-535	BLD T15/S7	SW6-T-SH	SR PS 118-0271C
HTP D063-05-27-R-LN16	63.00	14.0	3.00	5	50.00	59.00	27.00	A	0.53	SR 34-535	BLD T15/S7	SW6-T-SH	SR M12X30C
HTP D066-05-27-R-LN16	66.00	14.0	3.00	5	50.00	62.00	27.00	A	0.60	SR 34-535	BLD T15/S7	SW6-T-SH	SR M12X30C
HTP D080-06-27-R-LN16	80.00	14.0	3.00	6	50.00	65.00	27.00	A	0.81	SR 34-535	BLD T15/S7	SW6-T-SH	SR M12X30C
HTP D080-06-31.75-R-LN16	80.00	14.0	3.00	6	63.00	76.00	31.75	A	1.20	SR 34-535	BLD T15/S7	SW6-T-SH	SR M16X40C
HTP D080-06-32-R-LN16	80.00	14.0	3.00	6	50.00	72.00	32.00	A	0.90	SR 34-535	BLD T15/S7	SW6-T-SH	SR M16X40C
HTP D100-07-31.75-R-LN16	100.00	14.0	3.00	7	63.00	96.00	31.75	B	2.23	SR 34-535	BLD T15/S7	SW6-T-SH	SR M16X40C
HTP D100-07-32-R-LN16	100.00	14.0	3.00	7	50.00	78.00	32.00	B	1.28	SR 34-535	BLD T15/S7	SW6-T-SH	

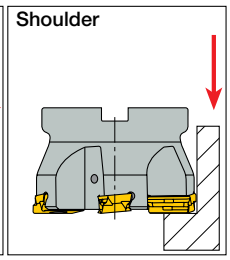
- 14 mm side plunging capacity and 3 mm maximum face milling DOC
- For user guide, see pages 296-298

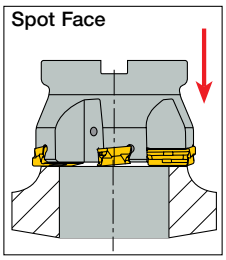
(1) Number of inserts (or edges for solid tool)

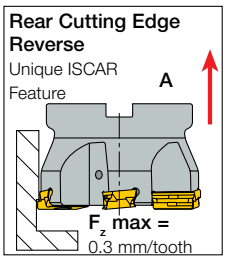
For inserts, see pages: HTP LN.. 1606 (611)









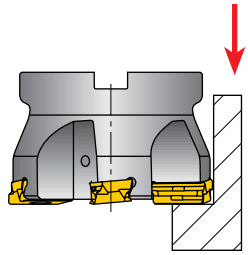


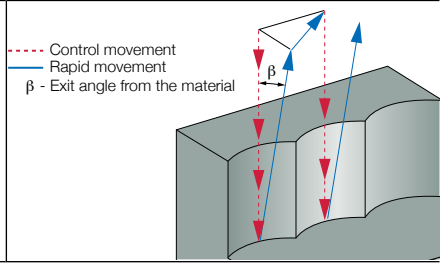
TANGPLUNGE
PLUNGING LINE

Recommended Cutting Conditions For Side Plunging

Plunging Cycle:

Step 1	Step 2	Step 3
Plunge in (axially-Z direction)	Back stroke (rapid) at an angle b≥2°	Move to the next cycle





TANG-PLUNGE - SIDE PLUNGING

Workpiece Material						Insert HTP LN... Type	Carbide Grade for Inserts	Cutting Speed V_c, m/min	Feed F_z, mm/t	Coolant
ISO Class DIN/ ISO 513	Description	ISCAR Mat. Group*	Typical Representative AISI/SAE/ ASTM	Typical Representative DIN W.-Nr.	Hardness HB					
P	non-alloy steel and cast steel, free cutting steel	4	1060	1.1221	180-200	...ER	IC830/ IC928	80-130	0.12-0.15	air blow
P	low alloy and cast steel (less than 5% of alloying elements)	8	4340	1.6582	260-300	...ER	IC830/ IC928	80-120	0.1-0.15	air blow
P	low alloy and cast steel (less than 5% of alloying elements)	9	3135	1.571	HRC 35-40**	...ER	IC830/ IC928	80-120	0.08-0.15	air blow
P	high alloy steel	10	H13	1.2344	200-220	...ER	IC830/ IC928	80-100	0.08-0.12	air blow
P	martensitic S.S.	12	420	1.4021	200	...ER	IC830/ IC330/ IC328	80-100	0.08-0.12	air blow/wet
M	austenitic S.S.	14	304L	1.4306	200	...ER	IC830/ IC330/ IC328	60-80	0.08-0.1	wet (emulsion)
K	grey cast iron	16	class 40	0.6025 (GG25)	250	...ER	IC810/ IC910	150-200	0.12-0.2	air blow
K	nodular cast iron	17	class 65-45-12	0.7050 (GGG50)	200	...ER	IC810/ IC910	100-180	0.1-0.17	air blow
S	ni-based HTSA	34	Inconel 718	2.4668	350	...ER	IC328/ IC330	20-25	0.07-0.1	wet (emulsion)
S	ti alloys	37	Ti6Al4V (grade 5)	3.7164	HRC 34-36	...ER	IC328/ IC330	35-40	0.07-0.1	wet (emulsion)
H	hardened steel	38	4340	1.6582	HRC 45 max	...ETR	IC808/ IC908	70-100	0.08-0.1	air blow

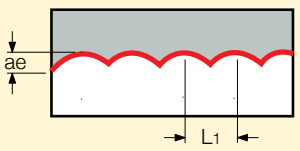
the table data refers to a cutter overhang of up to 4D (D-the diameter of a cutter)

* ISCAR material group in accordance with VDI 3323 standard

** Quenched and tempered

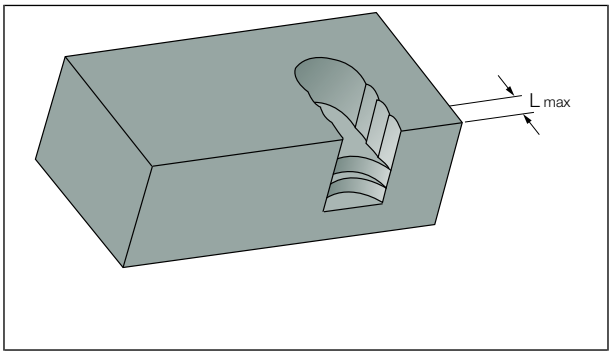
Table 1: L_1 as a Function of the Width of Cut and Cutter Diameter

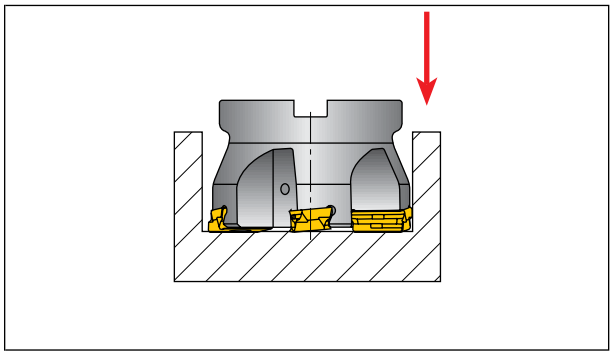
L1max = 2x Dxae-Ae2	A_e - Width of Plunge (mm)	Cutter Diameter (mm)					
		50	52	63	66	80	100
		L1max - Step (effective Diameter)					
	1	14.0	14.3	15.75	16.1	17.8	19.9
	3	23.8	24.3	26.8	27.5	30.4	34.1
	5	30.0	30.6	34.0	34.9	38.7	43.6
	6	32.5	33.2	37.0	37.9	42.1	47.5
	7	34.7	35.5	39.6	40.6	45.2	51.0
	8	36.6	37.5	41.9	43.0	48.0	54.3
	9	38.5	39.3	43.10	45.3	50.5	57.2
	10	40.0	41.0	46.0	47.3	52.9	60.0
	11	41.4	42.5	47.8	49.2	55.1	62.6
	12	42.7	43.8	49.5	50.9	57.1	65.0
	13	43.8	45.0	51.0	52.5	59.0	67.3
	14	-	-	52.4	53.9	60.8	69.4



L1- Side Step Over
A_e- Width of Plunge

Recommended Cutting Conditions for Slot Plunging





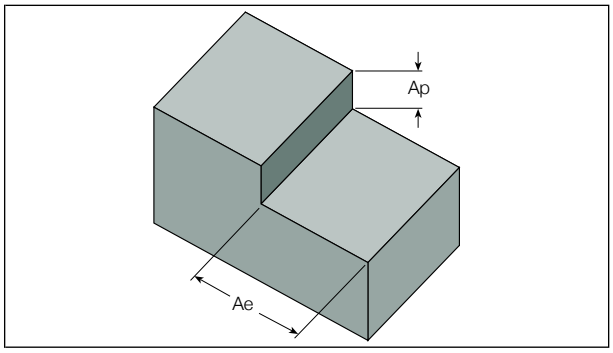
L- Width of Cut (mm)

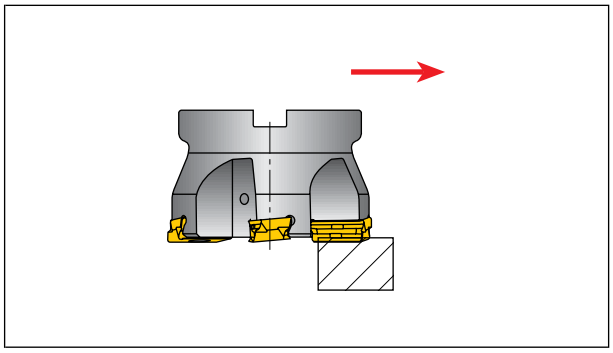
TANG-PLUNGE - SLOT PLUNGING

Workpiece Material						Insert HTP LN... Type	Carbide Grade for Inserts	Cutting Speed V_c, m/min	Feed F_z, mm/t	Coolant
ISO Class DIN/ ISO 513	Description	ISCAR Mat. Group*	Typical Representative AISI/SAE/ ASTM	Typical Representative DIN W.-Nr.	Hardness HB					
P	non-alloy steel and cast steel, free cutting steel	4	1060	1.1221	180-200	...ER	IC830/ IC928	80-120	0.1-0.15	air blow
	low alloy and cast steel (less than 5% of alloying elements)	8	4340	1.6582	260-300			80-120	0.1-0.12	
	low alloy and cast steel (less than 5% of alloying elements)	9	3135	1.571	HRC 35-40**			80-120	0.08-0.12	
	high alloy steel	10	H13	1.2344	200-220			80-100	0.08-0.1	
	martensitic S.S.	12	420	1.4021	200		IC830/ IC330/ IC328	80-100	0.08-0.1	air blow/ wet
M	austenitic S.S.	14	304L	1.4306	200	...ER	IC830/ IC330/ IC328	60-80	0.08-0.1	wet (emulsion)
K	grey cast iron	16	class 40	0.6025 (GG25)	250	...ER	IC810/ IC910	150-200	0.12-0.18	air blow
	nodular cast iron	17	cass 65-45-12	0.7050 (GGG50)	200			100-180	0.1-0.15	
S	ni-based HTSA	34	Inconel 718	2.4668	350	...ER	IC328/ IC330	20-25	0.07-0.09	wet (emulsion)
	ti alloys	37	Ti6Al4V (grade 5)	3.7164	HRC 34-36			35-40	0.07-0.09	
H	hardened steel	38	4340	1.6582	HRC 45 max	...ETR	IC808/ IC908	70-100	0.08-0.09	air blow

the table data refers to a cutter overhang of up to 4D (D-the diameter of a cutter)
* ISCAR material group in accordance with VDI 3323 standard
** Quenched and tempered

Recommended Cutting Conditions For Face Milling





TANG-PLUNGE - FACE MILLING

ISO Class / DIN/ ISO 513	Description	ISCAR Mat. Group*	Typical Representative AISI/SAE/ ASTM	Typical Representative DIN W.-Nr.	Hardness HB	Insert HTP LN... Type	Carbide Grade for Inserts	Cutting Speed V_c, m/min	Feed F_z, mm/t	Coolant
P	non-alloy steel and cast steel, free cutting steel	4	1060	1.1221	180-200	...ER	IC830/ IC928	80-120	0.1-0.2	air blow
	low alloy and cast steel (less than 5% of alloying elements)	8	4340	1.6582	260-300			80-120	0.1-0.18	
	low alloy and cast steel (less than 5% of alloying elements)	9	3135	1.571	HRC 35-40**			80-120	0.1-0.15	
	high alloy steel	10	H13	1.2344	200-220			80-100	0.08-0.15	
	martensitic S.S.	12	420	1.4021	200		IC830/ IC330/ IC328	80-100	0.08-0.15	air blow/ wet
M	austenitic S.S.	14	304L	1.4306	200	...ER	IC830/ IC330/ IC328	60-80	0.08-0.1	wet (emulsion)
K	grey cast iron	16	class 40	0.6025 (GG25)	250	...ER	IC810/ IC910	150-200	0.12-0.2	air blow
	nodular cast iron	17	class 65-45-12	0.7050 (GGG50)	200			100-180	0.1-0.18	
S	ni-based HTSA	34	Inconel 718	2.4668	350	...ER	IC328/ IC330	20-25	0.08-0.12	wet (emulsion)
	ti alloys	37	Ti6Al4V (Grade 5)	3.7164	HRC 34-36			35-40	0.08-0.12	
H	hardened steel	38	4340	1.6582	HRC 45 max	...ETR	IC808/ IC908	70-100	0.08-0.1	air blow

the table data refers to a cutter overhang of up to 4xD and the maximal width of cut Ae=0.7xD (D-the diameter of a cutter)
The maximal depth of cut Ap is 2.5 mm for hardened steel and 3 mm for other material groups
* ISCAR material group in accordance with VDI 3323 standard
** Quenched and tempered

PROFILING TOOLS

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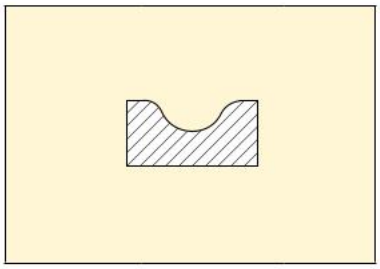
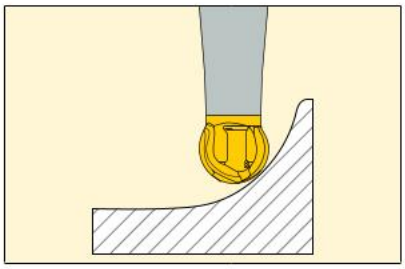
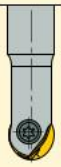
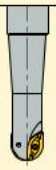
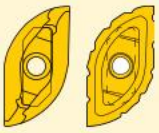
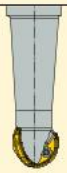
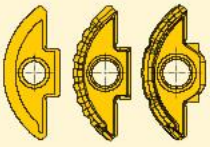
HELI-DO ROUND H400 Line 324
FLEX-FIT Adaptation Systems 357

Ball Nose Selection Guide

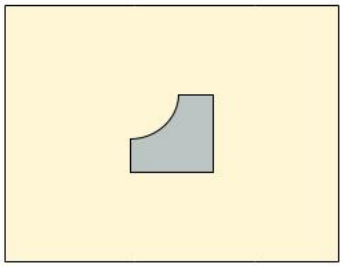


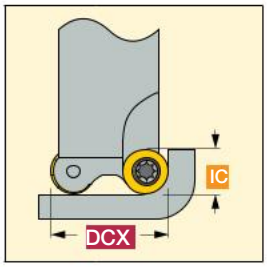


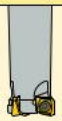
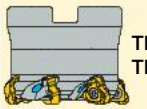
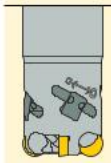
Tools	Pages	DCX											Inserts
		0.4-7	8	9	10	12	16	20	25	30	32	40	50	
EB... Solid Carbide Multi-Master	196 86	•	•	•	•	•	•	•	•					
 HCM D.. HCM-M HCM-MM	304 306 307				•	•	•	•	•					HCT HLB HBR HBF HTR HCD HCC HCR
 BCM BCM-M BCM-MM	309 310					•	•	•	•	•	•	•	•	 BCR D...-QT BCR D...-CS
 BLP BLP-M BLP-SM	307 308						•	•	•	•	•	•	•	 BLR D...-QT BLR D...-MFW BLR D...-QCS

ISCARMILL

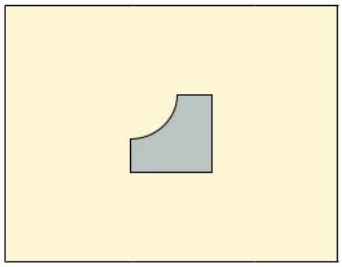
90° Face Mills Selection Guide

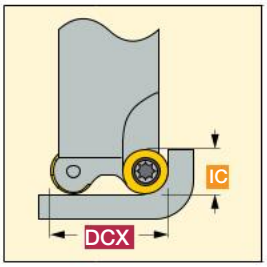


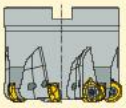
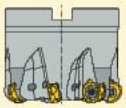
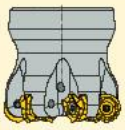
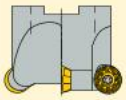
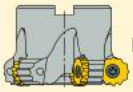


Tools	Pages	DCX / IC	10	12	15	16	20	25	32	35	40	42	50	52	63	66	80	100	125	160	Inserts
			Toroidal																		
 E93CN F93CN	311 312					•	•	•		•		•		•		•	•				CNHT ENHT
 TR6 ER TR6 FR	313 316	5-7				•	•	•	•	•	•	•	•	•	•	•	•				TR6 TNCU TR90 TXMT TRFF TXMT TR45 TXMT
RDS ER-M RDS FR	318	12							•		•		•	•	•	•	•				RDS RNMU/ RNMW
 ERP	319	6.35				•	•	•													RPGN (CER)
ER	319	5-8	•	•	•	•	•	•	•	•	•	•									RXCR... RXCW...
ERMT FRMT	320 321	10-12						•			•		•	•	•						RPHX/RPMX

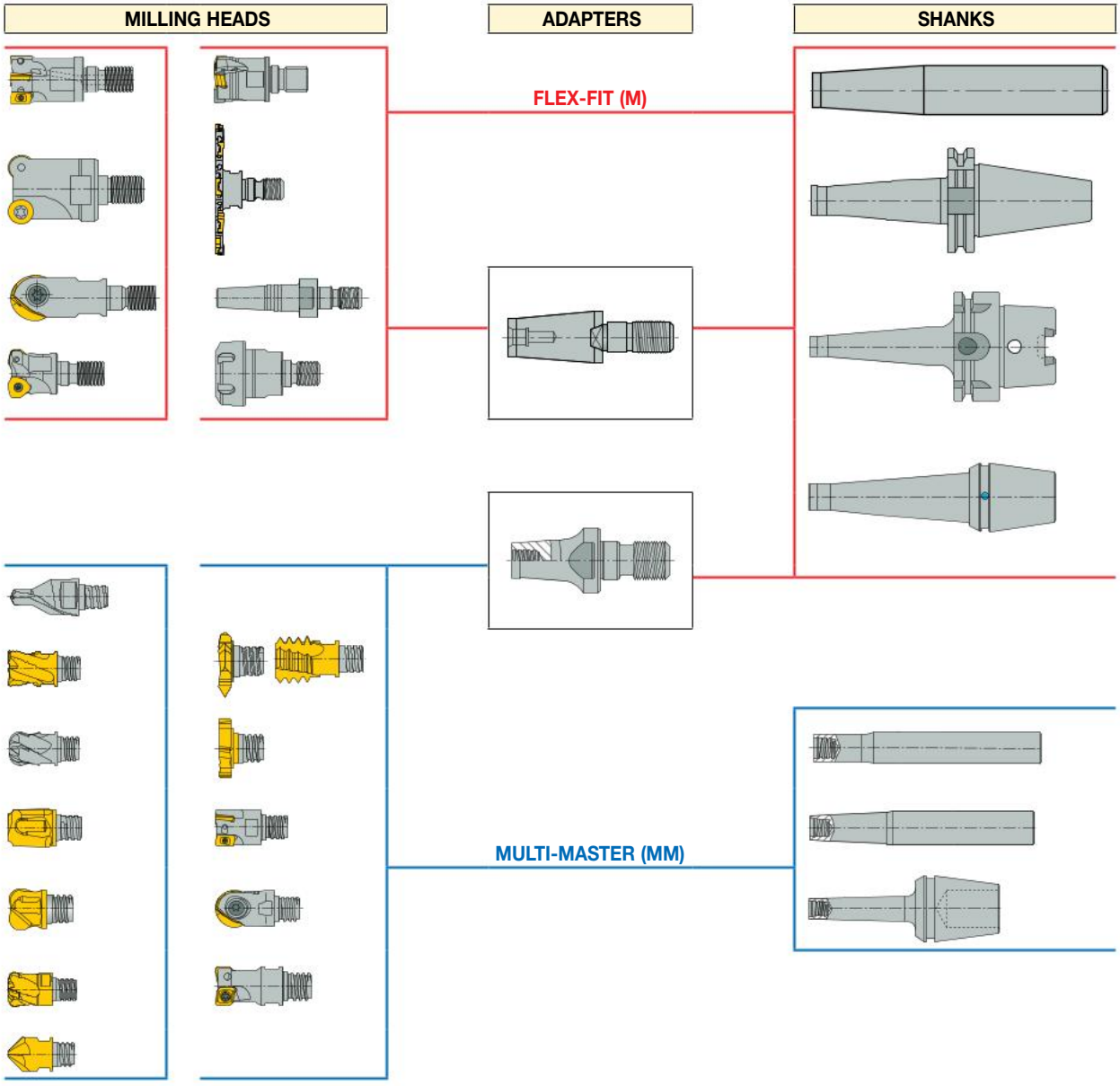
90° Face Mills Selection Guide





Tools	Pages	DCX / IC	10	12	15	16	20	25	32	35	40	42	50	52	63	66	80	100	125	160	Inserts
			Toroidal																		
FRN	320	12											•		•		•				RNGN
 H400 ER-10 H400 FR-10 ERW-10 FRW-10 ER-10	324 325 321 323 319	10					•	•	•	•	•		•								H400 RNHU 10... RXCW 10... RXCR 10... RXMT 10... RCMT RCCW-FW RCMW RCCT-MO
 H400 ER-12 H400 FR-12 ERW-12 FRW-12	324 326 321 323	12						•	•		•		•	•	•	•	•				RCMT 12... RCCW 12... RCCT 12... H400 RNHU 12...
 H606 ER-M H606 FR-12	328	12							•		•		•	•	•		•				H606 RXCU 1206
 H400 FR-16 FRW-16 ER-16	327 323 319	16									•		•	•	•	•	•	•	•		H400 RNHU 16... RCMW 16... RCCW 16...
 FRW-20	323	20															•	•	•	•	RCCW 20... RCMW 20...

MULTI-MASTER and FLEX-FIT Connection Options

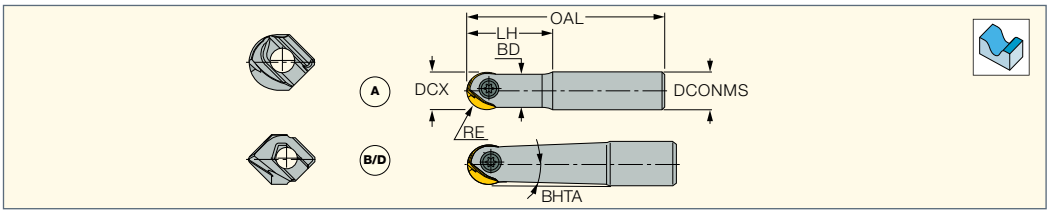


Features

Modular system reduces stock cost by using the same head with different shank options, enables machining with larger overhang, and the same head can be mounted on metric and inch combinations.

BALLPLUS

HCM D10
Ball Nose Multifunction
Endmills D=10 mm



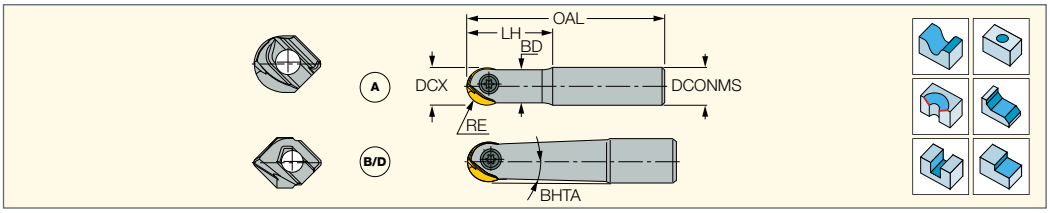
Designation	DCX(1)	RE	LH(2)	OAL(3)	DCONMS	Shank(4)	BHTA	BD	Type	TQ(5)	kg			
HCM D10-A-L090-C10	10.00	5.00	25.0	90.00	10.00	C	-	9.20	A	5.3	0.05	SR 10504694	BLD T15/S7	SW6-T-SH
HCM D10-B-L125-C16	10.00	5.00	40.0	125.00	16.00	C	6.0	-	B	5.3	0.16	SR 10504694	BLD T15/S7	SW6-T-SH
HCM D10-D-L150-C12	10.00	5.00	50.0	150.00	12.00	C	1.8	-	D	5.3	0.12	SR 10504694	BLD T15/S7	SW6-T-SH

• The dimensions are for HBR inserts • For user guide, see pages 616-622
(1) Cutting diameter maximum
(2) Refers to HBR inserts
(3) Refers to HBR inserts
(4) C-Cylindrical
(5) Screw Tightening Torque

For inserts, see pages: HBR-QF (607) • HCR (607)

BALLPLUS

HCM D12
Ball Nose Multifunction
Endmills D=12 mm



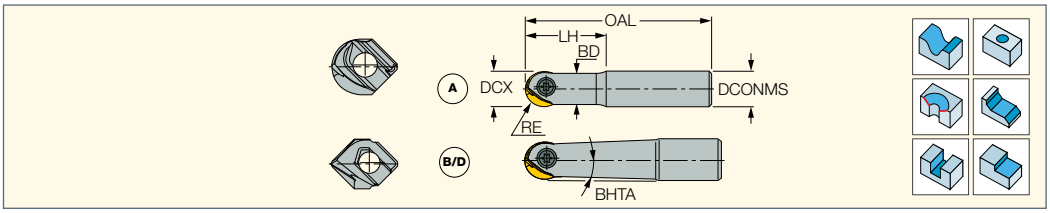
Designation	DCX(1)	RE	LH(2)	OAL(3)	DCONMS	Shank(4)	BHTA	BD	Type	TQ(5)	kg			
HCM D12-A-L120-C12	12.00	6.00	30.0	120.00	12.00	C	-	10.60	A	6.0	0.10	SR 34-540	BLD T15/S7	SW6-T
HCM D12-B-L160-C20	12.00	6.00	50.0	160.00	20.00	C	5.0	-	B	6.0	0.32	SR 34-540	BLD T15/S7	SW6-T
HCM D12-D-L160-C16	12.00	6.00	60.0	160.00	16.00	C	1.0	-	D	6.0	0.21	SR 34-540	BLD T15/S7	SW6-T

• The dimensions are for HBR inserts • For user guide, see pages 616-622
(1) Cutting diameter maximum
(2) Refers to HBR inserts
(3) Refers to HBR inserts
(4) C-Cylindrical
(5) Screw Tightening Torque

For inserts, see pages: HBF-QF (607) • HBR-QF (607) • HCC-QF (608) • HCD-QF (608) • HCR (607) • HCT-QF (609) • HLB-QF (609)

BALLPLUS

HCM D16
Ball Nose Multifunction
Endmills D=16 mm



Designation	DCX(1)	LH(2)	OAL(3)	DCONMS	Shank(4)	BHTA	BD	Type	TQ(5)	kg			
HCM D16-A-L130-C16	16.00	36.0	130.00	16.00	C	-	14.40	A	7.8	0.18	SR 10503579	BLD T20/S7	SW6-T
HCM D16-B-L160-C25	16.00	60.0	160.00	25.00	C	5.0	-	B	7.8	0.49	SR 10503579	BLD T20/S7	SW6-T
HCM D16-D-L160-C20	16.00	65.0	160.00	20.00	C	1.0	-	D	7.8	0.32	SR 10503579	BLD T20/S7	SW6-T

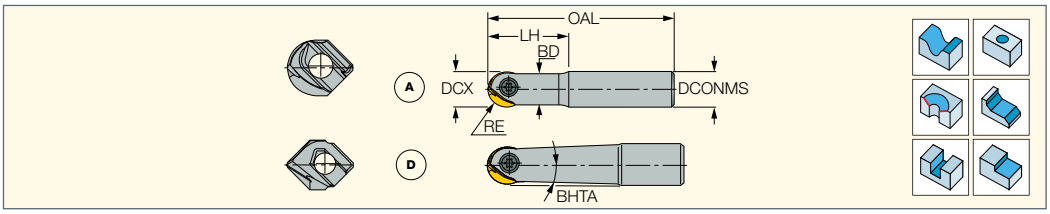
• The dimensions are for HBR inserts • For user guide, see pages 616-622
(1) Cutting diameter maximum
(2) Refers to HBR inserts
(3) Refers to HBR inserts
(4) C-Cylindrical
(5) Screw Tightening Torque

For inserts, see pages: HBF-QF (607) • HBR-QF (607) • HCC-QF (608) • HCD-QF (608) • HCR (607) • HCT-QF (609) • HLB-QF (609)

BALLPLUS

HCM D20

Ball Nose Multifunction
Endmills D=20 mm



Designation	DCX(1)	LH(2)	OAL(3)	DCONMS	Shank(4)	BHTA	BD	Type	TQ(5)	kg			
HCM D20-A-L150-C20	20.00	60.0	150.00	20.00	C	-	18.00	A	12.0	0.32	SR 1052964	BLD T25/S7	SW6-T
HCM D20-D-L200-C25	20.00	90.0	200.00	25.00	C	1.0	-	D	12.0	0.61	SR 1052964	BLD T25/S7	SW6-T

• The dimensions are for HBR inserts • For user guide, see pages 616-622

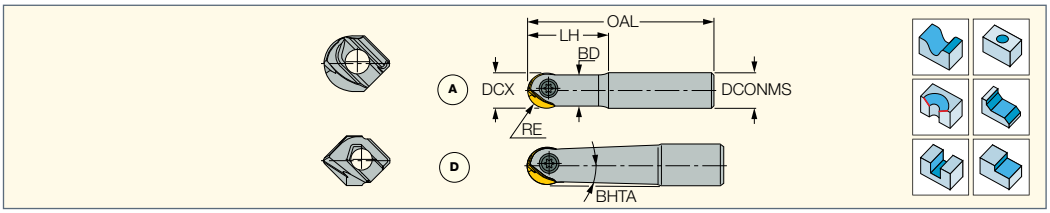
(1) Cutting diameter maximum
(2) Refers to HBR inserts
(3) Refers to HBR inserts
(4) C-Cylindrical
(5) Screw Tightening Torque

For inserts, see pages: HBF-QF (607) • HBR-QF (607) • HCC-QF (608) • HCD-QF (608) • HCR (607) • HCT-QF (609) • HLB-QF (609)

BALLPLUS

HCM D25

Ball Nose Multifunction
Endmills D=25 mm



Designation	DCX(1)	LH(2)	OAL(3)	DCONMS	Shank(4)	BHTA	BD	Type	TQ(5)	kg			
HCM D25-A-L170-C25	25.00	70.0	170.00	25.00	C	-	22.00	A	12.0	0.55	SR 1051666	BLD T25/S7	SW6-T
HCM D25-D-L250-C32	25.00	125.0	250.00	32.00	C	1.8	-	D	12.0	1.20	SR 1051666	BLD T25/S7	SW6-T

• The dimensions are for HBR inserts • For user guide, see pages 616-622

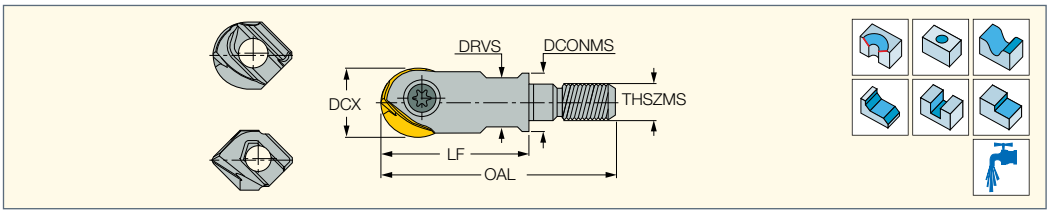
(1) Cutting diameter maximum
(2) Refers to HBR inserts
(3) Refers to HBR inserts
(4) C-Cylindrical
(5) Screw Tightening Torque

For inserts, see pages: HBF-QF (607) • HBR-QF (607) • HCC-QF (608) • HCD-QF (608) • HCR (607) • HCT-QF (609) • HLB-QF (609)

BALLPLUS

HCM-M

Ball Nose Multifunction Endmills with FLEX-FIT Threaded Adaptation



Designation	DCX(1)	LF(2)	OAL(3)	DCONMS	DRVS(4)	THSZMS	TQ_3(5)	TQ(6)	kg			
HCM D12/.50-M08	12.00	26.00	43.50	14.40	11.0	M08	20	6.0	0.03	SR 34-540	BLD T15/S7	SW6-T
HCM D16/.62-M08	16.00	30.00	47.50	14.40	11.0	M08	20	7.8	0.03	SR 10503579	BLD T20/S7	SW6-T
HCM D16/.62-M10	16.00	35.00	55.00	18.00	15.0	M10	29	7.8	0.05	SR 10503579	BLD T20/S7	SW6-T
HCM D20/.75-M10	20.00	37.00	57.00	18.00	15.0	M10	29	12.0	0.06	SR 1052964	BLD T25/S7	SW6-T
HCM D20/.75-M12	20.00	37.00	59.00	22.50	17.0	M12	33	12.0	0.07	SR 1052964	BLD T25/S7	SW6-T
HCM D25/1.0-M12	25.00	46.00	68.00	21.00	19.0	M12	33	12.0	0.11	SR 1051666	BLD T25/S7	SW6-T
HCM D25/1.0-M16	25.00	46.00	71.00	29.00	25.0	M16	40	12.0	0.16	SR 1051666	BLD T25/S7	SW6-T

• The dimensions are for HBR inserts • For user guide, see pages 616-621 • When mounting items with FLEX-FIT threaded adaptation, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Cutting diameter maximum

(2) Refers to HBR inserts

(3) Refers to HBR inserts

(4) Clamping wrench size

(5) Tool tightening torque Nxm

(6) Screw Tightening Torque

For inserts, see pages: HBF-QF (607) • HBR-QF (607) • HCC-QF (608) • HCD-QF (608) • HCR (607) • HCT-QF (609) • HLB-QF (609)

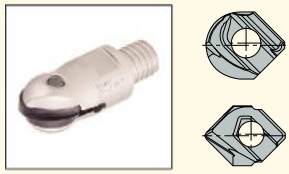
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

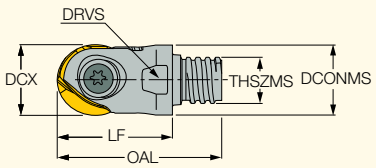
Parts for Assembly

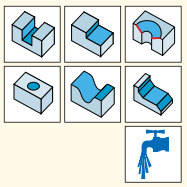
Milling Head	Adapter	Shank	Assembly Dimensions						
			DCX	LH	OAL	BHTA	DCONMS	Shank	Inserts
HCM D12/.50-M8	—	S M08-L73-C16	12	51	99	4	16	C	
		S M08-L128-C16	12	106	154	4	16	C	
		S M08-L170-C20	12	93	196	4	20	C	
HCM D12/.50-M8	CAB M08M10	S M10-L80-C20	12	96	146	4	20	C	
		S M10-L130-C20	12	146	196	4	20	C	
		S M10-L200-C25	12	123	266	4	25	C	
HCM D16/.62-M8	—	S M8-L73-C16	16	55	103	—	16	C	
		S M8-L128-C16	16	110	158	—	16	C	
		S M8-L170-C20	16	97	200	0.96	20	C	
HCM D16/.62-M8	CAB M08M10	S M10-L80-C20	16	100	150	1.24	20	C	
		S M10-L130-C20	16	150	200	0.8	20	C	HCT
		S M10-L200-C25	16	127	270	2.16	25	C	HLB
HCM D16/.62-M10		S M10-L80-C20	16	60	110	2.5	20	C	HBR
		S M10-L130-C20	16	110	160	2.5	20	C	HBF
		S M10-L200-C25	16	87	230	3.26	25	C	HTR
HCM D16/.62-M10	CAB M10M12	S M12-L86-C25	16	105	161	2.65	25	C	HCD
		S M12-C32-L200	16	153	275	3.157	32	C	HCC
HCM D20/.75-M10	—	S M10-L80-C20	20	67	117	–	20	C	HCR
		S M10-L130-C20	20	117	167	–	20	C	
		S M10-L200-C25	20	94	237	1.7	25	C	
HCM D20/.75-M10	CAB M10M12	S M12-L86-C25	20	112	168	1.4	25	C	
		S M12-L200-C32	20	160	282	2.3	32	C	
HCM D20/.75-M12	—	S M12-L86-C25	20	67	123	3.0	25	C	
		S M12-L200-C32	20	115	237	3.3	32	C	
HCM D25/1.0-M12	CAB M12M16	S M16-L95 C32	25	131	191	1.8	32	C	
		S M16-L230 C32	25	146	326	1.5	32	C	
HCM D25/1.0-M16	—	S M16-L95 C32	25	81	141	3.5	32	C	
		S M16-L230 C32	25	96	276	3.5	32	C	

BALLPLUS

HCM-MM
Ball Nose Multifunction Endmills with a MULTI-MASTER Threaded Adaptation







Designation	DCX(1)	OAL(2)	LF(3)	DCONMS	THSZMS	DRVS(4)	TQ(5)	TQ_3(6)	kg	MIID(7)			
HCM D12/.50-MMT08	12.00	28.00	20.00	11.50	T08	10.0	6.0	20	0.01	HBR D120-QF	SR 34-540	BLD T15/S7	SW6-T
HCM D16/.62-MMT10	16.00	36.30	25.00	15.20	T10	13.0	7.8	40	0.03	HBR D160-QF	SR 10503579	BLD T20/S7	SW6-T
HCM D20/.75-MMT12	20.00	48.30	35.00	18.50	T12	15.0	12.0	20	0.06	HBR D200-QF	SR 1052964	BLD T25/S7	SW6-T
HCM D25/1.0-MMT15	25.00	63.00	46.00	24.00	T15	20.0	12.0	33	0.13	HBR D250-QF	SR 1051666	BLD T25/S7	SW6-T

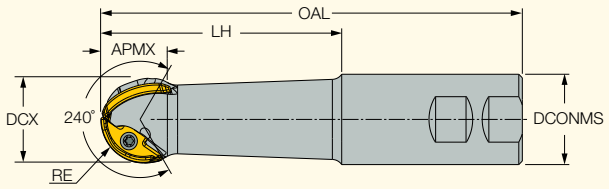
- The dimensions are for HBR inserts • Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation options, see page 303
- For user guide, see pages 616-621

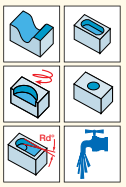
(1) Cutting diameter maximum
(2) Refers to HBR inserts
(3) Refers to HBR inserts
(4) Width across flats (wrench should be ordered separately)
(5) Screw tightening torque
(6) Tool tightening torque Nxm
(7) Master insert identification

For inserts, see pages: HBF-QF (607) • HBR-QF (607) • HCC-QF (608) • HCD-QF (608) • HCR (607) • HCT-QF (609) • HLB-QF (609)
For holders, see pages: MM CAB (110) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

DROPMILL
3 FLUTE BALL NOSE

BLP Endmills
Three Flute 240° Ball Nose Endmills Carrying Double-Sided Inserts





Designation	DCX(1)	RE	APMX	NOF(2)	OAL	LH	DCONMS	Shank(3)	MIID(4)	kg
BLP D16-40-100-C16	16.00	8.00	12.00	3	100.00	40.0	16.00	C	BLR D160-MFW	0.12
BLP D20-70-130-C20	20.00	10.00	15.00	3	130.00	70.0	20.00	C	BLR D200-MFW	0.24
BLP D25-90-170-W25	25.00	12.50	18.75	3	170.00	90.0	25.00	W	BLR D250-MFW	0.49
BLP D30-90-150-W32	30.00	15.00	22.50	3	150.00	90.0	32.00	W	BLR D300-QCS	0.60
BLP D32-80-160-W32	32.00	16.00	24.00	3	160.00	80.0	32.00	W	BLR D320-QCS	0.74
BLP D40-100-180-W40	40.00	20.00	30.00	3	180.00	100.0	40.00	W	BLR D400-QCS	1.25
BLP D50-140-210-W40	50.00	25.00	37.50	3	210.00	140.0	40.00	W	BLR D500-QCS	2.00
BLP D50-320-400-W50	50.00	25.00	37.50	3	400.00	320.0	50.00	W	BLR D500-QCS	4.62

- For user guide, see pages 616-622

(1) Cutting diameter maximum
(2) Number of flutes
(3) C-Cylindrical, W-Weldon
(4) Master insert identification

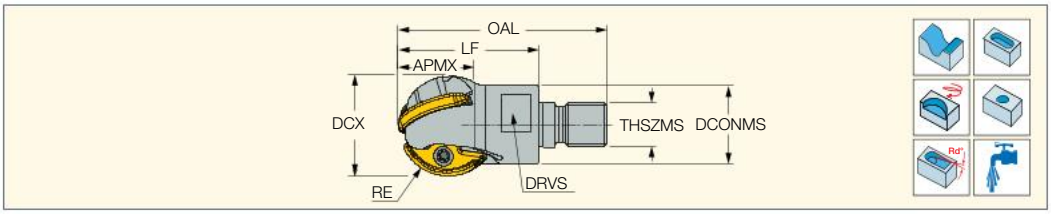
For inserts, see pages: BLR (609)

Spare Parts

Designation				
BLP D16-40-100-C16	SR M2.5X0.45-L6 IP7	IP-7/51		
BLP D20-70-130-C20	SR M3X0.5-L7.4 IP9	IP-9/151		
BLP D25-90-170-W25	SR M3.5X0.6-L8.5 IP10		BLD IP10/S7	SW6-SD
BLP D30-90-150-W32	SR M4X0.7-L11.5 IP15		BLD IP15/S7	SW6-T-SH
BLP D32-80-160-W32	SR M4X0.7-L9.6 IP15		BLD IP15/S7	SW6-T-SH
BLP D40-100-180-W40	SR M5-14 IP20		BLD IP20/S7	SW6-T
BLP D50-140-210-W40	SR M6X1-L18 IP25		BLD IP25/S7	SW6-T
BLP D50-320-400-W50	SR M6X1-L18 IP25		BLD IP25/S7	SW6-T

DROPMILL 3 FLUTE BALL NOSE

BLP-M
Three Flute Fully Effective 240° Ball Nose Endmills with FLEX-FIT Threaded Adaptation



Designation	DCX(1)	RE	NOF(2)	APMX	LF	OAL	THSZMS	DCONMS	DRVS(3)	MIID(4)	TQ_3(5)	kg
BLP D16/.62-M08	16.00	8.00	3	12.00	24.00	41.50	M08	13.00	10.0	BLR D160-MFW	20	0.02
BLP D20-M08	20.00	10.00	3	16.00	28.00	45.50	M08	13.00	11.0	BLR D200-MFW	20	0.03
BLP D25/1.0-M12	25.00	12.50	3	19.00	35.00	57.00	M12	21.00	17.0	BLR D250-MFW	33	0.03
BLP D30-M12	30.00	15.00	3	22.50	40.00	62.00	M12	21.00	17.0	BLR D300-MFW	33	0.10
BLP D30-M16	30.00	15.00	3	15.00	40.00	65.00	M16	28.00	24.0	BLR D300-MFW	40	0.14
BLP D32/1.25-M12	32.00	16.00	3	24.00	40.00	62.00	M12	23.00	17.0	BLR D320-MFW	33	0.10
BLP D32/1.25-M16	32.00	16.00	3	24.00	40.00	65.00	M16	29.00	25.0	BLR D320-MFW	40	0.14
BLP D40-M16	40.00	20.00	3	31.00	53.00	78.00	M16	29.00	24.0	BLR D400-MFW	40	0.25

• For user guide, see pages 616-621 • When mounting items with FLEX-FIT threaded adaptation, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Cutting diameter maximum

(2) Number of flutes

(3) Torque key size

(4) Master insert identification

(5) Tool tightening torque Nxm

For inserts, see pages: BLR (609)

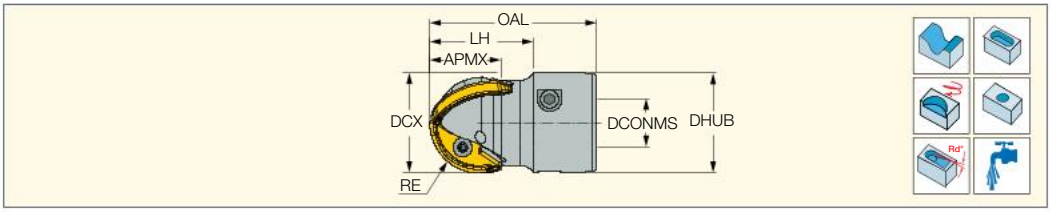
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

Spare Parts

Designation				
BLP D16/.62-M08	SR M2.5X0.45-L6 IP7	IP-7/51		
BLP D20-M08	SR M3X0.5-L7.4 IP9	IP-9/151		
BLP D25/1.0-M12	SR M3.5X0.6-L8.5 IP10		BLD IP10/S7	SW6-SD
BLP D30-M12	SR M4X0.7-L11.5 IP15		BLD IP15/S7	
BLP D30-M16	SR M4X0.7-L11.5 IP15		BLD IP15/S7	
BLP D32/1.25-M12	SR M4X0.7-L9.6 IP15		BLD IP15/S7	SW6-T-SH
BLP D32/1.25-M16	SR M4X0.7-L9.6 IP15		BLD IP15/S7	SW6-T-SH
BLP D40-M16	SR M5-14 IP20		BLD IP20/S7	SW6-T

DROPMILL 3 FLUTE BALL NOSE

BLP Shell Mill
Three Flute Fully Effective 240° Ball Nose Cutters with Shell Hole Adaptation



Designation	DCX(1)	RE	NOF(2)	APMX	LH	OAL	DHUB	DCONMS	MIID(3)	kg
BLP D50-22	50.00	25.00	3	37.50	50.0	83.00	47.00	22.00	BLR D500-MFW	0.61

• Use on face mill adapters with the supplied retention screw • For user guide, see pages 616-621

(1) Cutting diameter maximum

(2) Number of flutes

(3) Master insert identification

For inserts, see pages: BLR (609)

Spare Parts

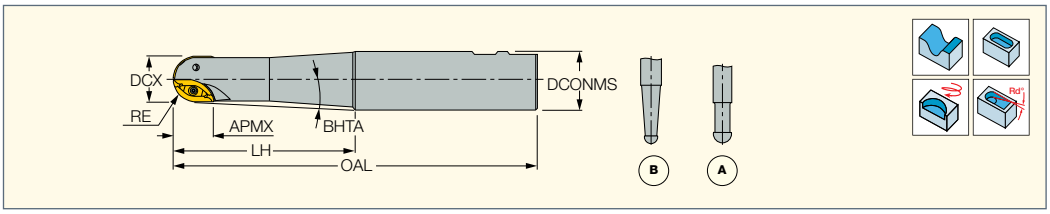
Designation						
BLP D50-22	SR M6X1-L18 IP25	BLD IP25/S7	SW6-T	SR M10X1X14-10700(a)	HW 5.0	SR M10X20-10600(b)

(a) Recommended tightening torque:22 Nxm

(b) Retaining knob for adapters

DROPMILL

BCM
Ball Nose Endmills with Tangent Straight Edge Inserts for Finish Profiling



Designation	DCX[2]	RE	APMX	CICT[3]	OAL	LH	DCONMS	a°	BHTA	Shank[4]	Type	CSP[5]	MIID[6]	kg
BCM D12-A-C12	12.00	6.00	11.40	2	120.00	30.0	12.00	-	-	C	A	0	BCR D120-QT	0.10
BCM D12-B-C16	12.00	6.00	11.40	2	160.00	60.0	16.00	2.0	2.0	C	B	0	BCR D120-QT	0.22
BCM D16-A-C16-C	16.00	8.00	13.00	2	130.00	36.0	16.00	-	-	C	A	1	BCR D160-QT	0.54
BCM D16-B-C20-C	16.00	8.00	13.00	2	160.00	60.0	20.00	2.2	2.2	C	B	1	BCR D160-QT	0.30
BCM D20-A-C20-CC [1]	20.00	10.00	17.00	2	160.00	65.0	20.00	-	-	C	A	1	BCR D200-QT	0.31
BCM D20-B-C25-CC [1]	20.00	10.00	17.00	2	200.00	90.0	25.00	1.5	1.5	C	B	1	BCR D200-QT	0.60
BCM D25-A-W25-C	25.00	12.50	20.00	2	170.00	70.0	25.00	-	-	W	A	1	BCR D250-QT	0.51
BCM D25-B-C32-C	25.00	12.50	20.00	2	220.00	95.0	32.00	2.4	2.4	C	B	1	BCR D250-QT	1.05
BCM D30-A-W32-C	30.00	15.00	26.00	2	160.00	67.0	32.00	-	-	W	A	1	BCR D300-QT	0.73
BCM D32-A-W32-C	32.00	16.00	27.00	2	160.00	65.0	32.00	-	-	W	A	1	BCR D320-CS	0.76
BCM D32-B-W40-C	32.00	16.00	27.00	2	250.00	125.0	40.00	2.1	2.1	W	B	1	BCR D320-CS	1.75
BCM D40-A-W32-C	40.00	20.00	36.00	2	160.00	88.0	32.00	-	-	W	A	1	BCR D400-CS	0.92
BCM D40-B-W40-C	40.00	20.00	36.00	2	250.00	125.0	40.00	-	-	W	B	1	BCR D400-CS	1.95
BCM D50-A-W50-C	50.00	25.00	43.00	2	212.00	132.0	50.00	-	-	W	A	1	BCR D500-CS	2.42

- For user guide, see pages 616-622

[1] Center Cutting
[2] Cutting diameter maximum
[3] Number of inserts (or edges for solid tool)
[4] C-Cylindrical, W-Weldon
[5] 0 - Without coolant supply, 1 - With coolant supply
[6] Master insert identification

For inserts, see pages: BCR (610)

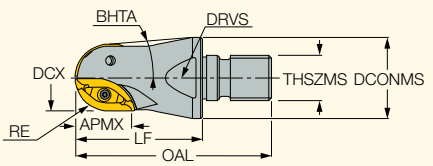
Spare Parts

Designation				
BCM D12-A-C12	SR 10503457			T-6/51
BCM D12-B-C16	SR 10503457			T-6/51
BCM D16-A-C16-C	SR 34-505/1 MHG 2.5X7.2			T-8/53
BCM D16-B-C20-C	SR 34-505/1 MHG 2.5X7.2			T-8/53
BCM D20-A-C20-CC	SR 34-506/L			T-9/51
BCM D20-B-C25-CC	SR 34-506/L			T-9/51
BCM D25-A-W25-C	SR 14-601	BLD T15/S7	SW6-T-SH	
BCM D25-B-C32-C	SR 14-601	BLD T15/S7	SW6-T-SH	
BCM D30-A-W32-C	SR 14-544	BLD T15/S7	SW6-T-SH	
BCM D32-A-W32-C	SR 14-544	BLD T15/S7	SW6-T-SH	
BCM D32-B-W40-C	SR 14-544	BLD T15/S7	SW6-T-SH	
BCM D40-A-W32-C	SR 14-591/L	BLD T20/S7	SW6-T	
BCM D40-B-W40-C	SR 14-591/L	BLD T20/S7	SW6-T	
BCM D50-A-W50-C	SR 10503750	BLD T25/S7	SW6-T	

DROPMILL

BCM-M

Ball Nose Endmills with FLEX-FIT Threaded Adaptation Carrying Tangent Straight Edge Inserts for Finish Profiling



Designation	DCX(1)	RE	CICT(2)	APMX	LF	OAL	THSZMS	DCONMS	DRVS(3)	kg	MIID(4)	TQ_3(5)
BCM D25-M12	25.00	12.50	2	20.00	46.00	68.00	M12	23.00	19.0	0.12	BCR D250-QT	33
BCM D25-M16	25.00	12.50	2	20.00	46.00	71.00	M16	29.00	25.0	0.16	BCR D250-QT	40
BCM D32-M16	32.00	16.00	2	26.00	53.00	78.00	M16	29.00	25.0	0.22	BCR D320-CS	40

• For user guide, see pages 616-621 • When mounting items with FLEX-FIT threaded adaptation, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Cutting diameter maximum

(2) Number of inserts (or edges for solid tool)

(3) Clamping wrench size

(4) Master insert identification

(5) Tool tightening torque Nxm

For inserts, see pages: BCR (610)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

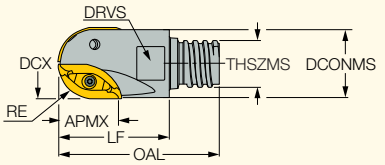
Spare Parts

Designation			
BCM D25-M12	SR 14-601	BLD T15/S7	SW6-T-SH
BCM D25-M16	SR 14-601	BLD T15/S7	SW6-T
BCM D32-M16	SR 14-544	BLD T15/S7	SW6-T-SH

DROPMILL

BCM-MM

Ball Nose Endmills with MULTI-MASTER Threaded Adaptation with Tangentially Mounted Straight Edge Inserts for Finish Profiling



Designation	DCX(2)	RE	APMX	CICT(3)	LF	OAL	DRVS(4)	DCONMS	THSZMS	CSP(5)	MIID(6)	kg
BCM D12-MMT08	12.00	6.00	9.60	2	20.00	28.00	10.0	11.50	T08	0	BCR D120-QT	0.01
BCM D16-MMT10	16.00	8.00	12.70	2	25.00	36.80	13.0	15.20	T10	0	BCR D160-QT	0.03
BCM D20-MMT12-CC (1)	20.00	10.00	17.00	2	35.00	48.80	15.0	18.50	T12	0	BCR D200..	0.10
BCM D25-MMT15-C	25.00	12.50	20.00	2	40.00	57.00	19.0	24.00	T15	1	BCR D250-QT	0.11

• Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation options, see page 303 • For user guide, see pages 616-621

(1) Center Cutting

(2) Cutting diameter maximum

(3) Number of inserts (or edges for solid tool)

(4) Clamping wrench size

(5) 0 - Without coolant supply, 1 - With coolant supply

(6) Master insert identification

For inserts, see pages: BCR (610)

For holders, see pages: MM CAB (110) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

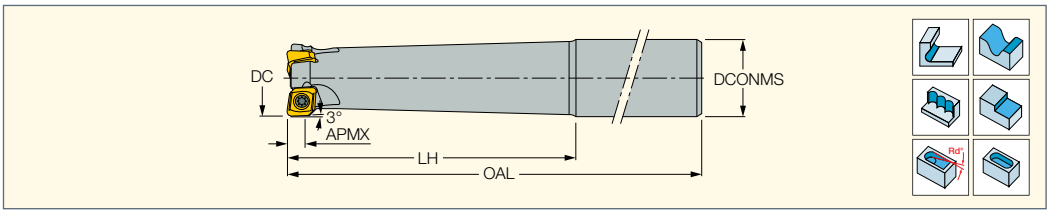
Spare Parts

Designation				
BCM D12-MMT08	SR 10503457	T-6/51		
BCM D16-MMT10	SR 34-505/1 MHG 2.5X7.2	T-8/53		
BCM D20-MMT12-CC	SR 34-506/L	T-9/51		
BCM D25-MMT15-C	SR 14-601		BLD T15/S7	SW6-T-SH

TORMILL

E93CN-07

Toroidal Bull Nose Endmills
with CNHT...Inserts



Designation	DC[1]	APMX	CICT[2]	LH	OAL	RMPX°[3]	DCONMS	Shank[4]	MIID[5]	kg		
E93CN D16-2-L100-C15-07	16.00	5.00	2	20.0	100.00	4.0	15.00	C	CNHT 070315	0.13	SR 34-505/LHG	T-8/53
E93CN D16-2-L110-C16-07	16.00	5.00	2	50.0	110.00	4.0	16.00	C	CNHT 070315	0.15	SR 34-505/LHG	T-8/53
E93CN D20-3-L140-C19-07	20.00	5.00	3	20.0	140.00	3.0	19.00	C	CNHT 070315	0.29	SR 34-505/LHG	T-8/53
E93CN D20-3-L160-C20-07	20.00	5.00	3	75.0	160.00	3.0	20.00	C	CNHT 070315	0.34	SR 34-505/LHG	T-8/53
E93CN D25-4-L160-C24-07	25.00	5.00	4	20.0	160.00	2.0	24.00	C	CNHT 070315	0.54	SR 34-505/LHG	T-8/53
E93CN D25-4-L180-C25-07	25.00	5.00	4	100.0	180.00	2.0	25.00	C	CNHT 070315	0.60	SR 34-505/LHG	T-8/53

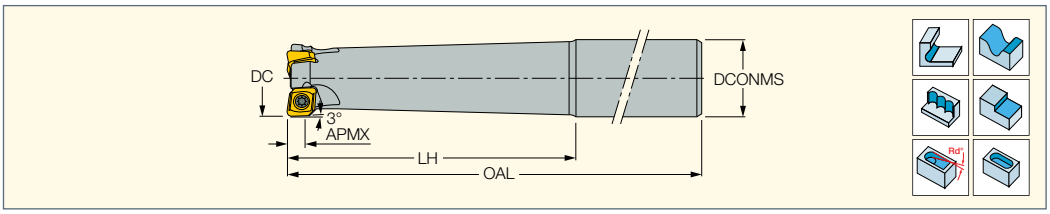
[1] The specified diameter is for inserts with a 1.0 mm radius.
[2] Number of inserts (or edges for solid tool)
[3] Maximum ramping angle
[4] C-Cylindrical
[5] Master insert identification

For inserts, see pages: CNHT/MT 07 (611)

TORMILL

E93CN-10

Toroidal Bull Nose Endmills
with ENHT... Inserts



Designation	DC	APMX	CICT[1]	LH	OAL	RMPX°[2]	DCONMS	Shank	MIID[3]	kg		
E93CN D25-2-L180-C25-10	25.00	8.00	2	100.0	180.00	7.0	25.00	C	ENHT 100430	0.57	SR 34-506/L	T-9/51
E93CN D35-3-L200-C32-10	35.00	8.00	3	50.0	200.00	4.0	32.00	C	ENHT 100430	1.18	SR 34-506/L	T-9/51

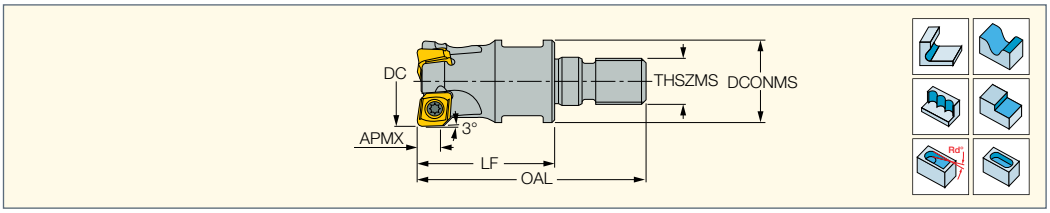
[1] Number of inserts (or edges for solid tool)
[2] Maximum ramping angle
[3] Master insert identification

For inserts, see pages: ENHT (612)

TORMILL

E93CN-M-07

Bull Nose Endmills with
FLEX-FIT Threaded Adaptation
Carrying Toroidal Shaped Inserts



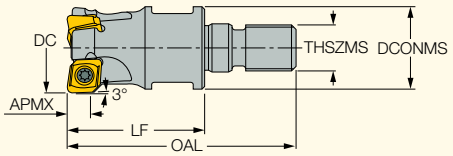
Designation	DC[1]	APMX	CICT[2]	LF	OAL	THSZMS	RMPX°[3]	DCONMS	DRVS[4]	MIID[5]	TQ_3[6]	kg		
E93CN D16-2-M08-07	16.00	5.00	2	30.00	47.50	M08	4.0	13.00	10.0	CNHT 070315	20	0.03	SR 34-505/LHG	T-8/53
E93CN D20-3-M10-07	20.00	5.00	3	30.00	50.00	M10	3.0	18.00	15.0	CNHT 070315	29	0.05	SR 34-505/LHG	T-8/53
E93CN D25-4-M12-07	25.00	5.00	4	35.00	57.00	M12	2.0	21.00	17.0	CNHT 070315	33	0.09	SR 34-505/LHG	T-8/53

• When mounting items with FLEX-FIT threaded adaptation, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter
[1] The specified diameter is for inserts with a 1.0 mm radius.
[2] Number of inserts (or edges for solid tool)
[3] Maximum ramping angle
[4] Clamping wrench size
[5] Master insert identification
[6] Tool tightening torque Nxm

For inserts, see pages: CNHT/MT 07 (611)
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

TORMILL

E93CN-M-10
Bull Nose Endmills with FLEX-FIT Threaded Adaptation Carrying Toroidal Inserts



Designation	DC	APMX	CICT(1)	LF	OAL	THSZMS	RMPX°(2)	DCONMS	DRVS(3)	MIID(4)	TQ_3(5)	kg			
E93CN D25-2-M12-10	25.00	7.00	2	35.00	57.00	M12	7.0	21.00	17.0	ENHT 100430	33	0.09	SR 34-506/L	T-9/51	
E93CN D35-3-M16-10	35.00	8.50	3	43.00	68.00	M16	4.0	29.00	25.0	ENHT 100430	40	0.21	SR 34-506/L	T-9/51	
E93CN D42-5-M16-10	42.00	8.50	5	43.00	68.00	M16	3.0	29.00	25.0	ENHT 100430	40	0.24	SR 34-506/L	T-9/51	

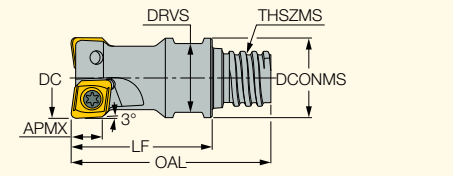
• When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Number of inserts (or edges for solid tool)
(2) Maximum ramping angle
(3) Torque key size
(4) Master insert identification
(5) Tool tightening torque Nxm

For inserts, see pages: ENHT (612)
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

TORMILL

E93CN-MM-07
Bull Nose Endmills with MULTI-MASTER Threaded Adaptation Carrying Toroidal Inserts



Designation	DC(1)	APMX	CICT(2)	LF	OAL	RMPX°(3)	THSZMS	DCONMS	DRVS(4)	MIID(5)	kg			
E93CN D16-2-MMT10-07	16.00	5.00	2	27.00	38.64	4.0	T10	15.00	13.0	CNHT 070315	0.03	SR 34-505/LHG	T-8/53	
E93CN D20-3-MMT12-07	20.00	5.00	3	27.00	40.36	3.0	T12	19.00	16.0	CNHT 070315	0.05	SR 34-505/LHG	T-8/53	

• Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation options, see page 303 • For user guide, see pages 616-621

(1) The specified diameter is for inserts with a 1.0 mm radius. For other radii options, see diameter change in the table below
(2) Number of inserts (or edges for solid tool)
(3) Maximum ramping angle
(4) Clamping wrench size
(5) Master insert identification

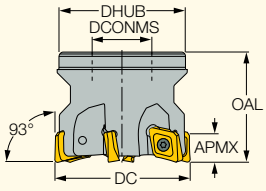
For inserts, see pages: CNHT/MT 07 (611)
For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109)• MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

Diameter Change According to Insert Radius

R	0.5	1.0	1.5
ΔD	+0.07	0.0	-0.07

TORMILL

F93CN-10
93° Face Mills with Toroidal Inserts



Designation	DC(1)	CICT(2)	APMX	OAL	DHUB	DCONMS	RMPX°(3)	Arbor(4)	kg			
F93CN D52-6-22-R-10	52.00	6	8.00	40.00	47.00	22.00	2.5	A	0.28	SR 34-506/L	BLD T09/M7	SW6-SD
F93CN D66-7-22-R-10	66.00	7	8.00	40.00	52.00	22.00	1.8	A	0.51	SR 34-506/L	BLD T09/M7	SW6-SD
F93CN D80-8-27-R-10	80.00	8	8.00	50.00	60.00	27.00	1.5	B	0.81	SR 34-506/L	BLD T09/M7	SW6-SD

(1) The specified diameter is for inserts with a 1.0 mm radius. For other radii options, see diameter change in the table below
(2) Number of inserts (or edges for solid tool)
(3) Maximum ramping angle
(4) For adaptation options, see page 622

For inserts, see pages: ENHT (612)

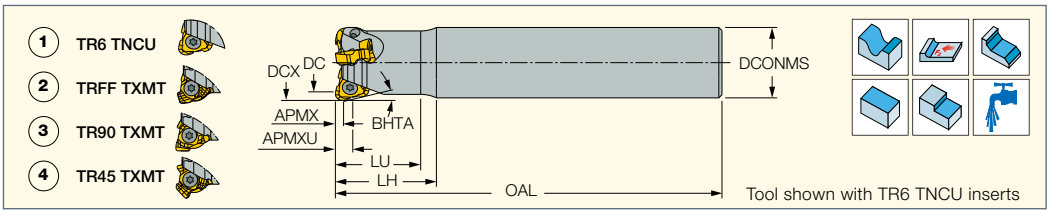
Diameter Change According to Insert Radius

R	0.8	1.0	1.5	2.0	2.5	3.0
ΔD	+0.03	0.0	-0.07	-0.14	-0.21	-0.28

TOR6MILL PROFILING

TR6 ER

Multifunction Endmills That Carry Four Different Insert Geometries



Designation	DCX[1]	DCX_2	DCX_3	DCX_4	DC	DC_2	DC_4	APMX	APMX_2	APMX_3	APMX_4	APMXU[2]	BHTA[3]	CICT[4]	LU	LU_2	LU_3	LU_4
TR6 ER D16-50-2-C16-07	16.00	16.00	16.00	-	14.00	12.10	-	1.00	0.60	2.50	-	2.00	18.0	2	46.50	46.70	46.80	-
TR6 ER D20-60-4-C20-07	20.00	20.00	20.00	-	18.00	16.10	-	1.00	0.60	2.50	-	2.00	18.0	4	56.50	56.70	56.80	-
TR6 ER D25-70-5-C25-07	25.00	25.00	25.00	-	23.00	21.10	-	1.00	0.60	2.50	-	2.00	18.0	5	65.50	65.70	65.80	-
TR6 ER D32-80-6-C32-07	32.00	32.00	32.00	-	30.00	28.10	-	1.00	0.60	2.50	-	2.00	18.0	6	75.50	75.70	75.80	-
TR6 ER D25-70-3-C25-10	25.00	24.60	25.00	26.80	20.00	19.00	20.60	2.50	0.80	4.00	3.00	4.20	17.0	3	65.00	65.15	64.91	65.12
TR6 ER D32-80-4-C32-10	32.00	31.60	32.00	33.80	27.00	26.00	27.60	2.50	0.80	4.00	3.00	4.20	17.0	4	75.00	75.15	74.91	75.12

Designation	LH	LH_2	LH_3	LH_4	RMPX° _2	OAL	OAL_2	OAL_3	OAL_4	DCONMS	MIID[5]	MIID_2[6]	MIID_3[7]	MIID_4[8]	kg
TR6 ER D16-50-2-C16-07	50.0	50.2	50.3	-	1.3	100.00	100.20	100.30	-	16.00	TR6 TNCU 070210	TRFF TXMT 0702	TR90 TXMT 070204	-	0.12
TR6 ER D20-60-4-C20-07	60.0	60.2	60.3	-	1.0	120.00	120.20	120.30	-	20.00	TR6 TNCU 070210	TRFF TXMT 0702	TR90 TXMT 070204	-	0.22
TR6 ER D25-70-5-C25-07	70.0	70.2	70.3	-	0.7	140.00	140.20	140.30	-	25.00	TR6 TNCU 070210	TRFF TXMT 0702	TR90 TXMT 070204	-	0.42
TR6 ER D32-80-6-C32-07	80.0	80.2	80.3	-	0.5	160.00	160.20	160.30	-	32.00	TR6 TNCU 070210	TRFF TXMT 0702	TR90 TXMT 070204	-	0.82
TR6 ER D25-70-3-C25-10	70.0	70.2	69.9	70.1	1.7	140.00	140.15	139.91	140.12	25.00	TR6 TNCU 100425	TRFF TXMT 1004	TR90 TXMT 100408	TR45 TXMT 1004	0.41
TR6 ER D32-80-4-C32-10	80.0	80.2	79.9	80.1	1.2	160.00	160.15	159.91	160.12	32.00	TR6 TNCU 100425	TRFF TXMT 1004	TR90 TXMT 100408	TR45 TXMT 1004	0.81

- Note: The data refers to master inserts , for other insert radii and geometries refer to the table below

[1] Cutting diameter maximum
[2] For undercutting with TR6 TNCU/TNMU inserts only
[3] For undercutting with TR6 TNCU/TNMU inserts only
[4] Number of inserts (or edges for solid tool)
[5] Master insert identification
[6] Master insert identification 2
[7] Master insert identification 3
[8] Master insert identification 4

For inserts, see pages: TR45 TXMT (540) • TR6 TNCU/MU (539) • TR90 TXMT (539) • TRFF TXMT (539)

									For undercutting	
Tool	Insert	DCX	DC	APMX	LU	LH	OAL	RMPX[1]	APMX_2	BHTA
TR6 ER D16-50-2-C16-07	TR6 TNCU 070205	16.00	15.00	0.50	46.40	49.90	99.90	-	1.60	17.0
	TR6 TNMU 070215		13.00	1.50	45.60	50.10	100.10	-	2.40	21.0
	TRFF TXMT 0702		12.10	0.60	46.70	50.20	100.20	1.1	-	-
	TR90 TXMT 070204		-	2.50	46.80	50.30	100.30	1.6	-	-
TR6 ER D20-60-4-C20-07	TR6 TNCU 070205	20.00	19.00	0.50	56.40	59.90	119.90	-	1.60	17.0
	TR6 TNMU 070215		17.00	1.50	56.60	60.10	120.10	-	2.40	21.0
	TRFF TXMT 0702		16.10	0.60	56.70	60.20	120.20	0.8	-	-
	TR90 TXMT 070204		-	2.50	56.80	60.30	120.30	1.2	-	-
TR6 ER D25-70-5-C25-07	TR6 TNCU 070205	25.00	24.00	0.50	65.40	69.90	139.90	-	1.60	17.0
	TR6 TNMU 070215		22.00	1.50	65.60	70.10	140.10	-	2.40	21.0
	TRFF TXMT 0702		21.10	0.60	65.70	70.20	140.20	0.6	-	-
	TR90 TXMT 070204		-	2.50	65.80	70.30	140.30	0.9	-	-
TR6 ER D32-80-6-C32-07	TR6 TNCU 070205	32.00	31.00	0.50	75.40	79.90	159.90	-	1.60	17.0
	TR6 TNMU 070215		29.00	1.50	75.60	80.10	160.10	-	2.40	21.0
	TRFF TXMT 0702		28.10	0.60	75.70	80.20	160.20	0.4	-	-
	TR90 TXMT 070204		-	2.50	75.80	80.30	160.30	0.7	-	-
TR6 ER D25-70-3-C25-10	TR6 TNCU 100405	25.00	24.00	0.50	64.52	69.52	139.52	-	1.80	17.5
	TR6 TNCU 100410		23.00	1.00	64.64	69.64	139.65	-	2.30	20.5
	TR6 TNCU/MU 100415		22.00	1.50	64.76	69.76	139.76	-	2.70	20.5
	TR6 TNCU 100420		21.00	2.00	64.88	69.88	139.88	-	3.50	20.5
	TR6 TNCU 100430		19.00	3.00	65.12	70.12	140.12	-	4.50	20.5
	TRFF TXMT 1004		19.00	0.80	65.15	70.15	140.15	1.7	-	-
	TR90 TXMT 100408		-	4.00	64.91	69.91	139.91	1.6	-	-
	TR45 TXMT 1004	26.80	20.60	3.00	65.12	70.12	140.12	1.4	-	-
TR6 ER D32-80-4-C32-10	TR6 TNCU 100405	32.00	31.00	0.50	75.52	79.52	159.52	-	1.80	17.5
	TR6 TNCU 100410		30.00	1.00	74.64	79.65	159.64	-	2.30	20.5
	TR6 TNCU/MU 100415		29.00	1.50	76.76	79.76	159.76	-	2.70	20.5
	TR6 TNCU 100420		28.00	2.00	74.88	79.88	159.88	-	3.50	20.5
	TR6 TNCU 100430		26.00	3.00	75.12	80.12	160.12	-	4.50	20.5
	TRFF TXMT 1004		26.00	0.80	75.15	80.15	160.15	1.2	-	-
	TR90 TXMT 100408		-	4.00	74.91	79.91	159.91	1.2	-	-
	TR45 TXMT 1004	33.80	27.60	3.00	75.12	80.12	160.12	1.0	-	-

[1] Maximum ramp down angle

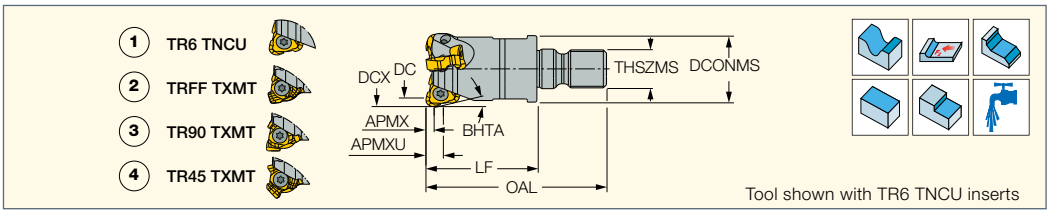
Spare Parts

Designation		
TR6 ER D16-50-2-C16-07	SR M2.5X0.45-L6 IP7	IP-7/51
TR6 ER D20-60-4-C20-07	SR M2.5X0.45-L6 IP7	IP-7/51
TR6 ER D25-70-5-C25-07	SR M2.5X0.45-L6 IP7	IP-7/51
TR6 ER D32-80-6-C32-07	SR M2.5X0.45-L6 IP7	IP-7/51
TR6 ER D25-70-3-C25-10	SR 10508600	T-9/51
TR6 ER D32-80-4-C32-10	SR 10508600	T-9/51

TOR6MILL PROFILING

TR6 ER-M

Multifunction Endmills with FLEX-FIT Threaded Adaptation That Carry Four Different Insert Geometries



Tool shown with TR6 TNCU inserts

Designation	DCX[1]	DCX_2	DCX_3	DCX_4	DC	DC_2	DC_4	APMX	APMX_2	APMX_3	APMX_4	APMXU[2]	BHTA[3]	CICT[4]	LF	LF_2	LF_3	LF_4	RMPX° _2
TR6 ER D16/0.63-2-M08-07	16.00	16.00	16.00	-	14.00	12.10	-	1.00	0.60	2.50	-	2.00	18.0	2	24.64	24.90	25.00	-	1.3
TR6 ER D20/0.79-4-M10-07	20.00	20.00	20.00	-	18.00	16.10	-	1.00	0.60	2.50	-	2.00	18.0	4	24.64	24.90	25.00	-	1.0
TR6 ER D25/0.98-5-M12-07	25.00	25.00	25.00	-	23.00	21.10	-	1.00	0.60	2.50	-	2.00	18.0	5	29.64	29.90	30.00	-	0.7
TR6 ER D32/1.26-6-M16-07	32.00	32.00	32.00	-	30.00	28.10	-	1.00	0.60	2.50	-	2.00	18.0	6	34.64	34.90	35.00	-	0.5
TR6 ER D35/1.38-6-M16-07	35.00	35.00	35.00	-	33.00	31.10	-	1.00	0.60	2.50	-	2.00	18.0	6	34.64	34.90	35.00	-	0.5
TR6 ER D25/0.98-3-M12-10	25.00	24.60	25.00	26.80	20.00	20.60	20.60	2.50	0.80	4.00	3.00	4.20	17.0	3	24.97	25.15	25.12	25.12	1.7
TR6 ER D32/1.26-4-M16-10	32.00	31.60	32.00	33.80	27.00	27.60	27.60	2.50	0.80	4.00	3.00	4.20	17.0	4	34.97	35.15	35.12	35.12	1.2
TR6 ER D35/1.38-5-M16-10	35.00	34.60	35.00	36.80	30.00	30.60	30.60	2.50	0.80	4.00	3.00	4.20	17.0	5	34.97	35.15	35.12	35.12	1.1

Designation	OAL	OAL_2	OAL_3	OAL_4	DCONMS	THSZMS	MIID[5]	MIID_2[6]	MIID_3[7]	MIID_4[8]	DRVS[9]	TQ_3[10]	kg
TR6 ER D16/0.63-2-M08-07	42.20	42.40	42.50	-	13.00	M08	TR6 TNCU 070210	TRFF TXMT 0702	TR90 TXMT 070204	-	11.0	20	0.03
TR6 ER D20/0.79-4-M10-07	44.70	44.90	45.00	-	18.00	M10	TR6 TNCU 070210	TRFF TXMT 0702	TR90 TXMT 070204	-	15.0	29	0.05
TR6 ER D25/0.98-5-M12-07	51.70	51.90	52.00	-	21.00	M12	TR6 TNCU 070210	TRFF TXMT 0702	TR90 TXMT 070204	-	17.0	33	0.08
TR6 ER D32/1.26-6-M16-07	59.70	59.90	60.00	-	29.00	M16	TR6 TNCU 070210	TRFF TXMT 0702	TR90 TXMT 070204	-	25.0	40	0.18
TR6 ER D35/1.38-6-M16-07	59.70	59.90	60.00	-	29.00	M16	TR6 TNCU 070210	TRFF TXMT 0702	TR90 TXMT 070204	-	25.0	40	0.19
TR6 ER D25/0.98-3-M12-10	47.00	47.15	46.91	47.12	21.00	M12	TR6 TNCU 100425	TRFF TXMT 1004	TR90 TXMT 100408	TR45 TXMT 1004	19.0	33	0.06
TR6 ER D32/1.26-4-M16-10	60.00	60.15	59.91	60.12	29.00	M16	TR6 TNCU 100425	TRFF TXMT 1004	TR90 TXMT 100408	TR45 TXMT 1004	25.0	40	0.17
TR6 ER D35/1.38-5-M16-10	60.00	60.15	59.91	60.12	29.00	M16	TR6 TNCU 100425	TRFF TXMT 1004	TR90 TXMT 100408	TR45 TXMT 1004	25.0	40	0.18

• Note: The data refers to master inserts, for other insert radii and geometries refer to the table below • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

[1] Cutting diameter maximum

[2] For undercutting with TR6 TNCU/TNMU inserts only

[3] For undercutting with TR6 TNCU/TNMU inserts only

[4] Number of inserts (or edges for solid tool)

[5] Master insert identification

[6] Master insert identification 2

[7] Master insert identification 3

[8] Master insert identification 4

[9] Torque key size

[10] Tool tightening torque Nxm

For inserts, see pages: TR45 TXMT (613) • TR6 TNCU/MU (612) • TR90 TXMT (613) • TRFF TXMT (613)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

Tool	Insert	DCX	DC	APMX	LF	OAL	RMPX	For undercutting APMX_2	For undercutting BHTA
TR6 ER D16/0.63-2-M08-07	TR6 TNCU 070205	16.00	15.00	0.50	24.6	42.1	-	1.60	17.0
	TR6 TNMU 070215		13.00	1.50	24.8	42.3	-	2.40	21.0
	TRFF TXMT 0702		12.10	0.60	24.9	42.4	1.1	-	-
	TR90 TXMT 070204		-	2.50	25.0	42.5	1.6	-	-
TR6 ER D20/0.79-4-M10-07	TR6 TNCU 070205	20.00	19.00	0.50	24.6	44.6	-	1.60	17.0
	TR6 TNMU 070215		17.00	1.50	24.8	44.8	-	2.40	21.0
	TRFF TXMT 0702		16.10	0.60	24.9	44.9	0.8	-	-
	TR90 TXMT 070204		-	2.50	25.0	45.0	1.2	-	-
TR6 ER D25/0.98-5-M12-07	TR6 TNCU 070205	25.00	24.00	0.50	29.6	51.6	-	1.60	17.0
	TR6 TNMU 070215		22.00	1.50	29.8	51.8	-	2.40	21.0
	TRFF TXMT 0702		21.10	0.60	29.9	51.9	0.6	-	-
	TR90 TXMT 070204		-	2.50	30.0	52.0	0.9	-	-
TR6 ER D32/1.26-6-M16-07	TR6 TNCU 070205	32.00	31.00	0.50	34.6	59.6	-	1.60	17.0
	TR6 TNMU 070215		29.00	1.50	34.8	59.8	-	2.40	21.0
	TRFF TXMT 0702		28.10	0.60	34.9	59.9	0.4	-	-
	TR90 TXMT 070204		-	2.50	35.0	60.0	0.7	-	-
TR6 ER D35/1.38-6-M16-07	TR6 TNCU 070205	35.00	34.00	0.50	34.6	59.6	-	1.60	17.0
	TR6 TNMU 070215		32.00	1.50	34.8	59.8	-	2.40	21.0
	TRFF TXMT 0702		31.10	0.60	34.9	59.9	0.4	-	-
	TR90 TXMT 070204		-	2.50	35	60	0.4	-	-
TR6 ER D25/0.98-3-M12-10	TR6 TNCU 100405	25.00	24.00	0.50	24.52	46.52	-	1.80	17.5
	TR6 TNCU 100410		23.00	1.00	24.64	46.64	-	2.30	20.5
	TR6 TNCU/MU 100415		22.00	1.50	24.76	46.76	-	2.70	20.5
	TR6 TNCU 100420		21.00	2.00	24.88	46.88	-	3.50	20.5
	TR6 TNCU 100430		19.00	3.00	25.12	47.12	-	4.50	20.5
	TRFF TXMT 1004		20.60	0.80	25.15	47.15	1.7	-	-
	TR90 TXMT 100408		-	4.00	24.91	46.91	1.6	-	-
	TR45 TXMT 1004	26.80	20.60	3.00	25.12	47.12	1.4	-	-
TR6 ER D32/1.26-4-M16-10	TR6 TNCU 100405	32.00	31.00	0.50	34.52	59.52	-	1.80	17.5
	TR6 TNCU 100410		30.00	1.00	34.64	59.64	-	2.30	20.5
	TR6 TNCU/MU 100415		29.00	1.50	34.76	59.76	-	2.70	20.5
	TR6 TNCU 100420		28.00	2.00	34.88	59.88	-	3.50	20.5
	TR6 TNCU 100430		26.00	3.00	35.12	60.12	-	4.50	20.5
	TRFF TXMT 1004		27.60	0.80	35.15	60.15	1.2	-	-
	TR90 TXMT 100408		-	4.00	34.91	59.91	1.1	-	-
	TR45 TXMT 1004	33.80	27.60	3.00	35.12	60.12	0.9	-	-
TR6 ER D35/1.38-5-M16-10	TR6 TNCU 100405	35.00	34.00	0.50	34.52	59.52	-	1.80	17.5
	TR6 TNCU 100410		33.00	1.00	34.64	59.64	-	2.30	20.5
	TR6 TNCU/MU 100415		32.00	1.50	34.76	59.76	-	2.70	20.5
	TR6 TNCU 100420		31.00	2.00	34.88	59.88	-	3.50	20.5
	TR6 TNCU 100430		29.00	3.00	35.12	60.12	-	4.50	20.5
	TRFF TXMT 1004		30.60	0.80	35.15	60.15	1.2	-	-
	TR90 TXMT 100408		-	4.00	34.91	59.91	1.1	-	-
	TR45 TXMT 1004	36.80	30.60	3.00	35.12	60.12	0.9	-	-

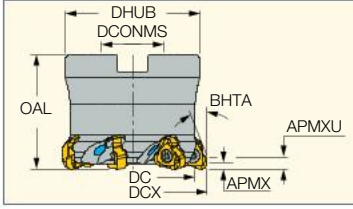
Spare Parts

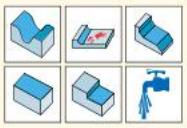
Designation		
TR6 ER D16/0.63-2-M08-07	SR M2.5X0.45-L6 IP7	IP-7/51
TR6 ER D20/0.79-4-M10-07	SR M2.5X0.45-L6 IP7	IP-7/51
TR6 ER D25/0.98-5-M12-07	SR M2.5X0.45-L6 IP7	IP-7/51
TR6 ER D32/1.26-6-M16-07	SR M2.5X0.45-L6 IP7	IP-7/51
TR6 ER D35/1.38-6-M16-07	SR M2.5X0.45-L6 IP7	IP-7/51
TR6 ER D25/0.98-3-M12-10	SR 10508600	T-9/51
TR6 ER D32/1.26-4-M16-10	SR 10508600	T-9/51
TR6 ER D35/1.38-5-M16-10	SR 10508600	T-9/51

TOR6MILL PROFILING

TR6 FR

Multifunction Face Mills That Carry Four Different Insert Geometries





Tool shown with TR6 TNCU inserts

Designation	DCX[1]	DCX_2	DCX_3	DCX_4	DC	DC_2	DC_4	APMX	APMX_2	APMX_3	APMX_4	APMXU[2]	BHTA[3]	CICT[4]	RMPX°_2
TR6 FR D40-06-16-10	40.00	39.60	40.00	41.80	35.00	34.00	35.60	2.50	0.80	4.00	3.00	4.20	17.0	6	0.9
TR6 FR D42-06-16-10	42.00	41.60	42.00	43.80	37.00	36.00	37.60	2.50	0.80	4.00	3.00	4.20	17.0	6	0.9
TR6 FR D50-07-22-10	50.00	49.60	50.00	51.80	45.00	44.00	45.60	2.50	0.80	4.00	3.00	4.20	17.0	7	0.7
TR6 FR D52-07-22-10	52.00	51.60	52.00	53.80	47.00	46.00	53.60	2.50	0.80	4.00	3.00	4.20	17.0	7	0.7
TR6 FR D63-08-22-10	63.00	62.60	63.00	64.80	58.00	57.00	56.60	2.50	0.80	4.00	3.00	4.20	17.0	8	0.5
TR6 FR D66-08-22-10	66.00	65.60	66.00	67.80	61.00	60.00	61.60	2.50	0.80	4.00	3.00	4.20	17.0	8	0.5
TR6 FR D80-10-27-10	80.00	79.60	80.00	81.80	75.00	74.00	75.60	2.50	0.80	4.00	3.00	4.20	17.0	10	0.4

Designation	OAL	OAL_2	OAL_3	OAL_4	DCONMS	DHUB	Arbor	MIID[5]	MIID_2[6]	MIID_3[7]	MIID_4[8]	
TR6 FR D40-06-16-10	37.00	37.15	36.91	37.12	16.00	32.00	A	TR6 TNCU 100425	TRFF TXMT 1004	TR90 TXMT 100408	TR45 TXMT 1004	0.14
TR6 FR D42-06-16-10	37.00	37.15	36.91	37.12	16.00	32.00	A	TR6 TNCU 100425	TRFF TXMT 1004	TR90 TXMT 100408	TR45 TXMT 1004	0.15
TR6 FR D50-07-22-10	40.00	40.15	39.91	40.12	22.00	47.00	A	TR6 TNCU 100425	TRFF TXMT 1004	TR90 TXMT 100408	TR45 TXMT 1004	0.29
TR6 FR D52-07-22-10	40.00	40.15	39.91	40.12	22.00	47.00	A	TR6 TNCU 100425	TRFF TXMT 1004	TR90 TXMT 100408	TR45 TXMT 1004	0.33
TR6 FR D63-08-22-10	40.00	40.15	39.91	40.12	22.00	48.00	A	TR6 TNCU 100425	TRFF TXMT 1004	TR90 TXMT 100408	TR45 TXMT 1004	0.42
TR6 FR D66-08-22-10	40.00	40.15	39.91	40.12	22.00	48.00	A	TR6 TNCU 100425	TRFF TXMT 1004	TR90 TXMT 100408	TR45 TXMT 1004	0.46
TR6 FR D80-10-27-10	50.00	50.15	49.91	50.12	27.00	60.00	A	TR6 TNCU 100425	TRFF TXMT 1004	TR90 TXMT 100408	TR45 TXMT 1004	0.91

- Note: The data refers to master inserts, for other insert radii and geometries refer to the table below

[1] Cutting diameter maximum
[2] For undercutting with TR6 TNCU/TNMU inserts only
[3] For undercutting with TR6 TNCU/TNMU inserts only
[4] Number of inserts (or edges for solid tool)
[5] Master insert identification
[6] Master insert identification 2
[7] Master insert identification 3
[8] Master insert identification 4

For inserts, see pages: TR45 TXMT (613) • TR6 TNCU/MU (612) • TR90 TXMT (613) • TRFF TXMT (613)

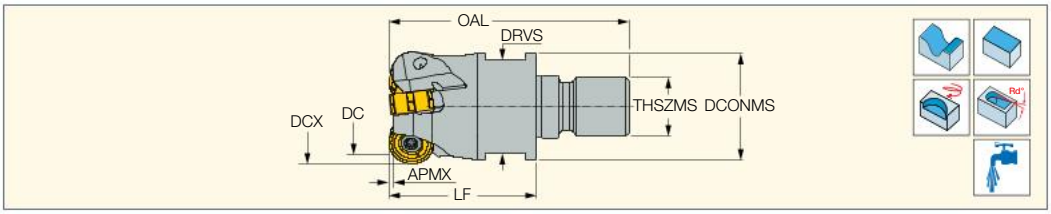
Tool	Insert	DCX	DC	APMX	OAL	RMPX	For undercutting APMX_2	For undercutting BHTA
TR6 FR D40-06-16-10	TR6 TNCU 100405	40.00	39.00	0.50	36.52	-	1.80	17.5
	TR6 TNCU 100410		38.00	1.00	36.64	-	2.30	20.5
	TR6 TNCU/MU 100415		37.00	1.50	36.76	-	2.70	20.5
	TR6 TNCU 100420		36.00	2.00	36.88	-	3.50	20.5
	TR6 TNCU 100430		34.00	3.00	37.12	-	4.50	20.5
	TRFF TXMT 1004		34.00	0.80	37.15	0.9	-	-
	TR90 TXMT 100408		-	4.00	36.91	0.9	-	-
	TR45 TXMT 1004	41.80	35.60	3.00	37.12	0.7	-	-
TR6 FR D42-06-16-10	TR6 TNCU 100405	42.00	41.00	0.50	36.52	-	1.80	17.5
	TR6 TNCU 100410		40.00	1.00	36.64	-	2.30	20.5
	TR6 TNCU/MU 100415		39.00	1.50	36.76	-	2.70	20.5
	TR6 TNCU 100420		38.00	2.00	36.88	-	3.50	20.5
	TR6 TNCU 100430		36.00	3.00	37.12	-	4.50	20.5
	TRFF TXMT 1004		36.00	0.80	37.15	0.90	-	-
	TR90 TXMT 100408		-	4.00	36.91	0.90	-	-
	TR45 TXMT 1004	43.80	37.60	3.00	37.12	0.70	-	-
TR6 FR D50-07-22-10	TR6 TNCU 100405	50.00	49.00	0.50	39.52	-	1.80	17.5
	TR6 TNCU 100410		48.00	1.00	39.64	-	2.30	20.5
	TR6 TNCU/MU 100415		47.00	1.50	39.76	-	2.70	20.5
	TR6 TNCU 100420		46.00	2.00	39.88	-	3.50	20.5
	TR6 TNCU 100430		44.00	3.00	40.12	-	4.50	20.5
	TRFF TXMT 1004		44.00	0.80	40.15	0.70	-	-
	TR90 TXMT 100408		-	4.00	39.91	0.70	-	-
	TR45 TXMT 1004	51.80	45.60	3.00	40.12	0.60	-	-
TR6 FR D52-07-22-10	TR6 TNCU 100405	52.00	51.00	0.50	39.52	-	1.80	17.5
	TR6 TNCU 100410		50.00	1.00	39.64	-	2.30	20.5
	TR6 TNCU/MU 100415		49.00	1.50	39.76	-	2.70	20.5
	TR6 TNCU 100420		48.00	2.00	39.88	-	3.50	20.5
	TR6 TNCU 100430		46.00	3.00	40.12	-	4.50	20.5
	TRFF TXMT 1004		46.00	0.80	40.15	0.70	-	-
	TR90 TXMT 100408		-	4.00	39.91	0.70	-	-
	TR45 TXMT 1004	53.80	53.80	3.00	40.12	0.60	-	-
TR6 FR D63-08-22-10	TR6 TNCU 100405	63.00	62.00	0.50	39.52	-	1.80	17.5
	TR6 TNCU 100410		61.00	1.00	39.64	-	2.30	20.5
	TR6 TNCU/MU 100415		60.00	1.50	39.76	-	2.70	20.5
	TR6 TNCU 100420		59.00	2.00	39.88	-	3.50	20.5
	TR6 TNCU 100430		57.00	3.00	40.12	-	4.50	20.5
	TRFF TXMT 1004		57.00	0.80	40.15	0.50	-	-
	TR90 TXMT 100408		-	4.00	39.91	0.50	-	-
	TR45 TXMT 1004	64.80	58.60	3.00	40.12	0.40	-	-
TR6 FR D66-08-22-10	TR6 TNCU 100405	66.00	65.00	0.50	39.52	-	1.80	17.5
	TR6 TNCU 100410		64.00	1.00	39.64	-	2.30	20.5
	TR6 TNCU/MU 100415		63.00	1.50	39.76	-	2.70	20.5
	TR6 TNCU 100420		62.00	2.00	39.88	-	3.50	20.5
	TR6 TNCU 100430		60.00	3.00	40.12	-	4.50	20.5
	TRFF TXMT 1004		60.00	0.80	40.15	0.50	-	-
	TR90 TXMT 100408		-	4.00	39.91	0.50	-	-
	TR45 TXMT 1004	67.80	61.60	3.00	40.12	0.40	-	-
TR6 FR D80-10-27-10	TR6 TNCU 100405	80.00	79.00	0.50	49.52	-	1.80	17.5
	TR6 TNCU 100410		78.00	1.00	49.64	-	2.30	20.5
	TR6 TNCU/MU 100415		77.00	1.50	49.76	-	2.70	20.5
	TR6 TNCU 100420		76.00	2.00	49.88	-	3.50	20.5
	TR6 TNCU 100430		74.00	3.00	50.12	-	4.50	20.5
	TRFF TXMT 1004		74.00	0.80	50.15	0.40	-	-
	TR90 TXMT 100408		-	4.00	49.91	0.40	-	-
	TR45 TXMT 1004	81.80	75.60	3.00	50.12	0.30	-	-

Spare Parts

Designation			
TR6 FR D40-06-16-10	SR 10508600	T-9/51	SR M8X25DIN912
TR6 FR D42-06-16-10	SR 10508600	T-9/51	SR M8X25DIN912
TR6 FR D50-07-22-10	SR 10508600	T-9/51	SR M10X25 DIN912
TR6 FR D52-07-22-10	SR 10508600	T-9/51	SR M10X25 DIN912
TR6 FR D63-08-22-10	SR 10508600	T-9/51	SR M10X25 DIN912
TR6 FR D66-08-22-10	SR 10508600	T-9/51	SR M10X25 DIN912
TR6 FR D80-10-27-10	SR 10508600	T-9/51	SR M12X30DIN912

ROUNDMILL

RDS ER-M
Endmills with FLEX-FIT Threaded Connection Carrying Double-Sided Round Inserts with 12 Cutting Edges



Designation	DCX(1)	DC	DCONMS	CICT(2)	APMX	LF	OAL	DRVS(3)	RMPX°(4)	THSZMS	TQ_3(5)	kg
RDS ER D32/1.26-3-M16-12	32.00	20.06	29.00	3	2.50	40.00	65.00	25.0	0.9	M16	40	0.27

New

• When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Torque key size
(4) Maximum ramping angle
(5) Tool tightening torque Nxm

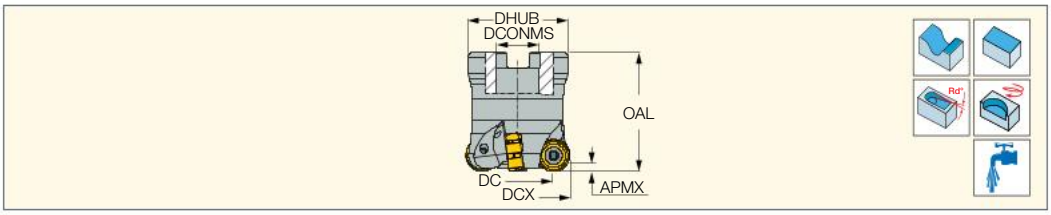
For inserts, see pages: RDS RNMU/RNMW (605)

Spare Parts

Designation			
RDS ER-M	SR M4X0.7-R-L9.5 IP15	SW6-T-SH	BLD IP15/S7

ROUNDMILL

RDS FR-12
Face Mills Carrying Double-Sided Round Inserts with 12 Cutting Edges



Designation	DCX(1)	DC	CICT(2)	APMX	OAL	DHUB	DCONMS	RMPX°(3)	Arbor	kg
RDS FR D040-04-16-12	40.00	27.90	4	2.50	45.00	38.00	16.00	0.9	A	0.24
RDS FR D050-05-22-12	50.00	37.90	5	2.50	40.00	48.00	22.00	0.8	A	0.39
RDS FR D050-06-22-12	50.00	37.90	6	2.50	40.00	48.00	22.00	0.8	A	0.31
RDS FR D052-06-22-12	52.00	39.90	6	2.50	40.00	48.00	22.00	0.7	A	0.33
RDS FR D063-07-22-12	63.00	50.90	7	2.50	40.00	48.00	22.00	0.5	A	0.43
RDS FR D066-07-22-12	66.00	53.90	7	2.50	40.00	48.00	22.00	0.5	A	0.46
RDS FR D080-08-27-12	80.00	67.90	8	2.50	50.00	60.00	27.00	0.4	A	1.12

New

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Maximum ramping angle

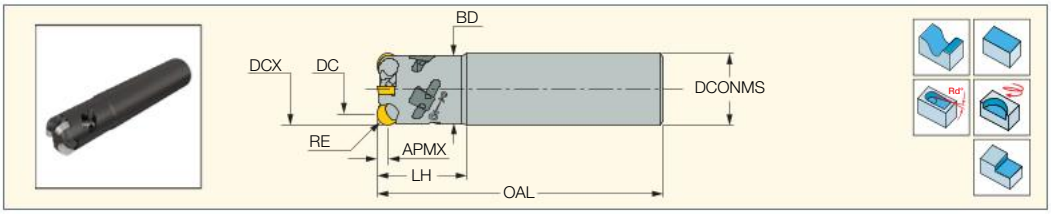
For inserts, see pages: RDS RNMU/RNMW (605)

Spare Parts

Designation				
RDS FR D040-04-16-12	SR M4X0.7-R-L9.5 IP15	SW6-T	BLD IP15/S7	SR PS 118-0416
RDS FR D050-05-22-12	SR M4X0.7-R-L9.5 IP15	SW6-T-SH	BLD IP15/S7	SR M10X25 DIN912
RDS FR D050-06-22-12	SR M4X0.7-R-L9.5 IP15	SW6-T-SH	BLD IP15/S7	SR M10X25 DIN912
RDS FR D052-06-22-12	SR M4X0.7-R-L9.5 IP15	SW6-T-SH	BLD IP15/S7	SR M10X25 DIN912
RDS FR D063-07-22-12	SR M4X0.7-R-L9.5 IP15	SW6-T	BLD IP15/S7	SR M10X25 DIN912
RDS FR D066-07-22-12	SR M4X0.7-R-L9.5 IP15	SW6-T-SH	BLD IP15/S7	SR M10X25 DIN912
RDS FR D080-08-27-12	SR M4X0.7-R-L9.5 IP15	SW6-T-SH	BLD IP15/S7	SR M12X35DIN912

CERMILL

ERP
Endmills Carrying Single-Sided Ceramic Round Inserts



Designation	DCX[1]	DC	RE	APMX	CICT[2]	LH	OAL	BD	DCONMS	RMPX°[3]	Shank[4]	MIID[5]	d
ERP D010A016-03-C16-06	16.00	9.65	3.18	3.17	3	25.0	80.00	15.00	16.00	2.5	C	RPGN 06	16.00
ERP D014A020-04-C20-06	20.00	13.65	3.18	3.17	4	30.0	80.00	19.00	20.00	4.0	C	RPGN 06	20.00
ERP D019A025-05-C25-06	25.00	18.65	3.18	3.17	5	40.0	100.00	24.00	25.00	3.5	C	RPGN 06	25.00

• For adaptation see page 622
[1] Cutting diameter maximum
[2] Number of inserts (or edges for solid tool)
[3] Maximum ramping angle
[4] C-Cylindrical
[5] Master insert identification

For inserts, see pages: RPGN (CER) (605)

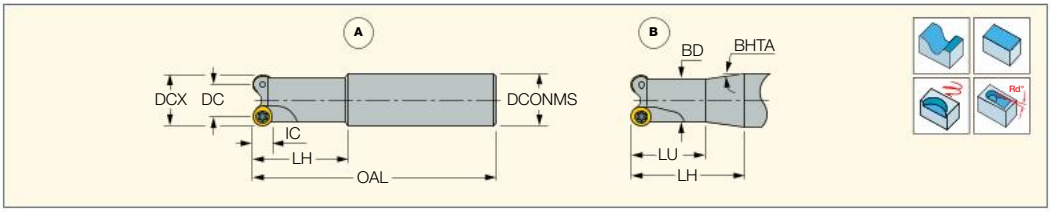
Spare Parts

Designation					
ERP	CL-D4-L9-M3X0.5	NUT-D4.5-L6-M3X0.5	CW 1.7-L20	ERP BIT D4-30*	T.WRENCH TBN 0.7NM*

* Optional, to be ordered separately

ROUNDMILL

ER
Endmills with Round Inserts for Profiling and Milling Round Corners



Designation	DCX[1]	DC	IC	BD	CICT[2]	LH	DCONMS	Shank[3]	RMPX°[4]	BHTA	OAL	LU	Type	MIID[5]	kg
ER D07A12-3-C12-05	12.00	7.00	5.00	11.70	3	40.0	12.00	C	6.0	-	100.00	-	A	RXCR 05T1	0.08
ER D08A15-2-C20-07	15.00	8.00	7.00	13.50	2	40.0	20.00	C	15.0	5.0	140.00	40.0	B	RXCR 0702	0.26
ER D08A16-2-C16-08	16.00	8.00	8.00	13.50	2	40.0	16.00	C	27.0	-	120.00	-	A	RXCR 0802	0.16
ER D17A25-3-C32-08	25.00	17.00	8.00	22.50	3	60.0	32.00	C	5.4	-	160.00	-	A	RXCR 0802	0.80
ER D10A20-2-C20-10	20.00	10.00	10.00	17.90	2	60.0	20.00	C	13.0	-	160.00	-	A	RXCR 10T3	0.34
ER D15A25-2-C25-10	25.00	15.00	10.00	22.80	2	60.0	25.00	C	6.0	-	160.00	-	A	RXCR 10T3	0.55
ER D22A32-4-C25-10	32.00	22.00	10.00	29.90	4	40.0	25.00	C	4.0	-	160.00	-	A	RXCR 10T3	0.62
ER D24A40-3-C32-16	40.00	24.00	16.00	30.00	3	50.0	32.00	C	20.0	-	160.00	-	A	RCCW 1605	0.90

[1] Cutting diameter maximum
[2] Number of inserts (or edges for solid tool)
[3] C-Cylindrical
[4] Maximum ramping angle
[5] Master insert identification

For inserts, see pages: RXCR (601) • RXCW (601) • RXMT 10 (601)

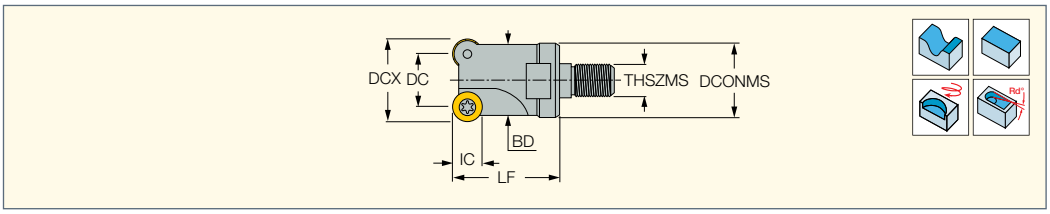
Spare Parts

Designation				
ER D07A12-3-C12-05	SR 34-533	T-6/51		
ER D08A15-2-C20-07	SR 14-560/S M2.5X0.45	T-8/53		
ER D08A16-2-C16-08	SR 14-560/S M2.5X0.45	T-8/53		
ER D17A25-3-C32-08	SR 14-560	T-8/53		
ER D10A20-2-C20-10	SR 14-562/S	T-10/51		
ER D15A25-2-C25-10	SR 14-562/S	T-10/51		
ER D22A32-4-C25-10	SR 14-562	T-10/51		
ER D24A40-3-C32-16	SR 14-536		BLD T20/M7	SW6-T-SH

ROUNDMILL

ER-M

Endmills with FLEX-FIT Threaded Adaptation Carrying Round Inserts for Profiling and Milling Round Corners



Designation	DCX(1)	DC	IC	BD	CICT(2)	DCONMS	LF	DRVS(3)	THSZMS	RMPX°(4)	TQ_3(5)	kg		
ER D10A15-4-M08-05	15.00	10.00	5.00	13.00	4	13.00	23.00	10.0	M08	13.0	20	0.03	SR 34-533	T-6/51
ER D15A20-5-M10-05	20.00	15.00	5.00	18.00	5	18.00	30.00	15.0	M10	4.3	29	0.06	SR 34-533	T-6/51
ER D08A15-3-M08-07	15.00	8.00	7.00	13.50	3	13.50	23.00	9.6	M08	15.0	20	0.03	SR 14-560/S M2.5X0.45	T-8/53
ER D13A20-4-M10-07	20.00	13.00	7.00	18.00	4	18.00	30.00	15.1	M10	5.0	29	0.06	SR 14-560/S M2.5X0.45	T-8/53
ER D08A16-2-M08-08	16.00	8.00	8.00	13.50	2	13.00	25.00	10.0	M08	27.0	20	0.02	SR 14-560/S M2.5X0.45	T-8/53
ER D12A20-2-M10-08	20.00	12.00	8.00	17.20	2	18.00	32.00	15.1	M10	6.5	29	0.05	SR 14-560/S M2.5X0.45	T-8/53
ER D10A20-2-M10-10	20.00	10.00	10.00	18.00	2	18.00	30.00	15.1	M10	28.0	29	0.05	SR 14-562/S	T-10/51
ER D15A25-2-M12-10	25.00	15.00	10.00	21.00	2	21.00	35.00	17.1	M12	12.0	33	0.09	SR 14-562/S	T-10/51
ER D15A25-3-M12-10	25.00	15.00	10.00	29.00	3	21.00	35.00	18.1	M12	12.0	33	0.09	SR 14-562/S	T-10/51
ER D22A32-4-M16-10	32.00	22.00	10.00	29.00	4	29.00	43.00	25.1	M16	7.3	40	0.20	SR 14-562	T-10/51
ER D25A35-4-M16-10	35.00	25.00	10.00	29.00	4	29.00	43.00	25.1	M16	5.5	40	0.22	SR 14-562	T-10/51
ER D32A42-5-M16-10	42.00	32.00	10.00	29.00	5	29.00	43.00	25.1	M16	4.5	40	0.25	SR 14-562	T-10/51

• When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

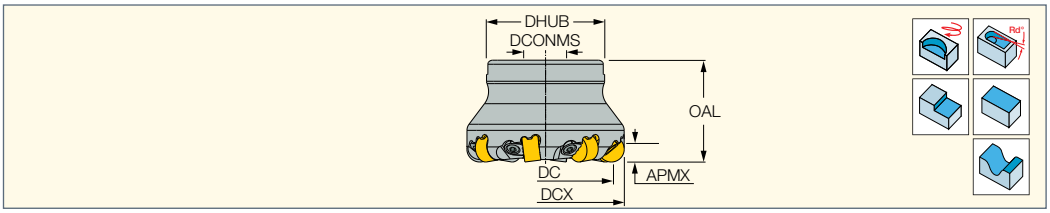
(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Torque key size
(4) Maximum ramping angle
(5) Tool tightening torque

For inserts, see pages: R90CW (602) • RXCR (601) • RXCW (601) • RXMT 10 (601)
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

ISCAR CERLINE

FRN

Face Mill for Wedge-Clamped Double-Sided Round Inserts



Designation	DCX(1)	DC	APMX	OAL	DCONMS	DHUB	Arbor	CICT(2)	MDN(3)	MDX(4)	RMPX°(5)	kg
FRN D038A050-05-22-12	50.00	37.30	3.00	40.00	22.00	45.00	A	5	87.30	99.00	0.4	0.46
FRN D051A063-06-22-12	63.00	50.30	3.00	40.00	22.00	47.00	A	6	113.30	125.00	0.3	0.63
FRN D068A080-07-27-12	80.00	67.30	3.00	50.00	27.00	58.00	A	7	147.30	159.00	0.3	0.85

• Radius for programing: 6.35

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Machinable diameter minimum for interpolation
(4) Machinable diameter maximum for interpolation
(5) Maximum ramping angle

For inserts, see pages: RNGN (CER) (606)

Spare Parts

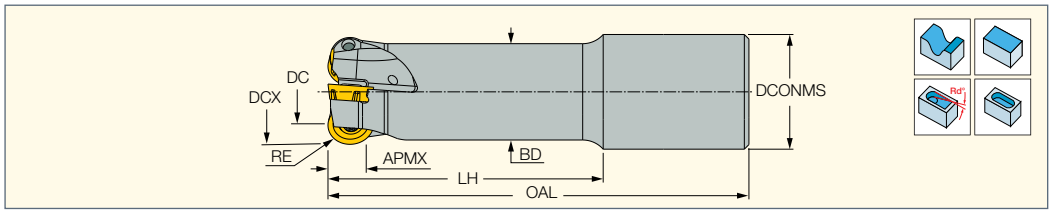
Designation			
FRN	WEDGE SCREW(a)	LW 1207C	T-W3

(a) Recommended tightening torque:4.8 Nm

ROUNDMILL

ERMT

End Mills for Productive Machining of 3D Surfaces of Blades in Turbomachinery



Designation	DCX(1)	DC	RE	APMX	CICT(2)	LH	OAL	BD	DCONMS	RMPX°(3)	Shank(4)	MIID(5)	kg
ERMT D15A25-3-060-C25-10	25.00	15.00	5.00	3.10	3	60.0	120.00	21.00	25.00	1.0	C	RPHX 1003MO-MT5	0.33

New

• For adaptation see page 622

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Maximum ramping angle
(4) C-Cylindrical
(5) Master insert identification

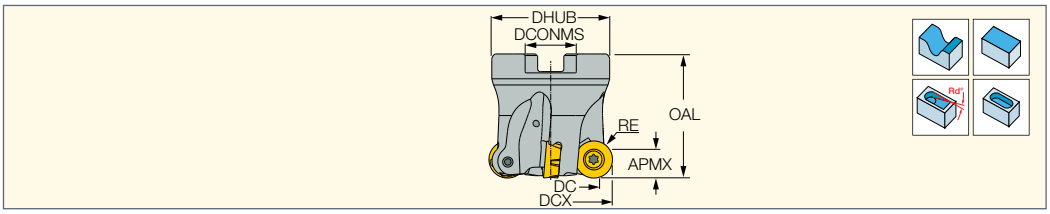
For inserts, see pages: RPHX/RPMX (605)

Spare Parts

Designation			
ERMT	SR 10504970	BLD IP15/S7	SW6-SD

ROUNDMILL

FRMT
Face Mills for Machining 3D Surfaces of Turbomachinery Blades



Designation	DCX(1)	DC	RE	APMX	CICT(2)	OAL	DCONMS	RMPX°(3)	Arbor(4)	DHUB	MIID(5)	kg
FRMT D030A040-05-16-10	40.00	30.00	5.00	3.10	5	40.00	16.00	1.0	A	38.00	RP...X 1003M0 ...	0.20
FRMT D028A040-04-16-12	40.00	28.00	6.00	3.80	4	40.00	16.00	1.0	A	38.00	RP...X 1204M0 ...	0.20
FRMT D038A050-05-22-12	50.00	38.00	6.00	3.80	5	40.00	22.00	2.5	A	48.00	RP...X 1204M0 ...	0.29
FRMT D038A050-06-22-12	50.00	38.00	6.00	3.80	6	40.00	22.00	1.0	A	48.00	RP...X 1204M0 ...	0.29
FRMT D040A052-05-22-12	52.00	40.00	6.00	3.80	5	40.00	22.00	2.5	A	48.00	RP...X 1204M0 ...	0.31
FRMT D040A052-06-22-12	52.00	40.00	6.00	3.80	6	40.00	22.00	1.0	A	48.00	RP...X 1204M0 ...	0.30
FRMT D051A063-06-22-12	63.00	51.00	6.00	3.80	6	40.00	22.00	4.0	A	48.00	RP...X 1204M0 ...	0.54
FRMT D051A063-07-22-12	63.00	51.00	6.00	3.80	7	40.00	22.00	1.5	A	48.00	RP...X 1204M0 ...	0.39

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Maximum ramping angle
(4) For adaptation see page 622
(5) Insert identification

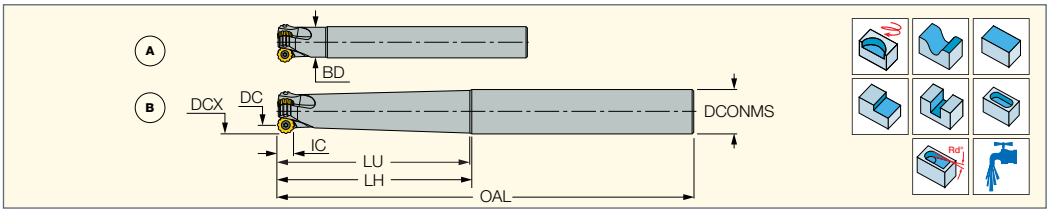
For inserts, see pages: RPHX/RPMX (605)

Spare Parts

Designation			
FRMT D030A040-05-16-10	SR 10504970	SW6-SD	BLD IP15/S7
FRMT D028A040-04-16-12	SR 76-2067	SW6-T	BLD T15/S7
FRMT D038A050-05-22-12	SR 76-2067	SW6-T-SH	BLD T15/S7
FRMT D038A050-06-22-12	SR 76-2067	SW6-T-SH	BLD T15/S7
FRMT D040A052-05-22-12	SR 76-2067	SW6-T-SH	BLD T15/S7
FRMT D040A052-06-22-12	SR 76-2067	SW6-T	BLD T15/S7
FRMT D051A063-06-22-12	SR 76-2067	SW6-T-SH	BLD T15/S7
FRMT D051A063-07-22-12	SR 76-2067	SW6-T-SH	BLD T15/S7

MILLSHRED ROUND LINE

ERW
Rough Profiling Endmills with Serrated or Regular Round Inserts



Designation	DCX(1)	DC	IC	CICT(2)	LU	LH	OAL	DCONMS	Shank(3)	BD	RMPX°(4)	APMX	Type	MIID(5)	kg
ERW D015A025-B-3-C25-10	25.00	15.00	10.00	3	49.20	50.0	150.00	25.00	C	-	3.0	5.00	B	RCCT 1004MO	0.47
ERW D022A032-A-4-C25-10	32.00	22.00	10.00	4	-	-	170.00	25.00	C	-	4.0	5.00	A	RCCT 1004MO	0.59
ERW D030A040-A-5-C32-10	40.00	30.00	10.00	5	-	-	200.00	32.00	C	-	3.0	5.00	A	RCCT 1004MO	1.16
ERW D013A025-B-2-C25-12	25.00	13.00	12.00	2	48.70	50.0	180.00	25.00	C	-	2.0	6.00	B	RCCT 1206MO	0.58
ERW D020A032-A-3-C25-12	32.00	20.00	12.00	3	38.90	40.0	200.00	25.00	C	24.00	7.0	6.00	A	RCCT 1206MO	0.68
ERW D020A032-B-3-C32-12	32.00	20.00	12.00	3	138.70	140.0	300.00	32.00	C	-	7.0	6.00	B	RCCT 1206MO	1.53
ERW D028A040-A-4-C32-12	40.00	28.00	12.00	4	48.70	50.0	250.00	32.00	C	31.00	5.0	6.00	A	RCCT 1206MO	1.45

- For user guide, see pages 329-332

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) C-Cylindrical
(4) Maximum ramping angle
(5) Master insert identification

For inserts, see pages: RCMT/RCCT-MO (603) • RCMT/RCMW/RCCW-FW (604) • RCMW/RCCW-MO (603)

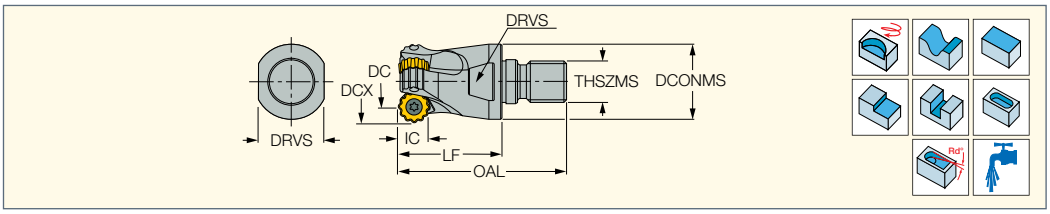
Spare Parts

Designation				
ERW D015A025-B-3-C25-10	SR 34-506/L	T-9/51		
ERW D022A032-A-4-C25-10	SR 34-506/L	T-9/51		
ERW D030A040-A-5-C32-10	SR 34-506/L	T-9/51		
ERW D013A025-B-2-C25-12	SR 14-601		BLD T15/S7	
ERW D020A032-A-3-C25-12	SR 14-601		BLD T15/S7	
ERW D020A032-B-3-C32-12	SR 14-601		BLD T15/S7	
ERW D028A040-A-4-C32-12	SR 14-601		BLD T15/S7	SW6-T

MILLSHRED ROUND LINE

ERW-M

Rough Profiling Tools with a FLEX-FIT Adaptation



Designation	DCX(1)	DC	IC	APMX	CICT(2)	DCONMS	OAL	LF	DRVS(3)	THSZMS	RMPX°(4)	TQ_3(5)	kg
ERW D015A025-3-M12-10	25.00	15.00	10.00	5.00	3	21.00	52.00	30.00	17.0	M12	3.0	33	0.06
ERW D022A032-4-M16-10	32.00	22.00	10.00	5.00	4	29.00	55.00	30.00	25.0	M16	4.0	40	0.12
ERW D013A025-2-M12-12	25.00	13.00	12.00	6.00	2	21.00	57.00	35.00	17.0	M12	2.0	33	0.08
ERW D020A032-3-M16-12	32.00	20.00	12.00	6.00	3	29.00	65.00	40.00	25.0	M16	7.0	40	0.15
ERW D028A040-4-M16-12	40.00	28.00	12.00	6.00	4	29.00	65.00	40.00	25.0	M16	5.0	40	0.19

• For user guide, see pages 329-332 • When mounting items with FLEX-FIT threaded adaptation, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Cutting diameter maximum

(2) Number of inserts (or edges for solid tool)

(3) Clamping wrench size

(4) Maximum ramping angle

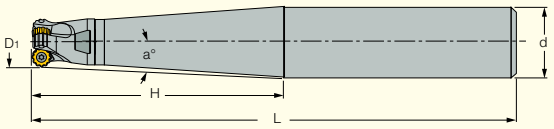
(5) Tool tightening torque Nxm

For inserts, see pages: RCMT/RCCT-MO (603) • RCMT/RCMW/RCCW-FW (604) • RCMW/RCCW-MO (603)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

ERW-M

Button and Shred Type Inserts for Endmills with a FKEX-FIT Connection



Milling Head	Adapter	Shank	Assembly Dimensions					
		D1	H	L	a°	d	Rd°	Inserts
ERW D015A025-3-M12-10	S M12-L086-C25	25	60	116	-	25	3	
	S M12-L200-C32	25	108	230	1.9	32	3	RCMT 1004...
ERW D022A032-4-M16-10	S M16-L95-C32	32	65	125	-	32	4	RCCT 1004...
	S M16-L230-C32	32	80	260	-	32	4	
ERW D013A025-2-M12-12	S M12-L086-C25	25	70	126	-	25	2	
	S M12-L200-C32	25	118	240	1.8	32	2	RCMT 1206...
ERW D020A032-3-M16-12	S M16-L95-C32	32	75	85	-	32	7	RCCW 1206...
	S M16-L230-C32	32	90	220	-	32	7	RCCT 1206...
ERW D028A040-4-M16-12	S M16-L95-C32	40	75	85	-	32	5	
	S M16-L230-C32	40	90	220	-	32	5	

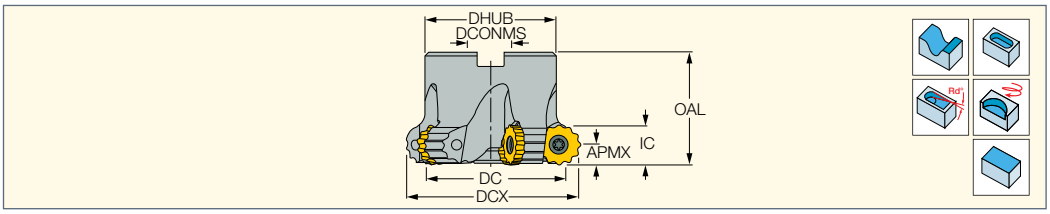
Spare Parts

Designation				
ERW D015A025-3-M12-10	SR 34-506/L	T-9/51		
ERW D022A032-4-M16-10	SR 34-506/L	T-9/51		
ERW D013A025-2-M12-12	SR 14-601		BLD T15/S7	SW6-T-SH
ERW D020A032-3-M16-12	SR 14-601		BLD T15/S7	SW6-T-SH
ERW D028A040-4-M16-12	SR 14-601		BLD T15/S7	SW6-T

MILLSHRED ROUND LINE

FRW

Rough Profiling Face Mills with Serrated or Regular Round Inserts



Designation	DCX[1]	DC	IC	APMX	CICT[2]	OAL	DHUB	DCONMS	RMPX°[3]	CSP[4]	Arbor[5]	MIID[6]	kg
FRW D030A040-05-16-10	40.00	30.00	10.00	5.00	5	35.00	35.00	16.00	3.0	1	A	RCCT 1004MO	0.16
FRW D028A040-04-16-12	40.00	28.00	12.00	6.00	4	40.00	35.00	16.00	6.5	1	A	RCCT 1206MO	0.15
FRW D038A050-05-22-12	50.00	38.00	12.00	6.00	5	45.00	45.00	22.00	5.0	1	A	RCCT 1206MO	0.29
FRW D040A052-05-22-12	52.00	40.00	12.00	6.00	5	45.00	45.00	22.00	5.0	1	A	RCCT 1206MO	0.31
FRW D051A063-06-22-12	63.00	51.00	12.00	6.00	6	45.00	48.00	22.00	4.0	1	A	RCCT 1206MO	0.46
FRW D054A066-06-27-12	66.00	54.00	12.00	6.00	6	50.00	50.00	27.00	4.0	1	A	RCCT 1206MO	0.54
FRW D068A080-07-27-12	80.00	68.00	12.00	6.00	7	50.00	58.50	27.00	3.0	0	B	RCCT 1206MO	0.71
FRW D034A050-04-22-16	50.00	34.00	16.00	8.00	4	54.00	42.00	22.00	11.0	1	A	RCMT 1607MO	0.26
FRW D036A052-04-22-16	52.00	36.00	16.00	8.00	4	50.00	42.00	22.00	10.0	1	A	RCMT 1607MO	0.26
FRW D047A063-05-22-16	63.00	47.00	16.00	8.00	5	45.00	48.00	22.00	7.0	1	A	RCMT 1607MO	0.40
FRW D050A066-05-22-16	66.00	50.00	16.00	8.00	5	45.00	48.00	22.00	6.0	1	A	RCMT 1607MO	0.42
FRW D050A066-05-27-16	66.00	50.00	16.00	8.00	5	50.00	50.00	27.00	6.0	1	A	RCMT 1607MO	0.46
FRW D064A080-06-27-16	80.00	64.00	16.00	8.00	6	50.00	58.50	27.00	5.0	0	B	RCMT 1607MO	0.65
FRW D084A100-07-32-16	100.00	84.00	16.00	8.00	7	50.00	70.00	32.00	4.0	0	B	RCMT 1607MO	1.11
FRW D109A125-07-40-16	125.00	109.00	16.00	8.00	7	63.00	90.00	40.00	3.0	0	B	RCMT 1607MO	2.33
FRW D060A080-05-27-20	80.00	60.00	20.00	10.00	5	50.00	58.50	27.00	7.0	0	B	RCMT 2009MO	0.61
FRW D080A100-06-32-20	100.00	80.00	20.00	10.00	6	50.00	70.00	32.00	5.0	0	B	RCMT 2009MO	0.98
FRW D105A125-07-40-20	125.00	105.00	20.00	10.00	7	63.00	82.00	40.00	4.0	0	B	RCMT 2009MO	1.98
FRW D140A160-08-40-20	160.00	140.00	20.00	10.00	8	63.00	116.00	40.00	3.0	0	C	RCMT 2009MO	3.55

- For user guide, see pages 329-332

[1] Cutting diameter maximum

[2] Number of inserts (or edges for solid tool)

[3] Maximum ramping angle

[4] 0 - Without coolant supply, 1 - With coolant supply

[5] For adaptation options, see page 622

[6] Master insert identification

For inserts, see pages: RCMT/RCCT-MO (603) • RCMT/RCMW/RCCW-FW (604) • RCMW/RCCW-MO (603)

Spare Parts

Designation					
FRW D030A040-05-16-10	SR 34-506/L			T-9/51	SR M8X25DIN912
FRW D028A040-04-16-12	SR 14-601	BLD T15/S7	SW6-T-SH		SR M8X25DIN912
FRW D038A050-05-22-12	SR 14-601	BLD T15/S7	SW6-T-SH		SR M10X25 DIN912
FRW D040A052-05-22-12	SR 14-601	BLD T15/M7	SW6-T-SH		SR M10X25 DIN912
FRW D051A063-06-22-12	SR 14-601	BLD T15/M7	SW6-T-SH		SR M10X25 DIN912
FRW D054A066-06-27-12	SR 14-601	BLD T15/M7	SW6-T-SH		SR M12X30DIN912
FRW D068A080-07-27-12	SR 14-601	BLD T15/M7	SW6-T-SH		
FRW D034A050-04-22-16	SR 14-536/M	BLD T20/M7	SW6-T-SH		SR M10X30 DIN912
FRW D036A052-04-22-16	SR 14-536/M	BLD T20/M7	SW6-T-SH		SR M10X30 DIN912
FRW D047A063-05-22-16	SR 14-536/M	BLD T20/M7	SW6-T-SH		SR M10X25 DIN912
FRW D050A066-05-22-16	SR 14-536/M	BLD T20/M7	SW6-T-SH		SR M10X25 DIN912
FRW D050A066-05-27-16	SR 14-536/M	BLD T20/M7	SW6-T-SH		SR M12X30DIN912
FRW D064A080-06-27-16	SR 14-536/M	BLD T20/M7	SW6-T-SH		
FRW D084A100-07-32-16	SR 14-536/M	BLD T20/M7	SW6-T-SH		
FRW D109A125-07-40-16	SR 14-536/M	BLD T20/L7	SW6-T-SH		
FRW D060A080-05-27-20	SR 14-2120[a]	BLD IP25/M7[b]	SW6-T		
FRW D080A100-06-32-20	SR 14-2120[a]	BLD IP25/M7[b]	SW6-T		
FRW D105A125-07-40-20	SR 14-2120[a]	BLD IP25/L7[b]	SW6-T		
FRW D140A160-08-40-20	SR 14-2120[a]	BLD IP25/L7[b]	SW6-T		

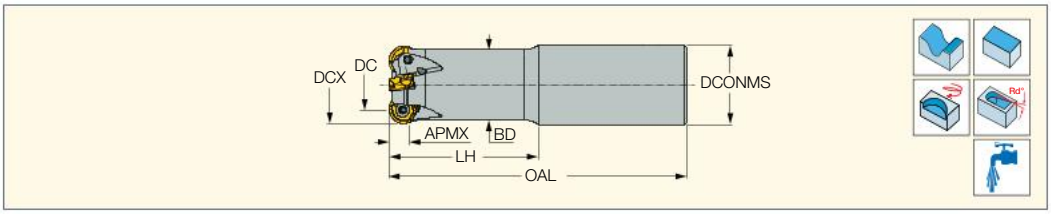
[a] Recommended tightening torque:9 N*m

[b] Torx Plus

HELIDO ROUND H400 LINE

H400 ER-10

Endmills Carrying
Double-Sided Inserts with Four
5 mm Radius Cutting Edges

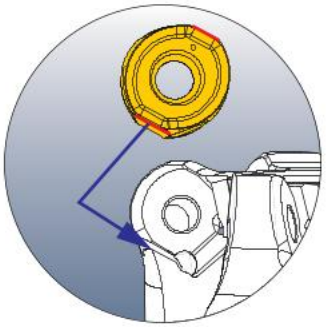


Designation	DCX[1]	DC	BD	CICT[2]	APMX	LH	OAL	DCONMS	Shank[3]	RMPX°[4]	MIID[5]	kg
H400 ER D20-2-060-C20-10	20.00	10.00	17.50	2	7.50	60.0	160.00	20.00	C	-	H400 RNHU 1004-ML	0.33
H400 ER D25-3-060-C25-10	25.00	15.00	21.60	3	7.50	60.0	120.00	25.00	C	5.8	H400 RNHU 1004-ML	0.35
H400 ER D32-5-060-C32-10	32.00	22.00	29.60	5	7.50	60.0	120.00	32.00	C	3.8	H400 RNHU 1004-ML	0.59

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) C-Cylindrical
(4) Maximum ramping angle
(5) Master insert identification

For inserts, see pages: H400 RNHU (606)

Insert Clamping Orientation



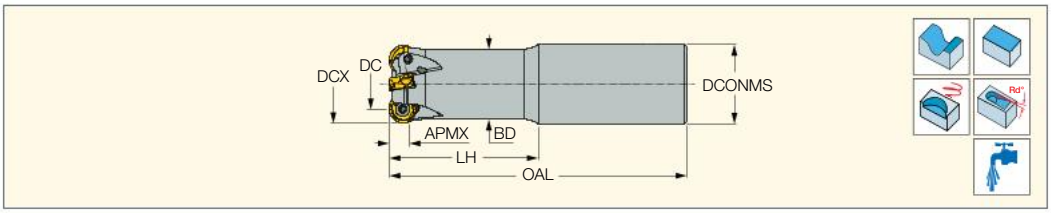
Spare Parts

Designation		
H400 ER-10	SR 10508600	T-9/51

HELIDO ROUND H400 LINE

H400 ER-12

Endmills Carrying
Double-Sided Inserts with Four
6 mm Radius Cutting Edges



Designation	DCX[1]	DC	BD	CICT[2]	APMX	LH	OAL	DCONMS	Shank[3]	RMPX°[4]	MIID[5]	kg
H400 ER D25-2-060-C25-12	25.00	13.00	21.60	2	8.70	60.0	120.00	25.00	C	5.6	H400 RNHU 1205-AX	0.34
H400 ER D32-4-060-C32-12	32.00	20.00	28.40	4	8.70	60.0	120.00	32.00	C	5.6	H400 RNHU 1205-AX	0.58
H400 ER D40-5-060-C32-12	40.00	28.00	31.50	5	8.70	60.0	150.00	32.00	C	3.7	H400 RNHU 1205-AX	0.80

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) C-Cylindrical
(4) Maximum ramping angle
(5) Master insert identification

For inserts, see pages: H400 RNHU (606)

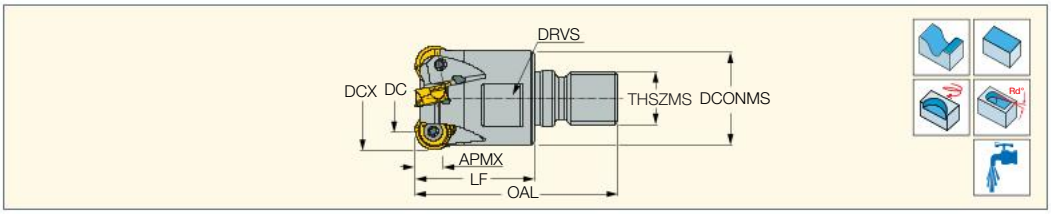
Spare Parts

Designation		
H400 ER-12	SR 14-571	T-10/51

HELIDO ROUND H400 LINE

H400 ER-M

Endmills with FLEX-FIT Threaded Connection Carrying Double-Sided Inserts with Four Radius Cutting Edges



Designation	DCX[1]	DC	DCONMS	CICT[2]	APMX	LF	OAL	DRVS[3]	RMPX°[4]	THSZMS	MIID[5]	TQ_3[6]	kg
H400 ER D20-2-M10-10	20.00	10.00	16.60	2	7.50	25.00	45.00	15.0	-	M10	H400 RNHU 1004-ML	29	0.04
H400 ER D25-3-M12-10	25.00	15.00	21.00	3	7.50	28.00	50.00	19.0	5.8	M12	H400 RNHU 1004-ML	33	0.07
H400 ER D32-5-M16-10	32.00	22.00	29.60	5	7.50	35.00	60.00	25.0	3.8	M16	H400 RNHU 1004-ML	40	0.17
H400 ER D25-2-M12-12	25.00	13.00	21.60	2	8.70	28.00	50.00	19.0	5.6	M12	H400 RNHU 1205-AX	33	0.07
H400 ER D32-4-M16-12	32.00	20.00	28.40	4	8.70	35.00	60.00	25.0	5.6	M16	H400 RNHU 1205-AX	40	0.15
H400 ER D40-5-M16-12	40.00	28.00	29.00	5	8.70	35.00	60.00	25.0	3.7	M16	H400 RNHU 1205-AX	40	0.19

• When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

[1] Cutting diameter maximum
[2] Number of inserts (or edges for solid tool)
[3] Clamping wrench size
[4] Maximum ramping angle
[5] Master insert identification
[6] Tool tightening torque Nxm

For inserts, see pages: H400 RNHU (606)
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

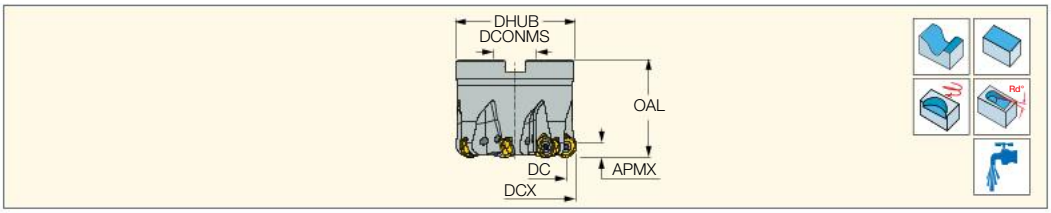
Spare Parts

Designation		
H400 ER D20-2-M10-10	SR 10508600	T-9/51
H400 ER D25-3-M12-10	SR 10508600	T-9/51
H400 ER D32-5-M16-10	SR 10508600	T-9/51
H400 ER D25-2-M12-12	SR 14-571	T-10/51
H400 ER D32-4-M16-12	SR 14-571	T-10/51
H400 ER D40-5-M16-12	SR 14-571	T-10/51

HELIDO ROUND H400 LINE

H400 FR-10

Face Mills Carrying Double-Sided Inserts with Four 5 mm Radius Cutting Edges



Designation	DCX[1]	DC	CICT[2]	APMX	OAL	DHUB	DCONMS	RMPX°[3]	Arbor[4]	MIID[5]	kg
H400 FR D040-06-16-10	40.00	30.00	6	7.50	35.00	37.60	16.00	2.6	A	H400 RNHU 1004-ML	0.18
H400 FR D050-07-22-10	50.00	40.00	7	7.50	40.00	47.00	22.00	1.9	A	H400 RNHU 1004-ML	0.33

[1] Cutting diameter maximum
[2] Number of inserts (or edges for solid tool)
[3] Maximum ramping angle
[4] For adaptation options, see page 622
[5] Master insert identification

For inserts, see pages: H400 RNHU (606)

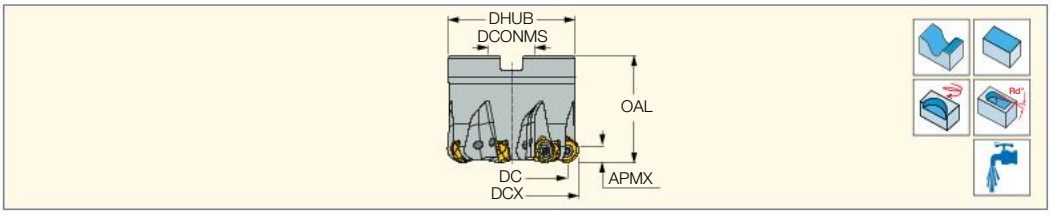
Spare Parts

Designation			
H400 FR D040-06-16-10	SR 10508600	T-9/51	SR M8X25DIN912
H400 FR D050-07-22-10	SR 10508600	T-9/51	SR M10X25 DIN912

HELIDO ROUND H400 LINE

H400 FR-12

Face Mills Carrying Double-Sided Inserts with Four 6 mm Radius Cutting Edges

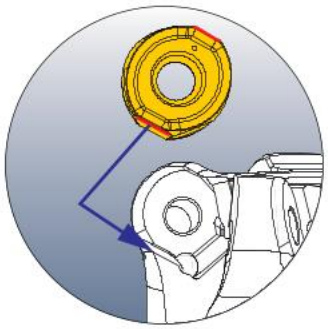


Designation	DCX[1]	DC	CICT[2]	APMX	OAL	DHUB	DCONMS	RMPX°[3]	Arbor[4]	MIID[5]	kg
H400 FR D040-05-16-12	40.00	28.00	5	8.70	40.00	38.00	16.00	3.7	A	H400 RNHU 1205-AX	0.20
H400 FR D050-06-22-12	50.00	38.00	6	8.70	50.00	45.00	22.00	2.6	A	H400 RNHU 1205-AX	0.39
H400 FR D052-06-22-12	52.00	40.00	6	8.70	50.00	45.00	22.00	2.5	A	H400 RNHU 1205-AX	0.42
H400 FR D063-07-22-12	63.00	51.00	7	8.70	50.00	60.00	22.00	1.9	A	H400 RNHU 1205-AX	0.79
H400 FR D066-07-27-12	66.00	54.00	7	8.70	50.00	61.00	27.00	1.8	A	H400 RNHU 1205-AX	0.78
H400 FR D080-08-27-12	80.00	68.00	8	8.70	50.00	62.00	27.00	1.5	A	H400 RNHU 1205-AX	1.03

[1] Cutting diameter maximum
[2] Number of inserts (or edges for solid tool)
[3] Maximum ramping angle
[4] For adaptation options, see page 622
[5] Master insert identification

For inserts, see pages: H400 RNHU (606)

Insert Clamping Orientation



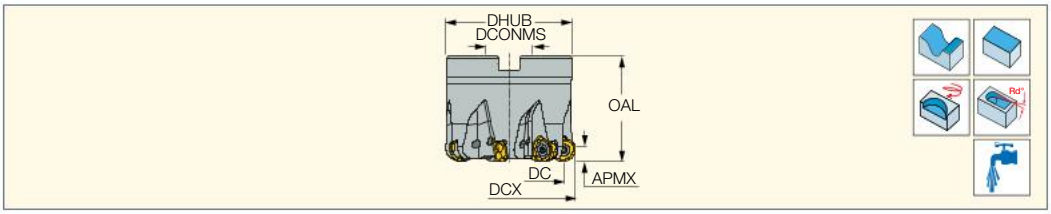
Spare Parts

Designation			
H400 FR D040-05-16-12	SR 14-571	T-10/51	SR M8X25DIN912
H400 FR D050-06-22-12	SR 14-571	T-10/51	SR M10X25 DIN912
H400 FR D052-06-22-12	SR 14-571	T-10/51	SR M10X25 DIN912
H400 FR D063-07-22-12	SR 14-571	T-10/51	SR M10X25 DIN912
H400 FR D066-07-27-12	SR 14-571	T-10/51	SR M12X30DIN912
H400 FR D080-08-27-12	SR 14-571	T-10/51	SR M12X30DIN912

HELIDO ROUND H400 LINE

H400 FR-16

Face Mills Carrying Double-Sided Inserts with Four 8 mm Radius Cutting Edges

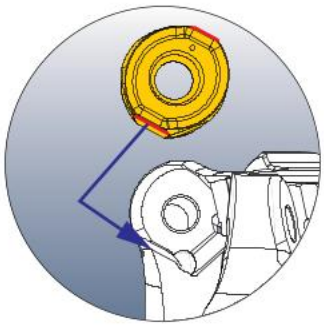


Designation	DCX[1]	DC	CICT[2]	APMX	OAL	DHUB	DCONMS	RMPX°[3]	Arbor[4]	MIID[5]	kg
H400 FR D050-05-22-16	50.00	34.00	5	12.00	50.00	47.00	22.00	3.3	A	H400 RNHU 1606-AX	0.41
H400 FR D063-06-22-16	63.00	47.00	6	12.00	50.00	60.60	22.00	2.5	A	H400 RNHU 1606-AX	0.74
H400 FR D066-06-27-16	66.00	50.00	6	12.00	50.00	60.60	27.00	2.3	A	H400 RNHU 1606-AX	0.79
H400 FR D080-07-27-16	80.00	64.00	7	12.00	50.00	63.60	27.00	1.8	A	H400 RNHU 1606-AX	1.09
H400 FR D100-09-32-16	100.00	84.00	9	12.00	49.60	84.00	32.00	1.3	A	H400 RNHU 1606-AX	0.00
H400 FR D125-11-40-16	125.00	109.00	11	12.00	55.00	84.00	40.00	1.0	A	H400 RNHU 1606-AX	3.02

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Maximum ramping angle
(4) For adaptation options, see page 622
(5) Master insert identification

For inserts, see pages: H400 RNHU (606)

Insert Clamping Orientation



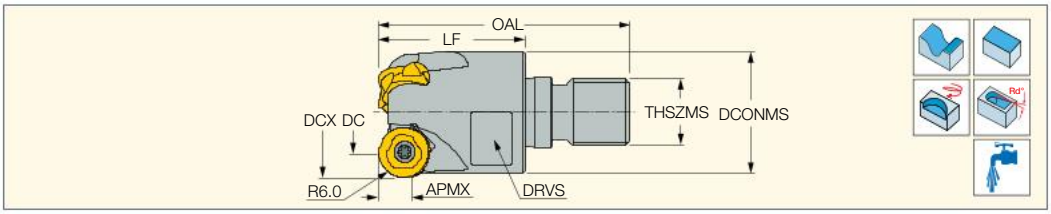
Spare Parts

Designation				
H400 FR D050-05-22-16	SR 14-591/H	BLD T20/M7	SW6-T	SR M10X25 DIN912
H400 FR D063-06-22-16	SR 14-591/H	BLD T20/M7	SW6-T	SR M10X25 DIN912
H400 FR D066-06-27-16	SR 14-591/H	BLD T20/M7	SW6-T	SR M12X30DIN912
H400 FR D080-07-27-16	SR 14-591/H	BLD T20/M7	SW6-T	SR M12X30DIN912
H400 FR D100-09-32-16	SR 14-591/H	BLD T20/M7	SW6-T	
H400 FR D125-11-40-16	SR 14-591/H	BLD T20/M7	SW6-T	

HELIDO ROUND H606 LINE

H606 ER-M

Endmills with FLEX-FIT Threaded Connection Carrying Double-Sided Inserts with Six Cutting Edges



Designation	DCX[1]	DC	DCONMS	CICT[2]	APMX	LF	OAL	DRVS[3]	RMPX°[4]	THSZMS	TQ_3[5]	kg		
H606 ER D032-03-M16-12	32.00	20.00	29.00	3	6.00	35.00	60.00	25.0	2.5	M16	40	0.15	SR 14-571	T-10/51[a]

• When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

[1] Cutting diameter maximum

[2] Number of inserts (or edges for solid tool)

[3] Clamping wrench size

[4] Maximum ramping angle

[5] Tool tightening torque Nxm

[a] For limiting torque, use optional 7007383 BLD 4 T10-3.2NM blade & 7007321 HSD 4-3.2NM handle

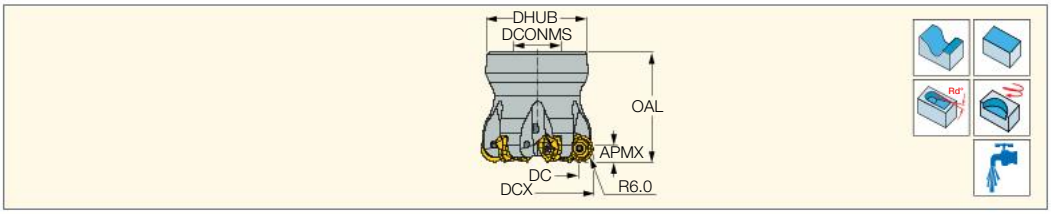
For inserts, see pages: H606 RXCU 1206 (606)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

HELIDO ROUND H606 LINE

H606 FR-12

Face Mills Carrying Double-Sided Round Inserts with Six Cutting Edges



Designation	DCX[1]	DC	CICT[2]	APMX	OAL	DHUB	DCONMS	RMPX°[3]	Arbor[4]	kg
H606 FR D040-04-16-12	40.00	28.00	4	6.00	45.00	38.00	16.00	2.0	A	0.22
H606 FR D050-06-22-12	50.00	38.00	6	6.00	50.00	47.00	22.00	1.3	A	0.38
H606 FR D052-06-22-12	52.00	40.00	6	6.00	50.00	47.00	22.00	1.3	A	0.39
H606 FR D063-07-22-12	63.00	51.00	7	6.00	50.00	48.00	22.00	1.0	A	0.52
H606 FR D080-08-27-12	80.00	68.00	8	6.00	50.00	58.00	27.00	0.7	A	0.83

[1] Cutting diameter maximum

[2] Number of inserts (or edges for solid tool)

[3] Maximum ramping angle

[4] For adaptation options, see page 622

For inserts, see pages: H606 RXCU 1206 (606)

Spare Parts

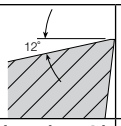
Designation			
H606 FR D040-04-16-12	SR 14-571	T-10/51[a]	SR PS 118-0416
H606 FR D050-06-22-12	SR 14-571	T-10/51[a]	SR M10X25 DIN912
H606 FR D052-06-22-12	SR 14-571	T-10/51[a]	SR M10X25 DIN912
H606 FR D063-07-22-12	SR 14-571	T-10/51[a]	SR M10X25 DIN912
H606 FR D080-08-27-12	SR 14-571	T-10/51[a]	SR M12X30DIN912

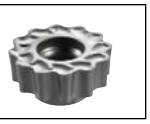
[a] For limiting torque, use optional 7007383 BLD 4 T10-3.2NM blade & 7007321 HSD 4-3.2NM handle

Machining Recommendations

- Excellent tool stability
- Chips split into small pieces
- Optimal chip flow with easy evacuation, even from deep cavities
- High tooth load capability, up to 8 mm depth-of-cut, which will significantly reduce machining time
- Small cutting forces, therefore the required machining power is low

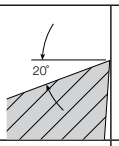
RCMT 1607-FW





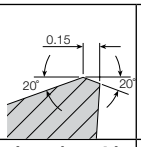
Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	V_c (m/min)	F_z (mm/tooth)	Recommended
Low Carbon Steel	125-180	C15, ST37, 1.0401	4	150	0.3	✓✓
Low Alloy Steel	170-220	CK45,1.1231,16MnCr5	4	150	0.3	✓✓
High Alloy Steel	200-260	X20Cr13,1.4923	4	150	0.3	✓✓
Tool & Die Steel	280-370	1.2379,1.2311	3	150	0.3	✓✓
Stainless Steel	150-270	1.4404,316,321	-	-	-	-
Grey Cast Iron	200-250	GG25,GRADE220	5	150-180	0.3	✓
S.G. Iron	180-250	GGG60,SNG600/3	5	110-150	0.3	✓
Titanium	450-500	TiAl4Mo4Sn4Si0.5	4	50	0.2	✓
Aluminum	75-130	G-AlSi12	-	-	-	-
Hardened Die Steel	38-42 HRc	1.2344,1.2379	3	120	0.2	✓
Hardened Die Steel	48-52 HRc	1.2762,1.1545	-	-	-	-

RCMT 1607-FW-F20



Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	V_c (m/min)	F_z (mm/tooth)	Recommended
Low Carbon Steel	125-180	C15,ST37,1.0401	3	150	0.3	✓
Low Alloy Steel	170-220	CK45,1.1231,16MnCr5	-	-	-	-
High Alloy Steel	200-260	X20Cr13,1.4923	-	-	-	-
Tool & Die Steel	280-370	1.2379,1.2311	-	-	-	-
Stainless Steel	150-270	1.4306,304, 1.4404,316	6	100	0.1	✓✓
Grey Cast Iron	200-250	GG25,GRADE220	-	-	-	-
S.G. Iron	180-250	GGG60,SNG600/3	-	-	-	-
Titanium	450-500	TiAl4Mo4Sn4Si0.5	-	-	-	-
Aluminum	75-130	G-AlSi12	6	850	0.4	✓✓
Hardened Die Steel	38-42 HRc	1.2344,1.2379	-	-	-	✓
Hardened Die Steel	48-52 HRc	1.2762,1.1545	-	-	-	-

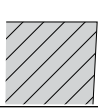
RCMT 1607 FW-T20



Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	V_c (m/min)	F_z (mm/tooth)	Recommended
Low Carbon Steel	125-180	C15,ST37,1.0401	3	150	0.3	✓
Low Alloy Steel	170-220	CK45,1.1231,16MnCr5	3	150	0.3	✓
High Alloy Steel	200-260	X20Cr13,1.4923	-	-	-	-
Tool & Die Steel	280-370	1.2379,1.2311	-	-	-	-
Stainless Steel	150-270	1.4031, 420	6	120	0.2	✓✓
Grey Cast Iron	200-250	GG25,GRADE220	-	-	-	-
S.G. Iron	180-250	GGG60,SNG600/3	-	-	-	-
Titanium	450-500	TiAl4Mo4Sn4Si0.5	-	-	-	-
Aluminum	75-130	G-AlSi12	-	-	-	-
Hardened Die Steel	38-42 HRc	1.2344,1.2379	-	-	-	-
Hardened Die Steel	48-52 HRc	1.2762,1.1545	-	-	-	-

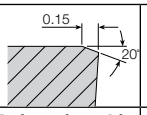
✓✓ Most Recommended
✓ Second option

RCCW 1607-FW



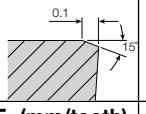
Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	V_c (m/min)	F_z (mm/tooth)	Recommended
Low Carbon Steel	125-180	C15,ST37,1.0401	4	150	0.3	✓
Low Alloy Steel	170-220	CK45,1.1231,16MnCr5	4	150	0.3	✓✓
High Alloy Steel	200-260	X20Cr13,1.4923	4	150	0.3	✓✓
Tool & Die Steel	280-370	1.2379,1.2311	4	150	0.3	✓✓
Stainless Steel	150-270	1.4404,316,321	-	-	-	-
Grey Cast Iron	200-250	GG25,GRADE220	-	-	-	-
S.G. Iron	180-250	GGG60,SNG600/3	-	-	-	-
Titanium	450-500	TiAl4Mo4Sn4Si0.5	-	-	-	-
Aluminum	75-130	G-AlSi12	-	-	-	-
Hardened Die Steel	38-42 HRc	1.2344,1.2379	4	120	0.2	✓
Hardened Die Steel	48-52 HRc	1.2762,1.1545	-	-	-	-

RCMW 1607-T-FW



Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	V_c (m/min)	F_z (mm/tooth)	Recommended
Low Carbon Steel	125-180	C15,ST37,1.0401	-	-	-	-
Low Alloy Steel	170-220	CK45,1.1231,16MnCr5	4	150	0.3	✓
High Alloy Steel	200-260	X20Cr13,1.4923	4	150	0.3	✓✓
Tool & Die Steel	280-370	1.2379,1.2311	3	150	0.3	✓✓
Stainless Steel	150-270	1.4404,316,321	-	-	-	-
Grey Cast Iron	200-250	GG25,GRADE220	5	150-180	0.3	✓✓
S.G. Iron	180-250	GGG60,SNG600/3	5	110-150	0.3	✓✓
Titanium	450-500	TiAl4Mo4Sn4Si0.5	-	-	-	-
Alumnum	75-130	G-AlSi12	-	-	-	-
Hardened Die Steel	38-42 HRc	1.2344,1.2379	-	-	-	-
Hardened Die Steel	48-52 HRc	1.2762,1.1545	-	-	-	-

RCMW 1607-T-FPW

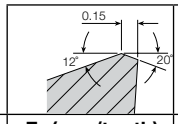


Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	V_c (m/min)	F_z (mm/tooth)	Recommended
Low Carbon Steel	125-180	C15,ST37,1.0401	4	150	0.3	✓
Low Alloy Steel	170-220	CK45,1.1231,16MnCr5	4	150	0.3	✓✓
High Alloy Steel	200-260	X20Cr13,1.4923	4	150	0.3	✓✓
Tool & Die Steel	280-370	1.2379,1.2311	4	150	0.3	✓✓
Stainless Steel	150-270	1.4404,316,321	-	-	-	-
Grey Cast Iron	200-250	GG25,GRADE220	-	-	-	-
S.G. Iron	180-250	GGG60,SNG600/3	-	-	-	-
Titanium	450-500	TiAl4Mo4Sn4Si0.5	-	-	-	-
Aluminum	75-130	G-AlSi12	-	-	-	-
Hardened Die Steel	38-42 HRc	1.2344,1.2379	4	120	0.25	✓✓
Hardened Die Steel	48-52 HRc	1.2762,1.1545	4	80	0.1	✓✓

✓✓ Most Recommended
✓ Second option

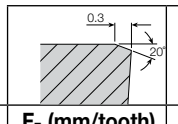
Machining Recommendations

RCMT 1607MO



Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	V_c (m/min)	F_z (mm/tooth)	Recommended
Low Carbon Steel	125-180	C15,ST37,1.0401	4	180	0.3	✓
Low Alloy Steel	170-220	CK45,1.1231,16MnCr5	4	180	0.3	✓✓
High Alloy Steel	200-260	X20Cr13,1.4923	4	180	0.3	✓✓
Tool & Die Steel	280-370	1.2379,1.2311	-	-	-	-
Stainless Steel	150-270	1.4031, 420	6	120	0.3	✓✓
Grey Cast Iron	200-250	GG25,GRADE220	-	-	-	-
S.G. Iron	180-250	GGG60,SNG600/3	-	-	-	-
Titanium	450-500	TiAl4Mo4Sn4Si0.5	-	-	-	-
Aluminum	75-130	G-AlSi12	-	-	-	-
Hardened Die Steel	38-42 HRc	1.2344,1.2379	-	-	-	-
Hardened Die Steel	48-52 HRc	1.2762,1.1545	-	-	-	-

RCMW 1607MO

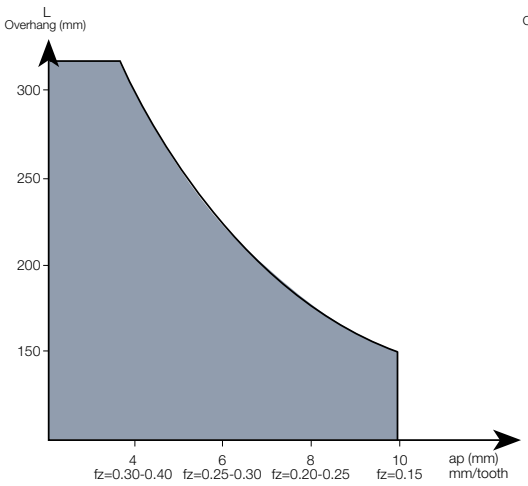


Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	V_c (m/min)	F_z (mm/tooth)	Recommended
Low Carbon Steel	125-180	C15,ST37,1.0401	-	-	-	-
Low Alloy Steel	170-220	CK45,1.1231,16MnCr5	2	180	0.7	✓✓
High Alloy Steel	200-260	X20Cr13,1.4923	2	180	0.7	✓✓
Tool & Die Steel	280-370	1.2379,1.2311	2	150	0.5	✓✓
Stainless Steel	150-270	1.4404,316,321	-	-	-	-
Grey Cast Iron	200-250	GG25,GRADE220	2	300	0.7	✓✓
S.G. Iron	180-250	GGG60,SNG600/3	2	220	0.5	✓✓
Titanium	450-500	TiAl4Mo4Sn4Si0.5	-	-	-	-
Aluminum	75-130	G-AlSi12	-	-	-	-
Hardened Die Steel	38-42 HRc	1.2344,1.2379	2	150	0.4	✓
Hardened Die Steel	48-52 HRc	1.2762,1.1545	-	-	-	-

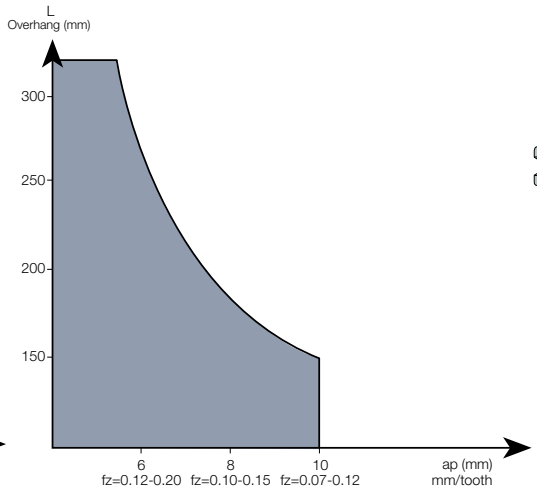
✓✓ Most Recommended
✓ Second option

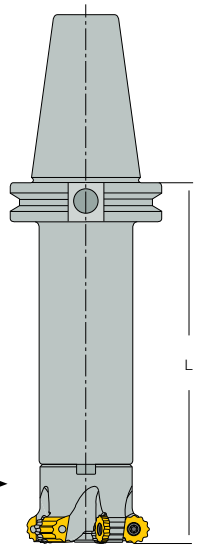
Feed Limit Recommendations as a Function of Overhang and Depth of Cut

Carbon and Alloy Steel

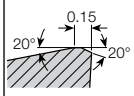
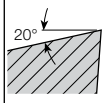
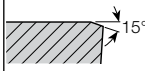


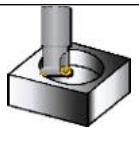
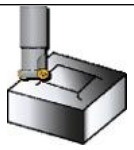
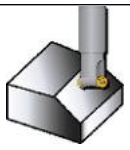
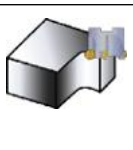
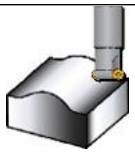
Stainless Steel





Insert Selection Guide

Insert Designation	RCMT...FW	RCMT...FW-T20	RCMT...FW-F20	RCCT...MO	RCCW...MO
RC...1206					
Workpiece					
Geometry	Positive Rake Face	Positive Rake Face With T-Land	Positive Rake Face Sharp Edge	Positive Rake Face	Flat Top Face With a T-Land
Alloy Steel	VVV	V	V	V	VVV
Mold Steel	VVV	V	V	V	VVV
Stainless Steel		VVV(1)	VVV(2)	VVV	
Grey Cast Iron	VV				VVV
Aluminum			VVV	VV	
High Temp. Alloys	V		VV	VVV	
Hardened Mold Steel (45 HRc Max)	V				V

Applications							
	Helical Interpolation	Shouldering	Contour Milling	Ramping Down	Plunging	Profiling	Pocket Milling

(1) Recommended for martensitic stainless steel

(2) Recommended for austenitic stainless steel

V Least recommended

VV Second option

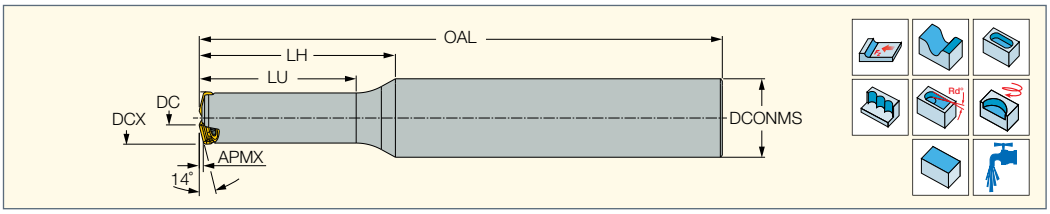
VVV Most recommended

FAST FEED MILLING TOOLS

NANO FEED MILL

FFT3 EFM-02

Small Diameter Endmills Carrying Single-Sided Triangular Inserts for Fast Feed Milling



Designation	DCX(1)	DC	APMX	AE(2)	CICT(3)	LU	LH	OAL	DCONMS	Shank(4)	RMPX°(5)	MDN(6)	MDX(7)	MIID(8)	TQ(9)	kg
FFT3 EFM D08-2-060-C10-02	8.00	2.20	0.60	2.9	2	17.00	20.0	60.00	10.00	C	10.8	10.20	15.00	FFT3 TXMT 0201205T	0.5	0.03
FFT3 EFM D08-2-080-C12-02	8.00	2.20	0.60	2.9	2	26.00	30.0	80.00	12.00	C	10.8	10.20	15.00	FFT3 TXMT 0201205T	0.5	0.05
FFT3 EFM D10-3-070-C10-02	10.00	4.20	0.60	2.9	3	19.50	20.0	70.00	10.00	C	4.7	14.20	19.00	FFT3 TXMT 0201205T	0.5	0.04
FFT3 EFM D10-3-090-C12-02	10.00	4.20	0.60	2.9	3	30.00	33.0	90.00	12.00	C	4.7	14.20	19.00	FFT3 TXMT 0201205T	0.5	0.06

• Radius for programming 1.1 mm • To generate a straight surface without cusps, the width of cut must not exceed DC

(1) Cutting diameter maximum
(2) Maximum plunging width
(3) Number of inserts (or edges for solid tool)
(4) C-Cylindrical
(5) Maximum ramping angle
(6) Machinable diameter minimum for interpolation
(7) Machinable diameter maximum for interpolation
(8) Master insert identification
(9) Recommended tightening torque (N*m) for insert screw

For inserts, see pages: FFT3 TXMT 02 (510)

Spare Parts

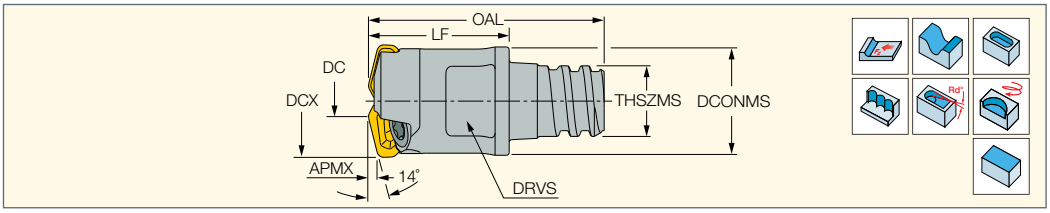
Designation		
FFT3 EFM-02	SR M2X0.4-2.9 T6-HG(a)	T-6/5 MAGNET 3X3

(a) Recommended tightening torque:0.5 N*m

NANO FEED MILL

FFT3 EFM-MM 02

Small Diameter Endmills with a MULTI-MASTER Threaded Adaptation that Mount Triangular Inserts for Fast Feed Milling



Designation	DCX(1)	DC	APMX	AE(2)	CICT(3)	LF	DCONMS	THSZMS	OAL	DRVS(4)	RMPX°(5)	MDN(6)	MDX(7)	MIID(8)	TQ(9)	kg
FFT3 EFMD08/.31-2MMT05-02	8.00	2.20	0.60	2.9	2	10.00	7.60	T05	16.75	5.5	10.8	10.20	15.00	FFT3 TXMT 0201205T	0.5	0.01
FFT3 EFMD10/.39-3MMT06-02	10.00	4.20	0.60	2.9	3	10.00	9.70	T06	16.30	8.0	4.7	14.20	19.00	FFT3 TXMT 0201205T	0.5	0.01

• For adaptation, see page 303 • For user guide, see pages 616-621 • Radius for programing 1.1 mm • To generate a straight surface without cusps, the width of cut must not exceed DC

(1) Cutting diameter maximum
(2) Maximum plunging width
(3) Number of inserts (or edges for solid tool)
(4) Torque key size
(5) Maximum ramping angle
(6) Machinable diameter minimum for interpolation
(7) Machinable diameter maximum for interpolation
(8) Master insert identification
(9) Recommended tightening torque (N*m) for insert screw

For inserts, see pages: FFT3 TXMT 02 (510)

For holders, see pages: MM CAB (110) • MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

Spare Parts

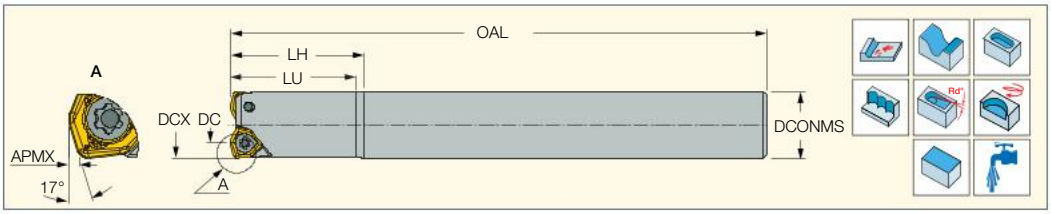
Designation		
FFT3 EFM-MM 02	SR M2X0.4-2.9 T6-HG(a)	T-6/5 MAGNET 3X3

(a) Recommended tightening torque:0.5 N*m

MICRO 3 FEED MF 300 ENDMILL

FFT3 EFM-03

Endmills Carrying
Single-Sided Small Trigon
Inserts for Fast Feed Milling



Designation	DCX(1)	DC	APMX	AE(2)	CICT(3)	LU	LH	DCONMS	OAL	Shank(4)	RMPX°(5)	MDN(6)	MDX(7)	MIID(8)	kg
FFT3 EFM D08-1-080-C12-03	8.00	3.60	0.60	2.2	1	15.70	20.0	12.00	80.00	C	1.1	11.60	15.00	FFT3 WXMT 030206T	0.00
FFT3 EFM D10-2-080-C10-03	10.00	5.60	0.60	2.2	2	18.00	20.0	10.00	80.00	C	6.9	15.60	19.00	FFT3 WXMT 030206T	0.11
FFT3 EFM D12-3-120-C12-03	12.00	7.60	0.60	2.2	3	23.00	25.0	12.00	120.00	C	4.7	19.60	23.00	FFT3 WXMT 030206T	0.10
FFT3 EFM D16-4-140-C16-03	16.00	11.60	0.60	2.2	4	32.80	35.0	16.00	140.00	C	2.9	27.60	31.00	FFT3 WXMT 030206T	0.18
FFT3 EFM D20-5-160-C20-03	20.00	15.60	0.60	2.2	5	40.80	43.0	20.00	160.00	C	2.0	35.60	39.00	FFT3 WXMT 030206T	0.37
FFT3 EFM D25-6-180-C25-03	25.00	20.60	0.60	2.2	6	50.80	53.0	25.00	180.00	C	1.5	45.60	49.00	FFT3 WXMT 030206T	0.62

• Radius for programming 1.1 mm • To generate a straight surface without cusps, the width of cut must not exceed DC

(1) Cutting diameter maximum
(2) Maximum plunging width
(3) Number of inserts (or edges for solid tool)
(4) C-Cylindrical
(5) Maximum ramping angle
(6) Machinable diameter minimum for interpolation
(7) Machinable diameter maximum for interpolation
(8) Master insert identification

For inserts, see pages: FFT3 WXMT 03 (596)

Spare Parts

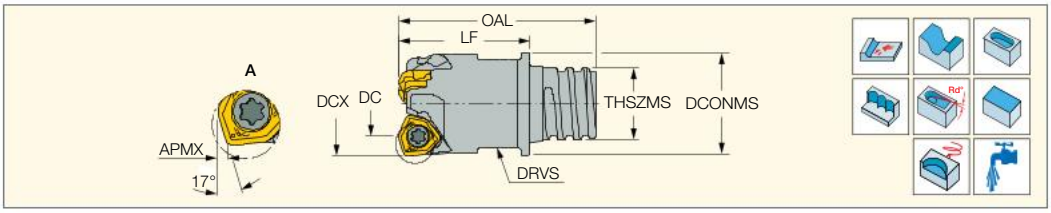
Designation		
FFT3 EFM-03	TS 18041I/HG(a)	T-6IP/51

(a) Recommended tightening torque:0.5 Nxm

MICRO 3 FEED MF 300 ENDMILL

FFT3 EFM-MM 03

Endmills with a MULTI-MASTER
Threaded Adaptation Carrying
Single-Sided Small Trigon
Inserts for Fast Feed Milling



Designation	DCX(1)	DC	APMX	AE(2)	CICT(3)	LF	DCONMS	THSZMS	OAL	DRVS(4)	RMPX°(5)	MDN(6)	MDX(7)	MIID(8)	kg
FFT3 EFMD10/.39-2MMT06-03	10.00	5.60	0.60	2.2	2	10.00	9.70	T06	16.30	8.0	6.9	15.60	19.00	FFT3 WXMT 030206T	0.02
FFT3 EFMD12/.47-3MMT08-03	12.00	7.60	0.60	2.2	3	15.00	11.70	T08	22.50	10.0	4.7	19.60	23.00	FFT3 WXMT 030206T	0.03
FFT3 EFMD16/.63-4MMT10-03	16.00	11.60	0.60	2.2	4	20.00	15.30	T10	31.30	13.0	2.9	27.60	31.00	FFT3 WXMT 030206T	0.05
FFT3 EFMD20/.78-5MMT12-03	20.00	15.60	0.60	2.2	5	25.00	19.00	T12	38.30	16.0	2.0	35.60	39.00	FFT3 WXMT 030206T	0.07
FFT3 EFMD25/.98-6MMT15-03	25.00	20.60	0.60	2.2	6	30.00	24.00	T15	47.00	20.0	1.5	45.60	49.00	FFT3 WXMT 030206T	0.16

• Radius for programming 1.1 mm • To generate a straight surface without cusps, the width of cut must not exceed DC

(1) Cutting diameter maximum
(2) Maximum plunging width
(3) Number of inserts (or edges for solid tool)
(4) Torque key size
(5) Maximum ramping angle
(6) Machinable diameter minimum for interpolation
(7) Machinable diameter maximum for interpolation
(8) Master insert identification

For inserts, see pages: FFT3 WXMT 03 (596)
For holders, see pages: MM CAB (110) • MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102)
• MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109)
• MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

Spare Parts

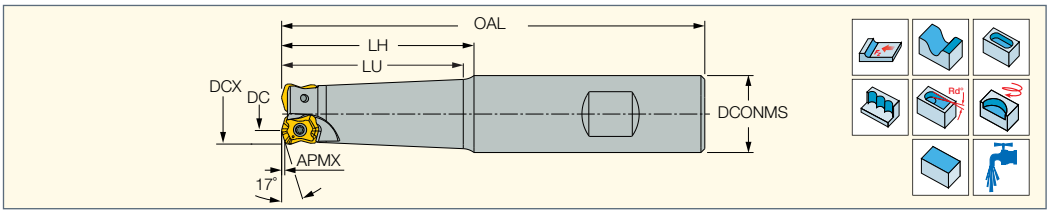
Designation		
FFT3 EFM-MM 03	TS 18041I/HG(a)	T-6IP/51

(a) Recommended tightening torque: 0.5 Nxm

LOGIQ4FEED HIGH FEED MILLING

FFX4 ED

Endmills Carrying Small Double-Sided "Bone Shaped" Inserts with 4 Cutting Edges for Fast Feed Milling



Designation	DCX(1)	DC	APMX	AE(2)	CICT(3)	LU	LH	DCONMS	OAL	Shank(4)	KAPR(5)	RMPX°(6)	MDN(7)	MDX(8)	MIID(9)	kg	TQ(10)
FFX4 ED12-1-030-C12-04	12.00	4.60	0.80	3.7	1	28.90	30.0	12.00	90.00	C	17.0	1.5	16.60	23.00	FFX4 XNMU 040310T	0.07	0.9
FFX4 ED16-2-030-C16-04	16.00	8.60	0.80	3.7	2	28.30	30.0	16.00	120.00	C	17.0	4.3	24.60	31.00	FFX4 XNMU 040310T	0.16	0.9
FFX4 ED16-2-050-W20-04	16.00	8.60	0.80	3.7	2	44.00	50.0	20.00	110.00	W	17.0	4.3	24.60	31.00	FFX4 XNMU 040310T	0.20	0.9
FFX4 ED20-3-050-C20-04	20.00	12.60	0.80	3.7	3	47.60	50.0	20.00	140.00	C	17.0	2.7	32.60	39.00	FFX4 XNMU 040310T	0.29	0.9
FFX4 ED20-3-060-W20-04	20.00	12.60	0.80	3.7	3	57.60	60.0	20.00	120.00	W	17.0	2.7	32.60	39.00	FFX4 XNMU 040310T	0.24	0.9
FFX4 ED25-4-060-C25-04	25.00	17.60	0.80	3.7	4	57.40	60.0	25.00	150.00	C	17.0	1.8	42.60	49.00	FFX4 XNMU 040310T	0.50	0.9
FFX4 ED25-4-080-W25-04	25.00	17.60	0.80	3.7	4	77.40	80.0	25.00	140.00	W	17.0	1.8	42.60	49.00	FFX4 XNMU 040310T	0.45	0.9
FFX4 ED32-5-080-W32-04	32.00	24.60	0.80	3.7	5	77.40	80.0	32.00	150.00	W	17.0	1.2	56.60	63.00	FFX4 XNMU 040310T	0.80	0.9
FFX4 ED32-5-120-C32-04	32.00	24.60	0.80	3.7	5	117.30	120.0	32.00	205.00	C	17.0	1.2	56.60	63.00	FFX4 XNMU 040310T	1.02	0.9

• To generate a straight surface without cusps, the width of cut must not exceed DC • Radius for programming: for insert XNMU 1.8 mm, for insert XNMW 1.72 mm

(1) Cutting diameter maximum
(2) Maximum plunging width
(3) Number of inserts (or edges for solid tool)
(4) C-Cylindrical, W-Weldon
(5) Tool cutting edge angle
(6) Maximum ramping angle
(7) Machinable diameter minimum for interpolation
(8) Machinable diameter maximum for interpolation
(9) Master insert identification
(10) Recommended tightening torque (N*m) for insert screw

For inserts, see pages: FFX4 XNMU/W-04 (598)

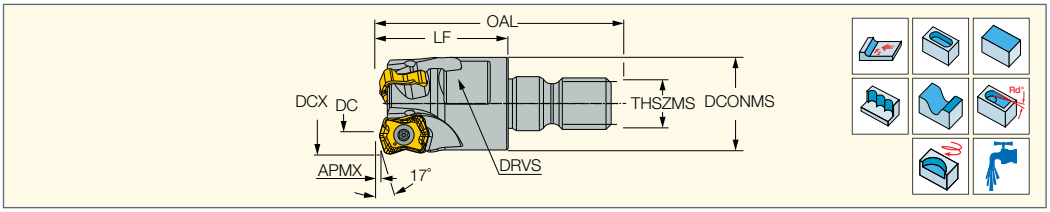
Spare Parts

Designation		
FFX4 ED	SR M2.5X6-T7-60	T-7/51

LOGIQ4FEED HIGH FEED MILLING

FFX4 ED-M

Endmills with FLEX-FIT Adaptation Carrying Small "Bone Shaped" Inserts with 4 Cutting Edges for Fast Feed Milling



Designation	DCX(1)	DC	CICT(2)	APMX	AE(3)	THSZMS	LF	OAL	DCONMS	RMPX°(4)	MDN(5)	MDX(6)	DRVS(7)	MIID(8)	TQ(9)	TQ_3(10)	kg
FFX4 ED20/.78-3-M10-04	20.00	12.60	3	0.80	3.7	M10	25.00	45.00	18.00	2.7	32.60	39.00	15.0	FFX4 XNMU 040310T	0.9	29	0.04
FFX4 ED25/.98-4-M12-04	25.00	17.60	4	0.80	3.7	M12	30.00	52.00	21.00	1.8	42.60	49.00	17.0	FFX4 XNMU 040310T	0.9	33	0.08
FFX4 ED32/1.26-5-M16-04	32.00	24.60	5	0.80	3.7	M16	35.00	60.00	29.00	1.2	56.60	63.00	27.0	FFX4 XNMU 040310T	0.9	40	0.18
FFX4 ED35/1.38-5-M16-04	35.00	27.60	5	0.80	3.7	M16	35.00	60.00	29.00	1.1	62.60	69.00	25.0	FFX4 XNMU 040310T	0.9	40	0.20
FFX4 ED42/1.65-6-M16-04	42.00	34.60	6	0.80	3.7	M16	40.00	65.00	29.00	0.8	76.60	83.00	25.0	FFX4 XNMU 040310T	0.9	40	0.30

• To generate a straight surface without cusps, the width of cut must not exceed DC • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

• Radius for programming: for insert XNMU 1.8 mm, for insert XNMW 1.72 mm

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Maximum plunging width
(4) Maximum ramping angle
(5) Machinable diameter minimum for interpolation
(6) Machinable diameter maximum for interpolation
(7) Torque key size
(8) Master insert identification
(9) Recommended tightening torque (N*m) for insert screw
(10) Tool tightening torque Nxm

For inserts, see pages: FFX4 XNMU/W-04 (598)
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

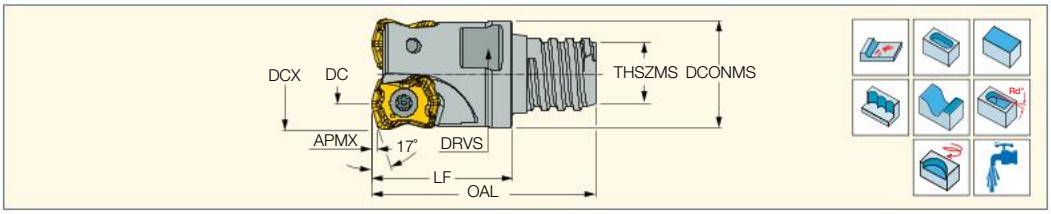
Spare Parts

Designation		
FFX4 ED-M	SR M2.5X6-T7-60	T-7/51

LOGIQ4FEED HIGH FEED MILLING

FFX4 ED-MM

Endmills with MULTI-MASTER Adaptation that Mount Small "Bone Shaped" Inserts with 4 Cutting Edges for Fast Feed Milling



Designation	DCX(1)	DC	CICT(2)	APMX	AE(3)	THSZMS	LF	OAL	DCONMS	RMPX°(4)	MDN(5)	MDX(6)	DRVS(7)	MIID(8)	TQ(9)	kg
FFX4 ED16/.63-2-MMT10-04	16.00	8.60	2	0.80	3.7	T10	20.00	31.30	15.20	4.3	24.60	31.00	13.0	FFX4 XNMU 040310T	0.9	0.02
FFX4 ED20/.78-3-MMT12-04	20.00	12.60	3	0.80	3.7	T12	25.00	38.30	18.80	2.7	32.60	39.00	15.0	FFX4 XNMU 040310T	0.9	0.04
FFX4 ED25/.98-4-MMT15-04	25.00	17.60	4	0.80	3.7	T15	30.00	47.00	24.00	1.8	42.60	49.00	19.0	FFX4 XNMU 040310T	0.9	0.14
FFX4 ED32/1.26-5-MMT21-04	32.00	24.60	5	0.80	3.7	T21	35.00	58.10	29.00	1.2	56.60	63.00	24.0	FFX4 XNMU 040310T	0.9	0.19
FFX4 ED040-6-MMT21-04	40.00	32.60	6	0.80	3.7	T21	40.00	63.10	30.00	0.9	72.60	79.00	24.0	FFX4 XNMU 040310T	0.9	0.27

• To generate a straight surface without cusps,the width of cut must not exceed DC • Radius for programming: for insert XNMU 1.8 mm, for insert XNMW 1.72 mm

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Maximum plunging width
(4) Maximum ramping angle
(5) Machinable diameter minimum for interpolation
(6) Machinable diameter maximum for interpolation
(7) Torque key size
(8) Master insert identification
(9) Recommended tightening torque (N*m) for insert screw

For inserts, see pages: FFX4 XNMU/W-04 (598)
For holders, see pages: MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

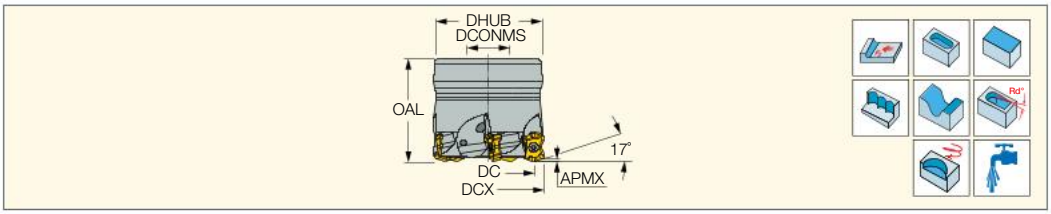
Spare Parts

Designation		
FFX4 ED-MM	SR M2.5X6-T7-60	T-7/51

LOGIQ4FEED HIGH FEED MILLING

FFX4 FD-04

Face Mills Carrying "Bone Shaped" Inserts with 4 Cutting Edges for Fast Feed Milling



Designation	DCX(1)	DC	CICT(2)	APMX	AE(3)	OAL	DCONMS	DHUB	RMPX°(4)	MDN(5)	MDX(6)	Arbor	MIID(7)	kg
FFX4 FD032-5-16-04	32.00	24.60	5	0.80	3.7	40.00	16.00	38.00	1.2	56.60	63.00	A	FFX4 XNMU 040310T	0.12
FFX4 FD040-6-16-04	40.00	32.60	6	0.80	3.7	40.00	16.00	38.00	0.9	72.60	79.00	A	FFX4 XNMU 040310T	0.23
FFX4 FD042-6-16-04	42.00	34.60	6	0.80	3.7	40.00	16.00	38.00	0.8	76.60	83.00	A	FFX4 XNMU 040310T	0.50
FFX4 FD050-7-22-04	50.00	42.60	7	0.80	3.7	40.00	22.00	48.00	0.7	92.60	99.00	A	FFX4 XNMU 040310T	0.39
FFX4 FD052-7-22-04	52.00	44.60	7	0.80	3.7	40.00	22.00	48.00	0.7	96.60	103.00	A	FFX4 XNMU 040310T	0.44

• To generate a straight surface without cusps, the width of cut must not exceed DC • Radius for programming: for insert XNMU 1.8 mm, for insert XNMW 1.72 mm

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Maximum plunging width
(4) Maximum ramping angle
(5) Machinable diameter minimum for interpolation
(6) Machinable diameter maximum for interpolation
(7) Master insert identification

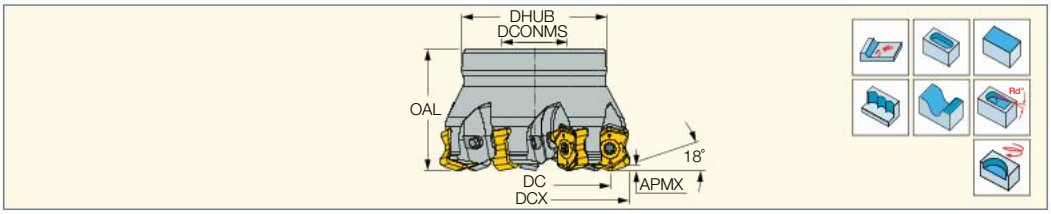
For inserts, see pages: FFX4 XNMU/W-04 (598)

Spare Parts

Designation			
FFX4 FD032-5-16-04	SR M2.5X6-T7-60	T-7/51	SR M8X25-D11.5
FFX4 FD040-6-16-04	SR M2.5X6-T7-60	T-7/51	SR M8X25DIN912
FFX4 FD042-6-16-04	SR M2.5X6-T7-60	T-7/51	SR M8X25DIN912
FFX4 FD050-7-22-04	SR M2.5X6-T7-60	T-7/51	SR M10X25 DIN912
FFX4 FD052-7-22-04	SR M2.5X6-T7-60	T-7/51	SR M10X25 DIN912

LOGIQ4FEED
HIGH FEED MILLING

FFX4 FD-08
Face Mills Carrying "Bone Shaped" Inserts with 4 Cutting Edges for Fast Feed Milling



Designation	DCX(1)	DC	CICT(2)	APMX	AE	OAL	DCONMS	DHUB	Rd°	MDN(3)	MDX(4)	Arbor	MIID(5)	kg
FFX4 FD050-4-22-08	50.00	34.40	4	2.00	7.8	50.00	22.00	48.00	3.3	84.40	99.00	A	FFX4 XNMU 080620	0.58
FFX4 FD063-5-22-08	63.00	47.40	5	2.00	7.8	45.00	22.00	48.00	2.3	110.40	125.00	A	FFX4 XNMU 080620T	0.48
FFX4 FD080-7-27-08	80.00	64.40	7	2.00	7.8	50.00	27.00	60.00	1.6	144.40	159.00	B	FFX4 XNMU 080620T	0.95
FFX4 FD100-8-32-08	100.00	84.40	8	2.00	7.8	50.00	32.00	78.00	1.2	184.40	199.00	B	FFX4 XNMU 080620T	1.24
FFX4 FD125-10-40-08	125.00	109.40	10	2.00	7.8	63.00	40.00	92.00	0.9	234.40	249.00	B	FFX4 XNMU 080620T	2.40

• To generate a straight surface without cusps, the width of cut must not exceed DC • Radius programming for insert XNMU 3.9 mm

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Machinable diameter minimum for interpolation
(4) Machinable diameter maximum for interpolation
(5) Master insert identification

For inserts, see pages: FFX4 XNMU-08 (599)

Spare Parts

Designation				
FFX4 FD050-4-22-08	SR M5-14 IP20	SW6-T	BLD IP20/S7	SR PS 118-0273
FFX4 FD063-5-22-08	SR M5-14 IP20	SW6-T	BLD IP20/S7	SR M10X25 DIN912
FFX4 FD080-7-27-08	SR M5-14 IP20	SW6-T	BLD IP20/S7	SR M12X30DIN912
FFX4 FD100-8-32-08	SR M5-14 IP20	SW6-T	BLD IP20/S7	
FFX4 FD125-10-40-08	SR M5-14 IP20	SW6-T	BLD IP20/S7	

HELI6FEED UPFEED LINE

FF EWX

Fast Feed Endmills Carrying Double-Sided Inserts with 6 Cutting Edges

Fig. 1

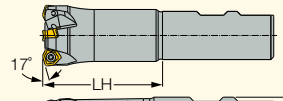
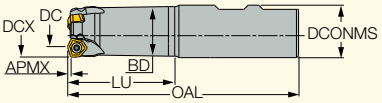
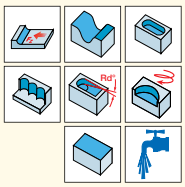


Fig. 2





Designation	DCX[1]	DC	APMX	CICT[2]	BD	LU	LH	OAL	DCONMS	Shank[3]	RMPX°[4]	MDN[5]	MDX[6]	Fig.	MIID[7]	TQ[8]	kg
FF EWX D16-2-030-C16-04	16.00	8.60	0.80	2	14.90	30.0	-	113.00	16.00	C	5.0	24.60	31.00	2	H600 WXCU 040310T	0.9	0.15
FF EWX D16-2-030-W16-04	16.00	8.60	0.80	2	14.90	30.0	-	81.00	16.00	W	5.0	24.60	31.00	2	H600 WXCU 040310T	0.9	0.10
FF EWX D16-2-050-W20-04	16.00	8.60	0.80	2	14.90	50.0	-	109.00	20.00	W	5.0	24.60	31.00	2	H600 WXCU 040310T	0.9	0.19
FF EWX D16-2-070-C20-04	16.00	8.60	0.80	2	14.90	70.0	-	159.00	20.00	C	5.0	24.60	31.00	2	H600 WXCU 040310T	0.9	0.28
FF EWX D16-2-080-W20-04	16.00	8.60	0.80	2	14.90	80.0	-	139.00	20.00	W	5.0	24.60	31.00	2	H600 WXCU 040310T	0.9	0.22
FF EWX D20-3-040-W20-04	20.00	12.60	0.80	3	18.90	40.0	-	93.00	20.00	W	4.8	32.60	39.00	2	H600 WXCU 040310T	0.9	0.19
FF EWX D20-3-050-C20-04	20.00	12.60	0.80	3	18.90	50.0	-	133.00	20.00	C	4.8	32.60	39.00	2	H600 WXCU 040310T	0.9	0.28
FF EWX D20-3-060-W20-04	20.00	12.60	0.80	3	18.90	60.0	-	113.00	20.00	W	4.8	32.60	39.00	2	H600 WXCU 040310T	0.9	0.23
FF EWX D20-3-100-C20-04	20.00	12.60	0.80	3	18.90	100.0	-	183.00	20.00	C	4.8	32.60	39.00	2	H600 WXCU 040310T	0.9	0.38
FF EWX D20-3-100-W20-04	20.00	12.60	0.80	3	18.90	100.0	-	153.00	20.00	W	4.8	32.60	39.00	2	H600 WXCU 040310T	0.9	0.31
FF EWX D25-3-050-W25-05	25.00	15.00	1.00	3	23.60	50.0	53.0	110.00	25.00	W	5.0	40.00	49.00	2	H600 WXCU 05T312T	2.0	0.34
FF EWX D25-3-060-C25-05	25.00	15.00	1.00	3	23.60	60.0	63.0	145.00	25.00	C	5.0	40.00	49.00	2	H600 WXCU 05T312T	2.0	0.47
FF EWX D25-3-080-W25-05	25.00	15.00	1.00	3	23.60	80.0	83.0	140.00	25.00	W	5.0	40.00	49.00	2	H600 WXCU 05T312T	2.0	0.44
FF EWX D25-3-120-C25-05	25.00	15.00	1.00	3	23.60	120.0	123.0	205.00	25.00	C	5.0	40.00	49.00	2	H600 WXCU 05T312T	2.0	0.66
FF EWX D25-3-120-W25-05	25.00	15.00	1.00	3	23.60	120.0	123.0	180.00	25.00	W	5.0	40.00	49.00	2	H600 WXCU 05T312T	2.0	0.56
FF EWX D32-4-040-C25-05	32.00	22.00	1.00	4	27.00	-	40.0	180.00	25.00	C	4.0	54.00	63.00	1	H600 WXCU 05T312T	2.0	0.63
FF EWX D32-4-060-W25-05	32.00	22.00	1.00	4	27.00	60.0	63.0	120.00	25.00	W	4.0	54.00	63.00	1	H600 WXCU 05T312T	2.0	0.43
FF EWX D32-4-060-W32-05	32.00	22.00	1.00	4	27.00	-	63.0	125.00	32.00	W	4.0	54.00	63.00	2	H600 WXCU 05T312T	2.0	0.64
FF EWX D32-4-070-C32-05	32.00	22.00	1.00	4	30.60	70.0	73.0	155.00	32.00	C	4.0	54.00	63.00	2	H600 WXCU 05T312T	2.0	0.81
FF EWX D32-4-100-W25-05	32.00	22.00	1.00	4	27.00	-	100.0	160.00	25.00	W	4.0	54.00	63.00	1	H600 WXCU 05T312T	2.0	0.60
FF EWX D32-4-100-W32-05	32.00	22.00	1.00	4	30.60	100.0	103.0	165.00	32.00	W	4.0	54.00	63.00	2	H600 WXCU 05T312T	2.0	0.84
FF EWX D32-4-120-C32-05	32.00	22.00	1.00	4	30.60	120.0	123.0	205.00	32.00	C	4.0	54.00	63.00	2	H600 WXCU 05T312T	2.0	1.06
FF EWX D32-4-150-W32-05	32.00	22.00	1.00	4	30.60	150.0	153.0	215.00	32.00	W	4.0	54.00	63.00	2	H600 WXCU 05T312T	2.0	1.08
FF EWX D40-5-L50-C32-05	40.00	30.00	1.00	5	34.00	-	50.0	250.00	32.00	C	2.8	70.00	79.00	1	H600 WXCU 05T312T	2.0	1.40
FF EWX D40-5-S50-C32-05	40.00	30.00	1.00	5	34.00	-	50.0	150.00	32.00	C	2.8	70.00	79.00	1	H600 WXCU 05T312T	2.0	0.85
FF EWX D40-5-060-W32-05	40.00	30.00	1.00	5	34.00	-	60.0	125.00	32.00	W	2.8	70.00	79.00	1	H600 WXCU 05T312T	2.0	0.72
FF EWX D40-5-200-W40-05	40.00	30.00	1.00	5	38.60	200.0	203.0	275.00	40.00	W	2.8	70.00	79.00	2	H600 WXCU 05T312T	2.0	2.08
FF EWX D32-3-060-W32-07	32.00	19.00	1.50	3	30.70	60.0	63.0	125.00	32.00	W	6.3	51.00	63.00	2	H600 WXCU 070515T	4.8	0.60
FF EWX D32-3-070-C32-07	32.00	19.00	1.50	3	30.70	70.0	73.0	155.00	32.00	C	6.3	51.00	63.00	2	H600 WXCU 070515T	4.8	0.76
FF EWX D32-3-100-W32-07	32.00	19.00	1.50	3	30.70	100.0	103.0	165.00	32.00	W	6.3	51.00	63.00	2	H600 WXCU 070515T	4.8	0.78
FF EWX D32-3-120-C32-07	32.00	19.00	1.50	3	30.70	120.0	123.0	205.00	32.00	C	6.3	51.00	63.00	2	H600 WXCU 070515T	4.8	0.99
FF EWX D40-4-S50-C32-07	40.00	27.00	1.50	4	-	50.0	52.2	150.00	32.00	C	4.2	77.00	79.00	1	H600 WXCU 070515T	4.8	0.84

- For machining recommendations and radius for programming, see table on page 597 • To generate a straight surface without cusps, the width of cut must not exceed DC
- For user guide, see pages 616-622

[1] Cutting diameter maximum
[2] Number of inserts (or edges for solid tool)
[3] C-Cylindrical, W-Weldon
[4] Maximum ramping angle
[5] Machinable diameter minimum for interpolation
[6] Machinable diameter maximum for interpolation
[7] Master insert identification
[8] Recommended tightening torque (N*m) for insert screw

For inserts, see pages: H600 WXCU (597)

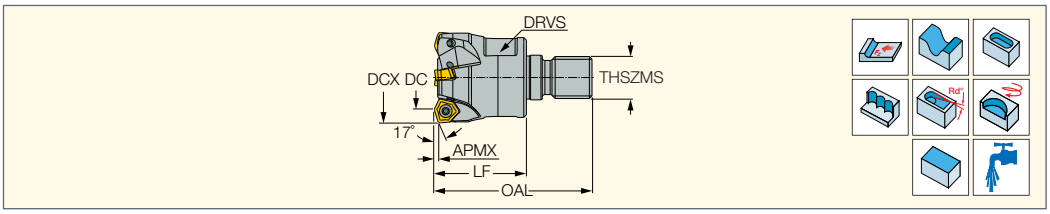
Spare Parts

Designation				
FF EWX D...-04	SR M2.5X6-T7-60	T-7/51		
FF EWX D...-05	SR 10508600	T-9/51		
FF EWX D...-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH

HELI6FEED UPFEED LINE

FF EWX-M

Fast Feed Endmills with FLEX-FIT Threaded Connection Carrying Double-Sided Inserts with 6 Cutting Edges



Designation	DCX(1)	DC	APMX	CICT(2)	LF	OAL	THSZMS	RMPX°(3)	MDN(4)	MDX(5)	DRVS(6)	MIID(7)	TQ(8)	TQ_3(9)	kg
FF EWX D20-3-M10-04	20.00	12.60	0.80	3	25.00	45.00	M10	4.8	32.60	39.00	15.0	H600 WXCU 040310HP	0.9	29	0.05
FF EWX D25-4-M12-04	25.00	17.60	0.80	4	30.00	52.00	M12	3.3	42.60	49.00	19.0	H600 WXCU 040310HP	0.9	33	0.09
FF EWX D25-3-M12-05	25.00	15.00	1.00	3	30.00	52.00	M12	5.0	40.00	49.00	19.0	H600 WXCU 05T312T	2.0	33	0.09
FF EWX D32-4-M16-05	32.00	22.00	1.00	4	35.00	60.00	M16	4.0	54.00	63.00	25.0	H600 WXCU 05T312T	2.0	40	0.17
FF EWX D35-4-M16-05	35.00	25.00	1.00	4	35.00	60.00	M16	3.5	60.00	69.00	25.0	H600 WXCU 05T312T	2.0	40	0.19
FF EWX D40-5-M16-05	40.00	30.00	1.00	5	40.00	65.00	M16	2.8	70.00	79.00	25.0	H600 WXCU 05T312T	2.0	40	0.26
FF EWX D32-3-M16-07	32.00	19.00	1.50	3	35.00	60.00	M16	6.3	51.00	63.00	25.0	H600 WXCU 070515HP	4.8	40	0.16
FF EWX D40-4-M16-07	40.00	27.00	1.50	4	40.00	65.00	M16	4.2	67.00	79.00	25.0	H600 WXCU 070515HP	4.8	40	0.24

- For machining recommendations and radius for programming, see table on page 597 • To generate a straight surface without cusps, the width of cut must not exceed DC
- For user guide, see pages 616-621

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Maximum ramping angle
(4) Machinable diameter minimum for interpolation
(5) Machinable diameter maximum for interpolation
(6) Clamping wrench size
(7) Master insert identification
(8) Recommended tightening torque (N*m) for insert screw
(9) Tool tightening torque Nxm

For inserts, see pages: H600 WXCU (597)
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

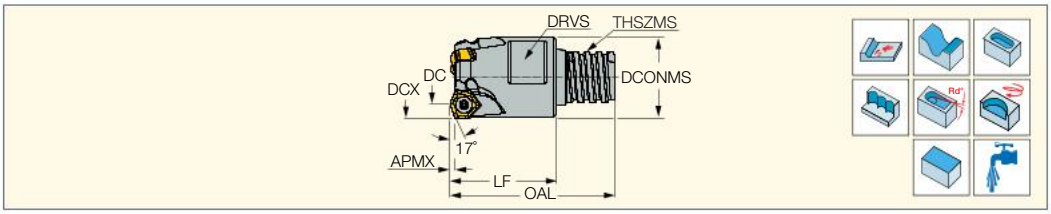
Spare Parts

Designation				
FF EWX D20-3-M10-04	SR M2.5X6-T7-60	T-7/51		
FF EWX D25-4-M12-04	SR M2.5X6-T7-60	T-7/51		
FF EWX D25-3-M12-05	SR 10508600	T-9/51		
FF EWX D32-4-M16-05	SR 10508600	T-9/51		
FF EWX D35-4-M16-05	SR 10508600	T-9/51		
FF EWX D40-5-M16-05	SR 10508600	T-9/51		
FF EWX D32-3-M16-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH
FF EWX D40-4-M16-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH

HELI6FEED UPFEED LINE

FF EWX-MM

Fast Feed Endmills with MULTI-MASTER Threaded Connection That Mount Double-Sided Inserts with 6 Cutting Edges



Designation	DCX(1)	DC	APMX	CICT(2)	THSZMS	LF	OAL	DCONMS	DRVS(3)	RMPX°(4)	MDN(5)	MDX(6)	MIID(7)	kg
FF EWX D16-2-MMT10-04	16.00	8.60	0.80	2	T10	19.50	30.81	15.20	12.0	5.0	24.60	31.00	H600 WXCU 040310HP	0.02
FF EWX D20-3-MMT12-04	20.00	12.60	0.80	3	T12	25.00	38.80	18.80	15.0	4.8	32.60	39.00	H600 WXCU 040310HP	0.05
FF EWX D25-4-MMT15-04	25.00	17.60	0.80	4	T15	30.00	47.00	23.90	19.0	3.3	42.60	49.00	H600 WXCU 040310HP	0.10
FF EWX D25-3-MMT15-05	25.00	15.00	1.00	3	T15	30.00	47.00	23.90	19.0	5.0	40.00	49.00	H600 WXCU 05T312T	0.09

- For machining recommendations and radius for programming, see table on page 597 • Do not apply lubricant to the MULTI-MASTER threaded connection.
- To generate a straight surface without cusps, the width of cut must not exceed DC • For adaptation options, see page 303
- For user guide, see pages 616-621

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Width across flats (wrench should be ordered separately)
(4) Maximum ramping angle
(5) Machinable diameter minimum for interpolation
(6) Machinable diameter maximum for interpolation
(7) Master insert identification

For inserts, see pages: H600 WXCU (597)
For holders, see pages: MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

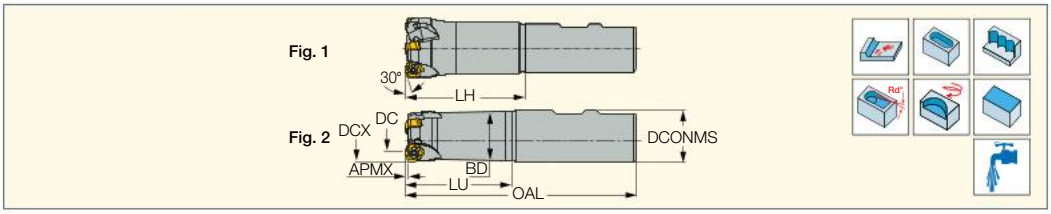
Spare Parts

Designation		
FF EWX D16-2-MMT10-04	SR M2.5X6-T7-60	T-7/51
FF EWX D20-3-MMT12-04	SR M2.5X6-T7-60	T-7/51
FF EWX D25-4-MMT15-04	SR M2.5X6-T7-60	T-7/51
FF EWX D25-3-MMT15-05	SR 10508600	T-9/51

HELI6FEED UPFEED LINE

MF EWX

Moderate Feed Endmills Carrying Double-Sided Inserts with 6 Cutting Edges



Designation	DCX(1)	DC	APMX	CICT(2)	LU	LH	OAL	DCONMS	Shank(3)	BD	RMPX°(4)	MDN(5)	MDX(6)	Fig.	MIID(7)	TQ(8)	kg
MF EWX D16-2-040-W20-04	16.00	9.00	1.50	2	40.0	47.0	99.00	20.00	W	14.90	3.8	25.00	31.00	2	H600 WXCU 040310T	0.9	0.16
MF EWX D20-3-050-C20-04	20.00	13.00	1.50	3	50.0	52.7	134.00	20.00	C	18.90	2.4	33.00	39.00	2	H600 WXCU 040310T	0.9	0.24
MF EWX D20-3-050-W20-04	20.00	13.00	1.50	3	50.0	52.7	104.00	20.00	W	18.90	2.4	33.00	39.00	2	H600 WXCU 040310T	0.9	0.18
MF EWX D25-3-060-W25-05	25.00	15.50	2.00	3	60.0	63.0	120.00	25.00	W	23.60	3.0	40.50	49.00	2	H600 WXCU 05T312T	2.0	0.33
MF EWX D32-4-080-W32-05	32.00	22.50	2.00	4	80.0	83.0	145.00	32.00	W	30.60	1.9	54.50	63.00	2	H600 WXCU 05T312T	2.0	0.70
MF EWX D32-3-080-C32-07	32.00	19.70	2.70	3	80.0	83.0	165.00	32.00	C	30.70	3.0	51.70	63.00	2	H600 WXCU 070515T	4.8	0.80
MF EWX D32-3-080-W32-07	32.00	19.70	2.70	3	80.0	83.0	145.00	32.00	W	30.70	3.0	51.70	63.00	2	H600 WXCU 070515T	4.8	0.70
MF EWX D40-4-090-C32-07	40.00	27.70	2.70	4	90.0	92.0	190.00	32.00	C	36.80	2.0	67.70	79.00	1	H600 WXCU 070515T	4.8	1.16

- For machining recommendations and radius for programming, see table on page 597 • To generate a straight surface without cusps, the width of cut must not exceed DC
- For user guide, see pages 616-622

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) C-Cylindrical, W-Weldon
(4) Maximum ramping angle
(5) Machinable diameter minimum for interpolation
(6) Machinable diameter maximum for interpolation
(7) Master insert identification
(8) Recommended tightening torque (N*m) for insert screw

For inserts, see pages: H600 WXCU (597)

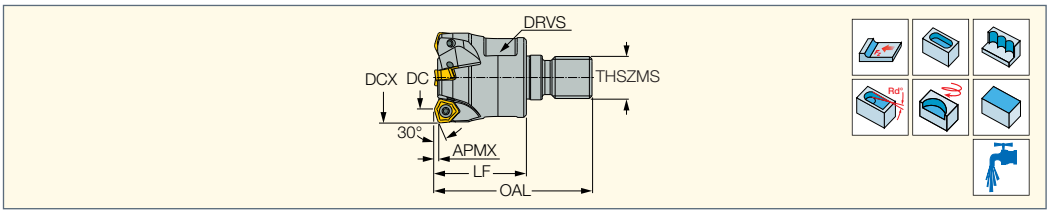
Spare Parts

Designation				
MF EWX D16-2-040-W20-04	SR M2.5X6-T7-60	T-7/51		
MF EWX D20-3-050-C20-04	SR M2.5X6-T7-60	T-7/51		
MF EWX D20-3-050-W20-04	SR M2.5X6-T7-60	T-7/51		
MF EWX D25-3-060-W25-05	SR 10508600	T-9/51		
MF EWX D32-4-080-W32-05	SR 10508600	T-9/51		
MF EWX D32-3-080-C32-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH
MF EWX D32-3-080-W32-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH
MF EWX D40-4-090-C32-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH

HELI6FEED UPFEED LINE

MF EWX-M

Moderate Feed Endmills with FLEX-FIT Threaded Connection Carrying Double-Sided Inserts with 6 Cutting Edges



Designation	DCX(1)	DC	APMX	CICT(2)	LF	OAL	THSZMS	DRVS(3)	RMPX°(4)	MDN(5)	MDX(6)	MIID(7)	TQ(8)	TQ_3(9)	kg
MF EWX D20-3-M10-04	20.00	13.00	1.50	3	28.00	48.00	M10	14.0	2.4	33.00	39.00	H600 WXCU 040310T	0.9	29	0.05
MF EWX D25-4-M12-04	25.00	18.00	1.50	4	32.00	54.00	M12	17.0	1.7	43.00	49.00	H600 WXCU 040310T	0.9	33	0.09
MF EWX D25-3-M12-05	25.00	15.50	2.00	3	30.00	52.00	M12	17.0	3.0	40.50	49.00	H600 WXCU 05T312T	2.0	33	0.07
MF EWX D32-4-M16-05	32.00	22.50	2.00	4	35.00	60.00	M16	24.0	1.9	54.50	63.00	H600 WXCU 05T312T	2.0	40	0.16
MF EWX D32-3-M16-07	32.00	19.70	2.70	3	35.00	60.00	M16	24.0	3.0	51.70	63.00	H600 WXCU 070515HP	4.8	40	0.15

- For machining recommendations and radius for programming, see table on page 597 • To generate a straight surface without cusps, the width of cut must not exceed DC
- For user guide, see pages 616-621

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Clamping wrench size
(4) Maximum ramping angle
(5) Machinable diameter minimum for interpolation
(6) Machinable diameter maximum for interpolation
(7) Master insert identification
(8) Recommended tightening torque (N*m) for insert screw
(9) Tool tightening torque Nxm

For inserts, see pages: H600 WXCU (597)
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358)
• DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

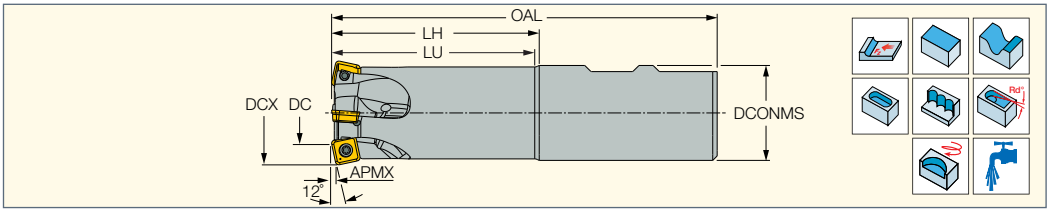
Spare Parts

Designation				
MF EWX D20-3-M10-04	SR M2.5X6-T7-60	T-7/51		
MF EWX D25-4-M12-04	SR M2.5X6-T7-60	T-7/51		
MF EWX D25-3-M12-05	SR 10508600	T-9/51		
MF EWX D32-4-M16-05	SR 10508600	T-9/51		
MF EWX D32-3-M16-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH

MILL4FEED

FFQ4 D-C/W-06

Fast Feed Endmills Carrying Single-Sided Square Inserts with 4 Cutting Edges



Designation	DCX(1)	DC	APMX	AE(2)	CICT(3)	LU	LH	DCONMS	OAL	Shank	RMPX°(4)	MDN	MDX	MIID(5)	kg	TQ
FFQ4 D16-03-C16-06	16.00	7.20	0.70	4.4	3	24.50	26.0	16.00	90.00	C	6.0	23.20	31.00	FFQ4 SOMT 060210T	0.11	0.9
FFQ4 D20-04-C20-06	20.00	11.20	0.70	4.4	4	40.00	42.0	20.00	130.00	C	3.5	31.20	39.00	FFQ4 SOMT 060210T	0.27	0.9
FFQ4 D25-05-W25-06	25.00	16.20	0.70	4.4	5	50.00	52.0	25.00	110.00	W	2.2	41.20	49.00	FFQ4 SOMT 060210T	0.33	0.9
FFQ4 D32-07-W32-06	32.00	23.20	0.70	4.4	7	64.00	66.0	32.00	130.00	W	1.4	55.20	63.00	FFQ4 SOMT 060210T	0.68	0.9

New

- To generate a straight surface without cusps, the width of cut must not exceed DC • Radius for programming: for insert SOMT 1.7 mm, for insert SOMW 1.9 mm
- When mounting insert SOMW, APMX=0.6 mm • For slot milling or machining with high tool overhang, the maximum depth of cut should be reduced by 50%
- For user guide, see pages 616-622

(1) Cutting diameter maximum
(2) Maximum plunging width
(3) Number of inserts (or edges for solid tool)
(4) Maximum ramping angle
(5) Master insert identification

For inserts, see pages: FFQ4 SOMT/W 0602 (589)

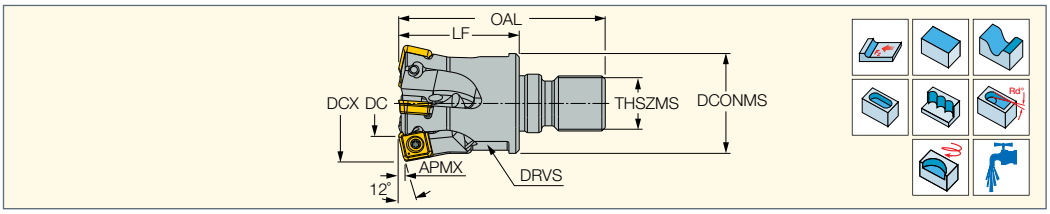
Spare Parts

Designation		
FFQ4 D-C/W-06	SR 10516050-L4.6	IP-7/51

MILL4FEED

FFQ4 D-M-06

Fast Feed Endmills with FLEX-FIT Threaded Adaptation Carrying Single-Sided Square Inserts with 4 Cutting Edges



Designation	DCX[1]	DC	APMX	AE[2]	CICT[3]	LF	OAL	DCONMS	THSZMS	RMPX°[4]	MDN	MDX	DRVS[5]	MIID[6]	kg	TQ	TQ_3[7]
FFQ4 D20-04-M10-06	20.00	11.20	0.70	4.4	4	25.00	45.00	18.00	M10	3.5	31.20	39.00	15.1	FFQ4 SOMT 060210T	0.04	0.9	29
FFQ4 D25-05-M12-06	25.00	16.20	0.70	4.4	5	30.00	52.00	21.00	M12	2.2	41.20	49.00	17.1	FFQ4 SOMT 060210T	0.18	0.9	33
FFQ4 D32-07-M16-06	32.00	23.20	0.70	4.4	7	30.00	55.00	29.40	M16	1.4	55.20	63.00	25.1	FFQ4 SOMT 060210T	0.16	0.9	40

New

- To generate a straight surface without cusps, the width of cut must not exceed DC • Radius for programming: for insert SOMT 1.7 mm, for insert SOMW 1.9 mm
- When mounting insert SOMW, APMX=0.6 mm • For slot milling or machining with high tool overhang, the maximum depth of cut should be reduced by 50%
- For user guide, see pages 616-621

(1) Cutting diameter maximum
(2) Maximum plunging width
(3) Number of inserts (or edges for solid tool)
(4) Maximum ramping angle
(5) Torque key size
(6) Master insert identification
(7) Tool tightening torque Nxm

For inserts, see pages: FFQ4 SOMT/W 0602 (589)
For holders, see pages: ER-ODP (360) • DIN69871-ODP (360) • CAB M-M (FLEX-FIT) (358) • BT-ODP (FLEX-FIT) (359)
• HSK A-ODP (FLEX-FIT) (361) • C#-ODP (FLEX-FIT) (359) • S M (357) • S M-C-H (357)

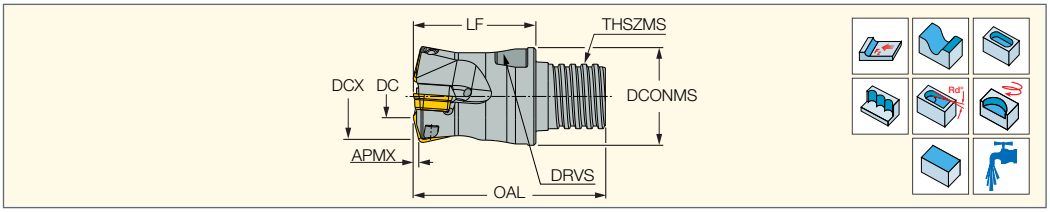
Spare Parts

Designation		
FFQ4 D-M-06	SR 10516050-L4.6	IP-7/51

MILL4FEED

FFQ4 D-MM-06

Fast Feed Endmills with MULTI-MASTER Threaded Adaptation Carrying Single-Sided Square Inserts with 4 Cutting Edges



Designation	DCX[1]	DC	APMX	AE[2]	CICT[3]	THSZMS	LF	OAL	DCONMS	DRVS[4]	RMPX°[5]	MDN	MDX	MIID[6]	kg	TQ
FFQ4 D16/.63-03-MMT10-06	16.00	7.20	0.70	4.4	3	T10	16.00	27.30	15.20	13.0	6.0	23.20	31.00	FFQ4 SOMT 060210T	0.02	0.9
FFQ4 D20-04-MMT12-06	20.00	11.20	0.70	4.4	4	T12	25.00	38.30	18.80	16.0	3.5	31.20	39.00	FFQ4 SOMT 060210T	0.05	0.9
FFQ4 D25/.98-05-MMT15-06	25.00	16.20	0.70	4.4	5	T15	30.00	47.00	24.00	20.0	2.2	41.20	49.00	FFQ4 SOMT 060210T	0.09	0.9
FFQ4 D32/1.26-07-MMT21-06	32.00	23.20	0.70	4.4	7	T21	30.00	53.10	29.40	24.0	1.4	55.20	63.00	FFQ4 SOMT 060210T	0.17	0.9

New

- Do not apply lubricant to the MULTI-MASTER threaded connection. • To generate a straight surface without cusps, the width of cut must not exceed DC.
- Radius for programing: for insert SOMT 1.7 mm, for insert SOMW 1.9 mm. • When mounting insert SOMW, APMX=0.6 mm
- For slot milling or machining with high tool overhang, the maximum depth of cut should be reduced by 50%. • For user guide, see pages 616-621

(1) Cutting diameter maximum
(2) Maximum plunging width
(3) Number of inserts (or edges for solid tool)
(4) Torque key size
(5) Maximum ramping angle
(6) Master insert identification

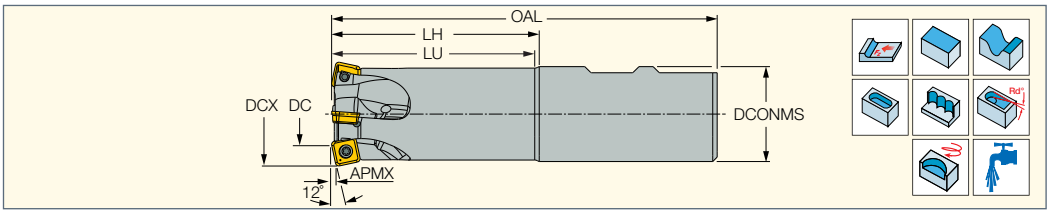
For inserts, see pages: FFQ4 SOMT/W 0602 (589)
For holders, see pages: MM S-A-AV (101) • MM S-A-BT (109) • MM TS2-A (105) • MM S-A (stepped shanks) (102) • MM S-B (85° conical shanks) (106)
• MM S-A (straight shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM S-A-N (104)
• MM S-A-HSK (109) • MM S-A-SK (109) • MM S-A-C# (104) • MM CAB-T-T (110) • MM CAB-T-T-W (111)

Spare Parts

Designation		
FFQ4 D-MM-06	SR 10516050-L4.6	IP-7/51

MILL4FEED

FFQ4 D-W-09
Fast Feed Endmills Carrying Single-Sided Square Inserts with 4 Cutting Edges



Designation	DCX(1)	DC	APMX	AE(2)	CICT(3)	LU	LH	DCONMS	OAL	Shank	RMPX°(4)	MDN(5)	MDX(6)	MIID(7)	kg	TQ(8)
FFQ4 D022-2-044-W20-09	22.00	7.70	1.20	7.1	2	40.54	44.0	20.00	94.00	W	8.2	29.70	43.00	FFQ4 SOMT 090412T	0.19	2.0
FFQ4 D025-3-050-W25-09	25.00	10.70	1.20	7.1	3	45.19	50.0	25.00	110.00	W	5.5	35.70	49.00	FFQ4 SOMT 090412T	0.25	2.0
FFQ4 D032-4-064-W25-09	32.00	17.70	1.20	7.1	4	62.25	64.0	25.00	120.00	W	3.2	49.70	63.00	FFQ4 SOMT 090412T	0.50	2.0
FFQ4 D035-5-070-W32-09	35.00	20.70	1.20	7.1	5	65.67	70.0	32.00	130.00	W	2.7	55.70	69.00	FFQ4 SOMT 090412T	0.70	2.0

- To generate a straight surface without cusps, the width of cut must not exceed DC • Radius for programming: for insert SOMT 2.5 mm, for insert SOMW 3 mm
- When mounting insert SOMW, APMX=1.0 mm • For slot milling or machining with high tool overhang, the maximum depth of cut should be reduced by 50%
- For user guide, see pages 616-622

(1) Cutting diameter maximum
(2) Maximum plunging width
(3) Number of inserts (or edges for solid tool)
(4) Maximum ramping angle
(5) Machinable diameter minimum for interpolation
(6) Machinable diameter maximum for interpolation
(7) Master insert identification
(8) Recommended tightening torque (N*m) for insert screw

For inserts, see pages: FFQ4 SOMT/W 0904 (590)

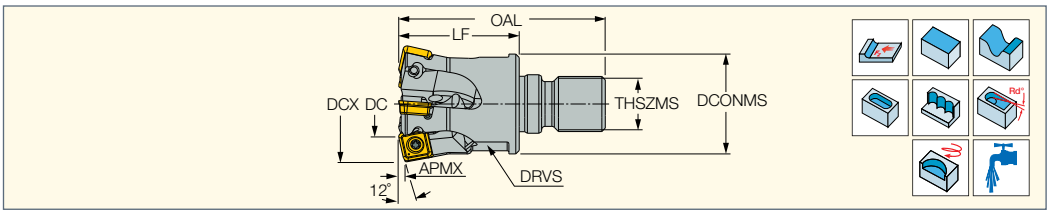
Spare Parts

Designation		
FFQ4 D-W-09	SR M3X0.5-L7.4 IP9(a)	IP-9/151

(a) Recommended tightening torque:2.0 N*m

MILL4FEED

FFQ4 D-M-09
Fast Feed Endmills with FLEX-FIT Threaded Adaptation Carrying Single-Sided Square Inserts with 4 Cutting Edges



Designation	DC	DCX(1)	APMX	AE(2)	CICT(3)	LF	OAL	DCONMS	THSZMS	RMPX°(4)	MDN(5)	MDX(6)	DRVS(7)	MIID(8)	TQ(9)	TQ_3(10)	kg
FFQ4 D022-02-M10-09	7.70	22.00	1.20	7.1	2	25.00	45.00	18.00	M10	8.2	29.70	43.00	15.0	FFQ4 SOMT 090412T	2.0	29	0.04
FFQ4 D025-02-M12-09	10.70	25.00	1.20	7.1	2	30.00	52.00	21.00	M12	5.5	35.70	49.00	17.0	FFQ4 SOMT 090412T	2.0	33	0.05
FFQ4 D025-03-M12-09	10.70	25.00	1.20	7.1	3	30.00	52.00	21.00	M12	5.5	35.70	49.00	17.0	FFQ4 SOMT 090412T	2.0	33	0.07
FFQ4 D032-03-M16-09	17.70	32.00	1.20	7.1	3	35.00	60.00	29.00	M16	3.2	49.70	63.00	25.0	FFQ4 SOMT 090412T	2.0	40	0.14
FFQ4 D032-04-M16-09	17.70	32.00	1.20	7.1	4	35.00	60.00	29.00	M16	3.2	49.70	63.00	25.0	FFQ4 SOMT 090412T	2.0	40	0.14
FFQ4 D035-05-M16-09	20.70	35.00	1.20	7.1	5	35.00	60.00	29.00	M16	2.7	55.70	69.00	25.0	FFQ4 SOMT 090412T	2.0	40	0.16
FFQ4 D040-05-M16-09	25.70	40.00	1.20	7.1	5	35.00	60.00	29.00	M16	2.0	65.70	79.00	25.0	FFQ4 SOMT 090412T	2.0	40	0.18

- To generate a straight surface without cusps, the width of cut must not exceed DC • Radius for programming: for insert SOMT 2.5 mm, for insert SOMW 3 mm
- When mounting insert SOMW, APMX=1.0 mm • For slot milling or machining with high tool overhang, the maximum depth of cut should be reduced by 50%
- For user guide, see pages 616-621

(1) Cutting diameter maximum
(2) Maximum plunging width
(3) Number of inserts (or edges for solid tool)
(4) Maximum ramping angle
(5) Machinable diameter minimum for interpolation
(6) Machinable diameter maximum for interpolation
(7) Torque key size
(8) Master insert identification
(9) Recommended tightening torque (N*m) for insert screw
(10) Tool tightening torque Nxm

For inserts, see pages: FFQ4 SOMT/W 0904 (590)
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358)
• DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

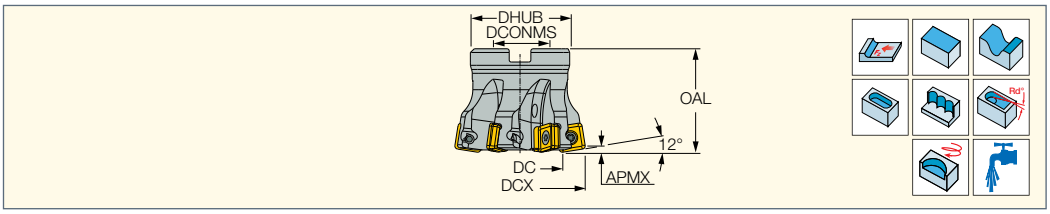
Spare Parts

Designation		
FFQ4 D-M-09	SR M3X0.5-L7.4 IP9(a)	IP-9/151

(a) Recommended tightening torque:2.0 N*m

MILL4FEED

FFQ4 D-09
Fast Feed Face Mills Carrying Single-Sided Square Inserts with 4 Cutting Edges



Designation	DC	DCX(1)	APMX	AE(2)	CICT(3)	OAL	DCONMS	DHUB	RMPX°(4)	MDN(5)	MDX(6)	Arbor	kg	MIID(7)	TQ(8)
FFQ4 D40-05-16-09	25.70	40.00	1.20	7.1	5	35.00	16.00	38.00	2.0	65.70	79.00	A	0.17	FFQ4 SOMT 090412T	2.0
FFQ4 D50-07-22-09	35.70	50.00	1.20	7.1	7	40.00	22.00	48.00	1.5	85.70	99.00	A	0.36	FFQ4 SOMT 090412T	2.0
FFQ4 D52-07-22-09	37.70	52.00	1.20	7.1	7	40.00	22.00	48.00	1.4	89.70	103.00	A	0.34	FFQ4 SOMT 090412T	2.0
FFQ4 D63-08-22-09	48.70	63.00	1.20	7.1	8	45.00	22.00	48.00	1.1	111.70	125.00	A	0.49	FFQ4 SOMT 090412T	2.0

- To generate a straight surface without cusps, the width of cut must not exceed DC
- Radius for programming: for insert SOMT 2.5 mm, for insert SOMW 3 mm
- When mounting insert SOMW, APMX=1.0 mm
- For slot milling or machining with high tool overhang, the maximum depth of cut should be reduced by 50%
- For user guide, see pages 616-622

(1) Cutting diameter maximum
(2) Maximum plunging width
(3) Number of inserts (or edges for solid tool)
(4) Maximum ramping angle
(5) Machinable diameter minimum for interpolation
(6) Machinable diameter maximum for interpolation
(7) Master insert identification
(8) Recommended tightening torque (N*m) for insert screw

For inserts, see pages: FFQ4 SOMT/W 0904 (590)

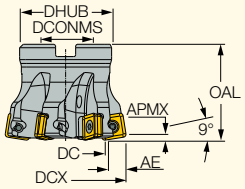
Spare Parts

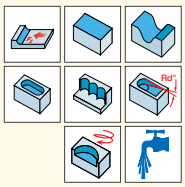
Designation			
FFQ4 D40-05-16-09	SR M3X0.5-L7.4 IP9(a)	IP-9/151	SR M8X25DIN912
FFQ4 D50-07-22-09	SR M3X0.5-L7.4 IP9(a)	IP-9/151	SR M10X25 DIN912
FFQ4 D52-07-22-09	SR M3X0.5-L7.4 IP9(a)	IP-9/151	SR M10X25 DIN912
FFQ4 D63-08-22-09	SR M3X0.5-L7.4 IP9(a)	IP-9/151	SR M10X30 DIN912

(a) Recommended tightening torque:2.0 N*m

MILL4FEED

FFQ4 D-12
Fast Feed Face Mills Carrying Single-Sided Square Inserts with 4 Cutting Edges





Designation	DC	DCX[1]	APMX	AE[2]	CICT[3]	OAL	DHUB	DCONMS	Arbor	RMPX°[4]	MDN[5]	MDX[6]	MIID[7]	TQ[8]	kg
FFQ4 D040-3-16-12	18.00	40.00	1.50	10.0	3	45.00	38.00	16.00	A	4.3	58.00	79.00	FFQ4 SOMT 120516HP	4.8	0.23
FFQ4 D040-4-16-12	18.00	40.00	1.50	10.0	4	45.00	38.00	16.00	A	4.3	58.00	79.00	FFQ4 SOMT 120516HP	4.8	0.22
FFQ4 D050-4-22-12	28.00	50.00	1.50	10.0	4	50.00	48.00	22.00	A	2.7	78.00	99.00	FFQ4 SOMT 120516HP	4.8	0.38
FFQ4 D050-5-22-12	28.00	50.00	1.50	10.0	5	50.00	48.00	22.00	A	2.7	78.00	99.00	FFQ4 SOMT 120516HP	4.8	0.37
FFQ4 D052-5-22-12	29.00	52.00	1.50	10.0	5	50.00	48.00	22.00	A	2.5	81.00	103.00	FFQ4 SOMT 120516HP	4.8	0.39
FFQ4 D063-6-22-12	41.00	63.00	1.50	10.0	6	50.00	48.00	22.00	A	1.8	104.00	125.00	FFQ4 SOMT 120516HP	4.8	0.50
FFQ4 D066-6-27-12	43.00	66.00	1.50	10.0	6	50.00	60.00	27.00	A	1.6	109.00	131.00	FFQ4 SOMT 120516HP	4.8	0.65
FFQ4 D080-7-27-12	58.00	80.00	1.50	10.0	7	50.00	60.00	27.00	A	1.2	138.00	159.00	FFQ4 SOMT 120516HP	4.8	0.84
FFQ4 D100-8-32-12	78.00	100.00	1.50	10.0	8	50.00	78.00	32.00	B	0.9	178.00	199.00	FFQ4 SOMT 120516HP	4.8	1.30
FFQ4 D125-10-40-12	103.00	125.00	1.50	10.0	10	63.00	92.00	40.00	B	0.7	228.00	249.00	FFQ4 SOMT 120516HP	4.8	2.17

- To generate a straight surface without cusps, the width of cut must not exceed DC • Radius for programming: for insert SOMT 3 mm, for insert SOMW 4 mm
- When mounting insert SOMW, APMX=1.2 mm • For slot milling or machining with high tool overhang, the maximum depth of cut should be reduced by 50%
- For user guide, see pages 616-622

(1) Cutting diameter maximum
(2) Maximum plunging width
(3) Number of inserts (or edges for solid tool)
(4) Maximum ramping angle
(5) Machinable diameter minimum for interpolation
(6) Machinable diameter maximum for interpolation
(7) Master insert identification
(8) Recommended tightening torque (N*m) for insert screw

For inserts, see pages: FFQ4 SOMT/W 1205 (591)

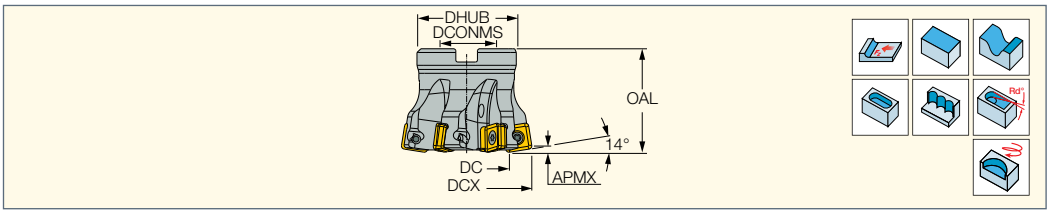
Spare Parts

Designation					
FFQ4 D040-3-16-12	SR M4X0.7-L9.6 IP15	SW6-T-SH	BLD IP15/S7		SR PS 118-0416
FFQ4 D040-4-16-12	SR M4X0.7-L9.6 IP15	SW6-T-SH	BLD IP15/S7		SR PS 118-0416
FFQ4 D050-4-22-12	SR M4X0.7-L9.6 IP15	SW6-T-SH	BLD IP15/S7	SR M10X35 DIN912	
FFQ4 D050-5-22-12	SR M4X0.7-L9.6 IP15	SW6-T-SH	BLD IP15/S7	SR M10X35 DIN912	
FFQ4 D052-5-22-12	SR M4X0.7-L9.6 IP15	SW6-T-SH	BLD IP15/S7	SR M10X35 DIN912	
FFQ4 D063-6-22-12	SR M4X0.7-L9.6 IP15	SW6-T-SH	BLD IP15/S7	SR M10X35 DIN912	
FFQ4 D066-6-27-12	SR M4X0.7-L9.6 IP15	SW6-T-SH	BLD IP15/S7	SR M12X30DIN912	
FFQ4 D080-7-27-12	SR M4X0.7-L9.6 IP15	SW6-T-SH	BLD IP15/S7	SR M12X30DIN912	
FFQ4 D100-8-32-12	SR M4X0.7-L9.6 IP15	SW6-T-SH	BLD IP15/S7		
FFQ4 D125-10-40-12	SR M4X0.7-L9.6 IP15	SW6-T-SH	BLD IP15/S7		

MILL4FEED

FFQ4 D-17

Fast Feed Face Mills Carrying Single-Sided Square Inserts with 4 Cutting Edges



Designation	DCX(1)	DC	APMX	AE(2)	CICT(3)	OAL	DCONMS	Da	DHUB	RMPX°(4)	MDN(5)	MDX(6)	CSP(7)	Arbor	MIID(8)	TQ(9)	kg
FFQ4 D080-06-27-17	80.00	50.80	3.00	14.6	6	50.00	27.00	27.00	60.00	1.2	130.80	159.00	1	A	FFQ4 SOMT 170625T	9.0	0.78
FFQ4 D100-07-32-17	100.00	70.80	3.00	14.6	7	63.00	32.00	32.00	78.00	0.8	170.80	199.00	1	A	FFQ4 SOMT 170625T	9.0	1.18
FFQ4 D125-08-40-17	125.00	95.80	3.00	14.6	8	63.00	40.00	40.00	92.00	0.6	220.80	249.00	1	B	FFQ4 SOMT 170625T	9.0	2.48
FFQ4 D160-10-40-17	160.00	130.80	3.00	14.6	10	63.00	40.00	40.00	95.00	0.2	290.80	319.00	0	C	FFQ4 SOMT 170625T	9.0	2.90

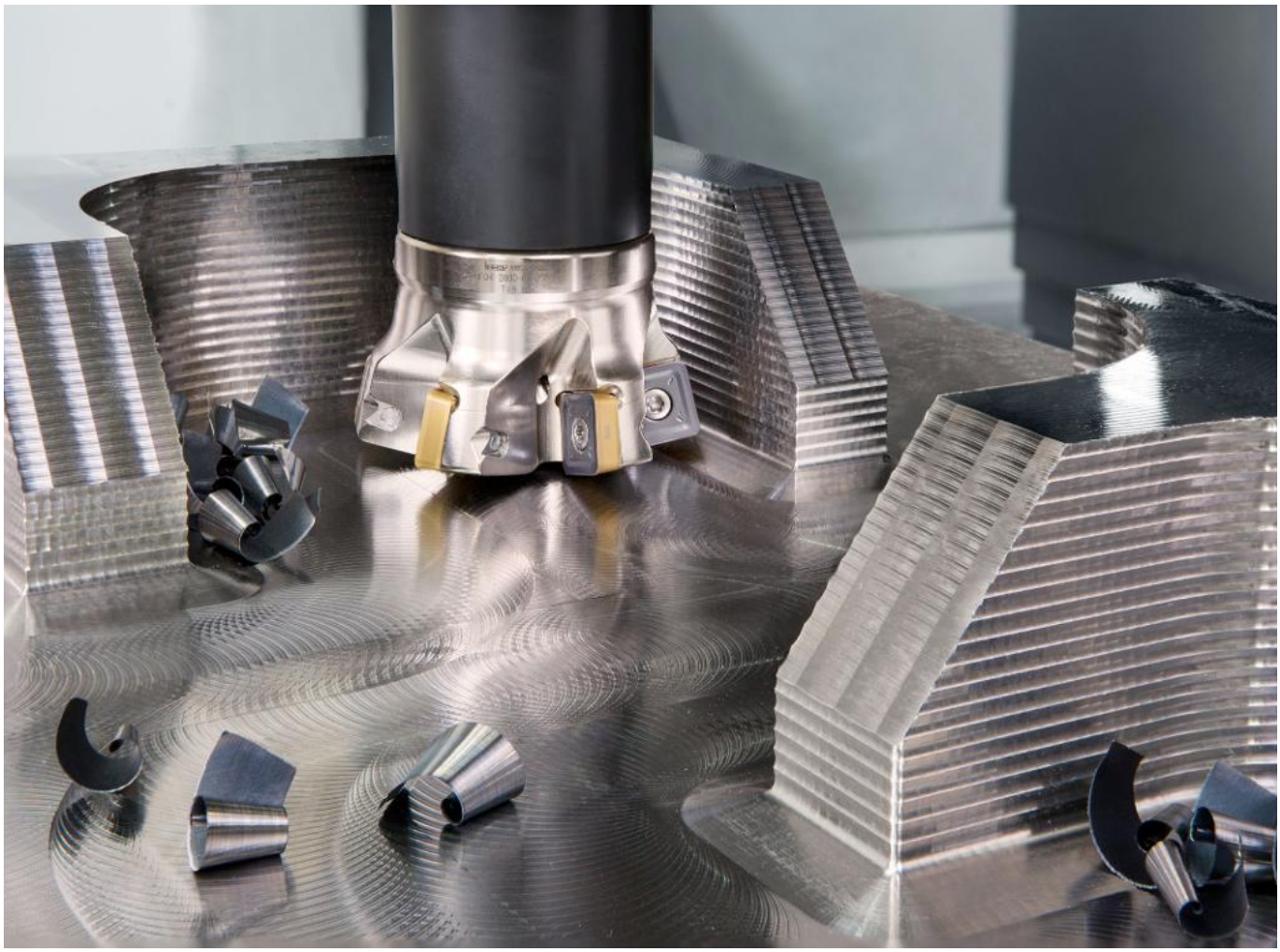
- To generate a straight surface without cusps, the width of cut must not exceed DC • Radius for programming: for insert SOMT 5.5 mm, for insert SOMW 6.4 mm
- When mounting insert SOMW, APMX=2.5 mm • For slot milling or machining with high tool overhang, the maximum depth of cut should be reduced by 50%
- For user guide, see pages 616-622

(1) Cutting diameter maximum
(2) Maximum plunging width
(3) Number of inserts (or edges for solid tool)
(4) Maximum ramping angle
(5) Machinable diameter minimum for interpolation
(6) Machinable diameter maximum for interpolation
(7) 0 - Without coolant supply, 1 - With coolant supply
(8) Master insert identification
(9) Recommended tightening torque (N*m) for insert screw

For inserts, see pages: FFQ4 SOMT/W 1706 (592)

Spare Parts

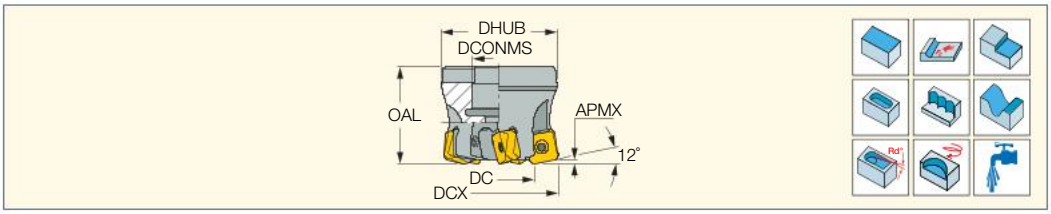
Designation				
FFQ4 D080-06-27-17	SR M5-14 IP20	SW6-T	BLD IP20/S7	SR M12X30DIN912
FFQ4 D100-07-32-17	SR M5-14 IP20	SW6-T	BLD IP20/S7	SR M16X30 DIN912
FFQ4 D125-08-40-17	SR M5-14 IP20	SW6-T	BLD IP20/S7	
FFQ4 D160-10-40-17	SR M5-14 IP20	SW6-T	BLD IP20/S7	



NEOFEED HIGH FEED LINE

FFQ8-12

Fast Feed Face Mills Carrying Double-Sided Square Inserts with 8 Cutting Edges



Designation	DC	DCX(1)	APMX	CICT(2)	OAL	DHUB	DCONMS	Arbor	RMPX°(3)	MDN(4)	MDX(5)	TQ(6)	MIID(7)	kg
FFQ8 D050-05-22-12	30.60	50.00	1.50	5	40.00	48.00	22.00	A	0.3	80.60	99.00	4.8	FFQ8 SZMU 120520	0.46
FFQ8 D063-06-22-12	43.60	63.00	1.50	6	40.00	48.00	22.00	A	0.2	106.60	125.00	4.8	FFQ8 SZMU 120520	0.60
FFQ8 D066-06-27-12	46.60	66.00	1.50	6	50.00	60.00	27.00	A	0.2	112.60	131.00	4.8	FFQ8 SZMU 120520	0.83
FFQ8 D080-07-27-12	60.60	80.00	1.50	7	50.00	60.00	27.00	A	0.2	140.60	159.00	4.8	FFQ8 SZMU 120520	1.98
FFQ8 D100-08-32-12	80.60	100.00	1.50	8	50.00	78.00	32.00	B	0.1	180.60	199.00	4.8	FFQ8 SZMU 120520	3.03

- Radius for programming 3.6 mm • For user guide, see pages 616-622 • To generate a straight surface without cusps, the width of cut must not exceed DC
- For slot milling or machining with high tool overhang, the maximum depth of cut should be reduced by 30%.

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Maximum ramping angle
(4) Machinable diameter minimum for interpolation
(5) Machinable diameter maximum for interpolation
(6) Recommended tightening torque (N*m) for insert screw
(7) Master insert identification

For inserts, see pages: FFQ8 SZMU (594)

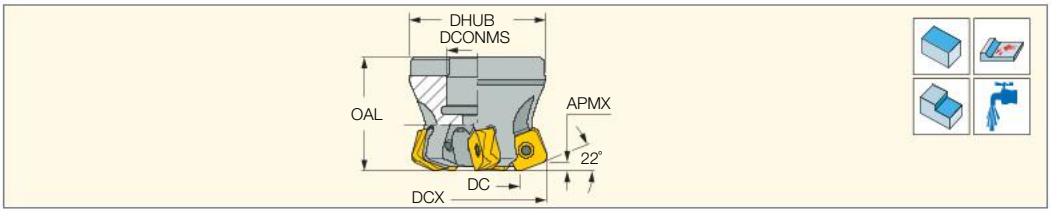
Spare Parts

Designation				
FFQ8 D050-05-22-12	SR M4X0.7-L11.5 IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
FFQ8 D063-06-22-12	SR M4X0.7-L11.5 IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
FFQ8 D066-06-27-12	SR M4X0.7-L11.5 IP15	BLD IP15/S7	SW6-T-SH	SR M12X30DIN912
FFQ8 D080-07-27-12	SR M4X0.7-L11.5 IP15	BLD IP15/S7	SW6-T-SH	SR M12X30DIN912
FFQ8 D100-08-32-12	SR M4X0.7-L11.5 IP15	BLD IP15/M7	SW6-T-SH	

NEOFEED HIGH FEED LINE

MFQ8-12

Moderate Feed Face Mills Carrying Double-Sided Square Inserts with 8 Cutting Edges



Designation	DC	DCX(1)	APMX	CICT(2)	OAL	DHUB	DCONMS	Arbor	TQ(3)	MIID(4)	kg
MFQ8 D050-05-22-12	31.60	50.00	3.00	5	40.00	48.00	22.00	A	4.8	FFQ8 SZMU 120520	0.44
MFQ8 D063-06-22-12	44.60	63.00	3.00	6	40.00	48.00	22.00	A	4.8	FFQ8 SZMU 120520	0.84
MFQ8 D080-07-27-12	61.60	80.00	3.00	7	50.00	60.00	27.00	A	4.8	FFQ8 SZMU 120520	1.84
MFQ8 D100-08-32-12	81.60	100.00	3.00	8	50.00	78.00	32.00	B	4.8	FFQ8 SZMU 120520	2.95

- Radius for programming 5.0 mm • For user guide, see pages 616-622 • To generate a straight surface without cusps, the width of cut must not exceed DC
- For slot milling or machining with high tool overhang, the maximum depth of cut should be reduced by 30%.

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Recommended tightening torque (N*m) for insert screw
(4) Master insert identification

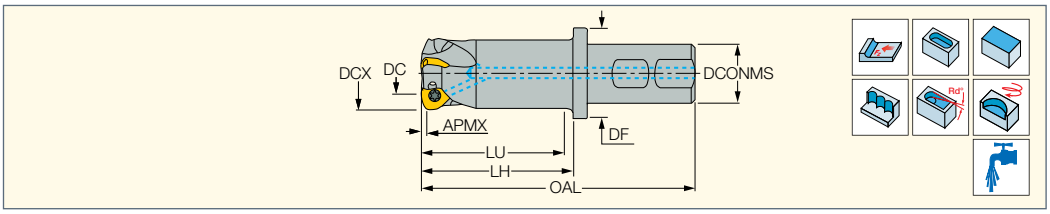
For inserts, see pages: FFQ8 SZMU (594)

Spare Parts

Designation				
MFQ8 D050-05-22-12	SR M4X0.7-L11.5 IP15	BLD IP15/S7	SW6-T-SH	SR M10X40-1638
MFQ8 D063-06-22-12	SR M4X0.7-L11.5 IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
MFQ8 D080-07-27-12	SR M4X0.7-L11.5 IP15	BLD IP15/S7	SW6-T-SH	SR M12X30DIN912
MFQ8 D100-08-32-12	SR M4X0.7-L11.5 IP15	BLD IP15/M7	SW6-T-SH	

FEEDMILL

FF EW
Fast Feed Endmills with
FF WOMT... Inserts

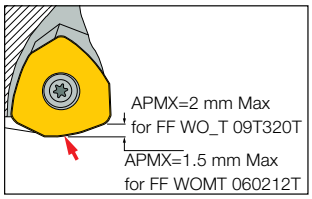


Designation	DCX(1)	DC	APMX	CICT(2)	LH	LU	OAL	DF	DCONMS	Shank(3)	RMPX°(4)	TQ(5)	MIID(6)	kg
FF EW D25-050-W25-06-C	25.00	11.00	1.20	2	53.0	-	118.00	-	25.00	W	5.0	2.0	FF WOMT0602	0.37
FF EW D25-080-C25-06-C	25.00	11.00	1.20	2	83.0	-	180.00	-	25.00	C	5.0	2.0	FF WOMT0602	0.58
FF EW D25-080-W25-06-C	25.00	11.00	1.20	2	83.0	-	148.00	-	25.00	W	5.0	2.0	FF WOMT0602	0.46
FF EW D25-120-C24-06-C	25.00	11.00	1.20	2	121.4	-	220.00	-	24.00	C	5.0	2.0	FF WOMT0602	0.68
FF EW D32-060-W25-06-C	32.00	18.00	1.20	3	63.0	-	128.00	30.40	25.00	W	4.0	2.0	FF WOMT0602	0.52
FF EW D32-100-C32-06-C	32.00	18.00	1.20	3	103.0	-	230.00	-	32.00	C	4.0	2.0	FF WOMT0602	1.28
FF EW D32-100-W25-06-C	32.00	18.00	1.20	3	103.0	-	168.00	30.40	25.00	W	4.0	2.0	FF WOMT0602	0.73
FF EW D40-150-W32-09-C	40.00	19.20	2.00	3	150.0	147.0	217.50	50.00	32.00	W	5.0	4.8	FF WOMT09T3	1.56

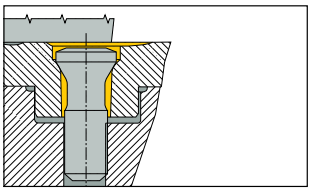
- For user guide, see pages 616-622

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) C-Cylindrical, W-Weldon
(4) Maximum ramping angle
(5) Insert tightening torque
(6) Master insert identification

For inserts, see pages: FF WOCT/WOMT/WOMW (595)



Cutting forces are directed axially towards the spindle, enabling cutting at very high feeds with high stability and no vibrations.



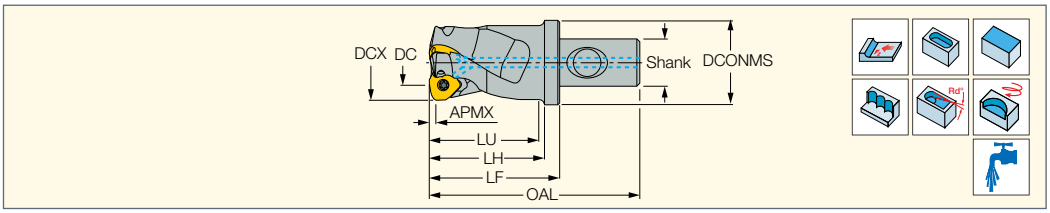
A cylinder at the bottom of the insert provides very rigid clamping, absorbing most of the forces usually exerted on the clamping screw.

Spare Parts

Designation				
FF EW D25-050-W25-06-C	SR 34-506/M	T-9/51		
FF EW D25-080-C25-06-C	SR 34-506/M	T-9/51		
FF EW D25-080-W25-06-C	SR 34-506/M	T-9/51		
FF EW D25-120-C24-06-C	SR 34-506/M	T-9/51		
FF EW D32-060-W25-06-C	SR 34-506/M	T-9/51		
FF EW D32-100-C32-06-C	SR 34-506/M	T-9/51		
FF EW D32-100-W25-06-C	SR 34-506/M	T-9/51		
FF EW D40-150-W32-09-C	SR 34-535		BLD T15/S7	SW6-T

FEEDMILL

FF EW-CF
Fast Feed Endmills with
CLICK-FIT Shanks



Designation	DCX(1)	DC	CICT(2)	APMX	LU	LH	LF	OAL	DCONMS	RMPX°(3)	Shank	TQ(4)	MIID(5)	kg
FF EW D32-060-CF4-06-C	32.00	18.00	3	1.20	60.0	64.00	72.00	114.00	44.00	4.0	CF4	2.0	FF WOMT0602	0.54
FF EW D32-100-CF4-06-C	32.00	18.00	3	1.20	100.0	104.00	112.00	154.00	44.00	4.0	CF4	2.0	FF WOMT0602	0.74

- For user guide, see pages 616-621

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Maximum ramping angle
(4) Insert tightening torque
(5) Master insert identification

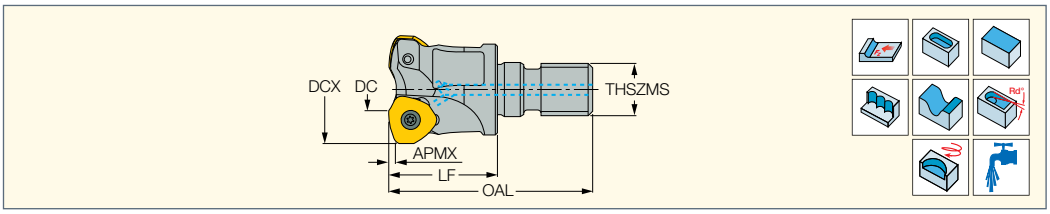
For inserts, see pages: FF WOCT/WOMT/WOMW (595)

Spare Parts

Designation		
FF EW-CF	SR 34-506/M	T-9/51

FEEDMILL

FF EW-M
Fast Feed Endmills with
FLEX-FIT Threaded Adaptation



Designation	DCX(1)	DC	CICT(2)	APMX	THSZMS	LF	OAL	RMPX°(3)	TQ(4)	MIID(5)	TQ_3(6)	kg
FF EW D25-M12-06-C	25.00	11.00	2	1.20	M12	25.00	47.00	5.0	2.0	FF WOMT0602	33	0.06
FF EW D32-M16-06-C	32.00	18.00	3	1.20	M16	35.00	60.00	4.0	2.0	FF WOMT0602	40	0.16
FF EW D40-M16-06-C	40.00	26.00	4	1.20	M16	40.00	65.00	2.5	2.0	FF WOMT0602	40	0.23

• For user guide, see pages 616-621 • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Maximum ramping angle
(4) Insert tightening torque
(5) Master insert identification
(6) Tool tightening torque Nxm

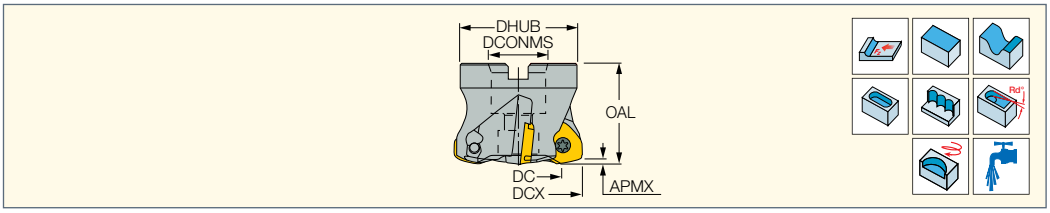
For inserts, see pages: FF WOCT/WOMT/WOMW (595)
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

Spare Parts

Designation		
FF EW-M	SR 34-506/M	T-9/51

FEEDMILL

FF FW
Fast Feed Face Mills



Designation	DCX(1)	DC	APMX	CICT(2)	OAL	DHUB	DCONMS	RMPX°(3)	Arbor(4)	MIID(5)	kg
FF FW D40-16-06-C	40.00	26.00	1.20	4	35.00	38.00	16.00	2.5	A	FF WOMT0602	0.17
FF FW D50-22-06-C	50.00	36.00	1.20	5	40.00	48.00	22.00	2.0	A	FF WOMT0602	0.31
FF FW D50-22-09-C	50.00	29.20	2.00	4	50.00	47.00	22.00	4.0	A	FF WOMT09T3	0.34
FF FW D52-22-09-C	52.00	31.20	2.00	4	40.00	47.00	22.00	4.0	A	FF WOMT09T3	0.27
FF FW D63-22-09-C	63.00	42.20	2.00	5	40.00	58.00	22.00	3.0	A	FF WOMT09T3	0.47
FF FW D63-27-09-C	63.00	42.20	2.00	5	50.00	61.00	27.00	3.0	A	FF WOMT09T3	0.57
FF FW D66-22-09-C	66.00	45.20	2.00	5	40.00	61.00	22.00	2.8	A	FF WOMT09T3	0.56
FF FW D66-27-09-C	66.00	45.20	2.00	5	50.00	61.00	27.00	2.8	A	FF WOMT09T3	0.64
FF FW D80-32-09-C	80.00	59.20	2.00	5	50.00	75.00	32.00	2.0	A	FF WOMT09T3	0.97
FF FW D100-32-09-C	100.00	79.20	2.00	6	50.00	78.00	32.00	1.5	B	FF WOMT09T3	1.32

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Maximum ramping angle
(4) For adaptation options, see page 622
(5) Master insert identification

For inserts, see pages: FF WOCT/WOMT/WOMW (595)

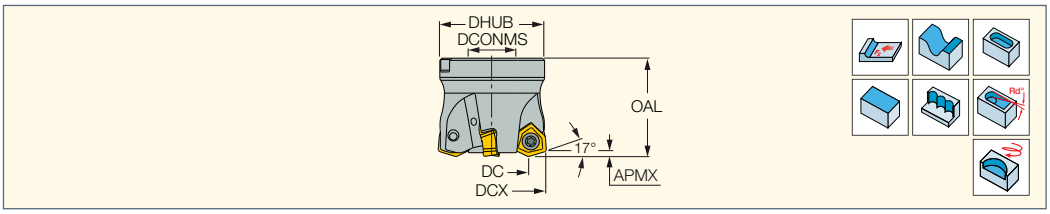
Spare Parts

Designation					
FF FW D40-16-06-C	SR 34-506/M			T-9/51	SR M8X25DIN912
FF FW D50-22-06-C	SR 34-506/M			T-9/51	SR M10X25 DIN912
FF FW D50-22-09-C	SR 34-535	BLD T15/S7	SW6-T-SH		SR PS 118-0273
FF FW D52-22-09-C	SR 34-535	BLD T15/S7	SW6-T-SH		SR M10X25 DIN912
FF FW D63-22-09-C	SR 34-535	BLD T15/S7	SW6-T-SH		SR M10X25 DIN912
FF FW D63-27-09-C	SR 34-535	BLD T15/S7	SW6-T-SH		SR M12X30DIN912
FF FW D66-22-09-C	SR 34-535	BLD T15/S7	SW6-T		SR M10X25 DIN912
FF FW D66-27-09-C	SR 34-535	BLD T15/S7	SW6-T		SR M12X30DIN912
FF FW D80-32-09-C	SR 34-535	BLD T15/S7	SW6-T-SH		SR M16X30 DIN912
FF FW D100-32-09-C	SR 34-535	BLD T15/M7	SW6-T-SH		

HELI6FEED UPFEED LINE

FF FWX

Fast Feed Face Mills Carrying Double-Sided Inserts with 6 Cutting Edges



Designation	DC	DCX(1)	APMX	CICT(2)	OAL	DHUB	DCONMS	Arbor(3)	RMPX°(4)	MDN(5)	MDX(6)	CSP(7)	MIID(8)	TQ(9)	kg
FF FWX D040-05-16-05	30.10	40.00	1.00	5	35.00	38.00	16.00	A	2.8	70.10	79.00	1	H600 WXCU 05T312T	2.0	0.20
FF FWX D050-06-22-05	40.10	50.00	1.00	6	40.00	48.00	22.00	A	2.0	90.10	99.00	1	H600 WXCU 05T312T	2.0	0.36
FF FWX D052-06-22-05	42.10	52.00	1.00	6	40.00	48.00	22.00	A	1.9	94.10	103.00	1	H600 WXCU 05T312T	2.0	0.37
FF FWX D040-04-16-07	27.00	40.00	1.50	4	35.00	38.00	16.00	A	4.2	67.00	79.00	1	H600 WXCU 070515HP	4.8	0.18
FF FWX D050-05-22-07	37.00	50.00	1.50	5	40.00	48.00	22.00	A	2.9	87.00	99.00	1	H600 WXCU 070515HP	4.8	0.33
FF FWX D052-05-22-07	39.00	52.00	1.50	5	40.00	48.00	22.00	A	2.8	91.00	103.00	1	H600 WXCU 070515HP	4.8	0.33
FF FWX D063-06-22-07	50.00	63.00	1.50	6	40.00	61.00	22.00	A	2.1	113.00	125.00	1	H600 WXCU 070515HP	4.8	0.58
FF FWX D080-07-32-07	67.00	80.00	1.50	7	55.00	76.00	32.00	A	1.6	147.00	159.00	1	H600 WXCU 070515HP	4.8	1.38
FF FWX D100-08-32-07	87.00	100.00	1.50	8	50.00	78.00	32.00	B	1.2	187.00	199.00	1	H600 WXCU 070515HP	4.8	1.47
FF FWX D050-04-22-08	34.00	50.00	2.00	4	45.00	48.00	22.00	A	4.8	84.00	99.00	1	H600 WXCU 080612T	9.0	0.34
FF FWX D052-04-22-08	36.00	52.00	2.00	4	45.00	48.00	22.00	A	4.5	88.00	103.00	1	H600 WXCU 080612T	9.0	0.37
FF FWX D063-05-22-08	47.00	63.00	2.00	5	45.00	61.00	22.00	A	3.3	110.00	125.00	1	H600 WXCU 080612T	9.0	0.61
FF FWX D063-05-27-08	47.00	63.00	2.00	5	50.00	61.00	27.00	A	3.3	110.00	125.00	1	H600 WXCU 080612T	9.0	0.65
FF FWX D066-05-22-08	50.00	66.00	2.00	5	45.00	61.00	22.00	A	3.1	116.00	131.00	1	H600 WXCU 080612T	9.0	0.68
FF FWX D066-05-27-08	50.00	66.00	2.00	5	50.00	61.00	27.00	A	3.1	116.00	131.00	1	H600 WXCU 080612T	9.0	0.72
FF FWX D080-06-32-08	64.00	80.00	2.00	6	55.00	76.00	32.00	A	2.3	144.00	159.00	1	H600 WXCU 080612T	9.0	1.24
FF FWX D100-07-32-08	84.00	100.00	2.00	7	50.00	78.00	32.00	B	1.7	184.00	199.00	1	H600 WXCU 080612T	9.0	1.42
FF FWX D125-09-40-08	109.00	125.00	2.00	9	55.00	90.00	40.00	B	1.3	234.00	249.00	1	H600 WXCU 080612T	9.0	2.37
FF FWX D160-11-40-08	144.00	160.00	2.00	11	55.00	95.00	40.00	C	1.0	304.00	319.00	0	H600 WXCU 080612T	9.0	3.44

- For machining recommendations and radius for programming, see table on page 597
- To generate a straight surface without cusps, the width of cut must not exceed DC
- For user guide, see pages 616-621

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) For adaptation options, see page 622
(4) Maximum ramping angle
(5) Machinable diameter minimum for interpolation
(6) Machinable diameter maximum for interpolation
(7) 0 - Without coolant supply, 1 - With coolant supply
(8) Master insert identification
(9) Recommended tightening torque (N*m) for insert screw

For inserts, see pages: H600 WXCU (597)

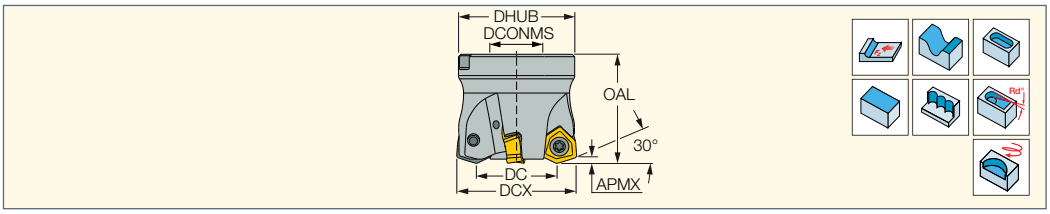
Spare Parts

Designation					
FF FWX D040-05-16-05	SR 10508600	T-9/51			SR M8X25DIN912
FF FWX D050-06-22-05	SR 10508600	T-9/51			SR M10X25 DIN912
FF FWX D052-06-22-05	SR 10508600	T-9/51			SR M10X25 DIN912
FF FWX D040-04-16-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH	SR M8X25-D11.5
FF FWX D050-05-22-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH	SR M10X25 DIN912
FF FWX D052-05-22-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH	SR M10X25 DIN912
FF FWX D063-06-22-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH	SR M10X25 DIN912
FF FWX D080-07-32-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH	SR M16X30 DIN912
FF FWX D100-08-32-07	SR 34-535-SN		BLD T15/M7	SW6-T-SH	
FF FWX D050-04-22-08	SR 14-591/H		BLD T20/S7	SW6-T	SR M10X25 DIN912
FF FWX D052-04-22-08	SR 14-591/H		BLD T20/S7	SW6-T	SR M10X25 DIN912
FF FWX D063-05-22-08	SR 14-591/H		BLD T20/S7	SW6-T	SR M10X25 DIN912
FF FWX D063-05-27-08	SR 14-591/H		BLD T20/S7	SW6-T	SR M12X30DIN912
FF FWX D066-05-22-08	SR 14-591/H		BLD T20/S7	SW6-T	SR M10X25 DIN912
FF FWX D066-05-27-08	SR 14-591/H		BLD T20/S7	SW6-T	SR M12X30DIN912
FF FWX D080-06-32-08	SR 14-591/H		BLD T20/S7	SW6-T	SR M16X30 DIN912
FF FWX D100-07-32-08	SR 14-591/H		BLD T20/M7	SW6-T	
FF FWX D125-09-40-08	SR 14-591/H		BLD T20/L7	SW6-T	
FF FWX D160-11-40-08	SR 14-591/H		BLD T20/L7	SW6-T	

HELI6FEED UPFEED LINE

MF FWX

Moderate Feed Face Mills Carrying Double-Sided Inserts with 6 Cutting Edges



Designation	DC	DCX[1]	APMX	CICT[2]	OAL	DHUB	DCONMS	Arbor[3]	RMPX°[4]	MDN[5]	MDX[6]	CSP[7]	MIID[8]	TQ[9]	kg
MF FWX D040-05-16-05	30.60	40.00	2.00	5	35.00	38.00	16.00	A	1.4	70.60	79.00	1	H600 WXCU 05T312T	2.0	0.17
MF FWX D050-06-22-05	40.50	50.00	2.00	6	40.00	48.00	22.00	A	1.0	90.50	99.00	1	H600 WXCU 05T312T	2.0	0.30
MF FWX D052-06-22-05	42.50	52.00	2.00	6	40.00	48.00	22.00	A	1.0	94.50	103.00	1	H600 WXCU 05T312T	2.0	0.32
MF FWX D063-08-22-05	53.50	63.00	2.00	8	40.00	48.00	22.00	A	0.8	116.50	125.00	1	H600 WXCU 05T312T	2.0	0.41
MF FWX D040-04-16-07	27.70	40.00	2.70	4	35.00	38.00	16.00	A	2.0	67.70	79.00	1	H600 WXCU 070515HP	4.8	0.17
MF FWX D050-05-22-07	37.70	50.00	2.70	5	40.00	48.00	22.00	A	1.4	87.70	99.00	1	H600 WXCU 070515HP	4.8	0.31
MF FWX D052-05-22-07	39.70	52.00	2.70	5	40.00	48.00	22.00	A	1.3	91.70	103.00	1	H600 WXCU 070515HP	4.8	0.32
MF FWX D063-06-22-07	50.70	63.00	2.70	6	40.00	48.00	22.00	A	1.0	113.70	125.00	1	H600 WXCU 070515HP	4.8	0.42
MF FWX D080-07-32-07	67.70	80.00	2.70	7	55.00	76.00	32.00	A	0.8	147.70	159.00	1	H600 WXCU 070515HP	4.8	1.21
MF FWX D100-08-32-07	87.70	100.00	2.70	8	50.00	78.00	32.00	B	0.6	187.70	199.00	1	H600 WXCU 070515HP	4.8	1.46
MF FWX D050-04-22-08	34.70	50.00	3.50	4	45.00	48.00	22.00	A	2.5	84.70	99.00	1	H600 WXCU 080612T	9.0	0.32
MF FWX D063-05-27-08	47.70	63.00	3.50	5	50.00	61.00	27.00	A	1.7	110.70	125.00	1	H600 WXCU 080612T	9.0	0.63
MF FWX D066-05-27-08	50.70	66.00	3.50	5	50.00	61.00	27.00	A	1.7	116.70	131.00	1	H600 WXCU 080612T	9.0	0.64
MF FWX D080-06-32-08	64.70	80.00	3.50	6	55.00	76.00	32.00	A	1.2	144.70	159.00	1	H600 WXCU 080612T	9.0	1.13
MF FWX D100-07-32-08	84.70	100.00	3.50	7	50.00	78.00	32.00	B	0.9	184.70	199.00	1	H600 WXCU 080612T	9.0	1.37
MF FWX D125-09-40-08	109.70	125.00	3.50	9	55.00	90.00	40.00	B	0.7	234.70	249.00	1	H600 WXCU 080612T	9.0	2.36
MF FWX D160-11-40-08	144.70	160.00	3.50	11	55.00	95.00	40.00	C	0.5	304.70	319.00	0	H600 WXCU 080612T	9.0	3.63

- For machining recommendations and radius for programming, see table on page 597 • To generate a straight surface without cusps, the width of cut must not exceed DC
- For user guide, see pages 616-621

[1] Cutting diameter maximum
[2] Number of inserts (or edges for solid tool)
[3] For adaptation options, see page 622
[4] Maximum ramping angle
[5] Machinable diameter minimum for interpolation
[6] Machinable diameter maximum for interpolation
[7] 0 - Without coolant supply, 1 - With coolant supply
[8] Master insert identification
[9] Recommended tightening torque (N*m) for insert screw

For inserts, see pages: H600 WXCU (597)

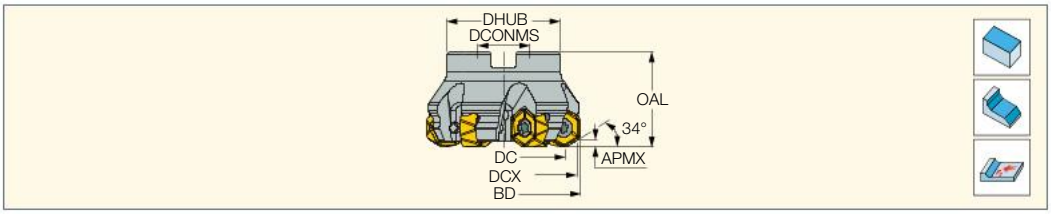
Spare Parts

Designation					
MF FWX D040-05-16-05	SR 10508600	T-9/51			SR M8X25DIN912
MF FWX D050-06-22-05	SR 10508600	T-9/51			SR M10X25 DIN912
MF FWX D052-06-22-05	SR 10508600	T-9/51			SR M10X25 DIN912
MF FWX D063-08-22-05	SR 10508600	T-9/51			SR M10X25 DIN912
MF FWX D040-04-16-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH	SR M8X25-D11.5
MF FWX D050-05-22-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH	SR M10X25 DIN912
MF FWX D052-05-22-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH	SR M10X25 DIN912
MF FWX D063-06-22-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH	SR M10X25 DIN912
MF FWX D080-07-32-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH	SR M16X30 DIN912
MF FWX D100-08-32-07	SR 34-535-SN		BLD T15/M7	SW6-T-SH	
MF FWX D050-04-22-08	SR 14-591/H		BLD T20/S7	SW6-T	SR M10X25 DIN912
MF FWX D063-05-27-08	SR 14-591/H		BLD T20/S7	SW6-T	SR M12X30DIN912
MF FWX D066-05-27-08	SR 14-591/H		BLD T20/S7	SW6-T	SR M12X30DIN912
MF FWX D080-06-32-08	SR 14-591/H		BLD T20/S7	SW6-T	SR M16X30 DIN912
MF FWX D100-07-32-08	SR 14-591/H		BLD T20/M7	SW6-T	
MF FWX D125-09-40-08	SR 14-591/H		BLD T20/L7	SW6-T	
MF FWX D160-11-40-08	SR 14-591/H		BLD T20/L7	SW6-T	

HELI 12 FEED UPFEED LINE

MF FHX-R06

34° Face Mills Carrying Hexagonal Inserts with 12 Cutting Edges



Designation	DCX(1)	BD	DC	CICT(2)	APMX	OAL	DHUB	DCONMS	Arbor(3)	CSP(4)	MIID(5)	TQ(6)	kg
MF FHX D063-06-22-R06	63.00	65.40	53.40	6	3.00	40.00	48.00	22.00	A	1	H1200 HXCU 0606-HPR	9.0	0.46
MF FHX D080-07-27-R06	80.00	82.40	70.40	7	3.00	50.00	60.00	27.00	A	1	H1200 HXCU 0606-HPR	9.0	0.98
MF FHX D080-07-32-R06	80.00	82.40	70.40	7	3.00	50.00	66.00	32.00	A	1	H1200 HXCU 0606-HPR	9.0	0.86
MF FHX D100-09-32-R06	100.00	102.40	90.40	9	3.00	50.00	78.00	32.00	B	1	H1200 HXCU 0606-HPR	9.0	1.57
MF FHX D125-11-40-R06	125.00	127.40	115.40	11	3.00	50.00	92.00	40.00	B	1	H1200 HXCU 0606-HPR	9.0	2.44
MF FHX D160-13-40-R06	160.00	162.40	150.40	13	3.00	55.00	95.00	40.00	C	0	H1200 HXCU 0606-HPR	9.0	3.48
MF FHX D052-05-22-R06	999.00	999.00	999.00	999	999.00	999.00	999.00	999.00				999.0	0.60

- Radius for programming according to D1 diameter is 5.4 mm
- When machining next to shoulders, maximum width of cut should be 0.3xD
- To generate a straight surface without cusps, the width of cut must not exceed DC
- For cutting speed recommendations, see pages 616-621

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) For adaptation options, see page 622
(4) 0 - Without coolant supply, 1 - With coolant supply
(5) Master insert identification
(6) Recommended tightening torque (N*m) for insert screw

For inserts, see pages: H1200 HXCU 0606 (599)

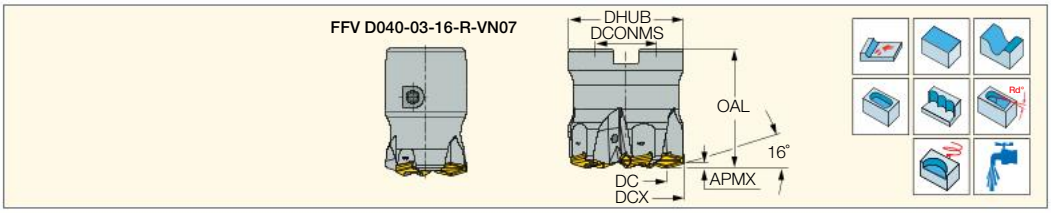
Spare Parts

Designation				
MF FHX D063-06-22-R06	SR 14-591/H	BLD T20/S7	SW6-T	SR M10X25 DIN912
MF FHX D080-07-27-R06	SR 14-591/H	BLD T20/S7	SW6-T	SR M12X30DIN912
MF FHX D080-07-32-R06	SR 14-591/H	BLD T20/S7	SW6-T	SR M16X30 DIN912
MF FHX D100-09-32-R06	SR 14-591/H	BLD T20/M7	SW6-T	
MF FHX D125-11-40-R06	SR 14-591/H	BLD T20/M7	SW6-T	
MF FHX D160-13-40-R06	SR 14-591/H	BLD T20/M7	SW6-T	
MF FHX D052-05-22-R06	SR 14-591/H	BLD T20/S7	SW6-T	

TANG 4 FEED HI-FEED MILLING

FFV-D-R-VN07

Fast Feed Shell Mill Carrying Tangentially Clamped Inserts with 4 Cutting Edges



Designation	DCX(2)	DC	APMX	AE(3)	CICT(4)	OAL	DCONMS	DHUB	RMPX°(5)	MDN(6)	MDX(7)	Arbor	MIID(8)	TQ(9)	kg
FFV D040-03-16-R-VN07 (1)	40.00	25.00	1.50	7.5	3	60.00	16.00	25.00	3.0	65.00	79.00	Special	FF VNMT 0706ZN-ER	4.8	0.36
FFV D050-05-22-R-VN07	50.00	35.00	1.50	7.5	5	50.00	22.00	48.00	3.2	85.00	99.00	A	FF VNMT 0706ZN-ER	4.8	0.47
FFV D063-06-22-R-VN07	63.00	48.00	1.50	7.5	6	40.00	22.00	48.00	2.2	111.00	125.00	A	FF VNMT 0706ZN-ER	4.8	0.00
FFV D080-07-27-R-VN07	80.00	65.00	1.50	7.5	7	50.00	27.00	60.00	1.5	145.00	159.00	B	FF VNMT 0706ZN-ER	4.8	0.81
FFV D100-08-32-R-VN07	100.00	85.00	1.50	7.5	8	50.00	32.00	78.00	1.2	185.00	199.00	B	FF VNMT 0706ZN-ER	4.8	1.61

- Radius for programming 2.8 mm
- To generate a straight surface without cusps, the width of cut must not exceed DC

(1) Use with the supplied retention screw this screw was designed to be used instead of the standard cutter's frontal screw
(2) Cutting diameter maximum
(3) Maximum plunging width
(4) Number of inserts (or edges for solid tool)
(5) Maximum ramping angle
(6) Machinable diameter minimum for interpolation
(7) Machinable diameter maximum for interpolation
(8) Master insert identification
(9) Recommended tightening torque (N*m) for insert screw

For inserts, see pages: FF VNMT 0706 (600)

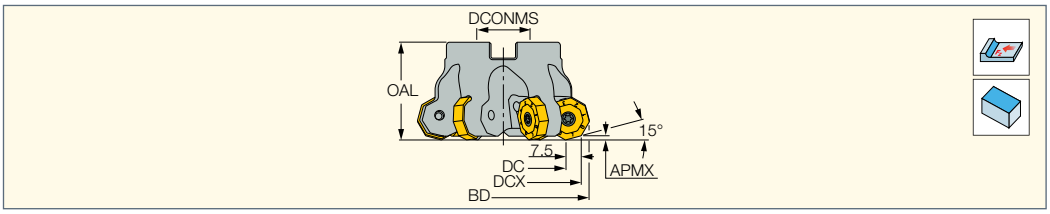
Spare Parts

Designation						
FFV D040-03-16-R-VN07	SR M4X0.7-L11.5 IP15	BLD IP15/S7	SW6-T-SH	SR M8X17-13685		HW 4.0
FFV D050-05-22-R-VN07	SR M4X0.7-L11.5 IP15	BLD IP15/S7	SW6-T-SH		SR PS 118-0271C	
FFV D063-06-22-R-VN07	SR M4X0.7-L11.5 IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912		
FFV D080-07-27-R-VN07	SR M4X0.7-L11.5 IP15	BLD IP15/S7	SW6-T-SH			
FFV D100-08-32-R-VN07	SR M4X0.7-L11.5 IP15	BLD IP15/S7	SW6-T-SH			

16FEEDMILL

FF NM

Fast Feed Face Mills Carrying Octagonal ONHU/MU 0806... Inserts with 16 Cutting Edges

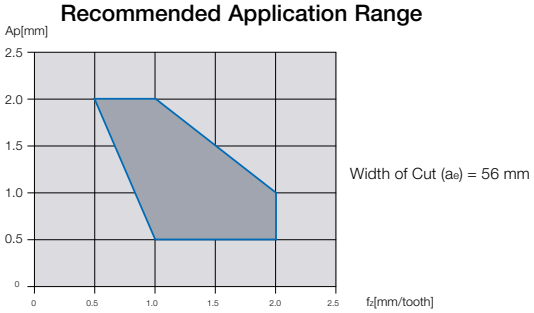


Designation	DCX[1]	DC	CICT[2]	APMX	OAL	Rg[3]	DCONMS	Arbor[4]	MIID[5]	kg			
FF NM D080-06-27-R08	80.00	64.50	6	2.00	50.00	8.00	27.00	A	ONHU 080608-TN	0.84	SR 14-591/H	BLD T20/S7	SW6-T

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Radius for programming
(4) For adaptation options, see page 622
(5) Master insert identification

For inserts, see pages: ONHU/ONMU-08-TN-MM (587) • ONHU/ONMU-08-TN/HL (587)

Recommended Application Range



Width of Cut (a_e) = 56 mm

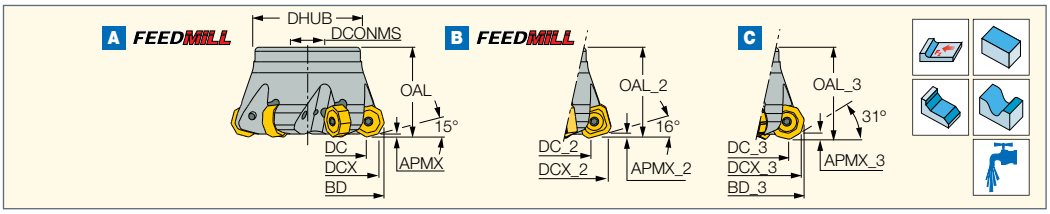
Cutting Data Recommendation

Material	V_c [m/min]
Steel AISI 4340/34CrNiMO6	120-150
Nodular cast iron GGG 50	170

HELIDO 800 LINE

FF SOF

Multifunction Fast Feed Milling Cutter for Octagonal and Square Insert Contours with Various Entry Angles



Designation	DC	DCX[1]	BD	APMX	OAL	DC_2	DCX_2	APMX_2	OAL_2	DC_3	DCX_3
FF SOF 8/16-D063-06-22R	52.60	63.00	68.40	1.20	40.00	49.50	69.20	2.20	40.40	56.60	66.80
FF SOF 8/16 D080-07-27R	69.60	80.00	85.40	1.20	40.00	66.50	86.20	2.20	40.40	73.60	83.80
FF SOF 8/16 D100-08-32R	89.60	100.00	105.40	1.20	50.00	86.50	106.20	2.20	50.40	93.60	103.80

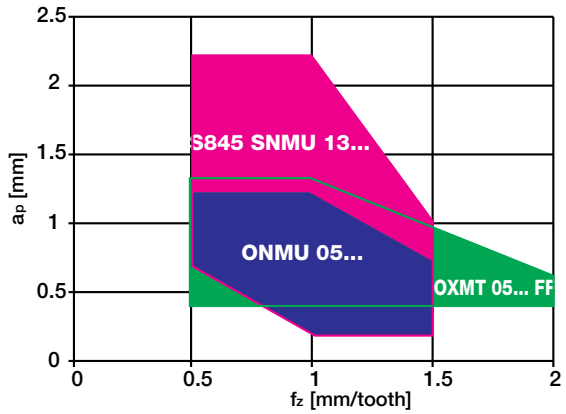
Designation	BD_3	APMX_3	OAL_3	CICT[2]	DHUB	DCONMS	Arbor[3]	MIID[4]	kg
FF SOF 8/16-D063-06-22R	70.40	2.70	40.90	6	65.60	22.00	B	ONHU 050500-N-HP	0.48
FF SOF 8/16 D080-07-27R	87.40	2.70	40.90	7	82.60	27.00	B	ONHU 050500-N-HP	1.04
FF SOF 8/16 D100-08-32R	107.40	2.70	50.90	8	102.60	32.00	B	ONHU 050500-N-HP	1.47

- A- with ONMU 0505... insert
- B- with S845 SNMU 1305... insert
- C- with OXMT 0507R08-FF insert
- Use only Torx Plus keys
- For user guide, see pages 616-621

[1] Cutting diameter maximum
[2] Number of inserts (or edges for solid tool)
[3] For adaptation options, see page 622
[4] Master insert identification

For inserts, see pages: ONHU/ONMU-05 (504) • OXMT 0507 (505) • S845 SNMU/SNHU-13 (500)

Application Range According to Insert Type



Material: SAE 4340
a_e: 0.7xD
V_c: 150-170 m/min

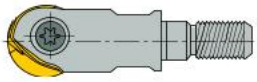
Spare Parts

Designation				
FF SOF 8/16-D063-06-22R	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
FF SOF 8/16 D080-07-27R	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M12X30DIN912
FF SOF 8/16 D100-08-32R	SR 11800745	BLD IP15/S7	SW6-T-SH	

FLEXFIT

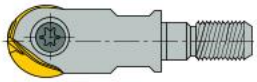
Milling Heads

M12



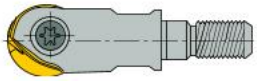
D20/.75

M12



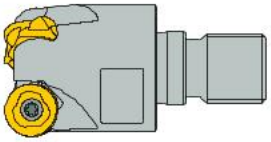
D25/1.00

M16



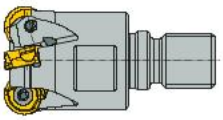
D25/1.00

M16



ERCM D32-...

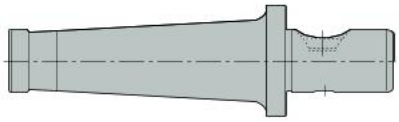
M16



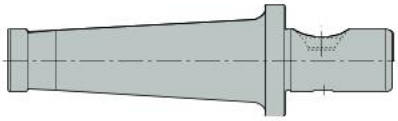
ERCM D40-...

Extensions

M12...CF4

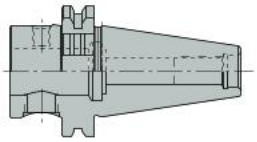


M16...CF4



CLICKFIT

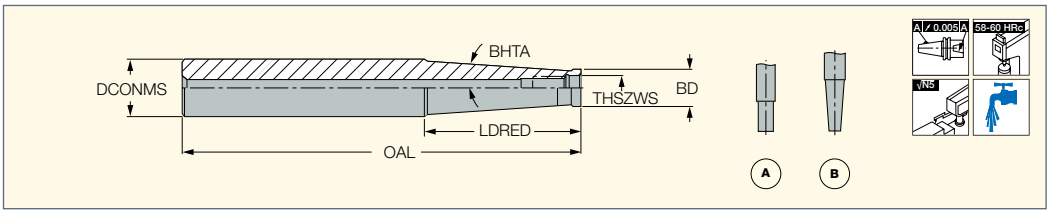
Adapter



FLEXFIT

Straight Shank

S M
Shanks for Tools with
FLEX-FIT Threaded Connection

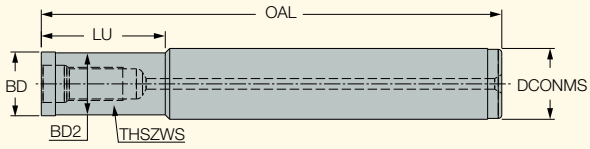


Designation	OAL	LDRED	DCONMS	Shank	BD	BHTA	THSZWS	Type	kg
S M06-L60 C10	60.00	20.0	10.00	C	9.70	-	M06	A	0.03
S M06-L105-C12	105.00	60.0	12.00	C	9.70	1.2	M06	B	0.06
S M06-L125-C16	125.00	60.0	16.00	C	9.70	3.3	M06	B	0.13
S M08-L73 C16	73.00	25.0	16.00	C	13.00	-	M08	A	0.09
S M08-L128-C16	128.00	80.0	16.00	C	13.00	0.9	M08	B	0.15
S M08-L170-C20	170.00	66.8	20.00	C	13.00	3.3	M08	B	0.33
S M10-L80 C20	80.00	30.0	20.00	C	18.00	-	M10	A	0.16
S M10-L130-C20	130.00	80.0	20.00	C	18.00	0.6	M10	B	0.25
S M10-L200-C25	200.00	57.2	25.00	C	19.00	3.3	M10	B	0.65
S M12-L86-C25	86.00	30.0	25.00	C	21.00	5.1	M12	A	0.27
S M12-L200-C32	200.00	78.0	32.00	C	21.00	4.4	M12	B	1.02
S M16-L95-C32	95.00	35.0	32.00	C	29.00	1.7	M16	A	0.50
S M16-L230-C32	230.00	50.0	32.00	C	29.00	1.8	M16	B	1.27

FLEXFIT

Straight Shank

S M-C-H
Carbide Shanks with Coolant
Channels for Tools with
FLEX-FIT Threaded Connection



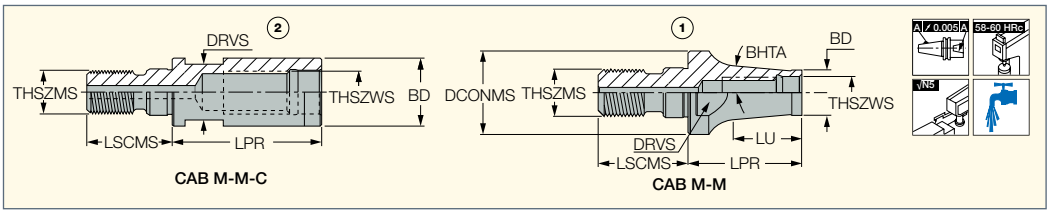
Designation	DCONMS	THSZWS	OAL	LU	BD	BD_2	kg
S M08-L150-C16-C-H	16.00	M08	150.00	80.0	15.30	15.30	0.39
S M08-L200-C16-C-H	16.00	M08	200.00	140.0	15.30	15.30	0.59
S M08-L250-C16-C-H	16.00	M08	250.00	180.0	15.30	15.30	0.84
S M10-L150-C20-C-H	20.00	M10	150.00	80.0	18.50	18.50	0.73
S M10-L200-C20-C-H	20.00	M10	200.00	140.0	18.00	17.50	0.91
S M10-L250-C20-C-H	20.00	M10	250.00	180.0	18.00	17.50	1.04
S M12-L200-C25-C-H	25.00	M12	200.00	100.0	21.00	20.50	1.41
S M12-L250-C25-C-H	25.00	M12	250.00	180.0	24.00	24.00	1.78
S M12-L300-C25-C-H	25.00	M12	300.00	180.0	21.00	20.50	2.04
S M16-L200-C32-C-H	32.00	M16	200.00	100.0	29.00	29.00	2.11
S M16-L250-C32-C-H	32.00	M16	250.00	180.0	29.00	29.00	2.36
S M16-L300-C32-C-H	32.00	M16	300.00	180.0	29.00	29.00	2.81

• For adaptation options, see page 356

FLEXFIT

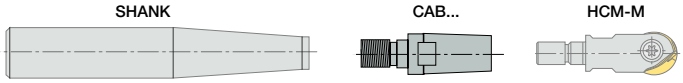
CAB M-M (FLEX-FIT)

Reducers and Extensions with Coolant Holes for the Modular FLEX-FIT System



Designation	THSZWS	THSZMS	BD	LPR	LU	DCONMS	LSCMS	DRVS(1)	Fig.	BHTA	kg
CAB M06M08	M06	M08	9.70	30.00	24.80	13.00	17.50	9.5	1.	5.7	0.02
CAB M08M08-C	M08	M08	13.00	30.00	-	-	17.50	9.6	2.	-	0.02
CAB M08M10	M08	M10	13.00	40.00	33.40	18.00	20.20	15.0	1.	5.2	0.07
CAB M10M10-C	M10	M10	18.00	35.00	-	-	20.00	15.0	2.	-	0.06
CAB M10M12	M10	M12	18.00	45.00	36.40	21.00	22.00	17.0	1.	2.5	0.09
CAB M12M12-C	M12	M12	21.00	40.00	-	-	22.00	17.0	2.	-	0.08
CAB M12M16	M12	M16	21.00	50.00	42.50	29.00	25.00	25.0	1.	6.3	0.18
CAB M16M16-C	M16	M16	29.00	40.00	-	-	25.00	25.0	2.	-	0.16

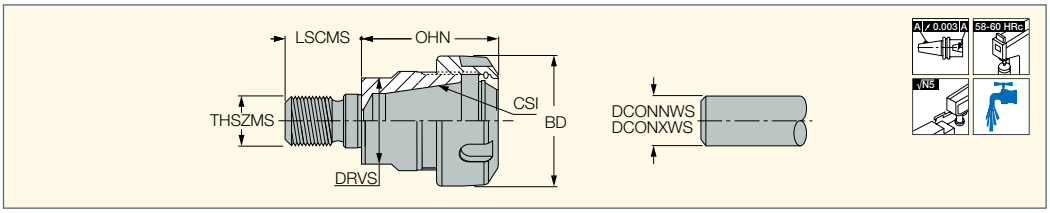
(1) Clamping wrench size



FLEXFIT

CDP ER-M

DIN 6499 ER Collet Chucks with Threaded FLEX-FIT Adaptations



Designation	CSI	THSZMS	DCONNWS(1)	DCONXWS(2)	OHN(3)	LSCMS	BD	DRVS(4)	TQ_3(5)	kg
CDP ER11 M10 M	ER11	M10	0.5	7.0	27.0	20.00	16.00	15.0	40	0.03
CDP ER11 M12 M	ER11	M12	0.5	7.0	27.0	22.00	16.00	17.0	40	0.04
CDP ER16 M10 M	ER16	M10	0.5	10.0	38.1	20.00	22.00	17.0	40	0.05
CDP ER16 M12 M	ER16	M12	0.5	10.0	37.1	22.00	22.00	17.0	40	0.06
CDP ER16 M16	ER16	M16	0.5	10.0	36.6	25.00	28.00	25.0	40	0.10
CDP ER20 M16	ER20	M16	1.0	13.0	45.5	25.00	34.00	25.0	40	0.19
CDP ER25 M16	ER25	M16	1.0	16.0	44.5	25.00	42.00	28.0	40	0.15

• When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

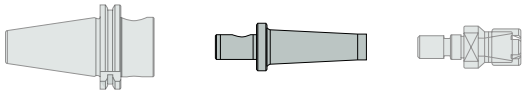
(1) Minimum diameter

(2) Maximum diameter

(3) Minimum overhang

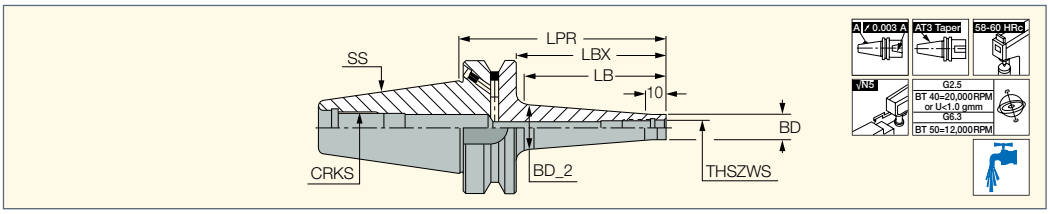
(4) Torque key size

(5) Tool tightening torque Nxm (lbfxin)



BT MAS FLEXFIT

BT-ODP (FLEX-FIT)
FLEX-FIT Threaded Adaptation with Integral BT MAS-403 Tapered Shanks (ADB type)



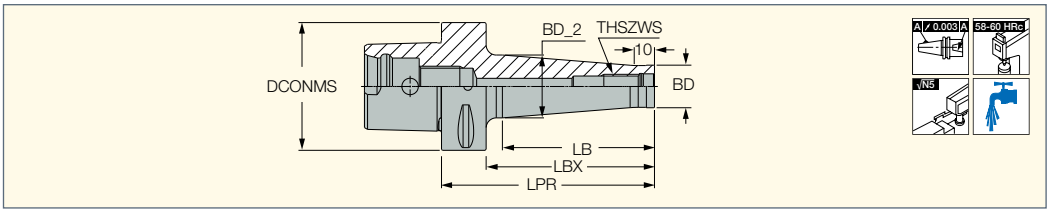
Designation	SS	THSZWS	BD	BD_2	LPR	LBX	LB	CRKS	DCP(1)	kg
BT40 ODP 6X 66	40	M06	9.80	13.00	66.00	39.0	30.00	M16	0	0.98
BT40 ODP 6X106	40	M06	9.80	23.00	106.00	79.0	70.00	M16	0	0.14
BT40 ODP 8X 66	40	M08	13.00	15.00	66.00	30.0	30.00	M16	0	0.99
BT40 ODP10X 66	40	M10	18.00	20.00	66.00	30.0	30.00	M16	0	1.03
BT40 ODP10X106	40	M10	18.00	28.00	106.00	79.0	70.00	M16	0	1.24
BT40 ODP12X 66	40	M12	21.00	24.00	66.00	39.0	30.00	M16	0	1.05
BT40 ODP12X106	40	M12	21.00	31.00	106.00	79.0	70.00	M16	0	1.23
BT40 ODP16X 66	40	M16	29.00	28.60	66.00	39.0	35.00	M16	0	1.06
BT40 ODP16X106	40	M16	29.00	34.00	106.00	79.0	70.00	M16	0	1.32
BT50 ODP 12X 94	50	M12	23.00	30.00	94.00	56.0	50.00	M24	0	3.85
BT50 ODP 12X144	50	M12	23.00	40.00	144.00	106.0	100.00	M24	0	4.27
BT50 ODP 12X194	50	M12	23.00	40.00	194.00	156.0	150.00	M24	0	4.61
BT50 ODP 16X 94	50	M16	29.00	34.00	94.00	56.0	50.00	M24	0	3.75
BT50 ODP 16X144	50	M16	29.00	40.00	144.00	106.0	100.00	M24	0	4.19
BT50 ODP 16X194	50	M16	29.00	55.00	194.00	156.0	150.00	M24	0	5.27
BT50 ODP 16X244	50	M16	29.00	60.00	244.00	206.0	200.00	M24	0	5.60

- The coolant passages in the B-type flange are blocked with screws which can be removed when required.

(1) 1 - Slot for data chip, 0 - Without slot for data chip

CAMFIX FLEXFIT

C#-ODP (FLEX-FIT)
FLEX-FIT Threaded Connection Shanks with CAMFIX (ISO 26623-1) Adaptation



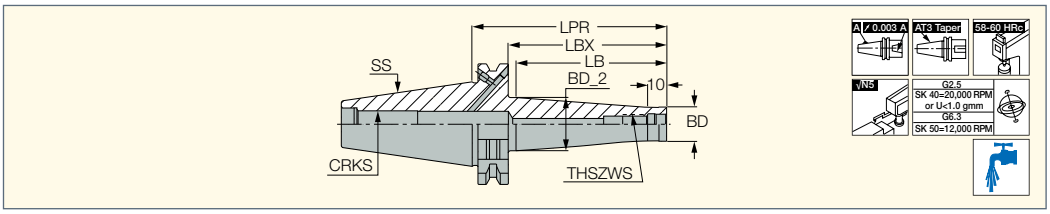
Designation	DCONMS	THSZWS	BD	BD_2	LPR	LBX	LB	DCP(1)	kg		
C3 ODP 12X53	32.00	M12	21.00	26.00	53.00	38.0	23.00	0	0.32		
C4 ODP 10X53	40.00	M10	18.00	23.00	53.00	33.0	23.00	1	0.33	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 ODP 12X53	40.00	M12	21.00	26.00	53.00	33.0	23.00	1	0.33	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 ODP 16X53	40.00	M16	29.00	34.00	53.00	33.0	23.00	1	0.40	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C5 ODP 10X53	50.00	M10	18.00	19.50	53.00	33.0	25.00	1	0.49	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ODP 12X103	50.00	M12	21.00	31.00	103.00	83.0	75.00	1	0.72	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ODP 12X53	50.00	M12	21.00	23.50	53.00	33.0	25.00	1	0.50	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ODP 16X103	50.00	M16	29.00	36.00	103.00	83.0	75.00	1	0.85	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ODP 16X53	50.00	M16	29.00	34.00	53.00	33.0	25.00	1	0.57	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C6 ODP 10X105	63.00	M10	18.00	28.00	105.00	83.0	75.00	1	1.00	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ODP 10X130	63.00	M10	18.00	32.00	130.00	108.0	100.00	1	0.80	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ODP 10X55	63.00	M10	18.00	19.50	55.00	33.0	25.00	1	0.82	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ODP 12X105	63.00	M12	21.00	31.00	105.00	83.0	75.00	1	1.07	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ODP 12X130	63.00	M12	21.00	36.00	130.00	108.0	100.00	1	1.26	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ODP 12X55	63.00	M12	21.00	23.50	55.00	33.0	25.00	1	0.84	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ODP 16X105	63.00	M16	29.00	34.00	105.00	83.0	75.00	1	1.20	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ODP 16X130	63.00	M16	29.00	41.00	130.00	108.0	100.00	1	1.49	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ODP 16X55	63.00	M16	29.00	34.00	55.00	33.0	25.00	1	0.89	COOLING TUBE C6*	WRENCH COOL TUBE C6*

(1) 1 - Slot for data chip, 0 - Without slot for data chip

* Optional, to be ordered separately

DIN69871 FLEXFIT

DIN69871-ODP
FLEX-FIT Threaded Connection Shanks with Integral DIN 69871 Form ADB Taper Adaptation

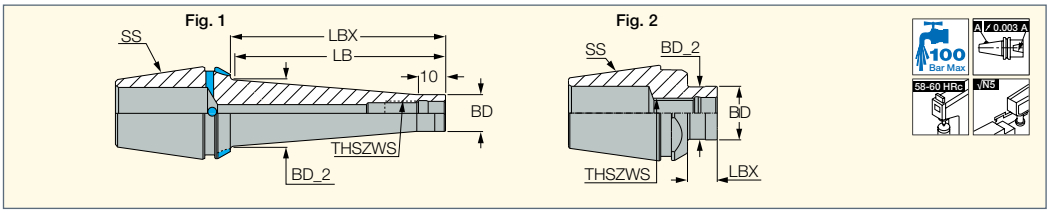


Designation	SS	THSZWS	BD	BD_2	LPR	LBX	LB	CRKS	DCP(1)	kg
DIN69871 40 ODP 6X58	40	M06	9.80	13.00	58.00	38.9	30.00	M16	0	0.82
DIN69871 40 ODP 6X98	40	M06	9.80	23.00	98.00	78.9	70.00	M16	0	0.91
DIN69871 40 ODP 8X58	40	M08	13.10	15.00	58.00	38.9	30.00	M16	0	0.82
DIN69871 40 ODP 8X98	40	M08	13.10	23.00	98.00	78.9	70.00	M16	0	0.92
DIN69871 40 ODP10X58	40	M10	18.00	20.00	58.00	38.9	30.00	M16	0	0.84
DIN69871 40 ODP10X98	40	M10	18.00	28.00	98.00	78.9	70.00	M16	0	1.00
DIN69871 40 ODP12X58	40	M12	21.00	24.00	58.00	38.9	30.00	M16	0	0.88
DIN69871 40 ODP12X98	40	M12	21.00	31.00	98.00	78.9	70.00	M16	0	1.07
DIN69871 40 ODP16X58	40	M16	29.00	28.60	58.00	38.9	35.00	M16	0	0.91
DIN69871 40 ODP16X98	40	M16	29.00	34.00	98.00	78.9	70.00	M16	0	1.15
DIN69871 50 ODP12X 78	50	M12	23.00	30.00	78.00	58.9	50.00	M24	0	2.74
DIN69871 50 ODP12X128	50	M12	23.00	40.00	128.00	108.9	100.00	M24	0	3.14
DIN69871 50 ODP12X178	50	M12	23.00	40.00	178.00	158.9	150.00	M24	0	3.38
DIN69871 50 ODP12X228	50	M12	23.00	46.00	228.00	208.9	200.00	M24	0	4.19
DIN69871 50 ODP16X 78	50	M16	29.00	34.00	78.00	58.9	50.00	M24	0	2.95
DIN69871 50 ODP16X128	50	M16	29.00	40.00	128.00	108.9	100.00	M24	0	3.20
DIN69871 50 ODP16X178	50	M16	29.00	55.00	178.00	158.9	150.00	M24	0	4.08
DIN69871 50 ODP16X228	50	M16	29.00	55.00	228.00	208.9	200.00	M24	0	4.64

(1) 1 - Slot for data chip, 0 - Without slot for data chip

FLEXFIT

ER-ODP
FLEX-FIT Threaded Adaptation with Integral ER Collet for ER Collet Chucks

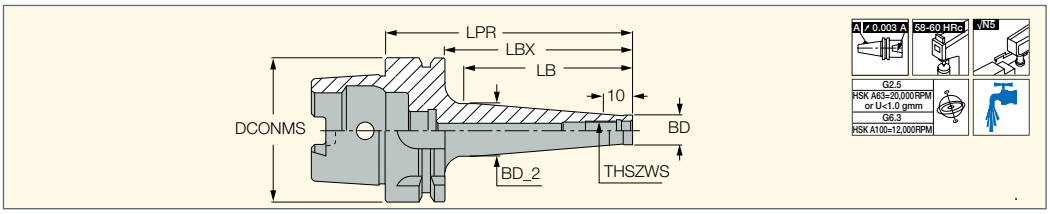


Designation	SS	THSZWS	LB	LBX	BD	BD_2	Fig.	kg
ER16 ODP M08X02	ER16	M08	2.50	2.50	12.00	12.00	2	0.04
ER16 ODP M08X10	ER16	M08	10.50	10.50	12.00	12.00	2	0.04
ER20 ODP M08X02	ER20	M08	2.00	2.00	13.00	13.00	2	0.05
ER20 ODP M08X10	ER20	M08	10.00	10.00	13.00	12.60	2	0.05
ER25 ODP M08X02	ER25	M08	2.00	2.00	13.00	13.00	2	0.05
ER25 ODP M08X10	ER25	M08	10.00	10.00	13.00	12.60	2	0.09
ER25 ODP M10X02	ER25	M10	2.00	2.00	18.00	18.00	2	0.05
ER25 ODP M10X25	ER25	M10	23.00	25.00	18.00	17.60	1	0.11
ER25 ODP M12X02	ER25	M12	2.70	2.70	20.60	19.20	2	0.08
ER25 ODP M12X10	ER25	M12	10.00	10.00	20.00	20.00	2	0.10
ER32 ODP M08X25	ER32	M08	22.00	25.00	13.10	15.00	1	0.15
ER32 ODP M08X50	ER32	M08	49.00	50.00	13.10	23.00	1	0.21
ER32 ODP M08X75	ER32	M08	74.00	75.00	13.10	23.00	1	0.26
ER32 ODP M08X02	ER32	M08	2.00	2.00	13.00	13.00	2	0.15
ER32 ODP M08X10	ER32	M08	10.00	10.00	13.00	12.60	2	0.14
ER32 ODP M10X02	ER32	M10	2.00	2.00	18.00	18.00	2	0.15
ER32 ODP M10X10	ER32	M10	10.00	10.00	18.00	17.60	2	0.15
ER32 ODP M10X25	ER32	M10	23.00	25.00	18.00	20.00	1	0.17
ER32 ODP M10X50	ER32	M10	49.00	50.00	18.00	24.00	1	0.24
ER32 ODP M12X02	ER32	M12	2.00	2.00	21.00	21.00	2	0.15
ER32 ODP M12X10	ER32	M12	10.00	10.00	21.00	20.60	2	0.17
ER32 ODP M12X25	ER32	M12	24.00	25.00	21.00	24.00	1	0.18
ER32 ODP M12X50	ER32	M12	49.00	50.00	21.00	24.00	1	0.26
ER32 ODP M16X02	ER32	M16	2.50	2.50	27.00	27.00	2	0.15
ER32 ODP M16X10	ER32	M16	10.50	10.50	27.00	27.00	2	0.18
ER32 ODP M16X25	ER32	M16	25.50	25.50	27.00	27.00	2	0.20

FLEXFIT HSK

HSK A-ODP (FLEX-FIT)

FLEX-FIT Threaded Adaptation with HSK DIN 69893/A Tapered Shanks



Designation	DCONMS	THSZWS	BD	BD_2	LPR	LBX	LB	DCP(1)	kg		
HSK A32 ODP12X42	32.00	M12	21.00	20.60	42.00	22.0	-	1	0.17	COOLING TUBE HSK A32*	WRENCH COOL TUBE HSK32*
HSK A50 ODP12X48	50.00	M12	21.00	20.60	48.00	22.0	-	1	0.46	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A63 ODP6X109	63.00	M06	9.80	23.00	109.00	83.0	75.00	1	0.74	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ODP8X109	63.00	M08	13.10	23.00	109.00	83.0	75.00	1	0.77	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ODP8X59	63.00	M08	13.10	15.00	59.00	33.0	25.00	1	0.68	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ODP10X109	63.00	M10	18.00	28.00	109.00	83.0	75.00	1	0.87	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ODP10X59	63.00	M10	18.00	20.00	59.00	33.0	25.00	1	0.70	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ODP12X109	63.00	M12	21.00	31.00	109.00	83.0	75.00	1	0.93	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ODP12X59	63.00	M12	21.00	23.50	59.00	33.0	25.00	1	0.71	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ODP16X109	63.00	M16	29.00	34.00	109.00	83.0	75.00	1	1.05	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ODP16X59	63.00	M16	29.00	34.60	59.00	33.0	25.00	1	0.79	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A100 ODP12X137	100.00	M12	23.00	30.00	137.00	108.0	100.00	1	2.58	COOLING TUBE HSK A100	WRENCH COOL TUBE HSK100
HSK A100 ODP12X187	100.00	M12	23.00	40.00	187.00	158.0	150.00	1	2.86	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ODP12X237	100.00	M12	23.00	46.00	237.00	208.0	200.00	1	3.40	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ODP12X87	100.00	M12	23.00	30.00	87.00	58.0	50.00	1	2.23	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ODP16X137	100.00	M16	29.00	41.50	137.00	108.0	100.00	1	2.68	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ODP16X187	100.00	M16	29.00	55.00	187.00	158.0	150.00	1	3.58	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ODP16X237	100.00	M16	29.00	55.00	237.00	208.0	200.00	1	4.07	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ODP16X87	100.00	M16	29.00	31.50	87.00	58.0	50.00	1	2.20	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*

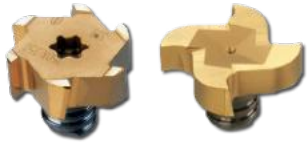
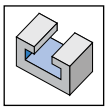
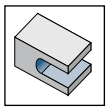
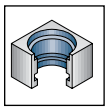
- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately).

(1) 1 - Slot for data chip, 0 - Without slot for data chip

* Optional, to be ordered separately

SLOTTING & SLITTING CUTTERS

Application Range

MM TS/GRIT- Pages 366-369						
	↕	0.7-13.0				
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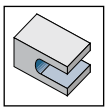
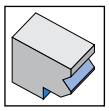
MM GRIT Dovetail - Page 370						
	↕	5.0-10.1				
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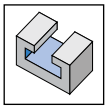
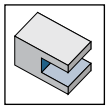
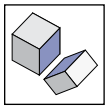
DGSM-M/MM-JHP- Page 379						
	↕	2.0-3.0				
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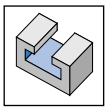
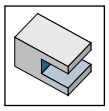
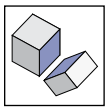
TGSF-M/MM-JHP- Pages 413-414						
	↕	2.0-3.0				
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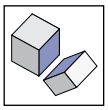
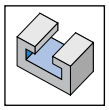
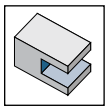
SGSF/A-M/MM-JHP- Page 420						
	↕	2.0-3.0				
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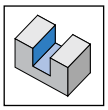
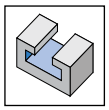
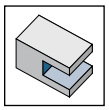
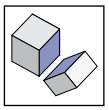
SGSF-W- Page 417						
	↕	1.5-2.7				
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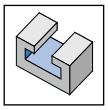
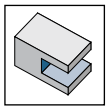
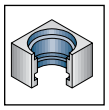
SD-SP- Pages 371-372						
	↕	1.0-12.0				
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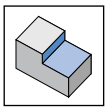
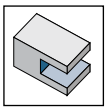
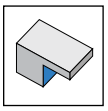
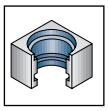
Application Range

TRIB- Pages 377-378						
	↕	1.2-6.5				
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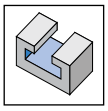
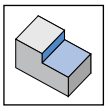
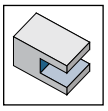
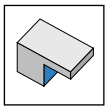
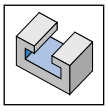
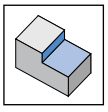
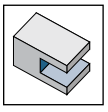
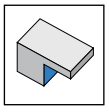
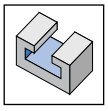
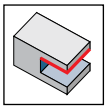
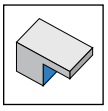
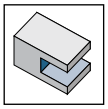
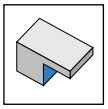
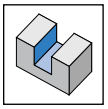
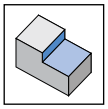
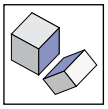
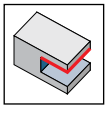
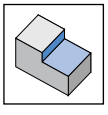
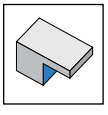
ETS T-SLOT - Pages 380-389						
	↕	3.0-22				
	∅	21-63				
FDN - Pages 390-400						
	↕	3-25				
	∅	50-250				
FST - Page 409						
	↕	9.0				
	∅	100-125				
SDN - Pages 401-409						
	↕	3-25				
	∅	63-250				
SSB...R/L - Page 410						
	↕	12-24				
	∅	100-200				

Application Range

TGSF - Pages 412-414		
		1.6-4
	∅	50-160

SGSF With Drive Flange		
		2.4-6.4
	∅	50-425

SGSF - Pages 418-420		
		1.3-6.5
	∅	32-425

SGSF With Drive Shank S, SW		
		1.5-6.4
	∅	50-125

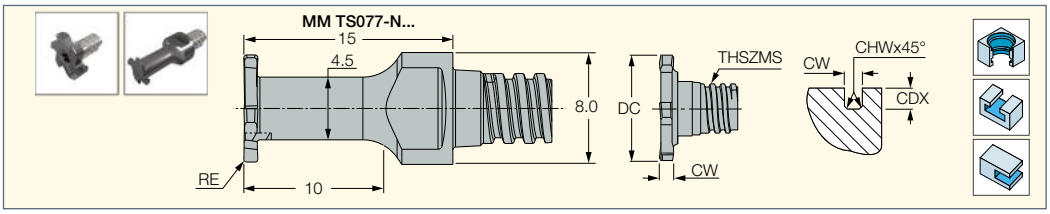
SGSA - Page 420		
		2.7-4
	∅	32-100

GM-DG - Page 423		
		2.7-4.35
	∅	100-200

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TS-N

Interchangeable Solid Carbide T-SLOT Milling Heads



Designation	Dimensions DC	DCTOLL	CW	NOF(1)	THSZMS	CDX(2)	RE	CHW			Tough ↔ Hard IC928	IC908
MM TS077-N07A-4T05	7.70	-0.0500	0.70	4	T05	1.20	0.20	-	MM KEY 6X4*			●
MM TS077-N08A-4T05	7.70	-0.0500	0.80	4	T05	1.20	0.20	-	MM KEY 6X4*			●
MM TS077-N09A-4T05	7.70	-0.0500	0.90	4	T05	1.20	0.20	-	MM KEY 6X4*			●
MM TS077-N10A-4T05	7.70	-0.0500	1.00	4	T05	1.20	0.20	-	MM KEY 6X4*			●
MM TS077-N15A-4T05	7.70	-0.0500	1.50	4	T05	1.20	0.20	-	MM KEY 6X4*			●
MM TS077-N20A-4T05	7.70	-0.0500	2.00	4	T05	1.20	0.20	-	MM KEY 6X4*			●
MM TS105-N20D-06T04	10.50	-0.0500	2.00	6	T04	2.00	0.40	-		T-15/3*	●	
MM TS.500-N062P-06T05	12.70	-0.0500	1.58	6	T05	2.25	-	0.15		T-20/3*		●
MM TS.500-N078P-06T05	12.70	-0.0500	1.98	6	T05	2.25	-	0.15		T-20/3*		●
MM TS135-N20P-06T05	13.50	-0.0500	2.00	6	T05	2.65	-	0.20		T-20/3*		●
MM TS135-N25P-06T05	13.50	-0.0500	2.50	6	T05	2.65	-	0.20		T-20/3*		●

• For shanks, see pages 101-111 • For tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection
• For user guide, see pages 426-432

(1) Number of flutes

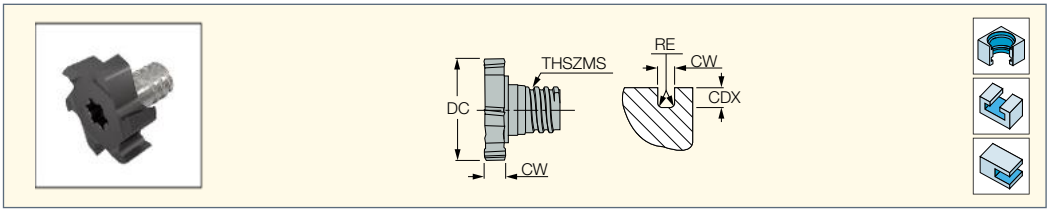
(2) Cutting depth maximum

* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TS-H

Interchangeable Solid Carbide T-SLOT Milling Heads with Diverse Corner Radii



Designation	Dimensions DC	DCTOLL	CW	CDX(1)	NOF(2)	RE	THSZMS		IC908
MM TS135-H30D-06T05	13.50	-0.0500	3.00	2.65	6	0.40	T05	T-20/3*	●
MM TS135-H40D-06T05	13.50	-0.0500	4.00	2.65	6	0.40	T05	T-20/3*	●
MM TS165-H40A-06T05	16.50	-0.0500	4.00	4.25	6	0.20	T05	T-20/3*	●
MM TS160-H20D-06T06	16.00	-0.0500	2.00	3.00	6	0.40	T06	T-20/3*	●
MM TS160-H30D-06T06	16.00	-0.0500	3.00	3.00	6	0.40	T06	T-25/3*	●
MM TS160-H40D-06T06	16.00	-0.0500	4.00	3.00	6	0.40	T06	T-25/3*	●
MM TS165-H20D-06T06	16.50	-0.0500	2.00	3.25	6	0.40	T06	T-20/3*	●
MM TS165-H30D-06T06	16.50	-0.0500	3.00	3.25	6	0.40	T06	T-25/3*	●
MM TS165-H40D-06T06	16.50	-0.0500	4.00	3.25	6	0.40	T06	T-25/3*	●
MM TS195-H60A-06T06	19.50	-0.0500	6.00	4.45	6	0.20	T06	T-25/3*	●
MM TS225-H60A-06T06	22.50	-0.0500	6.00	5.95	6	0.20	T06	T-25/3*	●
MM TS195-H40D-06T08	19.50	-0.0500	4.00	3.45	6	0.40	T08	T-30/3 L*	●
MM TS195-H50D-06T08	19.50	-0.0500	5.00	3.45	6	0.40	T08	T-30/3 L*	●
MM TS195-H60D-06T08	19.50	-0.0500	6.00	3.45	6	0.40	T08	T-30/3 L*	●
MM TS225-H40D-06T08	22.50	-0.0500	4.00	4.90	6	0.40	T08	T-40/3 L*	●
MM TS225-H50D-06T08	22.50	-0.0500	5.00	4.95	6	0.40	T08	T-40/3 L*	●
MM TS225-H60D-06T08	22.50	-0.0500	6.00	4.95	6	0.40	T08		●
MM TS225-H80D-06T08	22.50	-0.0500	8.00	4.95	6	0.40	T08	T-40/3 L*	●
MM TS250-H50D-06T08	25.00	-0.0500	5.00	5.90	6	0.40	T08	T-50/3 L*	●
MM TS250-H60D-06T08	25.00	-0.0500	6.00	5.90	6	0.40	T08	T-50/3 L*	●
MM TS250-H80D-06T08	25.00	-0.0500	8.00	5.90	6	0.40	T08	T-50/3 L*	●
MM TS250-H50D-06T10	25.00	-0.0500	5.00	4.30	6	0.40	T10	T-50/3 L*	●
MM TS250-H60D-06T10	25.00	-0.0500	6.00	4.30	6	0.40	T10	T-50/3 L*	●
MM TS250-H80D-06T10	25.00	-0.0500	8.00	4.30	6	0.40	T10	T-50/3 L*	●

• Inserts in 5 mm and wider feature chip splitting edges • For tightening torques and clamping instructions, see pages 111-112
• Do not apply lubricant to the threaded connection • For shanks, see pages 101-111 • For user guide, see pages 426-432

(1) Cutting depth maximum

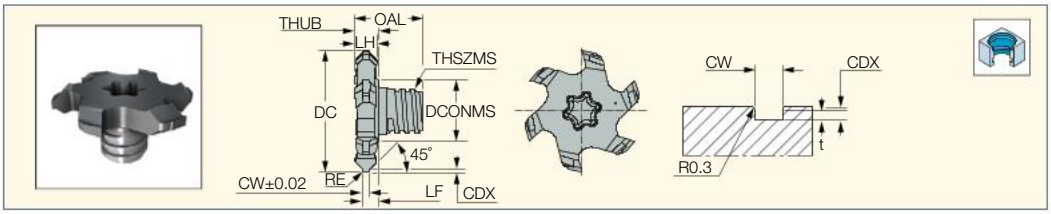
(2) Number of flutes

* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TS-C

Interchangeable Solid Carbide Circlip Groove Milling Heads Conform to DIN 471/472



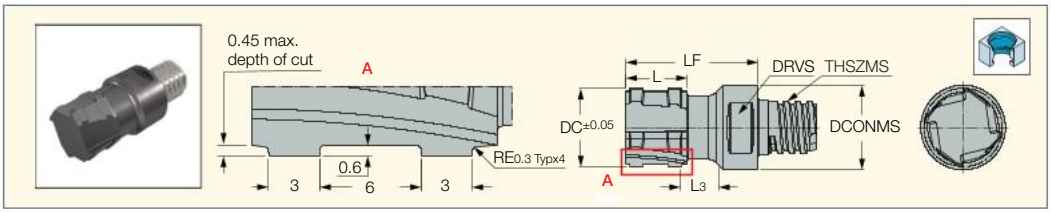
Designation	Dimensions													IC928
	DC	CW	CDX	LF	t	RE	THUB	LH	OAL	DCONMS	NOF(1)	THSZMS		
MM TS127C118T035-6T05	12.70	1.18	0.35	2.23	0.27	0.05	3.00	2.7	8.43	7.70	6	T05	T-20/3*	●
MM TS127C118T040-6T05	12.70	1.18	0.40	2.23	0.32	0.05	3.00	2.7	8.43	7.70	6	T05	T-20/3*	●
MM TS127C118T050-6T05	12.70	1.18	0.50	2.23	0.42	0.05	3.00	2.7	8.43	7.70	6	T05	T-20/3*	●
MM TS127C138T050-6T05	12.70	1.38	0.50	2.23	0.42	0.05	3.00	2.7	8.63	7.70	6	T05	T-20/3*	●
MM TS225C138T060-6T08	22.50	1.38	0.60	3.08	0.50	0.05	4.50	4.2	9.48	11.70	6	T08	T-40/3 L*	●
MM TS225C138T070-6T08	22.50	1.38	0.70	3.08	0.60	0.05	4.50	4.2	9.48	11.70	6	T08	T-40/3 L*	●
MM TS225C138T085-6T08	22.50	1.38	0.85	3.08	0.74	0.05	4.50	4.2	9.48	11.70	6	T08	T-40/3 L*	●
MM TS225C168T070-6T08	22.50	1.68	0.70	3.23	0.60	0.10	4.50	4.2	9.78	11.70	6	T08	T-40/3 L*	●
MM TS225C168T085-6T08	22.50	1.68	0.85	3.23	0.74	0.10	4.50	4.2	9.78	11.70	6	T08	T-40/3 L*	●
MM TS225C168T100-6T08	22.50	1.68	1.00	3.23	0.89	0.10	4.50	4.2	9.78	11.70	6	T08	T-40/3 L*	●
MM TS225C193T100-6T08	22.50	1.93	1.00	3.35	0.89	0.10	4.50	4.2	10.03	11.70	6	T08	T-40/3 L*	●
MM TS225C193T125-6T08	22.50	1.93	1.25	3.35	1.13	0.10	4.50	4.2	10.03	11.70	6	T08	T-40/3 L*	●
MM TS225C223T150-6T08	22.50	2.23	1.50	3.50	1.38	0.10	4.50	4.2	10.33	11.70	6	T08	T-40/3 L*	●
MM TS225C273T150-6T08	22.50	2.73	1.50	3.77	1.39	0.20	4.50	4.1	10.83	11.70	6	T08	T-40/3 L*	●
MM TS225C273T175-6T08	22.50	2.73	1.75	3.77	1.64	0.20	4.40	3.9	10.83	11.70	6	T08	T-40/3 L*	●
MM TS225C325T175-6T08	22.50	3.25	1.75	4.40	1.64	0.20	5.10	4.6	11.35	11.70	6	T08	T-40/3 L*	●

• For shanks, see pages 101-111 • For tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection
• For user guide, see pages 426-432
(1) Number of flutes
* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

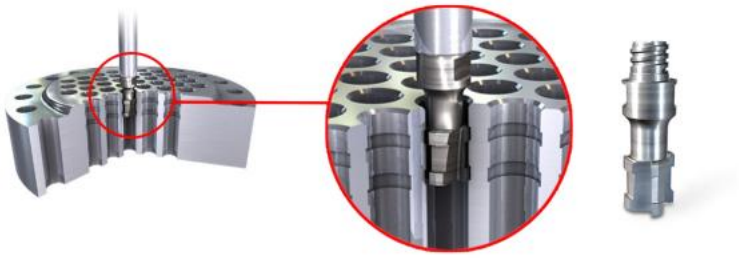
MM TS-DG

Double Groove Internal Grooving Heads with a Threaded Connection for Heat Exchanger Tube Sheets



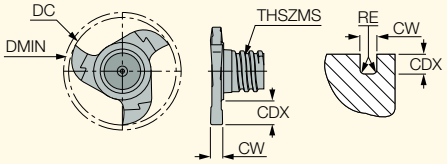
Designation	Dimensions										IC908
	DC	DCONMS	PHD(1)	THSZMS	NOF(2)	LF	L3	L	DRVS(3)		
MM TS155-04T10-8238	15.50	16.00	15.88	T10	4	33.70	17.80	14.20	10.0	MM KEY 10X7*	●
MM TS185-04T12-8239	18.50	18.45	19.05	T12	4	34.50	18.30	14.50	13.0	MM KEY 13X8*	●
MM TS245-04T15-8240	24.50	23.80	25.40	T15	4	37.20	11.00	14.40	20.0	MM KEY 20*	●

• For shanks, see pages 101-111 • For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112
• Do not apply lubricant to the threaded connection • For user guide, see pages 426-432
(1) For minimum tube outer diameter
(2) Number of flutes
(3) Clamping wrench size
* Optional, to be ordered separately



MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM GRIT-3T6
Interchangeable Solid Carbide Small Diameter Groove Milling Heads



Designation	Dimensions								IC908
	DC	CW	CDX(1)	NOF(2)	RE	DMIN(3)	THSZMS		
MM GRIT16K150-010-3T6	15.70	1.50	2.80	3	0.10	16.00	T06	T-20/3*	●
MM GRIT16P150-010-3T6	15.70	1.50	2.80	3	0.10	16.00	T06	T-20/3*	●
MM GRIT16K157-020-3T6	15.70	1.57	2.80	3	0.20	16.00	T06	T-20/3*	●
MM GRIT16K200-020-3T6	15.70	2.00	2.80	3	0.20	16.00	T06	T-20/3*	●
MM GRIT16P220-110-3T6	15.70	2.20	2.80	3	1.10	16.00	T06	T-20/3*	●
MM GRIT16K239-020-3T6	15.70	2.39	2.80	3	0.20	16.00	T06	T-20/3*	●
MM GRIT16K250-020-3T6	15.70	2.50	2.80	3	0.20	16.00	T06	T-20/3*	●
MM GRIT16K300-020-3T6	15.70	3.00	2.80	3	0.20	16.00	T06	T-25/3*	●
MM GRIT16P300-020-3T6	15.70	3.00	2.80	3	0.20	16.00	T06	T-25/3*	●
MM GRIT16K317-020-3T6	15.70	3.17	2.80	3	0.20	16.00	T06	T-25/3*	●
MM GRIT18K120-005-3T6	17.70	1.20	3.80	3	0.05	18.00	T06	T-20/3*	●
MM GRIT18P120-060-3T6	17.70	1.20	3.80	3	0.60	18.00	T06	T-20/3*	●
MM GRIT18K140-005-3T6	17.70	1.40	3.80	3	0.05	18.00	T06	T-20/3*	●
MM GRIT18K150-010-3T6	17.70	1.50	3.80	3	0.10	18.00	T06	T-20/3*	●
MM GRIT18K157-020-3T6	17.70	1.57	3.80	3	0.20	18.00	T06	T-20/3*	●
MM GRIT18K170-005-3T6	17.70	1.70	3.80	3	0.05	18.00	T06	T-20/3*	●
MM GRIT18K200-020-3T6	17.70	2.00	3.80	3	0.20	18.00	T06	T-20/3*	●
MM GRIT18P200-100-3T6	17.70	2.00	3.80	3	1.00	18.00	T06	T-20/3*	●
MM GRIT18P220-110-3T6	17.70	2.20	3.80	3	1.10	18.00	T06	T-20/3*	●
MM GRIT18K239-020-3T6	17.70	2.39	3.80	3	0.20	18.00	T06	T-20/3*	●
MM GRIT18K250-020-3T6	17.70	2.50	3.80	3	0.20	18.00	T06	T-20/3*	●
MM GRIT18K300-020-3T6	17.70	3.00	3.80	3	0.20	18.00	T06	T-25/3*	●
MM GRIT18P300-150-3T6	17.70	3.00	3.80	3	1.50	18.00	T06	T-25/3*	●
MM GRIT18K317-020-3T6	17.70	3.17	3.80	3	0.20	18.00	T06	T-25/3*	●

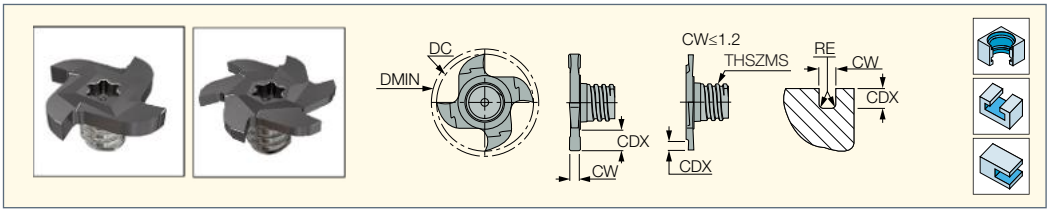
- Recommended for O-rings and retaining rings • Modification options on request • Do not apply lubricant to the threaded connection
- For clamping instructions, see pages 111-112 • For user guide, see pages 426-432 • For shanks, see pages 101-111 • K-Type - For general steel machining
- P-Type - Positive geometry for soft and gummy materials

(1) Cutting depth maximum
(2) Number of flutes
(3) Minimum bore diameter
* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM GRIT-4T8/6T10

Interchangeable Solid Carbide Small Diameter Groove Milling Heads



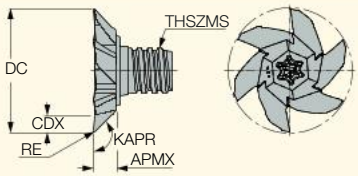
Designation	Dimensions								IC908
	DC	CW	CDX(1)	NOF(2)	RE	DMIN(3)	THSZMS	∠	
MM GRIT22K076-000-4T8	21.70	0.76	1.50	4	0.00	22.00	T08	T-25/3*	●
MM GRIT22K086-000-4T8	21.70	0.86	1.70	4	0.00	22.00	T08	T-25/3*	●
MM GRIT22K096-000-4T8	21.70	0.96	1.90	4	0.00	22.00	T08	T-25/3*	●
MM GRIT22K100-005-4T8	21.70	1.00	2.00	4	0.05	22.00	T08	T-25/3*	●
MM GRIT22P100-005-4T8	21.70	1.00	2.00	4	0.05	22.00	T08	T-25/3*	●
MM GRIT22K120-005-4T8	21.70	1.20	4.50	4	0.05	22.00	T08	T-25/3*	●
MM GRIT22K140-005-4T8	21.70	1.40	4.50	4	0.05	22.00	T08	T-25/3*	●
MM GRIT22K157-000-4T8	21.70	1.57	4.50	4	0.00	22.00	T08	T-25/3*	●
MM GRIT22K170-010-4T8	21.70	1.70	4.50	4	0.10	22.00	T08	T-25/3*	●
MM GRIT22P170-010-4T8	21.70	1.70	4.50	4	0.10	22.00	T08	T-25/3*	●
MM GRIT22K195-020-4T8	21.70	1.95	4.50	4	0.20	22.00	T08	T-25/3*	●
MM GRIT22K200-020-4T8	21.70	2.00	4.50	4	0.20	22.00	T08	T-25/3*	●
MM GRIT22P200-020-4T8	21.70	2.00	4.50	4	0.20	22.00	T08	T-25/3*	●
MM GRIT22K225-020-4T8	21.70	2.25	4.50	4	0.20	22.00	T08	T-25/3*	●
MM GRIT22K239-020-4T8	21.70	2.39	4.50	4	0.20	22.00	T08	T-25/3*	●
MM GRIT22K250-020-4T8	21.70	2.50	4.50	4	0.20	22.00	T08	T-25/3*	●
MM GRIT22P250-020-4T8	21.70	2.50	4.50	4	0.20	22.00	T08	T-25/3*	●
MM GRIT22K275-020-4T8	21.70	2.75	4.50	4	0.20	22.00	T08	T-25/3*	●
MM GRIT22K300-020-4T8	21.70	3.00	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22P300-020-4T8	21.70	3.00	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22K317-020-4T8	21.70	3.17	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22K325-020-4T8	21.70	3.25	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22P381-020-4T8	21.70	3.81	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22K400-020-4T8	21.70	4.00	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22P400-020-4T8	21.70	4.00	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22P400-200-4T8	21.70	4.00	4.50	4	2.00	22.00	T08	T-30/3 L*	●
MM GRIT22K425-020-4T8	21.70	4.25	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22K425-120-4T8	21.70	4.25	4.50	4	1.20	22.00	T08	T-30/3 L*	●
MM GRIT22K475-020-4T8	21.70	4.75	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22K525-020-4T8	21.70	5.25	4.50	4	0.20	22.00	T08	T-30/3 L*	●
MM GRIT22K600-300-4T8	21.70	6.00	4.50	4	3.00	22.00	T08	T-30/3 L*	●
MM GRIT28K250-020-6T10	27.70	2.50	6.00	6	0.20	28.00	T10	T-40/3 L*	●
MM GRIT28K525-020-6T10	27.70	5.25	6.00	6	0.20	28.00	T10	T-40/3 L*	●
MM GRIT28P700-350-6T10	27.70	7.00	6.00	6	3.50	28.00	T10	T-40/3 L*	●
MM GRIT28K1000-020-6T10	27.70	10.00	6.00	6	0.20	28.00	T10	T-40/3 L*	●
MM GRIT28K1100-020-6T10	27.70	11.00	6.00	6	0.20	28.00	T10	T-40/3 L*	●
MM GRIT28K1200-020-6T10	27.70	12.00	6.00	6	0.20	28.00	T10	T-40/3 L*	●
MM GRIT28K1300-020-6T10	27.70	13.00	6.00	6	0.20	28.00	T10	T-40/3 L*	●

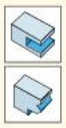
- Recommended for Orings and retaining rings • K - for general steel & cast iron machining P - for soft and gummy materials
- Modification options on request
- Do not apply lubricant to the threaded connection • For clamping instructions, see pages 111-112 • For user guide, see pages 426-432
- For shanks, see pages 101-111

(1) Cutting depth maximum
(2) Number of flutes
(3) Minimum bore diameter
* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM Dovetail
Interchangeable Solid Carbide Heads





Designation	Dimensions								IC908
	DC	KAPR[1]	CDX[2]	APMX	RE	THSZMS	NOF[3]		
MM TS105-45D-06T04	10.50	135.0	1.33	1.60	0.20	T04	6	T-15/3*	●
MM TS135-45D-06T05	13.50	135.0	1.75	2.00	0.20	T05	6	T-20/3*	●
MM TS165-45D-06T06	16.50	135.0	1.75	2.00	0.20	T06	6	T-25/3*	●
MM TS195-45D-06T08	19.50	135.0	2.55	2.80	0.20	T08	6	T-30/3 L*	●
MM TS225-45D-06T08	22.50	135.0	3.48	3.70	0.20	T08	6	T-40/3 L*	●
MM TS250-45D-06T10	25.00	135.0	3.68	3.90	0.20	T10	6	T-50/3 L*	●
MM GRIT 28K-45D-6T10	27.70	135.0	4.00	4.20	0.20	T10	6	T-40/3 L*	●
MM TS105-60D-06T04	10.50	120.0	0.84	1.70	0.20	T04	6	T-15/3*	●
MM TS135-60D-06T05	13.50	120.0	1.67	3.10	0.20	T05	6	T-20/3*	●
MM TS165-60D-06T06	16.50	120.0	2.02	3.70	0.20	T06	6	T-25/3*	●
MM TS195-60D-06T08	19.50	120.0	2.70	4.80	0.20	T08	6	T-30/3 L*	●
MM TS225-60D-06T08	22.50	120.0	3.79	6.70	0.20	T08	6	T-40/3 L*	●
MM TS250-60D-06T10	25.00	120.0	3.85	6.80	0.20	T10	6	T-50/3 L*	●
MM GRIT 28K-60D-6T10	27.70	120.0	4.00	7.08	0.20	T10	6	T-40/3 L*	●
MM GRIT 28K-75D-6T10	27.70	105.0	2.20	8.39	0.20	T10	6	T-40/3 L*	●

• Use carbide shanks for groove milling heads • For user guide, see pages 426-432

[1] Tool cutting edge angle

[2] Cutting depth maximum

[3] Number of flutes

* Optional, to be ordered separately

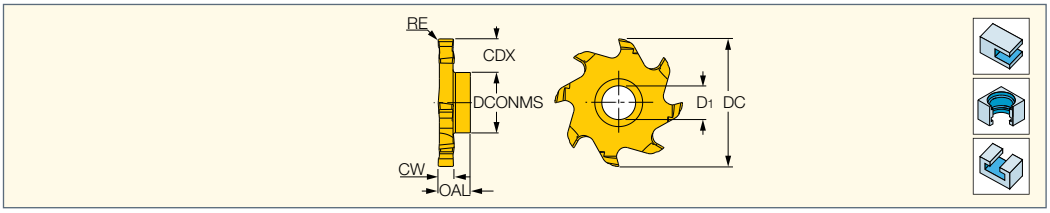
MM GRIT 28K-45D-6T10

MM GRIT 28K-60D-6T10

MM GRIT 28K-75D-6T10

T-SLOT

SD-SP
Interchangeable Solid Carbide
T-SLOT Milling Heads



Designation	Dimensions								IC908
	DC	CW	CDX(3)	NOF(4)	RE	D1	DCONMS	OAL	
SD D25-1.5-R0.2-SP11	24.70	1.50	6.50	6	0.20	7.50	11.00	6.60	•
SD D25-2.0-R0.2-SP11	24.70	2.00	6.50	6	0.20	7.50	11.00	6.60	•
SD D25-2.5-R0.4-SP11	24.70	2.50	6.50	6	0.40	7.50	11.00	6.60	•
SD D25-3.0-R0.4-SP11	24.70	3.00	6.50	6	0.40	7.50	11.00	6.60	•
SD D25-3.5-R0.4-SP11	24.70	3.50	6.50	6	0.40	7.50	11.00	6.60	•
SD D25-4.0-R0.4-SP11	24.70	4.00	6.50	6	0.40	7.50	11.00	6.75	•
SD D25-1.0-R0.2-SP13	24.70	1.00	5.50	6	0.20	7.50	13.00	7.15	•
SD D25-2.0-R0.2-SP13	24.70	2.00	5.50	6	0.20	7.50	13.00	7.30	•
SD D25-3.0-R0.4-SP13	24.70	3.00	5.50	6	0.40	7.50	13.00	7.30	•
SD D25-3.5-R0.4-SP13	24.70	3.50	5.50	6	0.40	7.50	13.00	7.30	•
SD D25-4.0-R0.4-SP13	24.70	4.00	5.50	6	0.40	7.50	13.00	8.30	•
SD D25-4.5-R0.4-SP13	24.70	4.50	5.50	6	0.40	7.50	13.00	8.30	•
SD D25-5.0-R0.4-SP13	24.70	5.00	5.50	6	0.40	7.50	13.00	8.30	•
SD D25-5.5-R0.4-SP13	24.70	5.50	5.50	6	0.40	7.50	13.00	8.30	•
SD D25-6.0-R0.4-SP13	24.70	6.00	5.50	6	0.40	7.50	13.00	8.30	•
SD D25-6.5-R0.4-SP13	24.70	6.50	5.50	6	0.40	7.50	13.00	8.30	•
SD D25-7.0-R0.4-SP13	24.70	7.00	5.50	6	0.40	7.50	13.00	8.30	•
SD D25-7.5-R0.4-SP13	24.70	7.50	5.50	6	0.40	7.50	13.00	8.30	•
SD D25-8.0-R0.4-SP13	24.70	8.00	5.50	6	0.40	7.50	13.00	8.30	•
SD D32-1.0-R0.2-SP15	31.70	1.00	8.00	8	0.20	8.40	15.00	8.00	•
SD D32-1.5-R0.2-SP15	31.70	1.50	8.00	8	0.20	8.40	15.00	8.00	•
SD D32-2.0-R0.2-SP11	31.70	2.00	10.00	8	0.20	7.20	11.00	6.75	•
SD D32-2.0-R0.2-SP15	31.70	2.00	8.00	8	0.20	8.40	15.00	8.00	•
SD D32-2.5-R0.4-SP15	31.70	2.50	8.00	8	0.40	8.40	15.00	8.00	•
SD D32-3.0-R0.4-SP11	31.70	3.00	10.00	8	0.40	7.20	11.00	6.75	•
SD D32-3.0-R0.4-SP15	31.70	3.00	8.00	8	0.40	8.40	15.00	8.00	•
SD D32-3.5-R0.4-SP15	31.70	3.50	8.00	8	0.40	8.40	15.00	8.00	•
SD D32-4.0-R0.4-SP15	31.70	4.00	8.00	8	0.40	8.40	15.00	8.00	•
SD D32-4.0-R1.6-SP15	31.70	4.00	8.00	8	1.60	8.40	15.00	8.00	•
SD D32-4.5-R0.4-SP15	31.70	4.50	8.00	8	0.40	8.40	15.00	8.00	•
SD D32-5.0-R0.4-SP15	31.70	5.00	8.00	8	0.40	8.40	15.00	8.00	•
SD D32-5.0-R1.6-SP15	31.70	5.00	8.00	8	1.60	8.40	15.00	8.00	•
SD D32-5.5-R0.4-SP15	31.70	5.50	8.00	8	0.40	8.40	15.00	8.00	•
SD D32-6.0-R0.4-SP15	31.70	6.00	8.00	8	0.40	8.40	15.00	8.00	•
SD D32-6.0-R1.6-SP15	31.70	6.00	8.00	8	1.60	8.40	15.00	8.00	•
SD D32-6.5-R0.4-SP15	31.70	6.50	8.00	8	0.40	8.40	15.00	8.00	•
SD D32-7.0-R0.4-SP15	31.25	7.00	7.75	8	0.40	8.40	15.00	8.00	•
SD D32-7.0-R1.6-SP15	31.70	7.00	7.75	8	1.60	8.40	15.00	8.00	•
SD D32-7.5-R0.4-SP15	31.25	7.50	7.75	8	0.40	8.40	15.00	8.00	•
SD D32-8.0-R0.4-SP15	31.25	8.00	7.75	8	0.40	8.40	15.00	8.00	•
SD D32-8.0-R1.6-SP15	31.70	8.00	7.75	8	1.60	8.40	15.00	8.00	•
SD D32-8.5-R0.4-SP15	31.25	8.50	7.75	8	0.40	8.40	15.00	8.00	•
SD D40-1.0-R0.2SP11 (1)	39.70	1.00	14.00	10	0.20	7.20	11.00	6.70	•
SD D40-1.0-R0.2SP13	39.70	1.00	13.00	10	0.20	7.50	13.00	7.30	•
SD D40-1.5-R0.2SP13	39.70	1.50	13.00	10	0.20	7.50	13.00	7.30	•
SD D40-2.0-R0.2SP13	39.70	2.00	13.00	10	0.20	7.50	13.00	7.30	•
SD D40-2.5-R0.4SP13	39.70	2.50	13.00	10	0.40	7.50	13.00	7.30	•
SD D40-3.0-R0.4SP13	39.70	3.00	13.00	10	0.40	7.50	13.00	7.30	•
SD D40-3.5-R0.4SP13	39.70	3.50	13.00	10	0.40	7.50	13.00	7.30	•
SD D40-4.0-R0.4SP13 (2)	39.70	4.00	13.00	10	0.40	7.50	13.00	7.30	•
SD D40-4.0-R0.4SP17	39.70	4.00	11.00	10	0.40	7.50	17.00	10.00	•
SD D40-5.0-R0.4SP13	39.70	5.00	13.00	10	0.40	7.50	13.00	7.30	•
SD D40-5.0-R0.4SP17	39.70	5.00	11.00	10	0.40	9.80	17.00	10.00	•
SD D40-6.0-R0.4SP17	39.70	6.00	11.00	10	0.40	9.80	17.00	10.00	•
SD D40-7.0-R0.4SP17	39.70	7.00	11.00	10	0.40	9.80	17.00	10.00	•
SD D40-8.0-R0.4SP17	39.70	8.00	11.00	10	0.40	9.80	17.00	10.00	•
SD D40-9.0-R0.4SP17	39.70	9.00	11.00	10	0.40	9.80	17.00	10.00	•
SD D40-10-R0.4SP17	39.70	10.00	11.00	10	0.40	9.80	17.00	10.00	•

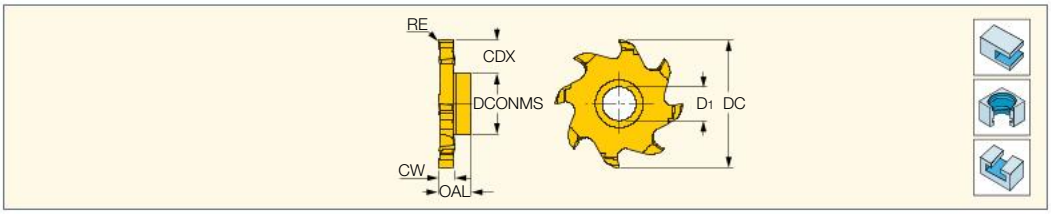
• For shanks, see pages 373-375 • For user guide, see pages 426-432

(1) Maximum feed: 0.04 mm/tooth
(2) Maximum feed: 0.1 mm/tooth
(3) Cutting depth maximum
(4) Number of flutes

Continued

T-SLOT

SD-SP
Interchangeable Solid Carbide T-SLOT Milling Heads

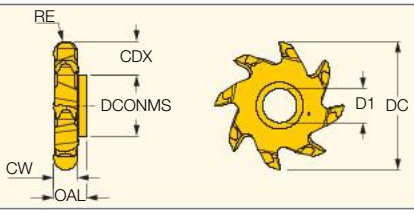


Designation	Dimensions DC	CW	CDX[3]	NOF[4]	RE	D1	DCONMS	OAL	IC908
SD D50-2.0-R0.4-SP19	49.70	2.00	15.00	12	0.40	9.80	19.00	14.00	•
SD D50-3.0-R0.4-SP19	49.70	3.00	15.00	12	0.40	9.80	19.00	14.00	•
SD D50-4.0-R0.4-SP19	49.70	4.00	15.00	12	0.40	9.80	19.00	14.00	•
SD D50-5.0-R0.4-SP19	49.70	5.00	15.00	12	0.40	9.80	19.00	14.00	•
SD D50-6.0-R0.4-SP19	49.70	6.00	15.00	12	0.40	9.80	19.00	14.00	•
SD D50-7.0-R0.4-SP19	49.70	7.00	15.00	12	0.40	9.80	19.00	14.00	•
SD D50-8.0-R0.4-SP19	49.70	8.00	15.00	12	0.40	9.80	19.00	14.00	•
SD D50-9.0-R0.4-SP19	49.70	9.00	15.00	12	0.40	9.80	19.00	14.00	•
SD D50-10-R0.4-SP19	49.70	10.00	15.00	12	0.40	9.80	19.00	14.00	•
SD D50-12-R0.4-SP19	49.70	12.00	15.00	12	0.40	9.80	19.00	14.00	•

• For shanks, see pages 373-375 • For user guide, see pages 426-432
(1) Maximum feed: 0.04 mm/tooth
(2) Maximum feed: 0.1 mm/tooth
(3) Cutting depth maximum
(4) Number of flutes

T-SLOT

SD-R-SP
Interchangeable Solid Carbide T-Slot Milling Heads with Full Radius



Designation	Dimensions DC	CW	CDX	CICT[1]	RE	D1	DCONMS	OAL	IC908
SD D32-03-R1.5-SP15	31.70	3.00	8.00	8	1.50	8.40	15.00	8.00	•
SD D32-04-R2.0-SP15	31.70	4.00	8.00	8	2.00	8.40	15.00	8.00	•
SD D32-05-R2.5-SP15	31.70	5.00	8.00	8	2.50	8.40	15.00	8.00	•
SD D32-06-R3.0-SP15	31.70	6.00	8.00	8	3.00	8.40	15.00	8.00	•

New

• For shanks, see pages 373-375 • For user guide, see pages 426-432
(1) Number of inserts (or edges for solid tool)

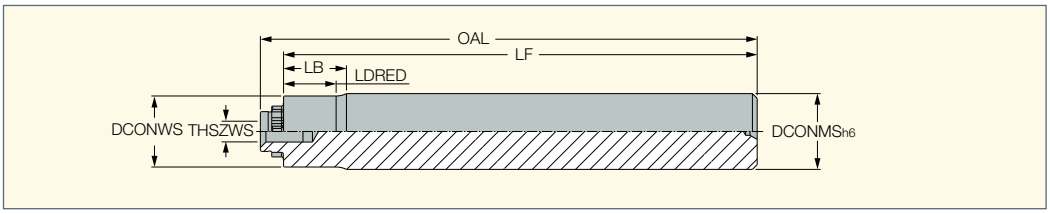
Cutting Data for SD-SP Milling Heads

ISO class DIN/ ISO 513	Description	ISCAR mat. group*	Workpiece Material: Typical Representative AISI/SAE/ ASTM	DIN W.-Nr.	Hardness HB	Cutting Speed V_c m/min	Feed for SP11 f_z mm/tooth	Feed for SP13 f_z mm/tooth	Feed for SP15 f_z mm/tooth	Feed for SP17 f_z mm/tooth	Feed for SP19 f_z mm/tooth
P	non-alloy steel	1	1020	1.0402	130-180	130-200	0.06-0.12	0.06-0.12	0.07-0.15	0.07-0.15	0.07-0.15
	low alloy steel	8	4340	1.6511	260-300	120-170	0.06-0.12	0.06-0.12	0.07-0.15	0.07-0.15	0.07-0.15
	low alloy steel	9	3135	1.5710	HRC 35-40*	80-120	0.02-0.06	0.02-0.06	0.03-0.12	0.04-0.12	0.04-0.13
	high alloy steel	10	H13	1.2344	200-220	100-140	0.04-0.07	0.04-0.07	0.04-0.12	0.04-0.12	0.05-0.13
	martensitic S.S.	12	420	1.4021	200	100-140	0.03-0.06	0.03-0.06	0.04-0.12	0.04-0.12	0.04-0.13
M	austenitic S.S.	14	304L	1.4306	200	80-120	0.02-0.06	0.02-0.06	0.03-0.10	0.03-0.12	0.03-0.12
K	grey cast iron	16	class 40	0.6025 (GG25)	250	160-200	0.05-0.12	0.05-0.12	0.05-0.20	0.06-0.20	0.06-0.20
	nodular cast iron	17	class 65-45-12	0.7050 (GGG50)	200	140-180	0.05-0.11	0.05-0.11	0.05-0.18	0.06-0.18	0.06-0.20
S	high temperature alloys	34	inconel 718	2.4668	HRC 36-40	20-30	0.02-0.12	0.02-0.12	0.02-0.12	0.02-0.12	0.02-0.13
		37	AMS R56400	3.7165 (Ti6Al4V)	HRC 40-45	35-45	0.02-0.06	0.02-0.06	0.02-0.12	0.02-0.12	0.02-0.13

* ISCAR material group in accordance with VDI 3323 standard
** Quenched and tempered
When machining in unstable conditions, the table values should be reduced by 20-30%.

T-SLOT

SD S-A-SP
Stepped Cylindrical Shanks for Interchangeable Solid Carbide Milling Heads



Designation	DCONMS	DCONWS	THSZWS	LDRED	LB	LF	OAL	Shank m.(1)	kg
SD S-A-L90-C12-SP11	12.00	11.00	M4x0.5	10.50	12.7	90.00	94.00	S	0.08
SD S-A-L100-C16 SP13	16.00	13.00	M4x0.5	13.00	16.6	100.00	104.00	S	0.15
SD S-A-L100-C16-SP15	16.00	15.00	M5x0.5	16.00	18.2	100.00	105.00	S	0.16
SD S-A-L130-C16-SP15	16.00	15.00	M5x0.5	16.00	18.2	130.00	135.00	S	0.20
SD S-A-L130-C16-SP15-C	16.00	15.00	M5x0.5	16.00	18.2	130.00	135.00	C	0.36
SD S-A-L150-C16-SP15-C	16.00	15.00	M5x0.5	16.00	18.2	150.00	155.00	C	0.41
SD S-A-L140-C20 SP17	20.00	17.00	M6x0.5	20.20	23.8	140.00	146.00	S	0.00
SD S-A-L150-C25-SP19	25.00	19.00	M6x0.5	20.00	27.9	150.00	158.50	S	0.55

- Apply lubricant to the clamping screw

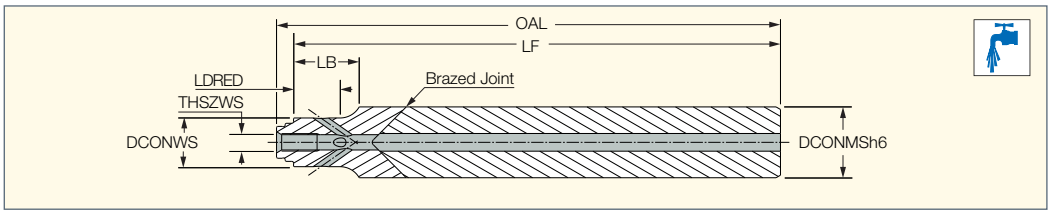
(1) S-steel C-solid carbide

Spare Parts

Designation			
SD S-A-L90-C12-SP11	SR M4X0.5-SP11 HG	BLD T15/S7	SW6-T-SH
SD S-A-L100-C16 SP13	SR M4X0.5-SP13-IP15-HG	BLD IP15/S7	SW6-T-SH
SD S-A-L100-C16-SP15	SR M5X0.5-SP15-IP20-HG	BLD IP20/S7	SW6-T-SH
SD S-A-L130-C16-SP15	SR M5X0.5-SP15-IP20-HG	BLD IP20/S7	SW6-T-SH
SD S-A-L130-C16-SP15-C	SR M5X0.5-SP15-IP20-HG	BLD IP20/S7	SW6-T-SH
SD S-A-L150-C16-SP15-C	SR M5X0.5-SP15-IP20-HG	BLD IP20/S7	SW6-T-SH
SD S-A-L140-C20 SP17	SR M6X0.5-SP1719-IP25-HG	BLD IP25/S7	SW6-T
SD S-A-L150-C25-SP19	SR M6X0.5-SP1719-IP25-HG	BLD IP25/S7	SW6-T

T-SLOT

SD S-A-C-H-SP
Stepped Cylindrical Carbide Shanks with Brazed Steel Segment for Interchangeable Solid Carbide Milling Heads



Designation	DCONMS	DCONWS	THSZWS	LDRED	LB	LF	OAL	Shank m.	kg
SD S-A-L110-C16-C-H-SP11	16.00	11.00	M4x0.5	10.5	14.83	110.00	113.85	C	0.30
SD S-A-L130-C16-C-H-SP13	16.00	13.00	M4x0.5	13.0	16.57	130.00	134.35	C	0.35
SD S-A-L130-C16-C-H-SP15	16.00	15.00	M5x0.5	16.0	18.18	130.00	134.90	C	0.35
SD S-A-L140-C20-C-H-SP17	20.00	17.00	M6x0.5	20.2	23.77	140.00	146.00	C	0.60
SD S-A-L160-C25-C-H-SP19	25.00	19.00	M6x0.5	20.0	24.58	160.00	168.50	C	1.10

New

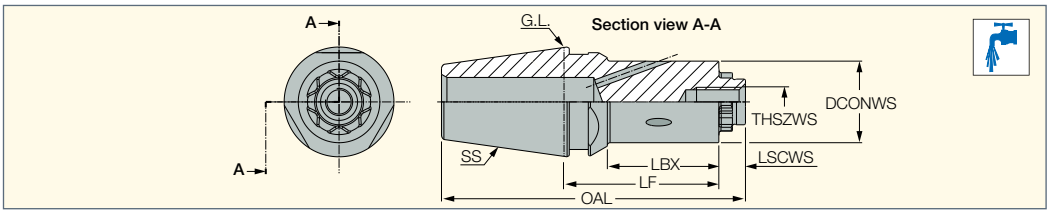
- Apply lubricant to the clamping screw

Spare Parts

Designation			
SD S-A-L110-C16-C-H-SP11	SR M4X0.5-SP11 HG	BLD T15/S7	SW6-T-SH
SD S-A-L130-C16-C-H-SP13	SR M4X0.5-SP13-IP15-HG	BLD IP15/S7	SW6-T-SH
SD S-A-L130-C16-C-H-SP15	SR M5X0.5-SP15-IP20-HG	BLD IP20/S7	SW6-T-SH
SD S-A-L140-C20-C-H-SP17	SR M6X0.5-SP1719-IP25-HG	BLD IP25/S7	SW6-T
SD S-A-L160-C25-C-H-SP19	SR M6X0.5-SP1719-IP25-HG	BLD IP25/S7	SW6-T

NEOCOLLET
INTEGRAL COLLET

SD-S-A-ER-SP
Solid ER Collets with SD Spline Connection (SP)



Designation	SS	LBX[1]	LF	DCONWS	THSZWS	LSCWS	OAL	kg
SD-S-A-H05-ER16-SP11-C	ER16	5.00	12.60	11.00	M4X0.5	3.85	36.35	0.03
SD-S-A-H20-ER16-SP11-C	ER16	20.00	27.60	11.00	M4X0.5	3.85	51.35	0.04
SD-S-A-H05-ER20-SP11-C	ER20	5.00	13.60	11.00	M4X0.5	3.85	39.85	0.05
SD-S-A-H05-ER20-SP13-C	ER20	5.00	13.60	13.00	M4X0.5	4.35	40.35	0.05
SD-S-A-H05-ER20-SP15-C	ER20	5.00	13.60	15.00	M5X0.5	4.90	40.90	0.05
SD-S-A-H20-ER20-SP11-C	ER20	20.00	28.60	11.00	M4X0.5	3.85	54.85	0.06
SD-S-A-H20-ER20-SP13-C	ER20	20.00	28.60	13.00	M4X0.5	4.35	55.35	0.07
SD-S-A-H20-ER20-SP15-C	ER20	20.00	28.60	15.00	M5X0.5	4.90	55.90	0.08
SD-S-A-H05-ER25-SP11-C	ER25	5.00	14.10	11.00	M4X0.5	3.85	42.85	0.09
SD-S-A-H05-ER25-SP13-C	ER25	5.00	14.10	13.00	M4X0.5	4.35	43.35	0.09
SD-S-A-H05-ER25-SP15-C	ER25	5.00	14.10	15.00	M5X0.5	4.90	43.90	0.09
SD-S-A-H05-ER25-SP17-C	ER25	5.00	14.10	17.00	M6X0.5	6.00	45.00	0.09
SD-S-A-H05-ER25-SP19-C	ER25	5.00	14.10	19.00	M6X0.5	8.50	47.50	0.09
SD-S-A-H20-ER25-SP11-C	ER25	20.00	29.10	11.00	M4X0.5	3.85	57.85	0.10
SD-S-A-H20-ER25-SP13-C	ER25	20.00	29.10	13.00	M4X0.5	4.35	58.35	0.10
SD-S-A-H20-ER25-SP15-C	ER25	20.00	29.10	15.00	M5X0.5	4.90	58.90	0.11
SD-S-A-H20-ER25-SP17-C	ER25	20.00	29.10	17.00	M6X0.5	6.00	60.00	0.12
SD-S-A-H20-ER25-SP19-C	ER25	20.00	29.10	19.00	M6X0.5	8.50	62.50	0.13
SD-S-A-H05-ER32-SP13-C	ER32	5.00	15.10	13.00	M4X0.5	4.35	49.35	0.14
SD-S-A-H05-ER32-SP15-C	ER32	5.00	15.10	15.00	M5X0.5	4.90	49.90	0.15
SD-S-A-H05-ER32-SP17-C	ER32	5.00	15.10	17.00	M6X0.5	6.00	51.00	0.15
SD-S-A-H05-ER32-SP19-C	ER32	5.00	15.10	19.00	M6X0.5	8.50	53.50	0.15
SD-S-A-H20-ER32-SP13-C	ER32	20.00	30.10	13.00	M4X0.5	4.35	64.35	0.16
SD-S-A-H20-ER32-SP15-C	ER32	20.00	30.10	15.00	M5X0.5	4.90	64.90	0.16
SD-S-A-H20-ER32-SP17-C	ER32	20.00	30.10	17.00	M6X0.5	6.00	66.00	0.17
SD-S-A-H20-ER32-SP19-C	ER32	20.00	30.10	19.00	M6X0.5	8.50	68.50	0.18
SD-S-A-H05-ER40-SP17-C	ER40	5.00	17.20	17.00	M6X0.5	6.00	57.00	0.26
SD-S-A-H05-ER40-SP19-C	ER40	5.00	17.20	19.00	M6X0.5	8.50	59.20	0.27
SD-S-A-H20-ER40-SP17-C	ER40	20.00	32.20	17.00	M6X0.5	6.00	72.00	0.29
SD-S-A-H20-ER40-SP19-C	ER40	20.00	32.20	19.00	M6X0.5	8.50	74.50	0.30

- Apply lubricant to the slotting head and its clamping screw

[1] After the nut is mounted

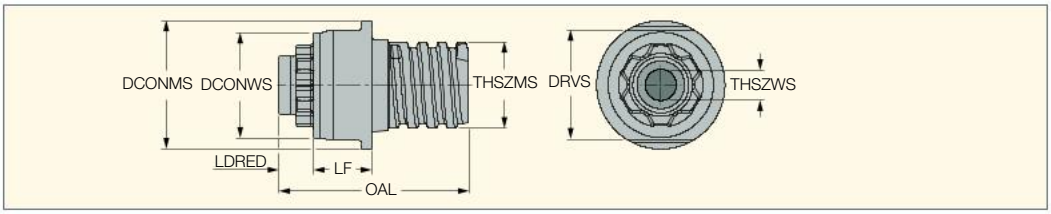
Spare Parts

Designation			
SD-S-A-H05-ER16-SP11-C	SR M4X0.5-SP11 HG	SW6-T-SH	BLD T15/S7
SD-S-A-H20-ER16-SP11-C	SR M4X0.5-SP11 HG	SW6-T-SH	BLD T15/S7
SD-S-A-H05-ER20-SP11-C	SR M4X0.5-SP11 HG	SW6-T-SH	BLD T15/S7
SD-S-A-H05-ER20-SP13-C	SR M4X0.5-SP13-IP15-HG	SW6-T-SH	BLD IP15/S7
SD-S-A-H05-ER20-SP15-C	SR M5X0.5-SP15-IP20-HG	SW6-T-SH	BLD IP20/S7
SD-S-A-H20-ER20-SP11-C	SR M4X0.5-SP11 HG	SW6-T-SH	BLD T15/S7
SD-S-A-H20-ER20-SP13-C	SR M4X0.5-SP13-IP15-HG	SW6-T-SH	BLD IP15/S7
SD-S-A-H20-ER20-SP15-C	SR M5X0.5-SP15-IP20-HG	SW6-T-SH	BLD IP20/S7
SD-S-A-H05-ER25-SP11-C	SR M4X0.5-SP11 HG	SW6-T-SH	BLD T15/S7
SD-S-A-H05-ER25-SP13-C	SR M4X0.5-SP13-IP15-HG	SW6-T-SH	BLD IP15/S7
SD-S-A-H05-ER25-SP15-C	SR M5X0.5-SP15-IP20-HG	SW6-T-SH	BLD IP20/S7
SD-S-A-H05-ER25-SP17-C	SR M6X0.5-SP1719-IP25-HG	SW6-T	BLD IP25/S7
SD-S-A-H05-ER25-SP19-C	SR M6X0.5-SP1719-IP25-HG	SW6-T	BLD IP25/S7
SD-S-A-H20-ER25-SP11-C	SR M4X0.5-SP11 HG	SW6-T-SH	BLD T15/S7
SD-S-A-H20-ER25-SP13-C	SR M4X0.5-SP13-IP15-HG	SW6-T-SH	BLD IP15/S7
SD-S-A-H20-ER25-SP15-C	SR M5X0.5-SP15-IP20-HG	SW6-T-SH	BLD IP20/S7
SD-S-A-H20-ER25-SP17-C	SR M6X0.5-SP1719-IP25-HG	SW6-T	BLD IP25/S7
SD-S-A-H20-ER25-SP19-C	SR M6X0.5-SP1719-IP25-HG	SW6-T	BLD IP25/S7
SD-S-A-H05-ER32-SP13-C	SR M4X0.5-SP13-IP15-HG	SW6-T-SH	BLD IP15/S7
SD-S-A-H05-ER32-SP15-C	SR M5X0.5-SP15-IP20-HG	SW6-T-SH	BLD IP20/S7
SD-S-A-H05-ER32-SP17-C	SR M6X0.5-SP1719-IP25-HG	SW6-T	BLD IP25/S7
SD-S-A-H05-ER32-SP19-C	SR M6X0.5-SP1719-IP25-HG	SW6-T	BLD IP25/S7
SD-S-A-H20-ER32-SP13-C	SR M4X0.5-SP13-IP15-HG	SW6-T-SH	BLD IP15/S7
SD-S-A-H20-ER32-SP15-C	SR M5X0.5-SP15-IP20-HG	SW6-T-SH	BLD IP20/S7
SD-S-A-H20-ER32-SP17-C	SR M6X0.5-SP1719-IP25-HG	SW6-T	BLD IP25/S7
SD-S-A-H20-ER32-SP19-C	SR M6X0.5-SP1719-IP25-HG	SW6-T	BLD IP25/S7
SD-S-A-H05-ER40-SP17-C	SR M6X0.5-SP1719-IP25-HG	SW6-T	BLD IP25/S7
SD-S-A-H05-ER40-SP19-C	SR M6X0.5-SP1719-IP25-HG	SW6-T	BLD IP25/S7
SD-S-A-H20-ER40-SP17-C	SR M6X0.5-SP1719-IP25-HG	SW6-T	BLD IP25/S7
SD-S-A-H20-ER40-SP19-C	SR M6X0.5-SP1719-IP25-HG	SW6-T	BLD IP25/S7

[a] Recommended tightening torque:10.0 N*m

MULTI-MASTER

SD CAB
Adapters for Connecting SD Solid Carbide T-SLOT Milling Heads and MULTI-MASTER Shanks



Designation	THSZWS	THSZMS	LF	LDRED	OAL	DCONWS	DCONMS	DRVS[1]	kg
SD CAB T10-14/0.55-SP11	M4x0.5	T10	14.00	3.9	29.15	11.00	15.20	13.0	0.02
SD CAB T12-14/0.55-SP13	M4x0.5	T12	14.00	4.3	31.65	13.00	18.30	16.0	0.04
SD CAB T12-14/0.55-SP15	M5x0.5	T12	14.00	4.9	32.70	15.00	18.30	16.0	0.04
SD CAB T15-14/0.55-SP17	M6x0.5	T15	14.00	6.0	37.00	17.00	23.90	20.0	0.11
SD CAB T15-14/0.55-SP19	M6x0.5	T15	14.00	8.5	39.50	19.00	23.90	20.0	0.07

- Apply Lubricant to the Screw Head and Threads

(1) Clamping wrench size

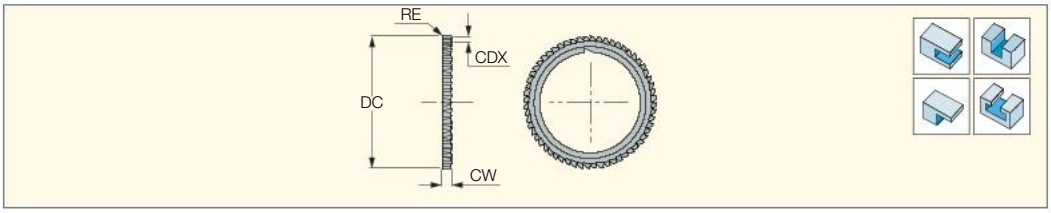
Spare Parts

Designation				
SD CAB T10-14/0.55-SP11	SR M4X0.5-SP11 HG	BLD T15/S7	SW6-T-SH	MM KEY 13X8*
SD CAB T12-14/0.55-SP13	SR M4X0.5-SP13-IP15-HG	BLD IP15/S7	SW6-T-SH	
SD CAB T12-14/0.55-SP15	SR M5X0.5-SP15-IP20-HG	BLD IP20/S7	SW6-T-SH	
SD CAB T15-14/0.55-SP17	SR M6X0.5-SP1719-IP25-HG	BLD IP25/S7	SW6-T	
SD CAB T15-14/0.55-SP19	SR M6X0.5-SP1719-IP25-HG	BLD IP25/S7	SW6-T	

* Optional, to be ordered separately

DISCMILL

SD-P
Interchangeable Solid Carbide T-SLOT Milling Rings



Designation	DC	CDX	CW	RE	CICT[1]	ZEFP
SD D125-8.85-R0.3-C100-P	125.00	5.50	8.85	0.30	60	60

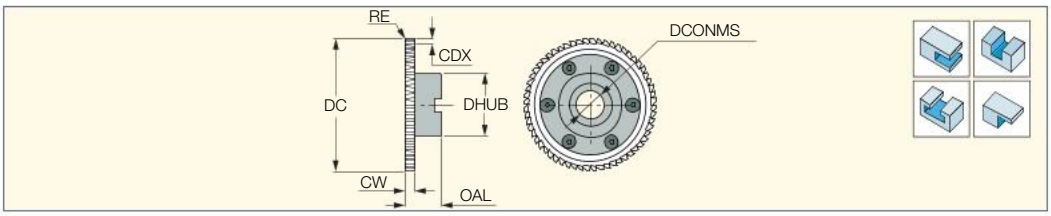
New

- For user guide, see pages 426-432

(1) Number of inserts (or edges for solid tool)

DISCMILL

MP F
Driver Holder for T-SLOT Ring



Designation	DC	CW	CDX	OAL	DHUB	DCONMS	Arbor	kg
MP F-D125-27-C100	125.00	8.85	5.50	33.85	58.00	27.00	B	0.87

New

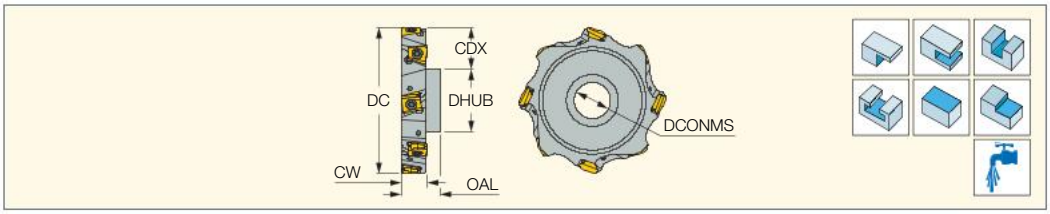
- For user guide, see pages 426-432

Spare Parts

Designation			
MP F	CAP D125-C100	SR M3X5.5	HW 4.0

TANGDISC

SD-T490
Interchangeable T-SLOT with SP Connection Carrying T490 0502 PNTN Inserts with 2 Right- and 2 Left-Hand Cutting Edges



Designation	DC	DHUB	CW	NOF(1)	ZEFP	CDX(2)	DCONMS	OAL	MIID(3)
SD D025-07-SP13-T490-05	24.70	13.00	7.00	6	3	5.75	7.50	8.25	T490 LNHT 0502-PNTN
SD D032-07-SP15-T490-05	31.70	15.00	7.00	8	4	8.25	8.40	9.50	T490 LNHT 0502-PNTN
SD D040-07-SP17-T490-05	39.70	17.00	7.00	10	5	11.25	9.80	10.50	T490 LNHT 0502-PNTN
SD D050-07-SP19-T490-05	49.70	19.00	7.00	12	6	15.25	9.80	14.10	T490 LNHT 0502-PNTN

New

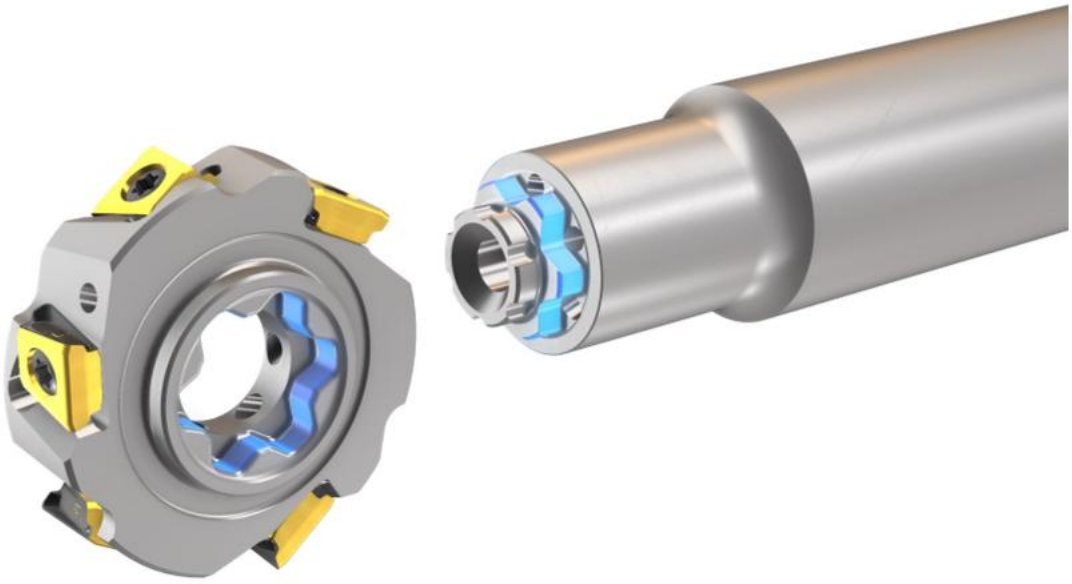
- For user guide, see pages 426-432

(1) Number of flutes
(2) Cutting depth maximum
(3) Master insert identification

For inserts, see pages: T490 LNHT 05-PNTN (544)
For holders, see pages: SD S-A-C-SP (376)

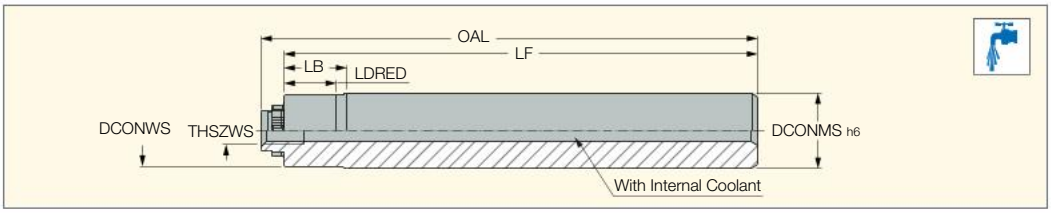
Spare Parts

Designation		
SD-T490	SR M2X0.4-4.8 IP6	T-6IP/51



TANGDISC

SD S-A-C-SP
Stepped Cylindrical Shanks for Interchangeable Milling Cutter Heads



Designation	DCONMS	DCONWS	THSZWS	LDRED	LB	LF	OAL	Shank m.
SD S-A-L090-C16-CH-SP13	16.00	13.00	M4x0.5	13.00	16.6	90.00	94.00	S
SD S-A-L090-C16-CH-SP15	16.00	15.00	M5x0.5	16.00	18.2	90.00	94.00	S
SD S-A-L130-C20-CH-SP17	20.00	17.00	M6x0.5	20.20	23.8	13.00	13.00	S
SD S-A-L150-C25-CH-SP19	25.00	19.00	M6x0.5	20.00	27.9	15.00	15.00	S

New

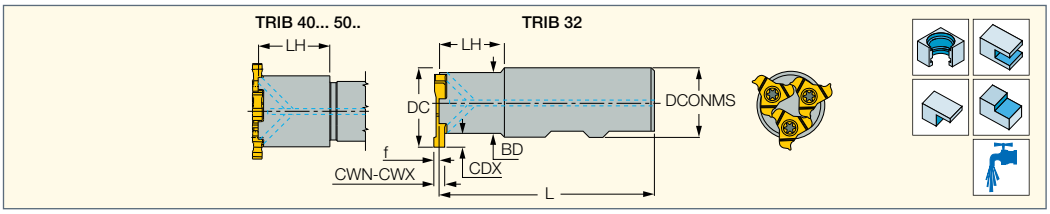
- Apply lubricant to the clamping screw

Spare Parts

Designation			
SD S-A-L090-C16-CH-SP13	SR M4X0.5-SP13-IP15-HG	BLD IP15/S7	SW6-T-SH
SD S-A-L090-C16-CH-SP15	SR M5X0.5-SP15-IP20-HG	BLD IP20/S7	SW6-T-SH
SD S-A-L130-C20-CH-SP17	SR M6X0.5-SP1719-IP25-HG	BLD IP25/S7	SW6-T
SD S-A-L150-C25-CH-SP19	SR M6X0.5-SP1719-IP25-HG	BLD IP25/S7	SW6-T

CHAMSLIT

TRIB
Slitting Shanks Carrying Triple-Edged Precision Ground Inserts



Designation	DC	CWN(2)	CWX(3)	CDX(4)	CICT(5)	BD	LH	L	DCONMS	Shank(6)	kg
TRIB 32-25W-3Z (1)	32.20	1.20	4.00	4.80	3	21.70	52.3	110.00	25.00	W	0.35
TRIB 32-25W-3Z-B (1)	32.20	4.01	6.50	4.80	3	21.70	52.3	110.00	25.00	W	0.34
TRIB 40-25W-4Z	40.00	1.20	4.00	4.80	4	29.70	30.0	110.00	25.00	W	0.44
TRIB 40-25W-4Z-B	40.00	4.01	6.50	4.80	4	29.70	30.0	110.00	25.00	W	0.44
TRIB 50-32W-6Z	50.00	1.20	4.00	4.80	6	39.70	30.0	110.00	32.00	W	0.75

• W, Tmax, f, Refer to insert data • For inserts with W=4.01-6.50 mm, order tools with -B suffix (deeper pockets). For example: TRIB 50-32W-6Z-B

(1) Minimum bore diameter = 33 mm

(2) Minimum cutting width

(3) Maximum cutting width

(4) Refer to insert data

(5) Number of inserts (or edges for solid tool)

(6) W-Weldon

For inserts, see pages: TRI (558)

Dimensions Related to Inserts

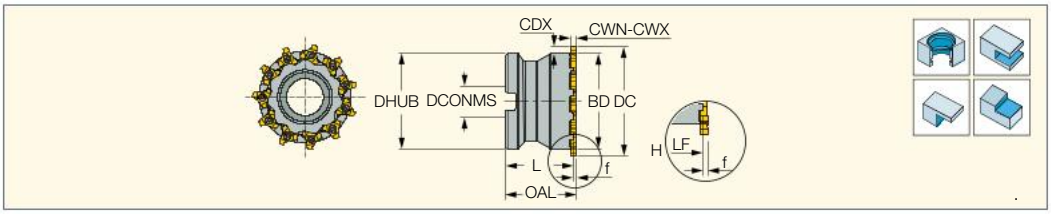
Insert	Tmax	TRIB ...Z f	TRIB ...Z-B f
TRI 16RK-1.2-0.05	4.6	0.5	
TRI 16RK-1.4-0.1	4.8	0.5	
TRI 16RK-1.5-0.1	4.8	0.5	
TRI 16RK-1.7-0.1	4.8	0.5	
TRI 16RK-1.95-0.15	4.8	0.5	
TRI 16RK-2.0-0.2	4.8	0.5	
TRI 16RK-2.25-0.15	4.8	0.75	
TRI 16RK-2.75-0.15	4.8	1.39	
TRI 16RK-3.0-0.2	4.8	1.39	
TRI 16RK-3.25-0.15	4.8	1.39	
TRI 16RK-4.0-0.2	4.8	2.43	
TRI 16RK-4.25-0.15	4.8		0.95
TRI 16RK-5.0-0.2	4.8		2.15
TRI 16RK-5.25-0.15	4.8		2.15
TRI 16RK-6.0-0.2	4.8		3.15

Spare Parts

Designation			
TRIB 32-25W-3Z	SR 16-236 08223	BLD T15/S7	SW6-T
TRIB 32-25W-3Z-B	SR 16-236	BLD T15/S7	SW6-T
TRIB 40-25W-4Z	SR 16-236 08223	BLD T15/S7	SW6-T
TRIB 40-25W-4Z-B	SR 16-236	BLD T15/S7	SW6-T
TRIB 50-32W-6Z	SR 16-236 08223	BLD T15/S7	SW6-T

CHAMSLIT

TRIB-SM
Grooving Shell Mills with Triple-Edged Precision Ground Inserts



Designation	DC	CWN(1)	CWX(2)	CDX(3)	CICT(4)	BD	DHUB	DCONMS	L	Arbor(5)	kg	OAL
TRIB 50-22SM 6Z	50.00	1.20	4.00	4.80	6	39.70	39.70	22.00	39.00	B	0.24	39.50
TRIB 50-22SM 6Z-B	50.00	4.00	6.50	4.80	6	39.70	39.70	22.00	39.00	B	0.24	41.15
TRIB 63-22SM 8Z	63.00	1.20	4.00	4.80	8	52.70	40.00	22.00	39.00	B	0.40	39.50
TRIB 63-22SM 8Z-B	63.00	4.01	6.50	4.80	8	52.70	40.00	22.00	39.00	B	0.39	41.15
TRIB 80-27SM 11Z	80.00	1.20	4.00	4.80	11	69.70	69.70	27.00	49.00	B	0.92	49.50
TRIB 80-27SM 11Z-B	80.00	4.01	6.50	4.80	11	69.70	69.70	27.00	49.00	B	0.91	51.15

• CWN,CWX, CDX, f, Refer to insert data • For inserts with CW=4.01-6.50 mm, order tools with -B suffix (deeper pockets) for example: TRIB 63-22SM-8Z-B

(1) Minimum cutting width

(2) Maximum cutting width

(3) Cutting depth maximum

(4) Number of inserts (or edges for solid tool)

(5) For adaptation options, see page 432

For inserts, see pages: TRI (558)

Dimensions Related to Inserts

Insert	Tmax	TRIB ...Z f	TRIB ...Z-B f
TRI 16RK-1.2-0.05	4.6	0.5	
TRI 16RK-1.4-0.1	4.8	0.5	
TRI 16RK-1.5-0.1	4.8	0.5	
TRI 16RK-1.7-0.1	4.8	0.5	
TRI 16RK-1.95-0.15	4.8	0.5	
TRI 16RK-2.0-0.2	4.8	0.5	
TRI 16RK-2.25-0.15	4.8	0.75	
TRI 16RK-2.75-0.15	4.8	1.39	
TRI 16RK-3.0-0.2	4.8	1.39	
TRI 16RK-3.25-0.15	4.8	1.39	
TRI 16RK-4.0-0.2	4.8	2.43	
TRI 16RK-4.25-0.15	4.8		0.95
TRI 16RK-5.0-0.2	4.8		2.15
TRI 16RK-5.25-0.15	4.8		2.15
TRI 16RK-6.0-0.2	4.8		3.15

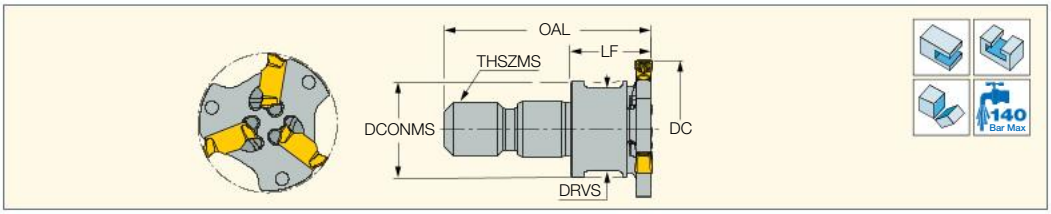
Spare Parts

Designation			
TRIB 50-22SM 6Z	SR 16-236 08223	BLD T15/S7	SW6-T
TRIB 50-22SM 6Z-B	SR 16-236	BLD T15/S7	SW6-T
TRIB 63-22SM 8Z	SR 16-236 08223	BLD T15/S7	SW6-T
TRIB 63-22SM 8Z-B	SR 16-236	BLD T15/S7	SW6-T
TRIB 80-27SM 11Z	SR 16-236 08223	BLD T15/S7	SW6-T
TRIB 80-27SM 11Z-B	SR 16-236	BLD T15/S7	SW6-T

MINSLIT SMALL DIA SLIT

DGSM-M-JHP

Groove Milling and Slitting Small Diameter Cutters with FLEX-FIT Threaded Adaptation



Designation	DC	CW	CDX	CICT(1)	DCONMS	THSZMS	LF	OAL	DRVS(2)	Insert		
DGSM 16-2-M06-3Z-JHP	16.00	2.00	3.70	3	10.00	M06	9.65	24.15	8.0	DGM 2002V	ESM 2-3	MM KEY 8X5
DGSM 16-3-M06-3Z-JHP	16.00	3.00	3.70	3	10.00	M06	8.30	22.50	8.0	DGM 3002V	ESM 2-3	MM KEY 8X5
DGSM 18-2-M06-3Z-JHP	18.00	2.00	4.70	3	10.00	M06	9.65	24.15	8.0	DGM 2002V	ESM 2-3	MM KEY 8X5
DGSM 18-3-M06-3Z-JHP	18.00	3.00	4.70	3	10.00	M06	9.80	24.00	8.0	DGM 3002V		
DGSM 22-2-M08-4Z-JHP	22.00	2.00	5.70	4	12.00	M08	8.65	26.15	10.0	DGM 2002V		
DGSM 22-3-M08-4Z-JHP	22.00	3.00	5.70	4	12.00	M08	9.30	26.50	10.0	DGM 3002V		

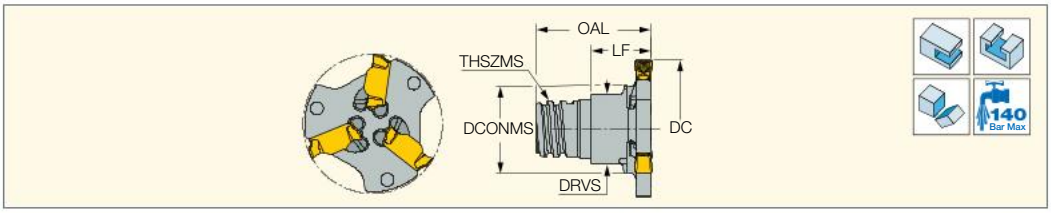
(1) Number of inserts (or edges for solid tool)
(2) Torque key size

For inserts, see pages: DGM-V (379)
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

MINSLIT SMALL DIA SLIT

DGSM-MM-JHP

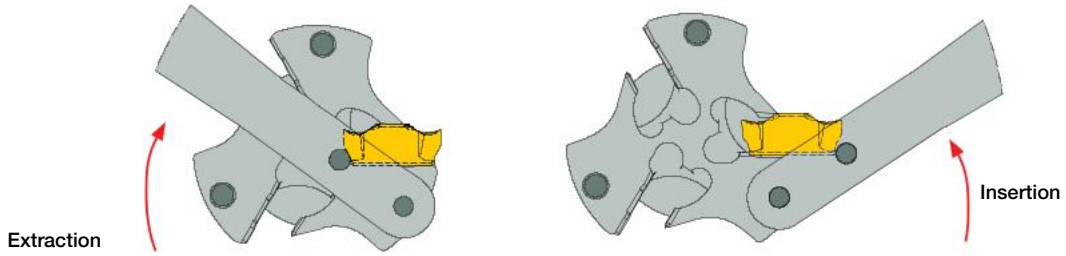
Groove Milling and Slitting Small Diameter Cutters with MULTI-MASTER Threaded Adaptation



Designation	DC	CW	CDX	CICT(1)	DCONMS	THSZMS	LF	OAL	DRVS(2)	Insert		
DGSM 16-2-MMT06-3Z-JHP	16.00	2.00	3.70	3	10.00	T06	9.65	15.95	8.0	DGM 2002V		
DGSM 16-3-MMT06-3Z-JHP	16.00	3.00	3.70	3	10.00	T06	9.70	14.30	8.0	DGM 3002V	ESM 2-3	MM KEY 8X5
DGSM 18-2-MMT06-3Z-JHP	18.00	2.00	4.70	3	10.00	T06	9.65	15.95	8.0	DGM 2002V		
DGSM 18-3-MMT06-3Z-JHP	18.00	3.00	4.70	3	10.00	T06	9.90	16.25	8.0	DGM 3002V		
DGSM 22-2-MMT08-4Z-JHP	22.00	2.00	5.70	4	12.00	T08	8.50	15.80	10.0	DGM 2002V		
DGSM 22-3-MMT08-4Z-JHP	22.00	3.00	5.70	4	12.00	T08	9.15	16.40	10.0	DGM 3002V		

(1) Number of inserts (or edges for solid tool)
(2) Torque key size

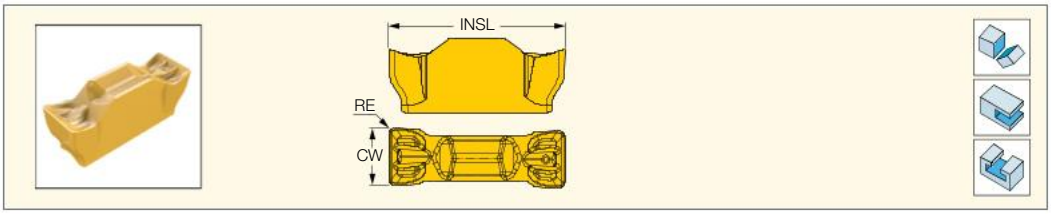
For inserts, see pages: DGM-V (379)
For holders, see pages: MM CAB (110) • MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)



MINSLIT SMALL DIA SLIT

DGM-V

Miniature Double-Sided Inserts with Ridged Positive Chipformer for Slitting and Grooving a Wide Range of Materials

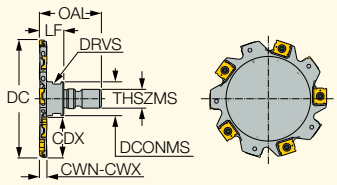


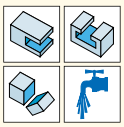
Designation	Dimensions CW	RE	INSL	IC1008	Recommended Machining Data f groove (mm/t)
DGM 2002V	2.00	0.20	6.20	•	0.03-0.10
DGM 3002V	3.00	0.20	6.20	•	0.04-0.15

For tools, see pages: DGSM-M-JHP (379) • DGSM-MM-JHP (379)

MINI-TANGSLOT

ETS-LN08-M
Grooving and Slitting Cutters with FLEX-FIT Threaded Adaptation





Designation	DC	CWN[1]	CWX[2]	CDX[3]	NOF[4]	ZEFP	DCONMS	THSZMS	LF	OAL	DRVS[5]	TQ_3[6]
ETS D032-03-LN08-M08	32.00	3.00 [7]	3.00 [7]	9.30	4	2	13.00	M08	13.00	30.50	10.0	20
ETS D032-04-LN08-M08	32.00	4.00 [8]	4.50 [11]	9.30	4	2	13.00	M08	13.00	30.50	10.0	20
ETS D032-05-LN08-M10	32.00	5.00 [9]	5.50 [12]	7.00	4	2	18.00	M10	13.00	33.00	16.0	29
ETS D032-06-LN08-M10	32.00	6.00 [10]	6.50 [13]	7.00	4	2	18.00	M10	13.00	33.00	16.0	29
ETS D040-03-LN08-M08	40.00	3.00 [7]	3.00 [7]	13.00	6	3	13.00	M08	13.00	30.50	10.0	20
ETS D040-04-LN08-M08	40.00	4.00 [8]	4.50 [11]	13.00	6	3	13.00	M08	13.00	30.50	10.0	20
ETS D040-05-LN08-M10	40.00	5.00 [9]	5.50 [12]	11.00	6	3	18.00	M10	13.00	33.00	16.0	29
ETS D040-06-LN08-M10	40.00	6.00 [10]	6.50 [13]	11.00	6	3	18.00	M10	13.00	33.00	16.0	29
ETS D050-03-LN08-M10	50.00	3.00 [7]	3.00 [7]	15.50	8	4	18.00	M10	13.00	33.00	16.0	29
ETS D050-04-LN08-M10	50.00	4.00 [8]	4.50 [11]	15.50	8	4	18.00	M10	13.00	33.00	16.0	29
ETS D050-05-LN08-M12	50.00	5.00 [9]	5.50 [12]	14.50	8	4	21.00	M12	13.00	35.00	17.0	33
ETS D050-06-LN08-M12	50.00	6.00 [10]	6.50 [13]	14.50	8	4	21.00	M12	13.00	35.00	17.0	33
ETS D063-03-LN08-M10	63.00	3.00 [7]	3.00 [7]	22.00	10	5	18.00	M10	13.00	33.00	16.0	29
ETS D063-04-LN08-M10	63.00	4.00 [8]	4.50 [11]	22.00	10	5	18.00	M10	13.00	33.00	16.0	29
ETS D063-05-LN08-M12	63.00	5.00 [9]	5.50 [12]	21.00	10	5	21.00	M12	13.00	35.00	17.0	33
ETS D063-06-LN08-M12	63.00	6.00 [10]	6.50 [13]	21.00	10	5	21.00	M12	13.00	35.00	17.0	33

• For user guide, see pages 383-385 • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Minimum cutting width
(2) Maximum cutting width
(3) Cutting depth maximum
(4) Number of flutes
(5) Clamping wrench size
(6) Tool tightening torque Nxm (lbfxin)
(7) Use LNET 0818.. insert with SR 114-018-L2.50 screw
(8) Use LNET 0826.. insert with SR 114-018-L3.40 screw
(9) Use LNET 0830.. insert with SR 114-018-L4.40 screw
(10) Use LNET 0835.. insert with SR 114-018-L5.30 screw
(11) Use LNET 0828.. insert with SR 114-018-L3.40 screw
(12) Use LNET 0832.. insert with SR 114-018-L4.40 screw
(13) Use LNET 0837.. insert with SR 114-018-L5.30

For inserts, see pages: LNET 08 (558)
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

Cutter Designation	CWN-CWX	Inserts
ETS D...-03-..-LN08	3	LNET 081804-TN-N
ETS D...-04-..-LN08	4	LNET 082604-TN-N
	4.5	LNET 082804-TN-N
ETS D...-05-..-LN08	5	LNET 0830-TN-N
	5.5	LNET 0832-TN-N
ETS D...-06-..-LN08	6	LNET 0835-TN-N
	6.5	LNET 0837-TN-N

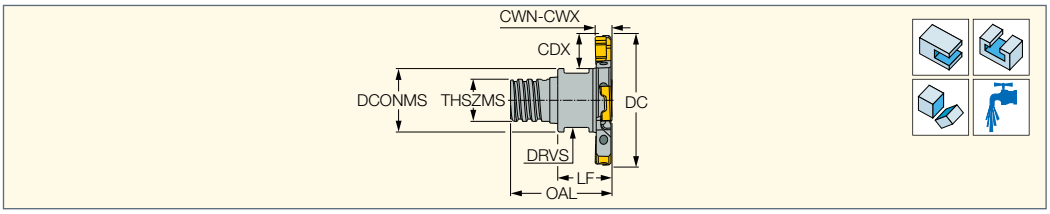
Spare Parts

Designation				
ETS D032-03-LN08-M08	SR 114-018-L2.50	T-6/3-L	T-6/5	
ETS D032-04-LN08-M08	SR 114-018-L3.40	T-6/3-L	T-6/5	
ETS D032-05-LN08-M10	SR 114-018-L4.40	T-6/3-L	T-6/5	MM KEY 16X9*
ETS D032-06-LN08-M10	SR 114-018-L5.30	T-6/3-L	T-6/5	MM KEY 16X9*
ETS D040-03-LN08-M08	SR 114-018-L2.50	T-6/3-L	T-6/5	
ETS D040-04-LN08-M08	SR 114-018-L3.40	T-6/3-L	T-6/5	
ETS D040-05-LN08-M10	SR 114-018-L4.40	T-6/3-L	T-6/5	MM KEY 16X9*
ETS D040-06-LN08-M10	SR 114-018-L5.30	T-6/3-L	T-6/5	MM KEY 16X9*
ETS D050-03-LN08-M10	SR 114-018-L2.50	T-6/3-L	T-6/5	
ETS D050-04-LN08-M10	SR 114-018-L3.40	T-6/3-L	T-6/5	
ETS D050-05-LN08-M12	SR 114-018-L4.40	T-6/3-L	T-6/5	WRENCH ER11*
ETS D050-06-LN08-M12	SR 114-018-L5.30	T-6/3-L	T-6/5	WRENCH ER11*
ETS D063-03-LN08-M10	SR 114-018-L2.50	T-6/3-L	T-6/5	
ETS D063-04-LN08-M10	SR 114-018-L3.40	T-6/3-L	T-6/5	
ETS D063-05-LN08-M12	SR 114-018-L4.40	T-6/3-L	T-6/5	WRENCH ER11*
ETS D063-06-LN08-M12	SR 114-018-L5.30	T-6/3-L	T-6/5	WRENCH ER11*

* Optional, to be ordered separately

MINI-TANGSLOT

ETS-LN08-MM
Grooving and Slitting Cutters
with MULTI-MASTER
Threaded Adaptator



Designation	DC	CWN(1)	CWX(2)	CDX(3)	NOF(4)	ZEFP	DCONMS	THSZMS	LF	OAL	DRVS(5)
ETS D32/1.26-4-LN08-MMT10	32.00	4.00 (6)	4.50 (7)	8.20	4	2	15.20	T10	13.00	24.30	13.0
ETS D40/1.57-4-LN08-MMT12	40.00	4.00 (6)	4.50 (7)	10.40	6	3	18.20	T12	13.00	26.30	16.0

• For user guide, see pages 383-385
(1) Minimum cutting width
(2) Maximum cutting width
(3) Cutting depth maximum
(4) Number of flutes
(5) Torque key size
(6) Use LNET 0826.. insert with SR 114-018-L3.40 screw
(7) Use LNET 0828.. insert with SR 114-018-L3.40 screw

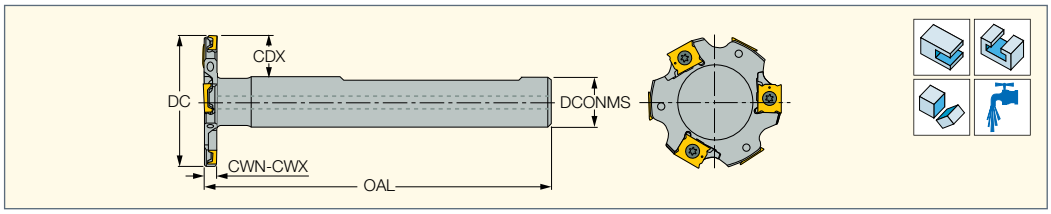
For inserts, see pages: LNET 08 (558)
For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

Spare Parts

Designation			
ETS-LN08-MM	SR 114-018-L3.40	T-6/5	T-6/3-L

MINI-TANGSLOT

ETS-LN08
Grooving and Slitting Cutters



Designation	DC	CWN[2]	CWX[3]	CDX[4]	NOF[5]	ZEFP	DCONMS	Shank[6]	OAL	kg
ETS D032-03-W16-LN08	32.00	3.00 [7]	3.00 [7]	7.90	4	2	16.00	W	90.00	0.14
ETS D032-04-W16-LN08	32.00	4.00 [8]	4.50 [12]	7.90	4	2	16.00	W	90.00	0.14
ETS D032-05-W16-LN08	32.00	5.00 [9]	5.50 [13]	7.90	4	2	16.00	W	90.00	0.14
ETS D032-06-W16-LN08	32.00	6.00 [10]	6.50 [14]	7.90	4	2	16.00	W	90.00	0.14
ETS D032-07-W16-LN08 [1]	32.00	7.00 [11]	8.00 [15]	7.90	4	2	16.00	W	90.00	0.14
ETS D040-03-W16-LN08	40.00	3.00 [7]	3.00 [7]	11.90	6	3	16.00	W	104.00	0.16
ETS D040-04-W16-LN08	40.00	4.00 [8]	4.50 [12]	11.90	6	3	16.00	W	104.00	0.16
ETS D040-05-W16-LN08	40.00	5.00 [9]	5.50 [13]	11.90	6	3	16.00	W	104.00	0.16
ETS D040-06-W16-LN08	40.00	6.00 [10]	6.50 [14]	11.90	6	3	16.00	W	104.00	0.17
ETS D040-07-W16-LN08 [1]	40.00	7.00 [11]	8.00 [15]	11.70	6	3	16.00	W	104.00	0.17
ETS D050-03-W20-LN08	50.00	3.00 [7]	3.00 [7]	14.90	8	4	20.00	W	110.00	0.26
ETS D050-04-W20-LN08	50.00	4.00 [8]	4.50 [12]	14.90	8	4	20.00	W	110.00	0.27
ETS D050-05-W20-LN08	50.00	5.00 [9]	5.50 [13]	14.90	8	4	20.00	W	110.00	0.28
ETS D050-06-W20-LN08	50.00	6.00 [10]	6.50 [14]	14.90	8	4	20.00	W	110.00	0.28
ETS D050-07-W20-LN08 [1]	50.00	7.00 [11]	8.00 [15]	14.70	8	4	20.00	W	110.00	0.29
ETS D063-03-W20-LN08	63.00	3.00 [7]	3.00 [7]	21.40	10	5	20.00	W	110.00	0.28
ETS D063-04-W20-LN08	63.00	4.00 [8]	4.50 [12]	21.40	10	5	20.00	W	110.00	0.29
ETS D063-05-W20-LN08	63.00	5.00 [9]	5.50 [13]	21.40	10	5	20.00	W	110.00	0.31
ETS D063-06-W20-LN08	63.00	6.00 [10]	6.50 [14]	21.40	10	5	20.00	W	110.00	0.32
ETS D063-07-W20-LN08 [1]	63.00	7.00 [11]	8.00 [15]	21.20	10	5	20.00	W	110.00	0.34

- Adjustable overhang design
- For user guide, see pages 383-385

(1) For a_p=7.5 use LNET 084204-TN-N insert with SR 114-018-L5.30-HG screw
(2) Minimum cutting width
(3) Maximum cutting width
(4) Cutting depth maximum
(5) Number of flutes
(6) W-Weldon
(7) Use LNET 0818.. insert with SR 114-018-L2.50 screw
(8) Use LNET 0826.. insert with SR 114-018-L3.40 screw
(9) Use LNET 0830.. insert with SR 114-018-L4.40 screw
(10) Use LNET 0835.. insert with SR 114-018-L5.30 screw
(11) Use LNET 0840.. insert with SR 114-018-L5.30-HG
(12) Use LNET 0828.. insert with SR 114-018-L3.40 screw
(13) Use LNET 0832.. insert with SR 114-018-L4.40 screw
(14) Use LNET 0837.. insert with SR 114-018-L5.30
(15) Use LNET 0845.. insert with SR 114-018-L5.30-HG

For inserts, see pages: LNET 08 (492)

Spare Parts

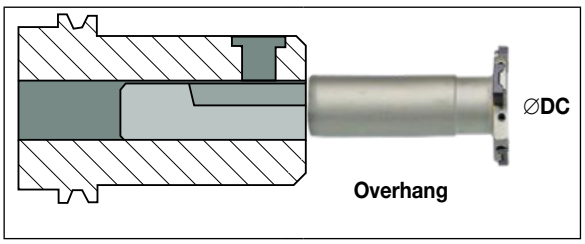
Designation			
ETS D032-03-W16-LN08	SR 114-018-L2.50	T-6/3-L	T-6/5
ETS D032-04-W16-LN08	SR 114-018-L3.40	T-6/3-L	T-6/5
ETS D032-05-W16-LN08	SR 114-018-L4.40	T-6/3-L	T-6/5
ETS D032-06-W16-LN08	SR 114-018-L5.30	T-6/3-L	T-6/5
ETS D032-07-W16-LN08	SR 114-018-L5.30-HG	T-6/3-L	T-6/5
ETS D040-03-W16-LN08	SR 114-018-L2.50	T-6/3-L	T-6/5
ETS D040-04-W16-LN08	SR 114-018-L3.40	T-6/3-L	T-6/5
ETS D040-05-W16-LN08	SR 114-018-L4.40	T-6/3-L	T-6/5
ETS D040-06-W16-LN08	SR 114-018-L5.30	T-6/3-L	T-6/5
ETS D040-07-W16-LN08	SR 114-018-L5.30-HG	T-6/3-L	T-6/5
ETS D050-03-W20-LN08	SR 114-018-L2.50	T-6/3-L	T-6/5
ETS D050-04-W20-LN08	SR 114-018-L3.40	T-6/3-L	T-6/5
ETS D050-05-W20-LN08	SR 114-018-L4.40	T-6/3-L	T-6/5
ETS D050-06-W20-LN08	SR 114-018-L5.30	T-6/3-L	T-6/5
ETS D050-07-W20-LN08	SR 114-018-L5.30-HG	T-6/3-L	T-6/5
ETS D063-03-W20-LN08	SR 114-018-L2.50	T-6/3-L	T-6/5
ETS D063-04-W20-LN08	SR 114-018-L3.40	T-6/3-L	T-6/5
ETS D063-05-W20-LN08	SR 114-018-L4.40	T-6/3-L	T-6/5
ETS D063-06-W20-LN08	SR 114-018-L5.30	T-6/3-L	T-6/5
ETS D063-07-W20-LN08	SR 114-018-L5.30-HG	T-6/3-L	T-6/5

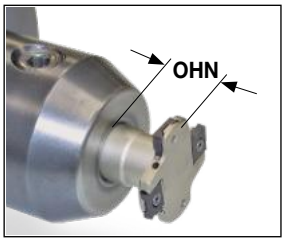
Cutter Designation	CWN-CWX	Insert
...D...-03-..-LN08	3	LNET 081804-TN-N
...D...-04-..-LN08	4	LNET 082604-TN-N
	4.5	LNET 082804-TN-N
...D...-05-..-LN08	5	LNET 083004-TN-N
	5.5	LNET 083204-TN-N
...D...-06-..-LN 08	6	LNET 083504-TN-N
	6.5	LNET 083704-TN-N
...D...-07..-LN08	7	LNET 084004-TN-N
	7.5	LNET 084204-TN-N
	8.0	LNET 084504-TN-N

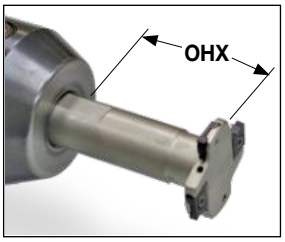
1

2 Setting the Overhang

ETS..- T-Type Slotting Cutters			
Designation	DC	Overhang	
		OHN (min)	OHX (max)
ETS D32	32	20	49
ETS D40	40	34	63
ETS D50	50	27	66
ETS D63	63	27	66



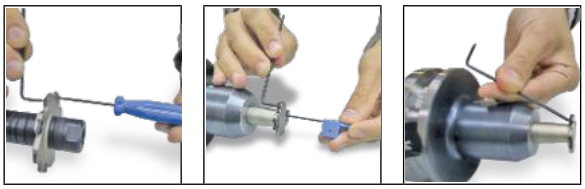




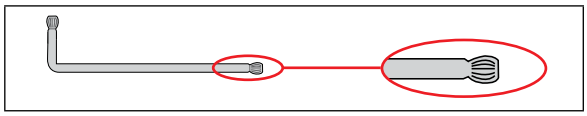
3 Lubrication - Important!

For every indexing, lubricate screws before mounting.
Grease should cover the screw's thread and cone head.

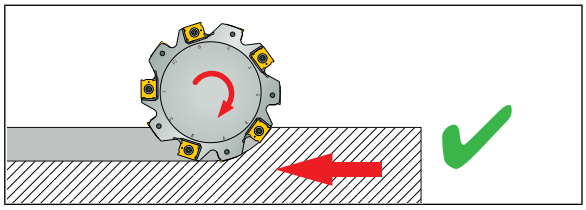
4 Indexing



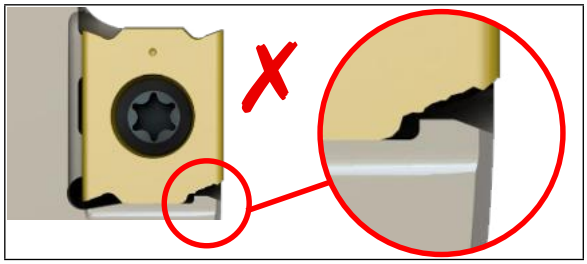
L -type key is added to the cutter package.
It has a ball shape on the end of its longer side.



Feed Direction:
Down (climb) milling is recommended.



Do not clamp insert with a broken corner
in the outer bottom position.



5 Tightening Torque

60-70 N x cm

6 Tightening

Use the short side for tightening and initial release

Use the long side for quick driving and release

Important note: To avoid indexing problems, insert clamping screws and replace keys on a regular basis according to their wear.

7 Width of Cut

for a_p=3 - 6.5mm - use the following table

A_p	Insert	Screw	Key
3.00	LNET 081804-TN-N	SR 114-018-L2.50	**T-6**/5 **T-6**/5-L
4.00	LNET 082604-TN-N	SR 114-018-L3.40	
4.50	LNET 082804-TN-N		
5.00	LNET 083004-TN-N	SR 114-018-L4.40	
5.50	LNET 083204-TN-N	SR 114-018-L4.40	
6.00	LNET 083504-TN-N	SR 114-018-L5.30	
6.50	LNET 083704-TN-N		

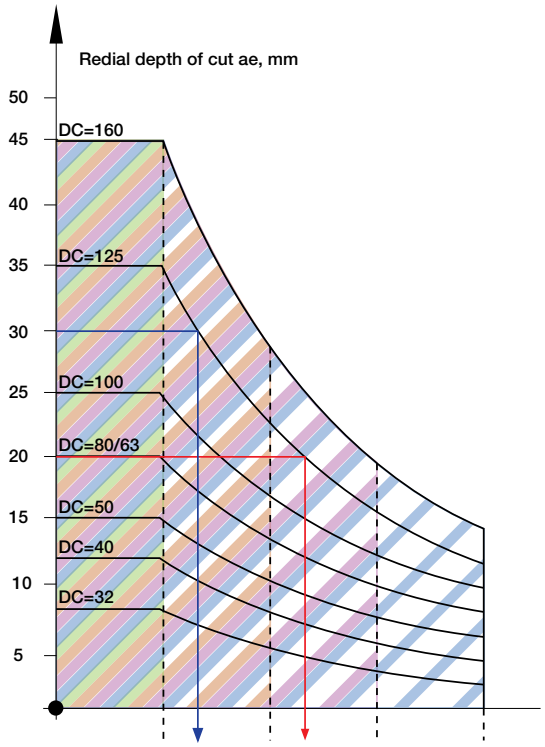
8 Recommended Cutting Speed

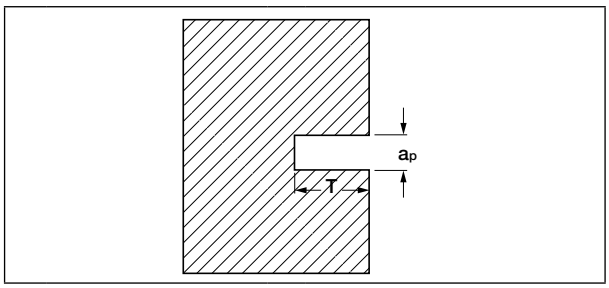
ISO Class DIN/ISO 513	Description	Workpiece Material: Typical Example AISI/SAE/ ASTM	DIN W.-Nr.	Hardness HB	ISCAR Mat. Group**	Cutting Speed V_c, M/min	Insert	Grade	Coolant
P	non-alloy steel and cast steel, free cutting steel	1020	1.0402	130-180	1	130-200	LN....08	IC928	air blow
	alloy steel	4340	1.6582	260-300	8	120-170	LN....08	IC928	
	alloy steel	3135	1.5710	HRC 35-40*	9	100-120	LN....08	IC928	
	high alloy steel	H13	1.2344	200-220	10	100-150	LN....08	IC928	
	martensitic S.S.	420	1.4021	200	12	100-140	LN....08	IC928	
M	austenitic S.S.	304L	1.4306	200	14	70-120	LN....08	IC928	wet (emulsion)
	austenitic S.S.	316L	1.4404	140	14	80-120	LN....08	IC928	
K	grey cast iron	class 40	0.6025 (GG25)	250	16	180-230	LN....08	IC910	air blow
	nodular cast iron	class 65-45-12	0.7050 (GGG50)	200	17	150-200	LN....08	IC910	
S	high temp. alloys	AMS R56400	3.7165 (Ti6Al4V)	HRC 40-45	37	35-45	LN....08	IC928	wet (emulsion)

* Quenched and tempered

** ISCAR material group in accordance with VDI 3323 standard

Recommended Feed Per Tooth for MINI-TANG-SLOT Cutters Carrying LN..08... Inserts for 3 Mm ≤a_p<7 Mm





Example

Material - Alloy steel DIN 40NiCrMo6, W.-Nr.16565

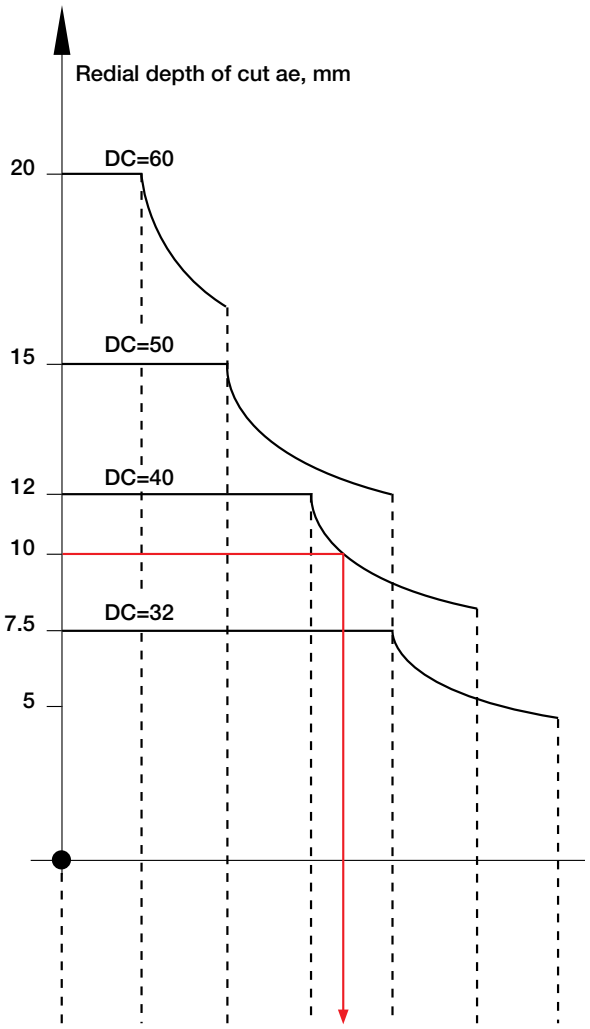
D = 125 mm	D = 125 mm
A_e = 30 mm	A_e = 20 mm
A_p = 4 mm	A_p = 6 mm
F_z = 0.2x0.75*	F_z = 0.25x1=0.25 mm/tooth
= 0.15 mm/tooth	

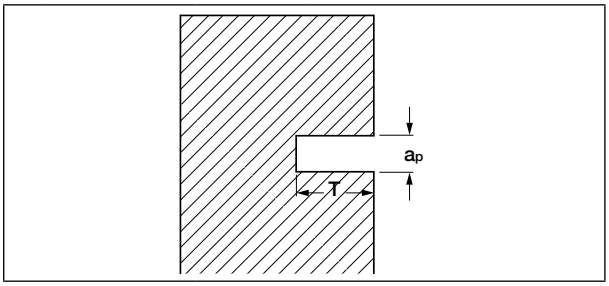
F_z= Fz0xK

A_p mm	K
from 3 to 4	0.60
from 4 up to 5	0.75
over 5 to 7	1

Basic Feed Fz_0, mm/tooth				Description	AISI / SAE / ASTM (DIN W.-Nr.)	ISCAR Mat. Group	DIN/ ISO
				Workpiece Material			
0.17	0.22	0.27	0.32	non-alloy steel and cast steel, free cutting steel	1020 (DIN 1.0402)	1	P
0.15	0.2	0.25	0.3	alloy steel	4340 (DIN 1.6582)	8	
0.1	0.13	0.15	0.2	alloy steel	3135 (DIN 1.5710)	9	
0.1	0.13	0.16	0.22	high alloy steel	H13 (DIN 1.2344)	10	
0.13	0.16	0.2	0.25	martensitic S.S.	420 (DIN 1.4021)	12	
0.1	0.13	0.16	0.22	austenitic S.S.	316L (DIN 1.4404)	14	M
0.2	0.25	0.3	0.35	grey cast iron	class 40 (DIN 0.6025) (GG25)	16	K
0.15	0.2	0.25	0.3	nodular cast iron	class 65-45-12 (DIN 0.7050) (GGG50)	17	
0.1	0.13	0.16	0.22	high temp. alloys	AMS R56400 (DIN 3.7165)	37	S

9 Recommended feed per tooth for MINI-TANG-SLOT cutters carrying LN..08... inserts for a_p=7-8 mm





Example

Material - Alloy steel DIN 40NiCrMo6, W.-Nr.16565

D = 40 mm
A_e = 10 mm
A_p = 8 mm
F_z = 0.09x0.8=0.072 mm/tooth

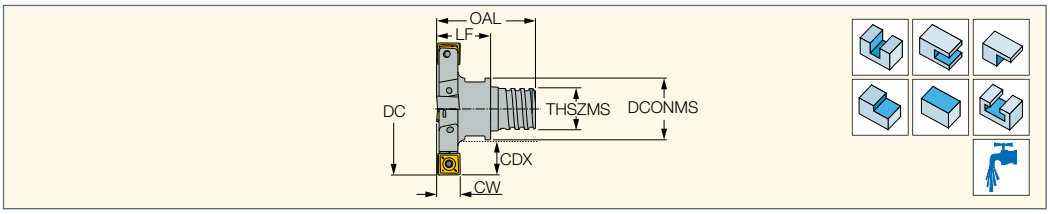
F_z= Fz0xK

A_p mm	K
from 7 up to 7.5	1
over 7.5 up to 8	0.80

Basic Feed Fz_0 mm/tooth						Description	AISI / SAE / ASTM / DIN	ISCAR Mat. Group	DIN/ ISO
						Workpiece Material			
0.045	0.060	0.090	0.105	0.120	0.135	non-alloy steel and cast steel, free cutting steel	1020 (DIN 1.0402)	1	P
0.045	0.060	0.075	0.090	0.105	0.120	alloy steel	4340 (DIN 1.6582)	8	
0.030	0.045	0.052	0.060	0.068	0.075	alloy steel	3135 (DIN 1.5710)	9	
0.030	0.045	0.052	0.060	0.075	0.090	high alloy steel	H13 (DIN 1.2344)	10	
0.030	0.052	0.068	0.082	0.090	0.105	martensitic S.S.	420 (DIN 1.4021)	12	
0.030	0.045	0.052	0.068	0.075	0.090	austenitic S.S.	316L (DIN 1.4404)	14	M
0.068	0.090	0.105	0.120	0.135	0.150	grey cast iron	class 40 (DIN 0.6025) (GG25)	16	K
0.045	0.075	0.090	0.105	0.120	0.135	nodular cast iron	class 65-45-12 (DIN 0.7050) (GGG50)	17	
0.030	0.045	0.052	0.060	0.075	0.090	high temp. alloys	AMS R56400 (DIN 3.7165)	37	S

HELISLOT

ETS-XN06-MM
T-SLOT Endmills with a MULTI-MASTER Threaded Connection, Mount XNMU 0603 Square Inserts



Designation	DC	CICT[1]	ZEFP	CW	CDX	DCONMS	THSZMS	LF	OAL	DRVS[2]
ETS D032-07-XN06-MMT10	31.70	4	4	7.00	7.70	15.30	T10	16.00	27.30	13.0
ETS D040-07-XN06-MMT12	39.80	4	4	7.00	10.00	18.30	T12	16.00	29.30	16.0
ETS D050-07-XN06-MMT15	49.80	6	6	7.00	12.50	23.90	T15	19.00	36.00	20.0

New

- For user guide, see pages 426-432

(1) Number of inserts (or edges for solid tool)

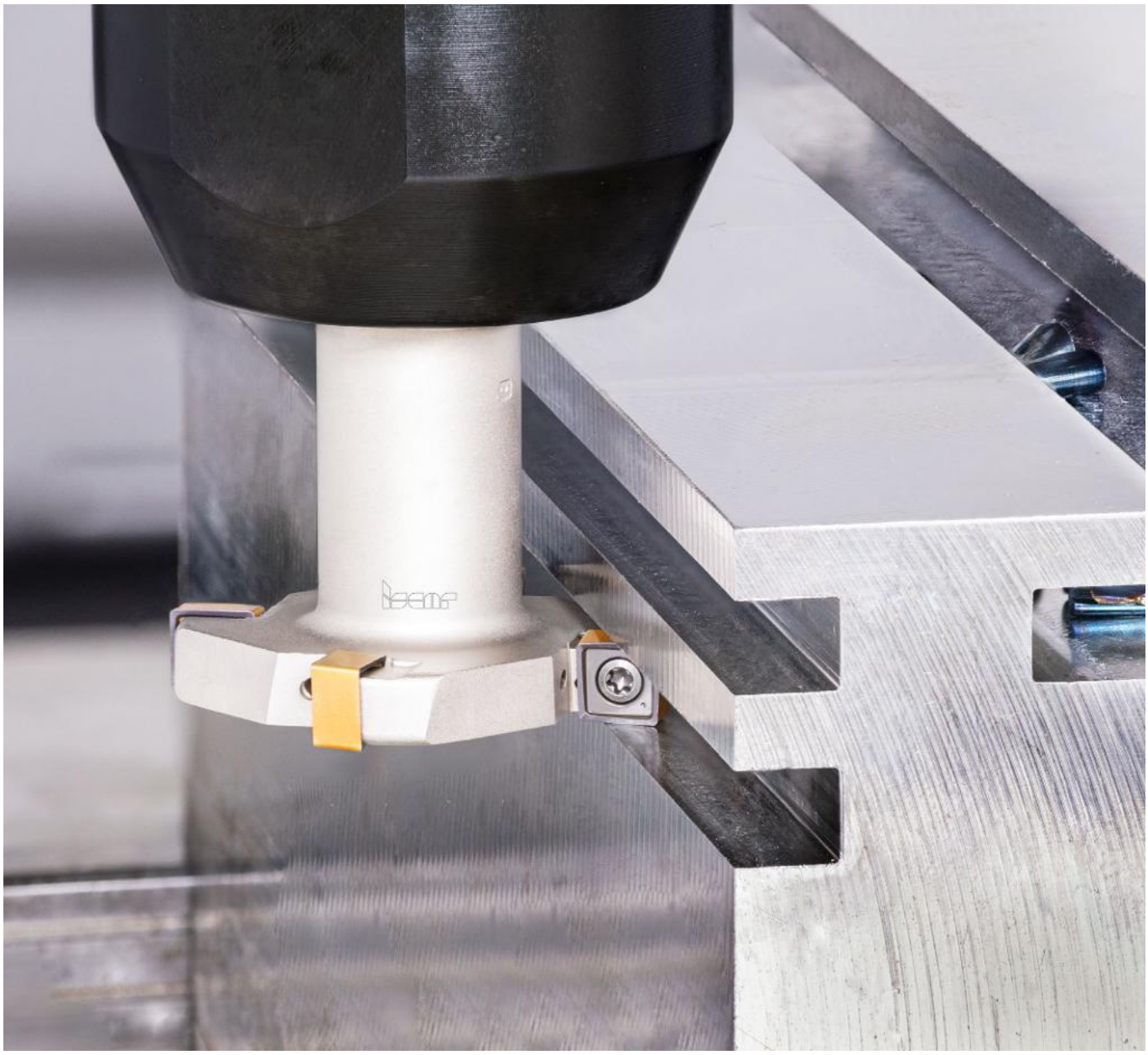
(2) Torque key size

For inserts, see pages: XNMU 06 (585)

For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

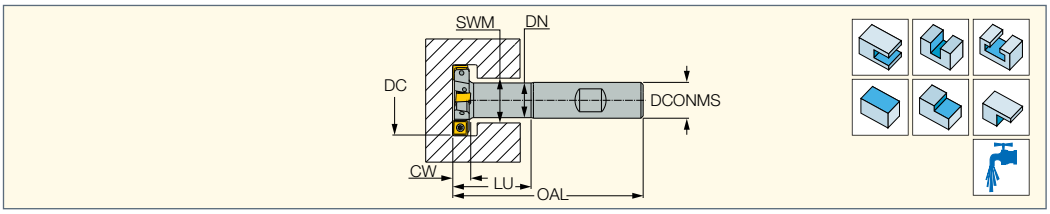
Spare Parts

Designation		
ETS-XN06-MM	SR M2.5X6-T7-60	T-7/51



HELISLOT

ETS-XN06
T-SLOT Endmills Carrying
XNMU 0603 Square Inserts
with 4 Right- and
4 Left-Hand Cutting Edges



Designation	DC	CICT(1)	ZEFP	DN	SWM	CW	LU	OAL	DCONMS	Shank(2)	kg
ETS D032-07-W16-XN06	32.00	4	4	15.50	17.00	7.00	30.00	80.00	16.00	W	0.20
ETS D032-08-W16-XN06	32.00	4	2	15.50	17.00	8.00	35.00	85.00	16.00	W	0.13
ETS D040-07-W16-XN06	40.00	4	4	15.50	17.00	7.00	30.00	80.00	16.00	W	0.14
ETS D040-08-W16-XN06	40.00	4	2	15.50	17.00	8.00	35.00	85.00	16.00	W	0.15
ETS D050-07-W20-XN06	50.00	6	6	19.50	21.00	7.00	33.00	85.00	20.00	W	0.22
ETS D050-10-W20-XN06	50.00	6	3	19.50	21.00	10.00	38.00	90.00	20.00	W	0.25

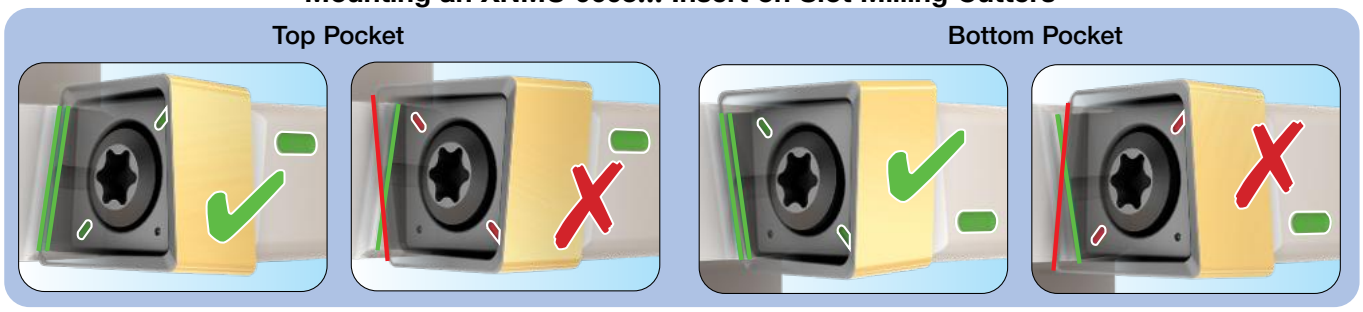
New

- For user guide, see pages 426-432

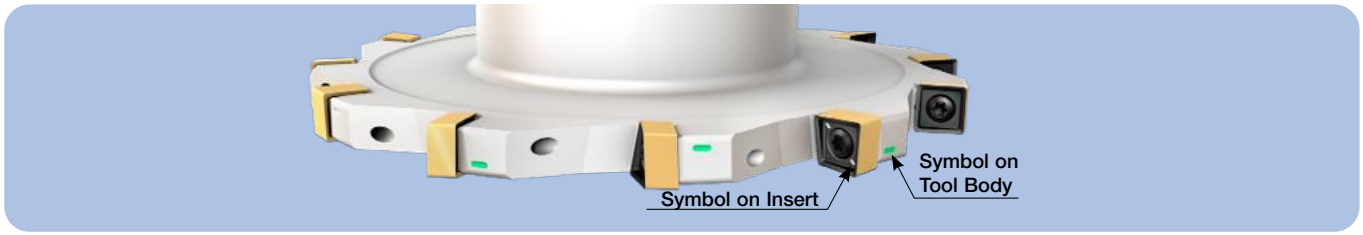
(1) Number of inserts (or edges for solid tool)
(2) W-Weldon

For inserts, see pages: XNMU 06 (585)

Mounting an XNMU 0603... Insert on Slot Milling Cutters



The Symbol on the Insert and Tool Body Must Align



Starting Feed Per Tooth f_z for HELI-SLOT 06 Slotting Mills with Inserts XNMU 06...

ISO Class DIN/ISO 513	Description	ISCAR Material Group**	Typical Representstive		Hardness, HB	Feed f_z mm/tooth Grades	
			AISI/SAE/ASTM	DIN W.-Nr.		IC808	IC830
P	non-alloy steel	1	1020	1.0044	130-180	0.10-0.20	0.10-0.20
	alloy steel	8	4340	1.6582	260-300	0.08-0.12	0.08-0.12
	alloy steel	9	4340	1.6582	HRC 35-42*	0.08-0.12	0.08-0.12
	high alloy steel	10	H13	1.2344	200-220	0.08-0.12	0.08-0.12
	martensitic S.S.	12	420	1.4021	200	0.08-0.12	0.08-0.12
M	austenitic S.S.	14	304L	1.4306	200	0.08-0.12	0.08-0.12
	austenitic S.S.	14	316L	1.4404	140	0.08-0.12	0.08-0.12
K	grey cast iron	16	class 40	0.6025 (GG25)	250	0.10-0.20	
	nodular cast iron	17	class 65-45-12	0.7050 (GGG50)	200	0.08-0.15	
H	hard steel and cast iron	38.1	H11	1.2343	HRC 45-49	0.06-0.12	
		38.2	P20	1.2330	HRC 50-55	0.05-0.10	

* Quenched and tempered
** ISCAR material group in accordance with VDI 3323 standard

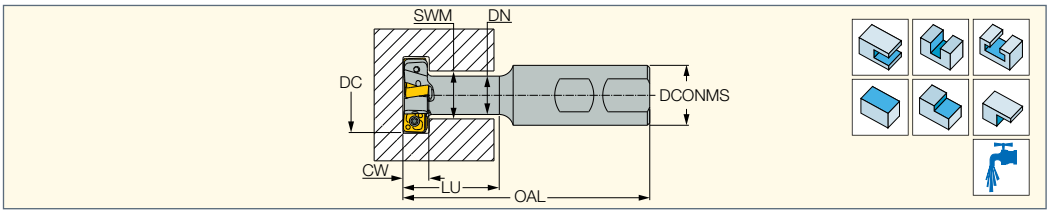
Spare Parts

Designation		
ETS-XN06	SR M2.5X6-T7-60	T-7/51

HELISLOT

ETS-XN09

T-SLOT Endmills Carrying XNMU 0904 Square Inserts with 4 Right- and 4 Left-Hand Cutting Edges



Designation	DC	CICT(1)	ZEFP	DN	SWM	CW	LU	OAL	DCONMS	Shank(2)	kg
ETS D32-10-W16-XN09	31.70	4	2	15.50	18.00	9.90	35.00	85.00	16.00	W	0.02
ETS D32-11-W20-XN09	31.70	4	2	16.00	18.00	10.80	41.00	95.00	20.00	W	0.27
ETS D32-11-W25-XN09	31.70	4	2	16.00	18.00	10.80	41.00	105.00	25.00	W	0.62
ETS D32-14-W25-XN09	31.70	4	2	16.00	18.00	13.80	41.00	105.00	25.00	W	0.27
ETS D32-14-W32-XN09	31.70	4	2	16.00	18.00	13.80	45.00	110.00	32.00	W	0.88

- For user guide, see pages 426-432

(1) Number of inserts (or edges for solid tool)

(2) W-Weldon

For inserts, see pages: XNMU 09 (586)

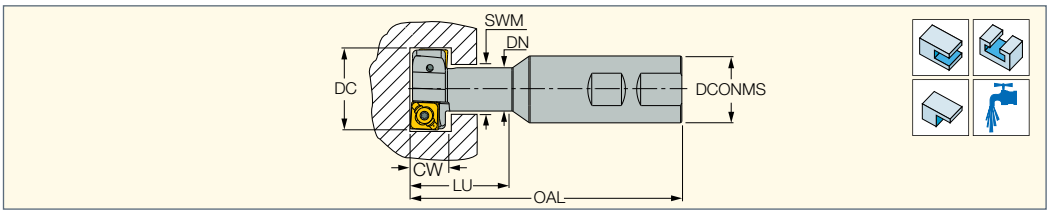
Spare Parts

Designation		
ETS-XN09	SR 10508600	T-9/51

HELISLOT

ETS-XN13

T-SLOT Endmills Carrying XNMU 1306 Square Inserts with 4 Right- and 4 Left-Hand Cutting Edges



Designation	DC	NOF(1)	ZEFP	DN	SWM	CW	LU	OAL	DCONMS	Shank(2)	kg
ETS D40-18-W32-XN13	40.00	2	1	21.00	22.00	18.00	47.0	120.00	32.00	W	0.55
ETS D48-22-W32-XN13	48.00	4	2	27.00	28.00	22.00	58.0	130.00	32.00	W	0.70

- For user guide, see pages 426-432

(1) Number of flutes

(2) W-Weldon

For inserts, see pages: XNMU 13 (586)

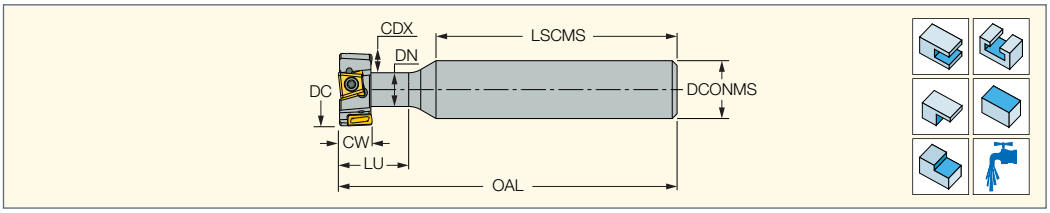
Spare Parts

Designation			
ETS-XN13	SR M4-L15-D4.5	BLD IP15/S7	SW6-T-SH

TANGDISC

ETS-T490

T-SLOT Endmills Sloting Cutters Carrying T490 0502 PNTN Inserts with 2 Right- and 2 Left-Hand Cutting Edges



Designation	DC	NOF(1)	ZEFP	DN	LSCMS	CW	CDX	LU	OAL	DCONMS	Shank	MIID(2)
ETS D016-07-C12-T490-05	15.70	4	2	8.00	50.00	7.00	3.50	11.5	65.00	12.00	C	T490 LNHT 0502-PNTN
ETS D020-07-C12-T490-05	19.70	4	2	10.00	50.00	7.00	4.50	12.8	65.00	12.00	C	T490 LNHT 0502-PNTN
ETS D025-07-C16-T490-05	24.70	6	3	14.00	60.00	7.00	5.20	13.2	75.00	16.00	C	T490 LNHT 0502-PNTN
ETS D032-07-C16-T490-05	31.70	8	4	15.70	60.00	7.00	7.80	19.0	80.00	16.00	C	T490 LNHT 0502-PNTN

New

- For user guide, see pages 426-432

(1) Number of flutes

(2) Master insert identification

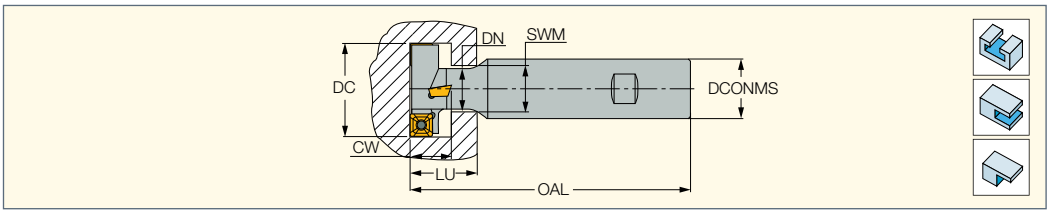
For inserts, see pages: T490 LNHT 05-PNTN (544)

Spare Parts

Designation		
ETS-T490	SR M2X0.4-4.8 IP6	T-6IP/51

ISCARMILL

ETS
T-SLOT Endmills



Designation	DC	NOF(1)	ZEFP	DN	SWM	CW	LU	OAL	DCONMS	Shank(2)	kg	MIID(3)
ETS D21-9-W16-06	21.10	2	1	10.80	12.00	8.85	26.9	90.00	16.00	W	0.11	XOMT 060204-HQ
ETS D25-11-W16-06	24.80	4	2	12.80	14.00	10.80	30.8	90.00	16.00	W	0.12	XOMT 060204-HQ
ETS D25-11-W25-06	24.80	4	2	12.80	14.00	10.80	24.4	120.00	25.00	W	0.36	XOMT 060204-HQ
ETS D32-14-W32-10	31.70	2	1	16.70	18.00	13.85	40.0	120.00	32.00	W	0.54	XPMT 100408-HQ
ETS D32-14-W16-10	31.70	4	2	16.00	18.00	13.85	52.0 (4)	90.00	16.00	W	0.14	XPMT 100408-HQ
ETS D32-16-W32-A10	31.70	4	2	16.80	18.00	15.85	39.0	110.00	32.00	W	0.48	APKT 1003PDTR/L-RM
ETS D40-18-W32-10	39.70	4	2	20.70	22.00	17.85	50.0	130.00	32.00	W	0.62	XPMT 100408-HQ
ETS D48-22-W32-15	48.50	4	2	26.00	27.00	21.85	51.3	130.00	32.00	W	0.73	ADKT 1505...R/L...

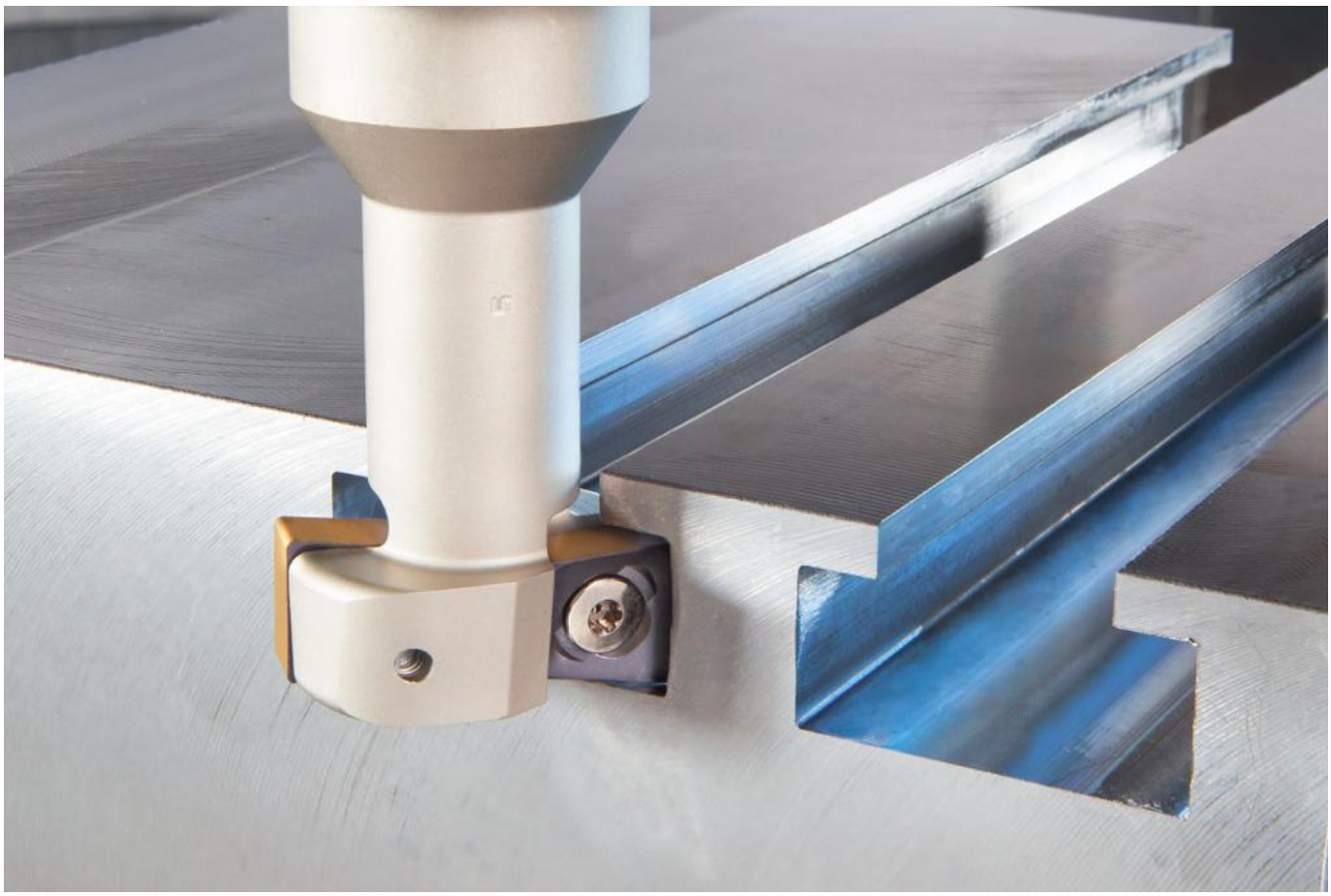
- For user guide, see pages 426-432

(1) Number of flutes
(2) W-Weldon
(3) Master insert identification
(4) Adjustable overhang design: LUmin=19, LUmax=52

For inserts, see pages: ADKR 1505PDR/L (523) • ADKT 1505..R/L-HM (526) • ADKT 1505PDR/L-HM (525) • ADKT 1505PDTR/L-RM (525) • APKT 1003PDTR/L-RM (518) • QOMT-HQ (560) • XOMT-HQ (561) • XPMT-HQ (563)

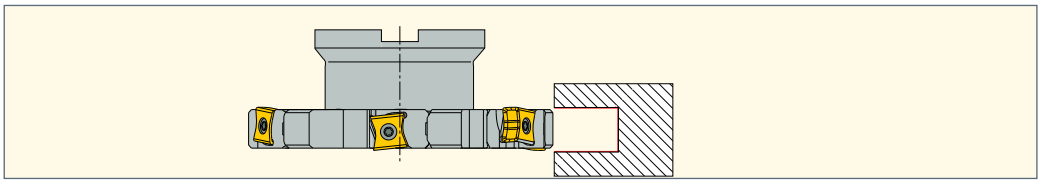
Spare Parts

Designation		
ETS D21-9-W16-06	SR 34-508/L	T-7/51
ETS D25-11-W16-06	SR 34-508/L	T-7/51
ETS D25-11-W25-06	SR 34-508/L	T-7/51
ETS D32-14-W32-10	SR 14-544/S	T-15/51
ETS D32-14-W16-10	SR 14-506 M4X0.7	T-15/51
ETS D32-16-W32-A10	SR 34-505/LHG	T-8/53
ETS D40-18-W32-10	SR 14-544/S	T-15/51
ETS D48-22-W32-15	SR 14-544/S	T-15/51



ISCARMILL

FDN
Full Slot Flange Type

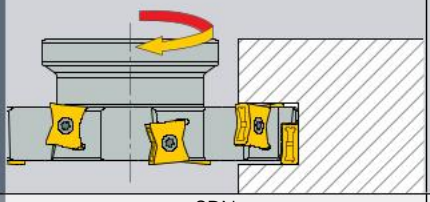
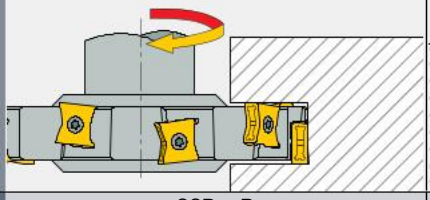
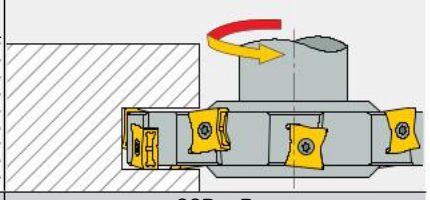
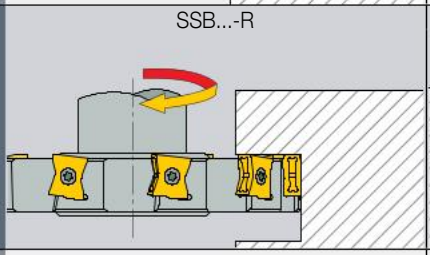
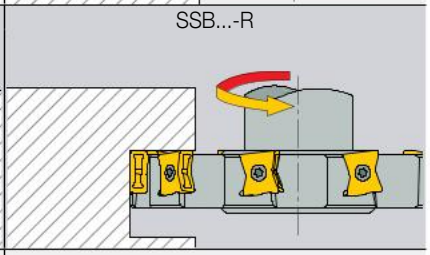
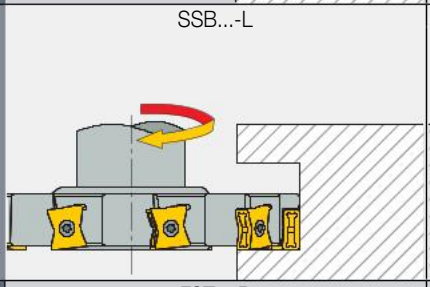
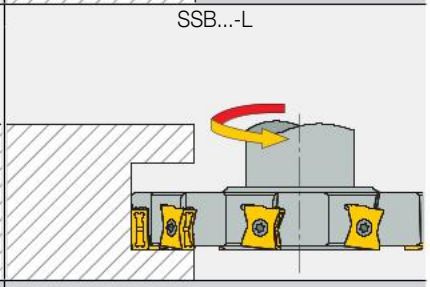
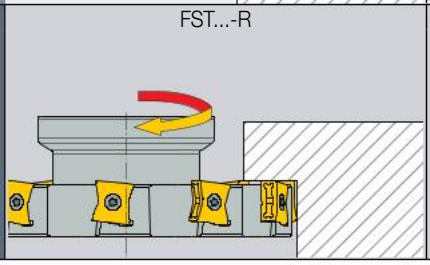


Tool Diameter							Width of Cutter																						Type of Insert	
63	80	100	125	160	200	250	3	4	4.5	5	5.5	6	6.5	7	8	8.5	9	10	10.5	12	13	14	14.6	16	17	18	19	20	23	25.6		
●	●	●					✓																							LNET 081804	
●	●	●						✓																						LNET 082604	
●	●	●							✓																					LNET 082804	
●	●	●								✓																				LNET 083004	
●	●	●									✓																			LNET 083204	
●	●	●										✓																		LNET 083504	
●	●	●											✓																	LNET 083704	
	●	●	●											✓																LNET 1240	
	●	●	●		●										✓															LNET 1245	
	●	●	●		●											✓														LNET 1248	
	●	●	●	●	●	●												✓												LNET 1255	
	●	●	●	●	●	●													✓											LNET 1257	
	●	●	●	●	●	●														✓										LNET 1265	
		●	●	●		●																								LNET 12...	
	●	●	●	●														✓												XNMU 09..	
	●	●	●	●																✓											
		●	●																			✓									XNMU 13..	
			●																					✓							
				●																					✓						
					●																						✓				
●	●	●													✓															XOMT 0602.. QOMT 060208	
		●	●															✓													
			●	●																✓										XPMT 1004... QPMT 1004...	
			●	●																				✓						QPMT 1004...	
				●																				✓						QDMT 1205... QDCT 1205	
				●																					✓					
					●	●																					✓				
		●	●	●	●	●																								LN...11	
			●	●	●	●																								LN...13	
			●	●	●	●																								LN...15	

● With adjustable cartridges

Face and Slot Milling Cutters

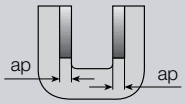
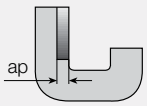
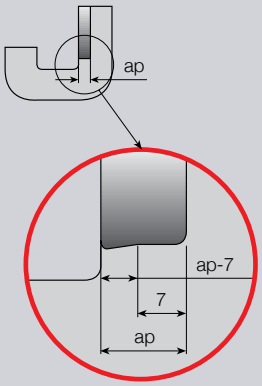
Cutter Types for Right and Left-Hand, Top and Bottom Milling

	Right-Hand Spindle Rotation	Left-Hand Spindle Rotation
Full Side - Flange Type (Pages 393-400)	FDN...-R 	
Full Side - Disk Type (Pages 402-409)	SDN 	SDN 
Half Side - Top Disk Type (Page 410)	SSB...-R 	SSB...-R 
Half Side - Bottom Disk Type (Page 410)	SSB...-L 	SSB...-L 
Half Side - Top Flange Type (Page 409)	FST...-R 	

Ordering Examples		
Integral Pocket Cutter FDN D125-10-27-LN12 Cutter diameter: 125 mm Slot width: 10.00 mm	**Adjustable Cutter with Cartridges** FDN D100-0810-32-CALN12 Cutter diameter: 100 mm Slot width range: 8.00-10.5 mm	**Pre-Adjusted Specific Width** (the cutter will be set to 9.52 mm). FDN D125-09.52-40-CALN12 Cutter diameter: 125 mm Slot width: 9.52 mm (The cutter can be adjusted to a width of 8.0-10.5 mm)

Single Or Double-Face Milling Configuration Guide

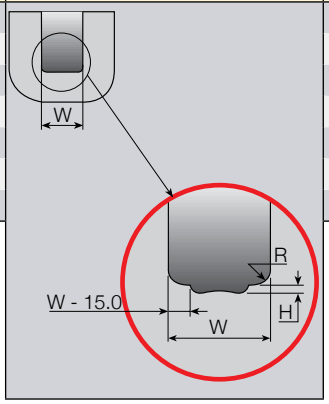
Configuration Guide for FDN/SDN/SSB/FST/FSB... CALN15 Cutters

Designation	Number of Cutting Edges[1]	Bottom Flatness $A_p \leq 7$ H (mm)	Bottom Flatness $A_p = 14$ H (mm)	Application	Half Side Tools Axial Depth of Cut A_p (mm)
LNKX 1506...	4R+4L	Flat	0.65	Double Face Mllling	Stock=0-14
LNMT 1506...	4R+4L	Flat	0.65		Stock=0-14
LNAT 1506...	4R+4L	Flat	0.4-0.65		Stock=0-14[2]
LNHT 1506...-N[3]	2R+2L	Flat	Flat		Stock=0-14
LNKX 1506...	4R	Flat	0.65	Half Side Milling	Stock=0-14
LNMT 1506...	4R	Flat	0.65		Stock=0-14
LNAT 1506...	4R	Flat	0.4-0.65		Stock=0-14[2]
LNHT 1506...-R[4]	4R	Flat	Flat		Stock=0-14[2]
LNKX 1506...	4L	Flat	0.65	Half Side Milling	Stock=0-14
LNMT 1506...	4L	Flat	0.65		Stock=0-14
LNAT 1506...	4L	Flat	0.4-0.65		Stock=0-14[2]
LNHT 1506...-N[3]	4L	Flat	Flat		Stock=0-14[2]

(1) Use of 8 cutting edges (4R+4L) is possible only when $a_p \leq 7$ mm, otherwise 4 cutting edges (2R+2L) can be used.

(2) Max a_p for radius inserts
LNAT 150616..=12.80
LNAT 150625..=12.25
LNAT 150632..=11.60
LNAT 150640..=14.00

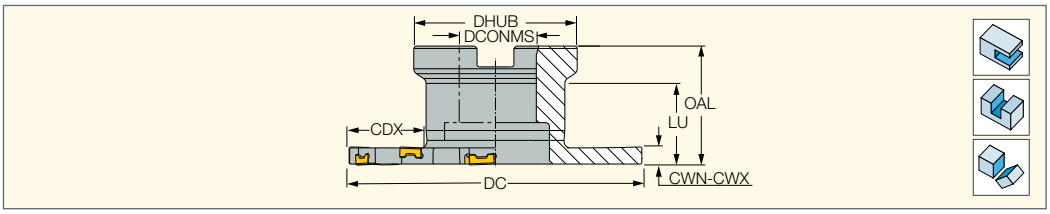
Configuration Guide for Full Slot FDN/SDN... CALN15 Cutters

Designation	Number of Cutting Edges	Bottom Slot Flatness H (mm)	Insert Radius R (mm)	Application	Half Side Tools Axial Depth of Cut W (mm)
LNKX 1506...	2R+2L	0.65	0.8		W=18.9-25.6
LNMT 1506...	2R+2L	0.65	0.8		W=18.9-25.6
LNAT 150616PN-N-HM	2R+2L	0.55	1.6		W=18.9-25.6
LNAT 150625PN-N-NM	2R+2L	0.45	2.5		W=18.9-24.5
LNAT 150632PN-N-NM	2R+2L	0.40	3.2		W=18.9-23.2
LNAT 150640PN-N-NM	2R+2L	0.65	4.0		W=18.9-25.6
LNHT 1506...-N[3]	2R+2L	Flat	0.8		W=18.9-25.6

LNHT 1506...-N R.H./L.H	1506...-N R.H./L.H	LNKX 1506... LNMT 1506... R.H./L.H.	LNHT 1506...-R R.H. Only
Page 555		Pages 554-555	Page 554

MINI-TANGSLOT

FDN-LN08
Full Slot Shell Mill Cutters
Carrying LNET 08...
Tangentially Mounted Inserts



Designation	DC	CWN(1)	CWX(2)	CDX(3)	CICT(4)	ZEFP	DHUB	DCONMS	LU	OAL	Arbor(5)	kg	MIID(6)
FDN D063-03-16-LN08	63.00	3.00 (7)	3.00 (7)	14.50	8	4	38.40	16.00	25.0	35.00	A	0.22	LNET 081804-TN-N
FDN D063-04-16-LN08	63.00	4.00 (8)	4.50 (11)	14.50	8	4	38.40	16.00	25.0	35.00	A	0.23	LNET 082604-TN-N
FDN D063-05-16-LN08	63.00	5.00 (9)	5.50 (12)	14.50	8	4	38.40	16.00	25.0	35.00	A	0.25	LNET 083004-TN-N
FDN D063-06-16-LN08	63.00	6.00 (10)	6.50 (13)	14.50	8	4	38.40	16.00	25.0	35.00	A	0.26	LNET 083504-TN-N
FDN D080-03-22-LN08	80.00	3.00 (7)	3.00 (7)	22.50	10	5	45.00	22.00	28.0	40.00	A	0.28	LNET 081804-TN-N
FDN D080-04-22-LN08	80.00	4.00 (8)	4.50 (11)	22.50	10	5	45.00	22.00	28.0	40.00	A	0.31	LNET 082604-TN-N
FDN D080-05-22-LN08	80.00	5.00 (9)	5.50 (12)	22.50	10	5	45.00	22.00	28.0	40.00	A	0.33	LNET 083004-TN-N
FDN D080-06-22-LN08	80.00	6.00 (10)	6.50 (13)	22.50	10	5	45.00	22.00	28.0	40.00	A	0.36	LNET 083504-TN-N
FDN D100-03-27-LN08	100.00	3.00 (7)	3.00 (7)	26.00	12	6	55.00	27.00	28.5	40.00	B	0.43	LNET 081804-TN-N
FDN D100-04-27-LN08	100.00	4.00 (8)	4.50 (11)	26.00	12	6	55.00	27.00	28.5	40.00	B	0.47	LNET 082604-TN-N
FDN D100-05-27-LN08	100.00	5.00 (9)	5.50 (12)	26.00	12	6	55.00	27.00	28.5	40.00	B	0.50	LNET 083004-TN-N
FDN D100-06-27-LN08	100.00	6.00 (10)	6.50 (13)	26.00	12	6	55.00	27.00	28.5	40.00	B	0.54	LNET 083504-TN-N

(1) Minimum cutting width
(2) Maximum cutting width
(3) Cutting depth maximum
(4) Number of inserts (or edges for solid tool)
(5) For adaptation options, see page 432
(6) Master insert identification
(7) Use LNET 0818.. insert with SR 114-018-L2.50 screw
(8) Use LNET 0826.. insert with SR 114-018-L3.40 screw
(9) Use LNET 0830.. insert with SR 114-018-L4.40 screw
(10) Use LNET 0835.. insert with SR 114-018-L5.30 screw
(11) Use LNET 0828.. insert with SR 114-018-L3.40 screw
(12) Use LNET 0832.. insert with SR 114-018-L4.40 screw
(13) Use LNET 0837.. insert with SR 114-018-L5.30 screw

For inserts, see pages: LNET 08 (558)

Cutter Designation	CWN-CWX	Inserts
FDN D...-03-...LN08	3	LNET 081804-TN-N
FDN D...-04-...LN08	4	LNET 082604-TN-N
	4.5	LNET 082804-TN-N
FDN D...-05-...LN08	5	LNET 083004-TN-N
	5.5	LNET 083204-TN-N
FDN D...-06-...LN08	6	LNET 083504-TN-N
	6.5	LNET 083704-TN-N

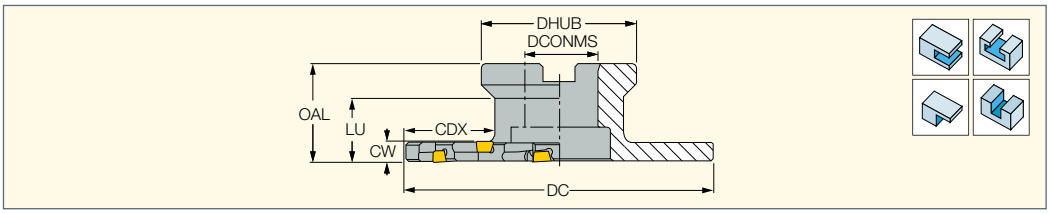
Spare Parts

Designation				
FDN D063-03-16-LN08	SR 114-018-L2.50	T-6/5	T-6/3-L	SR M8X25DIN912
FDN D063-04-16-LN08	SR 114-018-L3.40	T-6/5	T-6/3-L	SR M8X25DIN912
FDN D063-05-16-LN08	SR 114-018-L4.40	T-6/5	T-6/3-L	SR M8X25DIN912
FDN D063-06-16-LN08	SR 114-018-L5.30	T-6/5	T-6/3-L	SR M8X25DIN912
FDN D080-03-22-LN08	SR 114-018-L2.50	T-6/5	T-6/3-L	SR M10X25 DIN912
FDN D080-04-22-LN08	SR 114-018-L3.40	T-6/5	T-6/3-L	SR M10X25 DIN912
FDN D080-05-22-LN08	SR 114-018-L4.40	T-6/5	T-6/3-L	SR M10X25 DIN912
FDN D080-06-22-LN08	SR 114-018-L5.30	T-6/5	T-6/3-L	SR M10X25 DIN912
FDN D100-03-27-LN08	SR 114-018-L2.50	T-6/5	T-6/3-L	
FDN D100-04-27-LN08	SR 114-018-L3.40	T-6/5	T-6/3-L	
FDN D100-05-27-LN08	SR 114-018-L4.40	T-6/5	T-6/3-L	
FDN D100-06-27-LN08	SR 114-018-L5.30	T-6/5	T-6/3-L	

TANGSLOT

FDN-LN12

Full Slot Cutters Carrying LNET 12... Tangentially Mounted Inserts



Designation	DC	CICT(4)	ZEFP	DCONMS	DHUB	CDX	LU	OAL	Arbor(5)	kg	CW	Inserts
FDN D080-07-22-LN12(1)	80.00	8	4	22.00	45.00	22.00	28.20	40.00	A	0.40	7.0 8.0 8.5	LNET 1240.. LNET 1245... LNET 1248..
FDN D080-10-22-LN12(2)	80.00	8	4	22.00	45.00	22.00	28.20	40.00	A	0.40	10.0 10.5 12.0	LNET 1255.. LNET 1257.. LNET 1265...
FDN D100-07-27-LN12(1)	100.00	10	5	27.00	55.00	25.00	28.50	40.00	B	0.44	7.0 8.0 8.5	LNET 1240.. LNET 1245.. LNET 1248...
FDN D100-10-27-LN12(2)	100.00	10	5	27.00	55.00	25.00	28.50	40.00	B	0.61	10.0 10.5 12.0	LNET 1255.. LNET 1257.. LNET 1265...
FDN D125-07-32-LN12(1)	125.00	12	6	32.00	65.00	34.50	32.00	45.00	B	0.60	7.0 8.0 8.5	LNET 1240.. LNET 1245.. LNET 1248...
FDN D125-10-32-LN12(2)	125.00	12	6	32.00	65.00	34.50	32.00	45.00	B	1.30	10.0 10.5 12.0	LNET 1255.. LNET 1257.. LNET 1265...
FDN D160-10-40-LN12(2)	160.00	16	8	40.00	80.00	44.00	33.50	50.00	B	1.76	10.0 10.5 12.0	LNET 1255.. LNET 1257.. LNET 1265...
FDN D200-08-40-LN12(3)	200.00	20	10	40.00	92.00	51.50	49.50	50.00	C	2.63	8.0 8.5 9.0 10.0	LNET 1245.. LNET 1248.. LNET 1250... LNET 1255..
FDN D200-10-40-LN12(2)	200.00	20	10	40.00	92.00	51.50	49.50	50.00	C	2.95	10.0 10.5 12.0	LNET 1255.. LNET 1257.. LNET 1265...
FDN D250-10-60-LN12(2)	250.00	26	13	40.00	132.00	56.50	62.50	63.00	C	5.91	10.0 10.5 12.0	LNET 1255.. LNET 1257.. LNET 1265...

- Slot width depends on the selected insert width • Each tool is supplied with screws for the thinnest specified insert
- Verify use of correct screw for the insert being used • For user guide, see pages 426-431

(1) For a_p=7.0 use screw SR 14-500-L5.9 • For a_p=8.0 use screw SR 14-500-L6.5 • For a_p=8.5 use screw SR 14-500-L7.0

(2) For a_p=10.0 and 10.5 use screw SR 14-500-L8.5 • For a_p=12.0 use screw SR 14-500-L10.0

(3) For a_p=8.0 and 8.5 use screw SR 14-500-L7.0 • For a_p=9.0 use screw SR 14-500-L8.0 • For a_p=10.0 use screw SR 14-500-L8.5

(4) Cutting depth maximum

(5) Number of inserts (or edges for solid tool)

(6) For adaptation options, see page 432

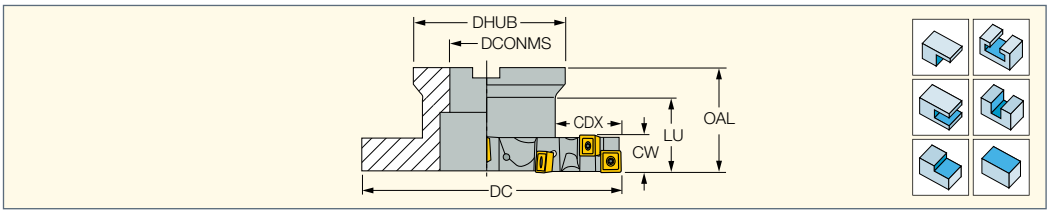
For inserts, see pages: LNET 12-TN (493) • LNET 12-TN-MM (493)

Spare Parts

Designation			
FDN D080-07-22-LN12	SR 14-500-L5.9	RATCHET WRENCH KEY	T-15/51-BE
FDN D080-10-22-LN12	SR 14-500-L8.5	RATCHET WRENCH KEY	T-15/51-BE
FDN D100-07-27-LN12	SR 14-500-L5.9	RATCHET WRENCH KEY	T-15/51-BE
FDN D100-10-27-LN12	SR 14-500-L8.5	RATCHET WRENCH KEY	T-15/51-BE
FDN D125-07-32-LN12	SR 14-500-L5.9	RATCHET WRENCH KEY	T-15/51-BE
FDN D125-10-32-LN12	SR 14-500-L8.5	RATCHET WRENCH KEY	T-15/51-BE
FDN D160-10-40-LN12	SR 14-500-L8.5	RATCHET WRENCH KEY	T-15/51-BE
FDN D200-08-40-LN12	SR 14-500-L7.0	RATCHET WRENCH KEY	T-15/51-BE
FDN D200-10-40-LN12	SR 14-500-L8.5	RATCHET WRENCH KEY	T-15/51-BE
FDN D250-10-60-LN12	SR 14-500-L8.5	RATCHET WRENCH KEY	T-15/51-BE

HELIQUAD

FDN
Full Slot Flange-Type
Slotting Cutters



Designation	DC	CW	CDX(1)	CICT(2)	ZEFP	DHUB	DCONMS	LU	OAL	Arbor(3)	kg	MIID(4)
FDN D080-08-22-R06	80.00	8.00	22.70	14	7	45.00	22.00	28.1	40.00	A	0.34	XOMT 060204-HQ
FDN D100-08-27-R06	100.00	8.00	26.40	16	8	55.00	27.00	28.8	40.00	B	0.53	XOMT 060204-HQ
FDN D100-10-27-R06	100.00	10.00	26.50	16	8	55.00	27.00	29.5	40.00	B	0.59	XOMT 060204-HQ
FDN D125-10-32-R06	125.00	10.00	35.50	20	10	65.00	32.00	32.0	45.00	B	0.94	XOMT 060204-HQ
FDN D125-12-32-R10	125.00	12.00	35.50	14	7	65.00	32.00	32.0	45.00	B	1.00	XPMT 100408-HQ
FDN D125-16-32-R10	125.00	16.00	34.00	14	7	65.00	32.00	37.0	50.00	B	1.25	XPMT 100408-HQ
FDN D160-12-40-R10	160.00	12.00	46.90	16	8	80.00	40.00	33.5	50.00	B	1.77	XPMT 100408-HQ
FDN D160-16-40-R10	160.00	16.00	46.50	16	8	80.00	40.00	43.5	60.00	B	2.13	XPMT 100408-HQ
FDN D160-16-40-R12	160.00	16.00	46.90	14	7	80.00	40.00	43.5	60.00	B	2.08	QDMT 1205PDN-RM
FDN D200-20-40-R12	200.00	20.00	62.00	16	8	92.00	40.00	41.0	63.00	E	3.57	QDMT 1205PDN-RM
FDN D250-20-60-R12	250.00	20.00	60.00	18	9	130.00	60.00	50.0	63.00	C	7.13	QDMT 1205PDN-RM

- For user guide, see pages 426-431

(1) Cutting depth maximum
(2) Number of inserts (or edges for solid tool)
(3) For adaptation options, see page 432
(4) Master insert identification

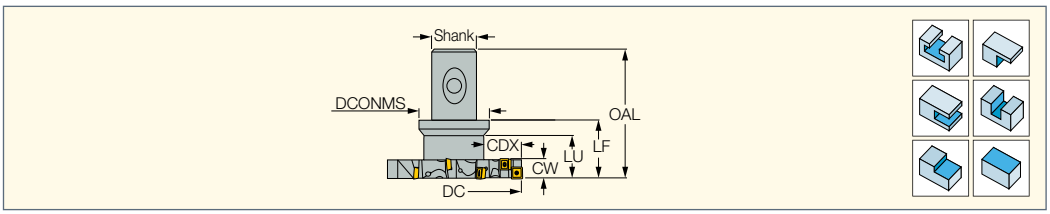
For inserts, see pages: QDCT-PDN (565) • QDMT 1205..PDTN-M (565) • QOMT-HQ (560) • QPMT 100408PDTN (561) • XOMT-HQ (561) • XPMT-HQ (563)

Spare Parts

Designation					
FDN D080-08-22-R06	SR 34-514	T-7/51			
FDN D100-08-27-R06	SR 34-514	T-7/51			
FDN D100-10-27-R06	SR 34-514	T-7/51			
FDN D125-10-32-R06	SR 34-514	T-7/51			
FDN D125-12-32-R10	SR 14-544/S	T-15/51			
FDN D125-16-32-R10	SR 14-544/S	T-15/51			
FDN D160-12-40-R10	SR 14-544/S	T-15/51			
FDN D160-16-40-R10	SR 14-544/S	T-15/51			
FDN D160-16-40-R12	SR 14-544		BLD T15/M7	SW6-T	PN 3-4
FDN D200-20-40-R12	SR 34-510		BLD T15/L7	SW6-T	PN 3-4
FDN D250-20-60-R12	SR 34-510		BLD T15/L7	SW6-T	PN 3-4

HELIQUAD

FDN-CF4
Full Slot Flange-Type
Slotting Cutters with
CLICK-FIT Adaptation



Designation	DC	CICT(1)	CW	CDX(2)	OAL	LF	LU	DCONMS	Shank	kg		
FDN D050-08-CF4-06	50.00	8	8.00	13.90	90.00	48.00	32.0	44.00	CF4	0.44	SR 34-514	T-7/51
FDN D063-08-CF4-06	63.00	10	8.00	18.90	90.00	48.00	33.0	44.00	CF4	0.51	SR 34-514	T-7/51

- For user guide, see pages 426-431

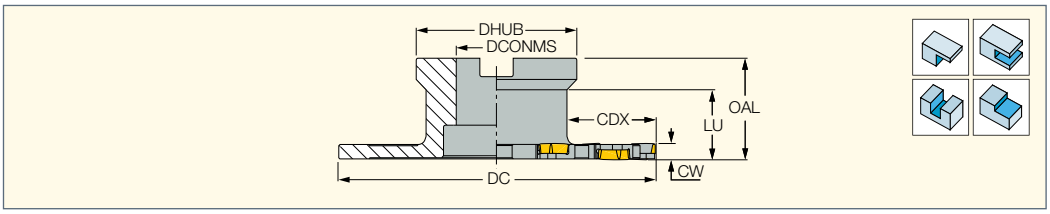
(1) Number of inserts (or edges for solid tool)
(2) Cutting depth maximum

For inserts, see pages: QOMT-HQ (560) • XOMT-HQ (561)

TANGSLOT

FDN-CALN12

Full Slot Adjustable Slotting Cutters with Cartridges Carrying LNET 12 Inserts



Designation	DC	CICT(4)	ZEFP	DCONMS	DHUB	CDX	LUmin	LUmax	OALmin	OALmax	kg	Inserts	Width of Range [a_p]
FDN D100-0608-27R-CALN12(1)	100.00	6	3	27.00	55.00	26.00	28.4	29.5	40.0	41.1	0.48	LNET 1235...	6.0-6.5
												LNET 1240...	6.5-7.2
												LNET 1245...	7.0-8.2
FDN D100-0810-27R-CALN12(2)	100.00	6	3	27.00	55.00	26.00	30.2	31.5	42.0	43.2	0.54	LNET 1248...	8.0-8.7
												LNET 1250...	8.4-9.2
												LNET 1255...	8.9-10.5
FDN D100-1014-27R-CALN12(3)	100.00	6	3	27.00	55.00	26.00	32.0	34.0	44.5	46.5	0.47	LNET 1265...	10.5-12.2
												LNET 1277...	11.9-14.6
FDN D125-0608-32R-CALN12(1)	125.00	8	4	32.00	65.00	34.00	30.2	31.3	45.0	46.1	0.80	LNET 1235...	6.0-6.5
												LNET 1240...	6.5-7.2
												LNET 1245...	7.0-8.2
FDN D125-0810-32R-CALN12(2)	125.00	8	4	32.00	65.00	34.00	32.0	33.3	47.0	48.2	1.36	LNET 1248...	8.0-8.7
												LNET 1250...	8.4-9.2
												LNET 1255...	8.9-10.5
FDN D160-0608-40R-CALN12(1)	160.00	12	6	40.00	80.00	44.00	29.6	30.7	45.0	46.1	1.29	LNET 1235...	6.0-6.5
												LNET 1240...	6.5-7.2
												LNET 1245...	7.0-8.2
FDN D160-0810-40R-CALN12(2)	160.00	12	6	40.00	80.00	44.00	29.5	30.7	45.0	46.2	1.46	LNET 1248...	8.0-8.7
												LNET 1250...	8.4-9.2
												LNET 1255...	8.9-10.5
FDN D160-1014-40R-CALN12(3)	160.00	12	6	40.00	80.00	44.00	31.2	33.2	47.5	49.5	2.15	LNET 1265...	10.5-12.2
												LNET 1277...	11.9-14.6

- Slot width depends on the selected insert width; verify use of correct screw for the insert being used
- For adaptation options, see page 432
- For cartridges see page 411

(1) For a_p=6.0 use screw SR 14-500-L4.9 • For a_p=6.5 use screw SR 14-500-L5.3 • For a_p=7.0 use screw=SR 14-500-L5.9

(2) For a_p=8.0 use screw SR 14-500-L6.7 • For a_p=8.4 use screw SR 14-500-L7.0 • For a_p=8.9 use screw SR 14-500-L7.5

(3) For a_p=10.5 use screw SR 14-500-L9.0 • For a_p=11.9 use screw SR 14-500-L9.0

(4) Number of inserts (or edges for solid tool)

(5) Cutting depth maximum

For inserts, see pages: LNET 12-TN (493) • LNET 12-TN-MM (493)

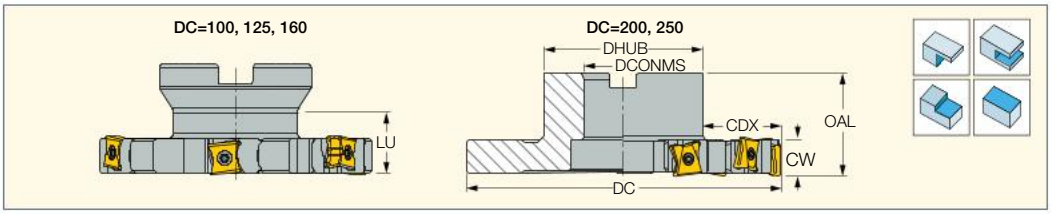
Spare Parts

Designation	
FDN D100-0608-27R-CALN12	CA 0608-R/L-LNET12
FDN D100-0810-27R-CALN12	CA 0810-R/L-LNET12
FDN D100-1014-27R-CALN12	CA 1014-R/L-LNET12
FDN D125-0608-32R-CALN12	CA 0608-R/L-LNET12
FDN D125-0810-32R-CALN12	CA 0810-R/L-LNET12
FDN D160-0608-40R-CALN12	CA 0608-R/L-LNET12
FDN D160-0810-40R-CALN12	CA 0810-R/L-LNET12
FDN D160-1014-40R-CALN12	CA 1014-R/L-LNET12

TANGMILL TANGENTIAL LINE

FDN-CALN11

Full Slot Flange Type Slotting Cutters with Cartridges Carrying Tangentially Mounted LN.. 1106.. Inserts



Designation	CWN(1)	CWX(2)	CDX(3)	OAL	LU	DC	DHUB	DCONMS	CICT(4)	ZEFP	Arbor(5)	kg
FDN D100-1419-27R-CALN11	14.00	19.50	27.00	40.00	23.4	100.00	55.00	27.00	6	3	B	0.83
FDN D125-1419-32R-CALN11	14.00	19.50	34.00	40.00	28.2	125.00	65.00	32.00	8	4	B	1.18
FDN D160-1419-40R-CALN11	14.00	19.50	44.00	50.00	28.9	160.00	80.00	40.00	10	5	B	2.14
FDN D200-1419-40R-CALN11	14.00	19.50	54.00	50.00	-	200.00	92.00	40.00	14	7	C	3.39
FDN D250-1419-60R-CALN11	14.00	19.50	58.00	50.00	-	250.00	132.00	60.00	16	8	C	5.85

- The cutter will be set to the minimum width range, unless a specific width is requested by the user
- Half of the inserts are used on right-hand cartridges and half on left-hand cartridges • For cartridge details, see page 411

(1) Minimum cutting width
(2) Maximum cutting width
(3) Cutting depth maximum
(4) Number of inserts (or edges for solid tool)
(5) For adaptation, see page 432

For inserts, see pages: LNAR 1106 (550) • LNHT 1106 PN-N HT (550) • LNHT 1106 PN-R HT (549) • LNKX/LNMT 1106 (549)

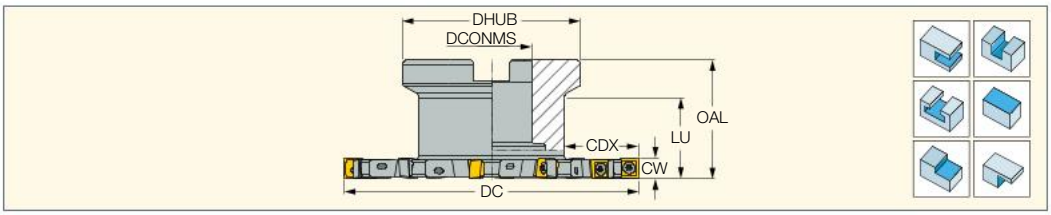
Spare Parts

Designation	
FDN-CALN11	CA90 1419-R/L-LN11

HELISLOT

FDN-XN06

Full Slot Flange Type Slotting Cutters Carrying XNMU 0603 Square Inserts with 4 Right- and 4 Left-Hand Cutting Edges



Designation	DC	CW	CICT(1)	ZEFP	CDX	DHUB	DCONMS	LU	OAL	Arbor	kg
FDN D063-07-16-XN06	63.00	7.00	8	8	17.00	38.00	16.00	28.5	40.00	A	0.18
FDN D080-07-22-XN06	80.00	7.00	10	10	20.00	48.00	22.00	28.5	40.00	A	0.55
FDN D080-08-22-XN06	80.00	8.00	10	5	20.00	48.00	22.00	28.5	40.00	A	0.39
FDN D100-07-27-XN06	100.00	7.00	12	12	23.00	60.00	27.00	28.5	40.00	B	0.18
FDN D100-08-27-XN06	100.00	8.00	12	6	23.00	60.00	27.00	28.5	40.00	B	0.64
FDN D125-07-32-XN06	125.00	7.00	14	14	27.00	65.00	32.00	31.5	45.00	B	0.00
FDN D125-09-32-XN06	125.00	9.00	14	7	27.00	65.00	32.00	31.5	45.00	B	1.04
FDN D160-10-40-XN06	160.00	10.00	18	9	30.00	80.00	40.00	45.0	60.00	B	1.99

New

- For user guide, see pages 426-431

(1) Number of inserts (or edges for solid tool)

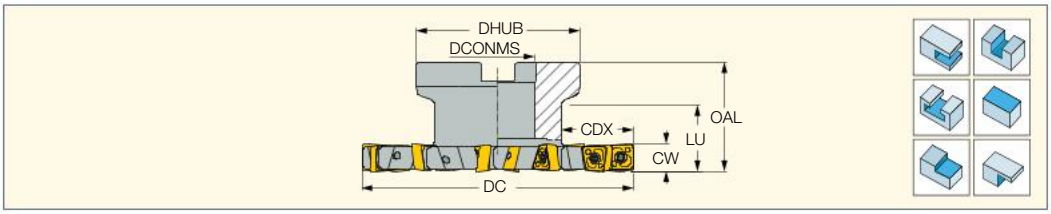
For inserts, see pages: XNMU 06 (585)

Spare Parts

Designation			
FDN D063-07-16-XN06	SR M2.5X6-T7-60	T-7/51	SR M8X25DIN912
FDN D080-07-22-XN06	SR M2.5X6-T7-60	T-7/51	
FDN D080-08-22-XN06	SR M2.5X6-T7-60	T-7/51	SR M10X25 DIN912
FDN D100-07-27-XN06	SR M2.5X6-T7-60	T-7/51	
FDN D100-08-27-XN06	SR M2.5X6-T7-60	T-7/51	
FDN D125-07-32-XN06	SR M2.5X6-T7-60	T-7/51	
FDN D125-09-32-XN06	SR M2.5X6-T7-60	T-7/51	
FDN D160-10-40-XN06	SR M2.5X6-T7-60	T-7/51	

HELISLOT

FDN-XN09
Full Slot Flange Type Slotting Cutters Carrying XNMU 0904 Square Inserts with 4 Right- and 4 Left-Hand Cutting Edges



Designation	DC	CW	CICT(1)	ZEFP	CDX	DHUB	DCONMS	LU	OAL	Arbor(2)	kg
FDN D080-10-22-XN09	80.00	10.00	10	10	22.50	48.00	22.00	27.0	40.00	A	0.40
FDN D080-12-22-XN09	80.00	12.00	10	5	22.50	48.00	22.00	27.0	40.00	A	0.43
FDN D100-10-27-XN09	100.00	10.00	12	12	26.00	60.00	27.00	25.0	40.00	B	0.64
FDN D100-12-27-XN09	100.00	12.00	12	6	26.00	60.00	27.00	25.0	40.00	B	0.92
FDN D125-10-32-XN09	125.00	10.00	14	14	33.00	65.00	32.00	31.0	45.00	B	1.19
FDN D125-12-32-XN09	125.00	12.00	14	7	33.00	65.00	32.00	31.0	45.00	B	1.08
FDN D160-10-40-XN09	160.00	10.00	18	18	45.00	80.00	40.00	35.0	50.00	B	1.45
FDN D160-12-40-XN09	160.00	12.00	18	9	45.00	80.00	40.00	35.0	50.00	B	1.78

- For user guide, see pages 426-431

(1) Number of inserts (or edges for solid tool)

(2) For adaptation options, see page 432

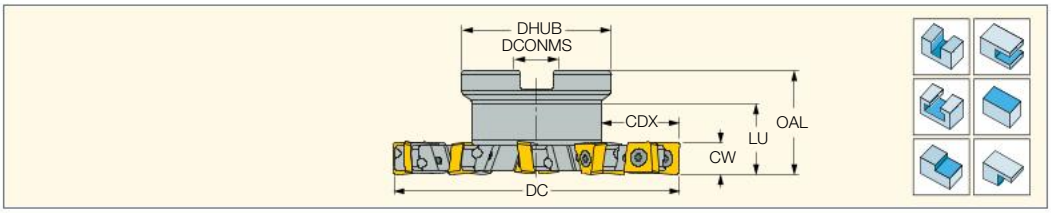
For inserts, see pages: XNMU 09 (586)

Spare Parts

Designation		
FDN-XN09	SR 10508600	T-9/51

HELISLOT

FDN-XN13
Full Slot Flange Type Slotting Cutters Carrying XNMU 1306 Square Inserts with 4 Right- and 4 Left-Hand Cutting Edges



Designation	DC	CW	CICT(1)	ZEFP	CDX(2)	DHUB	DCONMS	LU	OAL	Arbor(3)	kg
FDN D100-14-27-XN13	100.00	14.00	10	10	26.00	55.00	27.00	26.5	40.00	B	0.61
FDN D125-14-32-XN13	125.00	14.00	12	12	33.00	65.00	32.00	30.5	45.00	B	1.04
FDN D125-16-32-XN13	125.00	16.00	12	6	33.00	65.00	32.00	30.5	45.00	B	1.13
FDN D160-18-40-XN13	160.00	18.00	14	7	45.00	80.00	40.00	44.0	60.00	B	2.24
FDN D200-20-40-XN13	200.00	20.00	16	8	53.00	92.00	40.00	-	63.00	C	3.81

- For user guide, see pages 426-431

(1) Number of inserts (or edges for solid tool)

(2) Cutting depth maximum

(3) For adaptation options, see page 432

For inserts, see pages: XNMU 13 (586)

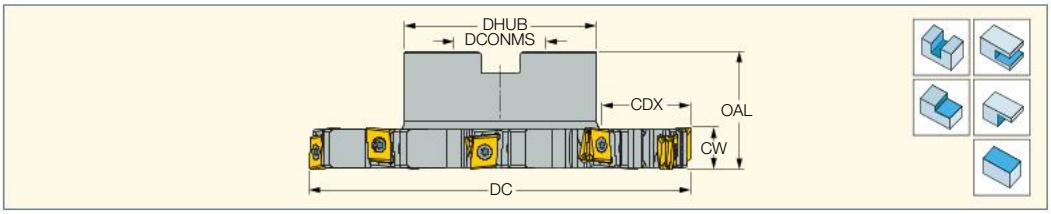
Spare Parts

Designation			
FDN-XN13	SR M4-L15-D4.5	BLD IP15/S7	SW6-T-SH

HELITANG T490 LINE

FDN-CALN13

Full Slot Adjustable Slotting Cutters with Cartridges Carrying T490 LNHT 1306PNTR/L Inserts (17.5-23.0 mm width range)



Designation	CWN(1)	CWX(2)	CDX(3)	DC	DHUB	DCONMS	CICT(4)	ZEFP	OAL	Arbor(5)	kg
FDN D125-1723-32R-CALN13	17.50	23.00	30.00	126.00	65.00	32.00	8	4	39.25	B	1.43
FDN D160-1723-40R-CALN13	17.50	23.00	39.00	161.00	80.00	40.00	10	5	49.25	B	2.61
FDN D200-1723-40R-CALN13	17.50	23.00	53.00	201.00	92.00	40.00	14	7	49.25	C	3.82
FDN D250-1723-60R-CALN13	17.50	23.00	59.00	251.00	132.00	60.00	16	8	49.25	C	6.55

- Half of the inserts are used on right-hand cartridges and half on left-hand cartridges • For cartridge details, see page 411
- The cutter will be set to the minimum width range unless a specific width is requested by the user

(1) Minimum cutting width
(2) Maximum cutting width
(3) Cutting depth maximum
(4) Number of inserts (or edges for solid tool)
(5) For adaptation options, see page 432

For inserts, see pages: T490 LNMT/LNHT/LNAR 1306 (546)

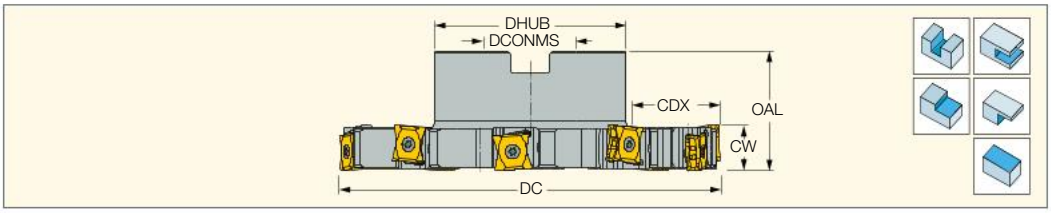
Spare Parts

Designation	
FDN-CALN13	CA90 1723-R/L-T490-13

TANGMILL TANGENTIAL LINE

FDN-CAPM15

Full Slot Adjustable Slotting Cutters with Cartridges Carrying LNAT 1506...-PM Inserts (18.9-25.6 mm width range)



Designation	CWN(1)	CWX(2)	CDX(3)	DC	DHUB	DCONMS	CICT(4)	ZEFP	OAL	Arbor(5)	kg
FDN D125-1925-32R-CAPM15	18.90	25.60	29.00	125.00	65.00	32.00	8	4	40.00	B	1.42
FDN D160-1925-40R-CAPM15	18.90	25.60	39.00	160.00	80.00	40.00	10	5	50.00	B	2.59
FDN D200-1925-40R-CAPM15	18.90	25.60	53.00	200.00	92.00	40.00	14	7	50.00	C	3.79
FDN D250-1925-60R-CAPM15	18.90	25.60	58.00	250.00	132.00	60.00	16	8	50.00	C	6.55

- Use A type cartridges for inserts with 0.8-1.6 mm radii, B type cartridges for inserts with 2.5-3.2 mm radii and C type cartridges for inserts with 4.0 mm radius
- For cartridge details, see page 411

(1) Minimum cutting width • The cutter will be set to the minimum width range, unless a specific width is requested by the user
(2) Maximum cutting width
(3) Cutting depth maximum
(4) Number of inserts (or edges for solid tool)
(5) For adaptation options, see page 432

For inserts, see pages: LNAT 1506-PM (557)

Spare Parts

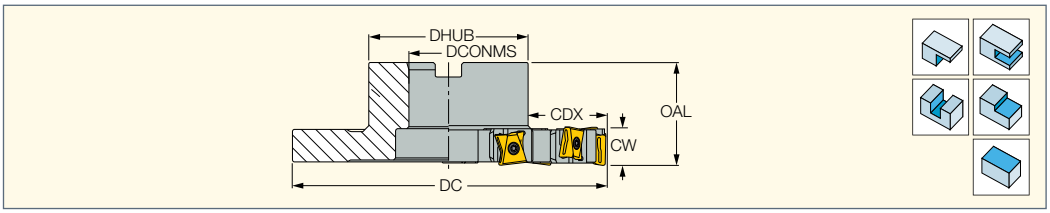
Designation			
FDN-CAPM15	CA90 1928-R/L-PM15-A	CA90 1928-R/L-PM15-B*	CA90 1928-R/L-PM15-C*

* Optional, to be ordered separately

TANGMILL TANGENTIAL LINE

FDN-CALN15

Full Slot Adjustable Slotting Cutters with Cartridges Carrying LN.. 1506... Inserts (18.9-25.6 mm width range)



Designation	CWN[1]	CWX[2]	CDX[3]	CICT[4]	ZEFP	DC	DHUB	DCONMS	Arbor[5]	OAL	kg
FDN D125-1925-32R-CALN15	18.90	25.60	30.00	8	4	125.00	65.00	32.00	B	40.00	1.43
FDN D160-1925-40R-CALN15	18.90	25.60	40.00	10	5	160.00	80.00	40.00	B	50.00	2.61
FDN D200-1925-40R-CALN15	18.90	25.60	54.00	14	7	200.00	92.00	40.00	C	50.00	0.38
FDN D250-1925-60R-CALN15	18.90	25.60	59.00	16	8	250.00	132.00	60.00	C	50.00	6.59

- Each cutter body can be changed into full slot, bottom or top milling configuration by mounting the cartridges accordingly
- For cartridge details, see page 411

[1] Minimum cutting width • The cutter will be set to the minimum width range, unless a specific width is requested by the user
[2] Maximum cutting width
[3] Cutting depth maximum
[4] Number of inserts (or edges for solid tool)
[5] For adaptation options, see page 432

For inserts, see pages: LNKX 1506PN-N PL (554) • LNKX/LNMT 1506PNTN/PN-N MM (553) • LNMT/LNHT 1506...-N HT (555) • LNMW 1506 PNTN (553)

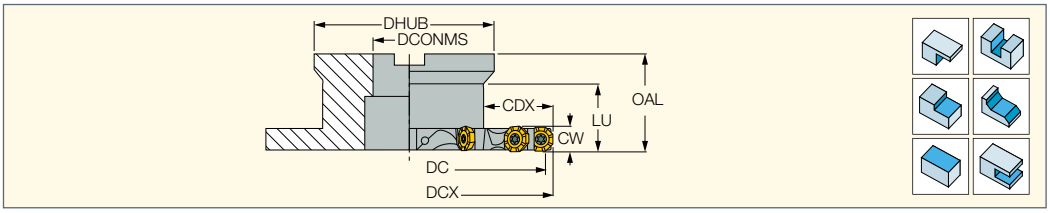
Spare Parts

Designation	
FDN-CALN15	CA90 1928-R/L-LN15

ISCARMILL

FDN-CM

Flange Type Full Width Slotting Cutters Carrying Round and Octagonal Inserts



Designation	CICT[2]	ZEFP		Dimensions DCX	DC	CW	CDX	DCONMS	DHUB	LU	OAL	Arbor[3]	kg
FDN CM-D080-12-22-FE[1]	6	6	●	80.51	68.60	12.15	23.25						
			●	80.00	72.77	11.70	23.00	22	45	28.2	40	A	0.35
			●	81.20	68.50	12.85	23.60						
FDN CM-D100-12-27-FE[1]	8	8	●	100.51	88.60	12.15	26.75						
			●	100.00	92.77	11.70	26.50	27	55	28.5	40	B	0.57
			●	101.20	88.50	12.85	27.10						
FDN CM-D125-12-32-FE[1]	10	10	●	125.51	113.60	12.15	35.25						
			●	125.00	117.77	11.70	35.00	32	65	32.0	45	B	0.94
			●	126.20	113.50	12.85	35.60						

● R90MT 1205 ● O45MT 050505 ● R90MT 43

[1] Fully effective cutter
[2] Cutting diameter maximum
[3] Cutting depth maximum
[4] Number of inserts (or edges for solid tool)
[5] For adaptation options, see page 432

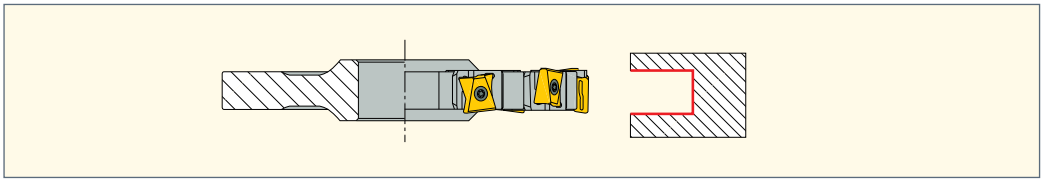
Spare Parts

Designation			
FDN-CM	SR 14-544/S	BLD T15/M7	SW6-T

TANGMILL TANGENTIAL LINE

SDN

Full Slot Disk Type

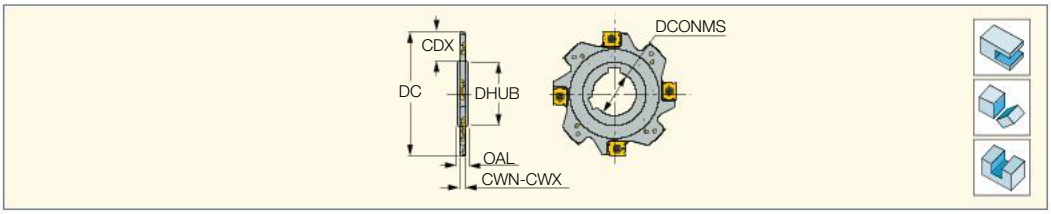


Tool Diameter							Width of Cutter																					Type of Insert	
63	80	100	125	160	200	250	3	4	4.5	5	5.5	6	6.5	7	8	8.5	9	10	10.5	12	13	14	14.6	16	17	18	19	20	23	25.6		
●	●	●	●				✓																							LNET 081804	
●	●	●	●	●				✓																						LNET 082604	
●	●	●	●	●					✓																					LNET 082804	
●	●	●	●							✓																				LNET 083004	
●	●	●	●								✓																			LNET 083204	
●	●	●	●									✓																		LNET 083504	
●	●	●	●										✓																	LNET 083704	
	●	●	●											✓																LNET 1240	
	●	●	●		●	●									✓															LNET 1245	
	●	●	●		●	●										✓														LNET 1248	
	●	●	●	●	●	●												✓												LNET 1255	
	●	●	●	●	●	●													✓											LNET 1257	
	●	●	●	●	●	●														✓										LNET 1265	
		●	●	●	●																									LNET 12...	
	●	●	●	●														✓												XNMU 09..	
	●	●	●	●																✓											
		●	●																			✓								XNMU 13..	
			●																					✓							
				●																				✓							
					●																							✓			
	●	●													✓															XOMT 0602.. QOMT 060208	
		●																✓													
			●																	✓											XPMT 1004... QPMT 1004...	
				●	●																			✓							QPMT 1004...	
				●	●																			✓							QDMT 1205... QDCT 1205	
					●																					✓					
					●																						✓				
		●	●	●	●	●																	■	■	■	■					LN...11	
			●	●	●	●																			■	■	■	■	■			LN...13	
			●	●	●	●																					■	■	■	■		LN...15	

● With adjustable cartridges

MINI-TANGSLOT

SDN-LN08
Disk Type Grooving
and Slitting Cutters



Designation	DC	CWN(1)	CWX(2)	CDX(3)	CICT(4)	ZEFP	DHUB	DCONMS	THUB
SDN D063-03-22-LN08	63.00	3.00 (5)	3.00 (5)	14.80	8	4	32.00	22.00	6.00
SDN D063-04-22-LN08	63.00	4.00 (6)	4.50 (9)	14.80	8	4	32.00	22.00	6.00
SDN D063-05-22-LN08	63.00	5.00 (7)	5.50 (10)	14.80	8	4	32.00	22.00	7.00
SDN D063-06-22-LN08	63.00	6.00 (8)	6.50 (11)	14.80	8	4	32.00	22.00	7.00
SDN D080-04-22-LN08	80.00	4.00 (6)	4.50 (9)	22.00	10	5	34.00	22.00	6.00
SDN D080-05-22-LN08	80.00	5.00 (7)	5.50 (10)	22.00	10	5	34.00	22.00	7.00
SDN D080-06-22-LN08	80.00	6.00 (8)	6.50 (11)	22.00	10	5	34.00	22.00	7.00
SDN D100-03-27-LN08	100.00	3.00 (5)	3.00 (5)	27.00	12	6	42.00	27.00	8.00
SDN D100-04-27-LN08	100.00	4.00 (6)	4.50 (9)	27.00	12	6	42.00	27.00	8.00
SDN D100-05-27-LN08	100.00	5.00 (7)	5.50 (10)	26.50	12	6	42.00	27.00	10.00
SDN D125-03-32-LN08	125.00	3.00 (5)	3.00 (5)	36.50	16	8	48.00	32.00	8.00
SDN D125-04-32-LN08	125.00	4.00 (6)	4.50 (9)	36.00	16	8	48.00	32.00	8.00
SDN D125-05-32-LN08	125.00	5.00 (7)	5.50 (10)	36.00	16	8	48.00	32.00	10.00
SDN D160-04-40-LN08	160.00	4.00 (6)	4.50 (9)	48.60	20	10	56.00	40.00	10.00

• For user guide, see pages 426-432

(1) Minimum cutting width
(2) Maximum cutting width
(3) Cutting depth maximum
(4) Number of inserts (or edges for solid tool)
(5) Use LNET 0818.. insert with SR 114-018-L2.50 screw
(6) Use LNET 0826.. insert with SR 114-018-L3.40 screw
(7) Use LNET 0830.. insert with SR 114-018-L4.40 screw
(8) Use LNET 0835.. insert with SR 114-018-L5.30 screw
(9) Use LNET 0828.. insert with SR 114-018-L3.40 screw
(10) Use LNET 0832.. insert with SR 114-018-L4.40 screw
(11) Use LNET 0837.. insert with SR 114-018-L5.30 screw

For inserts, see pages: LNET 08 (558)

SDN-LN08

Cutter Designation	CWN-CWX	Insert			
SDN D...-03...-LN08	3.0	LNET 081804-TN-N	SR 114-018-L2.50	T-6/3-L	T-6/51
SDN D...-04...-LN08	4.0	LNET 082604-TN-N	SR 114-018-L3.40	T-6/3-L	T-6/51
	4.5	LNET 082804-TN-N	SR 114-018-L3.40	T-6/3-L	T-6/51
SDN D...-05...-LN08	5.0	LNET 083004-TN-N	SR 114-018-L4.40	T-6/3-L	T-6/51
	5.5	LNET 083204-TN-N	SR 114-018-L4.40	T-6/3-L	T-6/51
SDN D...-06...-LN08	6.0	LNET 083504-TN-N	SR 114-018-L5.30	T-6/3-L	T-6/51
	6.5	LNET 083704-TN-N	SR 114-018-L5.30	T-6/3-L	T-6/51

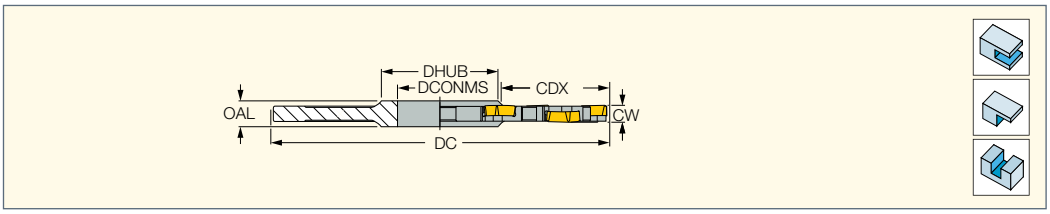
Spare Parts

Designation			
SDN D063-03-22-LN08	SR 114-018-L2.50	T-6/3-L	T-6/51
SDN D063-04-22-LN08	SR 114-018-L3.40	T-6/3-L	T-6/51
SDN D063-05-22-LN08	SR 114-018-L4.40	T-6/3-L	T-6/51
SDN D063-06-22-LN08	SR 114-018-L5.30	T-6/3-L	T-6/51
SDN D080-04-22-LN08	SR 114-018-L3.40	T-6/3-L	T-6/51
SDN D080-05-22-LN08	SR 114-018-L4.40	T-6/3-L	T-6/51
SDN D080-06-22-LN08	SR 114-018-L5.30	T-6/3-L	T-6/51
SDN D100-03-27-LN08	SR 114-018-L2.50	T-6/3-L	T-6/51
SDN D100-04-27-LN08	SR 114-018-L3.40	T-6/3-L	T-6/51
SDN D100-05-27-LN08	SR 114-018-L4.40	T-6/3-L	T-6/51
SDN D125-03-32-LN08	SR 114-018-L2.50	T-6/3-L	T-6/51
SDN D125-04-32-LN08	SR 114-018-L3.40	T-6/3-L	T-6/51
SDN D125-05-32-LN08	SR 114-018-L4.40	T-6/3-L	T-6/51
SDN D160-04-40-LN08	SR 114-018-L3.40	T-6/3-L	T-6/51

TANGSLOT

SDN-LN12

Full Slot Disk Type Slotting Cutters Carrying LNET 12 Tangentially Mounted Inserts



Designation	CICT(4)	ZEFP	DC	DCONMS	CDX	DHUB	CW	kg	OAL	Inserts
SDN D080-07-27-LN12(1)	8	4	80.00	27.00	17.00	41.0	12.0	0.78	7.0	LNET 1240..
									8.0	LNET 1245..
									8.5	LNET 1248..
SDN D080-10-27-LN12(2)	8	4	80.00	27.00	17.00	41.0	12.0	0.21	10.0	LNET 1255..
									10.5	LNET 1257..
									12.0	LNET 1265..
SDN D100-07-32-LN12(1)	10	5	100.00	32.00	24.00	47.0	12.0	0.51	7.0	LNET 1240..
									8.0	LNET 1245..
									8.5	LNET 1248..
SDN D100-10-32-LN12(2)	10	5	100.00	32.00	24.00	47.0	12.0	0.50	10.0	LNET 1255..
									10.5	LNET 1257..
									12.0	LNET 1265..
SDN D125-07-40-LN12(1)	12	6	125.00	40.00	31.00	55.0	14.0	0.49	7.0	LNET 1240..
									8.0	LNET 1245..
									8.5	LNET 1248..
SDN D125-10-40-LN12(2)	12	6	125.00	40.00	31.00	55.0	14.0	0.60	10.0	LNET 1255..
									10.5	LNET 1257..
									12.0	LNET 1265..
SDN D160-10-40-LN12(2)	16	8	160.00	40.00	50.00	55.0	14.0	1.10	10.0	LNET 1255..
									10.5	LNET 1257..
									12.0	LNET 1265..
SDN D200-08-50-LN12(3)	20	10	200.00	50.00	62.50	70.0	12.0	1.75	8.0	LNET 1245..
									8.5	LNET 1248..
									9.0	LNET 1250..
									10.0	LNET 1255..
SDN D200-10-50-LN12(2)	20	10	200.00	50.00	62.50	69.0	14.0	1.90	10.0	LNET 1255..
									10.5	LNET 1257..
									12.0	LNET 1265..
SDN D250-08-50-LN12(3)	26	13	250.00	60.00	84.00	87.0	12.0	3.06	8.0	LNET 1245..
									8.5	LNET 1248..
									9.0	LNET 1250..
									10.0	LNET 1255..
SDN D250-08-60-LN12(3)	26	13	250.00	60.00	80.30	84.0	12.0	2.22	8.0	LNET 1245..
									8.5	LNET 1248..
									9.0	LNET 1250..
									10.0	LNET 1255..
SDN D250-10-50-LN12(2)	26	13	250.00	60.00	87.00	84.0	14.0	2.13	10.0	LNET 1255..
									10.5	LNET 1257..
									12.0	LNET 1265..
SDN D250-10-60-LN12(2)	26	13	250.00	60.00	80.00	84.0	14.0	2.83	10.0	LNET 1255..
									10.5	LNET 1257..
									12.0	LNET 1265..

- Each tool is supplied with screws for the thinnest specified insert; verify use of the correct screw for the insert being used
- For more than one insert option, slot width depends on the selected insert width • Gang-mill assembly SDN and left-hand SSB cutters feature two keyways
- To reduce vibration, it is recommended to assemble gang-mills with alternating keyway position. • For user guide, see pages 426-432

(1) For a_p=7.0 use screw SR 14-500-L5.9 • For a_p=8.0 use screw SR 14-500-L6.5 • For a_p=8.5 use screw SR 14-500-L7.0
(2) For a_p=10.0 and 10.5 use screw SR 14-500-L8.5 • For a_p=12.0 use screw SR 14-500-L10.0
(3) For a_p=8.0 and 8.5 use screw SR 14-500-L7.0 • For a_p=9.0 use screw SR 14-500-L8.0 • For a_p=10.0 use screw SR 14-500-L8.5
(4) Cutting depth maximum
(5) Number of inserts (or edges for solid tool)

For inserts, see pages: LNET 12-TN (493) • LNET 12-TN-MM (493)

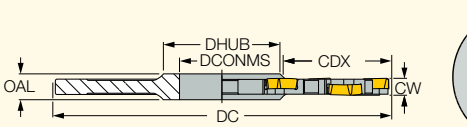
Designation	Insert			(1)
SDN-LN12	LNET 1240...	SR 14-500-L5.9	T-15/51-BE	ratchet wrench key
	LNET 1245 D=80-125	SR 14-500-L6.5	T-15/51-BE	
	LNET 1245 D=160-250	SR 14-500-L7.0	T-15/51-BE	
	LNET 1248...	SR 14-500-L7.0	T-15/51-BE	
	LNET 1250...	SR 14-500-L8.0	T-15/51-BE	
	LNET 1255...	SR 14-500-L8.5	T-15/51-BE	
	LNET 1257...	SR 14-500-L8.5	T-15/51-BE	
	LNET 1265...	SR 14-500-L10	T-15/51-BE	

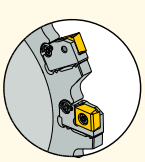
(1) Should be ordered separately, not supplied with the tool

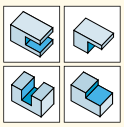
TANGSLOT

SDN-CALN12

Full Slot Disk Type Slotting Cutters with Cartridges Carrying LNET 12... Tangentially Mounted Inserts







Designation	DC	CICT[4]	ZEFP	DCONMS	DHUB	CDX	OAL	kg	Inserts	Width of Range [CW]
SDN D100-0608-27-CALN12[1]	100.00	6	3	27.00	42.0	25.00	16.0	0.63	LNET 1235... LNET 1240... LNET 1245...	6.0-6.5 6.5-7.2 7.0-8.2
SDN D100-0810-27-CALN12[2]	100.00	6	3	27.00	42.0	25.00	18.0	0.82	LNET 1248... LNET 1250... LNET 1255...	8.0-8.7 8.4-9.2 8.9-10.5
SDN D100-1014-27-CALN12[3]	100.00	6	3	27.00	42.0	25.00	20.0	0.48	LNET 1265... LNET 1277...	10.5-12.2 11.9-14.6
SDN D125-0608-40-CALN12[1]	125.00	8	4	40.00	55.0	32.00	12.0	0.48	LNET 1235... LNET 1240... LNET 1245...	6.0-6.5 6.5-7.2 7.0-8.2
SDN D125-0810-40-CALN12[2]	125.00	8	4	40.00	55.0	32.00	14.0	0.95	LNET 1248... LNET 1250... LNET 1255...	8.0-8.7 8.4-9.2 8.9-10.5
SDN D125-1014-40-CALN12[3]	125.00	8	4	40.00	55.0	32.00	18.0	0.48	LNET 1265... LNET 1277...	10.5-12.2 11.9-14.6
SDN D160-0608-40-CALN12[1]	160.00	12	6	40.00	55.0	50.00	12.0	1.11	LNET 1235... LNET 1240... LNET 1245...	6.0-6.5 6.5-7.2 7.0-8.2
SDN D160-0810-40-CALN12[2]	160.00	12	6	40.00	55.0	50.00	14.0	0.48	LNET 1248... LNET 1250... LNET 1255...	8.0-8.7 8.4-9.2 8.9-10.5
SDN D160-1014-40-CALN12[3]	160.00	12	6	40.00	55.0	50.00	18.0	1.61	LNET 1265... LNET 1277...	10.5-12.2 11.9-14.6
SDN D200-0608-50-CALN12[1]	200.00	16	8	50.00	70.0	63.00	12.0	1.50	LNET 1235... LNET 1240... LNET 1245...	6.0-6.5 6.5-7.2 7.0-8.2
SDN D200-0810-50-CALN12[2]	200.00	16	8	50.00	70.0	63.00	14.0	1.70	LNET 1248... LNET 1250... LNET 1255...	8.0-8.7 8.4-9.2 8.9-10.5

• For user guide, see pages 426-432 • For cartridge details, see page 411

[1] For a_p=6.0 use screw SR 14-500-L4.9 • For a_p=6.5 use screw SR 14-500-L5.3 • For a_p=7.0 use screw SR 14-500-L5.9

[2] For a_p=8.0 use screw SR 14-500-L6.7 • For a_p=8.4 use screw SR 14-500-L7.0 • For a_p=8.9 use screw SR 14-500-L7.5

[3] For a_p=10.5 use screw SR 14-500-L9.0 • For a_p=11.9 use screw SR 14-500-L9.0

[4] For a_p=8.0 use screw SR 14-500-L6.7 • For a_p=8.4 use screw SR 14-500-L7.0 • For a_p=8.9 use screw SR 14-500-L7.5.

[5] Cutting depth maximum

[6] Number of inserts (or edges for solid tool)

For inserts, see pages: LNET 12-TN (493) • LNET 12-TN-MM (493)

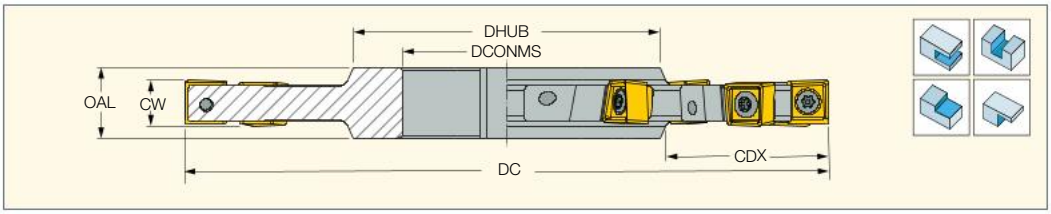
Designation						
SDN-CALN12	LNET 1235...	SR 14-500-L4.9	CA 0608 R/L-LNET12	T-15/51-BE	SR 14-500-L4.5	ratchet wrench key
	LNET 1240...	SR 14-500-L5.3	CA 0608 R/L-LNET12	T-15/51-BE	SR 14-500-L4.5	
	LNET 1245...	SR 14-500-L5.9	CA 0608 R/L-LNET12	T-15/51-BE	SR 14-500-L4.5	
	LNET 1248...	SR 14-500-L6.7	CA 0810 R/L-LNET12	T-15/51-BE	SR 14-500-L6.1	
	LNET 1250...	SR 14-500-L7.0	CA 0810 R/L-LNET12	T-15/51-BE	SR 14-500-L6.1	
	LNET 1255...	SR 14-500-L7.5	CA 0810 R/L-LNET12	T-15/51-BE	SR 14-500-L6.1	
	LNET 1265..	SR 14-500-L10	CA 1014 R/L-LNET12	T-15/51-BE	SR 14-500-L8.5	
	LNET 1277..	SR 14-500-L10	CA 1014 R/L-LNET12	T-15/51-BE	SR 14-500-L8.5	

Spare Parts

HELISLOT

SDN-XN06

Full Slot Disk Type Slotting Cutters Carrying XNMU 0603 Square Inserts with 4 Right- and 4 Left-Hand Cutting Edges



Designation	DC	CW	CICT(1)	ZEFP	CDX	DHUB	DCONMS	OAL
SDN D063-07-22-XN06	63.00	7.00	8	8	15.00	30.00	22.00	11.00
SDN D080-07-27-XN06	80.00	7.00	10	10	19.00	38.00	27.00	11.00
SDN D080-08-27-XN06	80.00	8.00	10	5	19.00	38.00	27.00	11.00
SDN D100-07-32-XN06	100.00	7.00	12	12	23.00	47.00	32.00	11.00
SDN D125-07-40-XN06	125.00	7.00	14	14	27.00	55.00	40.00	11.00

New

- For user guide, see pages 426-432

(1) Number of inserts (or edges for solid tool)

For inserts, see pages: XNMU 06 (585)

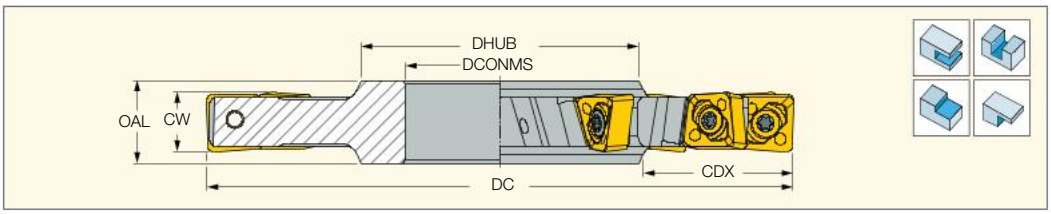
Spare Parts

Designation		
SDN-XN06	SR M2.5X6-T7-60	T-7/51

HELISLOT

SDN-XN09

Full Slot Disk Type Slotting Cutters Carrying XNMU 0904 Square Inserts with 4 Right- and 4 Left-Hand Cutting Edges



Designation	DC	CW	CICT(1)	ZEFP	CDX	DHUB	DCONMS	OAL	kg
SDN D080-10-27-XN09	80.00	10.00	10	10	20.00	38.00	27.00	14.00	0.20
SDN D080-12-27-XN09	80.00	12.00	10	5	20.00	38.00	27.00	16.00	0.24
SDN D100-10-32-XN09	100.00	10.00	12	12	25.00	47.00	32.00	14.00	0.34
SDN D100-12-32-XN09	100.00	12.00	12	6	25.00	47.00	32.00	16.00	0.42
SDN D125-10-40-XN09	125.00	10.00	14	14	34.00	55.00	40.00	14.00	0.61
SDN D125-12-40-XN09	125.00	12.00	14	7	34.00	55.00	40.00	16.00	0.69
SDN D160-10-40-XN09	160.00	10.00	18	18	51.00	55.00	40.00	14.00	0.61
SDN D160-12-40-XN09	160.00	12.00	18	9	51.00	55.00	40.00	16.00	1.10

- For user guide, see pages 426-432

(1) Number of inserts (or edges for solid tool)

For inserts, see pages: XNMU 09 (586)

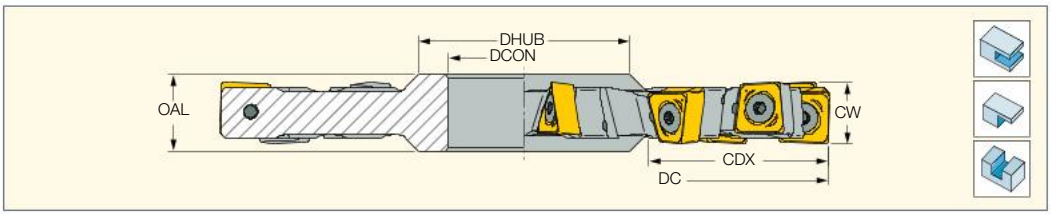
Spare Parts

Designation		
SDN-XN09	SR 10508600	T-9/51

HELISLOT

SDN-XN13

Full Slot Disk Type Slotting Cutters Carrying XNMU 1306 Square Inserts with 4 Right- and 4 Left-Hand Cutting Edges



Designation	DC	CICT(1)	ZEFP	CW	CDX(2)	DHUB	DCONMS	OAL	kg			
SDN D100-14-32-XN13	100.00	10	10	14.00	23.00	47.00	32.00	18.00	0.42	SR M4-L15-D4.5	BLD IP15/S7	SW6-T-SH
SDN D125-14-40-XN13	125.00	12	12	14.00	33.00	55.00	40.00	18.00	0.66	SR M4-L15-D4.5	BLD IP15/S7	SW6-T-SH
SDN D125-16-40-XN13	125.00	12	6	16.00	33.00	55.00	40.00	20.00	0.79	SR M4-L15-D4.5	BLD IP15/S7	SW6-T-SH
SDN D160-16-40-XN13	160.00	14	7	16.00	50.50	55.00	40.00	20.00	1.44	SR M4-L15-D4.5	BLD IP15/S7	SW6-T-SH
SDN D200-20-50-XN13	200.00	16	8	20.00	59.00	69.00	50.00	26.00	2.61	SR M4-L15-D4.5	BLD IP15/S7	SW6-T-SH

- For user guide, see pages 426-432

(1) Number of inserts (or edges for solid tool)

(2) Cutting depth maximum

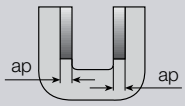
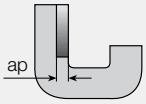
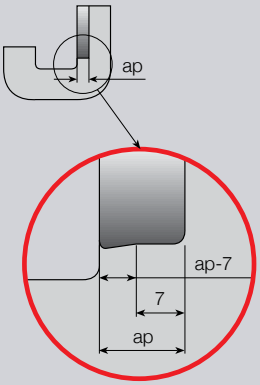
For inserts, see pages: XNMU 13 (586)

Inserts

LNHT 1106...HT inserts should be used if a straight groove or shoulder are needed.

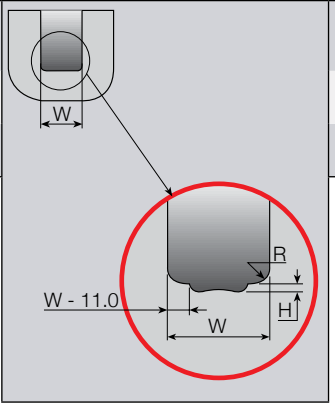
When using the other inserts, the machined surface is grooved due to the butterfly insert shape.

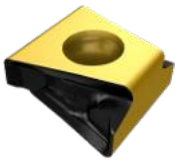
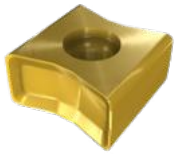
Side Wall Flatness Depending on the Inserts Being Used

Designation	Number of Cutting Edges	Side Flatness Ap5 H (mm)	Side Flatness A_p=10 H (mm)	Application	Half Side Tools Axial Depth of Cut A_p (mm)
LNKX 1106...	4R+4L	Flat	0.45	Double Face MIlling	Stock=0-10
LNMT 1106...	4R+4L	Flat	0.45		Stock=0-10
LNHT 1106 - N(1)	2R+2L	Flat	Flat		Stock=0-10
LNKX 1106...	4R	Flat	0.45	Half side Milling	Stock=0-10
LNMT 1106...	4R	Flat	0.45		Stock=0-10
LNHT 1106 - R(2)	4R	Flat	Flat		Stock=0-10
LNKX 1106...	4L	Flat	0.45	Half side milling	Stock=0-10
LNMT 1106...	4L	Flat	0.45		Stock=0-10
LNHT 1106 - N(1)	2L	Flat	Flat		Stock=0-10

(1) Use of 8 cutting edges (4R+4L) is possible only when $a_p \leq 5$ mm, otherwise 4 cutting edges (2R+2L) can be used

Configuration Guide for Full Slot FDN/SDN... CALN11 Cutters

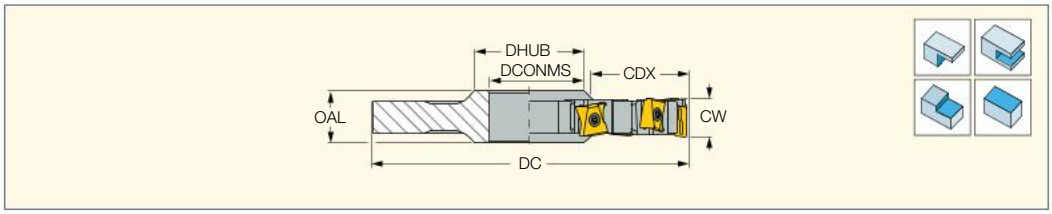
Designation	Number of Cutting Edges	Bottom Slot Flatness H (mm)	Insert Radius R (mm)	Application	Half Side Tools Axial Depth of Cut W (mm)
LNHT 1106... LNKX 1106...	2R+2L	0.45	0.8		W=14-19.5
LNMT 1106...	2R+2L	0.45	0.8		W=14-19.5
LNHT 1106 - N(1)	2R+2L	Flat	0.8		W=14-19.5

LNHT 1106... - N R.H./L.H.	LNKX 1106... LNMT 1106... R.H./L.H.	LNHT 1106... - R R.H. Only
		
Page 550	Page 549	Page 549

TANGMILL TANGENTIAL LINE

SDN-CALN11

Full Slot Disk Type Slotting Cutters with Cartridges Carrying Tangentially Mounted LN.. 1106.. Inserts



Designation	CWN(1)	CWX(2)	CDX(3)	DC	DHUB	DCONMS	CICT(4)	ZEFP	OAL	kg
SDN D100-1419-27-CALN11	14.00	19.50	26.80	100.00	42.00	27.00	6	3	20.00	0.58
SDN D125-1419-40-CALN11	14.00	19.50	31.50	125.00	56.00	40.00	8	4	20.00	0.90
SDN D160-1419-40-CALN11	14.00	19.50	48.00	160.00	56.00	40.00	10	5	22.00	1.51
SDN D200-1419-50-CALN11	14.00	19.50	61.00	200.00	70.00	50.00	14	7	22.00	2.38
SDN D250-1419-60-CALN11	14.00	19.50	78.00	250.00	85.00	60.00	16	8	26.00	3.88

- Each cutter body can be changed into full slot, bottom or top milling configuration by mounting the cartridges accordingly
- Half of the inserts are used on right-hand cartridges and half on left-hand cartridges • Gang-mill assembly SDN and left-hand SSB cutters feature two keyways
- To reduce vibration, it is recommended to assemble gang-mills with alternating keyway position. • For cartridge details, see page 411

(1) Minimum cutting width • The cutter will be set to the minimum width range, unless a specific width is requested by the user
(2) Maximum cutting width
(3) Cutting depth maximum
(4) Number of inserts (or edges for solid tool)

For inserts, see pages: LNAR 1106 (550) • LNHT 1106 PN-N HT (550) • LNHT 1106 PN-R HT (549) • LNKX/LNMT 1106 (549)

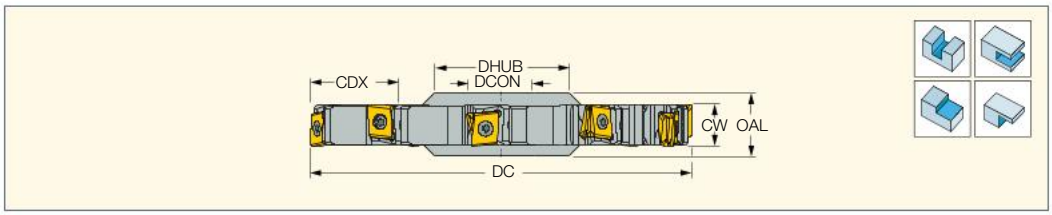
Spare Parts

Designation	
SDN-CALN11	CA90 1419-R/L-LN11

HELITANG T490 LINE

SDN-CALN13

Full Slot Adjustable Slotting Cutters with Cartridges Carrying T490 LNHT 1306PNTR/L Inserts

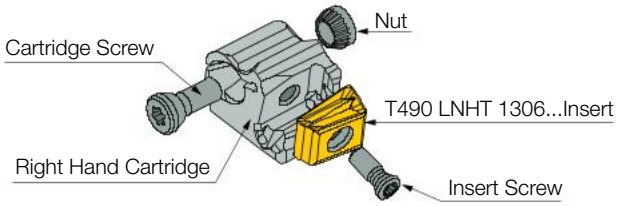


Designation	DC	OAL	CWN(1)	CWX(2)	CDX(3)	CICT(4)	ZEFP	DHUB	DCON	kg
SDN D125-1723-40-CALN13	126.00	26.00	17.50	23.00	32.00	8	4	56.00	40.00	1.13
SDN D160-1723-40-CALN13	161.00	26.00	17.50	23.00	49.50	10	5	56.00	40.00	1.90
SDN D200-1723-50-CALN13	201.00	26.00	17.50	23.00	61.00	14	7	70.00	50.00	3.01
SDN D250-1723-50-CALN13	251.00	26.00	17.50	23.00	86.00	16	8	70.00	50.00	4.82
SDN D250-1723-60-CALN13	251.00	26.00	17.50	23.00	78.00	16	8	85.00	60.00	4.83

- Each cutter body can be changed into full slot, bottom or top milling configuration by mounting the cartridges accordingly
- Half of the inserts are used on right-hand cartridges and half on left-hand cartridges • Gang-mill assembly SDN and left-hand SSB cutters feature two keyways
- To reduce vibration, it is recommended to assemble gang-mills with alternating keyway position. • For cartridge details, see page 412

(1) Minimum cutting width • The cutter will be set to the minimum width range, unless a specific width is requested by the user
(2) Maximum cutting width
(3) Cutting depth maximum
(4) Number of inserts (or edges for solid tool)

For inserts, see pages: T490 LNMT/LNHT/LNAR 1306 (546)



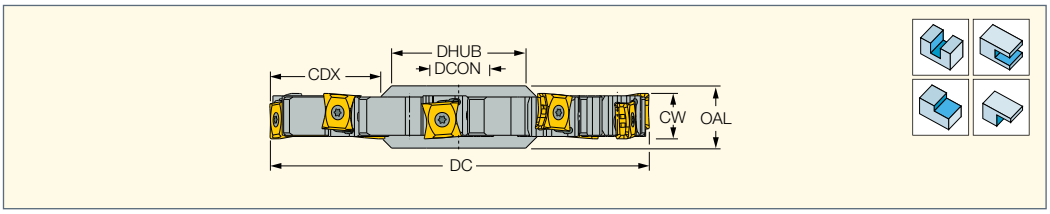
Spare Parts

Designation	
SDN-CALN13	CA90 1723-R/L-T490-13

TANGMILL TANGENTIAL LINE

SDN-CAPM15

Full Slot Adjustable Slotting Cutters with Cartridges Carrying LNAT 1506...-PM Inserts



Designation	DC	OAL	CWN(1)	CWX(2)	CDX(3)	CICT(4)	ZEFP	DHUB	DCON	kg
SDN D125-1925-40-CAPM15	125.00	26.00	18.90	25.60	32.50	8	4	56.00	40.00	1.30
SDN D160-1925-40-CAPM15	160.00	26.00	18.90	25.60	48.50	10	5	56.00	40.00	1.90
SDN D250-1925-60-CAPM15	250.00	26.00	18.90	25.60	79.00	16	8	85.00	60.00	4.81

• Each cutter can be changed into full slot, bottom or top milling configuration • Use A type cartridges for inserts with 0.8-1.6 mm radii, B type cartridges for inserts with 2.5-3.2 mm radii and C type cartridges for insertswith 4.0 mm radius

• Each cutter features two keyways. • To reduce vibration, it is recommended to assemble gang-mills with alternating keyway position.

• For cartridge details, see page 411

(1) Minimum cutting width • The cutter will be set to the minimum width range, unless a specific width is requested by the user

(2) Maximum cutting width

(3) Cutting depth maximum

(4) Number of inserts (or edges for solid tool)

For inserts, see pages: LNAT 1506-PM (557)

Spare Parts

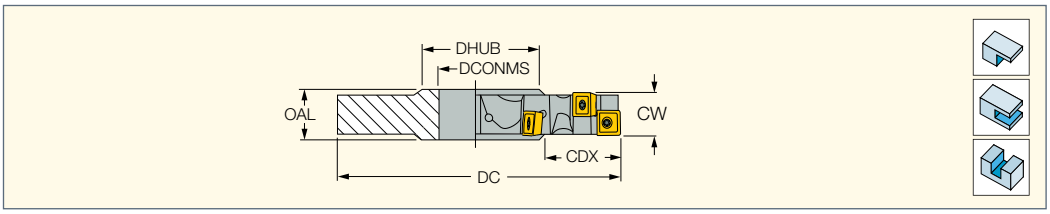
Designation			
SDN-CAPM15	CA90 1928-R/L-PM15-A	CA90 1928-R/L-PM15-B*	CA90 1928-R/L-PM15-C*

* Optional, to be ordered separately

HELIQUAD

SDN

Full Slot Disk Type Slotting Cutters



Designation	DC	CW	CICT(1)	ZEFP	CDX(2)	DHUB	DCONMS	OAL
SDN D080-08-27-06	80.00	8.00	12	6	17.00	41.00	27.00	12.00
SDN D100-08-32-06	100.00	8.00	14	7	24.00	47.00	32.00	12.00
SDN D100-10-32-06	100.00	10.00	14	7	24.00	47.00	32.00	14.00
SDN D125-12-40-10	125.00	12.00	12	6	33.00	55.00	40.00	16.00
SDN D160-12-40-10	160.00	12.00	14	7	50.00	55.00	40.00	16.00
SDN D160-16-40-10	160.00	16.00	14	7	50.00	55.00	40.00	20.00
SDN D160-16-40-12	160.00	16.00	12	6	50.00	55.00	40.00	20.00
SDN D200-18-50-12	200.00	18.00	14	7	50.00	69.00	50.00	24.00
SDN D200-20-50-12	200.00	20.00	14	7	63.00	69.00	50.00	26.00

• For user guide, see pages 426-432

(1) Number of inserts (or edges for solid tool)

(2) Cutting depth maximum

For inserts, see pages: QDCT-PDN (565) • QDMT 1205..PDTN-M (565) • QOMT-HQ (560) • QPMT 100408PDTN (561) • XOMT-HQ (561) • XPMT-HQ (563)

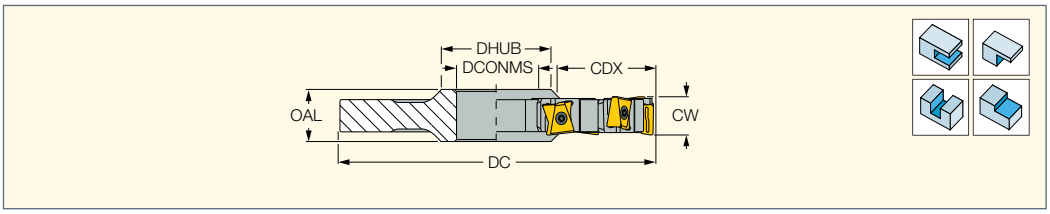
Spare Parts

Designation					
SDN D080-08-27-06	SR 34-514	T-7/51			
SDN D100-08-32-06	SR 34-514	T-7/51			
SDN D100-10-32-06	SR 34-514	T-7/51			
SDN D125-12-40-10	SR 14-544/S	T-15/51			
SDN D160-12-40-10	SR 14-544/S	T-15/51			
SDN D160-16-40-10	SR 14-544/S	T-15/51			
SDN D160-16-40-12	SR 34-510		PN 3-4	BLD T15/M7	SW6-T
SDN D200-18-50-12	SR 34-510		PN 3-4	BLD T15/M7	SW6-T
SDN D200-20-50-12	SR 34-510		PN 3-4	BLD T15/M7	SW6-T

TANGMILL TANGENTIAL LINE

SDN-CALN15

Full Slot Disk Type Slotting Cutters with Cartridges Carrying Tangentially Mounted LN.. 1506.. Inserts

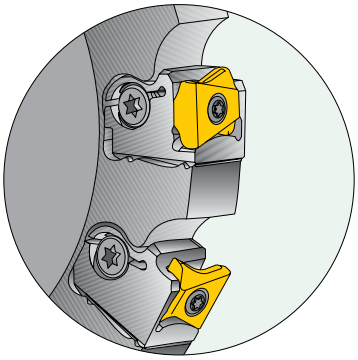


Designation	CWN(1)	CWX(2)	CDX(3)	CICT(4)	ZEFP	DC	DHUB	DCONMS	OAL	kg
SDN D125-1925-40-CALN15	18.90	25.60	32.50	8	4	125.00	56.00	40.00	26.00	0.39
SDN D160-1925-40-CALN15	18.90	25.60	48.50	10	5	160.00	56.00	40.00	26.00	0.00
SDN D200-1925-50-CALN15	18.90	25.60	61.50	14	7	200.00	70.00	50.00	26.00	3.03
SDN D250-1925-60-CALN15	18.90	25.60	79.00	16	8	250.00	85.00	60.00	26.00	4.80

- Each cutter body can be changed into full slot, bottom or top milling configuration by mounting the cartridges accordingly
- Half of the inserts are used on right-hand cartridges and half on left-hand cartridges • Gang-mill assembly SDN and left-hand SSB cutters feature two keyways.
- To reduce vibration, it is recommended to assemble gang-mills with alternating keyway position. • For cartridge details, see page 411

(1) Minimum cutting width • The cutter will be set to the minimum width range, unless a specific width is requested by the user
(2) Maximum cutting width
(3) Cutting depth maximum
(4) Number of inserts (or edges for solid tool)

For inserts, see pages: LNKX 1506PN-N PL (554) • LNKX/LNMT 1506PNTN/PN-N MM (553) • LNMT/LNHT 1506...-N HT (555) • LNMW 1506 PNTN (553)



SDN-CALN

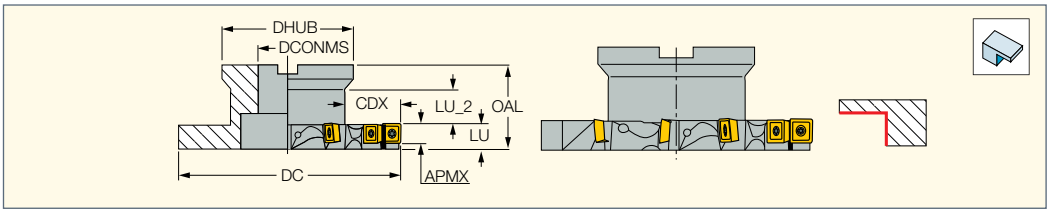
Spare Parts

Designation	
SDN-CALN15	CA90 1928-R/L-LN15

ISCARMILL

FST

Top-Side Cutting, Flanged Type Slotting Cutters



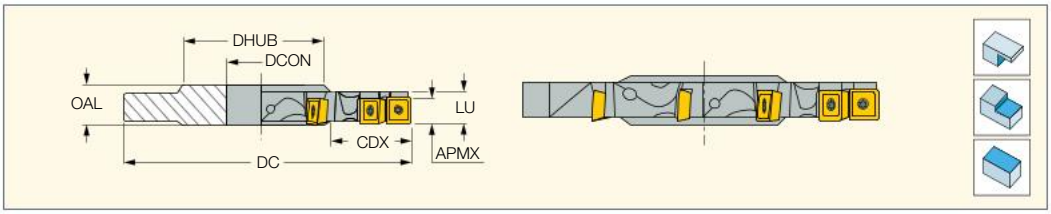
Designation	DC	APMX	CICT(1)	CDX(2)	DHUB	DCONMS	LU_2	LU	OAL	Arbor(3)		
FST D100-12-27-R10	100.00	9.00	11	25.00	55.00	27.00	17.5	12.00	40.00	B	SR 14-544/S	T-15/51
FST D125-12-32-R10	125.00	9.00	13	34.00	65.00	32.00	20.0	12.00	45.00	B	SR 14-544/S	T-15/51

(1) Number of inserts (or edges for solid tool)
(2) Cutting depth maximum
(3) For adaptation options, see page 432

For inserts, see pages: QDCT-PDN (565) • QDMT 1205..PDTN-M (565) • QPMT 100408PDTN (561) • XPMT-HQ (563)

ISCARMILL

SSB
Single-Side Cutting, Disk Type Slotting Cutters



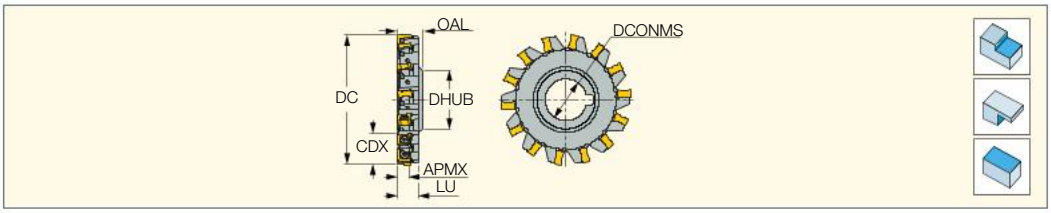
Designation	APMX	DC	CICT(1)	CDX(2)	DHUB	DCONMS	LU	OAL		
SSB D100-12-32-R/L10	9.00	100.00	9	26.00	47.00	32.00	12.00	16.00	SR 14-544/S	T-15/51
SSB D125-12-40-R/L10	9.00	125.00	11	35.00	55.00	40.00	12.00	16.00	SR 14-544/S	T-15/51
SSB D160-16-40-R/L10	9.00	160.00	13	52.00	55.00	40.00	16.00	20.00	SR 14-544/S	T-15/51

(1) Number of inserts (or edges for solid tool)
(2) Cutting depth maximum

For inserts, see pages: QDCT-PDN (565) • QDMT 1205..PDTN-M (565) • QPMT 100408PDTN (561) • SPCT/SPMR PDR (563) • SPMT-HP (562) • SPMT-HQ (562) • XPMT-HQ (563)

HELIDO S890 LINE

S890 SSB-13
Half Side / Face Disk Milling Cutters Carrying HELI-DO S890 SNMU 1305 Inserts



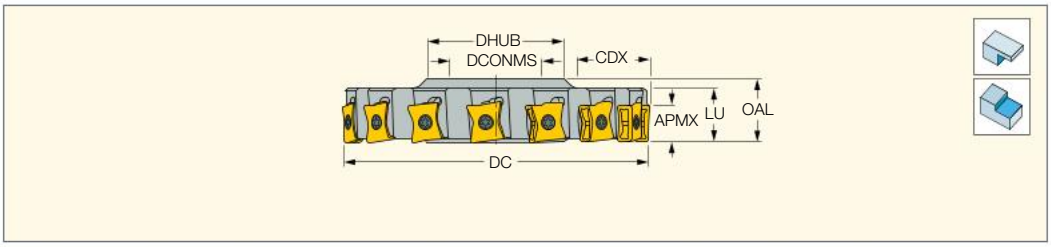
Designation	DC	APMX	NOF(1)	CDX(2)	DHUB	DCONMS	LU	OAL	kg			
S890 SSB D125-20-40-R/L13	125.00	9.00	14	33.00	56.00	40.00	20.00	24.00	1.20	SR 11800745	BLD IP15/S7	SW6-T-SH

(1) Number of flutes
(2) Cutting depth maximum

For inserts, see pages: S890 SNMU 1305PN (573)

TANGMILL TANGENTIAL LINE

SSB-LN15-R/L
Single-Side Cutting, Disk Type Slotting Cutters

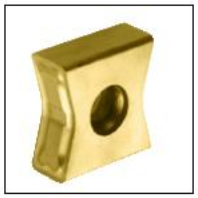


Designation	DC	CICT(1)	CDX(2)	APMX	DHUB	DCONMS	LU	OAL	kg			
SSB D080-22-27-LN15-R/L	80.00	10	18.00	14.00	42.00	27.00	22.00	24.00	0.56	SR 34-535	BLD T15/M7	SW6-T-SH
SSB D100-22-32-LN15-R/L	100.00	12	26.00	14.00	48.00	32.00	22.00	26.00	0.95	SR 34-535	BLD T15/M7	SW6-T-SH
SSB D125-22-40-LN15-R/L	125.00	15	35.00	14.00	56.00	40.00	22.00	26.00	1.51	SR 34-535	BLD T15/M7	SW6-T-SH
SSB D160-22-40-LN15-R/L	160.00	20	52.00	14.00	56.00	40.00	22.00	26.00	2.64	SR 34-535	BLD T15/M7	SW6-T-SH
SSB D200-24-50-LN15-R/L	200.00	25	65.00	14.00	70.00	50.00	24.00	28.00	4.66	SR 34-535	BLD T15/M7	SW6-T-SH

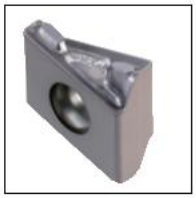
• Note: Left-hand cutters are designated by a yellow groove
(1) Number of inserts (or edges for solid tool)
(2) Cutting depth maximum

For inserts, see pages: LNAT 1506-W (557) • LNAT 1506..PN-N MM (556) • LNAW-15 (CBN) (552) • LNHW 1506 PNTN (CER) (556) • LNKX 1506 1.5X45 PN-N (554) • LNKX 1506PN-N PL (554) • LNKX/LNMT 1506PNTN/PN-N MM (553) • LNMT/LNHT 1506...-N HT (555) • LNMT/LNHT 1506PN-R HT (554) • LNMW 1506 PNTN (553)

LNMT 1506PTNT-HT R.H./L.H.



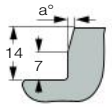
LNKX 1506... LNMT 1506... R.H./L.H.

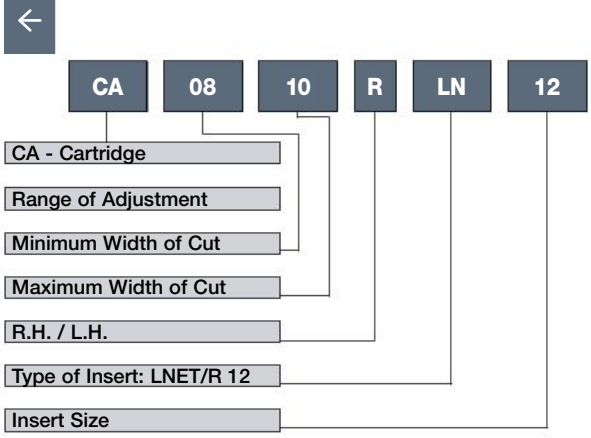


LNMT 1506PN-R-HT R.H. only

Gang-Mill Assembly
SDN and left-hand SSB cutters feature two keyways. It is recommended to assemble gang-mills with alternating keyway position. This practice reduces vibration.

90° lead angle cutter
For DC=80 lead angle cutter a=6°
For DC≥100 lead angle cutter a=4.5°

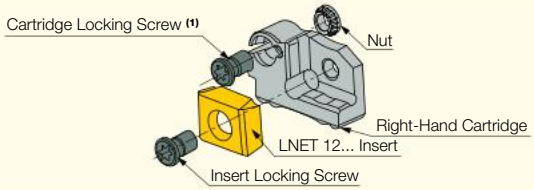




TANGSLOT

CA-R/L-LNET 12

Adjustable Cartridge for FDN/ SDN-CALN 12 Full Slot Adjustable Slotting Cutters



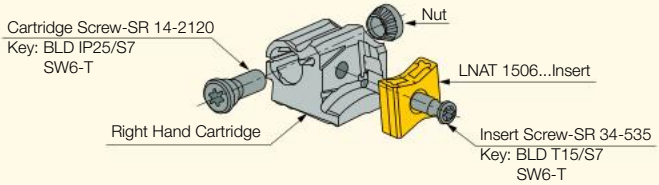
Cartridge	Cartridge Locking Screw	Nut	Width of Cut Min.	Insert Max.	Insert Designation	Clamping Screw
CA 0608-R/L-LNET 12	SR 14-500-L4.5	NUT M4-2.2	6.00	6.50	LNET 1235...	SR 14-500/L4.9
			6.50	7.20	LNET 1240...	SR 14-500/L5.3
			7.00	8.20	LNET 1245..	SR 14-500/L5.9
CA 0810-R/L-LNET 12	SR 14-500-L6.1	NUT M4-2.2	8.00	8.70	LNET 1248..	SR 14-500/L6.7
			8.40	9.20	LNET 1250..	SR 14-500/L7.0
			8.90	10.5	LNET 1255..	SR 14-500/L7.5
CA 1014-R/L-LNET 12	SR 14-500-L8.5	NUT M4-2.2	10.5	12.2	LNET 1265..	SR 14-500/L9.0
			11.9	14.6	LNET 1277..	

Each insert size should be ordered with its appropriate screw. When changing insert size, a new screw has to be ordered
Keys:Torx T-15/51-BE Ratchet wrench key
(1) Tightening torque: 4.5 ÷ 5Nxm

TANGMILL TANGENTIAL LINE

CA90 1928-R/L-PM15

Adjustable Cartridge for SDN and FDN-CAPM15 Slotting Cutters



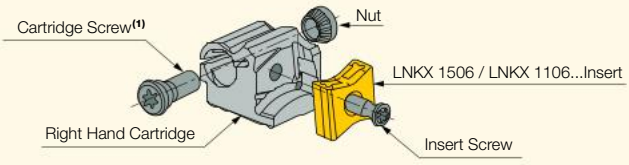
Designation	a_p min	a_p max			
CA90 1928-R/L-PM15-A (1)	18.90	25.60	SR 34-535	NUT M5-4.5	SR 14-2120
CA90 1928-R/L-PM15-B (2)	18.90	25.60	SR 34-535	NUT M5-4.5	SR 14-2120
CA90 1928-R/L-PM15-C (3)	18.90	25.60	SR 34-535	NUT M5-4.5	SR 14-2120

(1) For inserts with 0.8-1.6 mm radii
(2) For inserts with 2.5-3.2 mm radii
(3) For inserts with 4.0 mm radius

TANGMILL TANGENTIAL LINE

CA90-R/L-LN11/15

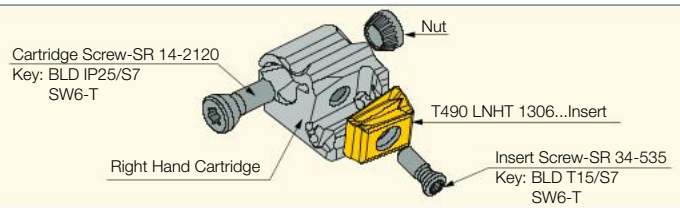
Adjustable Cartridge for SDN and FDN-CALN11/CALN15



Designation	a_p min	a_p max			
CA90 1419-R/L-LN11	14.00	19.50	SR 34-550	SR 14-2120/L11.2	NUT M5-4.5
CA90 1928-R/L-LN15	18.90	25.60	SR 34-535	SR 14-2120	NUT M5-4.5

HELITANG T490 LINE

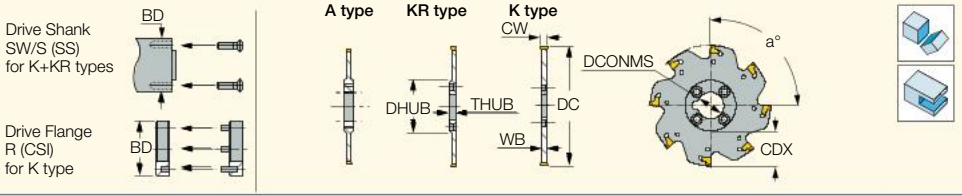
CA90 1723-R/L-T490-13
Adjustable Cartridge for
SDN and FDN-CALN13



Designation	a_p min	a_p max			
CA90 1723-R/L-T490-13	17.50	23.00	SR 34-535-SN	SR 14-2120	NUT M5-4.5

TANGSLIT

TGSF
Slitting Cutters Carrying
TANG-GRIP Inserts



Designation	DC	CICT(2)	CWN(3)	CWX(4)	WB	BD	DCONMS	CDX(5)	RPMX(6)	a°(7)	MIID(8)	
TGSF 50-3-8K	50.00	4	3.00	3.05	2.50	-	8.00	10.00	6300	90	TAG N3C	ETG 3-4-SH*
TGSF 50-1.6-8KR	50.00	5	1.60	1.65	1.30	28.00	8.00	10.00	1600	90	TAG N1.6C	ETG 2-SH-T*
TGSF 50-2-8KR	50.00	5	2.00	2.05	1.65	28.00	8.00	10.00	1600	90	TAG N2C	ETG 2-SH-T*
TGSF 63-3-10K	63.00	5	3.00	3.05	2.50	-	10.00	14.50	5000	90	TAG N3C	ETG 3-4-SH*
TGSF 63-4-10K	63.00	5	4.00	4.05	3.30	-	10.00	14.50	5000	90	TAG N4C	ETG 3-4-SH*
TGSF 63-1.6-10KR	63.00	6	1.60	1.65	1.30	32.00	10.00	15.00	1200	90	TAG N1.6C	ETG 1.4/1.6*
TGSF 63-2-10KR	63.00	6	2.00	2.05	1.65	32.00	10.00	14.50	1260	90	TAG N2C	ETG 2*
TGSF 76-1.6-22A	76.00	8	1.60	1.65	1.30	39.00	22.00	18.00	1050	90	TAG N1.6C	ETG 1.4/1.6*
TGSF 80-3-22K	80.00	7	3.00	3.05	2.50	-	22.00	19.00	3900	90	TAG N3C	ETG 3-4-SH*
TGSF 80-4-22K	80.00	7	4.00	4.05	3.30	-	22.00	19.00	3900	90	TAG N4C	ETG 3-4-SH*
TGSF 80-2-22KR	80.00	8	2.00	2.05	1.65	40.00	22.00	19.00	1000	90	TAG N2C	ETG 2*
TGSF 100-3-22K (1)	100.00	8	3.00	3.05	2.50	-	22.00	29.00	4770	90	TAG N3C	ETG 3-4-SH*
TGSF 100-4-22K (1)	100.00	8	4.00	4.05	3.30	-	22.00	29.00	4770	90	TAG N4C	ETG 3-4-SH*
TGSF 100-1.6-22A	100.00	10	1.60	1.65	1.30	39.00	22.00	30.00	800	90	TAG N1.6C	ETG 1.4/1.6*
TGSF 100-2-22KR	100.00	11	2.00	2.05	1.65	40.00	22.00	29.00	800	90	TAG N2C	ETG 2*
TGSF 125-3-32K	125.00	10	3.00	3.05	2.50	-	32.00	34.00	3820	90	TAG N3C	ETG 3-4-SH*
TGSF 125-4-32K	125.00	10	4.00	4.05	3.30	-	32.00	34.00	3820	90	TAG N4C	ETG 3-4-SH*
TGSF 125-1.6-27A	125.00	12	1.60	1.65	1.30	64.00	27.00	30.00	640	90	TAG N1.6C	ETG 1.4/1.6*
TGSF 125-2-32KR	125.00	13	2.00	2.05	1.65	55.00	32.00	34.00	640	90	TAG N2C	ETG 2*
TGSF 160-3-32K	160.00	12	3.00	3.05	2.50	-	32.00	52.00	2980	90	TAG N3C	ETG 3-4-SH*
TGSF 160-4-40K	160.00	12	4.00	4.05	3.30	-	40.00	39.00	2980	90	TAG N4C	ETG 3-4-SH*

• ETG extractor should be ordered separately • For drive flange set dimensions, refer to Drive Flange R

(1) CDX=26 and BD=46 when used with drive flange
(2) Number of inserts (or edges for solid tool)
(3) Minimum cutting width
(4) Maximum cutting width
(5) Cutting depth maximum
(6) Maximum RPM
(7) Angle between the key slots
(8) Master insert identification
* Optional, to be ordered separately

For inserts, see pages: TAG N-A (415) • TAG N-C/W/M (414) • TAG N-J/JS/JT (415)
For holders, see pages: BT-SEMC (730) • C#-SEMC (704) • C#-SW (419) • DIN2080-SEMC (738) • DIN69871-SEMC (653) • HSK A-SEMC (684) • SW/S (419)

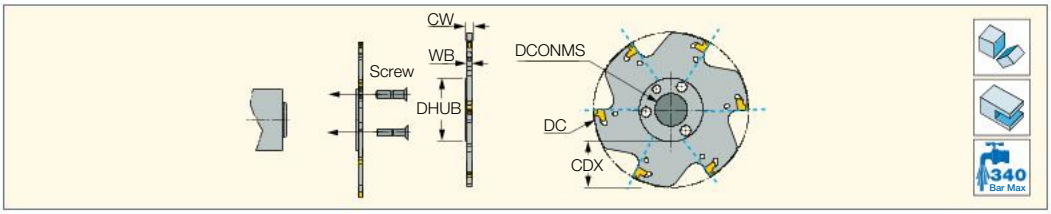
Insert
Insertion

Insert
Extraction

TANGSLIT

TGSF-JHP

Slitting Cutters with Coolant Channels Carrying TANG-GRIP Inserts



Designation	CW	DC	CICT(1)	WB	DHUB	DCONMS	CDX	RPMX(2)	MIID(3)	
TGSF 63-3-10K-JHP	3.00	63.00	6	2.50	32.00	10.00	14.00	5000	TAG N3C	ETG 3-4-SH*
TGSF 80-3-22K-JHP	3.00	80.00	6	2.50	40.00	22.00	19.00	3900	TAG N3C	ETG 3-4-SH*
TGSF 100-3-22K-JHP	3.00	100.00	6	2.50	40.00	22.00	29.00	3820	TAG N3C	ETG 3-4-SH*
TGSF 125-3-32K-JHP	3.00	125.00	8	2.50	55.00	32.00	34.00	3820	TAG N3C	ETG 3-4-SH*
TGSF 63-4-10K-JHP	4.00	63.00	6	3.30	32.00	10.00	14.00	5000	TAG N4C	ETG 3-4-SH*
TGSF 80-4-22K-JHP	4.00	80.00	6	3.30	40.00	22.00	19.00	3900	TAG N4C	ETG 3-4-SH*
TGSF 100-4-22K-JHP	4.00	100.00	6	3.30	40.00	22.00	29.00	3820	TAG N4C	ETG 3-4-SH*
TGSF 125-4-32K-JHP	4.00	125.00	8	3.30	55.00	32.00	34.00	3820	TAG N4C	ETG 3-4-SH*

- ETG extractor should be ordered separately

(1) Number of inserts (or edges for solid tool)

(2) Maximum RPM

(3) Master insert identification

* Optional, to be ordered separately

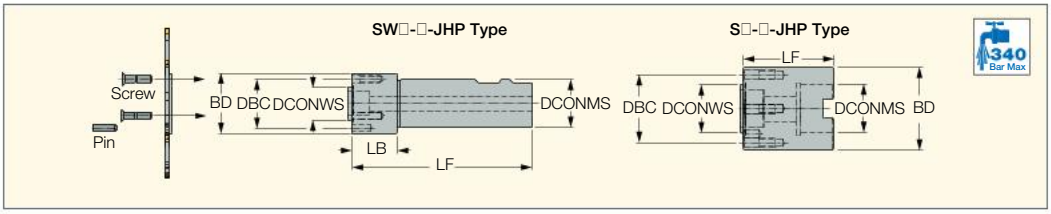
For inserts, see pages: TAG N-A (415) • TAG N-C/W/M (414) • TAG N-J/JS/JT (415)

For holders, see pages: SW/S-JHP (413)

TANGSLIT

SW/S-JHP

Drive Shanks with Coolant Channels for TANG-GRIP Slitting Cutters



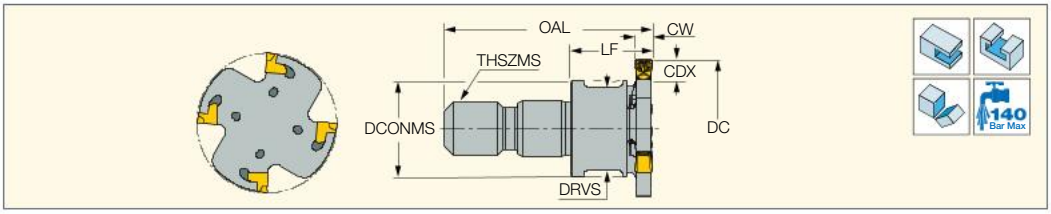
Designation	DCONMS	BD	DBC	DCONWS	LB	LF	kg			
SW 25-32-JHP	25.00	32.00	25.40	10.00	25.00	110.00	0.43	SR 76-961		T-15/5
SW 32-40-JHP	32.00	40.00	32.50	22.00	30.00	120.00	0.77	SR 76-963		T-15/5
S 32-55-JHP	32.00	55.00	45.00	32.00	-	60.00	0.83	SR 76-943	SR M16X40-JHP	T-20/5

For tools, see pages: TGSF-JHP (413)

TANGSLIT

TGSF-M-JHP

Grooving and Slitting Small Diameter Cutters with FLEX-FIT Threaded Adaptation



Designation	DC	CW	CDX	CICT(1)	DCONMS	THSZMS	LF	OAL	DRVS(2)	Insert	TQ_3(3)	
TGSF 50-2-M12 5Z-JHP	50.00	2.00	13.00	5	21.00	M12	10.80	24.00	17.0	TAG 2	33	ETG 2*
TGSF 50-3-M12 5Z-JHP	50.00	3.00	13.00	5	21.00	M12	10.70	24.70	17.0	TAG 3	33	ETG 3-4-SH*

- For best performance use internal coolant with "CH" type shanks • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Number of inserts (or edges for solid tool)

(2) Torque key size

(3) Tool tightening torque Nxm (lbfxin)

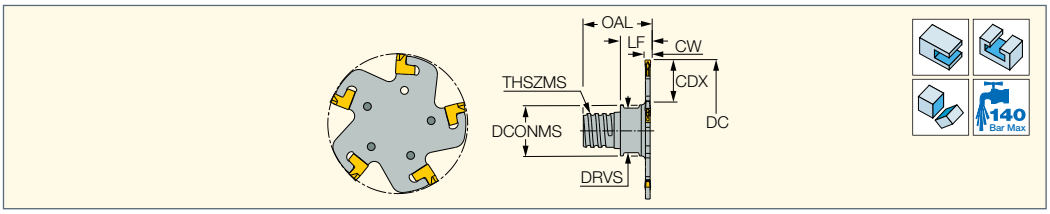
* Optional, to be ordered separately

For inserts, see pages: TAG N-A (415) • TAG N-C/W/M (414) • TAG N-J/JS/JT (415)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

TANGSLIT

TGSF-MM-JHP
Grooving and Slitting Small Diameter Cutters with MULTI-MASTER Threaded Adaptor



Designation	DC	CW	CDX	CICT(1)	DCONMS	THSZMS	LF	OAL	DRVS(2)	Insert	
TGSF 50-2-MMT12-5Z-JHP	50.00	2.00	14.00	5	19.00	T12	10.70	24.00	16.0	TAG 2	ETG 2*
TGSF 50-3-MMT12-5Z-JHP	50.00	3.00	14.00	5	19.00	T12	11.50	24.70	16.0	TAG 3	ETG 3-4-SH*

- For best performance use internal coolant with "CH" type shanks

(1) Number of inserts (or edges for solid tool)

(2) Torque key size

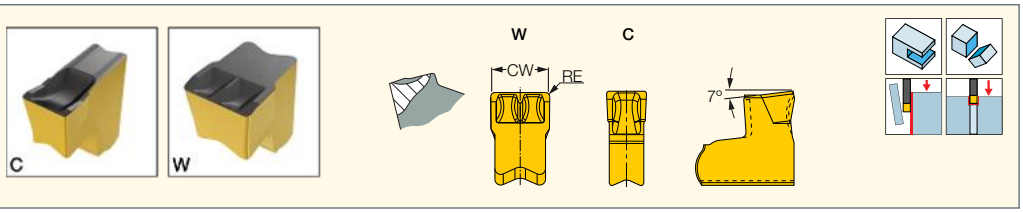
* Optional, to be ordered separately

For inserts, see pages: TAG N-A (415) • TAG N-C/W/M (414) • TAG N-J/JS/JT (415)

For holders, see pages: MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

TANGGRIP PARTING LINE

TAG N-C/W/M
Single-Ended Inserts for Parting, Grooving and Slitting Bars, Hard Materials and Tough Applications



Designation	Dimensions			Tough ↔ Hard										Recommended Machining Data
	CW	CWTOL(3)	RE	IC830	IC928	IC1030	IC1010	IC808	IC908	IC30N	IC5400	IC20	IC807	f groove (mm/rev)
TAG N1.4C	1.40	0.040	0.16										•	0.04-0.10
TAG N1.6C	1.60	0.040	0.16	•				•						0.04-0.14
TAG N2C	2.00	0.040	0.20	•		•	•	•		•	•	•		0.05-0.16
TAG N2.4C	2.40	0.040	0.16	•				•						0.06-0.18
TAG N3CB (1)	3.00	0.040	0.35	•				•						0.12-0.30
TAG N3C	3.05	0.040	0.20	•	•	•	•	•	•	•	•	•	•	0.10-0.25
TAG N3M (2)	3.05	0.040	0.20	•					•					0.06-0.18
TAG N3W	3.05	0.040	0.20	•					•					0.10-0.25
TAG N4C	4.00	0.040	0.24	•	•	•	•	•	•		•	•	•	0.10-0.30
TAG N4CB (1)	4.00	0.040	0.40	•					•					0.10-0.33
TAG N4M (2)	4.00	0.040	0.24	•					•					0.06-0.20
TAG N4W	4.00	0.040	0.24	•					•					0.10-0.30
TAG N4.8C	4.80	0.040	0.30	•				•						0.10-0.35
TAG N5C	5.05	0.040	0.25	•				•				•		0.10-0.35
TAG N6.3C	6.30	0.040	0.35	•				•						0.15-0.40
TAG N7W	7.00	0.080	0.50	•				•						0.18-0.40
TAG N8C	8.00	0.100	0.50	•				•						0.20-0.70
TAG N9.5W	9.50	0.050	0.50	•				•						0.22-0.80
TAG N9.5C	9.50	0.100	0.50	•				•						0.25-0.80
TAG N12.7W	12.70	0.100	0.85	•				•						0.30-0.80

- Feed values for grade IC20 should be decreased by 50% • For cutting speed recommendations and user guide, see pages 616-621

(1) Larger corner radii for interrupted cut and high feed applications

(2) Similar to C-type, but with a modified edge; improved chip control at medium feeds

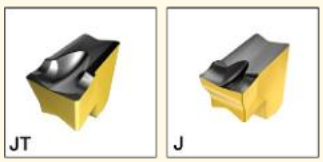
(3) Cutting width tolerance (+/-)

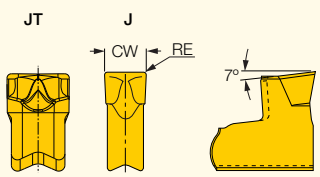
For tools, see pages: TGSF (412) • TGSF-JHP (413) • TGSF-M-JHP (413) • TGSF-MM-JHP (414)

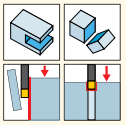
TANG-GRIP PARTING LINE

TAG N-J/JS/JT

Single-Ended Inserts for Parting, Grooving and Slitting Soft Materials







Designation	Dimensions CW	RE	CWTOL[2]	RETOL[3]	Tough ↔ Hard IC830	IC928	IC1030	IC1010	IC808	IC908	IC5400	IC20	IC807	Recommended Machining Data f groove (mm/rev)
TAG N1.4J	1.40	0.16	0.040	0.030	●				●				●	0.03-0.10
TAG N1.6J	1.60	0.16	0.040	0.030	●				●					0.03-0.12
TAG N2JS [1]	2.00	0.02	0.040	0.020	●				●					0.03-0.08
TAG N2J	2.00	0.20	0.040	0.040	●		●	●	●		●	●		0.04-0.12
TAG N2JT	2.00	0.20	0.040	0.040	●	●		●	●	●	●			0.04-0.14
TAG N3JS [1]	3.05	0.02	0.040	0.020	●				●					0.04-0.10
TAG N3J	3.05	0.20	0.040	0.030	●	●	●	●	●	●	●	●	●	0.04-0.16
TAG N3JT	3.05	0.20	0.040	0.030	●				●	●	●			0.05-0.18
TAG N3.2JT	3.25	0.20	0.040	0.030	●				●					0.05-0.18
TAG N4J	4.00	0.24	0.040	0.030	●	●	●	●	●	●	●		●	0.04-0.18
TAG N4JT	4.05	0.24	0.040	0.030	●				●	●	●			0.06-0.20
TAG N5J	5.05	0.25	0.040	0.040	●			●	●					0.05-0.20
TAG N5JT	5.05	0.25	0.040	0.040	●				●	●				0.06-0.22
TAG N6.3J	6.35	0.34	0.040	0.040	●				●					0.06-0.22
TAG N6.3JT	6.35	0.34	0.040	0.040	●					●				0.08-0.25
TAG N7JT	7.05	0.50	0.040	0.040	●				●					0.10-0.28

- JT chipformer has the basic positive configuration of the J-type and a reinforced negative front edge; most suitable for soft materials at low to medium feeds.
- For cutting speed recommendations and user guide, see pages 616-621

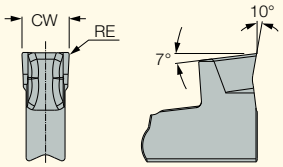
[1] Sharp corners cannot be used on TGSF slitting cutters
[2] Cutting width tolerance (+/-)
[3] Corner radius tolerance (+/-)

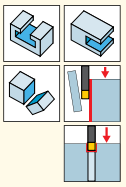
For tools, see pages: TGSF (412) • TGSF-JHP (413) • TGSF-M-JHP (413) • TGSF-MM-JHP (414)

TANG-GRIP PARTING LINE

TAG N-A

Single-Ended Inserts for Parting, Grooving, and Slitting Aluminum





Designation	Dimensions CW	RE	CWTOL[1]	RETOL[2]	IC20	Recommended Machining Data f groove (mm/rev)
TAG N2A	2.00	0.20	0.040	0.040	●	0.02-0.10
TAG N3A	3.07	0.20	0.040	0.040	●	0.03-0.14
TAG N4A	4.05	0.24	0.040	0.030	●	0.03-0.16

- For cutting speed recommendations and user guide, see pages 616-621

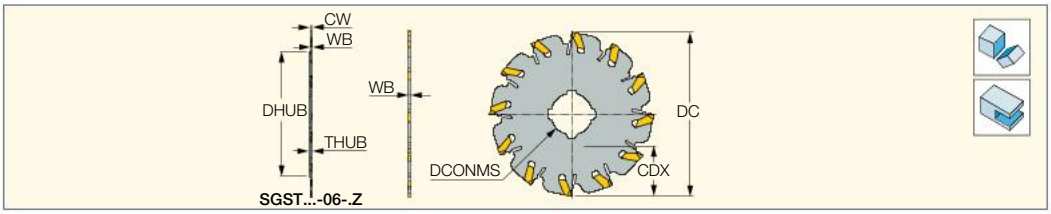
[1] Cutting width tolerance (+/-)
[2] Corner radius tolerance (+/-)

For tools, see pages: TGSF (412) • TGSF-JHP (413) • TGSF-M-JHP (413) • TGSF-MM-JHP (414)

SLIMSLIT NARROW SLITTING

SGST

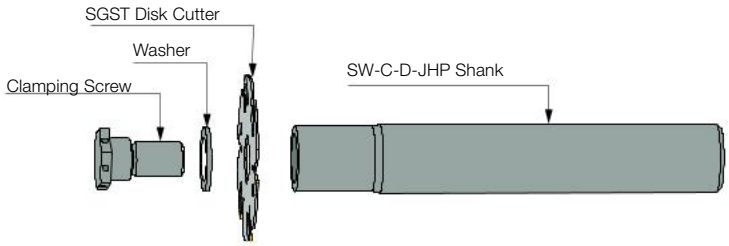
Thin Slitting Cutters Carrying SLIM-GRIP Inserts



Designation	DC	CW	CICT(1)	WB	DCONMS	CDX	RPMX(2)	DHUB	THUB	Insert	MIID(3)	
SGST 32-8-0.6-4Z	32.00	0.60	4	0.50	8.00	6.00	2490	19.00	1.06	GFT 0.6		ESG-SLM*
SGST 32-8-0.8-4Z	32.00	0.80	4	0.69	8.00	8.00	2490	-	-	GFT 0.8J-0.1	GFT 0.8J-0.1	ESG-SLM*
SGST 32-8-1.0-4Z	32.00	1.00	4	0.90	8.00	8.00	2490	-	-	GFT 1.0J-0.1	GFT 1.0J-0.1	ESG-SLM*
SGST 32-8-1.2-4Z	32.00	1.20	4	1.06	8.00	8.00	2490	-	-	GFT 1.2J-0.14	GFT 1.2J-0.14	ESG-SLM*
SGST 40-10-0.6-6Z	40.00	0.60	6	0.50	10.00	6.00	1990	27.00	1.06	GFT 0.6		ESG-SLM*
SGST 40-10-0.8-6Z	40.00	0.80	6	0.69	10.00	12.00	1990	-	-	GFT 0.8J-0.1	GFT 0.8J-0.1	ESG-SLM*
SGST 40-10-1.0-6Z	40.00	1.00	6	0.90	10.00	12.00	1990	-	-	GFT 1.0J-0.1	GFT 1.0J-0.1	ESG-SLM*
SGST 40-10-1.2-6Z	40.00	1.20	6	1.06	10.00	12.00	1990	-	-	GFT 1.2J-0.14	GFT 1.2J-0.14	ESG-SLM*
SGST 50-13-0.6-9Z	50.00	0.60	9	0.50	13.00	6.00	1590	37.00	1.06	GFT 0.6		ESG-SLM*
SGST 50-13-0.8-9Z	50.00	0.80	9	0.69	13.00	12.50	1590	-	-	GFT 0.8J-0.1	GFT 0.8J-0.1	ESG-SLM*
SGST 50-13-1.0-9Z	50.00	1.00	9	0.90	13.00	12.50	1590	-	-	GFT 1.0J-0.1	GFT 1.0J-0.1	ESG-SLM*
SGST 50-13-1.2-9Z	50.00	1.20	9	1.06	13.00	12.50	1590	-	-	GFT 1.2J-0.14	GFT 1.2J-0.14	ESG-SLM*
SGST 63-16-1.0-12Z	63.00	1.00	12	0.90	16.00	19.00	1260	-	-	GFT 1.0J-0.1	GFT 1.0J-0.1	ESG-SLM*
SGST 63-16-1.2-12Z	63.00	1.20	12	1.06	16.00	19.00	1260	-	-	GFT 1.2J-0.14	GFT 1.2J-0.14	ESG-SLM*

(1) Number of inserts (or edges for solid tool)
(2) Maximum RPM
(3) Master insert identification
* Optional, to be ordered separately

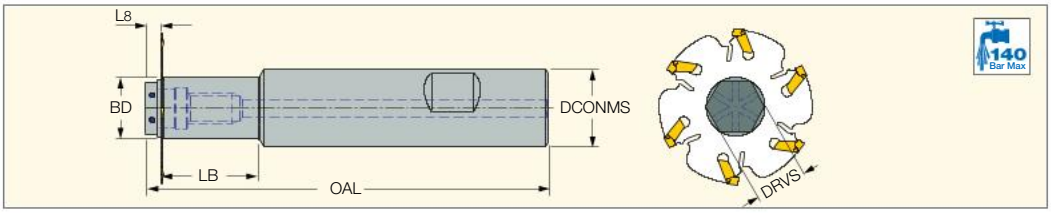
For inserts, see pages: GFT-J (417)
For holders, see pages: SW-C-D-JHP (416)



SLIMSLIT NARROW SLITTING

SW-C-D-JHP

Shanks for SGST Slim Slot Milling Disk Cutters



Designation	DCONMS	BD	LB	OAL	L8	DRVS(1)			
SW 16C-D32-JHP	16.00	15.00	25.00	104.00	4.00	13.0	SCREW CLAMP-D32-JHP	MM KEY 13X8*	WASHER 8X14.5-D32
SW 20C-D40-JHP	20.00	16.00	25.00	104.00	4.00	13.0	SCREW CLAMP-D40-JHP	MM KEY 13X8*	WASHER 10X15-D40
SW 25C-D50-JHP	25.00	25.00	-	115.00	5.00	20.0	SCREW CLAMP-D50-JHP		WASHER 13X24-D50
SW 25C-D63-JHP	25.00	25.00	-	115.00	5.00	20.0	SCREW CLAMP-D63-JHP	MM KEY 20*	WASHER 16X24-D63

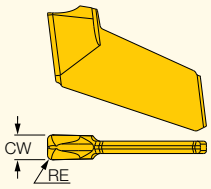
(1) Clamping wrench size
* Optional, to be ordered separately

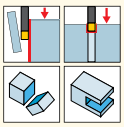
For tools, see pages: SGST (416)

SLIMGRIP NARROW INSERTS

GFT-J

Thin Parting, Grooving and Slitting Single-Ended Inserts for Soft Materials





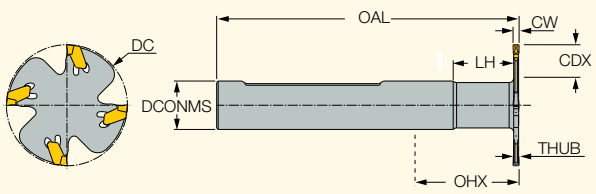
Designation	Dimensions CW	RE	Tough ↔ Hard IC1028	IC1008	Recommended Machining Data f groove (mm/rev)
GFT 0.6J-0.1	0.60	0.10	•	•	0.03-0.05
GFT 0.8J-0.1	0.80	0.10	•	•	0.03-0.07
GFT 1.0J-0.1	1.00	0.10	•	•	0.03-0.09
GFT 1.2J-0.14	1.20	0.14	•	•	0.03-0.10
GFT 1.6J-0.16	1.60	0.16	•	•	0.03-0.12

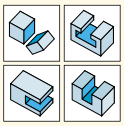
For tools, see pages: SGST (416)

SELFGRIP

SGSF-W

Grooving and Slitting Cutters with Integral Weldon Shanks





Designation	CWN[2]	CWX[3]	DC	DCONMS	CDX[4]	NOF[5]	THUB	LH[6]	OHX[7]	OAL	MIID[8]	
SGSF 32-1.6-W16	1.50	1.79	32.00	16.00	7.00	3	1.32	20.0	49.0	100.00	GSFN 1.6	ESG 1.4-2
SGSF 32-2-W16 [1]	1.80	2.69	32.00	16.00	7.00	3	1.62	20.0	49.0	100.00	GSFN 2	ESG 1.4-2
SGSF 40-1.6-W16	1.50	1.79	40.00	16.00	11.00	4	1.32	34.0	63.0	100.00	GSFN 1.6	ESG 1.4-2
SGSF 40-2-W16 [1]	1.80	2.69	40.00	16.00	11.00	4	1.62	34.0	63.0	100.00	GSFN 2	ESG 1.4-2

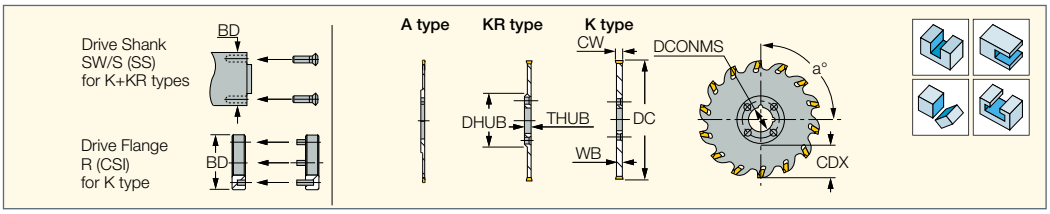
• For user guide, see pages 426-432

[1] Standard GSFN 2.4 mm inserts are not suitable for this tool; for suitable tool, see specific pocket size.
[2] Minimum cutting width
[3] Maximum cutting width
[4] Cutting depth maximum
[5] Number of flutes
[6] Minimum overhang range
[7] Maximum overhang range
[8] Master insert identification

For inserts, see pages: GSFN (421) • GSFU (422)

SELF-GRIP

SGSF
Slitting Cutters Carrying Self-Clamped Inserts



Designation	DC	CWN[4]	CWX[5]	CDX[6]	CICT[7]	WB	THUB	DHUB	DCONMS	RPMX[8]	a°	MIID[9]	
SGSF 76-1.4-22A	76.00	1.34	1.34	18.00	8	1.10	2.4	39.00	22.00	1050	112.5	GSFU 1.4	ESG 1.4-2
SGSF 100-1.4-22A	100.00	1.34	1.34	25.00	10	1.10	2.4	49.00	22.00	800	90	GSFU 1.4	ESG 1.4-2
SGSF 125-1.4-27A	125.00	1.34	1.34	25.00	12	1.10	2.4	74.00	27.00	640	75	GSFU 1.4	ESG 1.4-2
SGSF 50-1.6-8KR	50.00	1.50	1.79	10.00	5	1.24	2.4	28.00	8.00	1600	-	GSFN 1.6	ESG 1.4-2
SGSF 63-1.6-10KR	63.00	1.50	1.79	14.00	6	1.24	2.4	32.00	10.00	1260	-	GSFN 1.6	ESG 1.4-2
SGSF 76-1.6-22A	76.00	1.50	1.79	18.00	8	1.24	2.4	39.00	22.00	1050	112.5	GSFN 1.6	ESG 1.4-2
SGSF 100-1.6-22A	100.00	1.50	1.79	30.00	10	1.24	2.4	39.00	22.00	800	90	GSFN 1.6	ESG 1.4-2
SGSF 125-1.6-27A	125.00	1.50	1.79	29.00	12	1.24	2.4	60.00	27.00	640	75	GSFN 1.6	ESG 1.4-2
SGSF 50-2-8KR [1]	50.00	1.80	2.69	10.00	5	1.60	2.4	28.00	8.00	1600	-	GSFN 2	ESG 1.4-2
SGSF 63-2-10KR [1]	63.00	1.80	2.69	15.00	6	1.60	2.4	32.00	10.00	1260	-	GSFN 2	ESG 1.4-2
SGSF 76-2-22A [1]	76.00	1.80	2.69	18.00	8	1.60	2.4	39.00	22.00	1050	112.5	GSFN 2	ESG 1.4-2
SGSF 80-2-22KR [1]	80.00	1.80	2.69	20.00	8	1.60	2.4	40.00	22.00	1000	-	GSFN 2	ESG 1.4-2
SGSF 100-2-22A [1]	100.00	1.80	2.69	30.00	10	1.60	2.4	39.00	22.00	800	90	GSFN 2	ESG 1.4-2
SGSF 100-2-22KR [1]	100.00	1.80	2.69	29.00	10	1.60	2.4	40.00	22.00	800	-	GSFN 2	ESG 1.4-2
SGSF 125-2-27A [1]	125.00	1.80	2.69	32.00	12	1.60	2.4	60.00	27.00	640	75	GSFN 2	ESG 1.4-2
SGSF 125-2-32KR [1]	125.00	1.80	2.69	34.00	12	1.60	2.4	55.00	32.00	640	-	GSFN 2	ESG 1.4-2
SGSF 80-2.4-22A	80.00	2.38	2.42	20.00	6	1.90	2.4	39.00	22.00	1000	90	GSFN 2.4	ESG 11
SGSF 100-2.4-22K	100.00	2.38	2.42	26.00	6	1.90	2.4	46.00	22.00	800	90	GSFN 2.4	ESG 11
SGSF 125-2.4-32K	125.00	2.38	2.42	34.00	8	1.90	2.4	55.00	32.00	640	-	GSFN 2.4	ESG 11
SGSF 160-2.4-32K	160.00	2.38	2.42	52.00	10	1.90	2.4	55.00	32.00	500	90	GSFN 2.4	ESG 11
SGSF 50-3-8K	50.00	2.70	3.53	10.00	4	2.40	2.4	28.00	8.00	1600	-	GSFN 3	ESG 11
SGSF 63-3-10K	63.00	2.70	3.53	15.00	5	2.40	2.4	32.00	10.00	1260	-	GSFN 3	ESG 11
SGSF 80-3-22K [2]	80.00	2.70	3.53	19.00	6	2.40	2.4	40.00	22.00	1000	-	GSFN 3	ESG 11
SGSF 100-3-22K [3]	100.00	2.70	3.53	29.00	6	2.40	2.4	40.00	22.00	800	90	GSFN 3	ESG 11
SGSF 125-3-27K	125.00	2.70	3.53	34.00	8	2.40	2.4	0.00	27.00	640	-	GSFN 3	ESG 11
SGSF 125-3-32K	125.00	2.70	3.53	34.00	8	2.40	2.4	55.00	32.00	640	-	GSFN 3	ESG 11
SGSF 160-3-32K	160.00	2.70	3.53	52.00	10	2.40	2.4	55.00	32.00	500	90	GSFN 3	ESG 11
SGSF 160-3-40K	160.00	2.70	3.53	39.00	10	2.40	2.4	80.00	40.00	500	90	GSFN 3	ESG 11
SGSF 200-3-40K	200.00	2.70	3.54	59.00	14	2.40	2.4	80.00	40.00	400	90	GSFN 3	ESG 11
SGSF 250-3-40K	250.00	2.70	3.53	84.00	18	2.40	2.4	80.00	40.00	320	90	GSFN 3	ESG 11
SGSF 50-4-8K	50.00	3.54	4.52	10.00	4	3.20	3.2	28.00	8.00	1600	-	GSFN 4	ESG 11
SGSF 63-4-10K	63.00	3.54	4.52	15.00	5	3.20	3.2	32.00	10.00	1260	-	GSFN 4	ESG 11
SGSF 80-4-22K [2]	80.00	3.54	4.52	19.00	6	3.20	3.2	40.00	22.00	1000	-	GSFN 4	ESG 11
SGSF 100-4-22K [3]	100.00	3.54	4.52	26.00	6	3.20	3.2	40.00	22.00	800	90	GSFN 4	ESG 11
SGSF 125-4-32K	125.00	3.54	4.52	34.00	8	3.20	3.2	55.00	32.00	640	-	GSFN 4	ESG 11
SGSF 160-4-40K	160.00	3.54	4.52	39.00	10	3.20	3.2	80.00	40.00	500	90	GSFN 4	ESG 11
SGSF 200-4-40K	200.00	3.54	4.52	59.00	14	3.20	3.2	80.00	40.00	400	90	GSFN 4	ESG 11
SGSF 250-4-40K	250.00	3.54	4.52	84.00	18	3.20	3.2	80.00	40.00	320	90	GSFN 4	ESG 11
SGSF 350-4M-50K-38Z	350.00	3.54	4.52	119.00	38	3.20	3.2	110.00	50.00	230	90	GSFN 4	ESG 11
SGSF 425-4M-50K-38Z	425.00	3.54	4.52	140.00	38	3.20	3.2	110.00	50.00	190	90	GSFN 4	ESG 11
SGSF 80-5-22K [2]	80.00	4.53	5.50	19.00	6	4.00	4.0	40.00	22.00	1000	90	GSFN 5	ESG 11
SGSF 100-5-22K [3]	100.00	4.53	5.50	29.00	6	4.00	5.0	40.00	22.00	800	90	GSFN 5	ESG 11
SGSF 125-5-32K	125.00	4.53	5.50	34.00	8	4.00	4.0	55.00	32.00	640	-	GSFN 5	ESG 11
SGSF 160-5-40K	160.00	4.53	5.50	39.00	10	4.00	4.0	80.00	40.00	500	90	GSFN 5	ESG 11
SGSF 200-5-40K	200.00	4.53	5.50	59.00	14	4.00	4.0	80.00	40.00	400	90	GSFN 5	ESG 11
SGSF 250-5-40K	250.00	4.53	5.50	84.00	18	4.00	4.0	80.00	40.00	320	90	GSFN 5	ESG 11
SGSF 125-6-32K	125.00	5.51	6.50	34.00	8	5.20	5.2	55.00	32.00	640	-	GSFN 6C	ESG 1
SGSF 160-6-40K	160.00	5.51	6.50	39.00	10	5.20	5.2	80.00	40.00	500	90	GSFN 6C	ESG 1
SGSF 200-6-40K	200.00	5.51	6.50	59.00	14	5.20	5.2	80.00	40.00	400	90	GSFN 6C	ESG 1
SGSF 250-6-40K	250.00	5.51	6.50	84.00	18	5.20	5.2	80.00	40.00	320	90	GSFN 6C	ESG 1
SGSF 315-6-40K	315.00	5.51	6.50	117.00	22	5.20	5.2	80.00	40.00	250	90	GSFN 6C	ESG 1
SGSF 350-6-50K	350.00	5.51	6.50	119.00	26	5.20	5.2	110.00	50.00	230	90	GSFN 6	ESG 1

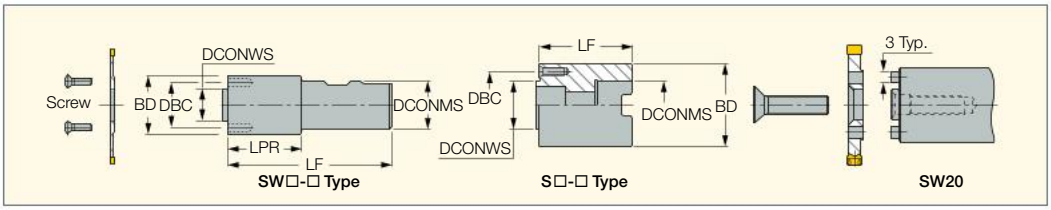
- Only the K type cutters feature 4 driving holes around the central hole; can be driven by the R drive shanks • Refer to SW/S drive shanks and R driving flange set
- Maximum RPM may not be exceeded • For user guide, see pages 426-432

[1] Standard GSFN 2.4 inserts are not suitable for this tool; for suitable tool, see specific pocket size.
[2] CDX=16, DHUB=46 when used with drive flange
[3] CDX=26, DHUB=46 when used with drive flange
[4] Minimum cutting width
[5] Maximum cutting width
[6] Cutting depth maximum
[7] Number of inserts (or edges for solid tool)
[8] Maximum RPM
[9] Master insert identification

For inserts, see pages: GSFN (421) • GSFU (422)
For holders, see pages: BT-SEMC (730) • C#-SEMC (704) • C#-SW (419) • DIN2080-SEMC (738) • DIN69871-SEMC (653) • HSK A-SEMC (684) • SW/S (419)

SELF-GRIP

SW/S
Drive Shanks for
SELF-GRIP Slitting Cutters



Designation	DCONMS	BD	DBC	DCONWS	LPR	LF	kg
SW 20	20.00	20.00	14.40	8.00	-	100.00	0.24
SW 25-23	25.00	23.00	13.60	6.00	25.0	110.00	0.00
SW 25-28	25.00	28.00	18.00	8.00	25.0	110.00	0.43
SW 25-32	25.00	32.00	22.00	10.00	25.0	110.00	0.51
SW 32-40	32.00	40.00	32.00	22.00	30.0	120.00	0.60
S 32-55	32.00	55.00	45.00	32.00	-	60.00	2.22
S 40-80	40.00	80.00	63.00	40.00	-	60.00	1.78

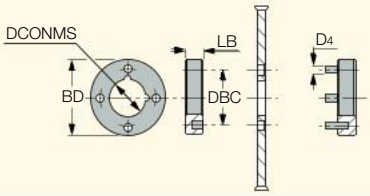
For tools, see pages: GM-DG (423) • SGSA (420) • SGSF (418) • TGSF (412)

Spare Parts

Designation					
SW 20	SR M5X20 DIN7991		HW 3.0		
SW 25-23	SR 34-510	T-15/5			
SW 25-28	SR 76-961	T-15/5			
SW 25-32	SR 76-961	T-15/5			
SW 32-40	SR 76-963	T-15/5			
S 32-55	SR 76-943			BLD T20/M7	SW6-T
S 40-80	SR 76-944		HW 6.0		

SELF-GRIP

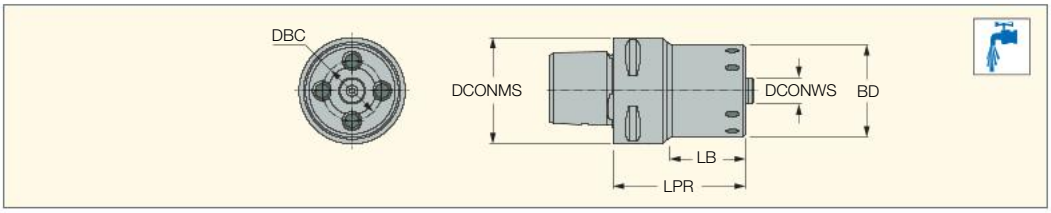
R (drive flange set)
Drive Flange Set for
Slitting Cutters



Designation	DCONMS	BD	DBC	D4	LB
R 22-46	22.00	46.00	32.00	5.00	10.00
R 32-55	32.00	55.00	45.00	6.00	10.00
R 40-80	40.00	80.00	63.00	11.00	12.00
R 50-110	50.00	110.00	80.00	14.00	14.00

CAMFIX

C#-SW
Holders with CAMFIX
Exchangeable Shanks for SELF/
TANG-GRIP Slitting Cutters

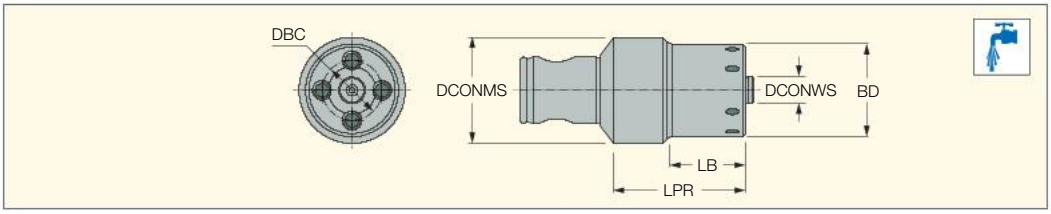


Designation	DCONMS	DCONWS	BD	DBC	LPR	LB
C3 S8-28-40	32.00	8.00	28.00	18.00	40.0	23.00
C4 S22-40-50	40.00	22.00	40.00	32.00	50.0	-
C5 S32-55-50	50.00	32.00	55.00	45.00	50.0	28.10
C8 S40-80-50	80.00	40.00	80.00	63.00	50.0	-

For tools, see pages: GM-DG (423) • SGSA (420) • SGSF (418) • TGSF (412)

ITSBORE

MB-SW
MB Modular Connection
System for SELF/TANG-GRIP
Slitting Cutters

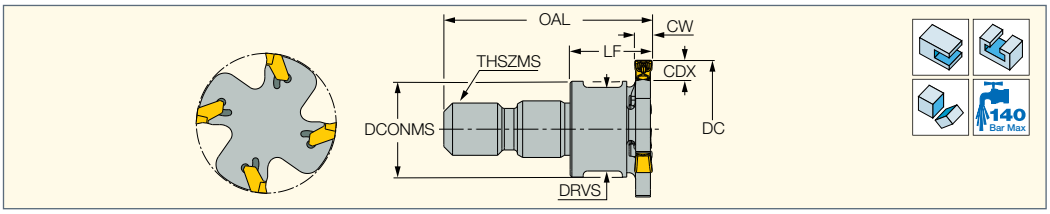


Designation	DCONMS	DCONWS	BD	DBC	LPR	LF
STH S8-28-40 MB32	32.00	8.00	28.00	18.00	40.0	23.00
STH S10-32-40 MB32	32.00	10.00	32.00	22.00	40.0	-
STH S22-40-50 MB40	40.00	22.00	40.00	32.00	50.0	-
STH S32-55-50 MB50	50.00	32.00	55.00	45.00	50.0	27.50
STH S40-80-50 MB80	80.00	40.00	80.00	63.00	50.0	-

For tools, see pages: GM-DG (423) • SGSA (420) • SGSF (418) • TGSF (412)

SELFGRIP

SGSF/A-M-JHP
Grooving and Slitting Small Diameter Cutters with FLEX-FIT Threaded Adaptation



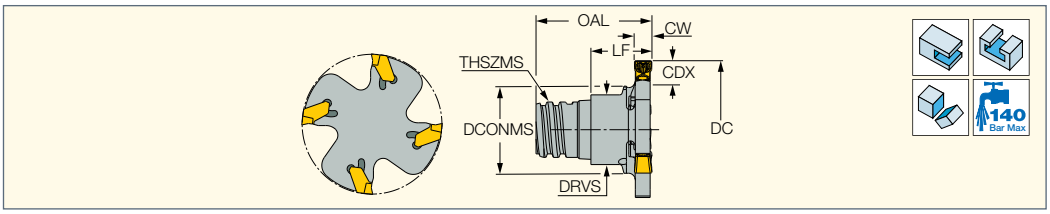
Designation	DC	CW	CDX	CICT(1)	DCONMS	THSZMS	LF	OAL	DRVS(2)	Insert	TQ_3(3)	
SGSF 32-2-M08-3Z-JHP	32.00	2.00	7.80	3	13.00	M08	12.00	29.50	9.6	GSFN 2/GSFU 2.2	20	ESG 1.4-2*
SGSA 32-3-M08-4Z-JHP	32.00	3.00	7.80	4	13.00	M08	12.87	30.37	9.6	GSAN 3...	20	ESG 1.4-2*
SGSF 40-2-M10-4Z-JHP	40.00	2.00	10.00	4	18.00	M10	11.00	29.50	15.0	GSFN 2/GSFU 2.2	29	ESG 1.4-2*
SGSA 40-3-M10-6Z-JHP	40.00	3.00	10.00	6	18.00	M10	12.10	32.10	15.0	GSAN 3...	29	ESG 1.4-2*

• For best performance use internal coolant with “CH” type shanks • When mounting items with FLEX-FIT threaded adaptation, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter
(1) Number of inserts (or edges for solid tool)
(2) Torque key size
(3) Tool tightening torque Nxm (lbfxin)
* Optional, to be ordered separately

For inserts, see pages: GSAN (421) • GSFN (421) • GSFU (422)
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

SELFGRIP

SGSF/A-MM-JHP
Grooving and Slitting Small Diameter Cutters with the MULTI-MASTER Threaded Adaptor



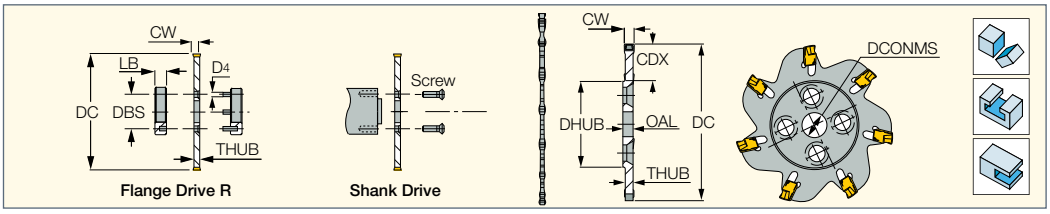
Designation	DC	CW	CDX	CICT(1)	DCONMS	THSZMS	LF	OAL	DRVS(2)	Insert	
SGSF 32-2-MMT08-3Z-JHP	32.00	2.00	9.00	3	11.70	T08	10.60	18.10	10.0	GSFN 2...	ESG 1.4-2*
SGSA 32-3-MMT08-4Z-JHP	32.00	3.00	9.00	4	11.70	T08	11.60	19.20	10.0	GSAN 3...	ESG 1.4-2*
SGSF 40-2-MMT10-4Z-JHP	40.00	2.00	11.30	4	15.30	T10	10.60	21.90	13.0	GSFN 2...	ESG 1.4-2*
SGSA 40-3-MMT10-6Z-JHP	40.00	3.00	11.30	6	15.30	T10	11.40	22.70	13.0	GSAN 3...	ESG 1.4-2*

• For best performance use internal coolant with “CH” type shanks
(1) Number of inserts (or edges for solid tool)
(2) Torque key size
* Optional, to be ordered separately

For inserts, see pages: GSAN (421) • GSFN (421) • GSFU (422)
For holders, see pages: MM CAB (110) • MM CAB-T-T (110) • MM CAB-T-T-W (111) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

SELFGRIP

SGSA
Slitting Cutters Carrying GSAN Self-Clamped Inserts



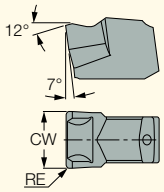
Designation	CWN(1)	CWX(2)	DC	CICT(3)	DHUB	DCONMS	OAL	THUB	CDX(4)	RPMX(5)	MIID(6)	
SGSA 32-3	2.70	3.53	32.00	4	18.20	8.00	4.0	2.40	5.50	2400	GSAN 3	ESG 1.4-2
SGSA 40-3-6K	2.70	3.53	40.00	5	21.00	6.00	3.2	2.40	8.00	2000	GSAN 3	ESG 1.4-2
SGSA 50-3-8K	2.70	3.53	50.00	7	27.00	8.00	3.2	2.40	10.50	1600	GSAN 3	ESG 1.4-2
SGSA 100-3-22K-12Z-FP	2.70	3.53	100.00	12	-	22.00	2.4	2.40	20.00	795	GSAN 3	ESG 1.4-2
SGSA 125-3-32K-16Z-FP	2.70	3.53	125.00	16	-	32.00	2.4	2.40	25.00	635	GSAN 3	ESG 1.4-2
SGSA 32-4	3.54	4.52	32.00	4	18.20	8.00	4.0	3.20	5.50	2400	GSAN 4	ESG 1.4-2
SGSA 40-4-6K	3.54	4.52	40.00	5	21.00	6.00	3.2	3.20	8.00	2000	GSAN 4	ESG 1.4-2
SGSA 50-4-8K	3.54	4.52	50.00	7	-	8.00	3.2	3.20	10.50	1600	GSAN 4	ESG 1.4-2
SGSA 80-4-22K-10Z-FP	3.54	4.52	80.00	10	-	22.00	3.2	3.20	16.00	995	GSAN 4	ESG 1.4-2
SGSA 100-4-22K-12Z-FP	3.54	4.52	100.00	12	-	22.00	3.2	3.20	20.00	795	GSAN 4	ESG 1.4-2

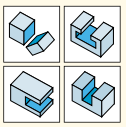
• For LB,DBS,D4 refer to SW/S drive shanks and R drive flange set • Maximum RPM may not be exceeded • For user guide, see pages 426-432
(1) Minimum cutting width
(2) Maximum cutting width
(3) Number of inserts (or edges for solid tool)
(4) Cutting depth maximum
(5) Maximum RPM
(6) Master insert identification

For inserts, see pages: GSAN (421)
For holders, see pages: C#-SW (419) • SW/S (419)

SELF-GRIP

GSAN
SELF-GRIP Slitting Inserts



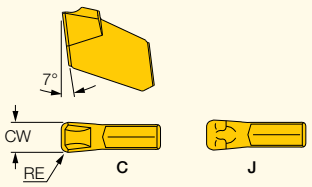


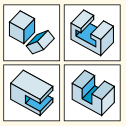
Designation	Dimensions CW	RE	Tough ↔ Hard IC328	IC908
GSAN 3	3.00	0.20	●	●
GSAN 4	4.00	0.24	●	

For tools, see pages: SGSA (420) • SGSF/A-M-JHP (420) • SGSF/A-MM-JHP (420)

SELF-GRIP

GSFN
SELF-GRIP Slitting Inserts





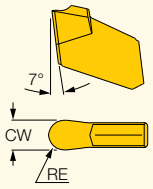
Designation	Dimensions CW	RE	Tough ↔ Hard IC328	IC928	IC908	IC20
GSFN 1.6	1.60	0.16	●	●	●	●
GSFN 2	2.00	0.20	●	●	●	●
GSFN 2.4J	2.39	0.20	●	●	●	
GSFN 2.4	2.41	0.20	●	●	●	●
GSFN 3J	3.00	0.25	●	●	●	●
GSFN 3	3.02	0.20	●	●	●	●
GSFN 3.2	3.20	0.22	●	●	●	●
GSFN 4J	4.02	0.30		●	●	
GSFN 4	4.04	0.30	●	●	●	●
GSFN 4.8J	4.78	0.25	●		●	
GSFN 4.8	4.80	0.25	●		●	●
GSFN 4.8-1.52	4.80	1.52	●			
GSFN 5	4.98	0.26	●	●	●	●
GSFN 5J	5.00	0.25	●			
GSFN 5.2-1.5	5.22	1.50	●			
GSFN 5.78	5.77	0.40	●			
GSFN 5.98	5.98	0.20	●			
GSFN 6C	6.35	0.50	●	●	●	
GSFN 6	6.37	0.50	●			●

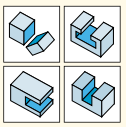
• Tolerance:W$^{\pm 0.05}$

For tools, see pages: SGSF (418) • SGSF-W (417) • SGSF/A-M-JHP (420) • SGSF/A-MM-JHP (420)

SELFGRIP

GSFU
Slitting and Grooving
Full Radius Inserts





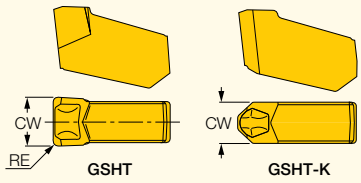
Designation	Dimensions CW	RE	Tough ↔ Hard IC328	IC20
GSFU 1.4	1.34	0.67	●	
GSFU 1.6	1.61	0.80	●	
GSFU 1.7	1.73	0.85		●
GSFU 2.2	2.16	1.11	●	●
GSFU 3	3.02	1.50	●	●

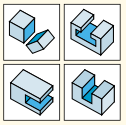
• Tolerance:W$^{\pm 0.05}$

For tools, see pages: SGSF (418) • SGSF-W (417) • SGSF/A-M-JHP (420) • SGSF/A-MM-JHP (420)

SELFGRIP

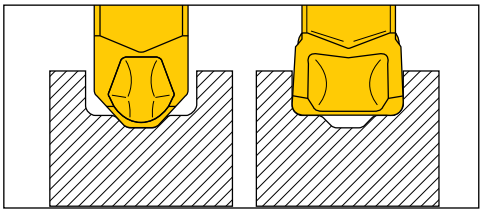
GSHT
Slitting Inserts for
Specially Tailored Heavy
Duty Slitting Cutters





Designation	Dimensions CW	RE	Tough ↔ Hard IC328	IC928	IC908
GSHT 6K [1]	5.40	0.00	●		●
GSHT 6	6.35	0.50	●		●
GSHT 7	7.00	0.50		●	
GSHT 8	8.00	0.50		●	

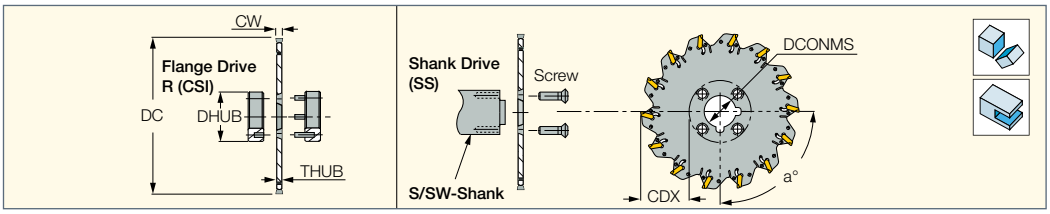
[1] To be used in combination with GSHT regular inserts (6-8 mm) for half-effective cutter configuration



Inserts for **heavy duty** applications for use on **specially tailored** cutters, diameter range: **425-810 mm.** GSHT-6K chamfered inserts, can be used in a half-effective configuration to reduce overload, eliminate chatter, and improve chip flow.

CUTGRIP

GM-DG
Slitting Cutters Carrying
Self-Clamped Inserts



Designation	CWN(2)	CWX(3)	DC	CICT(4)	DCONMS	THUB	CDX	RPMX(5)	a°	SS	CSI	Inserts
GM D100-3DG-22K	2.70	3.35	100.00	6	22.00	2.40	29.00	800	90	SW 32-40	R 22-46	Single-ended: GIM 3C/3/3J/3.2, GIMY.. Double ended: for Tmax=12.5mm
GM D125-3DG-32K(1)	2.70	3.35	125.00	8	32.00	2.40	34.00	640	-	S 32-55	R 32-55	
GM D160-3DG-32K	2.70	3.35	160.00	10	32.00	2.40	39.00	500	90	S 32-55	R 32-55	
GM D200-3DG-40K	2.70	3.35	200.00	14	40.00	2.40	59.00	400	90	S 40-80	R 40-80	
GM D100-4DG-22K	3.36	4.35	100.00	6	22.00	3.20	29.00	800	90	SW 32-40	R 22-46	Single-ended: GIM 4C/4/4J, GIMY.. Double ended: for Tmax=12.5mm
GM D125-4DG-32K(1)	3.36	4.35	125.00	8	32.00	3.20	34.00	640	-	S 32-55	R 32-55	
GM D200-4DG-40K	3.36	4.35	200.00	14	40.00	3.20	59.00	400	90	S 40-80	R 40-80	

• DHUB refers to SW/S drive shanks and R drive flange set • Maximum RPM may not be exceeded • For user guide, see pages 426-432
(1) Only one key slot
(2) Minimum cutting width
(3) Maximum cutting width
(4) Number of inserts (or edges for solid tool)
(5) Cutting depth maximum
(6) Maximum RPM
For inserts, see pages: GIM-C (375) • GIM-J (375) • GIM-W (375)
For holders, see pages: BT-SEMC (647) • C#-SEMC (623) • DIN2080-SEMC (655) • DIN69871-SEMC (578) • HSK A-SEMC (605) • SW/S (371)

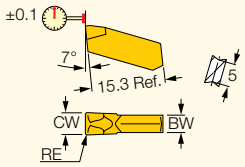
Spare Parts

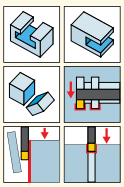
Designation	
GM-DG	EDG 44A*

* Optional, to be ordered separately

CUTGRIP

GIM-J
Utility Single-Sided Inserts
for Parting and Grooving
Soft Materials, Tubes
and Small Diameters





Designation	Dimensions CW	RE	CWTOL(1)	BW	Tough ↔ Hard IC328	IC830	IC54	IC354	IC908	IC20	Recommended Machining Data f groove (mm/rev)
GIM 2.2J	2.20	0.17	0.050	1.70	●	●	●	●	●	●	0.06-0.13
GIM 3J	3.00	0.25	0.050	2.40	●	●		●	●	●	0.08-0.15
GIM 4J	4.00	0.25	0.050	3.20	●	●		●	●	●	0.08-0.18

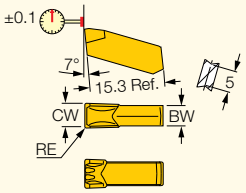
• For cutting speed recommendations and user guide, see pages 616-621
(1) Cutting width tolerance (+/-)

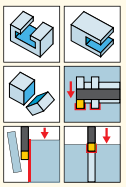
For tools, see pages: GM-DG (423)

CUTGRIP

GIM-C

Parting and Grooving Single-Sided Inserts for Parting Bars, Hard Materials and Tough Applications





Designation	Dimensions CW	RE	CWTOL[1]	BW	Tough ↔ Hard IC328	IC830	IC354	IC908	IC20	Recommended Machining Data f groove (mm/rev)
GIM 3C	3.00	0.22	0.050	2.40	●	●	●	●	●	0.15-0.25
GIM 4C	4.00	0.25	0.050	3.40				●		0.15-0.25
GIM 5C	5.00	0.40	0.050	4.00	●	●	●	●	●	0.15-0.30
GIM 6C	6.00	0.40	0.050	4.80	●		●	●	●	0.15-0.30

- For cutting speed recommendations and user guide, see pages 616-621

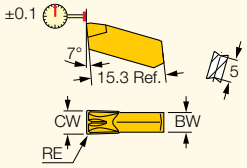
[1] Cutting width tolerance (+/-)

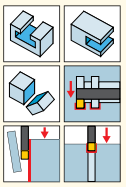
For tools, see pages: GM-DG (423)

CUTGRIP

GIM-W

Single-Sided Inserts with Center Ridged Chipformer and Reinforced Edge for Parting and Grooving Alloy Steel





Designation	Dimensions CW	RE	CWTOL[1]	BW	Tough ↔ Hard IC328	IC630	IC54	IC354	IC908	IC20	Recommended Machining Data f groove (mm/rev)
GIM 2.4	2.40	0.18	0.050	2.40				●	●	●	0.10-0.18
GIM 3	3.00	0.22	0.050	2.40	●	●	●	●	●	●	0.10-0.18
GIM 3.2	3.20	0.22	0.050	2.54	●	●	●	●	●	●	0.10-0.20
GIM 4	4.00	0.25	0.050	3.20	●	●	●	●	●	●	0.15-0.20

- For cutting speed recommendations and user guide, see pages 616-621

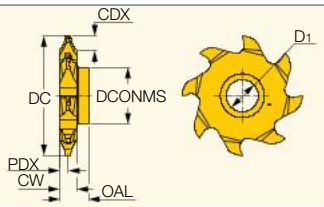
[1] Cutting width tolerance (+/-)

For tools, see pages: GM-DG (423)

T-GEAR GEAR MILLING

SD-M-N-SP

Interchangeable Solid Carbide Heads for Involute Gear Profile Milling According to DIN 3972 Basic Profile II



Designation	Dimensions										IC908
	Module	T range(1)	DC	PDX	CW	CDX	CEDC(2)	DCONMS	D1	OAL	
SD D32-M0.50-NO8-SP15	0.50	>134	32.00	1.20	2.40	2.00	8	15.00	8.40	7.70	●
SD D32-M1.00-NO1-SP15	1.00	12-13	32.00	2.20	4.40	2.50	8	15.00	8.40	7.70	●
SD D32-M1.00-NO2-SP15	1.00	14-16	32.00	2.20	4.40	2.50	8	15.00	8.40	7.70	●
SD D32-M1.25-NO3-SP15	1.25	17-20	32.00	2.20	4.40	3.00	8	15.00	8.40	7.70	●
SD D32-M1.25-NO4-SP15	1.25	21-25	32.00	2.20	4.40	3.00	8	15.00	8.40	7.70	●
SD D32-M1.50-NO5-SP15	1.50	26-34	32.00	2.20	4.40	3.50	8	15.00	8.40	7.70	●
SD D32-M1.50-NO6-SP15	1.50	35-54	32.00	2.20	4.40	3.50	8	15.00	8.40	7.70	●
SD D32-M1.75-NO6-SP15	1.75	35-54	32.00	2.70	5.40	4.25	8	15.00	8.40	7.70	●
SD D32-M1.75-NO7-SP15	1.75	55-134	32.00	2.70	5.40	4.25	8	15.00	8.40	7.70	●
SD D32-M1.75-NO8-SP15	1.75	>134	32.00	2.70	5.40	4.25	8	15.00	8.40	7.70	●
SD D32-M2.00-NO4-SP15	2.00	21-25	32.00	3.20	6.40	4.50	8	15.00	8.40	7.70	●
SD D32-M2.00-NO5-SP15	2.00	26-34	32.00	3.20	6.40	4.50	8	15.00	8.40	7.70	●
SD D32-M2.00-NO6-SP15	2.00	35-54	32.00	3.20	6.40	4.50	8	15.00	8.40	7.70	●
SD D32-M2.25-NO6-SP15	2.25	35-54	32.00	3.20	6.40	5.00	8	15.00	8.40	7.70	●
SD D32-M2.25-NO7-SP15	2.25	55-134	32.00	3.20	6.40	5.00	8	15.00	8.40	7.70	●
SD D32-M2.50-NO6-SP15	2.50	35-54	32.00	3.70	7.40	5.50	8	15.00	8.40	7.70	●

• Tightening torque 4 Nxm • For user guide, see pages 426-432 • For shanks, see pages 373-375

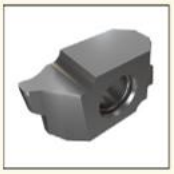
(1) Gear teeth range

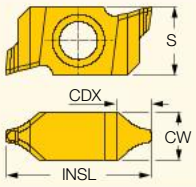
(2) Number of cutting edges

MODUGEAR INDEXABLE GEAR MILLING

LNET 18-M

Indexable Inserts for Involute Gear Profile Milling According to DIN 3972 Basic Profile ||





Designation	Dimensions						IC908
	Module	T range(1)	CW	CDX	INSL	S	
LNET 18-M1.50-NO3-C-CL10	1.50	17-20	6.00	4.00	18.00	8.50	●

• Other gear profiles within module 1.0-1.75 mm range can be provided on request

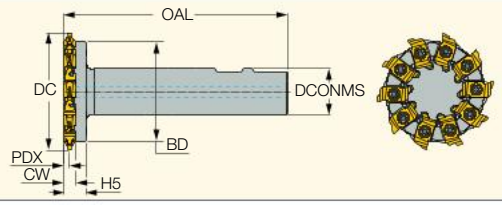
(1) Gear teeth range

For tools, see pages: ETS Gear Mill (425)

MODUGEAR INDEXABLE GEAR MILLING

ETS Gear Mill

Tools for Milling Gear Profile Carrying Tangentially Clamped Inserts



Designation	DC	PDX	CW	BD	CICT(1)	H5	DCONMS	OAL	MIID(2)
ETS D63-M1-1.75-W25-C	63.00	3.00	6.00	53.50	10	12.00	25.00	120.00	LNET 18

• Other cutter diameters with alternative connection options (shank or arbor-type) can be provided on request

(1) Number of inserts (or edges for solid tool)

(2) Master insert identification

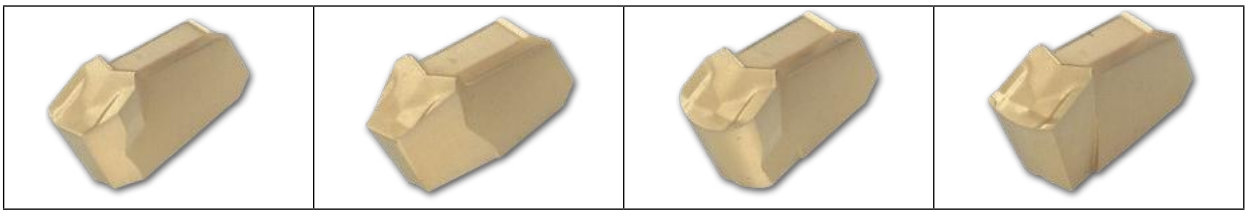
For inserts, see pages: LNET 18-M (425)

Spare Parts

Designation			
ETS Gear Mill	SR 14-500-L11.5	BLD T15/S7	SW6-T

Specially Tailored Inserts for Grooving

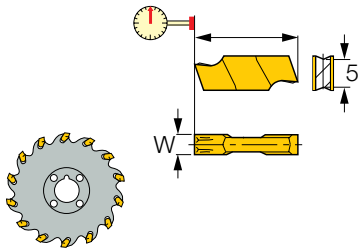
Possible Insert Width for Each Cutter's Seat Size

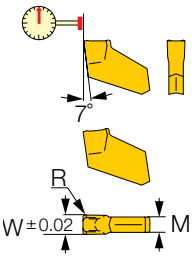


Possible Insert Width for Each Cutter's Seat Size

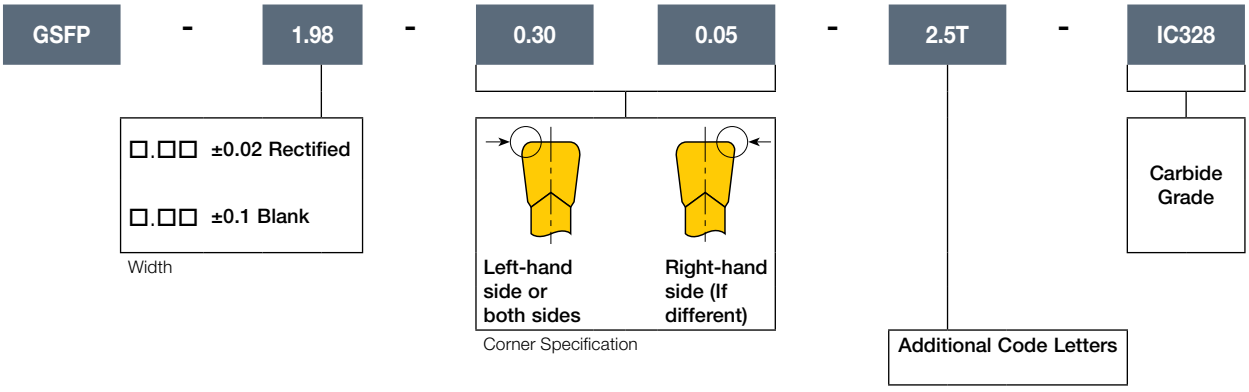
W±0.02 Range	Seat GSFN	M
1.50-1.79	1.6	1.1
1.80-2.69	2	1.6
2.70-3.53	3	2.4
3.54-4.52	4	3.2
4.53-5.50	5	4.1
5.51-6.50	6	5.2

GIPI	GSFP
Repeatability ±0.025	Repeatability ±0.025

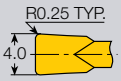
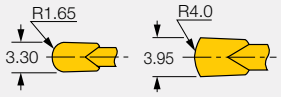
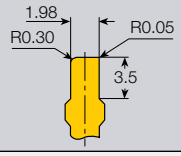
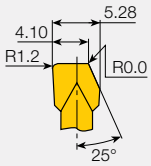
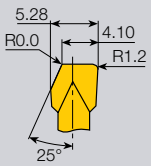
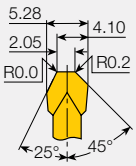
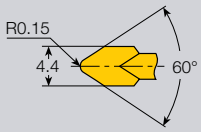
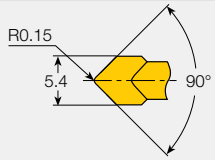
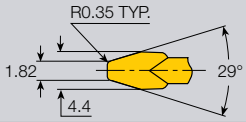
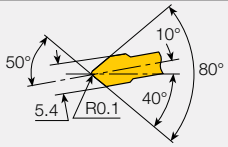
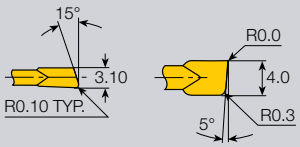
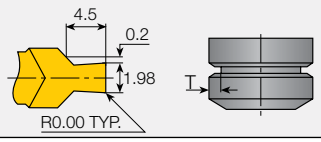




Designation for Specially Tailored Inserts



Specially Tailored Inserts for Grooving

Examples	Designation	
	E1 GSFP-4.00-0.25	
	E2 GSFP-3.95-4.00	
	E3 GSFP-1.98-0.3-0.05-3.5T	
	E4A GSFP-5.28-1.20-0.00-25A4.10	A–Chamfer Preceding digits: Chamfer angle to center line A–Followed by digits - representing the nominal width location of chamfer
	E4B GSFP-5.28-25A4.10-0.00-1.20	
	E5 GSFP-5.28A4.10-0.00-0.20-45A2.05	
	E7 GIP-4.4-MT-0.15	MT – Metric thread 60° MT□ – With corner radius □ WT – Whitworth thread 55° WT□ – With corner radius □
	E8 GSFP-5.4-90V0.15	V – V shape inclusive angle (Blank width 5.4 not rectified)
	E9 GSFP-4.40-29V1.82K-0.35	K – Frontal straight width of trapezoid (Width 4.40 rectified)
	E10 GIP-5.4-80V0.10-10RS	V shape 80° at 10° slant angle (Blank width 5.4 not recitifed)
	E13 GSFP-4.00-0.00-0.30-5LA	LA – Lead angle Lefthand RA – Lead angle Righthand
	E14 GIP-1.98-0.00-4.50T0.20B GFP-1.98-0.00-4.50T0.20B	T – Depth of groove (nominal) B – Break corners width of chamfers, 45° Note: Blank width > 2B+W

When ordering inserts, include carbide grade with designation.

Machining Data for MULTI-MASTER Groove Milling Heads

ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Group No.	MM-TS			MM-GRIT K-TYPE			MM-GRIT P-TYPE		
							Speed	Fee		Speed	Feed mm/t		Speed	Feed mm/t	
							V m/min	$F_{z\ (min)}$	$F_{z\ (max)}$	V m/min	$F_{z\ (min)}$	$F_{z\ (max)}$	V m/min	$F_{z\ (min)}$	$F_{z\ (max)}$
P	non-alloy steel and cast steel, free cutting steel	< 0.25 %c	annealed	420	125	1	110-140	0.08	0.20	110-160	0.05	0.15	-	-	-
		>= 0.25 %c	annealed	650	190	2	100-120	0.08	0.18	100-150	0.05	0.15	-	-	-
		< 0.55 %c	quenched and tempered	850	250	3	70-100	0.08	0.15	80-100	0.05	0.15	-	-	-
		>= 0.55 %c	annealed	750	220	4	70-100	0.08	0.15	80-100	0.05	0.15	-	-	-
			quenched and tempered	1000	300	5	60-80	0.08	0.15	60-80	0.05	0.15	-	-	-
	low alloy and cast steel (less than 5% of alloying elements)		annealed	600	200	6	100-120	0.08	0.15	110-150	0.05	0.15	-	-	-
			quenched and tempered	930	275	7	90-120	0.08	0.15	100-120	0.05	0.15	-	-	-
				1000	300	8	80-110	0.08	0.15	70-110	0.05	0.15	-	-	-
				1200	350	9	70-100	0.05	0.12	70-100	0.05	0.15	-	-	-
	high alloyed steel, cast steel and tool steel		annealed	680	200	10	60-80	0.05	0.18	60-80	0.05	0.15	-	-	-
			quenched and tempered	1100	325	11	55-70	0.08	0.15	55-70	0.05	0.15	-	-	-
	stainless steel and cast steel		ferritic/ martensitic	680	200	12	100-130	0.06	0.12	100-130	0.03	0.15	100-130	0.03	0.10
			martensitic	820	240	13	100-120	0.08	0.15	100-130	0.03	0.15	100-130	0.03	0.10
M	stainless steel		austenitic	600	180	14	80-120	0.05	0.10	90-120	0.03	0.12	90-120	0.03	0.10
K	grey cast iron (GG)		ferritic/pearlitic		180	15	160-220	0.10	0.20	160-220	0.03	0.12	-	-	-
			pearlitic		260	16	120-200	0.10	0.15	120-200	0.03	0.12	-	-	-
	cast iron nodular (GGG)		ferritic		160	17	100-140	0.10	0.20	-	-	-	-	-	-
			pearlitic		250	18	80-100	0.10	0.15	-	-	-	-	-	-
	malleable cast iron		ferritic		130	19	180-250	0.10	0.20	180-250	0.03	0.15	-	-	-
			pearlitic		230	20	160-220	0.10	0.15	160-220	0.03	0.15	-	-	-
N	aluminum-wrought alloy		not cureable		60	21	800-1200	0.10	0.20	-	-	-	800-1200	0.05	0.15
			cured		100	22	800-1200	0.10	0.20	-	-	-	800-1200	0.05	0.15
	aluminum-cast alloys	<=12% si	not cureable		75	23	-	-	-	-	-	-	600-1000	0.05	0.15
			cured		90	24	-	-	-	-	-	-	500-1000	0.05	0.15
		>12% si	high temperature		130	25	-	-	-	-	-	-	200-400	0.05	0.15
	copper alloys	>1% pb	free cutting		110	26	-	-	-	-	-	-	-	-	-
			brass		90	27	-	-	-	-	-	-	-	-	-
			electrolitic copper		100	28	-	-	-	-	-	-	-	-	-
	non-metallic		duroplastics, fiber plastics			29	-	-	-	-	-	-	-	-	-
			hard rubber			30	-	-	-	-	-	-	-	-	-
S	high temp. alloys	Fe based	annealed		200	31	-	-	-	30-40	0.02	0.12	-	-	-
			cured		280	32	25-35	0.05	0.12	25-40	0.02	0.12	-	-	-
		Ni or Co based	annealed		250	33	25-35	0.05	0.12	25-40	-	-	-	0.01	0.12
			cured		350	34	25-35	0.05	0.12	25-40	-	-	-	0.01	0.12
			cast		320	35	40-60	0.05	0.12	25-40	-	-	-	0.01	0.12
	titanium ti alloys			RM 400		36	40-60	0.05	0.12	40-60	-	-	-	0.05	0.12
			alpha+beta alloys cured	RM 1050		37	40-60	0.05	0.10	40-60	-	-	-	0.05	0.10
H	hardened steel		hardened		55 HRC	38									
			hardened		60 HRC	39									
	chilled cast iron		cast		400	40									
	cast iron		hardened		55 HRC	41									

Feed Direction

Down (climb) milling is recommended.
Up milling or plunging are possible.
(In down milling or plunging, backlash should be eliminated.)

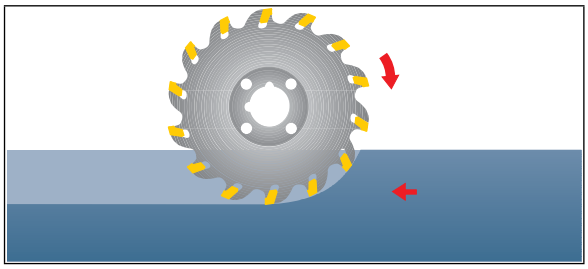
Defining Actual Feed

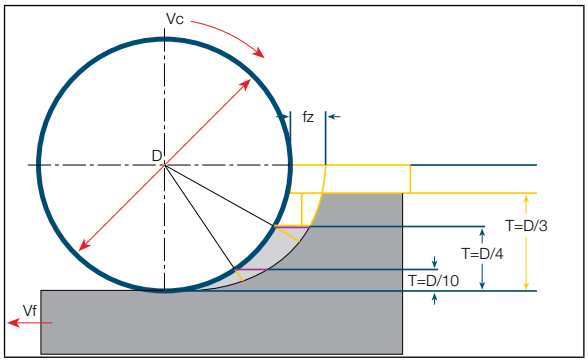
Chip thickness decreases as the depth of cut decreases. Therefore, recommended feed (f_z) can be increased as shown in the table.

T/D Increase		1/6	1/8	1/10	1/20
Recommended Feed by	15%	30%	45%	100%	

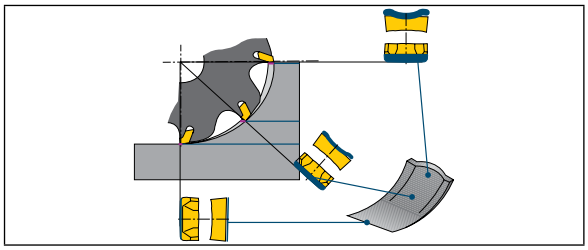
Chip Formation in Slot Milling

Chip shape is a function of the depth of cut.
Down milling starts with large chip selection and exits with reduced chip selection. Down milling is recommended for improved tool life under stable conditions.





Chip Thickness as a Function of D.O.C. to Diameter Ratio



Stacked Cutters(1)

Milling Wider Slots with Two Stacked Cutters

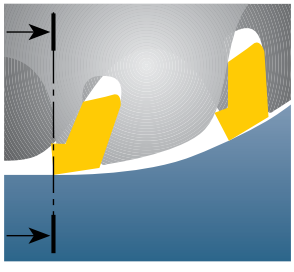
1 In accordance with the required width of cut (**W1+W2**), choose the recommended **SGSF** cutter combination (**A, B,** or **C**) from the table on the next page.
2 The diameters and coupling holes must fit properly.
3 All cutters (with the exception of ø125 mm type) have two key slots enabling staggered stacking.
4 Maximum value of shim **ΔS** (see table below) refers to maximum size of **ΔS1+ΔS2** defined for a complete overlap of radii. When a projection is allowed at the bottom of the groove, **ΔS1** and **ΔS2** may be increased theoretically up to the corner size of the insert.
5 Pins of the driving flange set should be lengthened to ensure contact length of at least 8 mm into one flange and 3 mm into the other.
6 When coupling cutters **W**=6.35, a shim (**S**) of 0.16 mm minimum thickness must be used.
7 The tolerance of effective widths is up to ± 0.2 mm. Due to the accumulation of tolerances, a step of 0.1 mm may occur at the groove bottom.

Insert Width and Possible Modification

See sketches on next page

W	A	R	ΔA Max	ΔS Max
2.40	2.40	0.16	0.33	—
3.00	2.40	0.20	0.24	0.10
3.18	2.40	0.22	0.24	0.17
4.05	3.20	0.24	0.32	0.19
4.78	4.00	0.28	0.40	0.11
5.00	4.00	0.28	0.40	0.22
5.20	4.00	1.50	0.40	—
6.35	5.20	0.50	—(1)	0.13

ΔA max - Maximum possible side ground for each cutter
ΔS max - Maximum possible shim width for each cutter
W, W1, W2 - Normal width of insert



Milling Wider Slots with Stacked, Double Cutters

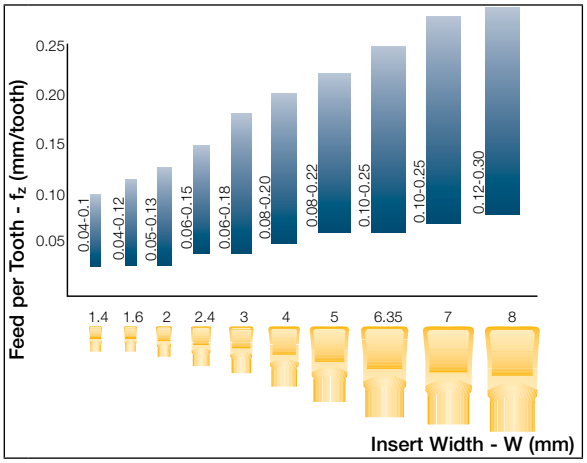
(1) Only cutters with 160-250 diameter sizes can be stacked.

Stacked Cutters(1)

Requires modification of the cutter.

Note: Tables on this page and the next apply only to standard **SELF-GRIP** inserts which appear in this catalog. The number of options increases with the use of specially tailored inserts.

Feed Range Per Insert Size



The recommended values refer to C-type chipformer. For J-type, reduce feed by 30%.

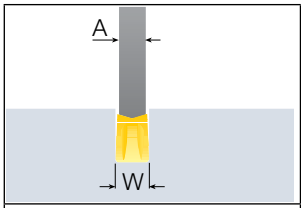
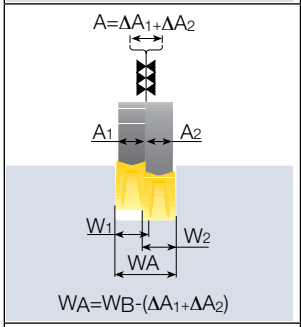
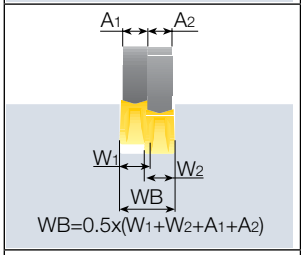
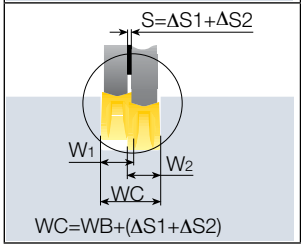
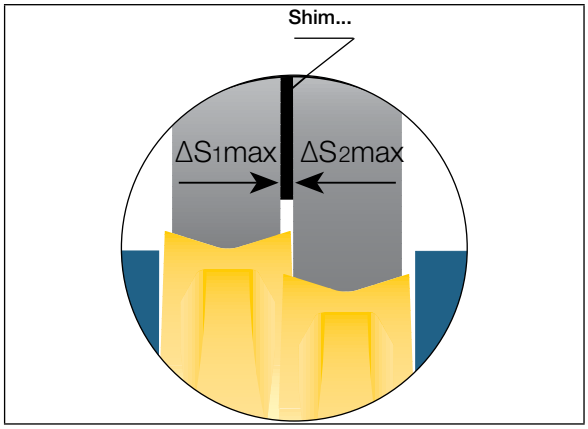
	**Single cutter, standard**
	**A - Double cutters with modified body thicknesses stacked for smaller widths**
	**B - Unmodified, stacked double cutters of nominal width**
	**C - Stacked, double cutters with spacer for larger widths**

Table 1: Effective Width of Cut

W1	W2	WA			WB	Wc(1)
2.40	2.40	4.14	-	4.48	—	—
3.00	2.40	4.53	-	5.04	—	—
3.00	3.00	4.92	-	5.39	5.40	5.43-5.60
3.18	2.40	4.62	-	5.18	5.19	—
3.18	3.00	5.01	-	5.48	5.49	5.52-5.76
3.18	3.18	5.10	-	5.57	5.58	5.61-5.92
4.05	2.40	5.38	-	6.02	6.03	—
4.05	3.00	5.77	-	6.32	6.33	6.36-6.62
4.05	3.18	5.86	-	6.41	6.42	6.45-6.78
4.05	4.05	6.61	-	7.24	7.25	7.28-7.63
4.78	2.40	6.06	-	6.74	—	—
4.78	3.00	6.45	-	7.08	7.09	7.12-7.30
4.78	3.18	6.54	-	7.17	7.18	7.21-7.46
4.78	4.05	7.30	-	8.01	8.02	8.05-8.32
4.78	4.78	7.98	-	8.77	8.78	8.81-9.00
5.00	2.40	6.17	-	6.89	6.90	6.93-7.12
5.00	3.00	6.56	-	7.19	7.20	7.23-7.52
5.00	3.18	6.65	-	7.28	7.29	7.32-7.68
5.00	4.05	7.41	-	8.12	8.13	8.**16-8**.54
5.00	4.78	8.09	-	8.88	8.89	8.92-9.22
5.00	5.00	8.2	-	8.99	9.00	9.03-9.44
5.20	5.00	8.3	-	8.42	—	—
6.35	3.00	—	—		8.64-8.71	
6.35	3.18	—	—		8.73-8.87	
6.35	4.05	—	—		9.56-9.72	
6.35	4.78	—	—		10.33-10.41	
6.35	5.00	—	—		10.44-10.63	
6.35	6.35	—	—		11.71-11.81	

(1) Only cutters with 160-250 diameter sizes can be stacked.



1 The higher values in the width-of-cut range shown provide complete overlap of corner radii.
ΔA max - Maximum possible side ground for each cutter
ΔS max - Maximum possible shim width for each cutter
W, W1, W2 - Normal width of insert

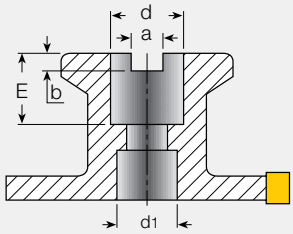
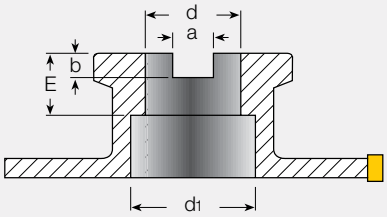
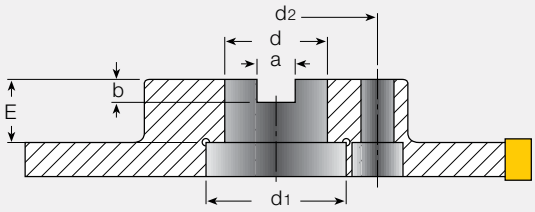
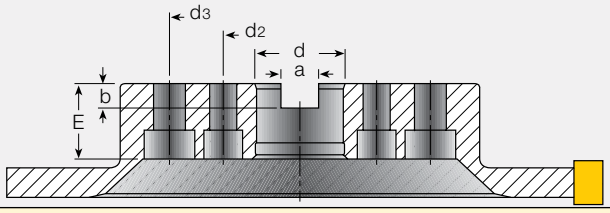
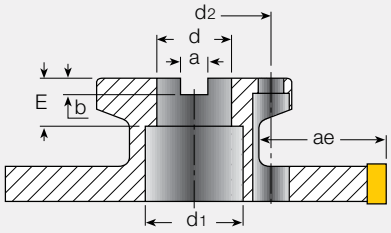
Machining Data for Slitting with SELF-GRIP and TANG-SLIT Cutters & Recommended Cutting Speed (M/min)

ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Group No.(1)	Coated			Uncoated
							IC328	IC928 / IC830	IC908 / IC808	IC20
P	non-alloy steel and cast steel, free cutting steel	< 0.25 %C	annealed	420	125	1	A 80-150	A 80-160	B 120-220	
		>= 0.25 %C	annealed	650	190	2	A 80-130	A 80-180	B 120-200	
		< 0.55 %C	quenched and tempered	850	250	3	A 80-130	A 80-180	B 120-200	
		>= 0.55 %C	annealed	750	220	4	A 60-110	A 70-150	B 100-170	
			quenched and tempered	1000	300	5	A 60-100	A 70-160	B 100-180	
	low alloy and cast steel (less than 5% of alloying elements)		annealed	600	200	6	A 80-140	A 70-160	B 120-190	
			quenched and tempered	930	275	7	A 60-120	A 70-140	B 100-180	
				1000	300	8	A 60-120	A 70-140	B 100-180	
				1200	350	9	A 60-110	A 70-110	B 80-120	
	high alloyed steel, cast steel and tool steel		annealed	680	200	10	A 60-80	A 70-90	B 80-120	
			quenched and tempered	1100	325	11	A 50-70	A 50-80	B 60-100	
	stainless steel and cast steel		ferritic/martensitic	680	200	12	50-110	60-140	70-180	
			martensitic	820	240	13	50-100	60-120	60-160	
M	stainless steel		austenitic	600	180	14	50-100	60-120	60-160	
K	grey cast iron (GG)		ferritic/pearlitic		180	15			115-140	95-110
			pearlitic		260	16			90-120	70-100
	cast iron nodular (GGG)		ferritic		160	17			90-140	70-110
			pearlitic		250	18			70-100	55-80
	malleable cast iron		ferritic		130	19			115-140	95-110
			pearlitic		230	20			90-120	70-100
N	aluminum-wrought alloys		not cureable		60	21				250max
			cured		100	22				250max
	aluminum-cast alloys	<=12% Si	not cureable		75	23				250max
			cured		90	24				250max
		>12% Si	high temperature		130	25				250max
	copper alloys	>1% Pb	free cutting		110	26				250max
			brass		90	27				250max
			electrolitic copper		100	28				250max
	non-metallic		duroplastics, fiber plastics			29				
			hard rubber			30				
S	high temp. alloys	Fe based	annealed		200	31			40-50	30-40
			cured		280	32			30-40	20-30
		Ni or Co based	annealed		250	33			30-40	20-30
			cured		350	34			30-40	20-30
			cast		320	35			20-30	15-25
	titanium ti alloys			RM 400		36			30-40	15-25
			alpha+beta alloys cured	RM 1050		37			30-40	20-30
H	hardened steel		hardened		55 HRC	38			25-50	
			hardened		60 HRC	39			30-40	
	chilled cast iron		cast		400	40			50-60	10-20
	cast iron		hardened		55 HRC	41			30-50	

For machining aluminum, use IC20, maximum cutting speed corresponds to the maximum RPM indicated on the cutter A - First choice B - Second choice
Recommendations are for normal machining conditions
If excessive wear occurs, select insert with higher hardness
If chipping or breakage occurs, select insert with more toughness
(1) For workpiece materials list, see pages 820-910

Slot Milling Cutters

Arbor Hole Styles and Dimensions

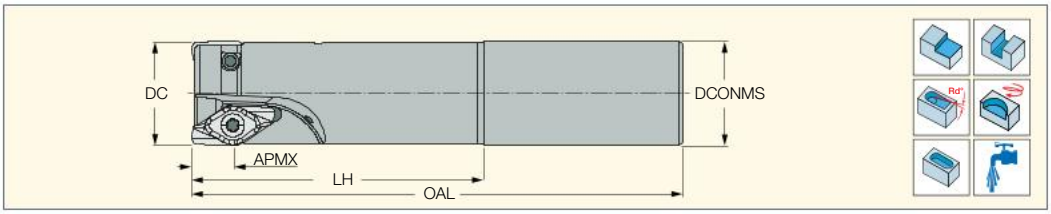
Style A	D [DCONMS]	E	D1		A	B
	16	18	14		8.4	5.6
	22	20	18		10.4	6.5
	27	22	20		12.4	7.0
	32	25	27		14.4	8.1
Style B	**D [DCONMS]**	**E**	**D1**		**A**	**B**
	22	20	29		10.9	6.5
	27	28	36		12.4	7.0
	32	30	43		14.4	8.0
	40	33	53		16.4	8.0
Style C	**D [DCONMS]**	**E**	**D1**	**D2**	**A**	**B**
	40	33	55	66.7	16.4	9.0
	60	45	90	101.6	25.7	14.0
Style D	**D [DCONMS]**	**E**	**D1**	**D3**	**A**	**B**
	60	45	101.6	177.8	25.7	14.0
Style E	**D [DCONMS]**	**E**	**D1**	**D3**	**A**	**B**
	40	33	55	66.7	16.4	9.0
	60	45	63	101.6	25.7	14.0

CUTTERS FOR ALUMINUM

HELIALU

HSM90S EAL-14

Long Reach Endmills Carrying HSM90S APCR 1405... Inserts for Machining Aluminum

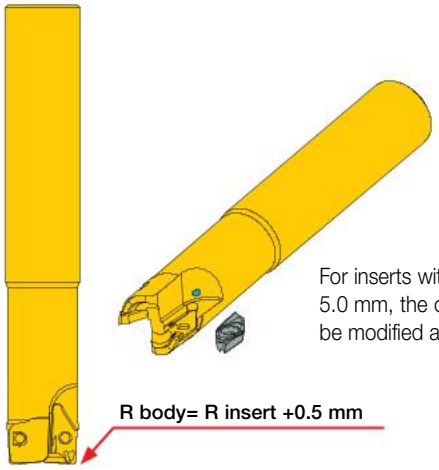


Designation	DC	APMX(1)	CICT(2)	LH	OAL	DCONMS	RPMX(3)	RMPX°(4)	kg			
HSM90S EAL-D32-2-C32-14	32.00	13.50	2	80.0	200.00	32.00	37500	10.0	1.02	SR M5X0.8IP20-1S	BLD IP20/M7	SW6-T-SH

- Important: When machining at very high cutting speeds it is recommended to replace the screw when replacing the insert
- Insert tightening torque: 6 (Nxm)

(1) D.O.C. changes according to insert radius. APMX 13.5 is the value for HSM90S APCR 140550R-P insert
(2) Number of inserts (or edges for solid tool)
(3) Maximum RPM
(4) Maximum ramping angle

For inserts, see pages: HSM90S APCR 1405 (533)



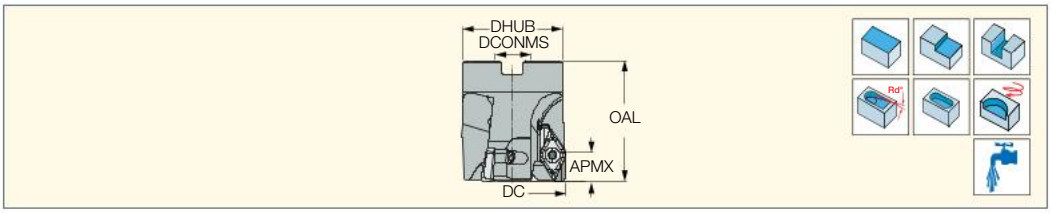
For inserts with a corner radius larger than 5.0 mm, the corner of the pocket must be modified according to the drawing.

R body= R insert +0.5 mm

HELIALU

HSM90S FAL-14

90° Face Mills Carrying Super Positive and Polished Rake Inserts for Machining Aluminum at High Rotation Speeds

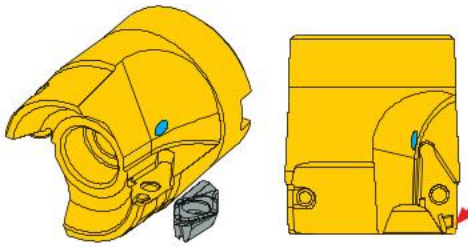


Designation	DC	CICT(1)	APMX(2)	OAL	DHUB	DCONMS	Arbor(3)	RMPX°(4)	RPMX(5)	kg
HSM90S FAL-D050-3-22-14	50.00	3	13.50	57.00	47.00	22.00	A	8.0	38000	0.42
HSM90S FAL-D050-4-22-14	50.00	4	13.50	57.00	47.00	22.00	A	7.0	33000	0.43

- Important: When machining at very high cutting speeds it is recommended to replace the screw when replacing the insert
- Insert tightening torque: 6 (Nxm)

(1) Number of inserts (or edges for solid tool)
(2) D.O.C. changes according to insert radius. APMX 13.5 is the value for HSM90S APCR 140550R-P insert
(3) For adaptation options, see page 622
(4) Maximum ramping angle
(5) Maximum RPM

For inserts, see pages: HSM90S APCR 1405 (533)



For inserts with a corner radius larger than 5.0 mm, the corner of the pocket must be modified according to the drawing.

R body= R insert +0.5 mm

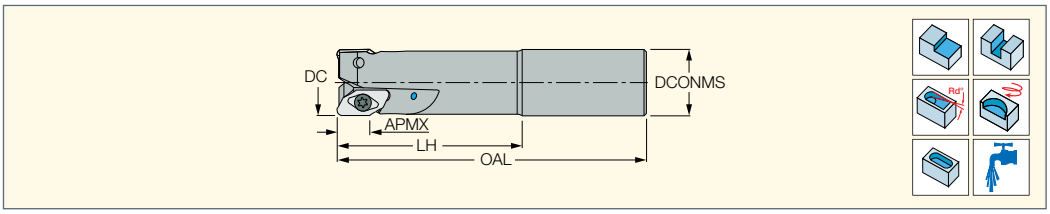
Spare Parts

Designation				
HSM90S FAL-14	SR M5X0.8IP20-1	BLD IP20/M7	SW6-T-SH	SR M10X40DIN912

HELIALU

HM90 EAL-16

Long Reach Endmills Carrying HM90 APCR 1605 Inserts for Machining Aluminum



Designation	DC	CICT(1)	APMX(2)	LH	OAL	DCONMS	Shank(3)	RPMX(4)	RMPX°(5)	kg
HM90 EAL-D25-C24L180-16	25.00	1	15.50	-	180.00	24.00	C	43862	25.9	0.56
HM90 EAL-D25-C25L125-16	25.00	1	15.50	69.0	125.00	25.00	C	43862	25.9	0.38
HM90 EAL-D25-C25L200-16	25.00	1	15.50	65.0	200.00	25.00	C	43862	25.9	0.62
HM90 EAL-D32-C32L150-16	32.00	2	15.50	90.0	150.00	32.00	C	29930	22.4	0.74
HM90 EAL-D32-C32L200-16	32.00	2	15.50	80.0	200.00	32.00	C	29930	22.4	1.02
HM90 EAL-D40-C32L220-16	40.00	2	15.50	45.0	220.00	32.00	C	26770	16.9	1.28

• Insert tightening torque: 600 Nxcm • HM90 APCR 1605..R-P inserts with corner radii 3.2 and 4.0 mm require pocket modification, corners larger than 4.5 mm should be used only on BR tools.

• For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)

(2) D.O.C. changes according to insert radius. APMX 15.5 is the value for HM90 APCR 160520R-P insert

(3) C-Cylindrical

(4) Maximum RPM

(5) Maximum ramping angle

For inserts, see pages: HM90 APCR 1605..R-P (534)

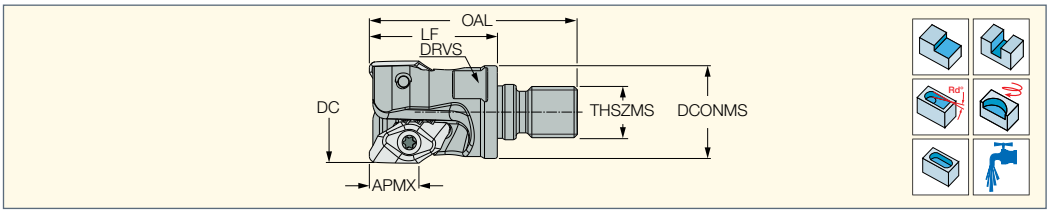
Spare Parts

Designation			
HM90 EAL-D25-C24L180-16	SR 14-592SM	BLD T20/M7	SW6-T
HM90 EAL-D25-C25L125-16	SR 14-592SM	BLD T20/S7	SW6-T
HM90 EAL-D25-C25L200-16	SR 14-592SM	BLD T20/M7	SW6-T
HM90 EAL-D32-C32L150-16	SR 14-0180	BLD T20/M7	SW6-T
HM90 EAL-D32-C32L200-16	SR 14-0180	BLD T20/M7	SW6-T
HM90 EAL-D40-C32L220-16	SR 14-0180	BLD T20/M7	SW6-T

HELIALU JET LINE

HM90 EAL-M-16-JHP

90° Endmills with a FLEX-FIT Threaded Adaptation Carrying HM90 APCR 1605... Inserts for Machining Aluminum



Designation	DC	CICT(1)	APMX	DCONMS	THSZMS	LF	OAL	RMPX°(2)	RPMX(3)	DRVS(4)	TQ_3(5)	kg
HM90 EAL D32-2-M16-16-JHP	32.00	2	15.50	29.00	M16	40.00	65.00	22.4	45643	25.0	40	0.13
HM90 EAL D40-2-M16-16-JHP	40.00	2	15.50	29.00	M16	40.00	65.00	16.9	36809	25.0	40	0.18

New

• For adaptation, see page 303 • For user guide, see pages 616-621 • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Number of inserts (or edges for solid tool)

(2) Maximum ramping angle

(3) Maximum RPM

(4) Torque key size

(5) Tool tightening torque (Nxm)

For inserts, see pages: HM90 APCR 1605..R-P (534)

For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

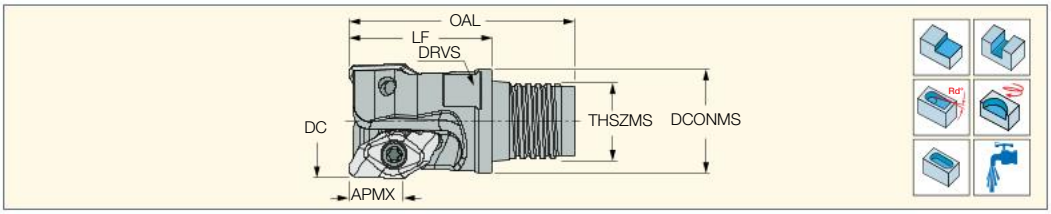
Spare Parts

Designation			
HM90 EAL-M-16-JHP	SR 14-0180	BLD T20/M7	SW6-T

HELIALU JET LINE

HM90 EAL-MM-16-JHP

90° Endmills with a MULTI-MASTER Threaded Adaptation Carrying HM90 APCR 1605... Inserts for Machining Aluminum



Designation	DC	CICT(1)	APMX	DCONMS	THSZMS	LF	OAL	RMPX°(2)	RPMX(3)	DRVS(4)	TQ_3(5)	kg
HM90 EALD125-2MMT21-16JHP	31.75	2	15.50	29.00	T21	39.90	63.00	22.4	45643	24.0	43	0.16
HM90 EALD150-2MMT21-16JHP	38.10	2	15.50	30.00	T21	39.90	63.00	16.9	36809	24.0	43	0.20

New

• For adaptation, see page 303 • For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)

(2) Maximum ramping angle

(3) Maximum RPM

(4) Torque key size

(5) Tool tightening torque Nxm (lbfxin)

For inserts, see pages: HM90 APCR 1605..R-P (534)

For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-HSK (109) • MM S-B (85° conical shanks) (106)

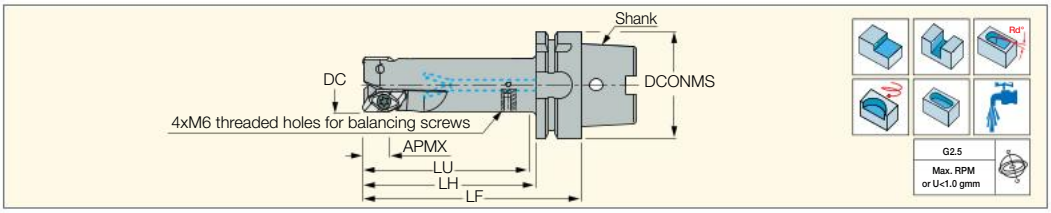
Spare Parts

Designation			
HM90 EAL-MM-16-JHP	SR 14-0180	BLD T20/M7	SW6-T

HELIALU HSK

HM90 EAL-HSK63A-16

Long Reach Endmills with Integral HSK Adaptation Carrying HM90 APCR 1605... Inserts for Machining Aluminum



Designation	DC	APMX(1)	LU	LH	LF	ZEFP	RPMX(2)	RMPX°(3)	DCONMS	Shank	DCP(4)	kg
HM90 EAL32-L100-HSK63A-16	32.00	15.50	97.0	100.00	126.00	2	45600	22.0	63.00	HSK A 63	1	1.06

• Insert tightening torque: 600 Nxcm • HM90 APCR 1605..R-P inserts with corner radii 3.2 and 4.0 mm require pocket modification, corners larger than 4.5 mm should be used only on BR tools

• A cooling tube must be used with all internal coolant HSK spindles (should be ordered separately)

• Kit balancing screws should be ordered separately • For user guide, see pages 616-621

(1) D.O.C. changes according to insert radius. APMX 15.5 is the value for HM90 APCR 160520R-P insert

(2) Maximum RPM

(3) Maximum ramping angle

(4) 1 - Slot for data chip, 0 - Without slot for data chip

For inserts, see pages: HM90 APCR 1605..R-P (534)

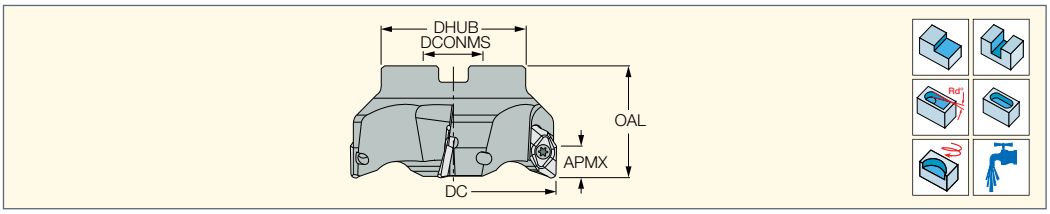
Spare Parts

Designation			
HM90 EAL-HSK63A-16	SR 14-0180	BLD T20/M7	SW6-T

HELIALU

HM90 FAL-16

Face Mills Carrying HM90 APCR 1605... Inserts for Machining Aluminum



Designation	DC	CICT(1)	APMX(2)	OAL	DHUB	DCONMS	RPMX(3)	RMPX°(4)	Arbor(5)	kg
HM90 FAL-D050-22-16	50.00	3	15.50	45.00	47.00	22.00	23944	10.0	A	0.26
HM90 FAL-D063-27-16	63.00	3	15.50	50.00	58.00	27.00	21331	7.0	A	0.55
HM90 FAL-D080-27-16	80.00	3	15.50	50.00	60.00	27.00	18930	6.0	A	0.89
HM90 FAL-D100-32-16	100.00	4	15.50	55.00	70.00	32.00	16931	4.0	B	1.44
HM90 FAL-D125-40-16	125.00	5	15.50	63.00	84.00	40.00	15144	3.0	B	2.36

• Insert tightening torque: 600 Nxcm • HM90 APCR 1605..R-P inserts with corner radii 3.2 and 4.0 mm require pocket modification, corners larger than 4.5 mm should be used only on BR tools

• For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)

(2) D.O.C. changes according to insert radius. APMX 15.5 is the value for HM90 APCR 160520R-P insert

(3) Maximum RPM

(4) Maximum ramping angle

(5) For adaptation options, see page 622

For inserts, see pages: HM90 APCR 1605..R-P (534)

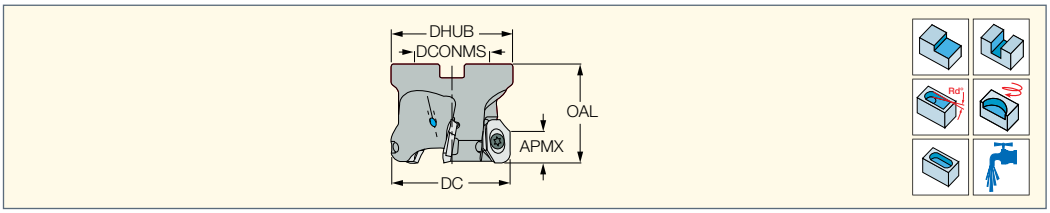
Spare Parts

Designation				
HM90 FAL-D050-22-16	SR 14-0180	BLD T20/M7	SW6-T	SR M10X25 DIN912
HM90 FAL-D063-27-16	SR 14-0180	BLD T20/M7	SW6-T	SR M12X25 DIN 912
HM90 FAL-D080-27-16	SR 14-0180	BLD T20/M7	SW6-T	SR M12X25 DIN 912
HM90 FAL-D100-32-16	SR 14-0180	BLD T20/M7	SW6-T	SR M4X5 DIN916
HM90 FAL-D125-40-16	SR 14-0180	BLD T20/M7	SW6-T	SR M4X5 DIN916

HELIALU

HM90 FAL-16BR

Face Mills Carrying HM90 APCR 1605... Inserts with Corner Radii Equal to or Larger Than 5 mm for Machining Aluminum



Designation	DC	CICT(1)	APMX	OAL	DHUB	DCONMS	RPMX(2)	RMPX°(3)	Arbor(4)	kg
HM90 FAL-D050-22-16BR	50.00	3	15.50	45.00	49.00	22.00	23944	11.0	A	0.28

• Note: HM90 APCR 1605..R-P inserts with corner radii smaller than 5 mm should not be used on BR tools • Insert tightening torque: 6Nxm

(1) Number of inserts (or edges for solid tool)

(2) Maximum RPM

(3) Maximum ramping angle

(4) For adaptation options, see page 622

For inserts, see pages: HM90 APCR 1605..R-P (534)

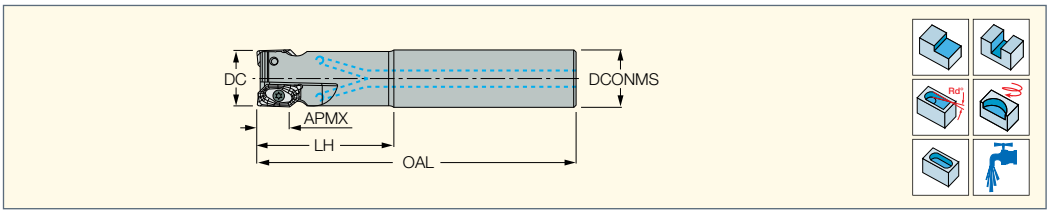
Spare Parts

Designation				
HM90 FAL-16BR	SR 14-0180	BLD T20/M7	SW6-T	SR M10X25 DIN912

HELIALU

HM90 EAL-15

Long Reach Endmills Carrying HM90 AXCR 1505... Inserts for Machining Aluminum



Designation	DC	CICT(1)	APMX	LH	OAL	DCONMS	Shank(2)	RPMX(3)	RMPX°(4)	kg			
HM90 EAL-D25-C25-L140-15	25.00	2	14.00	60.0	140.00	25.00	C	37500	21.0	0.44	SR 14-562	SW6-SD	BLD T10/S7
HM90 EAL-D32-C32-L150-15	32.00	3	14.00	70.0	150.00	32.00	C	31250	13.0	0.75	SR 14-562	SW6-SD	BLD T10/S7
HM90 EAL-D40-C32-L160-15	40.00	3	14.00	70.0	160.00	32.00	C	26040	9.0	0.99	SR 14-562	SW6-SD	BLD T10/S7

- HM90 AXCR 150540R-P insert with a 4.0 mm or larger corner radius requires pocket modification

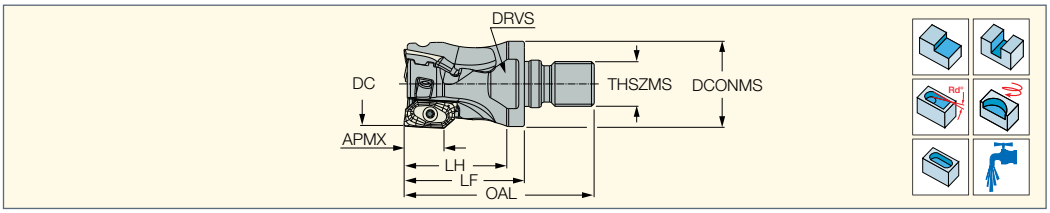
(1) Number of inserts (or edges for solid tool)
(2) C-Cylindrical
(3) Maximum RPM
(4) Maximum ramping angle

For inserts, see pages: HM90 AXCR 1505 (533)

HELIALU JET LINE

HM90 EAL-M-15-JHP

90° Endmills with a FLEX-FIT Threaded Adaptation Carrying HM90 AXCR 1505... Inserts for Machining Aluminum



Designation	DC	CICT(1)	APMX	DCONMS	THSZMS	LH	LF	OAL	RMPX°(2)	RPMX(3)	DRVS(4)	TQ_3(5)	kg
HM90 EAL D25-2-M12-15-JHP	25.00	2	14.00	21.00	M12	29.3	39.30	61.30	21.0	37500	17.0	40	0.08
HM90 EAL D32-3-M16-15-JHP	32.00	3	14.00	30.50	M16	34.5	41.90	66.90	13.0	31250	25.0	40	0.17

New

- For adaptation, see page 303 • For user guide, see pages 616-621 • When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Number of inserts (or edges for solid tool)
(2) Maximum ramping angle
(3) Maximum RPM
(4) Torque key size
(5) Tool tightening torque (Nxm)

For inserts, see pages: HM90 AXCR 1505 (533)
For holders, see pages: BT-ODP (FLEX-FIT) (359) • C#-ODP (FLEX-FIT) (359) • CAB M-M (FLEX-FIT) (358) • DIN69871-ODP (360) • ER-ODP (360) • HSK A-ODP (FLEX-FIT) (361) • S M (357) • S M-C-H (357)

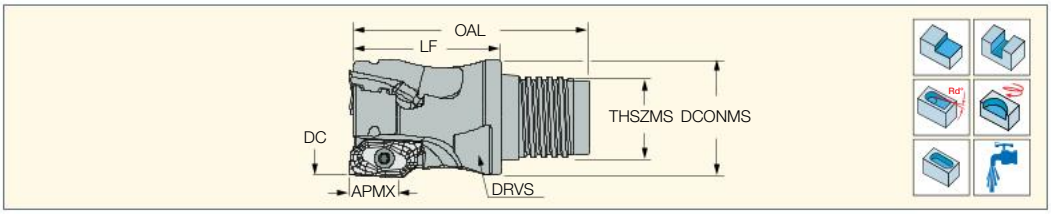
Spare Parts

Designation			
HM90 EAL-M-15-JHP	SR 14-562	SW6-SD	BLD T10/S7

HELIALU JET LINE

HM90 EAL-MM-15-JHP

90° Endmills with a MULTI-MASTER Threaded Adaptation Carrying HM90 AXCR 1505... Inserts for Machining Aluminum



Designation	DC	CICT(1)	APMX	DCONMS	THSZMS	LF	OAL	RMPX°(2)	RPMX(3)	DRVS(4)	TQ_3(5)	kg
HM90 EALD100-2MMT15-15JHP	25.40	2	14.00	24.00	T15	39.50	56.50	25.0	37500	20.0	43	0.10
HM90 EALD125-3MMT21-15JHP	31.75	3	14.00	30.00	T21	39.90	63.00	13.0	31250	24.0	43	0.17

New

- For adaptation, see page 303 • For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)
(2) Maximum ramping angle
(3) Maximum RPM
(4) Torque key size
(5) Tool tightening torque (Nxm)

For inserts, see pages: HM90 AXCR 1505 (533)
For holders, see pages: MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER-H (108) • MM TS-A (105)

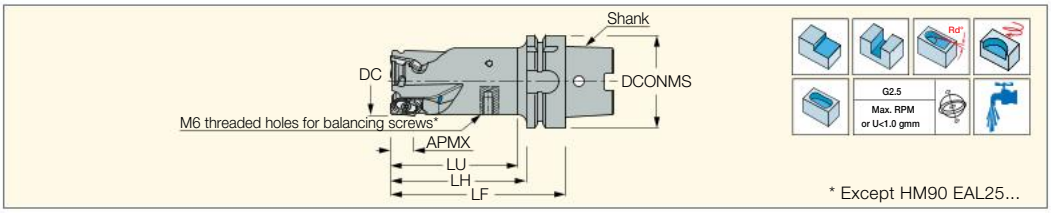
Spare Parts

Designation			
HM90 EAL-MM-15-JHP	SR 14-562	SW6-SD	BLD T10/S7

HELIALU HSK

HM90 EAL-HSK63A-15

Long Reach Endmills with Integral HSK Adaptation Carrying HM90 AXCR 1505... Inserts for Machining Aluminum



Designation	DC	LU	ZEFP	APMX	LH	LF	RPMX(2)	RMPX°(3)	DCONMS	Shank	DCP(4)	MIID(5)	kg
HM90 EAL25-L75-HSK63A-15 (1)	25.00	70.00	2	14.00	75.00	101.00	31250	21.0	63.00	HSK 63A	1	HM90 AXCR 150504R-P	0.82
HM90 EAL32-L65-HSK63A-15	32.00	60.00	3	14.00	65.00	91.00	31250	13.0	63.00	HSK 63A	1	HM90 AXCR 150504R-P	0.90
HM90 EAL32-L100-HSK63A-15	32.00	95.00	3	14.00	100.00	126.00	31250	13.0	63.00	HSK 63A	1	HM90 AXCR 150504R-P	1.08
HM90 EAL40-L80-HSK63A-15	40.00	75.00	3	14.00	80.00	106.00	26040	9.0	63.00	HSK 63A	1	HM90 AXCR 150504R-P	1.17
HM90 EAL40-L120-HSK63A-15	40.00	115.00	3	14.00	120.00	146.00	26040	9.0	63.00	HSK 63A	1	HM90 AXCR 150504R-P	1.52

- 32 and 40 mm diameter tools feature balancing adjustment screws • A cooling tube must be used with all internal coolant HSK spindles (should be ordered separately)
- Kit balancing screws should be ordered separately • Insert tightening torque: 3.2 Nxm
- HM90 AXCR 150540R-P insert with a 4.0 mm or larger corner radius requires pocket modification

(1) Without threaded holes for balancing screws
(2) Maximum RPM
(3) Maximum ramping angle
(4) 1 - Slot for data chip, 0 - Without slot for data chip
(5) Master insert identification

For inserts, see pages: HM90 AXCR 1505 (533)

Spare Parts

Designation			
HM90 EAL-HSK63A-15	SR 14-562	SW6-SD	BLD T10/S7

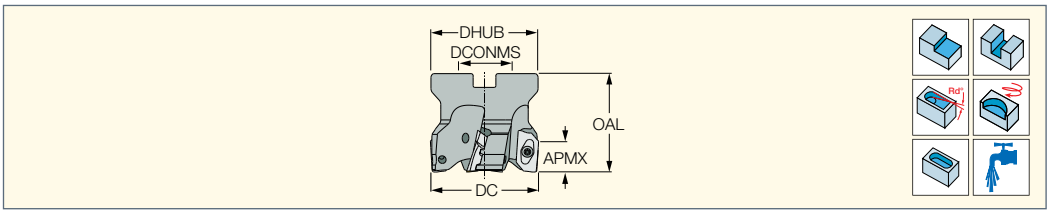
HM90 EAL...15

HM90 EAL...15 For indexable inserts with a corner radius larger than 4.0 mm, the basic body of the tool must be modified according to the drawing above (can be done by **ISCAR**).

F - The cutting force in ramping applications

HELIALU

HM90 FAL-15
Face Mills Carrying HM90 AXCR 1505.. Inserts for Machining Aluminum



Designation	DC	CICT(1)	APMX	OAL	DHUB	DCONMS	Arbor(2)	RPMX(3)	RMPX°(4)	kg
HM90 FAL-D050-4-22-15	50.00	4	14.00	45.00	49.00	22.00	A	23000	6.5	0.30
HM90 FAL-D063-5-27-15	63.00	5	14.00	50.00	53.00	27.00	A	20000	5.5	0.57

- HM90 AXCR 150540R-P insert with a 4.0 mm or larger corner radius requires pocket modification

(1) Number of inserts (or edges for solid tool)
(2) For adaptation options, see page 622
(3) Maximum RPM
(4) Maximum ramping angle

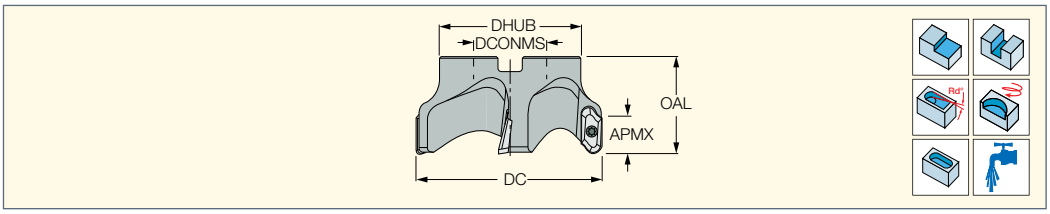
For inserts, see pages: HM90 AXCR 1505 (533)

Spare Parts

Designation				
HM90 FAL-D050-4-22-15	SR 14-562	BLD T10/S7	SW6-SD	SR M10X25 DIN912
HM90 FAL-D063-5-27-15	SR 14-562	BLD T10/S7	SW6-SD	SR M12X25 DIN 912

HELIALU

HM90 FAL-22
Face Mills Carrying HM90 APCR 2206... Inserts for Machining Aluminum



Designation	DC	APMX	CICT(1)	OAL	DHUB	DCONMS	Arbor(2)	RMPX°(3)	RPMX(4)	MIID(5)	kg
HM90 FAL-D063-27-22	63.00	20.00	3	50.00	62.00	27.00	A	7.0	16000	HM90 APCR 220605R-P	0.48
HM90 FAL-D080-27-22	80.00	20.00	3	50.00	70.00	27.00	A	5.0	14000	HM90 APCR 220605R-P	0.81

- D.O.C. changes according to insert radius • APMX 20.5 is the value for HM90 APCR220650 • Insert tightening torque: 6 Nxm
- When using this cutter with a 6.4 mm radius insert, the seat must be changed to assure the insert's compatibility with the tool
- For user guide, see pages 616-621

(1) Number of inserts (or edges for solid tool)
(2) For adaptation options, see page 622
(3) Maximum ramping angle
(4) Maximum RPM
(5) Master insert identification

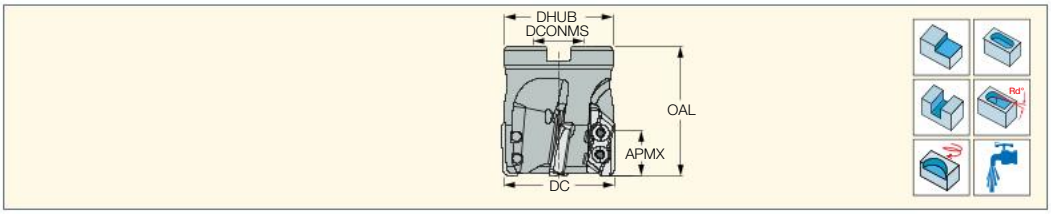
For inserts, see pages: HM90 APCR 2206..R-P (535) • HM90 APCR 220605-CS (535)

Spare Parts

Designation				
HM90 FAL-22	SR 14-0180	BLD T20/M7	SW6-T	SR M12X25 DIN 912

HELIALU

HSM90S FAL-22
90° Face Mills Carrying Super Positive and Polished Rake Inserts for Machining Aluminum at High Rotation Speeds



Designation	DC	APMX	CICT(1)	DCONMS	DHUB	OAL	Arbor(2)	RMPX°(3)	RPMX(4)	MIID(5)	kg
HSM90S FAL-D050-3-22-22	50.00	22.00	3	22.00	48.00	57.00	A	7.0	31000	HSM90S APCR 2207	0.40
HSM90S FAL-D050-4-22-22	50.00	22.00	4	22.00	48.00	57.00	A	7.0	31000	HSM90S APCR 2207	0.41

- Important: When machining at very high cutting speeds it is recommended to replace the screw when replacing the insert
- Insert tightening torque: 6 (Nxm)

(1) Number of inserts (or edges for solid tool)
(2) For adaptation options, see page 622
(3) Maximum ramping angle
(4) Maximum RPM
(5) Master insert identification

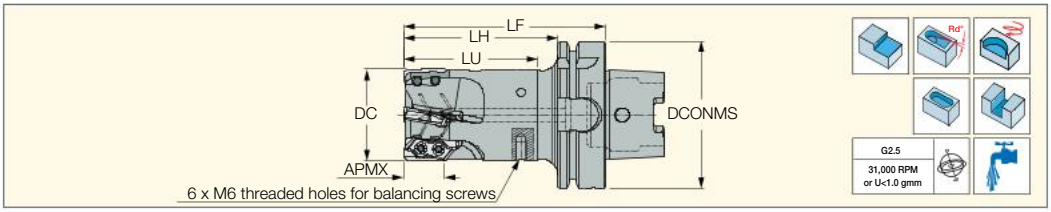
For inserts, see pages: HSM90S APCR 2207 (535)

Spare Parts

Designation				
HSM90S FAL-22	SR M5x0.8 20IP-13343	BLD IP20/M7	SW6-T-SH	SR M10X40DIN912

HELIALU HSK

HSM90SFD-HSK A63/80-22
90° Endmills with Integral HSK Adaptation Carrying Super Positive Inserts for Machining Aluminum at High Rotation Speeds



Designation	DC	APMX	LU	LH	LF	CICT(1)	DCONMS	Shank	RMPX°(2)	RPMX(3)	DCP(4)	kg	MIID(5)
HSM90SFD50-3-63A/80MQL-22	50.00	22.00	73.10	84.0	110.00	3	80.00	HSK A63/80	7.0	31000	1	1.93	HSM90S APCR 220708R
HSM90SFD50-4-63A/80MQL-22	50.00	22.00	73.10	84.0	110.00	4	80.00	HSK A63/80	7.0	31000	1	1.93	HSM90S APCR 220708R

- A cooling tube must be used with all internal coolant HSK spindles (to be order separately
- Important: When machining at very high cutting speeds and the insert needs replacing, it is also recommended to replace the screws
- Kit balancing screws to be order separately • Insert tightening torque: 6 (Nxm)

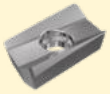
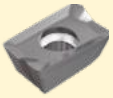
(1) Number of inserts (or edges for solid tool)
(2) Maximum ramping angle
(3) Maximum RPM
(4) 1 - Slot for data chip, 0 - Without slot for data chip
(5) Master insert identification

For inserts, see pages: HSM90S APCR 2207 (535)

Spare Parts

Designation				
HSM90SFD-HSK A63/80-22	SR M5x0.8 20IP-13343	BLD IP20/M7	SW6-T-SH	COOLING TUBE HSK A63

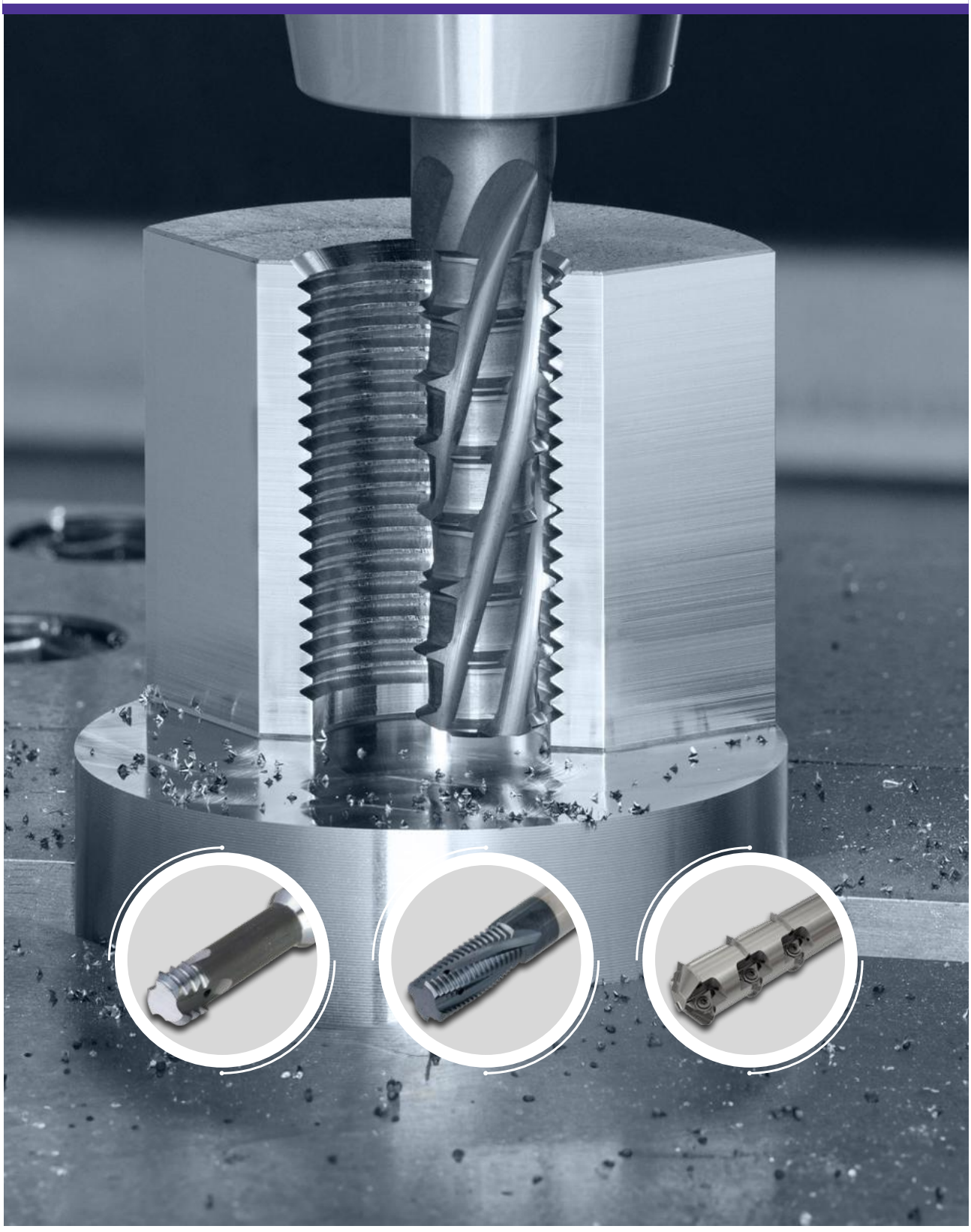
Following is a Reference List of Additional Inserts For Machining Aluminum Using General Use Milling Cutters

	Insert for Aluminum Designation	Insert Page	Milling Cutters Designation	Tool Page
	HP ANCR	509	HP E90AN HP F90AN HP ANK	21-22 229 274
	HM90 ADCR 1505PDFR-P ADCR 1505PDFR	522 523	E90AC HM90 F90A HM90 E90AD SM	50 247-248 43-46 291
	HM90 APCR 100304PDFR-P/DP APCR 1003PDFR-P	515 517	APK HM90 F90AP HM90 E90A	279 236-237 32 37-38
	HP ADCR 1906 HP ADCR 2207	532 533	HP E90AT HP F90AT	49 253-254
	P290 ACCT...-HL-P P290 ACKT...FWE-P	529	P290 ACK/EPW/FPW/SM	280-282 48-49 253
	HM390 TPCR 1003 HM390 TDCR 1505	513 514	HM390 ETP/FTP HM390 ETD/FTD	29-31 235 42 246
	LNAR 1106	550 551	F90LN-R/L-N11	240
	LNAR 1506	555 556	F90LN-R/L-N15	245
	T490 LNAR-P	548	T490 ELN T490 FLN T490 LNK T490 SM	24-25 231 244 250 277-278 283-284 286-287
	OECR 060405AER-P	575	HOE-R06 HOF-R06	256

Following is a Reference List of Additional Inserts For Machining Aluminum Using General Use Milling Cutters

	Insert for Aluminum Designation	Insert Page	Milling Cutters Designation	Tool Page
	OFCR 07T3-AEN OFCR 07T3-AEN-P OFCR 07T3-RW-P	577	HOF-R07	257
	IQ845 SYHU... ADN-P	567	IQ845 FSY	264
	SEHT-AFN	581	F45ST	263
	SDMR 1205 PDR-HQ-M	564	F90SD	241
	FFQ4 SOMT...HP-P	591	FFQ4 12	346
	RCMT... -FW-F20-P RCCT... -MO-P	604 603	ERW, FRW	321-323
MULTI-MASTER and Solid Carbide Endmills for Machining Aluminum				
	MM EA MM EA-CF MM EBA	98-99 87-88	MM S... MM TS-A MM GRT TS CAB MM CAB MM S-ER...	101-111
Solid Carbide Endmills for Aluminum				
	ECA-H3-CF ECA-B-2 ECA-B-3 ECA-F-2	186-188 191 192 193		
	ERC-E-3 ECR-B3-R	189 190		

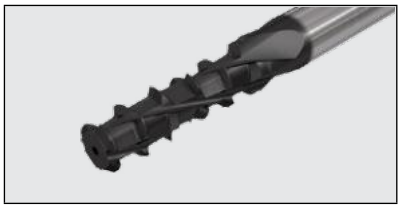
THREAD MILLING TOOLS



ISCAR Thread

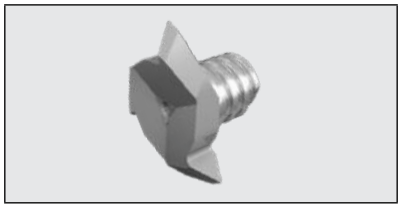
SOLID-THREAD
MTEC, MTECB, MTECZ, MTECQ,MTECH
pages 446-449,453-455,459-461,462-465

SOLID-THREAD
MTECS, MTECD, MTECSH
pages 450-451,456-458,459,461-462



SOLID-M-THREAD
MTECK, MTECM
pages 452,458-459

SOLID-THREAD
MTECI
page 466



MULTI-MASTER
MM TRD
page 470

MULTI-MASTER
MM TRF
pages 468-469

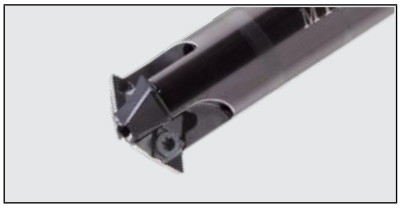
MULTI-MASTER
MT-...-MM
pages 471-472

T-SLOT
SD TRD
page 467

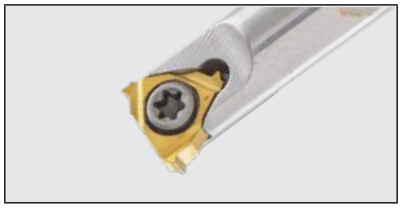
MILL-THREAD Endmill
MTE
pages 473-475

MILL-THREAD Endmill
MTSRH
page 476

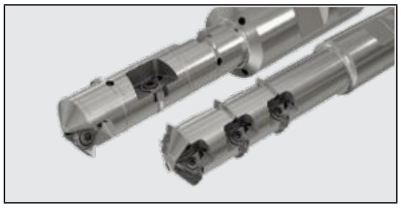
MILL-THREAD Endmill
MTSR M.I. S.P
page 479



MILL-THREAD Endmill
MTSR M.I. S.P.-U
page 479



MILL-THREAD Endmill
MTET
page 477



QUICK-M-THREAD
MTET Step Release
page 478

MILL-THREAD Shell Mill
MTF-MULTI
page 475

MILL-THREAD Shell Mill
MTSRH
page 477

MILL-THREAD Shell Mill
MTFLE
page 476

ISCAR THREAD - Solid Carbide Endmills Designation Code Key

MTEC□ — Mill Thread endmill carbide

- (blank) - without coolant hole
- B - central coolant hole
- Z - coolant holes in flutes
- Q - central coolant hole and reduced neck diameter
- S - for small internal threads for general use
- SH - for small internal threads in hard materials
- I - single point design of cutting head

06 — shank diameter

04 — cutting diameter

C — no. of flutes
- C = 3 flutes
- D = 4 flutes
- E = 5 flutes
- F = 6 flutes

14 — APMX

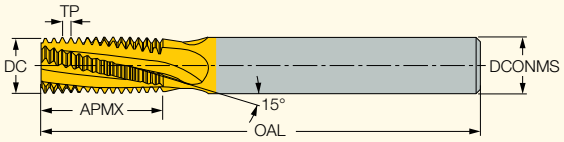
1.0 — thread pitch

ISO — thread standard

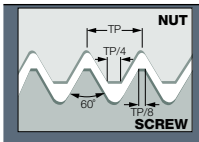
IC908 — carbide grade

SOLIDTHREAD

MTEC-ISO
Solid Carbide Internal Threading Endmills for ISO Thread Profile



Application: General engineering



Designation	Dimensions									IC908
	TP[1]	M Coarse	M Fine	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	
MTEC 06022C5 0.5ISO	0.500	M3	=>4	6.00	2.20	3	5.30	58.00	C	●
MTEC 06038C10 0.5ISO	0.500	-	=>5	6.00	3.80	3	10.30	58.00	C	●
MTEC 06031C7 0.7ISO	0.700	M4	=>5	6.00	3.10	3	7.40	58.00	C	●
MTEC 06045C10 0.75ISO	0.750	-	=>6	6.00	4.50	3	10.00	58.00	C	●
MTEC 06036C9 0.8ISO	0.800	M5	=>6	6.00	3.60	3	9.20	58.00	C	●
MTEC 0604C10 1.0ISO	1.000	M6	=>7	6.00	4.00	3	10.50	58.00	C	●
MTEC 0604C14 1.0ISO	1.000	M6	=>7	6.00	4.00	3	14.50	58.00	C	●
MTEC 0606C12 1.0ISO	1.000	-	=>9	6.00	6.00	3	12.50	58.00	C	●
MTEC 0808D16 1.0ISO	1.000	-	=>10	8.00	8.00	4	16.50	64.00	C	●
MTEC 0605C14 1.25ISO	1.250	M8	=>10	6.00	5.00	3	14.40	58.00	C	●
MTEC 0605C19 1.25ISO	1.250	M8	=>10	6.00	5.00	3	19.40	58.00	C	●
MTEC 0807C17 1.5ISO	1.500	M10	=>12	8.00	7.00	3	17.30	64.00	C	●
MTEC 0807C24 1.5ISO	1.500	M10	=>12	8.00	7.00	3	24.80	76.00	C	●
MTEC 1010D21 1.5ISO	1.500	-	=>14	10.00	10.00	4	21.80	73.00	C	●
MTEC 1616F33 1.5ISO	1.500	-	=>20	16.00	16.00	6	33.80	100.00	C	●
MTEC 0808C20 1.75ISO	1.750	M12	=>14	8.00	8.00	3	20.10	64.00	C	●
MTEC 0808C28 1.75ISO	1.750	M12	=>14	8.00	8.00	3	28.90	76.00	C	●
MTEC 1010C27 2.0ISO	2.000	M14	=>15	10.00	10.00	3	27.00	73.00	C	●
MTEC 1010C39 2.0ISO	2.000	M14	=>15	10.00	10.00	3	39.00	100.00	C	●
MTEC 1212D27 2.0ISO	2.000	-	=>18	12.00	12.00	4	27.00	84.00	C	●
MTEC 2020F41 2.0ISO	2.000	-	=>26	20.00	20.00	6	41.00	105.00	C	●
MTEC 1414D33 2.5ISO	2.500	M20	=>22	14.00	14.00	4	33.80	84.00	C	●
MTEC 1414D48 2.5ISO	2.500	M20	=>22	14.00	14.00	4	48.80	107.00	C	●
MTEC 1616C40 3.0ISO	3.000	M24	=>25	16.00	16.00	3	40.50	100.00	C	●
MTEC 1616C58 3.0ISO	3.000	M24	=>25	16.00	16.00	3	58.50	120.00	C	●

• For user guide, see pages 497-506

(1) Thread pitch

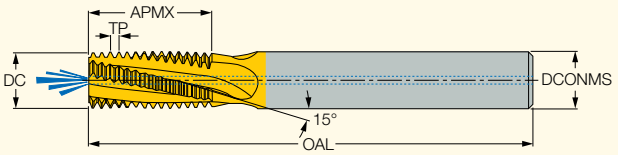
(2) Number of flutes

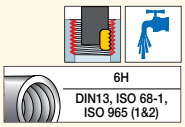
(3) C-Cylindrical

SOLIDTHREAD

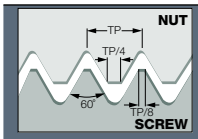
MTECB-ISO

Solid Carbide Internal Threading Endmills with Coolant Hole for ISO Thread Profile





Application: General engineering



Designation	Dimensions									IC908
	TP[1]	M Coarse	M Fine	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	
MTECB 06038C10 0.5ISO	0.500	-	=>5	6.00	3.80	3	10.30	58.00	C	●
MTECB 06031C7 0.7ISO	0.700	M4	=>5	6.00	3.10	3	7.40	58.00	C	●
MTECB 06045C10 0.75ISO	0.750	-	=>6	6.00	4.50	3	10.10	58.00	C	●
MTECB 1010D24 0.75ISO	0.750	-	=>12	10.00	10.00	4	24.40	73.00	C	●
MTECB 06038C9 0.8ISO	0.800	M5	=>6	6.00	3.80	3	9.20	58.00	C	●
MTECB 06046C10 1.0ISO	1.000	M6	=>7	6.00	4.60	3	10.50	58.00	C	●
MTECB 06046C14 1.0ISO	1.000	M6	=>6	6.00	4.60	3	14.50	58.00	C	●
MTECB 0606C12 1.0ISO	1.000	-	=>9	6.00	6.00	3	12.50	58.00	C	●
MTECB 0808D16 1.0ISO	1.000	-	=>10	8.00	8.00	4	16.50	64.00	C	●
MTECB 1010D24 1.0ISO	1.000	-	=>12	10.00	10.00	4	24.50	73.00	C	●
MTECB 0606C14 1.25ISO	1.250	M8	=>10	6.00	6.00	3	14.40	58.00	C	●
MTECB 0606C19 1.25ISO	1.250	M8	=>10	6.00	6.00	3	19.40	58.00	C	●
MTECB 1212D26 1.5ISO	1.500		=>16	12.00	12.00	4	26.30	84.00	C	●
MTECB 08078C17 1.5ISO	1.500	M10	=>12	8.00	7.80	3	17.00	64.00	C	●
MTECB 08078C24 1.5ISO	1.500	M10	=>12	8.00	7.80	3	24.80	76.00	C	●
MTECB 1010D21 1.5ISO	1.500	-	=>14	10.00	10.00	4	21.80	73.00	C	●
MTECB 1616F33 1.5ISO	1.500	-	=>20	16.00	16.00	6	33.80	105.00	C	●
MTECB 1009C20 1.75ISO	1.750	M12	=>12	10.00	9.00	3	20.10	73.00	C	●
MTECB 1009C28 1.75ISO	1.750	M12	=>12	10.00	9.00	3	28.90	73.00	C	●
MTECB 1010C27 2.0ISO	2.000	M14	=>15	10.00	10.00	3	27.00	73.00	C	●
MTECB 12118D27 2.0ISO	2.000	M16	=>17	12.00	11.80	4	27.00	84.00	C	●
MTECB 12118D39 2.0ISO	2.000	M16	=>17	12.00	11.80	4	39.00	105.00	C	●
MTECB 1615E33 2.5ISO	2.500	M20	=>22	16.00	15.00	5	33.80	105.00	C	●
MTECB 1615E48 2.5ISO	2.500	M20	=>22	16.00	15.00	5	48.80	105.00	C	●
MTECB 2018D58 3.0ISO	3.000	M24	=>25	20.00	18.00	4	58.50	120.00	C	●

• With internal coolant hole • For user guide, see pages 497-506

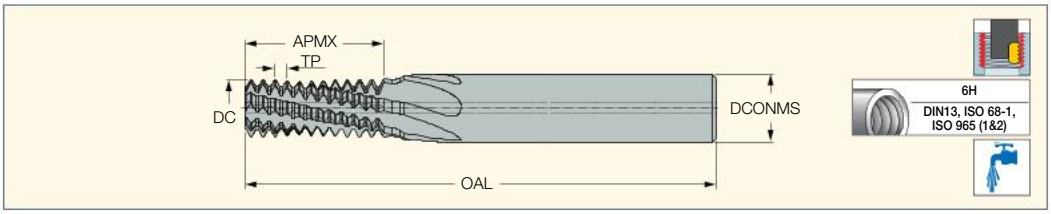
(1) Thread pitch

(2) Number of flutes

(3) C-Cylindrical

SOLIDMTHREAD

MTECBF-ISO
Solid Carbide Internal Threading Endmills with a Coolant Hole. Intended for ISO Thread Profiles.



Designation	Dimensions									IC908
	TP[1]	M Coarse	M Fine	DCONMS	DC	NOF[2]	APMX	OAL	Shank	
MTECBF06048F10 1.0ISO	1.000	M6	=>7	6.00	4.80	6	10.20	58.00	C	●
MTECBF08064G14 1.25ISO	1.250	M8	=>10	8.00	6.40	7	14.00	64.00	C	●
MTECBF 1008G16 1.5ISO	1.500	M10	=>12	10.00	8.00	7	16.70	73.00	C	●
MTECBF12095G20 1.75ISO	1.750	M12	=>12	12.00	9.50	7	20.00	84.00	C	●

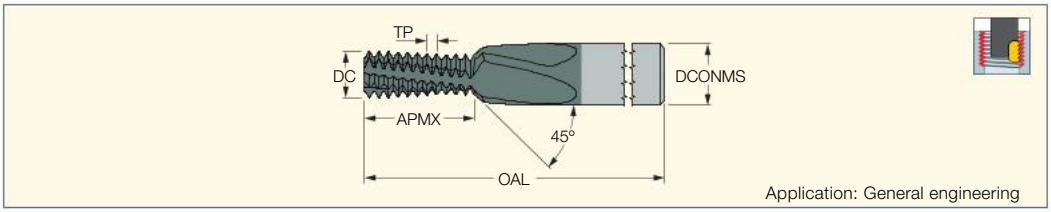
New

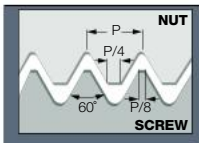
- For user guide, see pages 497-506 • Internal & External tolerance: ISO 228-1 - Medium class

(1) Thread pitch
(2) Number of flutes

SOLIDTHREAD

MTECH-ISO
Small Diameter Solid Carbide Internal ISO Profile Threading and Chamfering Endmills, for Hard Materials





Designation	Dimensions									IC902
	TP[1]	M Coarse	M Fine	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	
MTECH 0604C9 0.8ISO 902	0.800	M5	>5.9	6.00	4.00	3	9.20	58.00	C	●
MTECH 08048D10 1.0ISO 902	1.000	M6	>6.9	8.00	4.80	4	10.50	64.00	C	●
MTECH 0806D14 1.25ISO 902	1.250	M8	M10	8.00	6.00	4	13.70	64.00	C	●
MTECH 12095D20 1.75ISO 92	1.750	M12	-	12.00	9.50	4	20.10	84.00	C	●

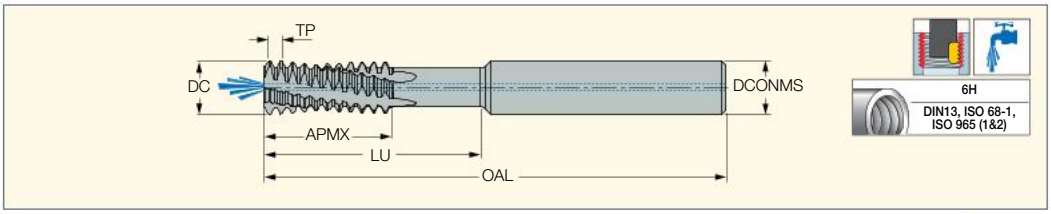
New

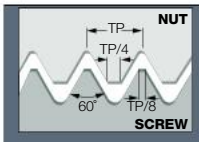
- For user guide, see pages 497-506

(1) Thread pitch
(2) Number of flutes
(3) C-Cylindrical

SOLIDTHREAD

MTECQ-ISO
Endmills with Through Tool Coolant and Reduced Neck Diameter for Deep Internal ISO Profile Threading





Designation	Dimensions									IC908
	TP[1]	TDZ	DCONMS	DC	NOF[2]	APMX	LU	OAL	Shank[3]	
MTECQ 1010D32 1.0ISO	1.000	=>12	10.00	10.00	4	18.00	32.0	73.00	C	●
MTECQ 1212D38 1.0ISO	1.000	=>14	12.00	12.00	4	21.00	38.0	84.00	C	●
MTECQ 1010D30 1.5ISO	1.500	=>13	10.00	10.00	4	18.00	30.0	73.00	C	●
MTECQ 2020F60 1.5ISO	1.500	=>24	20.00	20.00	6	36.00	60.0	105.00	C	●
MTECQ 1212D42 2.0ISO	2.000	=>16	12.00	12.00	4	24.00	42.0	84.00	C	●
MTECQ 2020F56 2.0ISO	2.000	=>24	20.00	20.00	6	34.00	56.0	105.00	C	●
MTECQ 2020D45 3.5ISO	3.500	=>26	20.00	20.00	4	28.00	45.5	105.00	C	●

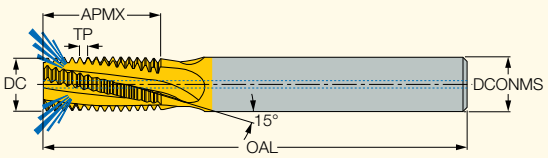
- For user guide, see pages 497-506

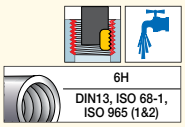
(1) Thread pitch
(2) Number of flutes
(3) C-Cylindrical

SOLIDTHREAD

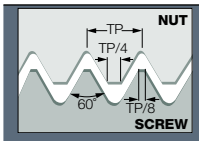
MTECZ-ISO

Solid Carbide Internal Threading Endmills with Coolant Holes





Application: General engineering



Designation	Dimensions TP[1]	M Coarse	M Fine	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	IC908
MTECZ 06048C10 1.0ISO	1.000	M6	=>7	6.00	4.80	3	10.50	58.00	C	●
MTECZ 0606C12 1.0ISO	1.000	-	=>9	6.00	6.00	3	12.50	58.00	C	●
MTECZ 0808D16 1.0ISO	1.000	-	=>10	8.00	8.00	4	16.50	64.00	C	●
MTECZ 0606C14 1.25ISO	1.250	M8	=>10	6.00	6.00	3	14.40	58.00	C	●
MTECZ 0606C19 1.25ISO	1.250	M8	=>10	6.00	6.00	3	19.40	58.00	C	●
MTECZ 08078C17 1.5ISO	1.500	M10	=>12	8.00	7.80	3	17.00	64.00	C	●
MTECZ 1010D21 1.5ISO	1.500	-	=>14	10.00	10.00	4	21.80	73.00	C	●
MTECZ 1212D26 1.5ISO	1.500	-	=>16	12.00	12.00	4	26.30	84.00	C	●
MTECZ 1616E33 1.5ISO	1.500	-	=>20	16.00	16.00	5	33.80	101.00	C	●
MTECZ 1009C20 1.75ISO	1.750	M12	=>12	10.00	9.00	3	20.10	73.00	C	●
MTECZ 1009C28 1.75ISO	1.750	M12	=>12	10.00	9.00	3	28.90	73.00	C	●
MTECZ 1010C27 2.0ISO	2.000	M14	=>15	10.00	10.00	3	27.00	73.00	C	●
MTECZ 12118D27 2.0ISO	2.000	M16	=>17	12.00	11.80	4	27.00	84.00	C	●

• With internal coolant hole • For user guide, see pages 497-506

(1) Thread pitch

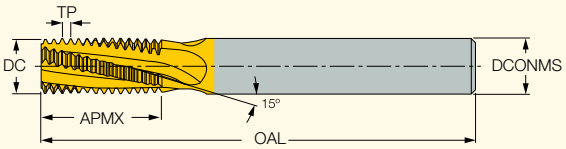
(2) Number of flutes

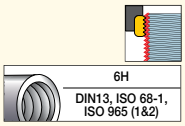
(3) C-Cylindrical

SOLIDTHREAD

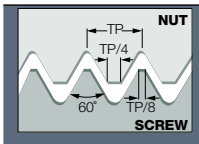
MTEC E-ISO

Solid Carbide External Threading Endmills for an ISO Thread Profile





Application: General engineering



Designation	Dimensions TP[1]	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	IC908
MTEC E 1010D16 1.0ISO	1.000	10.00	10.00	4	16.50	73.00	C	●
MTEC E 1212E20 1.0ISO	1.000	12.00	12.00	5	20.50	84.00	C	●
MTEC E 1010D16 1.25ISO	1.250	10.00	10.00	4	16.90	73.00	C	●
MTEC E 1010D15 1.5ISO	1.500	10.00	10.00	4	15.80	73.00	C	●
MTEC E 1212D20 1.5ISO	1.500	12.00	12.00	4	20.30	84.00	C	●
MTEC E 1212D20 1.75ISO	1.750	12.00	12.00	4	20.10	84.00	C	●
MTEC E 1010C17 2.0ISO	2.000	10.00	10.00	3	17.00	73.00	C	●
MTEC E 1212D21 2.0ISO	2.000	12.00	12.00	4	21.00	84.00	C	●

• For user guide, see pages 497-506

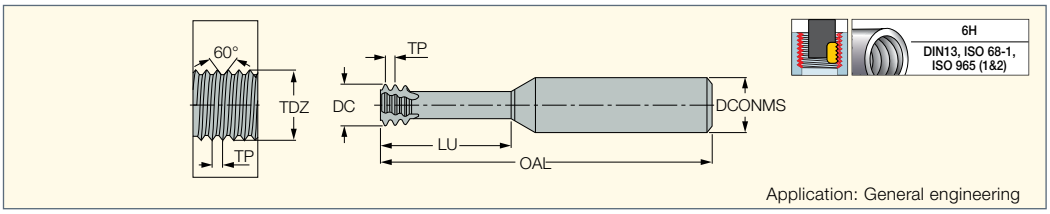
(1) Thread pitch

(2) Number of flutes

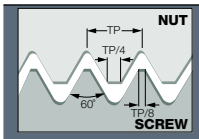
(3) C-Cylindrical

SOLIDTHREAD

MTECS-ISO
Small Diameter Solid Carbide Threading Endmills for an Internal ISO Profile



Application: General engineering



Designation	Dimensions DC	TP[2]	LU	OAL	DCONMS	TDZ	NOF[3]	Shank[4]	Tough ↔ Hard IC908	IC903
MTECS 03007C2 0.25ISO	0.72	0.250	2.5	39.00	3.00	M1	3	C	•	
MTECS 03009C3 0.25ISO	0.90	0.250	3.0	39.00	3.00	M1.2	3	C	•	
MTECS 03011C4 0.3ISO [1]	1.05	0.300	4.0	39.00	3.00	M1.4	3	C	•	
MTECS 03012C5 0.35ISO [1]	1.20	0.350	4.8	39.00	3.00	M1.6	3	C	•	•
MTECS 03016C6 0.4ISO [1]	1.53	0.400	6.0	39.00	3.00	M2	3	C	•	
MTECS 06016C4 0.4ISO	1.53	0.400	4.5	58.00	6.00	M2	3	C	•	
MTECS 03017C7 0.45ISO [1]	1.65	0.450	7.0	39.00	3.00	M2.2	3	C	•	
MTECS 06017C5 0.45ISO	1.65	0.450	5.0	58.00	6.00	M2.2	3	C	•	
MTECS 0602C5 0.45ISO	1.95	0.450	5.5	58.00	6.00	M2.5	3	C	•	
MTECS 0602C5 0.45ISO-L	1.95	0.450	5.5	100.00	6.00	M2.5	3	C	•	
MTECS 0602C7 0.45ISO	1.95	0.450	7.5	58.00	6.00	M2.5	3	C	•	
MTECS 06024C6 0.5ISO	2.37	0.500	6.5	58.00	6.00	M3	3	C	•	
MTECS 06024C9 0.5ISO	2.37	0.500	9.5	58.00	6.00	M3	3	C	•	
MTECS 06024C9 0.5ISO-L	2.37	0.500	9.5	100.00	6.00	M3	3	C	•	
MTECS 03024C12 0.5ISO	2.40	0.500	12.5	39.00	3.00	M3	3	C	•	
MTECS 03024C15 0.5ISO	2.40	0.500	15.5	39.00	3.00	M3	3	C	•	
MTECS 06028C10 0.6ISO	2.75	0.600	10.5	58.00	6.00	M3.5	3	C	•	
MTECS 06028C7 0.6ISO	2.75	0.600	7.5	58.00	6.00	M3.5	3	C	•	
MTECS 06031C12 0.7ISO	3.10	0.700	12.5	58.00	6.00	M4	3	C	•	
MTECS 06031C120.7ISO-L	3.10	0.700	12.5	100.00	6.00	M4	3	C	•	
MTECS 06031C16 0.7ISO	3.10	0.700	16.7	58.00	6.00	M4	3	C	•	
MTECS 06031C9 0.7ISO	3.10	0.700	9.0	58.00	6.00	M4	3	C	•	
MTECS 06038C12 0.8ISO	3.80	0.800	12.5	58.00	6.00	M5	3	C	•	
MTECS 06038C16 0.8ISO	3.80	0.800	16.0	58.00	6.00	M5	3	C	•	•
MTECS 06038C160.8ISO-L	3.80	0.800	16.0	100.00	6.00	M5	3	C	•	
MTECS 0604C20 0.8ISO	4.00	0.800	20.8	58.00	6.00	M5	3	C	•	
MTECS 06047C14 1.0ISO	4.65	1.000	14.0	58.00	6.00	M6	3	C	•	
MTECS 06047C20 1.0ISO	4.65	1.000	20.0	58.00	6.00	M6	3	C	•	
MTECS 06047C201.0ISO-L	4.65	1.000	20.0	100.00	6.00	M6	3	C	•	
MTECS 06048C25 1.0ISO	4.80	1.000	25.0	58.00	6.00	M6	3	C	•	
MTECS 06054D20 0.5ISO	5.35	0.500	20.0	58.00	6.00	M6	4	C	•	
MTECS 0606C18 1.25ISO	6.00	1.250	18.0	58.00	6.00	M8	3	C	•	
MTECS 0606C24 1.25ISO	6.00	1.250	24.0	58.00	6.00	M8	3	C	•	
MTECS0606C24 1.25ISO-L	6.00	1.250	24.6	100.00	6.00	M8	3	C	•	
MTECS 08078C23 1.5ISO	7.80	1.500	23.0	64.00	8.00	M10	3	C	•	
MTECS 08078C31 1.5ISO	7.80	1.500	31.5	64.00	8.00	M10	3	C	•	
MTECS 0808D25 0.75ISO	8.00	0.750	25.0	64.00	8.00	M10	4	C	•	
MTECS 1009C26 1.75ISO	9.00	1.750	26.0	73.00	10.00	M12	3	C	•	
MTECS 1009C37 1.75ISO	9.00	1.750	37.8	73.00	10.00	M12	3	C	•	
MTECS 12118D35 2.0ISO	11.80	2.000	35.0	84.00	12.00	M16	4	C	•	
MTECS 12118D50 2.0ISO	11.80	2.000	50.0	100.00	12.00	M16	4	C	•	
MTECS 1615E43 2.5ISO	15.00	2.500	43.0	100.00	16.00	M20	5	C	•	

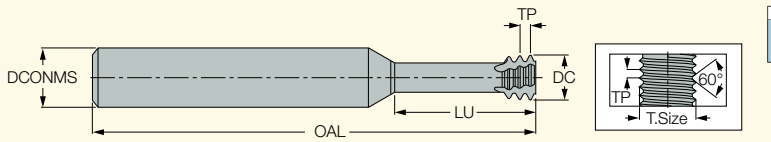
• For user guide, see pages 497-506

(1) Specially designed for the production of dental implants
(2) Thread pitch
(3) Number of flutes
(4) C-Cylindrical

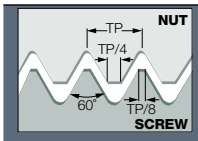
SOLIDTHREAD

MTECSH-ISO

Small Diameter Short Left-Hand Cut. Internal ISO Profile Threading Endmills for Hardened Steel



Left-hand tools (CNC code M04) • Application: General engineering



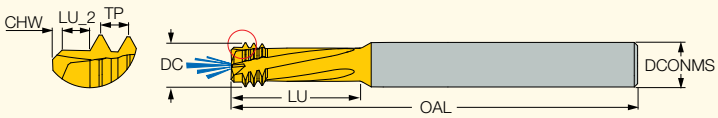
Designation	Dimensions DC	TP(1)	LU	OAL	DCONMS	TDZ	NOF(2)	Shank(3)	IC903
MTECSH 03011C4 0.3ISO	1.05	0.300	4.0	39.00	3.00	M1.4	3	C	•
MTECSH 03012C5 0.35ISO	1.20	0.350	4.8	39.00	3.00	M1.6, M1.8	3	C	•
MTECSH 03016C6 0.4ISO	1.55	0.400	6.0	39.00	3.00	M2	3	C	•
MTECSH 06016C4 0.4ISO	1.55	0.400	4.5	58.00	6.00	M2	3	C	•
MTECSH 06017C5 0.45ISO	1.65	0.450	5.0	58.00	6.00	M2.2	3	C	•
MTECSH 0602C5 0.45ISO	1.95	0.450	5.5	58.00	6.00	M2.5	3	C	•
MTECSH 0602C7 0.45ISO	1.95	0.450	7.5	58.00	6.00	M2.5	3	C	•
MTECSH 06024C6 0.5ISO	2.35	0.500	6.5	58.00	6.00	M3	3	C	•
MTECSH 06024C9 0.5ISO	2.35	0.500	9.5	58.00	6.00	M3	3	C	•
MTECSH 06028C7 0.6ISO	2.75	0.600	7.5	58.00	6.00	M3.5	3	C	•
MTECSH06028C10 0.6ISO	2.75	0.600	10.0	58.00	6.00	M3.5	3	C	•
MTECSH 06031C9 0.7ISO	3.10	0.700	9.0	58.00	6.00	M4	3	C	•
MTECSH 06031C12 0.7ISO	3.10	0.700	12.5	58.00	6.00	M4	3	C	•
MTECSH 06038C12 0.8ISO	3.80	0.800	12.5	58.00	6.00	M5	3	C	•
MTECSH 06038C16 0.8ISO	3.80	0.800	16.0	58.00	6.00	M5	3	C	•
MTECSH 06047C14 1.0ISO	4.65	1.000	14.0	58.00	6.00	M6	3	C	•
MTECSH 06047C20 1.0ISO	4.65	1.000	20.0	58.00	6.00	M6	3	C	•
MTECSH 0606C18 1.25ISO	5.95	1.250	18.0	58.00	6.00	M8	3	C	•
MTECSH 0606C24 1.25ISO	5.95	1.250	24.0	58.00	6.00	M8	3	C	•
MTECSH 08078C23 1.5ISO	7.80	1.500	23.0	64.00	8.00	M10	3	C	•
MTECSH 1009C26 1.75ISO	9.00	1.750	26.0	73.00	10.00	M12	3	C	•
MTECSH 12118D35 2.0ISO	11.80	2.000	35.0	84.00	12.00	M16	4	C	•

• For user guide, see pages 497-506
(1) Thread pitch
(2) Number of flutes
(3) C-Cylindrical

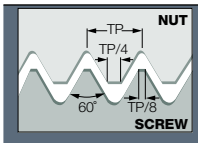
SOLIDTHREAD

MTECD-ISO

Small Diameter Short Left-Hand Cut. Solid Carbide Endmills for Internal ISO Profile Drilling, Threading and Chamfering



Left-hand tools (CNC code M04) • Application: General engineering • Coolant holes only in 1.0-2.0 pitch tools



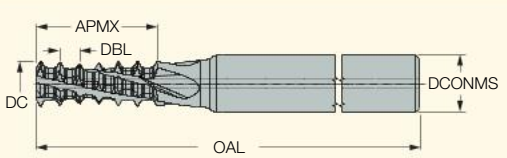
Designation	Dimensions TP(1)	TDZ	DCONMS	DC	NOF(2)	LU	OAL	CHW	LU_2	Shank(3)	CSP(4)	Tough ↔ Hard IC908	IC903
MTECD 06032C11 0.7ISO	0.700	M4	6.00	3.15	3	11.6	58.00	0.20	0.7	C	0	•	
MTECDH06032C11 0.7ISO	0.700	M4	6.00	3.15	3	11.6	58.00	0.20	0.7	C	0		•
MTECD 0604C14 0.8ISO	0.800	M5	6.00	4.00	3	14.4	58.00	0.30	0.8	C	0	•	
MTECD 08047C14 1.0ISO	1.000	M6-M9	8.00	4.70	3	14.0	64.00	0.40	1.0	C	1	•	
MTECD 08061D18 1.25ISO	1.250	M8-M12	8.00	6.10	4	18.0	64.00	0.50	1.3	C	1	•	
MTECD 08078D23 1.5ISO	1.500	M10-M15	8.00	7.80	4	23.0	64.00	0.60	1.5	C	1	•	
MTECD 1009D26 1.75ISO	1.750	M12	10.00	9.00	4	26.0	73.00	0.60	1.8	C	1	•	
MTECD 12118D35 2.0ISO	2.000	M16-M23	12.00	11.80	4	35.0	84.00	0.60	2.0	C	1	•	

• Thread hole, thread and chamfer by circular interpolation • For user guide, see pages 497-506
(1) Thread pitch
(2) Number of flutes
(3) C-Cylindrical
(4) 0 - Without coolant supply, 1 - With coolant supply

SOLIDMTHREAD

MTECK-ISO

Solid Carbide Internal Threading Endmill Step Release, Lead x2 With Coolant Hole, Used for ISO Thread Profile



Designation	Dimensions										IC908
	Pitch	M Coarse	M Fine	DBL	APMX	OAL	NOF(1)	DCONMS	DC	Shank	
MTECK 06032D8 0.5ISO	0.500	-	M4	1.00	8.20	58.00	4	6.00	3.20	C	●
MTECK 06031C9 0.7ISO	0.700	M4	-	1.40	8.70	58.00	3	6.00	3.10	C	●
MTECK 06039C10 0.8ISO	0.800	M5	-	1.60	10.80	58.00	3	6.00	3.90	C	●
MTECK 06047D12 1.0ISO	1.000	M6	-	2.00	12.50	58.00	4	6.00	4.70	C	●
MTECK 08063D16 1.25ISO	1.250	M8	-	2.50	16.90	64.00	4	8.00	6.30	C	●
MTECK 08079D21 1.5ISO	1.500	M11	-	3.00	21.70	64.00	4	8.00	7.90	C	●
MTECK 120117E28 1.5ISO	1.500	-	M16	3.00	29.30	94.00	5	12.00	11.70	C	●
MTECK 160125F33 1.5ISO	1.500	-	M16	3.00	33.70	93.00	6	16.00	12.50	C	●
MTECK10098E24 1.5ISO	1.500	-	M13	3.00	24.80	73.00	5	10.00	9.80	C	●
MTECK 10096D24 1.75ISO	1.750	M12	-	3.50	25.30	73.00	4	10.00	9.60	C	●
MTECK 12112D28 2.0ISO	2.000	M16	-	4.00	28.90	84.00	4	12.00	11.20	C	●
MTECK 16131E32 2.0ISO	2.000	M16	-	4.00	32.90	93.00	5	16.00	13.10	C	●

New

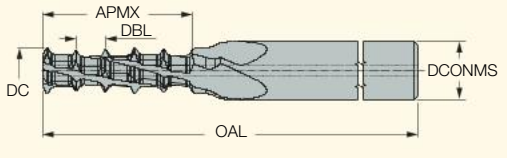
- For user guide, see pages 497-506

(1) Number of flutes

SOLIDMTHREAD

MTECM-ISO

Solid Carbide Internal Threading Endmill Step Release, Lead x3 With Coolant Holes, Used for ISO Thread Profile



Designation	Dimensions										IC908
	Pitch	M Coarse	M Fine	DBL	APMX	OAL	NOF(1)	DCONMS	DC	Shank	
MTECM 06031C11 0.7ISO	0.700	M4	-	2.10	10.80	58.00	3	6.00	3.10	C	●
MTECM 06039C12 0.8ISO	0.800	M5	-	2.40	13.20	58.00	3	6.00	3.90	C	●
MTECM 06047D14 1.0ISO	1.000	M6	-	3.00	15.40	58.00	4	6.00	4.70	C	●
MTECM 08079E21 1.0ISO	1.000	-	M10	3.00	21.40	64.00	5	8.00	7.90	C	●
MTECM 10096D32 1.75ISO	1.750	M12	-	5.25	32.30	81.00	4	10.00	9.60	C	●
MTECM 16131E42 2.0ISO	2.000	M16	-	6.00	42.90	105.00	5	16.00	13.10	C	●

New

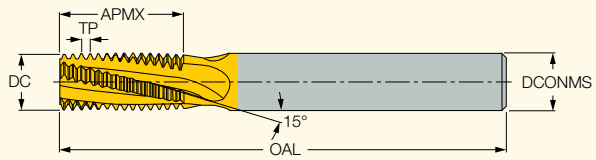
- For user guide, see pages 497-506

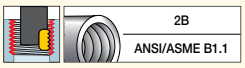
(1) Number of flutes

SOLIDTHREAD

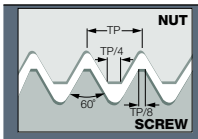
MTEC-UN

Solid Carbide Threading Endmills for Internal UN Thread Profile





Application: General engineering



Designation	Dimensions											IC908
	TPI[1]	UNC	UNF	UNEF	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	TP[4]	
MTEC 06025C6 40UN	40.0	5	-	-	6.00	2.50	3	6.00	57.00	C	0.635	•
MTEC 06032C6 32UN	32.0	8	10	12	6.00	3.20	3	6.80	57.00	C	0.794	•
MTEC 0604C11 28UN	28.0	-	1/4	-	6.00	4.00	3	11.30	57.00	C	0.907	•
MTEC 0606C14 28UN	28.0	-	-	7/16,1/2	6.00	6.00	3	14.50	57.00	C	0.907	•
MTEC 0605C14 24UN	24.0	-	5/16	-	6.00	5.00	3	14.30	57.00	C	1.058	•
MTEC 0807C21 24UN	24.0	-	3/8	9/16,5/8	8.00	7.00	3	20.00	63.00	C	1.058	•
MTEC 06045C12 20UN	20.0	1/4	-	-	6.00	4.50	3	12.10	57.00	C	1.270	•
MTEC 0807C21 20UN	20.0	-	7/16,1/2	-	8.00	7.00	3	20.00	63.00	C	1.270	•
MTEC 1212E27 20UN	20.0	-	-	3/4,1	12.00	12.00	5	27.30	83.00	C	1.270	•
MTEC 0605C14 18UN	18.0	5/16	-	-	6.00	5.00	3	14.80	57.00	C	1.411	•
MTEC 1010D26 18UN	18.0	-	9/16,5/8	1-1/8,1-5/8	10.00	10.00	4	26.10	72.00	C	1.411	•
MTEC 0606C16 16UN	16.0	3/8	-	-	6.00	6.00	3	16.70	57.00	C	1.588	•
MTEC 1212D31 16UN	16.0	-	3/4	-	12.00	12.00	4	30.00	83.00	C	1.588	•
MTEC 1615E37 14UN	14.0	-	7/8	-	16.00	15.00	5	37.20	100.00	C	1.814	•
MTEC 0808C22 13UN	13.0	1/2	-	-	8.00	8.00	3	22.50	63.00	C	1.954	•
MTEC 1010C26 12UN	12.0	9/16	-	-	10.00	10.00	3	26.50	72.00	C	2.117	•
MTEC 1616E41 12UN	12.0	-	1,1-1/2	-	16.00	16.00	5	41.30	100.00	C	2.117	•
MTEC 1010C28 11UN	11.0	5/8	-	-	10.00	10.00	3	28.90	72.00	C	2.309	•
MTEC 1212C34 10UN	10.0	3/4	-	-	12.00	12.00	3	34.30	83.00	C	2.540	•
MTEC 1615C38 9UN	9.0	7/8	-	-	16.00	15.00	3	38.10	100.00	C	2.822	•
MTEC 1616C42 8UN	8.0	1.0	-	-	16.00	16.00	3	42.90	100.00	C	3.175	•

• For user guide, see pages 497-506

[1] Threads per inch

[2] Number of flutes

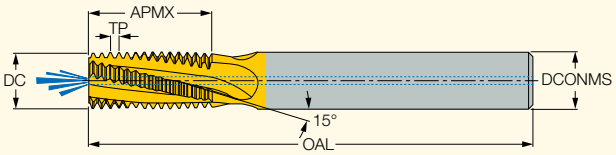
[3] C-Cylindrical

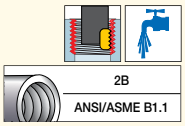
[4] Thread pitch

SOLIDTHREAD

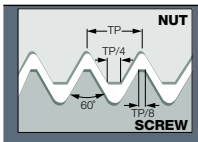
MTECB-UN

Solid Carbide Threading Endmills with Coolant Hole for Internal UN Thread Profile





Application: General engineering



Designation	Dimensions											IC908
	TPI[1]	UNC	UNF	UNEF	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	TP[4]	
MTECB 06032C6 32UN	32.0	8	10	12	6.00	3.20	3	6.80	58.00	C	0.794	•
MTECB 0606C14 32UN	32.0	-	-	7/16-1/2	6.00	6.00	3	16.00	58.00	C	0.794	•
MTECB 0808D18 32UN	32.0	-	-	3/8	8.00	8.00	4	18.70	64.00	C	0.794	•
MTECB 0605C11 28UN	28.0	-	1/4	-	6.00	5.00	3	11.30	58.00	C	0.907	•
MTECB 08066C14 24UN	24.0	-	5/16	-	8.00	6.60	3	14.30	64.00	C	1.058	•
MTECB 0808D21 24UN	24.0	-	-	9/16-5/8	8.00	8.00	4	20.60	64.00	C	1.058	•
MTECB 0808C21 20UN	20.0	-	7/16	-	8.00	8.00	3	21.00	64.00	C	1.270	•
MTECB 1010D22 20UN	20.0	-	1/2	-	10.00	10.00	4	22.30	73.00	C	1.270	•
MTECB 06056C14 18UN	18.0	5/16	-	-	6.00	5.60	3	14.80	58.00	C	1.411	•
MTECB 12113D26 18UN	18.0	-	9/16-5/8	1-1/8_1-5/8	12.00	11.30	4	26.10	84.00	C	1.411	•
MTECB 08067C16 16UN	16.0	3/8	-	-	8.00	6.70	3	16.70	64.00	C	1.588	•
MTECB 1212D31 16UN	16.0	-	3/4	-	12.00	12.00	4	31.00	84.00	C	1.588	•
MTECB 08077C20 14UN	14.0	7/16	-	-	8.00	7.70	3	20.90	64.00	C	1.814	•
MTECB 1616E37 14UN	14.0	-	7/8	-	16.00	16.00	5	37.20	105.00	C	1.814	•
MTECB 10092C22 13UN	13.0	1/2	-	-	10.00	9.20	3	22.50	73.00	C	1.954	•
MTECB 12114C28 11UN	11.0	5/8	-	-	12.00	11.40	3	28.90	84.00	C	2.309	•
MTECB 16144D34 10UN	10.0	3/4	-	-	16.00	14.40	4	34.30	105.00	C	2.540	•
MTECB 20195D42 8UN	8.0	1	-	-	20.00	19.50	4	42.90	105.00	C	3.175	•

• For user guide, see pages 497-506

[1] Threads per inch

[2] Number of flutes

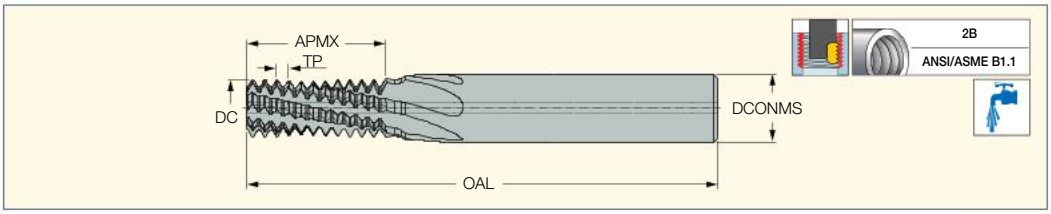
[3] C-Cylindrical

[4] Thread pitch

SOLIDMTHREAD

MTECBF-UN

Solid Carbide Internal Threading Endmills with a Coolant Hole. Intended for UN Thread Profile



Designation	Dimensions										IC908
	TPI[1]	UNC	UNF	UNEF	DCONMS	DC	NOF[2]	APMX	OAL	Shank	
MTECBF 16116F26 12UN	12.0	5/8	1/1-1/2	-	16.00	11.60	6	26.40	105.00	C	●
MTECBF 12098F24 13UN	13.0	1/2	-	-	12.00	9.80	6	24.30	84.00	C	●
MTECBF 10085F20 14UN	14.0	7/16	-	-	10.00	8.50	6	20.80	73.00	C	●
MTECBF 10074F16 16UN	16.0	3/8	-	-	10.00	7.40	6	16.60	73.00	C	●
MTECBF 16125H26 18UN	18.0	-	9/16, 5/8	11/16	16.00	12.50	8	26.00	105.00	C	●
MTECBF 0806F14 18UN	18.0	5/16	-	-	8.00	6.00	6	14.70	64.00	C	●
MTECBF 10092H21 20UN	20.0	-	7/16	-	10.00	9.20	8	20.90	73.00	C	●
MTECBF 12092H21 20UN	20.0	-	7/16	-	12.00	9.20	8	20.90	84.00	C	●
MTECBF 06048E12 20UN	20.0	1/4	-	-	6.00	4.80	5	12.00	58.00	C	●
MTECBF 08066G14 24UN	24.0	-	5/16	-	8.00	6.60	7	14.20	64.00	C	●
MTECBF 10066G14 24UN	24.0	-	5/16	-	10.00	6.60	7	14.20	73.00	C	●

New

- For user guide, see pages 497-506 • Internal & External tolerance: ISO 228-1 - Medium class

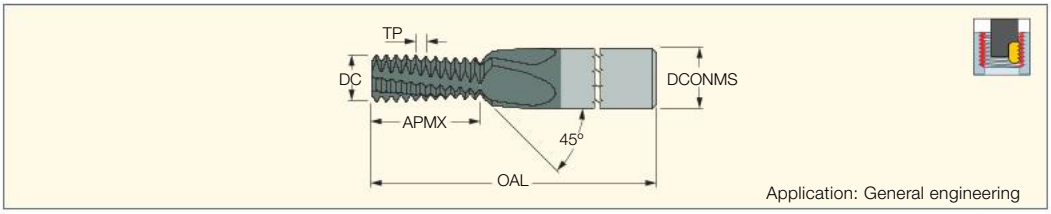
(1) Threads per inch

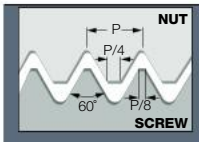
(2) Number of flutes

SOLIDTHREAD

MTECH-UN

Small Diameter Solid Carbide Internal UN Profile Threading and Chamfering Endmills, for Hard Materials





Designation	Dimensions										IC902
	TPI[1]	UNC	UNF	UNEF	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	
MTECH 06026C5 32UN 902	32.0	6	999	999	6.00	2.60	3	6.70	58.00	C	●
MTECH 06048C12 20UN 902	20.0	1/4	-	-	6.00	4.80	3	12.10	58.00	C	●
MTECH 08057C14 18UN 902	18.0	5/16	9/16, 5/8	11/16	8.00	5.70	3	14.80	64.00	C	●
MTECH 10074C16 16UN 902	16.0	3/8	3/4	-	10.00	7.40	3	16.70	73.00	C	●
MTECH 12094D22 13UN 902	13.0	1/2	-	-	12.00	9.40	4	22.50	84.00	C	●

New

- For user guide, see pages 497-506

(1) Threads per inch

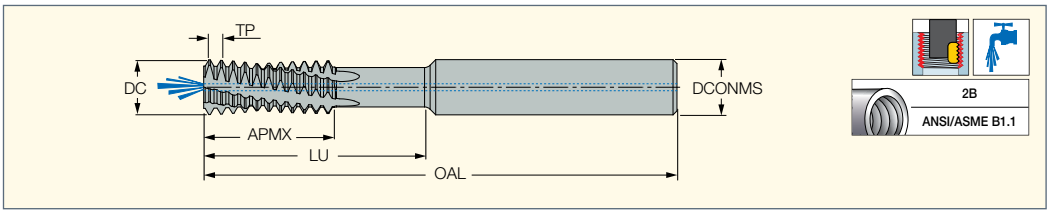
(2) Number of flutes

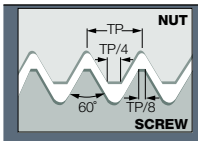
(3) C-Cylindrical

SOLIDTHREAD

MTECQ-UN

Solid Carbide Endmills with Internal Coolant Holes and a Reduced Diameter Neck, for Deep Internal UN Profile Threading





Designation	Dimensions									IC908
	TPI[1]	TDZ	DCONMS	DC	NOF[2]	APMX	LU	OAL	Shank[3]	
MTECQ 1010D30 20UN	20.0	>=12	10.00	10.00	4	17.80	30.5	73.00	C	●
MTECQ 1616F43 20UN	20.0	>=18	16.00	16.00	6	25.40	43.2	105.00	C	●
MTECQ 1616E42 16UN	16.0	>=19	16.00	16.00	5	25.40	42.9	105.00	C	●
MTECQ 1212D42 12UN	12.0	>=16	12.00	12.00	4	25.40	42.3	84.00	C	●

New

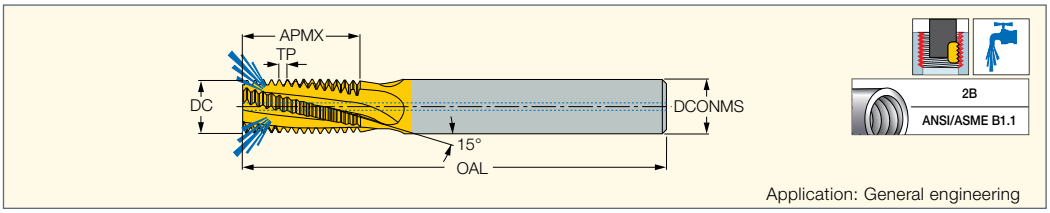
- For user guide, see pages 497-506

[1] Threads per inch
[2] Number of flutes
[3] C-Cylindrical

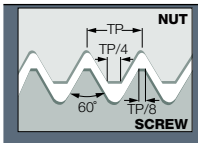
SOLIDTHREAD

MTECZ-UN

Solid Carbide Threading Endmills with Coolant Holes Located in the Flutes for Internal UN Thread Profiles



Application: General engineering



Designation	Dimensions										IC908
	TPI[1]	UNC	UNF	UNEF	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	TP[4]	
MTECZ 1010D22 20UN	20.0	-	1/2	-	10.00	10.00	4	22.30	73.00	C	1.270	●
MTECZ 1212E27 20UN	20.0	-	-	3/4_1	12.00	12.00	5	27.30	84.00	C	1.270	●
MTECZ 12113D26 18UN	18.0	-	9/16-5/8	1_1/8-1_5/8	12.00	11.30	4	26.10	84.00	C	1.411	●
MTECZ 08067C16 16UN	16.0	3/8	-	-	8.00	6.70	3	16.70	64.00	C	1.588	●
MTECZ 1212D31 16UN	16.0	-	3/4	-	12.00	12.00	4	31.00	84.00	C	1.588	●
MTECZ 12114C28 11UN	11.0	5/8	-	-	12.00	11.40	3	28.90	84.00	C	2.309	●
MTECZ 16144D34 10UN	10.0	3/4	-	-	16.00	14.40	4	34.30	101.00	C	2.540	●

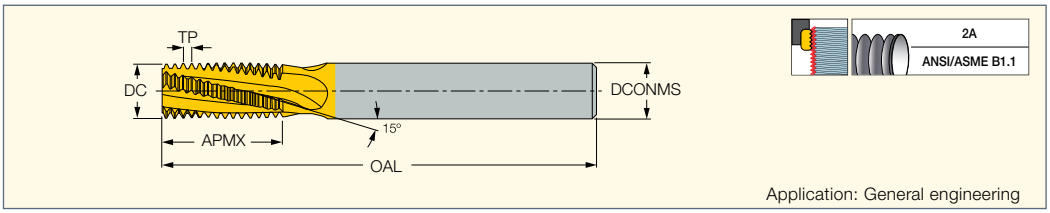
- With internal coolant hole
- For user guide, see pages 497-506

[1] Threads per inch
[2] Number of flutes
[3] C-Cylindrical
[4] Thread pitch

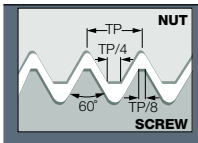
SOLIDTHREAD

MTEC E-UN

Solid Carbide Threading Endmills with UN Form for External Threading



Application: General engineering



Designation	Dimensions							IC908
	TPI[1]	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	
MTEC E 1010D16 24UN	24.0	10.00	10.00	4	16.40	73.00	C	●
MTEC E 1212E21 20UN	20.0	12.00	12.00	5	21.00	84.00	C	●
MTEC E 1212D20 12UN	12.0	12.00	12.00	4	20.10	84.00	C	●

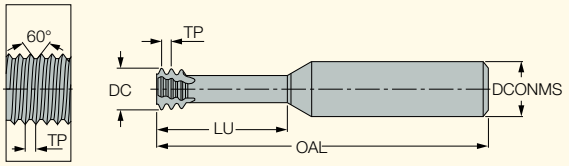
- For user guide, see pages 497-506

[1] Threads per inch
[2] Number of flutes
[3] C-Cylindrical

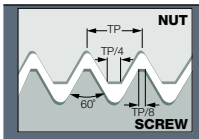
SOLIDTHREAD

MTECS-UN

Small Diameter Solid Carbide UN Profile Threading Endmills for Steel



Application: General engineering



Designation	Dimensions										IC908
	DC	TPI[2]	TP[3]	LU	OAL	DCONMS	UNC	UNF	NOF[4]	Shank[5]	
MTECS 03012C8 80UN	1.15	80.0	0.318	8.0	39.00	3.00	-	0	3	C	•
MTECS 03015C6 72UN [1]	1.45	72.0	0.353	6.0	39.00	3.00	-	1	3	C	•
MTECS 03016C6 56UN	1.65	56.0	0.454	6.6	39.00	3.00	2	3	3	C	•
MTECS 03016C9 56UN	1.65	56.0	0.454	9.2	39.00	3.00	2	3	3	C	•
MTECS 03016C11 56UN	1.65	56.0	0.454	11.4	39.00	3.00	2	3	3	C	•
MTECS 06016C4 56UN	1.65	56.0	0.454	4.4	58.00	6.00	2	3	3	C	•
MTECS 06016C6 56UN	1.65	56.0	0.454	6.6	58.00	6.00	2	3	3	C	•
MTECS 06016C6 56UN-L	1.65	56.0	0.454	6.6	100.00	6.00	2	3	3	C	•
MTECS 06019C5 48UN	1.90	48.0	0.529	5.2	58.00	6.00	3	4	3	C	•
MTECS 03021C8 40UN	2.10	40.0	0.635	8.0	39.00	3.00	4	-	3	C	•
MTECS 03021C12 40UN	2.10	40.0	0.635	12.0	39.00	3.00	4	-	3	C	•
MTECS 06021C8 40UN	2.10	40.0	0.635	8.0	58.00	6.00	4	-	3	C	•
MTECS 06021C8 40UN-L	2.10	40.0	0.635	8.0	100.00	6.00	4	-	3	C	•
MTECS 06024C9 40UN	2.45	40.0	0.635	9.6	58.00	6.00	5	6	3	C	•
MTECS 06021C6 40UN	2.10	40.0	0.635	6.3	58.00	6.00	4	-	3	C	•
MTECS 06021C6 40UN-L	2.10	40.0	0.635	6.3	100.00	6.00	4	-	3	C	•
MTECS 06033C9 36UN	3.30	36.0	0.706	9.0	58.00	6.00	-	8	3	C	•
MTECS 03025C14 32UN	2.55	32.0	0.794	14.8	39.00	3.00	6	-	3	C	•
MTECS 06025C7 32UN	2.55	32.0	0.794	7.1	58.00	6.00	6	-	3	C	•
MTECS 06025C10 32UN	2.55	32.0	0.794	10.5	58.00	6.00	6	-	3	C	•
MTECS 06025C10 32UN-L	2.55	32.0	0.794	10.5	100.00	6.00	6	-	3	C	•
MTECS 06032C9 32UN	3.20	32.0	0.794	9.5	58.00	6.00	8	10	3	C	•
MTECS 06032C12 32UN	3.20	32.0	0.794	12.5	58.00	6.00	8	10	3	C	•
MTECS 06037C10 32UN	3.70	32.0	0.794	10.5	58.00	6.00	-	10	3	C	•
MTECS 06037C15 32UN	3.70	32.0	0.794	15.0	58.00	6.00	-	10	3	C	•
MTECS 06037C15 32UN-L	3.70	32.0	0.794	15.0	101.00	6.00	-	10	3	C	•
MTECS 06042C11 28UN	4.20	28.0	0.907	11.0	58.00	6.00	-	12	3	C	•
MTECS 0605C14 28UN	5.00	28.0	0.907	14.5	58.00	6.00	-	1/4	3	C	•
MTECS 0605C19 28UN	5.00	28.0	0.907	19.0	58.00	6.00	-	1/4	3	C	•
MTECS 06035C10 24UN	3.50	24.0	1.058	10.6	58.00	6.00	10,12	-	3	C	•
MTECS 06035C15 24UN	3.50	24.0	1.058	15.5	58.00	6.00	10,12	-	3	C	•
MTECS 08066C17 24UN	6.60	24.0	1.058	17.0	64.00	8.00	-	5/16	3	C	•
MTECS 08066C24 24UN	6.60	24.0	1.058	24.0	64.00	8.00	-	5/16	3	C	•
MTECS 06047C14 20UN	4.75	20.0	1.270	14.0	58.00	6.00	1/4	-	3	C	•
MTECS 06047C19 20UN	4.75	20.0	1.270	19.0	58.00	6.00	1/4	-	3	C	•
MTECS 06047C19 20UN-L	4.75	20.0	1.270	19.0	100.00	6.00	1/4	-	3	C	•
MTECS 0808C25 20UN	8.00	20.0	1.270	25.0	64.00	8.00	-	7/16	3	C	•
MTECS 0808C34 20UN	8.00	20.0	1.270	34.6	64.00	8.00	-	7/16	3	C	•
MTECS 0606C17 18UN	6.00	18.0	1.411	17.0	58.00	6.00	5/16	-	3	C	•
MTECS 0606C23 18UN	6.00	18.0	1.411	23.0	58.00	6.00	5/16	-	3	C	•
MTECS 1212D35 18UN	12.00	18.0	1.411	35.0	84.00	12.00	-	5/8	4	C	•
MTECS 08067C22 16UN	6.70	16.0	1.588	22.0	64.00	8.00	3/8	-	3	C	•
MTECS 08067C30 16UN	6.70	16.0	1.588	30.2	64.00	8.00	3/8	-	3	C	•
MTECS 08077C25 14UN	7.70	14.0	1.814	25.0	64.00	8.00	7/16	-	3	C	•
MTECS 08077C35 14UN	7.70	14.0	1.814	35.2	64.00	8.00	7/16	-	3	C	•
MTECS 10092C27 13UN	9.20	13.0	1.954	27.5	73.00	10.00	1/2	-	3	C	•
MTECS 12114C34 11UN	11.40	11.0	2.309	34.5	84.00	12.00	5/8	-	3	C	•
MTECS 12114C50 11UN	11.40	11.0	2.309	50.0	101.00	12.00	5/8	-	3	C	•
MTECS 16144D41 10UN	14.40	10.0	2.540	41.5	105.00	16.00	3/4	-	4	C	•

• For user guide, see pages 497-506

[1] Specially designed for the production of dental implants

[2] Threads per inch

[3] Thread pitch

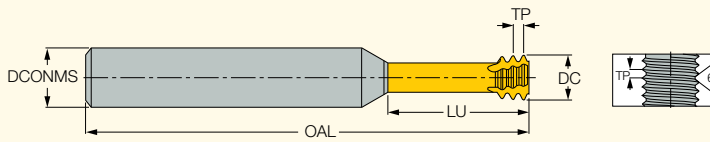
[4] Number of flutes

[5] C-Cylindrical

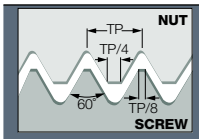
SOLIDTHREAD

MTECSH-UN

Small Diameter Short Left-Hand Cut Solid Carbide UN Profile Threading Endmills for Hardened Steel



Left-hand tools (CNC code M04) • Application: General engineering



Designation	Dimensions										IC903
	DC	TPI[1]	UNC	UNF	LU	OAL	DCONMS	NOF[2]	Shank[3]	TP[4]	
MTECSH 03015C6 72UN	1.45	72.0	-	1	6.0	39.00	3.00	3	C	0.353	●
MTECSH 06012C4 80UN	1.15	80.0	-	0	4.0	58.00	6.00	3	C	0.318	●
MTECSH 06016C6 56UN	1.65	56.0	2	3	6.6	58.00	6.00	3	C	0.454	●
MTECSH 06019C5 48UN	1.90	48.0	3	4	5.2	58.00	6.00	3	C	0.529	●
MTECSH 06021C6 40UN	2.10	40.0	4	-	6.3	58.00	6.00	3	C	0.635	●
MTECSH 06024C7 40UN	2.45	40.0	5	6	7.0	58.00	6.00	3	C	0.635	●
MTECSH 06021C8 40UN	2.10	40.0	4	-	8.0	58.00	6.00	3	C	0.635	●
MTECSH 06024C9 40UN	2.45	40.0	5	6	9.6	58.00	6.00	3	C	0.635	●
MTECSH 06025C7 32UN	2.55	32.0	6	-	7.1	58.00	6.00	3	C	0.794	●
MTECSH 06025C10 32UN	2.55	32.0	6	-	10.5	58.00	6.00	3	C	0.794	●
MTECSH 06032C9 32UN	3.20	32.0	8	-	9.5	58.00	6.00	3	C	0.794	●
MTECSH 06037C10 32UN	3.70	32.0	-	10	10.5	58.00	6.00	3	C	0.794	●
MTECSH 06032C12 32UN	3.20	32.0	8	-	12.5	58.00	6.00	3	C	0.794	●
MTECSH 06037C15 32UN	3.70	32.0	-	10	15.0	58.00	6.00	3	C	0.794	●
MTECSH 06042C11 28UN	4.20	28.0	-	12	11.0	58.00	6.00	3	C	0.907	●
MTECSH 0605C14 28UN	5.00	28.0	-	1/4	14.5	58.00	6.00	3	C	0.907	●
MTECSH 0605C19 28UN	5.00	28.0	-	1/4	19.0	58.00	6.00	3	C	0.907	●
MTECSH 06035C10 24UN	3.50	24.0	10,12	-	10.6	58.00	6.00	3	C	1.058	●
MTECSH 08066C17 24UN	6.60	24.0	-	5/16	17.0	64.00	8.00	3	C	1.058	●
MTECSH 08066C24 24UN	6.60	24.0	-	5/16	24.0	64.00	8.00	3	C	1.058	●
MTECSH 06047C14 20UN	4.75	20.0	1/4	-	14.0	58.00	6.00	3	C	1.270	●
MTECSH 06047C19 20UN	4.75	20.0	1/4	-	19.0	58.00	6.00	3	C	1.270	●
MTECSH 0808C25 20UN	8.00	20.0	-	7/16	25.0	64.00	8.00	3	C	1.270	●
MTECSH 0606C17 18UN	6.00	18.0	5/16	-	17.0	58.00	6.00	3	C	1.411	●
MTECSH 0606C23 18UN	6.00	18.0	5/16	-	23.0	58.00	6.00	3	C	1.411	●
MTECSH 08067C22 16UN	6.70	16.0	3/8	-	22.0	64.00	8.00	3	C	1.588	●
MTECSH 08077C25 14UN	7.70	14.0	7/16	-	25.0	64.00	8.00	3	C	1.814	●
MTECSH 10092C27 13UN	9.20	13.0	1/2	-	27.5	73.00	10.00	3	C	1.954	●
MTECSH 12114C34 11UN	11.40	11.0	5/8	-	34.5	84.00	12.00	3	C	2.309	●

• For user guide, see pages 497-506

(1) Threads per inch

(2) Number of flutes

(3) C-Cylindrical

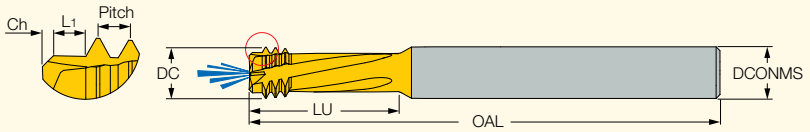
(4) Thread pitch

Machining Data for Solid Carbide Thread Mills for Small Internal Threads in Hard Materials

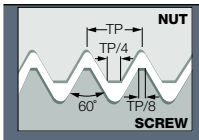
ISO	Material	Hardness HRC	Cutting Speed m/min	Feed mm/tooth for Cutting Diameter (mm)								
				1.5	2	3	4	5	6	7	8	9
H	hardened steels	45-50	60-70	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.07	0.08
		51-55	50-60	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.07
		56-62	40-50	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06

SOLIDTHREAD

MTECD-UN
Small Diameter, Short, Left Hand, Internal UN Profile Endmills for Drilling, Threading and Chamfering



Left-hand tools (CNC code M04) • Application: General engineering • Coolant holes only in 28-16 TPI tools



Designation	TPI[1]	CNT	DCONMS	DC	NOF[2]	LU	OAL	Ch	L1	Shank[3]	CSP[4]	ULDR[5]	THFT	Tough ↔ Hard IC908	IC903
MTECD 06033C12 36UN	36.0	8	6.00	3.30	3	12.0	58.00	0.2	0.7	C	0	999.0	UN60	●	
MTECD 06032C12 32UN	32.0	8	6.00	3.20	3	12.3	58.00	0.3	0.8	C	0	999.0	UN60	●	
MTECD 06038C14 32UN	32.0	10	6.00	3.80	3	14.0	58.00	0.3	0.8	C	0	999.0	UN60	●	
MTECD 0805C14 28UN	28.0	1/4-3/8	8.00	5.00	3	14.5	64.00	0.4	0.9	C	1	999.0	UN60	●	
MTECD 08065D17 24UN	24.0	5/16-1/2	8.00	6.50	4	17.0	64.00	0.5	1.1	C	1	999.0	UN60	●	
MTECD 08048C14 20UN	20.0	1/4-3/8	8.00	4.80	3	14.0	64.00	0.4	1.3	C	1	999.0	UN60	●	
MTECD 0806D17 18UN	18.0	5/16-7/16	8.00	6.00	4	17.0	64.00	0.5	1.4	C	1	999.0	UN60	●	
MTECD 08067C22 16UN	16.0	3/8-1/2	8.00	6.70	3	22.0	64.00	0.5	1.6	C	1	999.0	UN60	●	
MTECDH 08067C22 16UN	16.0	3/8-1/2	8.00	6.70	3	22.0	64.00	0.5	1.6	C	1	999.0	UN60		●

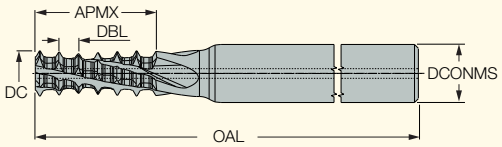
New

- Thread hole, thread and chamfer are made by circular interpolation
- For user guide, see pages 497-506

(1) Threads per inch
(2) Number of flutes
(3) C-Cylindrical
(4) 0 - Without coolant supply, 1 - With coolant supply
(5) Usable length diameter ratio

SOLIDMTHREAD

MTECK-UN
Solid Carbide Internal Threading Endmill Step Release, Lead x2 With Coolant Hole, Used for UN Thread Profiles



Designation	TPI[1]	UNC	UNF	DBL	APMX	OAL	DCONMS	DC	Shank	NOF[2]	IC908
MTECK 1298D25 13UN	13.0	1/2		3.91	26.30	84.00	12.00	9.80	C	4	●
MTECK 08074D19 16UN	16.0	3/8		3.17	19.80	64.00	8.00	7.40	C	4	●
MTECK 12011E29 18UN	18.0		9/16	2.82	30.40	84.00	12.00	11.00	C	5	●
MTECK 0250D67 18UN	18.0	5/16		2.82	17.60	63.50	6.35	6.10	C	4	●
MTECK 08061D17 18UN	18.0	5/16		2.82	17.60	64.00	8.00	6.10	C	4	●
MTECK 08061D22 18UN	18.0	5/16		2.82	23.20	76.00	8.00	6.10	C	4	●
MTECK 0250C50 20UN	20.0	1/4		2.54	13.30	63.50	6.35	4.70	C	3	●
MTECK 06035C10 24UN	24.0	#10		2.12	11.00	58.00	6.00	3.50	C	3	●
MTECK 0250D50 28UN	28.0		1/4	1.81	13.10	63.50	6.35	5.00	C	4	●
MTECK 0250C34 32UN	32.0	#8		1.59	9.10	63.50	6.35	3.10	C	3	●

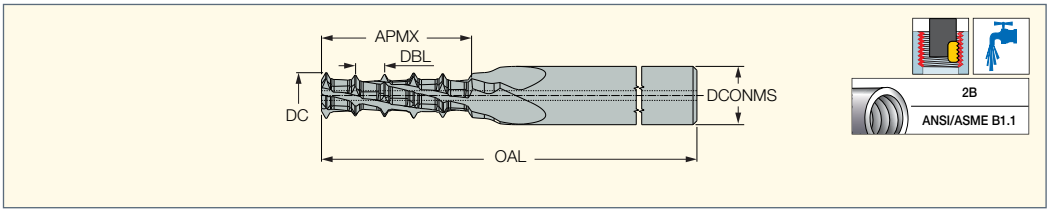
New

- For user guide, see pages 497-506

(1) Threads per inch
(2) Number of flutes

SOLIDMTHREAD

MTECM-UN
Solid Carbide Internal Threading Endmill Step Release, Lead x3 With Coolant Hole, Used for UN Thread Profiles



Designation	Dimensions											IC908
	TPI[1]	UNC	UNF	UNEF	DBL	APMX	OAL	DCONMS	DC	Shank	NOF[2]	
MTECM 0312D09 16UN	16.0	3/8	-	-	4.76	24.50	63.50	7.94	7.40	C	4	●
MTECM 0250C65 20UN	20.0	1/4	-	-	3.81	17.10	63.50	6.35	4.70	C	3	●
MTECM 06047C16 20UN	20.0	1/4	-	-	3.81	17.10	58.00	6.00	4.70	C	3	●
MTECM 0250C50 24UN	24.0	#10	-	-	3.17	13.20	63.50	6.35	3.50	C	3	●
MTECM 0250C28 32UN	32.0	#8	-	-	2.38	7.50	63.50	6.35	3.10	C	3	●

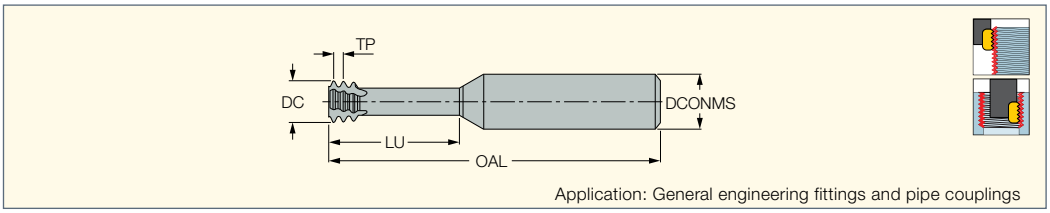
New

- For user guide, see pages 497-506

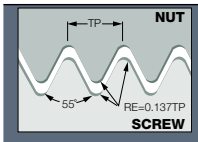
(1) Threads per inch
(2) Number of flutes

SOLIDTHREAD

MTECS-W
Short Solid Carbide Threading Endmills for Internal or External BSP and BSF Thread Profiles



Application: General engineering fittings and pipe couplings



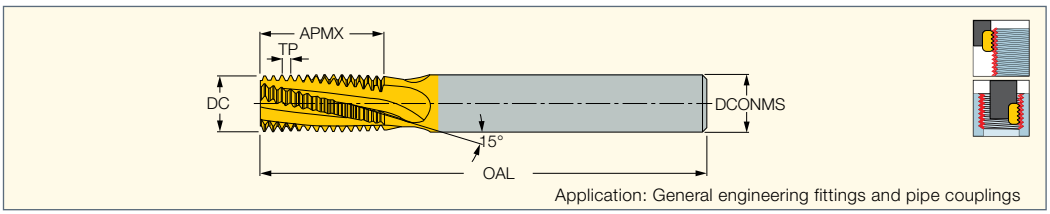
Designation	Dimensions								IC908
	DC	TPI[1]	LU	OAL	DCONMS	TDZ	NOF[2]	Shank[3]	
MTECS 08078C19 28W	7.80	28.0	19.5	64.00	8.00	G 1/8	3	C	●
MTECS 1010D30 19W	10.00	19.0	30.0	73.00	10.00	G 1/4-3/8	4	C	●
MTECS 1212D37 14W	12.00	14.0	37.0	84.00	12.00	G 1/2-7/8	4	C	●
MTECS 1616D44 11W	16.00	11.0	44.0	105.00	16.00	G>1	4	C	●

- For user guide, see pages 497-506 • Internal & External tolerance: ISO 228-1 - Medium class

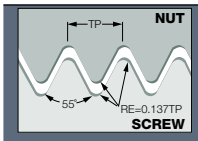
(1) Threads per inch
(2) Number of flutes
(3) C-Cylindrical

SOLIDTHREAD

MTEC-W
Solid Carbide Threading Endmills for Internal or External BSF/BSP Thread Profiles



Application: General engineering fittings and pipe couplings



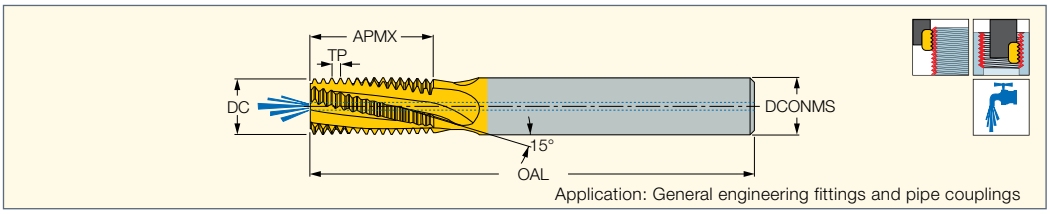
Designation	Dimensions								IC908
	TPI[1]	TDZ	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	
MTEC 0606C9 28W	28.0	G1/8	6.00	6.00	3	9.50	58.00	C	●
MTEC 0808C14 19W	19.0	G1/4,G3/8	8.00	8.00	3	14.00	64.00	C	●
MTEC 1212D19 14W	14.0	G1/2,G7/8	12.00	12.00	4	19.30	84.00	C	●
MTEC 1212D26 14W	14.0	G1/2,G7/8	12.00	12.00	4	26.30	84.00	C	●
MTEC 1212C24 11W	11.0	G1,-G1-1/2	12.00	12.00	3	24.20	84.00	C	●
MTEC 1616D38 11W	11.0	G1,G3	16.00	16.00	4	38.10	101.00	C	●

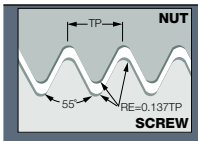
- For user guide, see pages 497-506 • Internal & External tolerance: ISO 228-1 - Medium class

(1) Threads per inch
(2) Number of flutes
(3) C-Cylindrical

SOLIDTHREAD

MTECB-W
Solid Carbide Internal or External Threading Endmills with Coolant Hole for BSF/BSP Thread Profiles



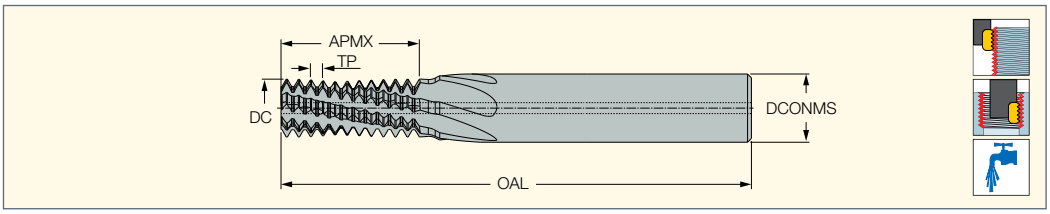


Designation	TPI[1]	TDZ	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	IC908
MTECB 08078C14 28W	28.0	G1/8	8.00	7.80	3	14.10	64.00	C	●
MTECB 1010D16 19W	19.0	G1/4-3/8	10.00	10.00	4	16.70	73.00	C	●
MTECB 1616E26 14W	14.0	G1/2-7/8	16.00	16.00	5	26.30	105.00	C	●
MTECB 1616D38 11W	11.0	G=>1	16.00	16.00	4	38.10	105.00	C	●
MTECB 2020E47 11W	11.0	G=>1	20.00	20.00	5	47.30	105.00	C	●

• For user guide, see pages 497-506 • Internal & External tolerance: ISO 228-1 - Medium class
(1) Threads per inch
(2) Number of flutes
(3) C-Cylindrical

SOLIDMTHREAD

MTECBF-W
Solid Carbide Internal or External Threading Endmills with a Coolant Hole. Intended for BSF/BSP Thread Profiles

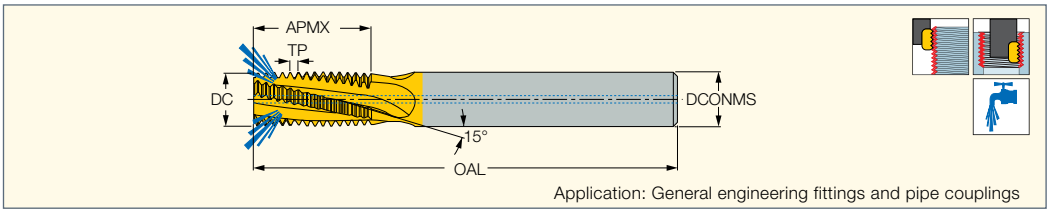


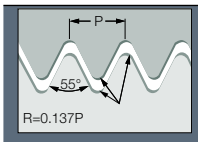
Designation	TPI[1]	TDZ	DCONMS	DC	NOF[2]	APMX	OAL	Shank	IC908
MTECBF 1616H38 11W	11.0	7/18	16.00	16.00	8	37.90	105.00	C	●
MTECBF 1614H26 14W	14.0	1/2-7/8	16.00	14.00	8	26.20	105.00	C	●
MTECBF 1010G16 19W	19.0	1/4-3/8	10.00	10.00	7	16.00	73.00	C	●
MTECBF 08078H14 28W	28.0	1/8	8.00	7.80	8	14.00	64.00	C	●

New
• For user guide, see pages 497-506 • Internal & External tolerance: B.S.84 - Medium class
(1) Threads per inch
(2) Number of flutes

SOLIDTHREAD

MTECZ-Whitworth
Solid Carbide Threading Endmills with Coolant Holes Located in the Flutes, for Internal or External Whitworth Thread



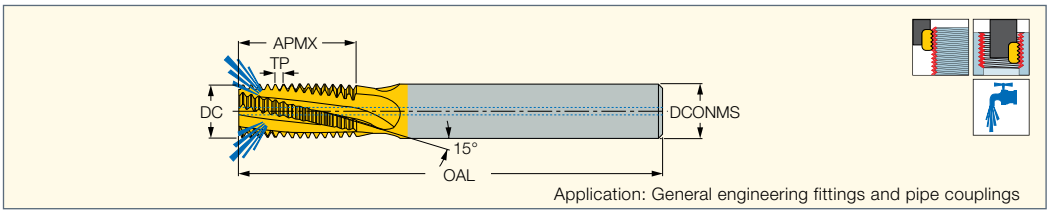


Designation	TPI[1]	BSW	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	THFT	IC908
MTECZ 10092D24 16W	16.0	1/2	10.00	9.20	4	24.60	73.00	C	WH55	●
MTECZ 10086D24 12W	12.0	1/2	10.00	8.60	4	24.40	73.00	C	WH55	●
MTECZ 12109D28 11W	11.0	5/8	12.00	10.90	4	28.90	84.00	C	WH55	●

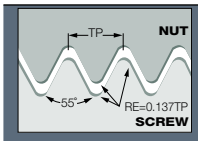
New
• With internal coolant hole • For user guide, see pages 497-506 • Internal & External tolerance: B.S.84 - Medium class
(1) Threads per inch
(2) Number of flutes
(3) C-Cylindrical

SOLIDTHREAD

MTECZ-BSF/BSP
Solid Carbide Threading Endmills with Coolant Holes for Internal or External BSF/BSP Thread



Application: General engineering fittings and pipe couplings

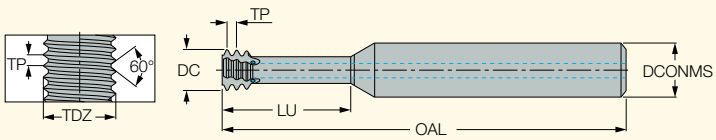


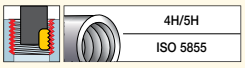
Designation	Dimensions								IC908
	TPI[1]	TDZ	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	
MTECZ 08078C14 28W	28.0	G1/8	8.00	7.80	3	14.10	64.00	C	●
MTECZ 1010D16 19W	19.0	G1/4-3/8	10.00	10.00	4	16.70	73.00	C	●
MTECZ 1616E26 14W	14.0	G1/2-7/8	16.00	16.00	5	26.30	101.00	C	●
MTECZ 1616D38 11W	11.0	G>1	16.00	16.00	4	38.10	101.00	C	●

• With internal coolant hole • For user guide, see pages 497-506 • Internal & External tolerance: ISO 228-1 - Medium class
(1) Threads per inch
(2) Number of flutes
(3) C-Cylindrical

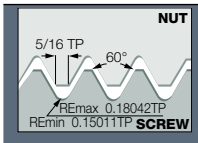
SOLIDTHREAD

MTECS-MJ
Small Diameter Short Solid Carbide MJ-Type Profile Threading Endmills





Aerospace and automotive industries, for applications requiring high fatigue strength



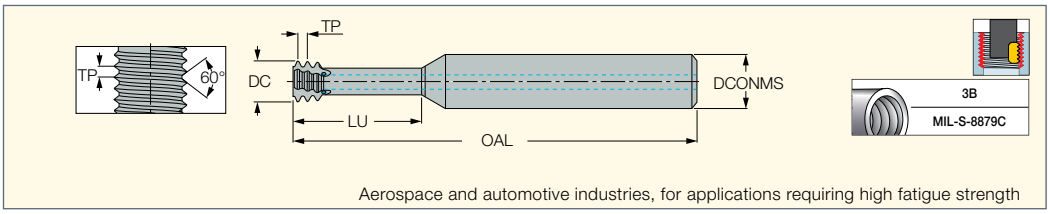
Designation	Dimensions									IC908
	DC	TP[2]	LU	OAL	DCONMS	TDZ	NOF[3]	Shank[4]	CSP[5]	
MTECS 06032C10 0.7MJ [1]	3.20	0.700	10.0	58.00	6.00	MJ4	3	C	0	●
MTECS 06039C12 0.8MJ [1]	3.90	0.800	12.5	58.00	6.00	MJ5	3	C	0	●
MTECS 06048C15 1.0MJ [1]	4.80	1.000	15.0	58.00	6.00	MJ6	3	C	0	●
MTECS 08061C20 1.25MJ	6.10	1.250	20.0	64.00	8.00	MJ8	3	C	1	●
MTECS 0808C25 1.5MJ	8.00	1.500	25.0	64.00	8.00	MJ10	3	C	1	●
MTECS 10092C30 1.75MJ	9.20	1.750	30.0	73.00	10.00	MJ12	3	C	1	●
MTECS 1010C35 2.0MJ	10.00	2.000	35.0	73.00	10.00	MJ14, MJ16	3	C	1	●

• For user guide, see pages 497-506
(1) Without coolant holes
(2) Thread pitch
(3) Number of flutes
(4) C-Cylindrical
(5) 0 - Without coolant supply, 1 - With coolant supply

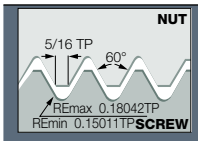
SOLIDTHREAD

MTECS-UNJ

Small Diameter Short Solid Carbide UNJ-Type Profile Threading Endmills



Aerospace and automotive industries, for applications requiring high fatigue strength



Designation	DC	TPI[2]	UNJC	UNJF	LU	OAL	DCONMS	NOF[3]	Shank[4]	CSP[5]	IC908
	Dimensions										
MTECS 06033C10 32UNJ [1]	3.30	32.0	8	10	10.5	58.00	6.00	3	C	0	●
MTECS 08051C16 28UNJ	5.10	28.0	-	1/4	16.0	64.00	8.00	3	C	1	●
MTECS 08067C20 24UNJ	6.70	24.0	-	5/16, 3/8	20.0	64.00	8.00	3	C	1	●
MTECS 06049C16 20UNJ [1]	4.90	20.0	1/4	-	16.0	58.00	6.00	3	C	0	●
MTECS 0808C28 20UNJ	8.00	20.0	-	7/16	28.0	64.00	8.00	3	C	1	●
MTECS 08061C20 18UNJ	6.15	18.0	5/16	9/16	20.0	64.00	8.00	3	C	1	●
MTECS 08069C24 16UNJ	6.90	16.0	3/8	-	24.0	64.00	8.00	3	C	1	●
MTECS 08079C25 14UNJ	7.90	14.0	7/16	-	25.0	64.00	8.00	3	C	1	●
MTECS 10094C27 13UNJ	9.40	13.0	1/2	-	27.5	73.00	10.00	3	C	1	●

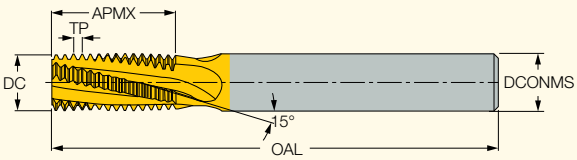
- For user guide, see pages 497-506

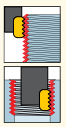
[1] Without coolant holes
[2] Threads per inch
[3] Number of flutes
[4] C-Cylindrical
[5] 0 - Without coolant supply, 1 - With coolant supply

SOLIDTHREAD

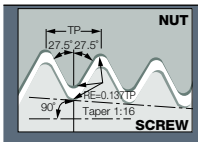
MTEC-BSPT

Solid Carbide Threading Endmills for an External or Internal BSPT Thread Profile





Application: General engineering fittings and pipe couplings



Designation	TPI[1]	TDZ	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	IC908
	Dimensions								
MTEC 0606C9 28BSPT	28.0	RC1/8	6.00	5.40	3	8.16	57.00	C	●
MTEC 0808C14 19BSPT	19.0	RC1/4,RC3/8	8.00	7.16	3	12.03	64.00	C	●
MTEC 1212D19 14BSPT	14.0	RC1/2,RC7/8	12.00	10.88	4	16.33	84.00	C	●
MTEC 1616D28 11BSPT	11.0	RC1,RC2	16.00	14.17	4	25.40	101.00	C	●

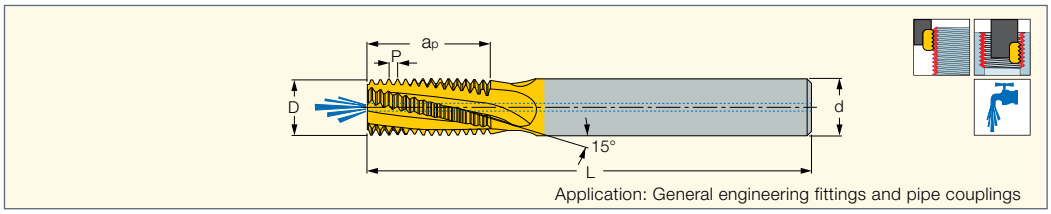
- For user guide, see pages 497-506 • Internal & External tolerance: ISO 7-1, EN 10226 (1&2) - Standard BSPT

[1] Threads per inch
[2] Number of flutes
[3] C-Cylindrical

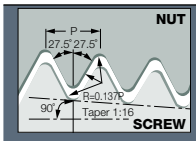
SOLIDTHREAD

MTECB-BSPT

Solid Carbide External or Internal Threading Endmills with Coolant Holes, for BSPT Thread Profile



Application: General engineering fittings and pipe couplings



Designation	Dimensions									IC908
	TPI(1)	BSPT	DCONMS	DC	NOF(2)	APMX	OAL	Shank(3)	THFT	TP(4)	
MTECB 08078C14 28BSPT	28.0	RC1/8	8.00	7.80	3	14.10	64.00	C	BSPT55	0.907	●
MTECB 1010D16 19BSPT	19.0	RC1/4-3/8	10.00	10.00	4	16.70	73.00	C	BSPT55	1.337	●
MTECB 1616E26 14BSPT	14.0	RC1/2-7/8	16.00	16.00	5	26.30	105.00	C	BSPT55	1.814	●

New

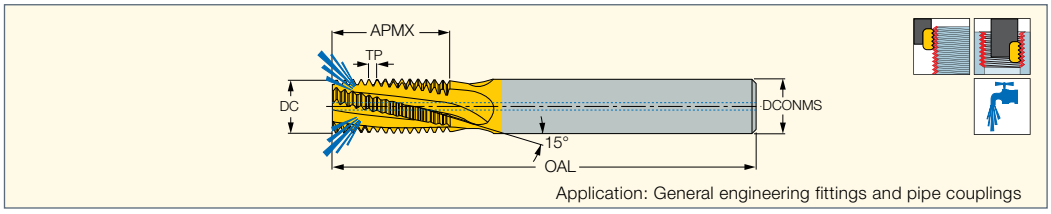
- With internal coolant hole
- For user guide, see pages 497-506

(1) Threads per inch
(2) Number of flutes
(3) C-Cylindrical
(4) Thread pitch

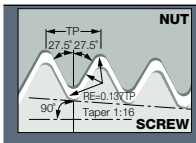
SOLIDTHREAD

MTECZ-BSPT

Solid Carbide Threading Endmills with Coolant Holes for an Internal or External BSPT Thread Profile



Application: General engineering fittings and pipe couplings



Designation	Dimensions									IC908
	TPI(1)	BSPT	DCONMS	DC	NOF(2)	APMX	OAL	Shank(3)	TP(4)	
MTECZ 08078C14 28BSPT	28.0	RC1/8	8.00	7.80	3	14.10	64.00	C	0.907	●
MTECZ 1010D16 19BSPT	19.0	RC1/4-3/8	10.00	10.00	4	16.70	73.00	C	1.337	●

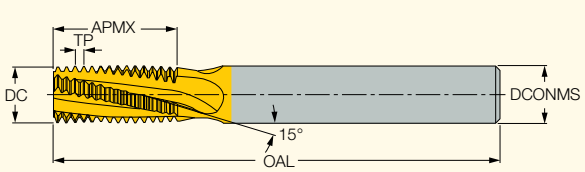
- With internal coolant hole
- For user guide, see pages 497-506
- Internal & External tolerance: ISO 7-1, EN 10226 (1&2) - Standard BSPT

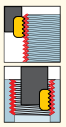
(1) Threads per inch
(2) Number of flutes
(3) C-Cylindrical
(4) Thread pitch

SOLIDTHREAD

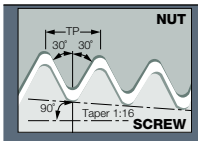
MTEC-NPT

Solid Carbide Threading Endmills for an External or Internal NPT Thread Profile





Application: Steam, gas and water pipes



Designation	TPI[1]	TDZ	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	IC908
	Dimensions								
MTEC 0606C9 27NPT	27.0	1/16,1/8	6.00	5.36	3	9.90	58.00	C	●
MTEC 0808C14 18NPT	18.0	1/4,3/8	8.00	7.12	3	14.80	64.00	C	●
MTEC 1212D20 14NPT	14.0	1/2,3/4	12.00	10.77	4	20.90	84.00	C	●
MTEC 1616D27 11.5NPT	11.5	1,2	16.00	14.24	4	27.60	101.00	C	●
MTEC 2020D39 8NPT	8.0	=>2-1/2	20.00	20.00	4	39.70	105.00	C	●

• For user guide, see pages 497-506 • Internal & External tolerance: ANSI/ASME B1.20.1 - Standard NPT

(1) Threads per inch

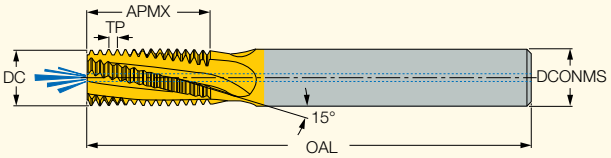
(2) Number of flutes

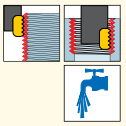
(3) C-Cylindrical

SOLIDTHREAD

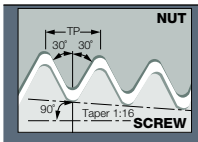
MTECB-NPT

Solid Carbide Threading Endmills with Coolant Hole for an External or Internal NPT Thread Profile





Application: Steam, gas and water pipes



Designation	TPI[1]	TDZ	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	IC908
	Dimensions								
MTECB 08076C10 27NPT	27.0	1/8	8.00	7.60	3	10.80	64.00	C	●
MTECB 1010D16 18NPT	18.0	1/4,3/8	10.00	10.00	4	16.20	73.00	C	●
MTECB 16155D22 14NPT	14.0	1/2,3/4	16.00	15.50	4	22.70	105.00	C	●

• For user guide, see pages 497-506 • Internal & External tolerance: ANSI/ASME B1.20.1 - Standard NPT

(1) Threads per inch

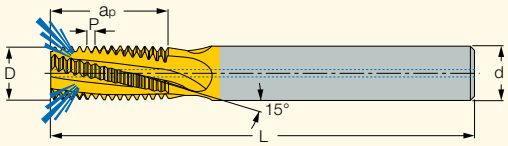
(2) Number of flutes

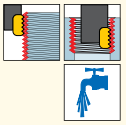
(3) C-Cylindrical

SOLIDTHREAD

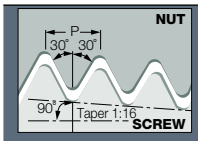
MTECZ-NPT

Solid Carbide Threading Endmills with Coolant Holes Located in the Flutes, for Internal or External NPT Thread Profile





Application: General engineering fittings and pipe couplings



Designation	TPI[1]	NPT	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	THFT	IC908
	Dimensions									
MTECZ 08076C10 27NPT	27.0	1/8	8.00	7.60	3	10.80	64.00	C	NPT60	●
MTECZ 1010D16 18NPT	18.0	1/4-3/8	10.00	10.00	4	16.20	73.00	C	NPT60	●
MTECZ 16155D22 14NPT	14.0	1/2-3/4	16.00	15.50	4	22.70	101.00	C	NPT60	●

New

• For user guide, see pages 497-506

(1) Threads per inch

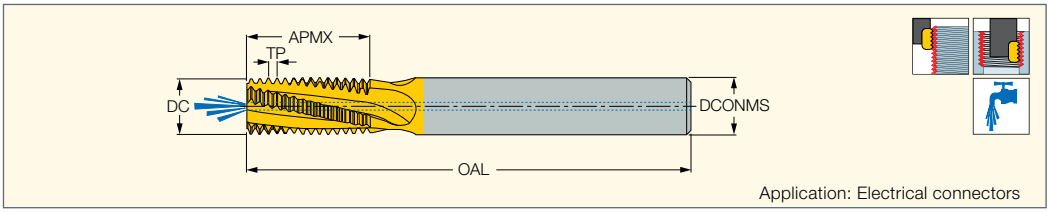
(2) Number of flutes

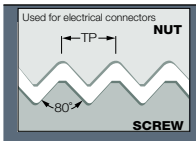
(3) C-Cylindrical

SOLIDTHREAD

MTECB-PG

Solid Carbide Threading Endmills with a Coolant Hole for External and Internal PG Full Profile (DIN 40430)





Designation	Dimensions									IC908
	TPI[1]	THOD	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	TP[4]	
MTECB 1212D20 18PG	18.0	Pg 9, 11, 13.5, 16	12.00	12.00	4	20.50	84.00	C	1.411	●
MTECB 1212D23 16PG	16.0	Pg 21, 29,36, 42, 48	12.00	12.00	4	23.00	84.00	C	1.588	●

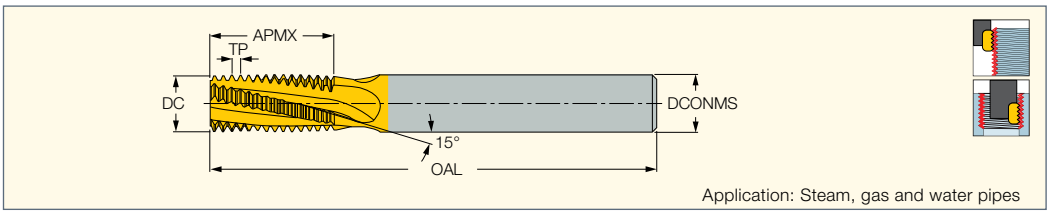
• With internal coolant hole • For user guide, see pages 497-506 • Internal & External tolerance: DIN 40430 - Standard PG

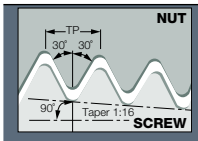
[1] Threads per inch
[2] Number of flutes
[3] C-Cylindrical
[4] Thread pitch

SOLIDTHREAD

MTEC-NPTF

Solid Carbide Threading Endmills for an External or Internal NPTF Thread Profile





Designation	Dimensions								IC908
	TPI[1]	TDZ	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	
MTEC 0606C9 27NPTF	27.0	1/16,1/8	6.00	6.00	3	9.90	58.00	C	●
MTEC 0808C14 18NPTF	18.0	1/4,3/8	8.00	8.00	3	14.80	64.00	C	●
MTEC 1212D20 14NPTF	14.0	1/2,3/4	12.00	12.00	4	20.90	84.00	C	●

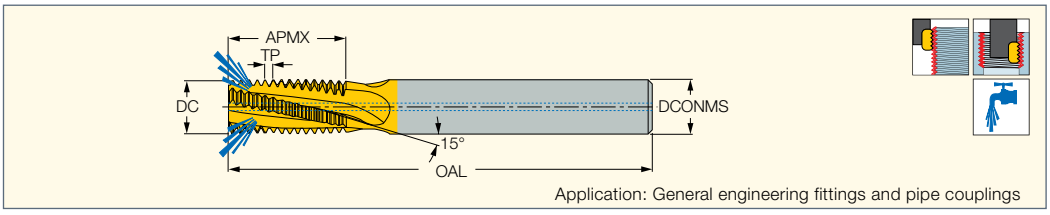
• For user guide, see pages 497-506 • Internal & External tolerance: ANSI/ASME B1.20.3 - Standard NPTF

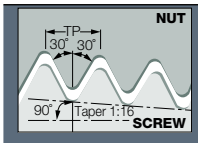
[1] Threads per inch
[2] Number of flutes
[3] C-Cylindrical

SOLIDTHREAD

MTECZ-NPTF

Solid Carbide Threading Endmills with Coolant Holes for Internal or External NPTF Thread Profile





Designation	Dimensions								IC908
	TPI[1]	TDZ	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	
MTECZ 08076C10 27NPTF	27.0	1/8	8.00	7.60	3	10.80	64.00	C	●
MTECZ 1010D16 18NPTF	18.0	1/4-3/8	10.00	10.00	4	16.20	73.00	C	●

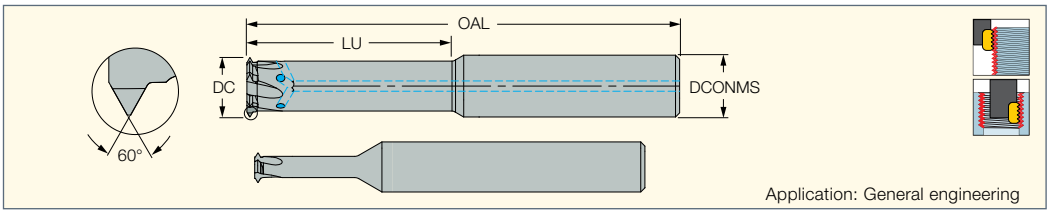
• For user guide, see pages 497-506 • Internal & External tolerance: ANSI/ASME B1.20.3 - Standard NPTF

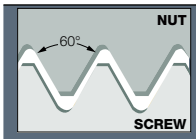
[1] Threads per inch
[2] Number of flutes
[3] C-Cylindrical

SOLIDTHREAD

MTECI-A60

60° Partial Profile Solid Carbide Thread Mills for Internal and External Threads





Designation	Dimensions															Tough ↔ Hard	
	TPN[1]	TPX[2]	TPN_ DF2[3]	TPX_ DF2[4]	TPIN[5]	TPIX[6]	TPIN_ DF2[7]	TPIX_ DF2[8]	Th	DCONMS	DC	NOF[9]	LU	OAL	Shank[10]	CSP[11]	IC908	IC902
MTECI 03019C5 A60	0.350	0.600	0.350	0.600	40.00	72.00	40.00	72.00	[a] Several Sizes	3.00	1.90	3	5.2	39.00	C	0		●
MTECI 03024C7 A60	0.500	0.800	0.500	0.800	32.00	48.00	32.00	48.00	[a] Several Sizes	3.00	2.40	3	7.1	38.00	C	0		●
MTECI 06032C9 A60	0.500	1.000	0.500	1.000	24.00	48.00	24.00	48.00	[a] Several Sizes	6.00	3.20	3	9.5	57.00	C	0		●
MTECI 0604C12 A60	0.500	1.000	0.500	1.000	24.00	48.00	24.00	48.00	[a] Several Sizes	6.00	4.00	3	12.5	58.00	C	0		●
MTECI 0605D20 A60	0.500	0.800	0.400	0.800	28.00	56.00	32.00	64.00	=>6	6.00	5.00	4	20.0	58.00	C	1	●	
MTECI 0808D28 A60	0.500	0.800	0.400	0.800	28.00	56.00	32.00	64.00	=>9	8.00	8.00	4	28.0	64.00	C	1	●	
MTECI 0808D30 A60	1.000	1.750	0.800	1.500	14.00	28.00	16.00	32.00	=>10	8.00	8.00	4	30.0	64.00	C	1	●	
MTECI 1010D35 A60	1.000	1.750	0.800	1.500	14.00	28.00	16.00	32.00	=>12	10.00	10.00	4	35.0	73.00	C	1	●	
MTECI 1212E39 A60	1.000	1.750	0.800	1.500	14.00	28.00	16.00	32.00	=>14	12.00	12.00	5	39.0	84.00	C	1	●	
MTECI 1212E40 A60	2.000	3.000	1.750	2.500	8.00	13.00	10.00	15.00	=>16	12.00	12.00	5	40.0	84.00	C	1	●	
MTECI 1614E45 A60	2.000	3.000	1.750	2.500	8.00	13.00	10.00	15.00	=>18	16.00	14.00	5	45.0	101.00	C	1	●	
MTECI 1616E50 A60	2.000	3.000	1.750	2.500	8.00	13.00	10.00	15.00	=>20	16.00	16.00	5	50.0	101.00	C	1	●	

- (a)See table below
- For user guide, see pages 497-506
- DIN13 , ISO 68-1, ISO 965 (1&2) - Internal tolerance: 6H, External tolerance: 6g
- ANSI/ASME B1.1 - Internal tolerance: 2B, External tolerance: 2A

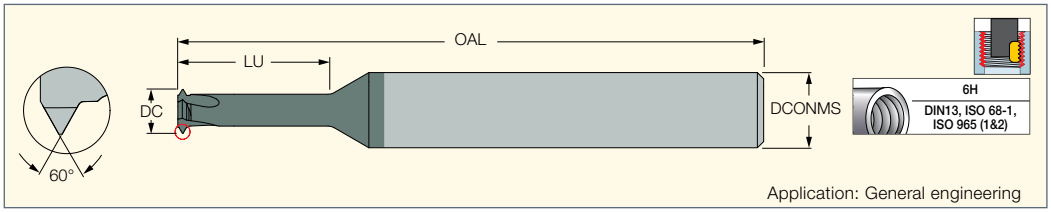
[1] Internal thread pitch minimum
[2] Internal thread pitch maximum
[3] External thread pitch minimum
[4] External thread pitch maximum
[5] Internal threads per inch minimum
[6] Internal threads per inch maximum
[7] External threads per inch minimum
[8] External threads per inch maximum
[9] Number of flutes
[10] C-Cylindrical
[11] 0 - Without coolant supply, 1 - With coolant supply

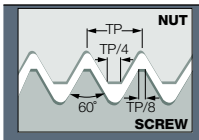
Designation	Possible Thread Sizes		
	M Coarse	M Fine	UN, UNC, UNS,UNF, UNEF
MTECI 03019C5 A60	M2.5x0.45	M2.5x0.35, M3x0.35,	3-48UNC, 3-56UNF, 4-40UNC, 4-48UNF
MTECI 06032C9 A60	M4x0.7 M4.5x0.75	M4x0.5	8-32UNC, 8-36UNF, 10-24UNC, 10-28UNS, 10-32UNF
MTECI 0604C12 A60	M5x0.8 M6x1.0	M5x0.5, M5.5x0.5, M5x0.75	10-36UNS, 10-40UNS, 10-48UNS, 12-24UNC, 12-28UNF

SOLIDTHREAD

MTECI-ISO

Small Diameter Single Point Internal ISO Profile Solid Carbide Thread Mills





Designation	Dimensions									IC902
	TP[1]	M Coarse	M Fine	DCONMS	DC	NOF[2]	LU	OAL	Shank[3]	
MTECI 03009C4 0.25ISO	0.250	M1.2X0.25	M1.4X0.25, M1.6X0.25	3.00	0.90	3	4.3	39.00	C	●
MTECI 03007C3 0.25ISO	0.250	M1X0.25	-	3.00	0.72	3	3.6	39.00	C	●
MTECI 03011C5 0.3ISO	0.300	M1.4X0.3	-	3.00	1.05	3	5.0	39.00	C	●
MTECI 03012C6 0.35ISO	0.350	M1.6X0.35	M2X0.35, M2.2X0.35	3.00	1.20	3	5.7	39.00	C	●
MTECI 03016C7 0.4ISO	0.400	M2X0.4	-	3.00	1.55	3	7.1	39.00	C	●
MTECI 03024C10 0.5ISO	0.500	M3X0.5	M3.5X0.5, M4X0.5	3.00	2.37	3	10.6	39.00	C	●

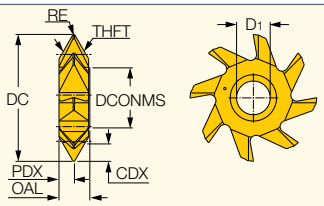
- For user guide, see pages 497-506

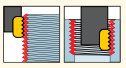
[1] Thread pitch
[2] Number of flutes
[3] C-Cylindrical

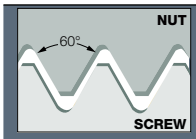
SOLIDTHREAD

SD TRD-M-SP

Interchangeable Solid Carbide Heads for 60° Partial Profile Thread Milling







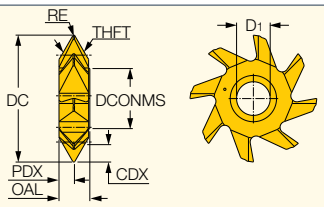
Designation	Dimensions															IC908
	DC	DMIN	DIOUT(1)	THFT(2)	TPN(3)	TPX(4)	TPIN(5)	TPIX(6)	PDX	RE	D1	CDX	OAL	ZEFP(7)	DCONMS	
SD TRD32-M60-6P-SP15	31.70	42.00	36.00	VP60	4.000	6.000	4.00	6.00	3.70	0.30	8.40	4.70	7.70	8	15.00	●
SD TRD40-M60-8P-SP17	39.70	57.00	64.00	VP60	6.000	8.000	3.00	4.00	4.50	0.40	9.80	6.20	9.50	10	17.00	●

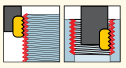
• For shanks, see pages 373-375 • For user guide, see pages 497-506 • DIN13 , ISO 68-1, ISO 965 (1&2) - Internal tolerance: 6H, External tolerance: 6g
• ANSI/ASME B1.1 - Internal tolerance: 2B, External tolerance: 2A
(1) Minimum diameter for external threading
(2) VP60=60° partial thread form
(3) Thread pitch minimum (mm)
(4) Thread pitch maximum (mm)
(5) Threads per inch minimum
(6) Threads per inch maximum
(7) Num. of cutting edges

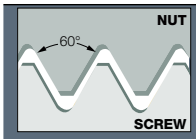
SOLIDTHREAD

SD TRD-W-SP

Interchangeable Solid Carbide Heads for 55° Partial Profile Thread Milling





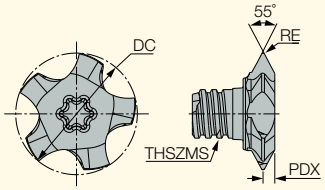


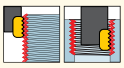
Designation	Dimensions													IC908
	DC	DMIN	DIOUT(1)	THFT(2)	THFT_2	TPIN(3)	TPIX(4)	PDX	D1	CDX	OAL	ZEFP(5)	RE	DCONMS	
SD TRD32-W55-4T-SP15	31.70	46.00	35.00	VP55	WH55	4.00	6.00	3.70	8.40	4.70	7.70	8	0.50	15.00	●
SD TRD40-W55-3T-SP17	39.70	57.00	57.00	VP55	WH55	3.00	4.00	4.50	9.80	6.20	9.50	10	0.80	17.00	●

• For shanks, see pages 373-375 • For user guide, see pages 497-506 • B.S.84 Internal & External tolerance: Medium class
(1) Minimum diameter for external threading
(2) VP55=55° partial thread forms
(3) Threads per inch minimum
(4) Threads per inch maximum
(5) Num. of cutting edges

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TRF 55°
Interchangeable Solid Carbide Milling Heads for 55° Partial Profile Thread Milling





Designation	Dimensions										IC908
	DC	NOF(1)	TPIN(2)	TPIX(3)	RE	PDX	THSZMS	TDZ(4)	DMIN	TQ(5)	
MM TRF12-W55-P11-5T05	11.94	5	11.00	14.00	0.23	1.15	T05	15.875	13.60	7.0	●
MM TRF12-W55-P19-5T05	11.94	5	19.00	28.00	0.11	0.75	T05	14.287	13.10	10.0	●
MM TRF16-W55-P8-5T06	15.94	5	8.00	14.00	0.23	1.55	T06	20.637	18.30	15.0	●
MM TRF20-W55-P6-6T08	19.94	6	6.00	8.00	0.40	1.95	T08	25.4	21.30	28.0	●

• For ISO metric thread (ISO 68, DIN13, ANSI B 1.13M-1983) • For shanks, see pages 101-111 • For clamping instructions, see pages 111-112
• Do not apply lubricant to the threaded connection.
(1) Number of flutes
(2) Threads per inch minimum
(3) Threads per inch maximum
(4) Smallest possible thread
(5) Tightening torque

Thread Size	Tightening Torque (Nxcm)
T05	700
T06	1000
T08	1500
T10	2800

(1) Order separately

Spare Parts

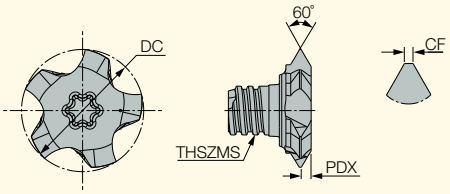
Designation	
MM TRF12-W55-P11-5T05	BIT SOCKET T20 3/8" DRIVE*
MM TRF12-W55-P19-5T05	BIT SOCKET T20 3/8" DRIVE*
MM TRF16-W55-P8-5T06	BIT SOCKET T25 3/8" DRIVE*
MM TRF20-W55-P6-6T08	BIT SOCKET T40 3/8" DRIVE*

* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TRF 60°

Interchangeable Solid Carbide Milling Heads for 60° Partial Profile Thread Milling



Designation	Dimensions															IC908
	DC	NOF(1)	TPN(2)	TPX(3)	TPN_ DF2(4)	TPX_ DF2(5)	TPIN(6)	TPIX(7)	TPIN_ DF2(8)	TPIX_ DF2(9)	CF	PDX	THSZMS	TDZ(10)	TQ	DMIN	
MM TRF12A60-P080-5T05	11.94	5	0.500	0.800	0.400	0.800	28.00	56.00	32.00	64.00	0.05	0.55	T05	M14	7.0	13.50	●
MM TRF12A60-P175-5T05	11.94	5	1.000	1.750	0.800	1.500	14.00	28.00	16.00	32.00	0.11	0.96	T05	M14	7.0	13.00	●
MM TRF12A60-P250-5T05	11.94	5	2.000	2.500	1.750	2.000	10.00	13.00	11.00	15.00	0.22	1.21	T05	M16	7.0	14.00	●
MM TRF16A60-P080-5T06	15.94	5	0.500	0.800	0.400	0.800	28.00	56.00	32.00	64.00	0.05	0.55	T06	M18	10.0	17.50	●
MM TRF16A60-P175-5T06	15.94	5	1.000	1.750	0.800	1.500	14.00	28.00	16.00	32.00	0.10	1.00	T06	M18	10.0	17.00	●
MM TRF16A60-P300-5T06	15.94	5	2.000	3.000	1.750	2.500	8.00	13.00	10.00	15.00	0.22	1.41	T06	M20	10.0	18.00	●
MM TRF20A60-P200-6T08	19.94	6	1.000	2.000	0.800	1.750	13.00	28.00	15.00	32.00	0.11	0.95	T08	M24	10.0	23.00	●
MM TRF20A60-P300-6T08	19.94	6	2.000	3.000	1.750	2.500	8.00	13.00	10.00	15.00	0.22	1.41	T08	M24	15.0	22.00	●
MM TRF20A60-P400-6T08	19.94	6	3.000	4.000	2.500	3.500	6.00	9.00	7.00	10.00	0.31	1.86	T08	M25	15.0	22.00	●
MM TRF28A60-P600-5T10	27.70	5	5.000	6.000	4.500	5.000	4.00	5.00	5.00	6.00	0.57	2.49	T10	M38	28.0	33.00	●
MM TRF28A60-P500-6T10	27.70	6	3.000	5.000	2.500	4.500	6.00	8.00	6.00	10.00	0.34	2.17	T10	M33	28.0	30.00	●

• For ISO metric thread (ISO 68, DIN13, ANSI B 1.13M-1983) • For shanks, see pages 101-111 • For clamping instructions, see pages 111-112

• Do not apply lubricant to the threaded connection.

(1) Number of flutes
(2) Thread pitch minimum (mm)-internal
(3) Thread pitch maximum (mm)-internal
(4) Thread pitch minimum (mm)-external
(5) Thread pitch maximum (mm)-external
(6) Threads per inch minimum-internal
(7) Threads per inch maximum-internal
(8) Threads per inch minimum-external
(9) Threads per inch maximum-external
(10) Smallest possible thread

Spare Parts

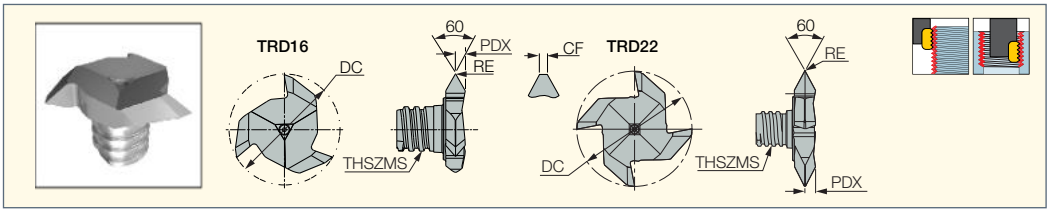
Designation	
MM TRF12A60-P080-5T05	BIT SOCKET T20 3/8" DRIVE*
MM TRF12A60-P175-5T05	BIT SOCKET T20 3/8" DRIVE*
MM TRF12A60-P250-5T05	BIT SOCKET T20 3/8" DRIVE*
MM TRF16A60-P080-5T06	BIT SOCKET T20 3/8" DRIVE*
MM TRF16A60-P175-5T06	BIT SOCKET T25 3/8" DRIVE*
MM TRF16A60-P300-5T06	BIT SOCKET T25 3/8" DRIVE*
MM TRF20A60-P200-6T08	BIT SOCKET T40 3/8" DRIVE*
MM TRF20A60-P300-6T08	BIT SOCKET T40 3/8" DRIVE*
MM TRF20A60-P400-6T08	BIT SOCKET T40 3/8" DRIVE*
MM TRF28A60-P600-5T10	BIT SOCKET T40 3/8" DRIVE*
MM TRF28A60-P500-6T10	BIT SOCKET T40 3/8" DRIVE*

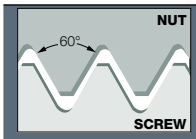
* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TRD-M

Interchangeable Solid Carbide Milling Heads for 60° Partial Profile Thread Milling





Designation	Dimensions																Tough ↔ Hard	
	DC	NOF(1)	TPN(2)	TPX(3)	TPN_ DF2(4)	TPX_ DF2(5)	TPIN(6)	TPIX(7)	TPIN_ DF2(8)	TPIX_ DF2(9)	RE	CF	PDX	THSZMS	TDZ(10)	DMIN	IC528	IC908
MM TRD16-M60-05P-3T06	15.70	3	0.500	2.000	0.400	2.000	13.00	48.00	16.00	56.00	- (11)	0.05	1.4	T06	M20	19.05	●	●
MM TRD16-M60-15P-3T06	15.70	3	1.500	2.000	1.000	1.500	13.00	16.00	16.00	28.00	0.05	-	1.4	T06	M22	19.05	●	●
MM TRD22-M60-30P-4T08	21.70	4	3.000	4.500	2.500	4.000	6.00	9.00	7.00	10.00	0.20	-	2.4	T08	M36	31.00	●	●

- For ISO metric thread (ISO 68, DIN13, ANSI B 1.13M-1983) • For shanks, see pages 101-111 • For clamping instructions, see pages 111-112
- Do not apply lubricant to the threaded connection. • DIN13 , ISO 68-1, ISO 965 (1&2) - Internal tolerance: 6H, External tolerance: 6g
- ANSI/ASME B1.1 - Internal tolerance: 2B, External tolerance: 2A

(1) Number of flutes
(2) Thread pitch minimum (mm)-internal
(3) Thread pitch maximum (mm)-internal
(4) Thread pitch minimum (mm)-external
(5) Thread pitch maximum (mm)-external
(6) Threads per inch minimum-internal
(7) Threads per inch maximum-internal
(8) Threads per inch minimum-external
(9) Threads per inch maximum-external
(10) Smallest possible thread
(11) Flat

Spare Parts

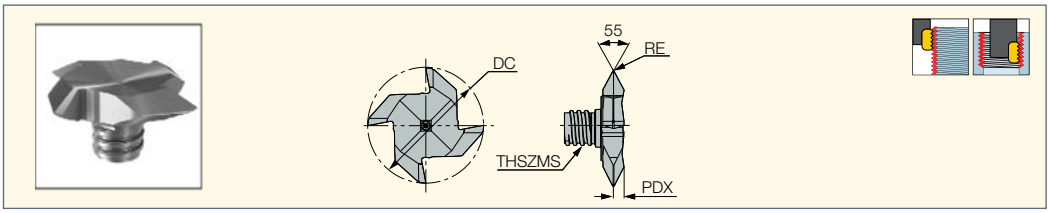
Designation		
MM TRD16-M60-05P-3T06	MM EGR 16-18*	T-25/3*
MM TRD16-M60-15P-3T06	MM EGR 16-18*	T-25/3*
MM TRD22-M60-30P-4T08	MM EGR 20-22*	T-30/3 L*

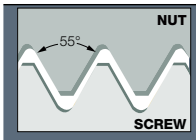
* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TRD-W

Interchangeable Solid Carbide Milling Heads for 55° Partial Profile Thread Milling





Designation	Dimensions												Tough ↔ Hard	
	DC	NOF(1)	RE	PDX	TPIN(2)	TPIX(3)	TPIN_ DF2(4)	TPIX_ DF2(5)	THSZMS	TDZ(6)	DMIN	Standard	IC528	IC908
MM TRD22-W55-14P-4T08	21.70	4	0.20	2.0	11.00	14.00	11.50	16.00	T08	G3/4	24.20	DIN ISO 228, B.S. 84	●	●

- For shanks, see pages 101-111 • For clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection.
- B.S.84 Internal & External tolerance: Medium class

(1) Number of flutes
(2) Threads per inch minimum-internal
(3) Threads per inch maximum-internal
(4) Threads per inch minimum-external
(5) Threads per inch maximum-external
(6) Thread diameter size

Spare Parts

Designation		
MM TRD-W	T-30/3 L*	MM EGR 20-22*

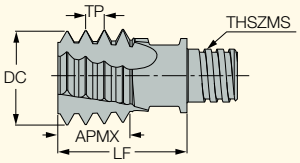
* Optional, to be ordered separately

Identification Code

MT	10	D	6	0.75	ISO	MMT/MMTT
MULTI-MASTER thread mill	cutting dia.	no. of flutes	cutting length	pitch	thread profile iso un G (55°)	connection size

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MT-ISO-MM
Carbide Milling Heads with a Threaded Connection for Internal ISO Metric Thread



Application: General engineering

Designation	Dimensions											IC908
	TP[1]	M Coarse	M Fine	DC	NOF[2]	APMX	LF	THSZMS				
MT10D7.5 0.5ISO-MMT05	0.500	-	=>14	10.00	4	7.50	12.75	T05	MM KEY 6X4*			●
MT 10D6 0.75ISO-MMT05	0.750	-	=>12	10.00	4	6.00	12.75	T05	MM KEY 6X4*			●
MT 10D6 1.0ISO-MMT05	1.000	-	=>12	10.00	4	6.00	12.75	T05	MM KEY 6X4*			●
MT 10D5 1.25ISO-MMT05	1.250	-	=>14	10.00	4	5.00	12.75	T05	MM KEY 6X4*			●
MT 10D6 1.5ISO-MMT05	1.500	-	=>14	10.00	4	6.00	12.75	T05	MM KEY 6X4*			●
MT 12D8 0.5ISO-MMT06	0.500	-	=>16	12.00	4	8.00	14.30	T06	MM KEY 8X5*			●
MT 12E8 0.75ISO-MMT06	0.750	-	=>16	12.00	5	8.30	14.30	T06	MM KEY 8X5*			●
MT 12E8 1.0ISO-MMT06	1.000	-	=>16	12.00	5	8.00	14.30	T06	MM KEY 8X5*			●
MT 12D8 1.25ISO-MMT06	1.250	-	=>16	12.00	4	7.50	14.30	T06	MM KEY 8X5*			●
MT 12D7 1.5ISO-MMT06	1.500	-	=>16	12.00	4	7.60	14.30	T06	MM KEY 8X5*			●
MT 12D7 1.75ISO-MMT06	1.750	-	=>16	12.00	4	7.10	14.30	T06	MM KEY 8X5*			●
MT12D8 2.0ISO-MMT06	2.000	M16	=>17	12.00	4	8.00	14.30	T06	MM KEY 8X5*			●
MT 16F12 1.0ISO-MMT08	1.000	-	=>22	16.00	6	12.00	20.00	T08	MM KEY 10X7*			●
MT 16F12 1.5ISO-MMT08	1.500	-	=>20	16.00	6	12.00	20.00	T08	MM KEY 10X7*			●
MT 16E12 2.0ISO-MMT08	2.000	-	=>19	16.00	5	12.00	20.00	T08	MM KEY 10X7*			●
MT15.4E13 2.5ISO-MMT08	2.500	M20	=>22	15.40	5	12.70	20.00	T08	MM KEY 10X7*			●
MT 16C12 3.0ISO-MMT08	3.000	M24	=>25	16.00	3	12.10	20.00	T08	MM KEY 10X7*			●
MT20F14 2.0ISO-MMTT10	2.000	-	=>27	20.00	6	12.00	21.00	T10		BIT SOCKET T30 3/8" DRIVE*	T-40/3 L*	●
MT20D12 3.0ISO-MMTT10	3.000	-	=>27	20.00	4	12.20	21.00	T10		BIT SOCKET T40 3/8" DRIVE*	T-40/3 L*	●
MT20D14 3.5ISO-MMTT10	3.500	-	=>30	20.00	4	10.60	21.00	T10		BIT SOCKET T40 3/8" DRIVE*	T-40/3 L*	●

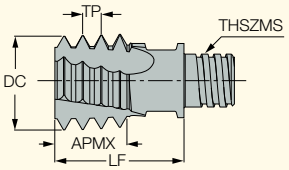
- Note: Description and dimensions relate to the new products with clamping flats. • For shanks, see pages 101-111
- For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection

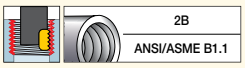
(1) Thread pitch
(2) Number of flutes
* Optional, to be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

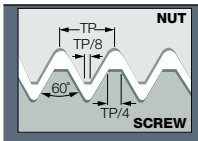
MT-UN-MM

Carbide Milling Heads with a Threaded Connection for Internal UN Thread Profile





Application: General engineering



Designation	TPI[1]	UNC	UNF	UNEF	DC	NOF[2]	APMX	LF	THSZMS	TP[3]	IC908
	Dimensions										
MT 10D7 32UN-MMT05	32.0	-	-	-	10.00	4	6.40	12.75	T05	0.794	●
MT 10D6 28UN-MMT05	28.0	-	-	1/2	10.00	4	5.50	12.75	T05	0.907	●
MT 10D6 24UN-MMT05	24.0	-	-	9/16-5/8	10.00	4	5.30	12.75	T05	1.058	●
MT 10D6 20UN-MMT05	20.0	-	1/2	-	10.00	4	5.10	12.75	T05	1.270	●
MT 10D5 18UN-MMT05	18.0	-	9/16-5/8	1 1/8-1 5/8	10.00	4	5.60	12.75	T05	1.411	●
MT 10D7 16UN-MMT05	16.0	-	3/4	-	10.00	4	6.40	12.75	T05	1.588	●
MT 12D8 24UN-MMT06	24.0	-	-	5/8- 11/16	12.00	4	7.40	14.30	T06	1.058	●
MT 12D8 20UN-MMT06	20.0	-	-	3/4 - 1	12.00	4	7.70	14.30	T06	1.270	●
MT 12D8 18UN-MMT06	18.0	-	5/8	=>1 11/16	12.00	4	7.10	14.30	T06	1.411	●
MT 12D8 16UN-MMT06	16.0	-	3/4	-	12.00	4	8.00	14.30	T06	1.588	●
MT 12D8 14UN-MMT06	14.0	-	7/8	-	12.00	4	7.30	14.30	T06	1.814	●
MT 16E11 18UN-MMT08	18.0	-	5/8	=>1 11/16	16.00	5	11.30	20.00	T08	1.411	●
MT 16E13 14UN-MMT08	14.0	-	7/8	-	16.00	5	12.70	20.00	T08	1.814	●
MT 16E13 12UN-MMT08	12.0	-	1-1 1/2	-	16.00	5	12.70	20.00	T08	2.117	●
MT 15.3D13 10UN-MMT08	10.0	3/4	-	-	15.30	4	12.70	20.00	T08	2.540	●
MT 16C11 9UN-MMT08	9.0	7/8	-	-	16.00	3	11.30	20.00	T08	2.822	●
MT 16C13 8UN-MMT08	8.0	1.0	-	-	16.00	3	12.70	20.00	T08	3.175	●
MT20F13 12UN-MMTT10	12.0	-	=>1	-	20.00	6	12.70	21.00	T10	2.117	●
MT20D13 8UN-MMTT10	8.0	1		-	20.00	4	12.70	21.00	T10	3.175	●
MT20D15 7UN-MMTT10	7.0	-	1 1/8 - 1 1/4	-	20.00	4	10.90	21.00	T10	3.629	●

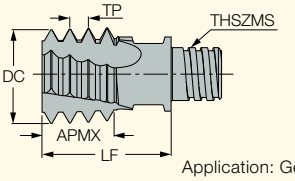
- Note: Description and dimensions relate to the new products with clamping flats • For shanks, see pages 101-111
- For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection

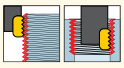
(1) Threads per inch
(2) Number of flutes
(3) Thread pitch

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

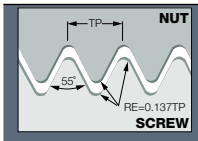
MT-W-MM

Carbide Milling Heads with a Threaded Connection for Internal and External 55° BSW Thread Profile





Application: General engineering fittings and pipe couplings



Designation	TPI[1]	TDZ	DC	NOF[2]	APMX	LF	THSZMS	TP[3]	IC908
	Dimensions								
MT 10D6 19W-MMT05	19.0	G1/4-3/8	10.00	4	5.30	12.75	T05	1.337	●
MT 16D13 14W-MMT08	14.0	G1/2-7/8	16.00	4	12.70	20.00	T08	1.814	●
MT 16D11 11W-MMT08	11.0	G=>1	16.00	4	11.50	20.00	T08	2.309	●
MT20F15 14W-MMTT10	14.0	G3/4-7/8	20.00	6	12.70	21.00	T10	1.814	●
MT20F14 11W-MMTT10	11.0	G=>1	20.00	6	11.50	21.00	T10	2.309	●

- Note: Description and dimensions relate to the new products with clamping flats • For shanks, see pages 101-111
- For clamping keys (to be ordered separately), tightening torques and clamping instructions, see pages 111-112 • Do not apply lubricant to the threaded connection
- B.S.84 Internal & External tolerance: Medium class

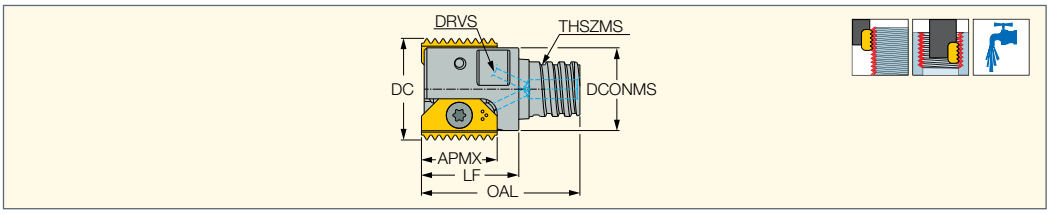
(1) Threads per inch
(2) Number of flutes
(3) Thread pitch

Thread Size	Key[1]	Torque Wrench[1]	Wrench[1]	Tightening Torque (N×cm)
T05	MM KEY 6x4	TORQUE WRENCH 5-50Nm 9X12	MM WRENCH 6-05	700
T06	MM KEY 8x5	TORQUE WRENCH 5-50Nm 9X12	MM WRENCH 8-06	1000
T08	MM KEY 10x7	TORQUE WRENCH 5-50Nm 9X12	MM WRENCH 10-08	1500
T10	MM KEY 13x8	TORQUE WRENCH 5-50Nm 9X12	MM WRENCH 13-10	2800

(1) Order separately

MILLTHREAD

MTE-MM
Indexable Threading Endmills with a MULTI-MASTER Shank Connection



Designation	DC	APMX	CICT(1)	LF	THSZMS	DCONMS	OAL	DRVS(2)	TQ(3)	kg
MTE D9.9-1-MMT05-12	9.90	12.00	1	16.20	T05	7.70	32.30	5.5	1.2	0.01
MTE D13.7-1-MMT06-14	13.70	14.00	1	17.00	T06	9.60	23.30	8.0	1.2	0.03
MTE D15.8-1-MMT08-14	15.80	14.00	1	17.00	T08	11.70	24.50	10.0	1.2	0.02
MTE D20/D0.79-2-MMT10-14	20.00	14.00	2	18.00	T10	15.30	29.30	13.0	1.2	0.03
MTE D20/D0.79-3-MMT10-14	20.00	14.00	3	24.00	T10	15.30	35.30	13.0	1.2	0.02
MTE D21/D0.82-1-MMT10-21	21.00	21.00	1	25.00	T10	15.30	36.30	13.0	4.8	0.12
MTE D30.4/D1.2-2-MMT15-21	30.40	21.00	2	25.00	T15	23.90	42.00	20.0	4.8	0.13
MTE D30.4/D1.2-3-MMT15-21	30.40	21.00	3	34.00	T15	23.90	51.00	20.0	4.8	0.10
MTE D27-1-MMT12-30	27.00	30.00	1	38.20	T12	18.30	52.00	16.0	9.0	0.06

• Tool cutting diameter should not exceed 2/3 of thread bore diameter • For user guide, see pages 497-506
(1) Number of inserts (or edges for solid tool)
(2) Torque key size
(3) Recommended clamping torque

For inserts, see pages: MT LNH#-ACME (Internal) (488) • MT LNH#-ISO (Internal) (480) • MT LNH#-NPS (487) • MT LNH#-NPSF (487) • MT LNH#-UN (Internal) (482) • MT LNH#-W (485) • MT LNHT-ABUT (488) • MT LNHT-BSPT (486) • MT LNHT-NPT (485) • MT LNHT-NPTF (486) • MT LNHU-ISO (External) (481) • MT LNHU-NPSM (Int.&Ext.) (484) • MT LNHU-PG (489) • MT LNHU-UN (External) (483) • MT LNHU-UNJ (External) (484) • MT LNHU-UNJ (Internal) (484)

For holders, see pages: MM CAB (110) • MM GRT (shanks) (105) • MM S-A (stepped shanks) (102) • MM S-A (straight shanks) (106) • MM S-A-AV (101) • MM S-A-BT (109) • MM S-A-C# (104) • MM S-A-HSK (109) • MM S-A-N (104) • MM S-A-SK (109) • MM S-B (85° conical shanks) (106) • MM S-D (89° conical shanks) (107) • MM S-ER (108) • MM S-ER-H (108) • MM TS-A (105) • MM TS2-A (105)

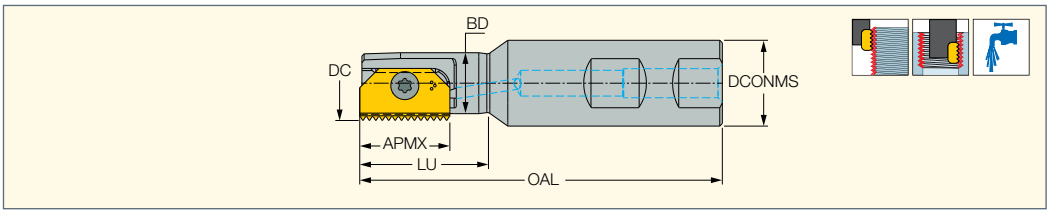
Spare Parts

Designation				
MTE D9.9-1-MMT05-12	SR M2.5-T8-MT	BLD T08/M7	SW4-SD	MM KEY 6X4*
MTE D13.7-1-MMT06-14	SR M2.6-L6.7-S11	BLD T08/M7	SW4-SD	MM KEY 8X5*
MTE D15.8-1-MMT08-14	SR M2.6-L6.7-S11	BLD T08/M7	SW4-SD	MM KEY 10X7*
MTE D20/D0.79-2-MMT10-14	SR M2.6-L6.7-S11	BLD T08/M7	SW4-SD	MM KEY 13X8*
MTE D20/D0.79-3-MMT10-14	SR M2.6-L6.7-S11	BLD T08/M7	SW4-SD	MM KEY 13X8*
MTE D21/D0.82-1-MMT10-21	SR M4-IP15-MT	BLD IP15/S7	SW6-SD	MM KEY 13X8*
MTE D30.4/D1.2-2-MMT15-21	SR M4-IP15-MT	BLD IP15/S7	SW6-SD	MM KEY 20*
MTE D30.4/D1.2-3-MMT15-21	SR M4-IP15-MT	BLD IP15/S7	SW6-SD	MM KEY 20*
MTE D27-1-MMT12-30	SR M5-IP25-MT-S	BLD IP25/S7	SW6-T	MM KEY 16X9*

* Optional, to be ordered separately

MILLTHREAD

MTE D
Indexable Threading Endmills



Designation	APMX	DC	NOF[4]	DCONMS	BD	LU	OAL	Shank[5]	TQ[6]	kg			
MTE D09.5-1-W20-12 [1]	12.00	9.50	1	20.00	7.50	15.5	85.00	W	1.2	0.16	SR M2.5-T8-MT	BLD T08/M7	SW4-SD
MTE D09.9-1-W20-12	12.00	9.90	1	20.00	7.50	16.0	85.00	W	1.2	0.16	SR M2.5-T8-MT	BLD T08/M7	SW4-SD
MTE D12.2-1-W20-14	14.00	12.20	1	20.00	8.75	20.0	75.00	W	1.2	0.15	SR M2.6-L6.7-S11	BLD T08/M7	SW4-SD
MTE D14.5-1-W20-14	14.00	14.50	1	20.00	10.80	27.1	85.00	W	1.2	0.14	SR M2.6-L6.7-S11	BLD T08/M7	SW4-SD
MTE D17.0-1-W20-14	14.00	17.00	1	20.00	12.80	30.0	85.00	W	1.2	0.23	SR M2.6-L6.7-S11	BLD T08/M7	SW4-SD
MTE D18-1-W20-21 [2]	21.00	18.50	1	20.00	14.20	30.0	85.00	W	4.8	0.16	SR M4-IP15-MT	BLD IP15/S7	SW6-SD
MTE D21-1-W20-21	21.00	21.00	1	20.00	15.90	40.0	94.00	W	4.8	0.23	SR M4-IP15-MT	BLD IP15/S7	SW6-SD
MTE D25-1-W20-21	21.00	25.00	1	20.00	20.00	61.0	115.00	W	4.8	0.24	SR M4-IP15-MT	BLD IP15/S7	SW6-SD
MTE D29-1-W25-30 [3]	30.00	29.00	1	25.00	22.20	50.0	110.00	W	9.0	0.32	SR M5-IP25-MT	BLD IP25/S7	SW6-T
MTE D31-1-W25-30	30.00	31.00	1	25.00	25.00	90.0	150.00	W	9.0	0.60	SR M5-IP25-MT	BLD IP25/S7	SW6-T
MTE D38-1-W32-30	30.00	38.00	1	32.00	32.00	86.0	150.00	W	9.0	0.90	SR M5-IP25-MT	BLD IP25/S7	SW6-T
MTE D48-1-W40-40	40.00	48.00	1	40.00	35.00	78.0	153.00	W	9.0	1.30	SR M5-IP25-MT	BLD IP25/S7	SW6-T
MTE D48-1-W40-40-B	40.00	48.00	1	40.00	36.50	138.0	210.00	W	9.0	1.50	SR M5-IP25-MT	BLD IP25/S7	SW6-T

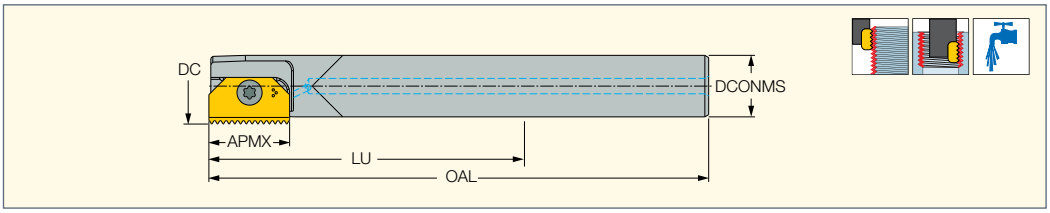
- Tool cutting diameter should not exceed 2/3 of thread bore diameter • All endmills are equipped with a bore for internal coolant
- For user guide, see pages 497-506

[1] Not suitable for inserts: MT LNHT 1202 18NPTF, MT LNHT 1202 18NPT, MT LNHT 1202 19BSPT, MT LNHT 1202 I1.75ISO
[2] Not suitable for inserts:MT LNHT 2104 11.5NPT, 11.5NPTF, 8ABUT and MT LNHU 2104 I3.50ISO, I7UN
[3] Not suitable for MT LNHT 3005 4ABUT inserts
[4] Number of flutes
[5] W-Weldon
[6] Recommended clamping torque

For inserts, see pages: MT LNH#-ACME (Internal) (488) • MT LNH#-ISO (Internal) (480) • MT LNH#-NPS (487) • MT LNH#-NPSF (487)
• MT LNH#-UN (Internal) (482) • MT LNH#-W (485) • MT LNHT-ABUT (488) • MT LNHT-BSPT (486) • MT LNHT-NPT (485) • MT LNHT-NPTF (486)
• MT LNHU-ISO (External) (481) • MT LNHU-PG (489) • MT LNHU-UN (External) (483) • MT LNHU-UNJ (External) (484)

MILLTHREAD

MTE D-C
Indexable Threading Endmills
with Cylindrical Carbide Shanks



Designation	APMX	DC	DCONMS	LU	OAL	Shank[1]	TQ[2]	kg			
MTE D09.9-1-C08C-12	12.00	9.90	8.00	94.00	127.00	C	1.2	0.12	SR M2.5-T8-MT	BLD T08/M7	SW4-SD
MTE D13.7-1-C10C-14	14.00	13.70	10.00	77.00	110.00	C	1.2	0.10	SR M2.6-L6.7-S11	BLD T08/M7	SW4-SD
MTE D13.7-1-C10C-14-B	14.00	13.70	10.00	120.00	153.50	C	1.2	0.17	SR M2.6-L6.7-S11	BLD T08/M7	SW4-SD
MTE D15.2-1-C12C-14	14.00	15.20	12.00	139.00	182.30	C	1.2	0.12	SR M2.6-L6.7-S11	BLD T08/M7	SW4-SD
MTE D21-1-C16C-21	21.00	21.00	16.00	86.60	130.00	C	4.8	0.28	SR M4-IP15-MT	BLD IP15/S7	SW6-SD
MTE D21-1-C16C-21-B	21.00	21.00	16.00	163.00	206.30	C	4.8	0.60	SR M4-IP15-MT	BLD IP15/S7	SW6-SD
MTE D27-1-C20C-30	30.00	27.00	20.00	204.00	263.00	C	9.0	0.99	SR M5-IP25-MT-S	BLD IP25/S7	SW6-T

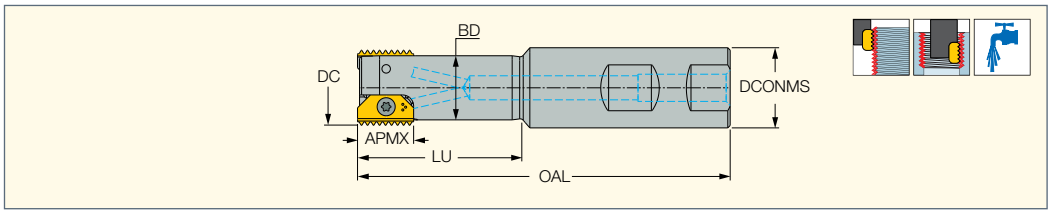
- For holders with a long overhang, reduce the cutting speed and feed rate, between 20 to 40% (depending on workpiece, material, pitch and overhang)
- For user guide, see pages 497-506

[1] C-Cylindrical
[2] Recommended clamping torque

For inserts, see pages: MT LNH#-ACME (Internal) (488) • MT LNH#-ISO (Internal) (480) • MT LNH#-NPS (487) • MT LNH#-NPSF (487)
• MT LNH#-UN (Internal) (482) • MT LNH#-W (485) • MT LNHT-ABUT (488) • MT LNHT-BSPT (486) • MT LNHT-NPT (485) • MT LNHT-NPTF (486)
• MT LNHU-ISO (External) (481) • MT LNHU-NPSM (Int.&Ext.) (484) • MT LNHU-PG (489) • MT LNHU-UN (External) (483) • MT LNHU-UNJ (External) (484)
• MT LNHU-UNJ (Internal) (484)

MILLTHREAD

MTE D (Multi Insert)
Multi Insert Threading Endmills
with Weldon Shanks



Designation	APMX	DC	DCONMS	BD	CICT(1)	LU	OAL	Shank(2)	TQ(3)	kg			
MTE D20.0-2-W20-14	14.00	20.00	20.00	16.00	2	41.0	93.00	W	1.2	0.20	SR M2.6-L6.7-S11	BLD T08/M7	SW4-SD
MTE D20.0-3-W20-14	14.00	20.00	20.00	16.00	3	41.0	93.00	W	1.2	0.15	SR M2.6-L6.7-S11	BLD T08/M7	SW4-SD
MTE D30-2-W25-21	21.00	30.00	25.00	-	2	-	108.00	W	4.8	0.40	SR M4-IP15-MT	BLD IP15/S7	SW6-SD
MTE D40-2-W32-30	30.00	40.00	32.00	30.00	2	70.0	130.00	W	9.0	0.70	SR M5-IP25-MT	BLD IP25/S7	SW6-T
MTE D50-2-W40-40	40.00	50.00	40.00	38.00	2	78.0	153.00	W	9.0	0.80	SR M5-IP25-MT	BLD IP25/S7	SW6-T

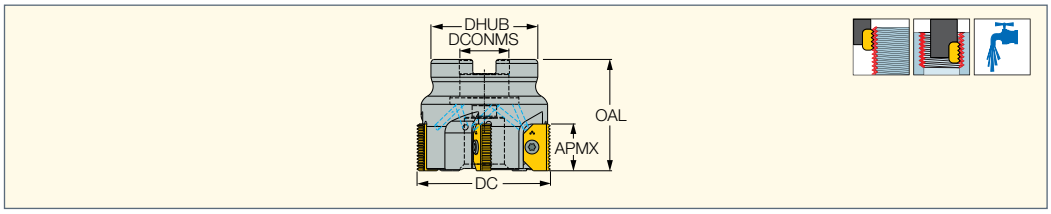
- Tool cutting diameter should not exceed 2/3 of thread bore diameter • All endmills are equipped with a bore for internal coolant
- For user guide, see pages 497-506

(1) Number of inserts (or edges for solid tool)
(2) W-Weldon
(3) Recommended clamping torque

For inserts, see pages: MT LNH#-ACME (Internal) (488) • MT LNH#-ISO (Internal) (480) • MT LNH#-NPS (487) • MT LNH#-NPSF (487)
• MT LNH#-UN (Internal) (482) • MT LNH#-W (485) • MT LNHT-ABUT (488) • MT LNHT-BSPT (486) • MT LNHT-NPT (485) • MT LNHT-NPTF (486)
• MT LNHU-ISO (External) (481) • MT LNHU-NPSM (Int.&Ext.) (484) • MT LNHU-PG (489) • MT LNHU-UN (External) (483) • MT LNHU-UNJ (External) (484)
• MT LNHU-UNJ (Internal) (484)

MILLTHREAD

MTF D (Shell Mill)
Thread Milling
Multi-Insert Shell Mills



Designation	DC	APMX	CICT(1)	DHUB	DCONMS	OAL	TQ(2)	kg
MTF D063-5-22-21	63.00	21.00	5	40.00	22.00	50.00	4.8	0.70
MTF D063-4-22-30	63.00	30.00	4	48.00	22.00	50.00	9.0	0.56
MTF D080-4-27-30	80.00	30.00	4	60.00	27.00	50.00	9.0	1.18
MTF D080-4-27-40	80.00	40.00	4	60.00	27.00	60.00	9.0	1.04
MTF D100-4-32-30	100.00	30.00	4	78.00	32.00	50.00	9.0	1.89
MTF D100-8-32-30	100.00	30.00	8	78.00	32.00	50.00	9.0	1.90
MTF D100-4-32-40	100.00	40.00	4	78.00	32.00	60.00	9.0	0.20

- For user guide, see pages 497-506

(1) Number of inserts (or edges for solid tool)
(2) Recommended clamping moment

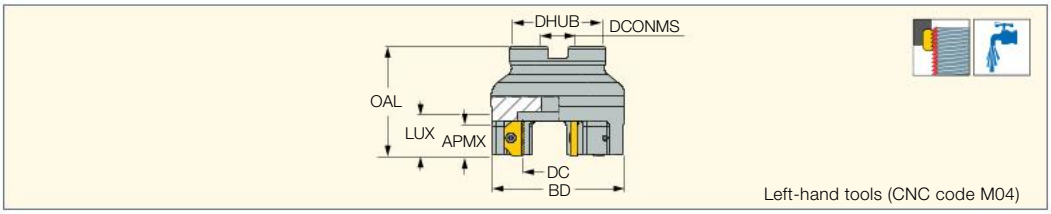
For inserts, see pages: MT LNH#-ACME (Internal) (488) • MT LNH#-ISO (Internal) (480) • MT LNH#-NPS (487) • MT LNH#-NPSF (487)
• MT LNH#-UN (Internal) (482) • MT LNH#-W (485) • MT LNHT-ABUT (488) • MT LNHT-BSPT (486) • MT LNHT-NPT (485) • MT LNHT-NPTF (486)
• MT LNHU-ISO (External) (481) • MT LNHU-NPSM (Int.&Ext.) (484) • MT LNHU-PG (489) • MT LNHU-UN (External) (483)

Spare Parts

Designation				
MTF D063-5-22-21	SR M4-IP15-MT	SR M10X25 DIN912	BLD IP15/S7	SW6-SD
MTF D063-4-22-30	SR M5-IP25-MT	SR M10X25 DIN912	BLD IP25/S7	SW6-T
MTF D080-4-27-30	SR M5-IP25-MT	SR M12X25 DIN 912	BLD IP25/S7	SW6-T
MTF D080-4-27-40	SR M5-IP25-MT	SR M12X25 DIN 912	BLD IP25/S7	SW6-T
MTF D100-4-32-30	SR M5-IP25-MT	SR M16X30 DIN912	BLD IP25/S7	SW6-T
MTF D100-8-32-30	SR M5-IP25-MT	SR M16X30 DIN912	BLD IP25/S7	SW6-T
MTF D100-4-32-40	SR M5-IP25-MT	SR M16X30 DIN912	BLD IP25/S7	SW6-T

MILLTHREAD

MTFLE
External Multi-Tooth
Threading Shell Mills



Left-hand tools (CNC code M04)

Designation	DC	BD	DHUB	DCONMS	OAL	LUX	APMX	CICT(1)	TQ(2)	kg
MTFLE D20-3-22-21	20.00	58.20	48.00	22.00	63.00	27.0	21.00	3	4.8	0.70
MTFLE D20-4-22-21	20.00	58.20	48.00	22.00	63.00	27.0	21.00	4	4.8	0.70
MTFLE D30-3-22-21	30.00	68.20	48.00	22.00	63.00	27.0	21.00	3	4.8	0.90
MTFLE D45-4-27-21	45.00	83.20	60.00	27.00	67.00	27.0	21.00	4	4.8	1.40

- For user guide, see pages 497-506

(1) Number of inserts (or edges for solid tool)
(2) Recommended clamping torque

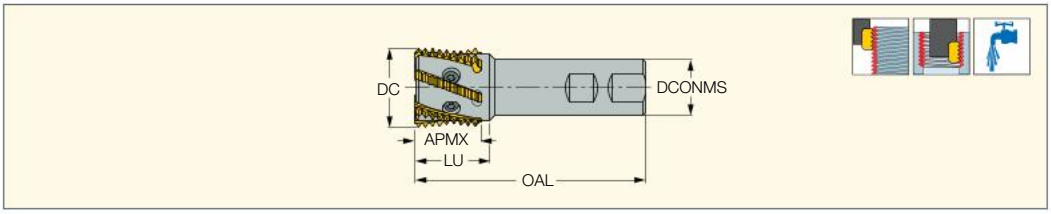
For inserts, see pages: MT LNH#-NPS (487) • MT LNH#-NPSF (487) • MT LNH#-W (485) • MT LNHT-ABUT (488) • MT LNHT-BSPT (486) • MT LNHT-NPT (485) • MT LNHT-NPTF (486) • MT LNHU-ISO (External) (481) • MT LNHU-PG (489) • MT LNHU-UN (External) (483)

Spare Parts

Designation				
MTFLE D20-3-22-21	SR M10X25 DIN912	BLD IP15/S7	SW6-SD	SR M4-IP15-MT
MTFLE D20-4-22-21	SR M10X25 DIN912	BLD IP15/S7	SW6-SD	SR M4-IP15-MT
MTFLE D30-3-22-21	SR M10X25 DIN912	BLD IP15/S7	SW6-SD	SR M4-IP15-MT
MTFLE D45-4-27-21	SR M12X25 DIN 912	BLD IP15/S7	SW6-SD	SR M4-IP15-MT

MILLTHREAD

MTSRH (endmills)
Endmills with Coolant Holes
for Helical Threading Inserts



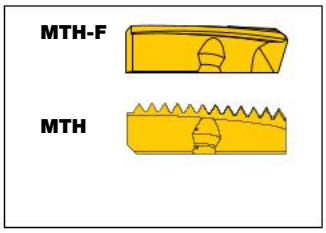
Designation	DC	APMX	DCONMS	OAL	LU	NOF(1)	Shank(2)	kg	MIID(3)				
MTSRH 23-2-N	23.00	27.00	25.00	110.00	50.0	2	W	0.26	MTH 23 I 4.0 ISO	S23			T-15/5
MTSRH 32-5-N	32.00	32.00	32.00	130.00	60.0	5	W	0.60	MTH 32 E 1.5 ISO	S32			T-20/5
MTSRH 45-6-N	45.00	37.00	32.00	130.00	-	6	W	0.75	MTH 45 E 1.5 ISO		K40	SR M5X0.8-MTH45	

- Note: ISCAR can provide special contour inserts on request

(1) Number of flutes
(2) W-Weldon
(3) Master insert identification

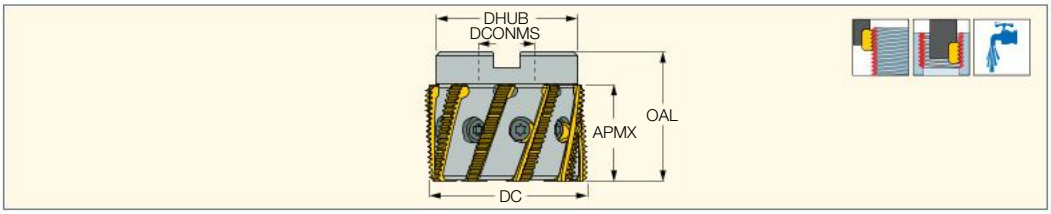
For inserts, see pages: MTH-BSPT (int. & ext.) (493) • MTH-F (495) • MTH-ISO (external) (489) • MTH-ISO (internal) (490) • MTH-NPT (int. & ext.) (494) • MTH-NPTF (int. & ext.) (494) • MTH-UN (external) (491) • MTH-UN (internal) (492) • MTH-W (int. & ext.) (493)

MTSRH with MTH-F
Finishing Inserts



MILLTHREAD

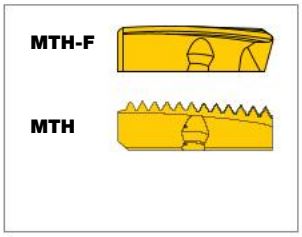
MTSRH (helical shell mill)
Shell Mills with Coolant Holes
for Helical Threading Inserts



Designation	DC	APMX	DHUB	DCONMS	OAL	NOF(1)	kg	MIID(2)			
MTSRH 32-5M-N	32.00	32.00	26.00	16.00	52.00	5	0.12	MTH 32 E 1.5 ISO	S32S		
MTSRH 45-6M-N	45.00	37.00	38.00	22.00	60.00	6	0.43	MTH 45 E 1.5 ISO		K40	SR M5X0.8-MTH45
MTSRH 63-9-N	63.00	38.00	51.70	22.00	50.00	9	0.71	MTH 63 11 W		K40	SR M5X0.8-MTH63

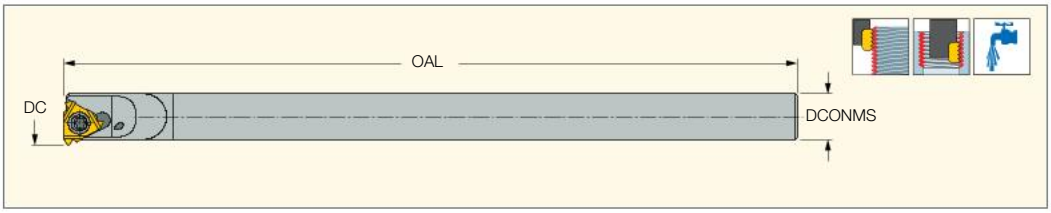
• Note: ISCAR can provide special contour inserts on request • For user guide, see pages 497-506
(1) Number of flutes
(2) Master insert identification

For inserts, see pages: MTH-BSPT (int. & ext.) (493) • MTH-F (495) • MTH-ISO (external) (489) • MTH-ISO (internal) (490) • MTH-NPT (int. & ext.) (494) • MTH-NPTF (int. & ext.) (494) • MTH-UN (external) (491) • MTH-UN (internal) (492) • MTH-W (int. & ext.) (493)



MILLTHREAD

MTET Single Point
Indexable Threading Endmills
with Cylindrical Shanks
for Single Point Inserts



Designation	Dimensions												Recommended Machining Data
	TPN(2)	TPX(3)	TPIX(4)	TPIN(5)	DC	DCONMS	OAL	Shank(6)	Shank m.(7)	Insert	CSP(8)	kg	f_z (mm/rev)
MTET D7.0-1-C5C-06	0.500	1.250	48.00	20.00	7.00	5.00	63.00	C	C	06IR/EL	0	0.06	0.05-0.15
MTET D8.8-1-C6C-08	0.500	1.750	48.00	14.00	8.80	6.00	100.00	C	C	08IR/EL	1	0.04	0.05-0.15
MTET D13.2-1-C10C-11 (1)	0.500	2.000	48.00	11.00	13.20	10.00	150.00	C	C	11IR/EL	1	0.13	0.05-0.15

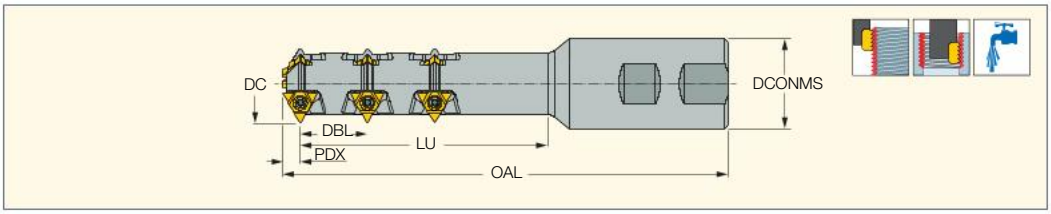
• For user guide, see pages 497-506 • For inserts, refer to ISCAR Turning Lines catalog • Tool cutting diameter should not exceed 2/3 of thread bore diameter
(1) For internal threading use internal R.H insert, for external threading use external L.H insert
(2) Thread pitch minimum (mm)
(3) Thread pitch maximum (mm)
(4) Threads per inch maximum
(5) Threads per inch minimum
(6) C-Cylindrical
(7) Shank material C-carbide
(8) 0 - Without coolant supply, 1 - With coolant supply

Spare Parts

Designation		
MTET D7.0-1-C5C-06	SR 14-552	T-6/5
MTET D8.8-1-C6C-08	SR 14-558-S	T-6/5
MTET D13.2-1-C10C-11	SR M2.6-L6.7-S11	T-8/5

QUICKMTHREAD

MTET Step Release
Indexable Threading Endmills
with Cylindrical Shanks
for Single Point Inserts



Designation	DC	PDX	NOF(1)	CICT(2)	DBL	DCONMS	OAL	LU	Shank(3)	MIID(4)
MTET D20-1-12-5-W25-11U	20.00	5.20	1	5	12.00	25.00	124.60	60.00	W	MT TNCT 11U
MTET D25-3-21-3-W25-11U	25.00	5.20	3	9	21.00	25.00	144.60	79.50	W	MT TNCT 11U
MTET D30-3-36-3-W32-11U	30.00	5.20	3	9	36.00	32.00	179.70	110.00	W	MT TNCT 11U
MTET D36-3-30-3-W40-16U	36.00	7.90	3	9	30.00	40.00	192.90	110.50	W	MT TNCT 16U
MTET D42-3-60-2-W40-16U	42.00	7.90	3	6	60.00	40.00	212.20	127.00	W	MT TNCT 16U

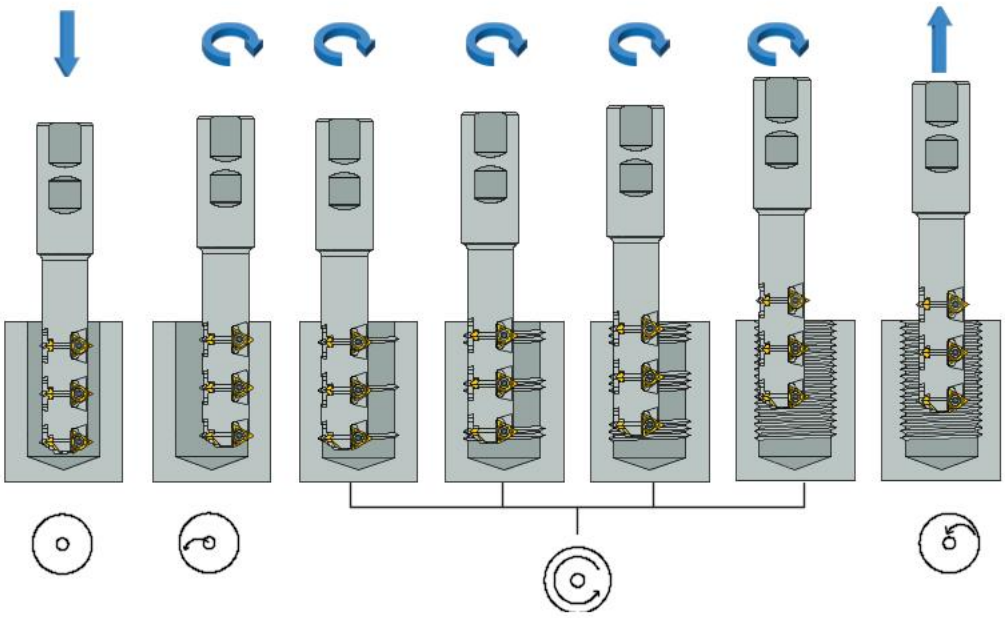
New

- For user guide, see pages 497-506 • Tool cutting diameter should not exceed 2/3 of thread bore diameter

(1) Number of flutes
(2) Number of inserts (or edges for solid tool)
(3) W-Weldon
(4) Master insert identification

For inserts, see pages: MT TNCT-U55 (496) • MT TNCT-U60 (496)

Tool with Inserts	Suitable Pitches INT [mm]			Suitable Pitches EXT [mm]		
MTET D20-1-12-5-W25-11U+MT TNCT 11U 60D	3			2	3	
MTET D25-3-21-3-W25-11U+MT TNCT 11U 60D	3	3.5		3		
MTET D30-3-36-3-W32-11U+MT TNCT 11U 60D	3	4		2	3	
MTET D36-3-30-3-W40-16U+MT TNCT 16U 60D	5	6		3	5	
MTET D42-3-60-2-W40-16U+MT TNCT 16U 60D	4	5	6	3	4	5

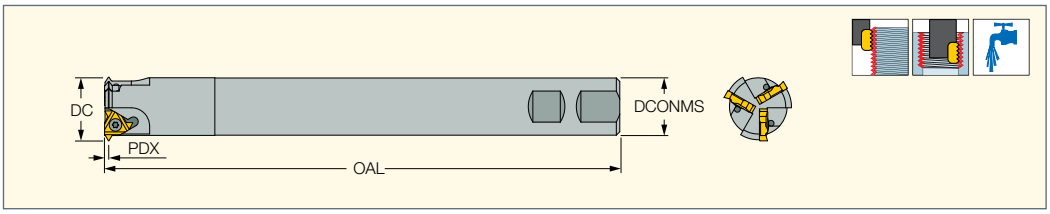


Spare Parts

Designation		
MTET D20-1-12-5-W25-11U	SR M2.6-L6.7-S11	T-8/5
MTET D25-3-21-3-W25-11U	SR M2.6-L6.7-S11	T-8/5
MTET D30-3-36-3-W32-11U	SR M2.6-L6.7-S11	T-8/5
MTET D36-3-30-3-W40-16U	SR 14-562	T-10/5
MTET D42-3-60-2-W40-16U	SR 14-562	T-10/5

MILLTHREAD

MTSR M.I. S.P.
Indexable Multi-Insert Threading Endmills with Weldon Shanks for Single Point Inserts



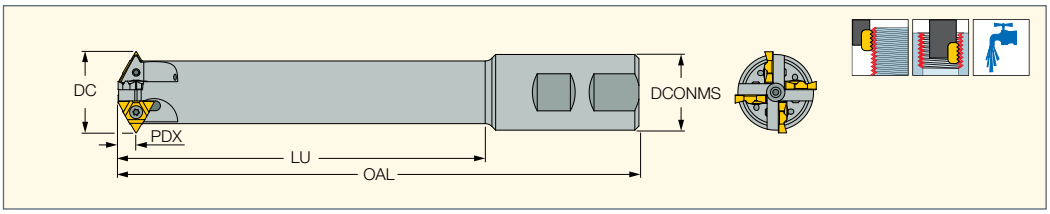
Designation	DC	PDX	NOF(1)	DCONMS	OAL	Shank(2)	Shank m.(3)	Insert	kg		
MTSR 0023 Q11	23.50	1.0	3	20.00	190.00	W	S	MT3 11..D	0.41	SR M2.6-L6.7-S11	T-8/5
MTSR 0031 R16	31.00	1.8	3	25.00	225.00	W	S	MT3 16..D	0.76	SR 5-40-L9.7-S16S	

• Minimum bore should be one-third larger than D • For user guide, see pages 497-506
(1) Number of flutes
(2) W-Weldon
(3) S-Steel shanks

For inserts, see pages: MT3-55D (496) • MT3-60D (495)

MILLTHREAD

MTSR M.I. S.P.-U
Indexable Multi-Insert Threading Endmills with Weldon Shanks for Single Point U-Type Inserts



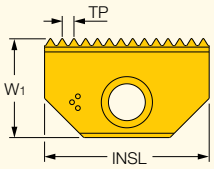
Designation	DC	PDX	NOF(1)	DCONMS	LU	OAL	Shank(2)	Shank m.(3)	Insert	kg		
MTSR 0023 M11U	23.00	5.0	3	25.00	88.0	150.00	W	S	MT3 11U..D	0.32	SR M2.6-L6.7-S11	T-8/5
MTSR 0035 R16U	35.50	7.6	4	32.00	155.0	220.00	W	S	MT3 16U..D	0.95	SR 5-40-L9.7-S16S	

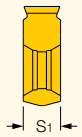
• Minimum bore should be one-third larger than D • For user guide, see pages 497-506
(1) Number of flutes
(2) W-Weldon
(3) S-Steel shanks

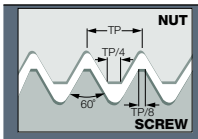
For inserts, see pages: MT TNCT-U55 (496) • MT TNCT-U60 (496)

MILLTHREAD

MT LNH#-ISO (Internal)
Thread Milling Inserts for
Internal ISO Metric Profile







Designation	Dimensions TP[1]	INSL	W1	S1	IC908
MT LNHT 1202 I0.50ISO	0.500	12.00	6.50	2.90	●
MT LNHU 1403 I0.50ISO	0.500	14.00	7.90	3.20	●
MT LNHT 1202 I0.75ISO	0.750	12.00	6.50	2.90	●
MT LNHU 1403 I0.75ISO	0.750	14.00	7.90	3.20	●
MT LNHT 1202 I1.00ISO	1.000	12.00	6.50	2.90	●
MT LNHU 1403 I1.00ISO	1.000	14.00	7.90	3.20	●
MT LNHU 2104 I1.00ISO	1.000	21.00	12.60	4.80	●
MT LNHT 1202 I1.25ISO	1.250	12.00	6.50	2.90	●
MT LNHU 1403 I1.25ISO	1.250	14.00	7.90	3.20	●
MT LNHT 1202 I1.50ISO	1.500	12.00	6.50	2.90	●
MT LNHU 1403 I1.50ISO	1.500	14.00	7.90	3.20	●
MT LNHU 2104 I1.50ISO	1.500	21.00	12.60	4.80	●
MT LNHU 3005 I1.50ISO	1.500	30.00	16.70	5.60	●
MT LNHU 4006 I1.50ISO	1.500	40.00	20.80	6.40	●
MT LNHT 1202 I1.75ISO	1.750	12.00	6.50	2.90	●
MT LNHU 1403 I1.75ISO	1.750	14.00	7.90	3.20	●
MT LNHU 2104 I1.75ISO	1.750	21.00	12.60	4.80	●
MT LNHU 1403 I2.00ISO	2.000	14.00	7.90	3.20	●
MT LNHU 2104 I2.00ISO	2.000	21.00	12.60	4.80	●
MT LNHU 3005 I2.00ISO	2.000	30.00	16.70	5.60	●
MT LNHU 4006 I2.00ISO	2.000	40.00	20.80	6.40	●
MT LNHU 1403 I2.50ISO	2.500	14.00	7.90	3.20	●
MT LNHU 2104 I2.50ISO	2.500	21.00	12.60	4.80	●
MT LNHU 2104 I3.00ISO	3.000	21.00	12.60	4.80	●
MT LNHU 3005 I3.00ISO	3.000	30.00	16.70	5.60	●
MT LNHU 4006 I3.00ISO	3.000	40.00	20.80	6.40	●
MT LNHU 2104 I3.50ISO	3.500	21.00	12.60	4.80	●
MT LNHU 3005 I3.50ISO	3.500	30.00	16.70	5.60	●
MT LNHU 4006 I3.50ISO	3.500	40.00	20.80	6.40	●
MT LNHU 3005 I4.00ISO	4.000	30.00	16.70	5.60	●
MT LNHU 4006 I4.00ISO	4.000	40.00	20.80	6.40	●
MT LNHU 3005 I4.50ISO	4.500	30.00	16.70	5.60	●
MT LNHU 4006 I4.50ISO	4.500	40.00	20.80	6.40	●
MT LNHU 3005 I5.00ISO	5.000	30.00	16.70	5.60	●
MT LNHU 4006 I5.00ISO	5.000	40.00	20.80	6.40	●
MT LNHU 4006 I5.50ISO	5.500	40.00	20.80	6.40	●
MT LNHU 4006 I6.00ISO	6.000	40.00	20.80	6.40	●

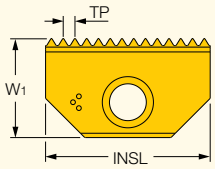
• For cutting speed recommendations, see page 497

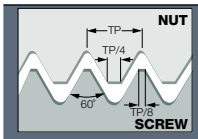
[1] Thread pitch

For tools, see pages: MTE D (474) • MTE D(Multi Insert) (475) • MTE D-C (474) • MTE-MM (473) • MTF D (Shell Mill) (475)

MILLTHREAD

MT LNHU-ISO (External)
Thread Milling Inserts for
External ISO Metric Profile





Designation	Dimensions TP[1]	INSL	W1	S1	IC908
MT LNHU 1403 E0.75ISO	0.750	14.00	7.90	3.20	●
MT LNHU 1403 E1.00ISO	1.000	14.00	7.90	3.20	●
MT LNHU 2104 E1.00ISO	1.000	21.00	12.60	4.80	●
MT LNHU 1403 E1.25ISO	1.250	14.00	7.90	3.20	●
MT LNHU 1403 E1.50ISO	1.500	14.00	7.90	3.20	●
MT LNHU 2104 E1.50ISO	1.500	21.00	12.60	4.80	●
MT LNHU 3005 E1.50ISO	1.500	30.00	16.70	5.60	●
MT LNHU 4006 E1.50ISO	1.500	40.00	20.80	6.40	●
MT LNHU 1403 E1.75ISO	1.750	14.00	7.90	3.20	●
MT LNHU 1403 E2.00ISO	2.000	14.00	7.90	3.20	●
MT LNHU 2104 E2.00ISO	2.000	21.00	12.60	4.80	●
MT LNHU 3005 E2.00ISO	2.000	30.00	16.70	5.60	●
MT LNHU 4006 E2.00ISO	2.000	40.00	20.80	6.40	●
MT LNHU 1403 E2.50ISO	2.500	14.00	7.90	3.20	●
MT LNHU 2104 E2.50ISO	2.500	21.00	12.80	4.80	●
MT LNHU 2104 E3.00ISO	3.000	21.00	12.80	4.80	●
MT LNHU 3005 E3.00ISO	3.000	30.00	16.70	5.60	●
MT LNHU 4006 E3.00ISO	3.000	40.00	20.80	6.40	●
MT LNHU 3005 E3.50ISO	3.500	30.00	16.70	5.60	●
MT LNHU 3005 E4.00ISO	4.000	30.00	16.70	5.60	●
MT LNHU 4006 E4.00ISO	4.000	40.00	20.80	6.40	●
MT LNHU 4006 E5.00ISO	5.000	40.00	20.80	6.40	●
MT LNHU 4006 E6.00ISO	6.000	40.00	20.80	6.40	●

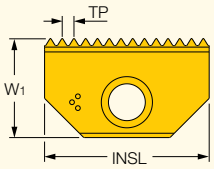
• For cutting speed recommendations, see page 497

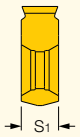
[1] Thread pitch

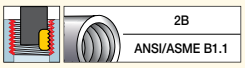
For tools, see pages: MTE D (474) • MTE D(Multi Insert) (475) • MTE D-C (474) • MTE-MM (473) • MTF D (Shell Mill) (475) • MTFLE (476)

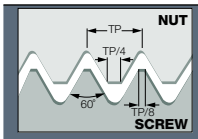
MILLTHREAD

MT LNH#-UN (Internal)
Thread Milling Inserts for American (UN, UNC, UNF, UNEF, UNS) Full Profile Threads for General Applications









Designation	Dimensions TPI(1)	INSL	W1	S1	TP(2)	IC908
MT LNHT 1202 I32UN	32.0	12.00	6.50	2.90	0.794	●
MT LNHT 1202 I28UN	28.0	12.00	6.50	2.90	0.907	●
MT LNHT 1202 I24UN	24.0	12.00	6.50	2.90	1.058	●
MT LNHT 1202 I20UN	20.0	12.00	6.50	2.90	1.270	●
MT LNHT 1202 I18UN	18.0	12.00	6.50	2.90	1.411	●
MT LNHT 1202 I16UN	16.0	12.00	6.50	2.90	1.588	●
MT LNHU 1403 I32UN	32.0	14.00	7.90	3.20	0.794	●
MT LNHU 1403 I28UN	28.0	14.00	7.90	3.20	0.907	●
MT LNHU 1403 I27UN	27.0	14.00	7.90	3.20	0.941	●
MT LNHU 1403 I24UN	24.0	14.00	7.90	3.20	1.058	●
MT LNHU 1403 I20UN	20.0	14.00	7.90	3.20	1.270	●
MT LNHU 1403 I18UN	18.0	14.00	7.90	3.20	1.411	●
MT LNHU 1403 I16UN	16.0	14.00	7.90	3.20	1.588	●
MT LNHU 1403 I14UN	14.0	14.00	7.90	3.20	1.814	●
MT LNHU 1403 I12UN	12.0	14.00	7.90	3.20	2.117	●
MT LNHU 1403 I11UN	11.0	14.00	7.90	3.20	2.309	●
MT LNHU 1403 I10UN	10.0	14.00	7.90	3.20	2.540	●
MT LNHU 2104 I24UN	24.0	21.00	12.60	4.80	1.058	●
MT LNHU 2104 I20UN	20.0	21.00	12.60	4.80	1.270	●
MT LNHU 2104 I18UN	18.0	21.00	12.60	4.80	1.411	●
MT LNHU 2104 I16UN	16.0	21.00	12.60	4.80	1.588	●
MT LNHU 2104 I14UN	14.0	21.00	12.60	4.80	1.814	●
MT LNHU 2104 I12UN	12.0	21.00	12.60	4.80	2.117	●
MT LNHU 2104 I10UN	10.0	21.00	12.60	4.80	2.540	●
MT LNHU 2104 I8UN	8.0	21.00	12.60	4.80	3.175	●
MT LNHU 2104 I7UN	7.0	21.00	12.60	4.80	3.629	●
MT LNHU 3005 I20UN	20.0	30.00	16.70	5.60	1.270	●
MT LNHU 3005 I18UN	18.0	30.00	16.70	5.60	1.411	●
MT LNHU 3005 I16UN	16.0	30.00	16.70	5.60	1.588	●
MT LNHU 3005 I14UN	14.0	30.00	16.70	5.60	1.814	●
MT LNHU 3005 I12UN	12.0	30.00	16.70	5.60	2.117	●
MT LNHU 3005 I10UN	10.0	30.00	16.70	5.60	2.540	●
MT LNHU 3005 I8UN	8.0	30.00	16.70	5.60	3.175	●
MT LNHU 3005 I6UN	6.0	30.00	16.70	5.60	4.233	●
MT LNHU 3005 I5UN	5.0	30.00	16.70	5.60	5.080	●
MT LNHU 4006 I16UN	16.0	40.00	20.80	6.40	1.588	●
MT LNHU 4006 I14UN	14.0	40.00	20.80	6.40	1.814	●
MT LNHU 4006 I12UN	12.0	40.00	20.80	6.40	2.117	●
MT LNHU 4006 I10UN	10.0	40.00	20.80	6.40	2.540	●
MT LNHU 4006 I8UN	8.0	40.00	20.80	6.40	3.175	●
MT LNHU 4006 I6UN	6.0	40.00	20.80	6.40	4.233	●
MT LNHU 4006 I4.5UN	4.5	40.00	20.80	6.40	5.644	●
MT LNHU 4006 I4UN	4.0	40.00	20.80	6.40	6.350	●

• For cutting speed recommendations, see page 497

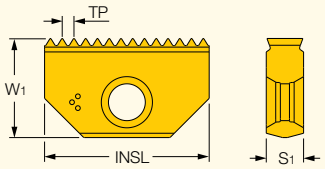
(1) Threads per inch

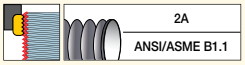
(2) Thread pitch

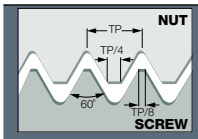
For tools, see pages: MTE D (474) • MTE D(Multi Insert) (475) • MTE D-C (474) • MTE-MM (473) • MTF D (Shell Mill) (475)

MILLTHREAD

MT LNHU-UN (External)
External (UN, UNC, UNF, UNEF, UNS) Full Profile Thread Milling Inserts for General Industries







Designation	Dimensions					IC908
	TPI[1]	TP[2]	INSL	W1	S1	
MT LNHU 1403 E32UN	32.0	0.794	14.00	7.90	3.20	●
MT LNHU 1403 E28UN	28.0	0.907	14.00	7.90	3.20	●
MT LNHU 1403 E24UN	24.0	1.058	14.00	7.90	3.20	●
MT LNHU 1403 E20UN	20.0	1.270	14.00	7.90	3.20	●
MT LNHU 1403 E18UN	18.0	1.411	14.00	7.90	3.20	●
MT LNHU 1403 E16UN	16.0	1.588	14.00	7.90	3.20	●
MT LNHU 1403 E14UN	14.0	1.814	14.00	7.90	3.20	●
MT LNHU 1403 E12UN	12.0	2.117	14.00	7.90	3.20	●
MT LNHU 2104 E24UN	24.0	1.058	21.00	12.60	4.80	●
MT LNHU 2104 E20UN	20.0	1.270	21.00	12.60	4.80	●
MT LNHU 2104 E18UN	18.0	1.411	21.00	12.60	4.80	●
MT LNHU 2104 E16UN	16.0	1.588	21.00	12.60	4.80	●
MT LNHU 2104 E14UN	14.0	1.814	21.00	12.60	4.80	●
MT LNHU 2104 E12UN	12.0	2.117	21.00	12.60	4.80	●
MT LNHU 2104 E10UN	10.0	2.540	21.00	12.60	4.80	●
MT LNHU 3005 E20UN	20.0	1.270	30.00	16.70	5.60	●
MT LNHU 3005 E18UN	18.0	1.411	30.00	16.70	5.60	●
MT LNHU 3005 E16UN	16.0	1.588	30.00	16.70	5.60	●
MT LNHU 3005 E14UN	14.0	1.814	30.00	16.70	5.60	●
MT LNHU 3005 E12UN	12.0	2.117	30.00	16.70	5.60	●
MT LNHU 3005 E10UN	10.0	2.540	30.00	16.70	5.60	●
MT LNHU 3005 E8UN	8.0	3.175	30.00	16.70	5.60	●
MT LNHU 3005 E6UN	6.0	4.233	30.00	16.70	5.60	●
MT LNHU 4006 E16UN	16.0	1.588	40.00	20.80	6.40	●
MT LNHU 4006 E14UN	14.0	1.814	40.00	20.80	6.40	●
MT LNHU 4006 E12UN	12.0	2.117	40.00	20.80	6.40	●
MT LNHU 4006 E10UN	10.0	2.540	40.00	20.80	6.40	●
MT LNHU 4006 E8UN	8.0	3.175	40.00	20.80	6.40	●
MT LNHU 4006 E6UN	6.0	4.233	40.00	20.80	6.40	●

• For cutting speed recommendations, see page 497

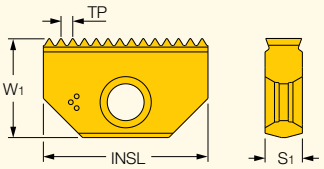
[1] Threads per inch

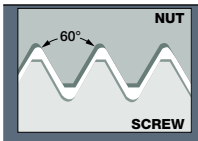
[2] Thread pitch

For tools, see pages: MTE D (474) • MTE D(Multi Insert) (475) • MTE D-C (474) • MTE-MM (473) • MTF D (Shell Mill) (475) • MTFLE (476)

MILLTHREAD

MT LNHU-UNJ (Internal)
UNJ Internal Full Profile Thread Milling Inserts for the Aviation and Aerospace Industries





Designation	Dimensions TPI(1)	TP(2)	INSL	W1	S1	IC908
MT LNHU 1403 I12UNJ	12.0	2.117	14.00	7.91	3.18	●

New

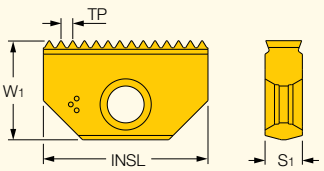
- For cutting speed recommendations, see page 497

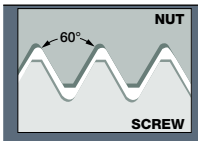
(1) Threads per inch
(2) Thread pitch

For tools, see pages: MTE D(Multi Insert) (475) • MTE D-C (474) • MTE-MM (473)

MILLTHREAD

MT LNHU-UNJ (External)
UNJ External Full Profile Thread Milling Inserts for the Aviation and Aerospace Industries





Designation	Dimensions TPI(1)	TP(2)	INSL	W1	S1	IC908
MT LNHU 1403 E20UNJ	20.0	1.270	14.00	7.91	3.18	●

New

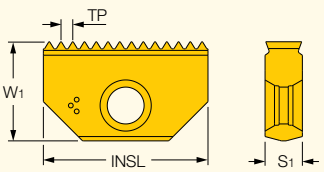
- For cutting speed recommendations, see page 497

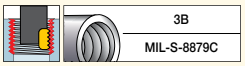
(1) Threads per inch
(2) Thread pitch

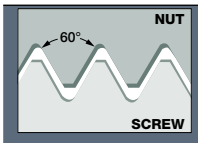
For tools, see pages: MTE D (474) • MTE D(Multi Insert) (475) • MTE D-C (474) • MTE-MM (473)

MILLTHREAD

MT LNHU-NPSM (Int.&Ext.)
External and Internal NPSM (National Pipe Straight Mechanical Fittings) Full Profile Thread Milling Inserts







Designation	Dimensions TPI(1)	TP(2)	INSL	W1	S1	IC908
MT LNHU 1403 I14NPSM	14.0	1.814	14.00	7.91	3.18	●
MT LNHU 3005 I8NPSM	8.0	3.175	30.00	16.68	5.56	●

New

- For cutting speed recommendations, see page 497

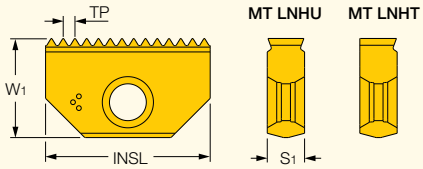
(1) Threads per inch
(2) Thread pitch

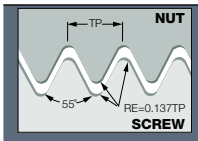
For tools, see pages: MTE D(Multi Insert) (475) • MTE D-C (474) • MTE-MM (473) • MTF D (Shell Mill) (475)

MILLTHREAD

MT LNH#-W

External & Internal Whitworth (BSW, BSF, BSP) Full Profile Thread Milling Inserts for Fittings and Pipe Couplings





Designation	TPI[1]	INSL	W1	S1	TP[2]	IC908
	Dimensions					
MT LNHT 1202 19W	19.0	12.00	6.50	2.90	1.337	●
MT LNHU 1403 24W	24.0	14.00	7.90	3.20	1.058	●
MT LNHU 1403 20W	20.0	14.00	7.90	3.20	1.270	●
MT LNHU 1403 19W	19.0	14.00	7.90	3.20	1.337	●
MT LNHU 1403 16W	16.0	14.00	7.90	3.20	1.588	●
MT LNHU 1403 14W	14.0	14.00	7.90	3.20	1.814	●
MT LNHU 2104 20W	20.0	21.00	12.60	4.80	1.270	●
MT LNHU 2104 19W	19.0	21.00	12.60	4.80	1.337	●
MT LNHU 2104 16W	16.0	21.00	12.60	4.80	1.588	●
MT LNHU 2104 14W	14.0	21.00	12.60	4.80	1.814	●
MT LNHU 2104 11W	11.0	21.00	12.60	4.80	2.309	●
MT LNHU 3005 16W	16.0	30.00	16.70	5.60	1.588	●
MT LNHU 3005 14W	14.0	30.00	16.70	5.60	1.814	●
MT LNHU 3005 11W	11.0	30.00	16.70	5.60	2.309	●
MT LNHU 4006 11W	11.0	40.00	20.80	6.40	2.309	●
MT LNHU 4006 8W	8.0	40.00	20.80	6.40	3.175	●

• For cutting speed recommendations, see page 497 • Internal tolerance: ISO 228-1 Medium class • External tolerance: ISO 228-1 Medium class

(1) Threads per inch

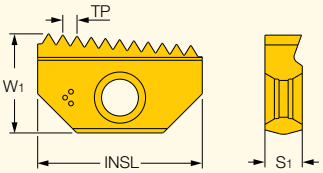
(2) Thread pitch

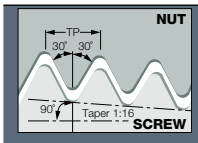
For tools, see pages: MTE D (474) • MTE D(Multi Insert) (475) • MTE D-C (474) • MTE-MM (473) • MTF D (Shell Mill) (475) • MTFLE (476)

MILLTHREAD

MT LNHT-NPT

External and Internal NPT Full Profile Thread Milling Inserts for Steam, Gas and Water Pipes





Designation	TPI[1]	INSL	W1	S1	TP[2]	IC908
	Dimensions					
MT LNHT 1202 18NPT	18.0	12.00	6.50	2.90	1.411	●
MT LNHT 1403 18NPT	18.0	14.00	7.90	3.20	1.411	●
MT LNHT 1403 14NPT	14.0	14.00	7.90	3.20	1.814	●
MT LNHT 2104 14NPT	14.0	21.00	12.60	4.80	1.814	●
MT LNHT 2104 11.5NPT	11.5	21.00	12.60	4.80	2.209	●
MT LNHT 3005 11.5NPT	11.5	30.00	16.70	5.60	2.209	●
MT LNHT 3005 8NPT	8.0	30.00	16.70	5.60	3.175	●
MT LNHT 4006 11.5NPT	11.5	40.00	20.80	6.40	2.209	●
MT LNHT 4006 8NPT	8.0	40.00	20.80	6.40	3.175	●

• For cutting speed recommendations, see page 497 • Internal tolerance: ANSI/ASME B1.20.1 Standard NPT • External tolerance: ANSI/ASME B1.20.1 Standard NPT

(1) Threads per inch

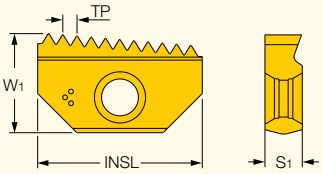
(2) Thread pitch

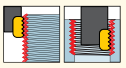
For tools, see pages: MTE D (474) • MTE D(Multi Insert) (475) • MTE D-C (474) • MTE-MM (473) • MTF D (Shell Mill) (475) • MTFLE (476)

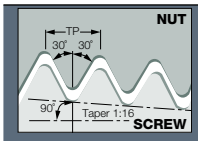
MILLTHREAD

MT LNHT-NPTF

External and Internal NPTF Full Profile Thread Milling Inserts for Steam, Gas and Water Pipes







Designation	Dimensions TPI[1]	INSL	W1	S1	TP[2]	IC908
MT LNHT 1202 18NPTF	18.0	12.00	6.50	2.90	1.411	●
MT LNHT 1403 18NPTF	18.0	14.00	7.90	3.20	1.411	●
MT LNHT 1403 14NPTF	14.0	14.00	7.90	3.20	1.814	●
MT LNHT 2104 14NPTF	14.0	21.00	12.60	4.80	1.814	●
MT LNHT 2104 11.5NPTF	11.5	21.00	12.60	4.80	2.209	●
MT LNHT 3005 11.5NPTF	11.5	30.00	16.70	5.60	2.209	●
MT LNHT 3005 8NPTF	8.0	30.00	16.70	5.60	3.175	●
MT LNHT 4006 11.5NPTF	11.5	40.00	20.80	6.40	2.209	●
MT LNHT 4006 8NPTF	8.0	40.00	20.80	6.40	3.175	●

• For cutting speed recommendations, see page 497 • Internal tolerance: ANSI/ASME B1.20.3 Standard NPTF • External tolerance: ANSI/ASME B1.20.3 Standard NPTF

(1) Threads per inch

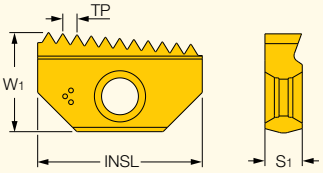
(2) Thread pitch

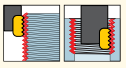
For tools, see pages: MTE D (474) • MTE D(Multi Insert) (475) • MTE D-C (474) • MTE-MM (473) • MTF D (Shell Mill) (475) • MTFLE (476)

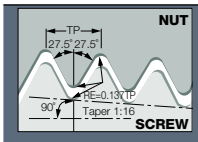
MILLTHREAD

MT LNHT-BSPT

External and Internal Thread Milling Inserts for BSPT Full Profile







Designation	Dimensions TPI[1]	INSL	W1	S1	TP[2]	IC908
MT LNHT 1202 19BSPT	19.0	12.00	6.50	2.90	1.337	●
MT LNHT 1403 19BSPT	19.0	14.00	7.90	3.20	1.337	●
MT LNHT 1403 14BSPT	14.0	14.00	7.90	3.20	1.814	●
MT LNHT 2104 14BSPT	14.0	21.00	12.60	4.80	1.814	●
MT LNHT 2104 11BSPT	11.0	21.00	12.60	4.80	2.309	●
MT LNHT 3005 11BSPT	11.0	30.00	16.70	5.60	2.309	●
MT LNHT 4006 11BSPT	11.0	40.00	20.80	6.40	2.309	●

• For cutting speed recommendations, see page 497 • Internal tolerance: ISO 7-1, EN 10226 (1&2) Standard BSPT • External tolerance: ISO 7-1, EN 10226 (1&2) Standard BSPT

(1) Threads per inch

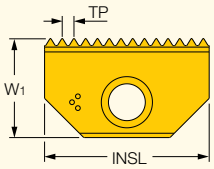
(2) Thread pitch

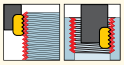
For tools, see pages: MTE D (474) • MTE D(Multi Insert) (475) • MTE D-C (474) • MTE-MM (473) • MTF D (Shell Mill) (475) • MTFLE (476)

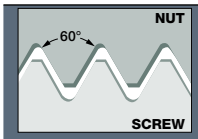
MILLTHREAD

MT LNH#-NPS

External and Internal NPS Full Profile Thread Milling Inserts for Mechanical Joints and Pipe Fittings







Designation	Dimensions TPI(1)	INSL	W1	S1	TP(2)	IC908
MT LNHT 1202 18NPS	18.0	12.00	6.30	2.90	1.411	●
MT LNHU 1403 18NPS	18.0	14.00	7.50	3.10	1.411	●
MT LNHU 1403 14NPS	14.0	14.00	7.50	3.10	1.814	●
MT LNHU 2104 14NPS	14.0	21.00	12.00	4.70	1.814	●
MT LNHU 2104 11.5NPS	11.5	21.00	12.00	4.70	2.209	●
MT LNHU 3005 11.5NPS	11.5	30.00	16.70	5.60	2.209	●
MT LNHU 3005 8NPS	8.0	30.00	16.70	5.60	3.175	●
MT LNHU 4006 11.5NPS	11.5	40.00	20.00	6.30	2.209	●
MT LNHU 4006 8NPS	8.0	40.00	20.00	6.30	3.175	●

• The same insert for external & internal threading • For cutting speed recommendations, see page 497

(1) Threads per inch

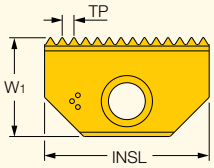
(2) Thread pitch

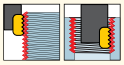
For tools, see pages: MTE D (474) • MTE D(Multi Insert) (475) • MTE D-C (474) • MTE-MM (473) • MTF D (Shell Mill) (475) • MTFLE (476)

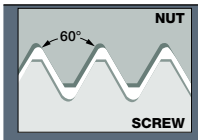
MILLTHREAD

MT LNH#-NPSF

External and Internal NPSF Full Profile Thread Milling Inserts







Designation	Dimensions TPI(1)	INSL	W1	S1	TP(2)	IC908
MT LNHT 1202 18NPSF	18.0	12.00	6.50	2.90	1.411	●
MT LNHU 1403 18NPSF	18.0	14.00	7.90	3.20	1.411	●
MT LNHU 1403 14NPSF	14.0	14.00	7.90	3.20	1.814	●
MT LNHU 2104 14NPSF	14.0	21.00	12.60	4.75	1.814	●
MT LNHU 2104 11.5NPSF	11.5	21.00	12.60	4.75	2.209	●
MT LNHU 3005 11.5NPSF	11.5	30.00	16.70	5.60	2.209	●
MT LNHU 3005 8NPSF	8.0	30.00	16.70	5.60	3.175	●
MT LNHU 4006 11.5NPSF	11.5	40.00	20.80	6.35	2.209	●
MT LNHU 4006 8NPSF	8.0	40.00	20.80	6.35	3.175	●

• The same insert for external & internal threading • For cutting speed recommendations, see page 497 • ANSI/ASME B1.20.1 Internal & External tolerance: Standard NPS

(1) Threads per inch

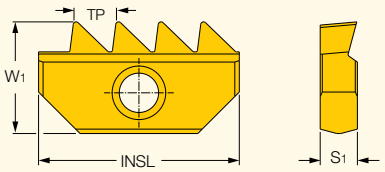
(2) Thread pitch

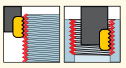
For tools, see pages: MTE D (474) • MTE D(Multi Insert) (475) • MTE D-C (474) • MTE-MM (473) • MTF D (Shell Mill) (475) • MTFLE (476)

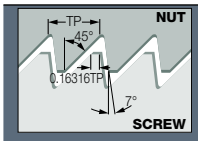
MILLTHREAD

MT LNHT-ABUT

External & Internal
Single-Sided American Buttress
Thread Milling Inserts







Designation	Dimensions TPI[2]	INSL	W1	S1	TP[3]	IC908
MT LNHT 2104 16ABUT	16.0	21.00	12.00	4.70	1.588	●
MT LNHT 2104 12ABUT	12.0	21.00	12.00	4.70	2.117	●
MT LNHT 2104 10ABUT	10.0	21.00	12.00	4.70	2.540	●
MT LNHT 2104 8ABUT	8.0	21.00	12.00	4.70	3.175	●
MT LNHT 3005 16ABUT	16.0	30.00	16.70	5.60	1.588	●
MT LNHT 3005 12ABUT	12.0	30.00	16.70	5.60	2.117	●
MT LNHT 3005 10ABUT	10.0	30.00	16.70	5.60	2.540	●
MT LNHT 3005 8ABUT	8.0	30.00	16.70	5.60	3.175	●
MT LNHT 3005 6ABUT	6.0	30.00	16.70	5.60	4.233	●
MT LNHT 3005 4ABUT [1]	4.0	30.00	16.70	5.60	6.350	●
MT LNHT 4006 4ABUT	4.0	40.00	20.00	6.30	6.350	●

• For cutting speed recommendations, see page 497 • Internal tolerance: ANSI/ASME B1.9 Class 2B • External tolerance: ANSI/ASME B1.9 Class 2A

[1] Due to deep thread profile, the tool should be modified

[2] Threads per inch

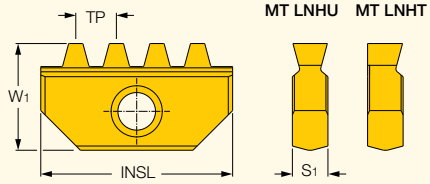
[3] Thread pitch

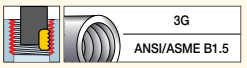
For tools, see pages: MTE D (474) • MTE D(Multi Insert) (475) • MTE D-C (474) • MTE-MM (473) • MTF D (Shell Mill) (475) • MTFLE (476)

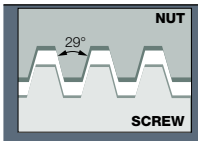
MILLTHREAD

MT LNH#-ACME (Internal)

Internal ACME Profile Thread
Milling Inserts for Feed Screws







Designation	Dimensions TPI[1]	INSL	W1	S1	TP[2]	IC908
MT LNHU 2104 I12ACME	12.0	21.00	12.00	4.70	2.117	●
MT LNHU 2104 I10ACME	10.0	21.00	12.00	4.70	2.540	●
MT LNHU 3005 I12ACME	12.0	30.00	16.70	5.60	2.117	●
MT LNHU 3005 I10ACME	10.0	30.00	16.70	5.60	2.540	●
MT LNHU 3005 I8ACME	8.0	30.00	16.70	5.60	3.175	●
MT LNHU 3005 I6ACME	6.0	30.00	16.70	5.60	4.233	●
MT LNHU 3005 I5ACME	5.0	30.00	16.70	5.60	5.080	●
MT LNHU 3005 I4ACME	4.0	30.00	16.70	5.60	6.350	●
MT LNHU 4006 I4ACME	4.0	40.00	20.00	6.30	6.350	●
MT LNHT 4006 I3.5ACME	3.5	40.00	20.00	6.30	7.257	●

• For cutting speed recommendations, see page 497

[1] Threads per inch

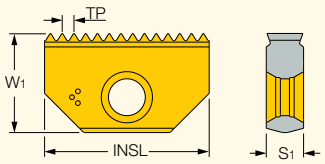
[2] Thread pitch

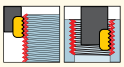
For tools, see pages: MTE D (474) • MTE D(Multi Insert) (475) • MTE D-C (474) • MTE-MM (473) • MTF D (Shell Mill) (475)

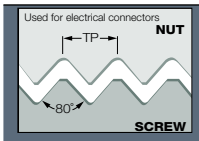
MILLTHREAD

MT LNHU-PG

External and Internal PG Full Profile Thread Milling Inserts (DIN 40430) for Electrical Connectors







Designation	Dimensions						IC908
	TPI[1]	INSL	W1	S1	PG	TP[2]	
MT LNHU 1403 18PG	18.0	14.00	7.90	3.20	PG9,11,13.5,16	1.411	●
MT LNHU 2104 18PG	18.0	21.00	12.60	4.80	PG16	1.411	●
MT LNHU 2104 16PG	16.0	21.00	12.60	4.80	PG21,29,36,42,48	1.588	●
MT LNHU 3005 16PG	16.0	30.00	16.70	5.60	PG36,42,48	1.588	●

• For cutting speed recommendations, see page 497

(1) Threads per inch

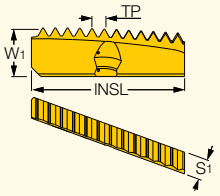
(2) Thread pitch

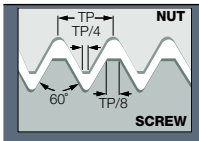
For tools, see pages: MTE D (474) • MTE D(Multi Insert) (475) • MTE D-C (474) • MTE-MM (473) • MTF D (Shell Mill) (475) • MTFLE (476)

MILLTHREAD

MTH-ISO (external)

Helical Thread Milling Inserts for ISO Metric External Threading





Designation	Dimensions				IC908
	TP[1]	INSL	W1	S1	
MTH 23 E 1.0 ISO	1.000	27.00	8.00	3.50	●
MTH 23 E 1.5 ISO	1.500	27.00	8.00	3.50	●
MTH 32 E 1.5 ISO	1.500	32.00	9.00	4.00	●
MTH 45 E 1.5 ISO	1.500	37.00	11.90	5.00	●
MTH 23 E 2.0 ISO	2.000	27.00	8.00	3.50	●
MTH 32 E 2.0 ISO	2.000	32.00	9.00	4.00	●
MTH 45 E 2.0 ISO	2.000	37.00	11.90	5.00	●
MTH 23 E 3.0 ISO	3.000	27.00	8.00	3.50	●
MTH 32 E 3.0 ISO	3.000	32.00	9.00	4.00	●
MTH 32 E 4.0 ISO	4.000	32.00	9.00	4.00	●

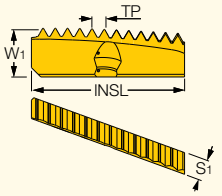
• For cutting speed recommendations, see page 497

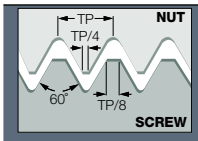
(1) Thread pitch

For tools, see pages: MTSRH (endmills) (476) • MTSRH (helical shell mill) (477)

MILLTHREAD

MTH-ISO (internal)
Helical Thread Milling Inserts for ISO Metric Internal Threading





Designation	Dimensions TP[1]	INSL	W1	S1	THID[2]	IC908
MTH 23 I 1.0 ISO	1.000	27.00	8.00	3.50	=>M26	●
MTH 32 I 1.0 ISO	1.000	32.00	9.00	4.00	=>M34	●
MTH 23 I 1.5 ISO	1.500	27.00	8.00	3.50	=>M27	●
MTH 32 I 1.5 ISO	1.500	32.00	9.00	4.00	=>M35	●
MTH 45 I 1.5 ISO	1.500	37.00	11.90	5.00	=>M50	●
MTH 63 I 1.5 ISO	1.500	38.00	11.90	5.00	=>M70	●
MTH 23 I 2.0 ISO	2.000	27.00	8.00	3.50	=>M28	●
MTH 32 I 2.0 ISO	2.000	32.00	9.00	4.00	=>M36	●
MTH 45 I 2.0 ISO	2.000	37.00	11.90	5.00	=>M50	●
MTH 63 I 2.0 ISO	2.000	38.00	11.90	5.00	=>M70	●
MTH 23 I 3.0 ISO	3.000	27.00	8.00	3.50	=>M30	●
MTH 32 I 3.0 ISO	3.000	32.00	9.00	4.00	=>M38	●
MTH 45 I 3.0 ISO	3.000	37.00	11.90	5.00	=>M56	●
MTH 63 I 3.0 ISO	3.000	38.00	11.90	5.00	=>M75	●
MTH 23 I 3.5 ISO	3.500	27.00	8.00	3.50	=>M33	●
MTH 32 I 3.5 ISO	3.500	32.00	9.00	4.00	-	●
MTH 45 I 3.5 ISO	3.500	37.00	11.90	5.00	-	●
MTH 23 I 4.0 ISO	4.000	27.00	8.00	3.50	=>M36	●
MTH 32 I 4.0 ISO	4.000	32.00	9.00	4.00	=>M40	●
MTH 45 I 4.0 ISO	4.000	37.00	11.90	5.00	=>M56	●
MTH 63 I 4.0 ISO	4.000	38.00	11.90	5.00	=>M75	●
MTH 32 I 4.5 ISO	4.500	32.00	9.00	4.00	=>M42	●
MTH 45 I 4.5 ISO	4.500	37.00	11.90	5.00	-	●
MTH 32 I 5.0 ISO	5.000	32.00	9.00	4.00	=>M48	●
MTH 45 I 5.0 ISO	5.000	37.00	11.90	5.00	-	●
MTH 45 I 5.5 ISO	5.500	37.00	11.90	5.00	=>M56	●
MTH 45 I 6.0 ISO	6.000	37.00	11.90	5.00	=>M64	●
MTH 63 I 6.0 ISO	6.000	38.00	11.90	5.00	=>M78	●

• For cutting speed recommendations, see page 497

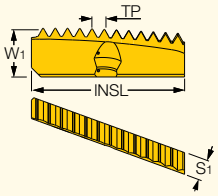
(1) Thread pitch

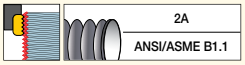
(2) Internal thread designation

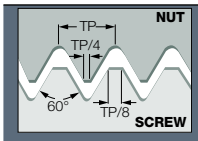
For tools, see pages: MTSRH (endmills) (476) • MTSRH (helical shell mill) (477)

MILLTHREAD

MTH-UN (external)
Helical Thread Milling Inserts for American Full Profile External Threading Intended for General Applications







Designation	Dimensions				IC908
	TPI[1]	INSL	W1	S1	
MTH 23 E 20 UN	20.0	27.00	8.00	3.50	●
MTH 23 E 18 UN	18.0	27.00	8.00	3.50	●
MTH 23 E 16 UN	16.0	27.00	8.00	3.50	●
MTH 23 E 14 UN	14.0	27.00	8.00	3.50	●
MTH 23 E 12 UN	12.0	27.00	8.00	3.50	●
MTH 23 E 10 UN	10.0	27.00	8.00	3.50	●
MTH 23 E 8 UN	8.0	27.00	8.00	3.50	●
MTH 23 E 7 UN	7.0	27.00	8.00	3.50	●
MTH 32 E 24 UN	24.0	32.00	9.00	4.00	●
MTH 32 E 20 UN	20.0	32.00	9.00	4.00	●
MTH 32 E 18 UN	18.0	32.00	9.00	4.00	●
MTH 32 E 16 UN	16.0	32.00	9.00	4.00	●
MTH 32 E 12 UN	12.0	32.00	9.00	4.00	●
MTH 32 E 8 UN	8.0	32.00	9.00	4.00	●
MTH 32 E 6 UN	6.0	32.00	9.00	4.00	●

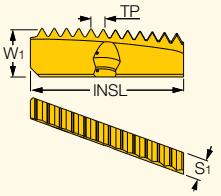
• Used for UN, UNC, UNF, UNEF and UNS thread profiles • For cutting speed recommendations, see page 497

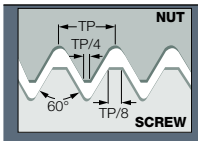
[1] Threads per inch

For tools, see pages: MTSRH (endmills) (476) • MTSRH (helical shell mill) (477)

MILLTHREAD

MTH-UN (internal)
Helical Thread Milling Inserts for American Full Profile Internal Threading Intended for General Applications





Designation	Dimensions						IC908
	TPI[1]	INSL	W1	S1	THID[2]	TP[3]	
MTH 23 I 32 UN	32.0	27.00	8.00	3.50	=>1"	0.794	●
MTH 23 I 24 UN	24.0	27.00	8.00	3.50	=>1"	1.058	●
MTH 23 I 20 UN	20.0	27.00	8.00	3.50	=>1"	1.270	●
MTH 23 I 18 UN	18.0	27.00	8.00	3.50	=>1_1/16"	1.411	●
MTH 23 I 16 UN	16.0	27.00	8.00	3.50	=>1_1/16"	1.588	●
MTH 23 I 14 UN	14.0	27.00	8.00	3.50	=>1_1/8"	1.814	●
MTH 23 I 12 UN	12.0	27.00	8.00	3.50	=>1_1/8"	2.117	●
MTH 23 I 10 UN	10.0	27.00	8.00	3.50	=>1_1/8"	2.540	●
MTH 23 I 8 UN	8.0	27.00	8.00	3.50	=>1_3/16"	3.175	●
MTH 23 I 7 UN	7.0	27.00	8.00	3.50	=>1_1/4"	3.629	●
MTH 32 I 20 UN	20.0	32.00	9.00	4.00	=>1_3/8"	1.270	●
MTH 32 I 18 UN	18.0	32.00	9.00	4.00	=>1_3/8"	1.411	●
MTH 32 I 16 UN	16.0	32.00	9.00	4.00	=>1_3/8"	1.588	●
MTH 32 I 12 UN	12.0	32.00	9.00	4.00	=>1_7/16"	2.117	●
MTH 32 I 8 UN	8.0	32.00	9.00	4.00	=>1_1/2"	3.175	●
MTH 32 I 6 UN	6.0	32.00	9.00	4.00	=>1_5/8"	4.233	●
MTH 32 I 5 UN	5.0	32.00	9.00	4.00	=>1_3/4"	5.080	●
MTH 45 I 16 UN	16.0	37.00	11.90	5.00	=>2"	1.588	●
MTH 45 I 12 UN	12.0	37.00	11.90	5.00	=>2"	2.117	●
MTH 45 I 8 UN	8.0	37.00	11.90	5.00	=>2_1/4"	3.175	●
MTH 45 I 6 UN	6.0	37.00	11.90	5.00	=>2_1/4"	4.233	●
MTH 45 I 4.5 UN	4.5	37.00	11.90	5.00	=>2_1/4"	5.644	●
MTH 45 I 4 UN	4.0	37.00	11.90	5.00	=>2_1/2"	6.350	●
MTH 63 I 16 UN	16.0	38.00	11.90	5.00	=>2_3/4"	1.588	●
MTH 63 I 12 UN	12.0	38.00	11.90	5.00	=>2_3/4"	2.117	●
MTH 63 I 8 UN	8.0	38.00	11.90	5.00	=>3"	3.175	●
MTH 63 I 6 UN	6.0	38.00	11.90	5.00	=>3"	4.233	●
MTH 63 I 4 UN	4.0	38.00	11.90	5.00	=>3"	6.350	●

• Used for UN, UNC, UNF, UNEF and UNS thread profiles • For cutting speed recommendations, see page 497

[1] Threads per inch

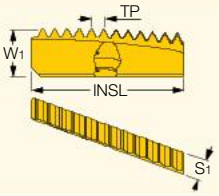
[2] Internal thread designation

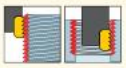
[3] Thread pitch

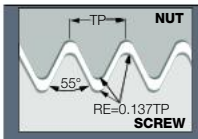
For tools, see pages: MTSRH (endmills) (476) • MTSRH (helical shell mill) (477)

MILLTHREAD

MTH-W (int. & ext.)
External & Internal Whitworth (BSW, BSF, BSP) Helical Thread Milling Inserts for Fittings and Pipe Couplings







Designation	Dimensions							IC908
	TPI[1]	INSL	W1	S1	THID[2]	THOD[3]	TP[4]	
MTH 23 14 W	14.0	27.00	8.00	3.50	=>G7/8"	>G1/2"	1.814	●
MTH 23 11 W	11.0	27.00	8.00	3.50	=>G1"	>G1"	2.309	●
MTH 32 14 W	14.0	32.00	9.00	4.00	-	=>G1/2"	1.814	●
MTH 32 11 W	11.0	32.00	9.00	4.00	=>G1_1/8"	>G1"	2.309	●
MTH 45 11 W	11.0	37.00	11.90	5.00	=>G1_3/4"	>G1"	2.309	●
MTH 63 11 W	11.0	38.00	11.90	5.00	=>G2_1/2"	>G1"	2.309	●

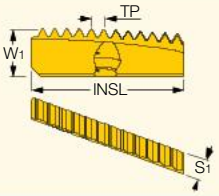
• For cutting speed recommendations, see page 497 • Internal tolerance: ISO 228-1 Medium class • External tolerance: ISO 228-1 Medium class

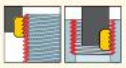
(1) Threads per inch
(2) Internal thread designation
(3) External thread designation
(4) Thread pitch

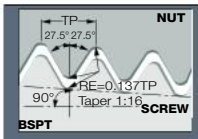
For tools, see pages: MTSRH (endmills) (476) • MTSRH (helical shell mill) (477)

MILLTHREAD

MTH-BSPT (int. & ext.)
Helical External & Internal Thread Milling Inserts for BSPT Thread for Steam, Gas and Water Pipes







Designation	Dimensions							IC908
	TPI[1]	INSL	W1	S1	THID[2]	THOD[3]	TP[4]	
MTH 23 11 BSPT	11.0	27.00	8.00	3.50	>1" BSPT	>1" BSPT	2.309	●
MTH 32 11 BSPT	11.0	32.00	9.00	4.00	>1_1/8" BSPT	>1" BSPT	2.309	●
MTH 45 11 BSPT	11.0	37.00	11.90	5.00	>1_3/4" BSPT	>1" BSPT	2.309	●
MTH 63 11 BSPT	11.0	38.00	11.90	5.00	>2_1/2 BSPT	>1" BSPT	2.309	●

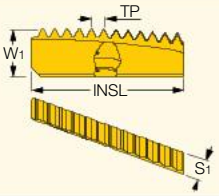
• For cutting speed recommendations, see page 497

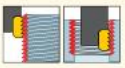
(1) Threads per inch
(2) Internal thread designation
(3) External thread designation
(4) Thread pitch

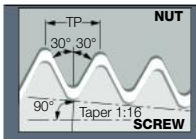
For tools, see pages: MTSRH (endmills) (476) • MTSRH (helical shell mill) (477)

MILLTHREAD

MTH-NPT (int. & ext.)
External & Internal NPT Helical Thread Milling Inserts for Steam, Gas and Water Pipes







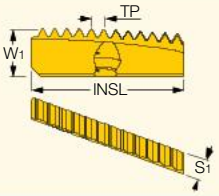
Designation	Dimensions							IC908
	TPI[1]	INSL	W1	S1	THID[2]	THOD[3]	TP[4]	
MTH 23 11.5 NPT	11.5	27.00	8.00	3.50	1-2" NPT	1-2" NPT	2.209	●
MTH 32 11.5 NPT	11.5	32.00	9.00	4.00	1_1/4"-2" NPT	1-2" NPT	2.209	●
MTH 45 11.5 NPT	11.5	37.00	11.90	5.00	2" NPT	1-2" NPT	2.209	●
MTH 45 8 NPT	8.0	37.00	11.90	5.00	2_1/2"-3" NPT	-	3.175	●
MTH 63 11.5 NPT	11.5	38.00	11.90	5.00	-	1-2" NPT	2.209	●
MTH 63 8 NPT	8.0	38.00	11.90	5.00	2_1/2"-3" NPT	-	3.175	●

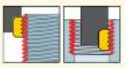
• For cutting speed recommendations, see page 497
[1] Threads per inch
[2] Internal thread designation
[3] External thread designation
[4] Thread pitch

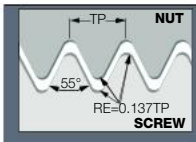
For tools, see pages: MTSRH (endmills) (476) • MTSRH (helical shell mill) (477)

MILLTHREAD

MTH-NPTF (int. & ext.)
External & Internal NPTF Helical Thread Milling Inserts for Steam, Gas and Water Pipes







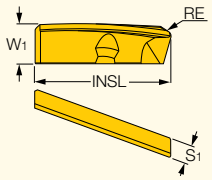
Designation	Dimensions							IC908
	TPI[1]	INSL	W1	S1	THID[2]	THOD[3]	TP[4]	
MTH 23 11.5 NPTF	11.5	27.00	8.00	3.50	1"-2" NPTF	1"-2" NPTF	2.209	●
MTH 32 11.5 NPTF	11.5	32.00	9.00	4.00	1_1/4"-2" NPTF	1"-2" NPTF	2.209	●

• For cutting speed recommendations, see page 497
[1] Threads per inch
[2] Internal thread designation
[3] External thread designation
[4] Thread pitch

For tools, see pages: MTSRH (endmills) (476) • MTSRH (helical shell mill) (477)

ISCARMILL

MTH-F
Helical Long Edge
Finishing Inserts

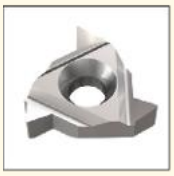


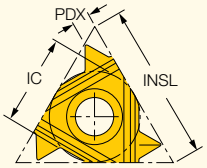
Designation	Dimensions INSL	W1	S	RE	IC908
MTH 23F R0.2	27.00	8.00	3.50	0.20	●
MTH 23F R0.5	27.00	8.00	3.50	0.50	●
MTH 23F R1.0	27.00	8.00	3.50	1.00	●
MTH 32F R0.2	32.00	9.00	4.00	0.20	●
MTH 32F R0.5	32.00	9.00	4.00	0.50	●
MTH 32F R1.0	32.00	9.00	4.00	1.00	●
MTH 45F R0.2	37.00	11.90	5.00	0.20	●
MTH 45F R0.5	37.00	11.90	5.00	0.50	●
MTH 45F R1.0	37.00	11.90	5.00	1.00	●
MTH 45F R1.5	37.00	11.90	5.00	1.50	●
MTH 45F R2.0	37.00	11.90	5.00	2.00	●
MTH 63F R0.2	38.00	11.90	5.00	0.20	●
MTH 63F R0.5	38.00	11.90	5.00	0.50	●
MTH 63F R1.0	38.00	11.90	5.00	1.00	●
MTH 63F R1.5	38.00	11.90	5.00	1.50	●
MTH 63F R2.0	38.00	11.90	5.00	2.00	●

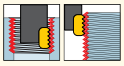
For tools, see pages: MTSRH (endmills) (476) • MTSRH (helical shell mill) (477)

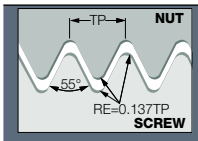
MILLTHREAD

MT3-60D
60° Partial Profile Laydown
Thread Milling Inserts
for General Industry









Designation	Dimensions IC	TPN(1)	TPX(2)	TPN_ DF2(3)	TPX_ DF2(4)	TPIN(5)	TPIX(6)	TPIN_ DF2(7)	TPIX_ DF2(8)	INSL	PDX	IC908
MT3 1160D	6.35	1.000	2.000	0.750	1.500	12.00	24.00	14.00	32.00	11.00	1.0	●
MT3 1660D	9.52	2.500	3.500	2.000	3.000	7.00	10.00	8.00	12.00	16.49	1.8	●

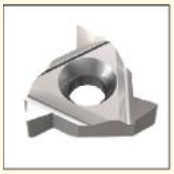
- For technical information and detailed cutting data, see pages 497-506 • DIN13 , ISO 68-1, ISO 965 (1&2) - Internal tolerance: 6H, External tolerance: 6g
- ANSI/ASME B1.1 - Internal tolerance: 2B, External tolerance: 2A

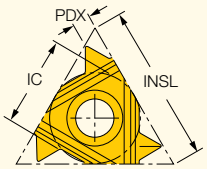
(1) Internal thread pitch minimum
(2) Internal thread pitch maximum
(3) External thread pitch minimum
(4) External thread pitch maximum
(5) Internal threads per inch minimum
(6) Internal threads per inch maximum
(7) External threads per inch minimum
(8) External threads per inch maximum

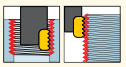
For tools, see pages: MTSR M.I. S.P. (479)

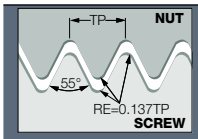
MILLTHREAD

MT3-55D
55° Partial Profile Laydown
Thread Milling Inserts
for General Industry









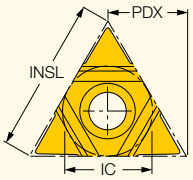
Designation	Dimensions IC	TPIX(1)	TPIN(2)	INSL	PDX	IC908
MT3 1155D	6.35	24.00	14.00	11.00	1.0	●
MT3 1655D	9.52	12.00	8.00	16.49	1.8	●

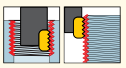
• For detailed cutting data, see pages 497-506 • B.S.84 Internal & External tolerance: Medium class
(1) Threads per inch maximum
(2) Threads per inch minimum

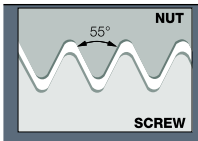
For tools, see pages: MTSR M.I. S.P. (479)

MILLTHREAD

MT TNCT-U55
55° Partial Profile Laydown
U-Type Thread Milling Inserts,
for General Industry







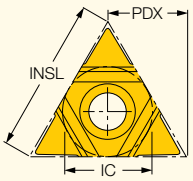
Designation	Dimensions IC	INSL	TPIN(1)	TPIX(2)	PDX	IC908
MT TNCT 11U 55D 908	6.35	11.00	7.00	12.00	5.00	●
MT TNCT 16U 55D 908	9.52	16.49	4.50	6.00	7.60	●

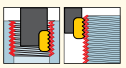
New
• For detailed cutting data, see pages 497-506
(1) Threads per inch minimum
(2) Threads per inch maximum

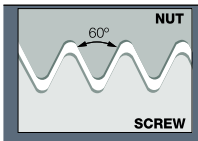
For tools, see pages: MTET Step Release (478) • MTSR M.I. S.P.-U (479)

MILLTHREAD

MT TNCT-U60
60° Partial Profile Laydown
U-Type Thread Milling Inserts,
for General Industry







Designation	Dimensions IC	INSL	TPN(1)	TPX(2)	TPIN(3)	TPIX(4)	PDX	TPIN_DF2	TPIX_DF2	TPN_DF2	TPX_DF2	IC908
MT TNCT 11U 60D 908	6.35	11.00	2.500	4.000	6.00	10.00	0.00	8.00	12.00	2.000	3.000	●
MT TNCT 16U 60D 908	9.52	16.49	4.000	6.000	4.00	6.00	0.00	5.00	8.00	3.000	5.000	●

New
• For technical information and detailed cutting data, see pages 497-506
(1) Thread pitch minimum (mm)
(2) Thread pitch maximum (mm)
(3) Threads per inch minimum
(4) Threads per inch maximum

For tools, see pages: MTET Step Release (478) • MTSR M.I. S.P.-U (479)

Machining Data for Indexable Threading Tools

ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Material No.	Indexable Cutting Speed for IC908 M/min
P	non-alloy steel and cast steel, free cutting steel	< 0.25 %C	annealed	420	125	1	100-200
		≥ 0.25 %C	annealed	650	190	2	95-190
		< 0.55 %C	quenched and tempered	850	250	3	90-180
		≥ 0.55 %C	annealed	750	220	4	90-170
			quenched and tempered	1000	300	5	80-150
	low alloy and cast steel (less than 5% of alloying elements)		annealed	600	200	6	120-170
			quenched and tempered	930	275	7	115-160
				1000	300	8	105-150
				1200	350	9	90-140
	high alloyed steel, cast steel and tool steel		annealed	680	200	10	90-170
			quenched and tempered	1100	325	11	75-145
	stainless steel and cast steel		ferritic/martensitic	680	200	12	110-170
			martensitic	820	240	13	100-160
M	stainless steel		austenitic, duplex	600	180	14	90-145
K	grey cast iron (GG)		ferritic/pearlitic		160	17	65-135
			pearlitic /martensitic		250	18	65-110
	cast iron nodular (GGG)		ferritic		180	15	65-135
			pearlitic		260	16	60-100
	malleable cast iron		ferritic		130	19	65-135
			pearlitic		230	20	60-120
N	aluminum- wrought alloy		not hardenable		60	21	110-260
			hardenable		100	22	110-200
	aluminum- cast, alloyed	=<12% Si	not hardenable		75	23	145-350
			hardenable		90	24	145-275
		>12% Si	high temperature		130	25	95-225
	copper alloys	>1% Pb	free cutting		110	26	145-350
			brass		90	27	145-350
			electrolytic copper		100	28	145-350
	non-metallic		duroplastics, fiber plastics			29	90-370
			hard rubber			30	80-330
S	high temperature alloys	Fe based	annealed		200	31	20-60
			hardened		280	32	20-50
		Ni or Co based	annealed		250	33	20-30
			hardened		350	34	10-20
			cast		320	35	15-25
	titanium alloys			400		36	30-90
			alpha+beta alloys, hardened	1050		37	20-70
H	hardened steel		hardened		55 HRC	38	25-60
			hardened		60 HRC	39	20-40
	chilled cast iron		cast		400	40	25-60
	cast iron		hardened		55 HRC	41	20-50

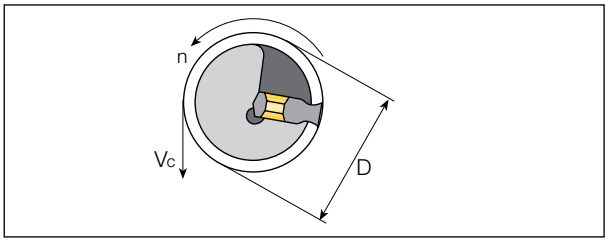
Calculating RPM:

Metric Example: V=120 m/min, D=30 mm

$$n = \frac{Vc \times 1000}{\pi \times D} = \frac{120 \times 1000}{3.14 \times 30} = 1274 \text{ RPM}$$

Inch Example: V= 410 SFM, D=1.5 inch

$$n = \frac{Vc \times 12}{\pi \times D} = \frac{410 \times 12}{3.14 \times 1.5} = 1045 \text{ RPM}$$



Feed:	0.05-0.15 mm/tooth 0.002-0.006 Inch/tooth

Solid Carbide Threading Endmills Machining Data for General-Use

ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Material No.	Cutting Speed (m/min)	Cutting Diameter Feed mm/tooth										
							IC908	2	3	4	6	8	10	12	14	16	20	25	30
P	non-alloy steel and cast steel, free cutting steel	< 0.25 %C	annealed	420	125	1	100-250	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
		≥ 0.25 %C	annealed	650	190	2	80-210	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
		< 0.55 %C	quenched and tempered	850	250	3	65-170												
		≥ 0.55 %C	annealed	750	220	4	110-180	0.02	0.03	0.03	0.05	0.06	0.07	0.08	0.09	0.1	0.12	0.15	0.18
			quenched and tempered	1000	300	5	95-160	0.02	0.03	0.03	0.05	0.06	0.07	0.08	0.09	0.1	0.12	0.15	0.18
	low alloy and cast steel (less than 5% of alloying elements)		annealed	600	200	6	90-160	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
			quenched and tempered	930	275	7	65-200	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
				1000	300	8	70-210	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
				1200	350	9	95-160	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
	high alloyed steel, cast steel and tool steel		annealed	680	200	10	130-170	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
			quenched and tempered	1100	325	11	75-100	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
	stainless steel and cast steel		ferritic/ martensitic	680	200	12	110-170	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
			martensitic	820	240	13	70-155	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
M	stainless steel		austenitic, duplex	600	180	14	85-100	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
K	grey cast iron (GG)		ferritic/pearlitic		160	17	120-160	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
			pearlitic / martensitic		250	18	75-160	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
	cast iron nodular (GGG)		ferritic		180	15	70-150	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
			pearlitic		260	16	110-140	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
	malleable cast iron		ferritic		130	19	120-160	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
			pearlitic		230	20	110-140	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.21	0.15	0.18	0.21
N	aluminum- wrought alloy		not hardenable		60	21	160-300	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
			hardenable		100	22													
	aluminum-cast, alloyed	=<12% Si	not hardenable		75	23	150-350	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
			hardenable		90	24													
		>12% Si	high temperature		130	25	100-250	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.10	0.12
	copper alloys	>1% Pb	free cutting		110	26													
			brass		90	27													
			electrolytic copper		100	28													
	non-metallic		duroplastics, fiber plastics			29	100-400	0.05	0.06	0.07	0.09	0.1	0.11	0.12	0.13	0.15	0.18	0.22	0.25
			hard rubber			30													
S	high temperature alloys	Fe based	annealed		200	31													
			hardened		280	32													
		Ni or Co based	annealed		250	33	20-80	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.05
			hardened		350	34													
			cast		320	35													
	titanium ti alloys			400		36													
			alpha+beta alloys, hardened	1050		37	20-80	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.05
H	hardened steel		hardened		55 HRC	38	55-65												
			hardened		60 HRC	39	45-55												
	chilled cast iron		cast		400	40	90-105												
	cast iron		hardened		55 HRC	41	55-65												

* For cutters with long cutting flute, reduce feed rate by 40%.

Solid Carbide Threading Endmills Cutting Conditions for Fast Machining (MTECK,MTECM,MTECBF)

Recommended initial cutting conditions are shown in the tables below.
Use the **ISCAR** MillThread Advisor, for correct process and cutting condition re-considerations (https://www.iscar.com/mts/).
See machining data for solid carbide threading endmills with small diameters and short solid carbide thread mills.

ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Material Group No.	Cutting Speed [m/min]	Feed [mm/tooth] for Diameter [mm]												
								Ø1.5	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø12	Ø14	Ø15
P	non-alloy steel and cast steel, free cutting steel	<0.25% C	annealed	420	125	1	70-120	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
		≥0.25% C	annealed	650	190	2	65-115	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
		<0.55% C	quenched and tempered	850	250	3	60-110	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
		≥0.55% C	annealed	750	220	4	70-90	0.04	0.05	0.06	0.08	0.09	0.1	0.12	0.13	0.14	0.14	0.16	0.17	0.18
			quenched and tempered	1000	300	5	60-85	0.04	0.05	0.06	0.08	0.09	0.1	0.12	0.13	0.14	0.14	0.16	0.17	0.18
	low alloy and cast steel (less than 5% of alloying elements)		annealed	600	200	6	60-80	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.1	0.12	0.13	0.14
			quenched and tempered	930	275	7	60-75	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.1	0.12	0.13	0.14
				1000	300	8	55-75	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.1	0.12	0.13	0.14
				1200	350	9	55-70	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.1	0.12	0.13	0.14
	high alloyed steel, cast steel and tool steel		annealed	680	200	10	50-65	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.1	0.12	0.13	0.14
			quenched and tempered	1100	325	11	50-63	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.1	0.12	0.13	0.14
	stainless steel and cast steel		ferritic / martensitic	680	200	12	50-60	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.1	0.12	0.13	0.14
			martensitic	820	240	13	50-70	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.1	0.12	0.13	0.14
M	stainless steel and cast steel		austenitic, duplex	600	180	14	60-90	0.03	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.1	0.11	0.12	0.13
K	gray cast iron (GG)		ferritic / pearlitic		180	15	60-80	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
			pearlitic / martensitic		260	16	60-75	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
	nodular cast iron (GGG)		ferritic		160	17	50-70	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
			pearlitic		250	18	40-65	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
	malleable cast iron		ferritic		130	19	50-70	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
			pearlitic		230	20	40-65	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
N	aluminum-wrought alloys		not hardenable		60	21	120-150	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
			hardenable		100	22	110-130	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
	aluminum-cast alloys	≤12% Si	not hardenable		75	23	120-150	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
			hardenable		90	24	120-160	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
		>12% Si	high temperature		130	25	80-110	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
	copper alloys	>1% Pb	free cutting		110	26	85-120	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
			brass		90	27	85-120	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
			electrolytic copper		100	28	70-100	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
	non metallic		duroplastics, fiber plastics		70 Shore D	29	120-200	0.1	0.11	0.12	0.14	0.16	0.18	0.19	0.19	0.19	0.19	0.19	0.2	0.2
			hard rubber		55 Shore D	30	120-200	0.1	0.11	0.12	0.14	0.16	0.18	0.19	0.19	0.19	0.19	0.19	0.2	0.2
S	high temperature alloys	Fe based	annealed		200	31	40-60	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08
			hardened		280	32	30-50	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08
		Ni or Co based	annealed		250	33	25-40	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08
			hardened		350	34	20-35	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08
			cast		320	35	20-40	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08
	titanium alloys		pure	400	190	36	30-45	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08
			alpha+beta alloys, hardened	1050	310	37	30-40	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08

Cutting Conditions for MTET Step Release Indexable Threading Endmills

ISO	Material		Condition	Hardness HB	Tensile Strength [N/mm²]	Material Group No.	Cutting Conditions		
								F_z mm/tooth	
								Insert Designation	
							V_c (m/min)	MT TNCT 11U	MT TNCT 16U
P	non-alloy steel and cast steel, free cutting steel	<0.25% C	annealed	125	428	1	200	0.3	0.4
		≥0.25% C	annealed	190	639	2	200	0.3	0.4
		<0.55% C	quenched and tempered	210	708	3	200	0.3	0.4
		≥0.55% C	annealed	190	639	4	200	0.3	0.4
			quenched and tempered	300	1013	5	200	0.3	0.4
	low alloy and cast steel (less than 5% of alloying elements)		annealed	220	745	6	200	0.3	0.4
			quenched and tempered	175	591	7	200	0.3	0.4
				285	960	8	200	0.3	0.4
				380	1282	9	150	0.35	0.35
	high alloyed steel, cast steel and tool steel		annealed	430	1477	10	100	0.2	0.3
			quenched and tempered	200	675	11	200	0.3	0.4
	stainless steel and cast steel		ferritic / martensitic	200	675	12	200	0.25	0.35
			martensitic	330	1114	13	150	0.25	0.35
M	stainless steel and cast steel		austenitic, duplex	230	778	14	80	0.2	0.3
K	gray cast iron (GG)		ferritic / pearlitic	200	400	19	200	0.3	0.4
			pearlitic / martensitic	260	700	20	200	0.3	0.4
	nodular cast iron (GGG)		ferritic	180	200	17	250	0.3	0.4
			pearlitic	245	350	18	200	0.3	0.4
	malleable cast iron		ferritic	155	400	15	200	0.3	0.4
			pearlitic	265	700	16	200	0.3	0.4
N	aluminum-wrought alloys		not hardenable	30	–	21	–	–	–
			hardenable	100	343	22	–	–	–
	aluminum-cast alloys	≤12% Si	not hardenable	75	260	23	–	–	–
			hardenable	130	447	24	300	0.3	0.4
		>12% Si	high temperature	70	250	27	250	0.3	0.4
	copper alloys	>1% Pb	free cutting	100	343	28	–	–	–
			brass	90	314	27	–	–	–
			cu-alloys, short-chipping	110	382	28	–	–	–
	non metallic		high-strength, ampco	300	1013	28	–	–	–
			duroplastics, fiber plastics	70 Shore D		29	300	0.4	0.5
			hard rubber	55 Shore D		30	300	0.35	0.45
S	high temperature alloys	Fe based	annealed	200	675	31	40	0.25	0.25
			hardened	280	943	32	25	0.15	0.15
		Ni or Co based	annealed	250	839	33	40	0.25	0.25
			hardened	350	1177	34	25	0.15	0.15
			cast	320	1076	35	30	0.2	0.2
	titanium alloys		pure titanium	200	675	36	40	0.25	0.25
			α and β alloys, hardened	375	1262	37	40	0.25	0.25
			β alloys	410	1396	38	30	0.2	0.2
H	hardened steel		hardened	50 HRC	–	38	45	0.2	0.3
			hardened	55 HRC	–	39	–	–	–
	chilled cast iron		cast	60 HRC	–	40	–	–	–
	cast iron		hardened	55 HRC	–	41	45	0.2	0.3

Thread Milling CNC Program for Internal Thread

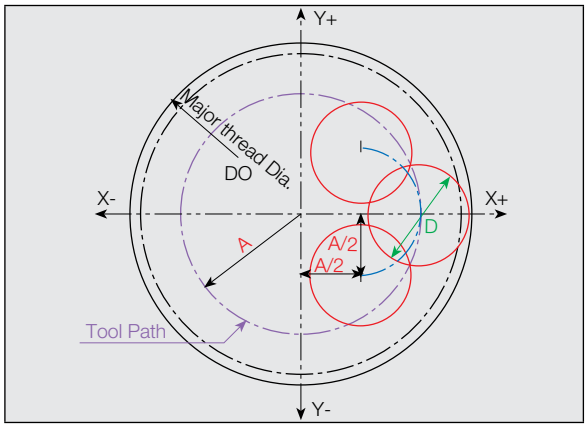
Right-hand thread (climb milling) from bottom up.
Program is based on tool center.
This method of programming needs no tool radius compensation value other than an offset for wear.

$$A = \frac{Do - D}{2}$$

A = Radius of tool path
Do = Major thread diameter
D = Cutting diameter

General Program

G90 G00 G54 G43 H1X0 Y0 Z10 S...
G00 Z-(to thread depth)
G01 G91 G41 D1 X(A/2) Y-(A/2) Z0 F...
G03 X(A/2) Y(A/2) R(A/2) Z(1/8 pitch)
G03 X0 Y0 I-(A) J0 Z(pitch)
G03 X-(A/2) Y(A/2) R(A/2) Z(1/8 pitch)
G01 G40 X-(A/2) Y-(A/2) Z0
G90 X0 Y0 Z0



Internal Thread

Example: M 48x2.0 IN-RH
(Thread depth 25 mm)
Toolholder: MTSR0029 J30
(Cutting dia. 29 mm)
Insert: MT30 I2.0ISO
A =(Do-D)/2=(48-29)/2=9.5
A/2 =4.75
(Tool compensation of radius=0)
G90 G0 G54 G43 G17 H1X0 Y0 Z10 S1320
G0 Z-25
G01 G91 G41 D1X 4.75 Y-4.75 Z0 F41
G03 X4.75 Y4.75 R4.75 Z0.25
G03 X0 Y0 I-9.5 J0 Z2.0
G03 X-4.75 Y4.75 R4.75 Z0.25
G01 G40 X-4.75 Y-4.75 Z0
G90 G0 X0 Y0 Z0
M30
%

Number of Radial Passes

In order to produce a thread, in some cases one radial pass is sufficient but other times a number of radial passes are required.

The table below presents **ISCAR**'s recommendations for the number of radial passes depending on the material and lead.

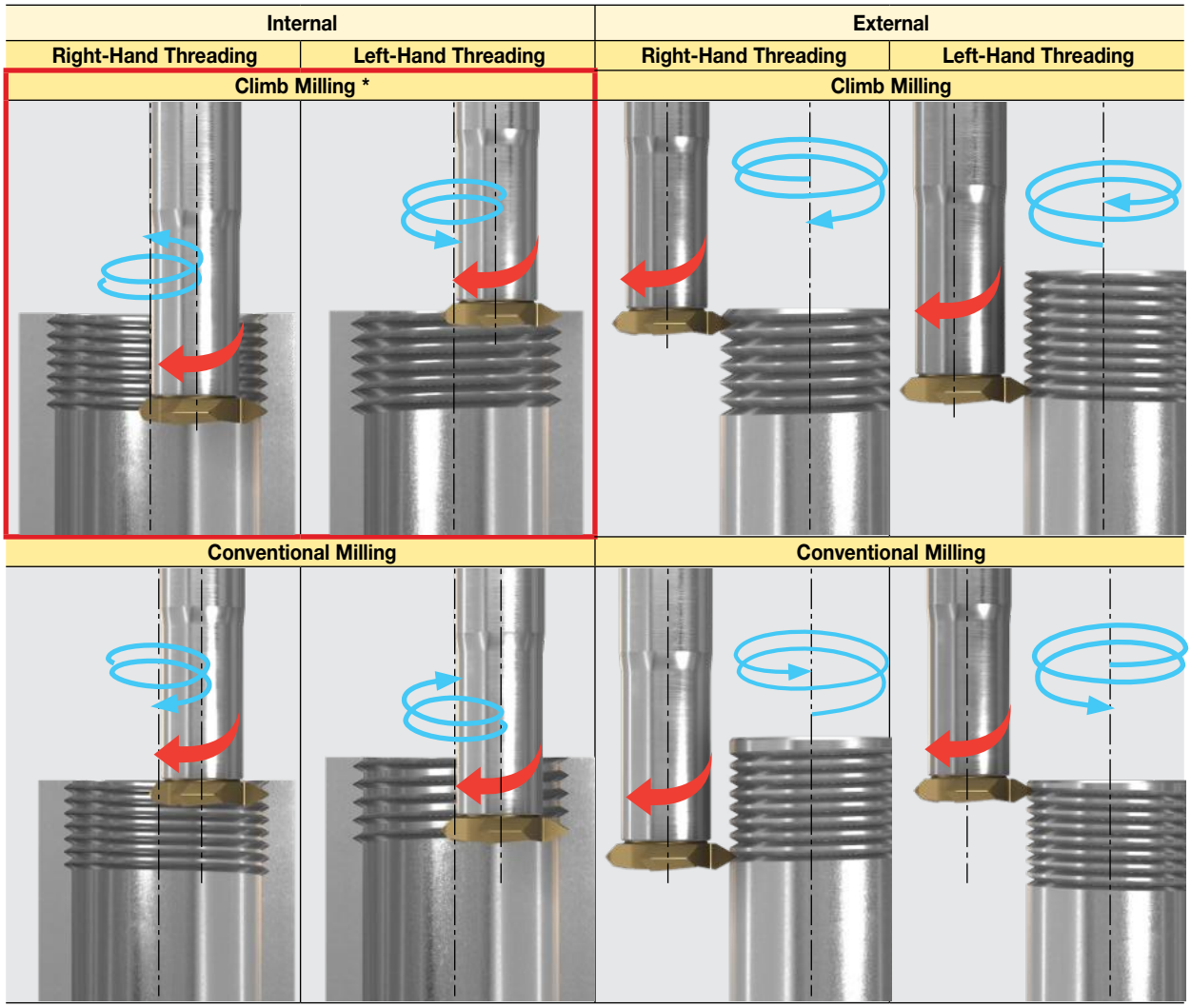
Number of Radial Passes

ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Material No.	Lead (mm)			
							0.25-1.00	1.25-1.50	1.75-2.00	2.50-6.00
							Number of Passes			
P	non-alloy steel and cast steel, free cutting steel	< 0.25 %C	annealed	420	125	1	1	1	2	3
		>= 0.25 %C	annealed	650	190	2				
		< 0.55 %C	quenched and tempered	850	250	3				
		>= 0.55 %C	annealed	750	220	4				
			quenched and tempered	1000	300	5				
	low alloy and cast steel (less than 5% of alloying elements)		annealed	600	200	6				
			quenched and tempered	930	275	7				
				1000	300	8				
				1200	350	9				
	high alloyed steel, cast steel and tool steel		annealed	680	200	10				
			quenched and tempered	1100	325	11				
	stainless steel and cast steel		ferritic/martensitic	680	200	12				
			martensitic	820	240	13				
M	stainless steel		austenitic, duplex	600	180	14	1	1	2	3
K	grey cast iron (GG)		ferritic/pearlitic		180	15	1	1	2	3
			pearlitic /martensitic		260	16				
	nodular cast iron (GGG)		ferritic		160	17				
			pearlitic		250	18				
	malleable cast iron		ferritic		130	19				
			pearlitic		230	20				
N	aluminum- wrought alloy		not hardenable		60	21	1	1	1	1
			hardenable		100	22				
	aluminum-cast, alloyed	<=12% Si	not hardenable		75	23				
			hardenable		90	24				
		>12% Si	high temperature		130	25	1	1	2	3
	copper alloys	>1% Pb	free cutting		110	26	1	1	1	1
			brass		90	27				
			electrolytic copper		100	28				
	non metallic		duroplastics, fiber plastics			29				
			hard rubber			30				
S	high temperature alloys	Fe based	annealed		200	31	2	2	2	3
			hardened		280	32				
		Ni or Co based	annealed		250	33				
			hardened		350	34				
			cast		320	35				
	titanium alloys		pure	400		36				
			alpha+ beta alloys, hardened	1050		37				
H	hardened steel		hardened		55 HRC	38				
			hardened		60 HRC	39				
	chilled cast iron		cast		400	40	3	3	3	3
	cast iron		hardened		55 HRC	41	2	2	2	3

Rm - ultimate tensile strength, MPa

Thread Milling Methods

There are several methods used for thread milling operations. The cutter usually rotates clockwise, except in special cases where the tool rotates counterclockwise. The spiral movement of the cutter can be clockwise or counterclockwise, and the tool can produce a thread by top-down or bottom-up. The combination of these movements depends on the type of thread required to produce, left-hand or right-hand threads.



* First choice

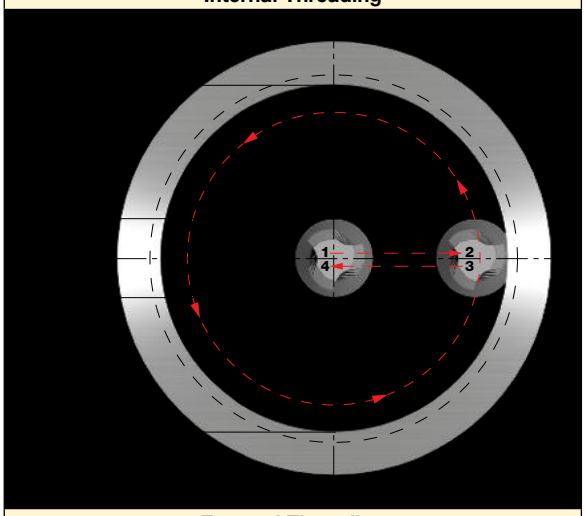
Entering the Workpiece

A sudden load is applied to the cutter when it enters the workpiece and as a result the cutter may be broken, or a mark will remain. If entering is smooth, then the load on the tool will increase gradually and the surface will remain "clean".
There are three ways to initially enter the workpiece: radial entering, tangential entering by arc, tangential entering by line.

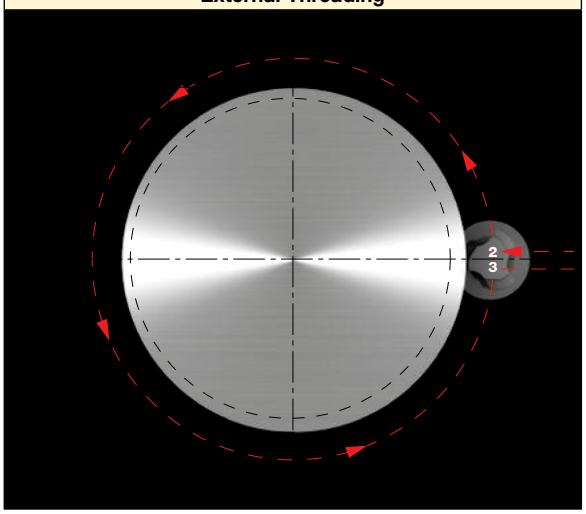
Radial Entering

The cutter enters the workpiece in a straight line to the center workpiece axis.
This is the simplest method, but also the least recommended because the angle of the hugging is too large.

Internal Threading



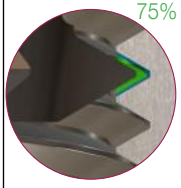
External Threading



DW - Workpiece diameter
DC - Cutter Diameter
1-2: Straight line entry
2-3: Helical movement during one full orbit (360°)
3-4: Straight line exit

Depth Per Pass

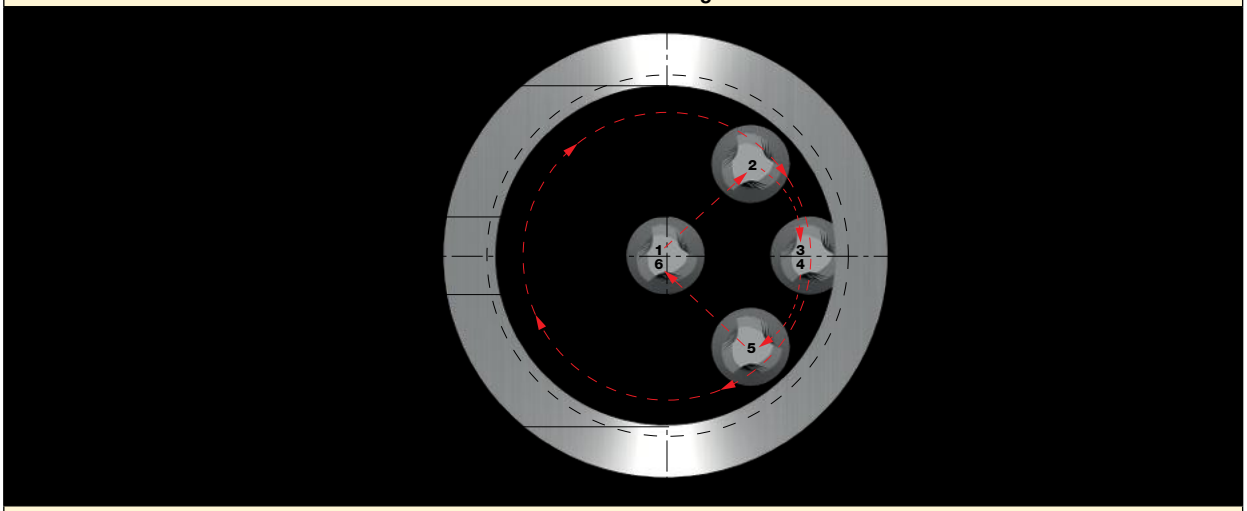
Based on the number of passes, the table below presents **ISCAR**'s recommendations for depth per pass, which is expressed as a percentage according to the total depth that is required to be removed.

Depth Per Pass	Number of Radial Passes		
	1 pass	2 passes	3 passes
	100%	75% 100%	 65% 75% 100%

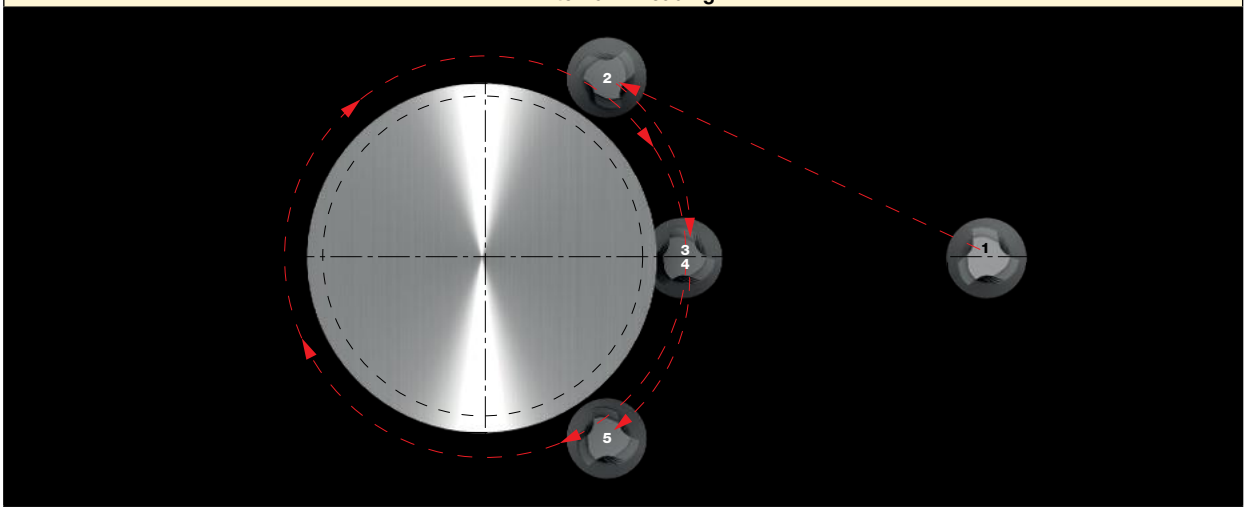
Tangential Entering by Arc (Recommended)

The tool enters the material in an arc movement. At the end of the thread, the tool also extends in an arc movement from the material. This method is recommended because the cutter gradually enters the material and the load on the tool increases gradually.

Internal Threading



External Threading



DW - Workpiece diameter
DC - Cutter Diameter
1-2: Rapid approach
2-3: Tangential entry by arc
3-4: Helical movement during one full orbit (360°)
4-5: Tangential exit by arc
5-6: Rapid return

MTECS Small Diameter, Short Solid Carbide Thread Mills

The **MTECS** (Mill Thread Endmills Carbide Short) solid carbide thread mills are used for the production of small internal threads. These thread mills feature a short 3-tooth cutting zone with 3 flutes and a released neck between the cutting zone and the shank.

This unique tool design offers very precise profiles and a high performance **IC908** submicron carbide grade with **PVD** titanium aluminum nitride coating.

The very short profile exerts a low force which minimizes tool bending. This facilitates parallel and high thread precision for the entire length.

Compared to taps, the **SOLID-THREAD** is more accurate, thread machining is substantially faster and there is no danger of a broken tap being stuck in the hole.

Features

- Minimum thread size: M1.4x0.3 (1.1 mm bore diameter) up to M20x2.50
- 2xD and 3xD threading lengths
- High cutting speeds
- Short cycle time
- Low cutting forces due to the short contact profile resulting in accurate and parallel thread
- Prevents oval threads near thin walls
- No more dealing with broken taps
- Reliable threading in blind holes
- Excellent performance on hardened steel, high temperature alloys and titanium

Thread Mill Vs. Tap

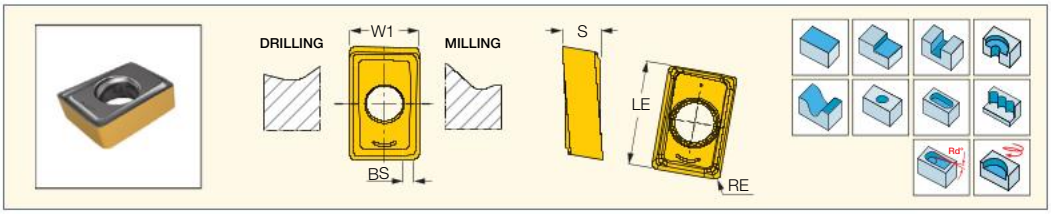
Features	Solid Carbide Thread Mills	Taps
Thread Surface Quality	High	Medium
Thread Geometry	Very accurate	Medium
Thread Tolerance	4H, 5H, 6H with std. cutter	6H with standard tap, 4H with special tap
Machining Time	Shorter or same as tap	Short
Machining Load	Very low	High
Range of Thread Diameters	Wide range of diameters	Specific tap for each thread size
Right-/Left-Hand Threading	Same cutter	Specific tap for right- and left-hand
Geometric Shape	Full profile	Partial profile

MILLING INSERTS

QUICKDMILL

MDR ANMU PNTR

Double-Sided Rectangle Inserts with 2 Center Cutting Edges for Drilling and 2 Peripheral Cutting Edges for Milling



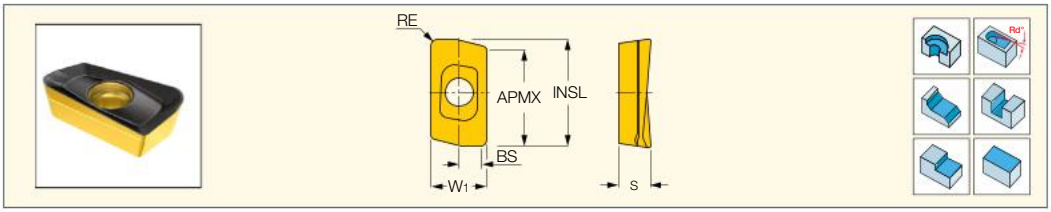
Designation	Dimensions W1	LE	S	BS	RE	Tough ↔ Hard IC830	IC808	IC810	Recommended Machining Data f_z (mm/t)
MDR ANMU 070304PNTR	5.20	7.80	2.70	0.80	0.40	●	●	●	0.05-0.20
MDR ANMU 090305PNTR	6.30	9.40	3.15	0.80	0.50	●	●	●	0.05-0.23
MDR ANMU 120408PNTR	7.50	12.40	4.07	0.80	0.80	●	●	●	0.05-0.23

For tools, see pages: MDR D-C-AN (12) • MDR MMT-JHP (12)

HELIPLUS

HP ANKT/ANCT 0702 PN-R/ PNTR

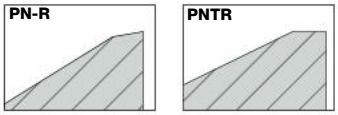
Inserts with a 7 mm Helical Edge and Various Corner Radii for General Use



Designation	Dimensions W1	APMX	BS	RE	INSL	S	Tough ↔ Hard IC328	IC830	IC928	IC950	IC808	IC908	IC30N	IC810	IC910	IC5400	DT7150	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
HP ANCT 070202 PN-R	4.50	7.70	1.50	0.20	8.70	2.60									●				0.60-7.70	0.05-0.10
HP ANCT 070204PN-R	4.50	7.70	1.40	0.40	8.70	2.60	●		●		●				●				0.80-7.70	0.05-0.10
HP ANKT 0702 PN-R	4.50	7.70	1.30	0.50	8.70	2.60	●	●	●		●	●		●	●	●			0.90-7.70	0.06-0.10
HP ANKT 070202PNTR	4.50	7.70	1.60	0.20	8.70	2.60	●		●										0.70-7.70	0.08-0.15
HP ANKT 0702PNTR	4.50	7.70	1.30	0.50	8.70	2.60	●	●	●	●		●	●		●		●	●	0.90-7.70	0.08-0.12
HP ANKT 070208PNTR	4.50	7.70	1.00	0.80	8.70	2.60		●	●		●	●							1.20-7.70	0.08-0.15
HP ANKT 070212PNTR	4.50	7.70	0.70	1.20	8.70	2.60			●			●							1.60-7.70	0.08-0.15
HP ANKT 070216PNTR	4.50	7.70	0.20	1.60	8.70	2.60			●			●							2.00-7.70	0.08-0.15

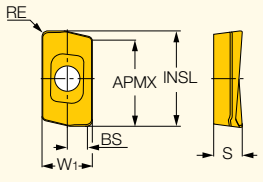
• For cutting speed recommendations, see pages 616-620

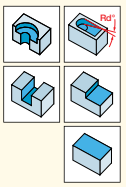
For tools, see pages: HP ANK-07 (274) • HP E90AN-07 (21) • HP E90AN-M-07 (21) • HP E90AN-MM-07 (22) • HP F90AN-07 (229)



HELIPLUS

HP ANKW 070204PNTR
Insert with a 7 mm Helical Edge and Flat Rake for Rough Machining and Hardened Steel





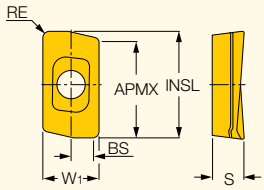
Designation	Dimensions						Tough ↔ Hard		Recommended Machining Data	
	INSL	APMX	S	RE	BS	W1	IC928	IC910	a_p (mm)	f_z (mm/t)
HP ANKW 070204PNTR	8.70	7.70	2.60	0.40	1.20	4.50	●	●	0.80-7.70	0.08-0.15

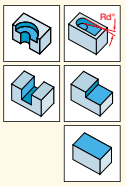
• Reinforced flat rake for machining cast iron. For cutting speed recommendations, see pages 616-620

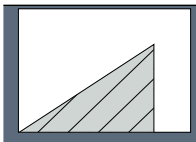
For tools, see pages: HP ANK-07 (274) • HP E90AN-07 (21) • HP E90AN-M-07 (21) • HP E90AN-MM-07 (22) • HP F90AN-07 (229)

HELIPLUS

HP ANCR 0702PNFR
Peripherally Ground Inserts with a Super Positive Chipformer for Machining Aluminum, Titanium and Magnesium







Designation	Dimensions						Tough ↔ Hard				Recommended Machining Data	
	INSL	APMX	S	RE	BS	W1	IC28	IC328	IC928	IC908	a_p (mm)	f_z (mm/t)
HP ANCR 070204PNFR	8.70	7.70	2.60	0.40	1.20	4.50		●	●	●	0.80-7.70	0.07-0.20
HP ANCR 070204PNFR-P (1)	8.70	7.70	2.60	0.40	1.20	4.50	●				0.80-7.70	0.07-0.20

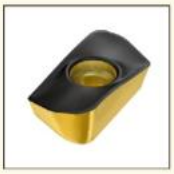
• For cutting speed recommendations, see pages 616-620

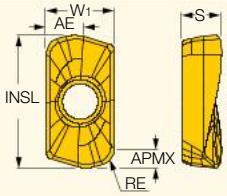
(1) Polished rake

For tools, see pages: HP ANK-07 (274) • HP E90AN-07 (21) • HP E90AN-M-07 (21) • HP E90AN-MM-07 (22) • HP F90AN-07 (229)

HELIPLUS

HP ANKT 0702-FF
Inserts for Fast Feed Milling

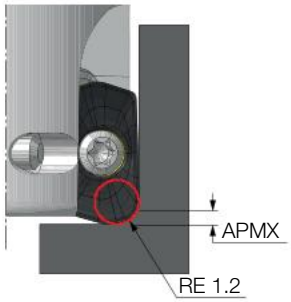




Designation	Dimensions W1	RE	S	INSL	APMX	AE	Tough ↔ Hard IC830	IC808	IC5600	Recommended Machining Data f_z (mm/t)
HP ANKT 0702R12T-FF	4.40	1.20	2.60	8.55	0.70	1.9	●	●		0.30-1.00
HP ANKT 0702R12GT-FF (1)	4.40	1.20	2.60	8.55	0.70	1.9		●	●	0.30-1.00

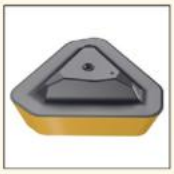
• Can be used on 12 mm and larger tools • For cutting speed recommendations, see pages 616-620
(1) Reinforced cutting-edge geometry for Fast Feed (FF) hardened materials up to 60 HRC

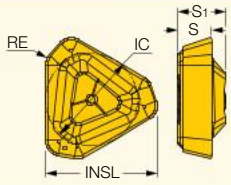
For tools, see pages: HP E90AN-07 (21) • HP E90AN-M-07 (21) • HP E90AN-MM-07 (22) • HP F90AN-07 (229)

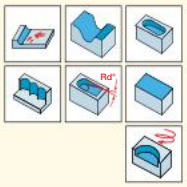


NAN3FEED NANO FEED MILL

FFT3 TXMT 02
Triangular Miniature Inserts for Fast Feed Milling at Small Depths of Cut







Designation	Dimensions INSL	IC	RE	S	S1	Tough ↔ Hard IC830	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
FFT3 TXMT 020105T	3.66	2.00	0.50	1.10	1.56	●	●	0.20-0.60	0.20-0.45

• For side plunging, the initial cutting feed is 0.06 mm/t

For tools, see pages: FFT3 EFM-02 (334) • FFT3 EFM-MM 02 (334)

Recommended Machining Conditions for FFT3-02 Fast Feed Endmills

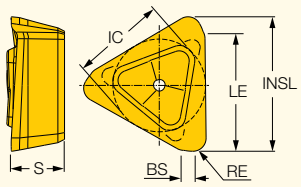
ISO class DIN/ ISO 513	Workpiece material Description	ISCAR mat. group*	Hardness, HB	Typical representative AISI/SAE/ASTM	DIN W.-Nr.	D.O.C. a_p (mm)	Cutting speed v_c, (m/min)	Feed f_z (mm/tooth)	Coolant
P	Non-alloy steel	1-5	130-180	1020	1.0402	0.20-0.60	120-200	0.20-0.70	Dry/Wet
	Low alloy steel	6-8	260-300	4340	1.6582		100-180	0.20-0.70	Dry/Wet
		9	HRC 35-42**	3135	1.5710		100-130	0.20-0.60	Dry/Wet
	High alloy steel	10-11	200-220	H13	1.2344		80-150	0.20-0.60	Dry/Wet
	Ferritic/martensitic stainless steel	12-13	200	420	1.4021		80-150	0.20-0.60	Dry/Wet

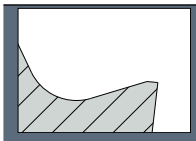
* ISCAR material group in accordance with VDI 3323 standard ** Quenched and tempered
For machining under unstable conditions, the recommended cutting data should be reduced by 20-30%

NANMILL NANO ENDMILL

HM390 TPKR 0401

Triangular Miniature Inserts with 3 Helical Cutting Edges for 90° Shoulders





Designation	Dimensions INSL	IC	S	LE	RE	BS	Tough ↔ Hard IC830	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM390 TPKR 0401-PCTR	4.00	2.80	1.60	3.00	0.40	0.40	●	●	0.80-3.00	0.04-0.10

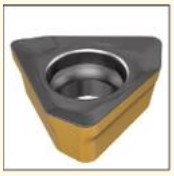
• For cutting speed recommendations, see pages 616-620

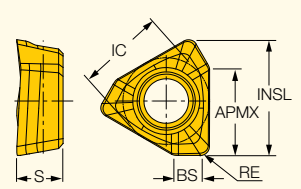
For tools, see pages: HM390 ETP-04 (15) • HM390 ETP-MM-04 (15)

HELI3MILL HM390 LINE

HM390 TPKT/CT 0502

Triangular Inserts with 3 Helical Cutting Edges for 90° Shoulder Accuracy

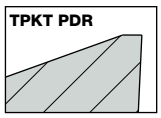


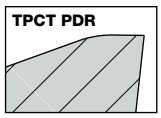


Designation	Dimensions INSL	IC	S	APMX	RE	BS	Tough ↔ Hard IC830	IC808	IC810	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM390 TPCT 0502PDR	5.26	3.94	2.10	3.50	0.40	1.00	●			0.80-3.50	0.05-0.10
HM390 TPKT 0502PDR	5.26	3.94	2.10	3.50	0.40	1.00	●	●	●	0.80-3.50	0.05-0.15
HM390 TPKT 050202PDR	5.26	3.94	2.10	3.50	0.20	1.20		●		0.60-3.50	0.05-0.15
HM390 TPKT 050208PDR	5.26	3.94	2.10	3.50	0.80	0.60		●		1.20-3.50	0.05-0.15

• For cutting speed recommendations, see pages 616-620

For tools, see pages: HM390 ETP-05 (16) • HM390 ETP-MM-05 (16) • HM390 ETP/C/D-MM-JHP (17)

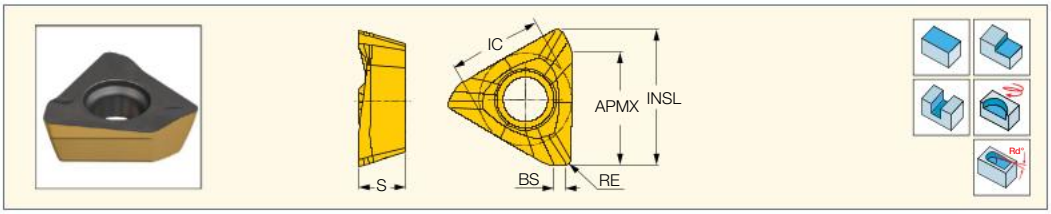




HELI3MILL HM390 LINE

HM390 TCKT/CT 0703

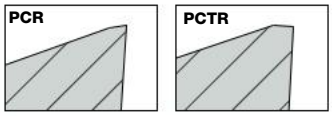
Triangular Inserts with 3 Helical Cutting Edges for 90° Shoulder Accuracy



Designation	Dimensions						Tough ↔ Hard								Recommended Machining Data	
	INSL	IC	S	APMX	RE	BS	IC330	IC845	IC830	IC380	IC808	IC810	IC5400	IC5600	a_p (mm)	f_z (mm/t)
HM390 TCCT 0703PCR	7.80	5.80	3.15	5.00	0.50	0.80	•		•	•					0.50-5.00	0.08-0.15
HM390 TCKT 0703PCTR	7.80	5.80	3.15	5.00	0.50	0.80	•	•	•		•	•	•	•	0.50-5.00	0.08-0.15
HM390 TCKT 070308PCTR	7.80	5.80	3.15	5.00	0.80	0.50					•				0.80-5.00	0.08-0.15
HM390 TCKT 070312PCTR	7.80	5.80	3.15	5.00	1.20	0.10					•				1.00-5.00	0.08-0.15

- For cutting speed recommendations, see pages 616-620

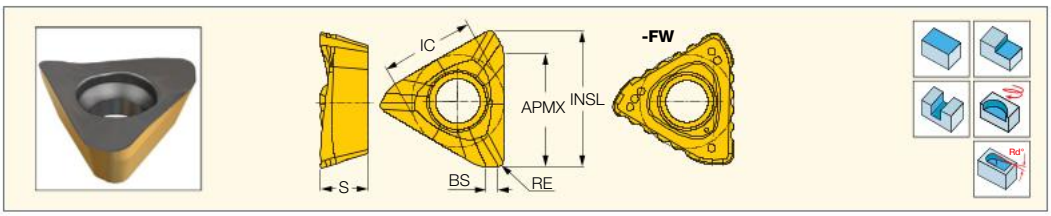
For tools, see pages: HM390 E10-80-07 (54) • HM390 ETC-07 (22) • HM390 ETC-MM (23) • HM390 ETP/C/D-MM-JHP (17) • HM390 FTC-07 (227) • HM390 FTP/C/D-JHP (235)



HELI3MILL HM390 LINE

HM390 TPKT/CT 1003

Triangular Inserts with 3 Helical Cutting Edges for 90° Shoulder Accuracy



Designation	Dimensions						Tough ↔ Hard											Recommended Machining Data	
	INSL	IC	S	APMX	RE	BS	IC882	IC330	IC845	IC716	IC830	IC380	IC808	IC30N	IC810	IC5400	IC5600	a_p (mm)	f_z (mm/t)
HM390 TPCT 1003PDR	10.90	7.50	4.00	8.00	0.80	1.10					•		•		•			1.20-8.00	0.08-0.12
HM390 TPCT 100302PDR	10.90	7.50	3.95	8.00	0.20	1.50					•		•					0.60-8.00	0.08-0.15
HM390 TPKR 100304PDRHM (1)	10.90	7.50	4.00	8.00	0.40	1.50					•							1.20-8.00	0.08-0.15
HM390 TPKT 1003PDR	10.90	7.50	3.85	8.00	0.80	0.70	•	•	•	•	•	•	•		•	•	•	1.20-8.00	0.08-0.15
HM390 TPKT 1003PDR-FW (2)	10.90	7.50	4.00	8.00	0.80	1.50					•							1.20-8.00	0.08-0.15
HM390 TPKT 1003PDR-HS	10.90	7.50	4.00	8.00	0.80	1.00					•							1.20-8.00	0.08-0.12
HM390 TPKT 1003PDR-MP	10.90	7.50	4.10	8.00	0.80	1.20					•							1.20-8.00	0.08-0.12
HM390 TPKT 100304PDR	10.90	7.50	3.85	8.00	0.40	1.00		•			•		•					0.80-8.00	0.08-0.15
HM390 TPKT 100304R-GW (3)	10.90	7.50	3.85	8.00	0.40	1.25								•				0.80-8.00	0.08-0.15
HM390 TPKT 100310PDR	10.90	7.50	3.85	8.00	1.00	0.90		•			•		•					1.40-8.00	0.08-0.15
HM390 TPKT 100312PDR	10.90	7.50	3.85	8.00	1.20	0.70		•			•		•					1.60-8.00	0.08-0.15
HM390 TPKT 100316PDR	10.90	7.50	3.85	8.00	1.60	0.60		•			•		•					2.00-8.00	0.08-0.15
HM390 TPKT 100320PDR (4)	10.90	7.50	3.85	8.00	2.00	0.60		•			•		•					2.40-8.00	0.08-0.15
HM390 TPKT 100324PDR	10.90	7.50	3.87	6.60	2.40	0.40							•					2.80-6.50	0.08-0.15

- For cutting speed recommendations, see pages 616-620

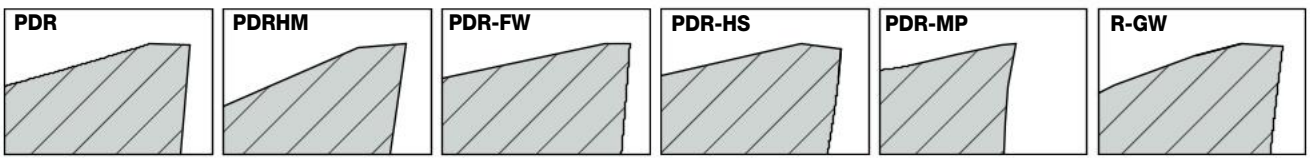
(1) Super positive insert for machining aluminum, stainless steel and high temperature alloys

(2) Insert with a serrated wavy cutting edge crushes chips into small segments

(3) A ground wiper

(4) Tool's pocket corners should be rounded to 1.5 mm radius

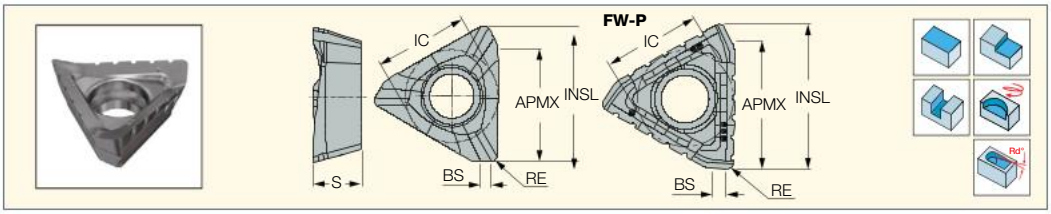
For tools, see pages: HM390 ETP-10 (29) • HM390 ETP-C#-10 (31) • HM390 ETP-M (30) • HM390 ETP/C/D-MM-JHP (17) • HM390 FTP-10 (235) • HM390 FTP/C/D-JHP (235) • HM390 SM-10 (275) • HM390 TPK-10 (274)



HELI3MILL HM390 LINE

HM390 TPCR 1003

Triangular Inserts with 3 Helical Cutting Edges Feature Positive and Polished Rake for Machining Non-Ferrous Materials



Designation	Dimensions INSL	IC	S	APMX	RE	BS	IC28	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM390 TPCR1003PDFR-P	10.90	7.50	4.00	8.00	0.80	1.00	•	1.20-8.00	0.05-0.20
HM390 TPCR100308FW-P	10.90	7.50	4.25	8.00	0.80	1.00	•	1.20-8.00	0.05-0.20

New

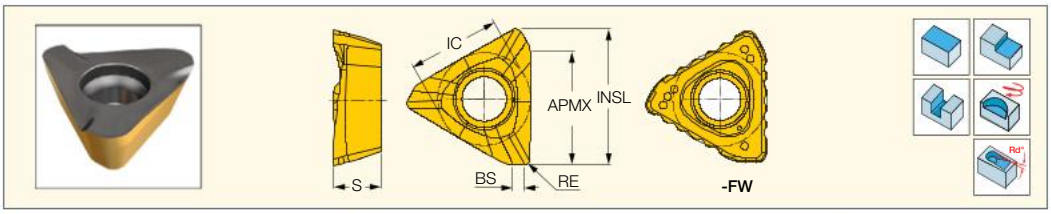
• Peripherally ground inserts, feature super positive and polished rake face for milling non-ferrous materials • For cutting speed recommendations, see pages 616-620

For tools, see pages: HM390 ETP-10 (29) • HM390 ETP-C#-10 (31) • HM390 ETP-M (30) • HM390 ETP/C/D-MM-JHP (17) • HM390 FTP-10 (235) • HM390 FTP/C/D-JHP (235) • HM390 SM-10 (275) • HM390 TPK-10 (274)

HELI3MILL HM390 LINE

HM390 TDKT/CT 1505

Triangular Inserts with 3 Helical Cutting Edges for 90° Shoulder Accuracy



Designation	Dimensions INSL	IC	S	APMX	RE	BS	Tough ↔ Hard IC882	IC330	IC845	IC716	IC830	IC380	IC808	IC30N	IC810	IC5400	IC5600	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM390 TDKT 1505PDR-MP (1)	15.97	11.40	6.45	13.00	0.80	2.90					•							1.20-13.00	0.08-0.15
HM390 TDKT 1505PDR-HS (2)	16.70	11.40	6.24	13.00	0.80	1.35					•							1.20-13.00	0.08-0.15
HM390 TDKT 1505PDR	16.71	11.39	5.85	13.00	0.80	1.40	•	•	•	•	•	•	•		•	•	•	1.20-13.00	0.08-0.15
HM390 TDKT 1505PDR-GW	16.50	11.40	5.80	13.00	0.80	1.70								•				1.20-13.00	0.08-0.15
HM390 TDKT 1505PDR-FW (3)	17.06	12.30	6.42	11.00	1.40	1.40					•							1.80-11.00	0.10-0.15
HM390 TDCT 150504PDR	16.80	11.40	6.08	12.00	0.40	1.90							•					1.20-12.00	0.08-0.15
HM390 TDKT 150504PDR	16.93	11.40	6.07	13.00	0.40	1.40					•		•					1.20-13.00	0.08-0.15
HM390 TDKT 150512-PDR	16.56	11.40	5.85	12.70	1.20	1.00		•			•		•					1.60-12.70	0.08-0.15
HM390 TDKT 150516-PDR	16.40	11.40	5.82	12.50	1.60	1.00		•			•		•					2.00-12.50	0.08-0.15
HM390 TDKT 150520-PDR	16.20	11.50	5.85	12.50	2.00	0.70		•			•		•					2.40-12.50	0.08-0.15
HM390 TDKT 150524-PDR	15.90	11.40	5.85	12.00	2.40	0.60		•			•		•					2.80-12.00	0.08-0.15
HM390 TDKT 150532-PDR (4)	15.20	11.40	5.85	12.00	3.20	0.60		•			•		•					3.60-12.00	0.08-0.15
HM390 TDCT 150540PDR	13.78	11.40	5.61	10.00	4.00	1.05							•					4.40-10.00	0.08-0.15
HM390 TDKT 150540-PDR (5)	14.25	11.40	5.75	11.00	4.00	0.60		•			•		•					4.40-11.00	0.08-0.15
HM390 TDKR 150508PDRHM (6)	16.70	11.40	5.85	13.00	0.80	1.70					•							1.20-13.00	0.08-0.15
HM390 TDCT 1505PDR (7)	16.80	11.40	6.08	12.00	0.80	1.70	•				•	•	•		•			1.20-12.00	0.08-0.15

• For cutting speed recommendations, see pages 616-620

(1) General-duty inserts with new medium positive cutting geometry

(2) Insert with a serrated chip splitting for roughing applications and for long overhang

(3) Chip splitting cutting edge, enlarges tool diameter by 1 mm

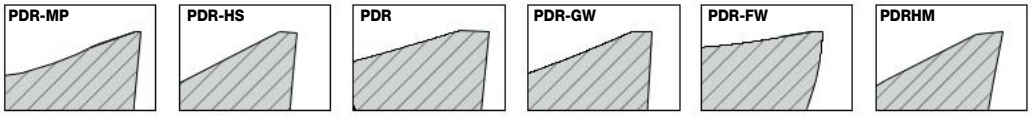
(4) Tools should be modified by rounding the insert pocket corners to 2 mm

(5) Tools should be modified by rounding the pocket corners to 4 mm

(6) Super positive inserts for machining aluminum, stainless steel and high temperature alloys

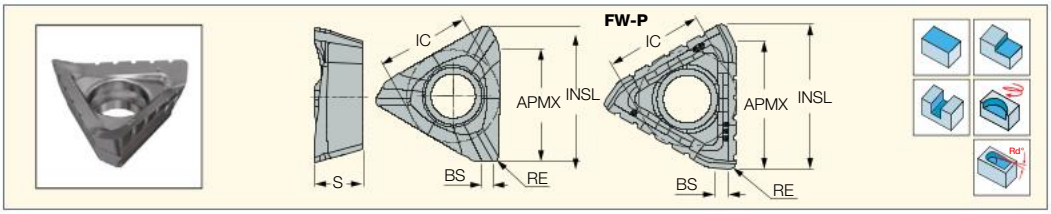
(7) Peripherally ground

For tools, see pages: HM390 ETD-15 (42) • HM390 ETD-M (42) • HM390 ETP/C/D-MM-JHP (17) • HM390 FTD-15 (246) • HM390 FTP/C/D-JHP (235)



HM390 TDCR 1505

Triangular Inserts with 3 Helical Cutting Edges Feature Positive and Polished Rake for Machining Non-Ferrous Materials



Designation	Dimensions INSL	IC	S	APMX	RE	BS	IC28	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM390 TDCR 150502PDFR-P	16.80	11.40	6.00	13.00	0.20	2.40	●	0.60-13.00	0.08-0.20
HM390 TDCR 150504PDFR-P	16.80	11.40	6.00	13.00	0.40	2.35	●	0.80-13.00	0.08-0.20
HM390 TDCR 1505PDFR-P	16.70	11.40	6.00	13.00	0.80	1.60	●	1.20-13.00	0.08-0.20
HM390 TDCR 150520PDFR-P	16.00	11.40	6.00	13.00	2.00	1.00	●	2.40-13.00	0.08-0.20
HM390 TDCR 150532PDFR-P (1)	15.00	11.40	6.00	13.00	3.20	0.50	●	3.60-13.00	0.08-0.20
HM390 TDCR 150540PDFR-P (1)	14.00	11.40	6.00	13.00	4.00	0.70	●	4.40-13.00	0.08-0.20
HM390 TDCR 150508 FW-P (2)	17.10	11.40	6.40	13.00	0.80	2.30	●	1.20-13.00	0.08-0.22
HM390 TDCR 150532 FW-P (3)	17.10	11.40	6.40	13.00	3.20	0.50	●	3.60-13.00	0.08-0.22

• Peripherally ground inserts, feature super positive and polished rake face for milling non-ferrous materials • For cutting speed recommendations, see pages 616-620

(1) Tools should be modified by rounding the insert pocket corners to 2.0 mm

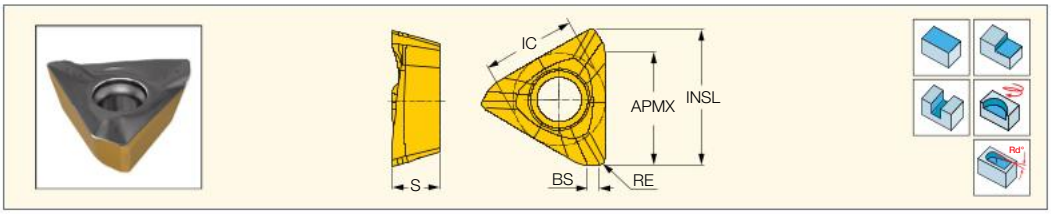
(2) Insert with serrated cutting edge

(3) Tools should be modified by rounding the insert pocket corners to 2.0 mm. Insert with serrated cutting edge

For tools, see pages: HM390 ETD-15 (42) • HM390 ETD-M (42) • HM390 ETP/C/D-MM-JHP (17) • HM390 FTD-15 (246) • HM390 FTP/C/D-JHP (235)

HM390 TDKT 1907

Triangular Inserts with 3 Helical Cutting Edges for 90° Shoulder Accuracy



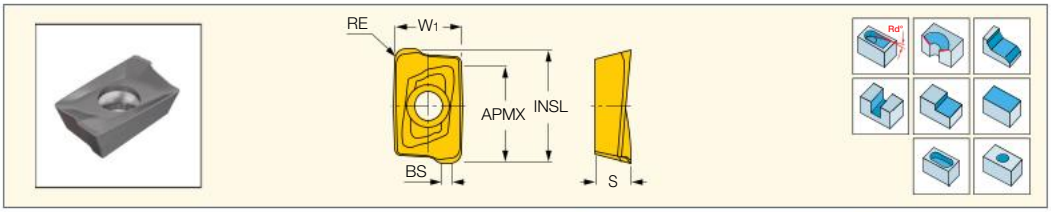
Designation	Dimensions INSL	IC	S	APMX	RE	BS	Tough ↔ Hard IC330	IC845	IC830	IC808	IC810	IC5400	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM390 TDKT 1907PDTR	21.00	14.00	7.00	16.00	0.80	2.50	●	●	●	●	●	●	1.20-16.00	0.10-0.20

• For cutting speed recommendations, see pages 616-620

For tools, see pages: HM390 ETD-19 (46) • HM390 FTD-19 (250)

HM90 APCT 1003

Inserts with a Sharp Cutting Edge for Semi-Finish and Finishing

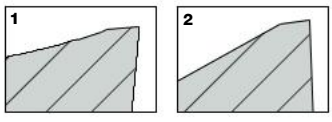


Designation	Dimensions W1	RE	INSL	S	BS	APMX	Fig.	Tough ↔ Hard IC28	IC328	IC928	IC380	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 APCT 100302R-PDR	6.96	0.20	11.66	3.53	1.90	9.80	1	●	●	●		●	0.60-8.00	0.06-0.12
HM90 APCT 100308-HP (1)	6.80	0.80	11.46	3.53	1.40	9.80	2				●	●	1.20-8.00	0.06-0.12

• For cutting speed recommendations, see pages 616-620

(1) Sharp cutting edges, high positive rake angle, excellent for milling PH high temperature alloys

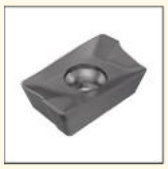
For tools, see pages: HM90 E90A-10 (32) • HM90 E90A-M-10 (39) • HM90 E90A-MM-10 (37) • HM90 E90A-MM-10-JHP (38) • HM90 F90AP-10 (236) • HM90 F90AP-10-JHP (237) • HM90 F90AP-AMT (237)

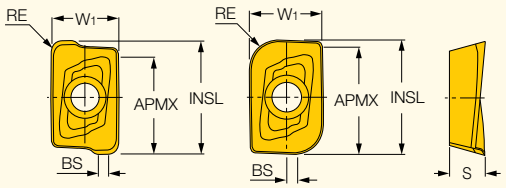


HELI2000

HM90 APKT 1003

Inserts for General Use with 2 Helical Cutting Edges for High 90° Shoulder Accuracy

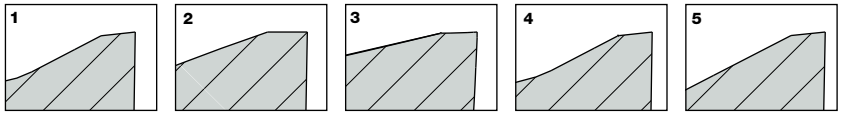




Designation	Dimensions W1	INSL	APMX	S	RE	BS	Fig.	Tough ↔ Hard IC882	IC28	IC330	IC328	IC716	IC830	IC928	IC950	IC380	IC808	IC908	IC810	IC910	IC5400	IC5600	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 APKT 1003PDR	6.76	11.45	9.80	3.53	0.80	1.40	1	●		●	●	●	●	●	●	●	●	●	●	●	●	●	1.20-8.00	0.08-0.15
HM90 APKT 100304PDR-SC	6.80	11.60	9.80	4.00	0.40	1.80	2						●										0.80-8.00	0.08-0.15
HM90 APKT 1003PDR-MM	6.70	11.50	9.80	3.50	0.80	1.60	3						●										1.20-8.00	0.08-0.15
HM90 APKT 1003PDTR-8M	6.76	11.45	9.80	3.53	0.80	1.40	4							●						●			1.20-8.00	0.08-0.20
HM90 APKT 100304PDR	6.76	11.45	9.80	3.53	0.40	1.78	1		●		●			●			●	●				●	0.80-8.00	0.08-0.15
HM90 APKT 100308R	6.76	11.45	9.80	3.53	0.80	1.00	5						●										1.20-8.00	0.08-0.15
HM90 APKT 100310PDR	6.76	11.45	9.80	3.53	1.00	1.00	1										●						1.40-8.00	0.08-0.15
HM90 APKT 100312PDR	6.76	11.45	9.20	3.53	1.20	1.00	1				●			●				●				●	1.60-8.00	0.08-0.15
HM90 APKT 100316PDR	6.76	11.45	9.20	3.53	1.60	0.58	1				●			●				●				●	2.00-8.00	0.08-0.15
HM90 APKT 100325PDR	6.76	10.40	9.20	3.53	2.50	-	1				●			●				●				●	2.90-8.00	0.08-0.15
HM90 APKT 100330PDR	6.76	10.40	9.20	3.53	3.00	-	1				●			●				●				●	3.40-8.00	0.08-0.15

• For inserts with corner radii larger than 1.5 mm, the cutter body should be modified • For cutting speed recommendations, see pages 616-620

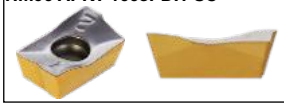
For tools, see pages: APK-FE (279) • HM90 E90A-10 (32) • HM90 E90A-M-10 (39) • HM90 E90A-MM-10 (37) • HM90 E90A-MM-10-JHP (38) • HM90 F90AP-10 (236) • HM90 F90AP-10-JHP (237) • HM90 F90AP-AMT (237)



HM90 APKT 1003PDR-MM

- Cutting edge geometry with low axial angle
- Reinforced cutting edge geometry, which provides better chipping resistance
- Wide frontal wiper that leaves excellent surface finish with low mismatch on the workpiece
- Used for unfavorable conditions and high feeds

HM90 APKT 1003PDR-SC

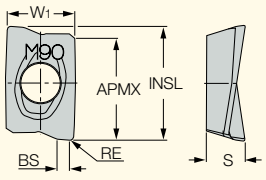


- Larger axial effective angle up to the middle of the insert length
- Reduced cutting forces, effective up to 5 mm – the middle of insert's cutting edge length
- Used for machining ductile high strength materials. Parts such as shafts, gears, crankshafts, connection rods, camshafts, etc.

HELI2000

HM90 APCR 100304PDFR-P/DP

Inserts with Positive Helical Cutting Edges and Polished Rake for Machining Aluminum and High Temperature Alloys

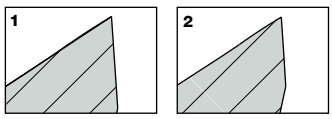


Designation	Dimensions W1	INSL	APMX	S	RE	BS	Fig.	Tough ↔ Hard IC28	IC928	IC08	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 APCR 100304PDFR-P	6.52	11.25	9.80	3.85	0.40	1.52	1	●	●	●	●	0.80-8.00	0.07-0.25
HM90 APCR 100304PDFRDP	6.52	11.25	9.80	3.85	0.40	1.52	2	●				0.80-8.00	0.07-0.25

• Super positive peripherally ground chipformer • P - Polished rake DP- Polished rake and flank • Used for machining aluminum (f_z 0.07-0.25), titanium (f_z 0.05-0.08) and magnesium (f_z 0.05-0.10)

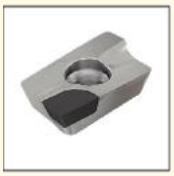
• Recommended for coarse pitch cutters • For cutting speed recommendations, see pages

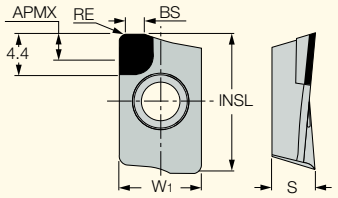
For tools, see pages: APK-FE (279) • HM90 E90A-10 (32) • HM90 E90A-M-10 (39) • HM90 E90A-MM-10 (37) • HM90 E90A-MM-10-JHP (38) • HM90 F90AP-10 (236) • HM90 F90AP-10-JHP (237) • HM90 F90AP-AMT (237)

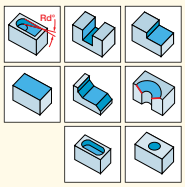


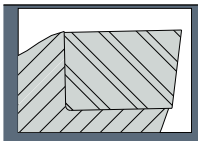
HELIMILL

APKW 100304 PDR (PCD)
Single R.H. PCD Tipped
Insert for Milling Aluminum









Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard ID8	ID5
APKW 100304 PDR (1)	6.76	11.47	3.50	3.50	0.40	1.52	●	●

• Use ID5 for aluminum alloys with <12% silicon. • The inserts are supplied with spare screws.
(1) Important: use only on tools with diameters of 25 mm and larger

For tools, see pages: HM90 E90A-10 (32) • HM90 E90A-M-10 (39) • HM90 E90A-MM-10-JHP (38) • HM90 F90AP-10 (236) • HM90 F90AP-10-JHP (237) • HM90 F90AP-AMT (237)

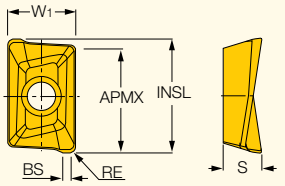
PCD

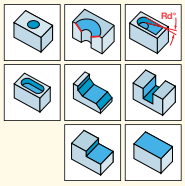
Recommended Machining Conditions

	Grade	D.O.C. (a_p) mm	Material	V_c m/min	Feed mm/tooth	Cutting Edge
N	ID5	<2.0	Aluminum alloys <12% silicon	300-3000	0.05-0.25	Sharp
		<2.0	Chipboard, fiberboard and plastics	2000-3000		
		<2.0	Copper alloys and brass	500-1500		
N	ID8	<2.0	Aluminum>12% silicon	250-1000		
		<2.0	Aluminum<12% silicon	300-3000		
		<2.0	Chipboard, fiberboard and plastics	2000-3000		
			MMC	200-600		

HELIMILL

APCT 1003PDR-HM
Inserts with 2 Helical Precision
Ground Cutting Edges for
High Accuracy Finishing

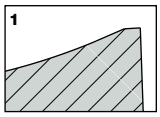


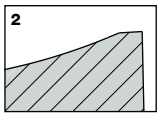


Designation	Dimensions W1	RE	INSL	S	APMX	BS	Fig.	Tough ↔ Hard IC28	IC328	IC250	Recommended Machining Data a_p (mm)	f_z (mm/t)
APCT 100302R-HM	6.70	0.25	10.95	3.51	9.80	1.20	1		●		0.65-8.00	0.06-0.12
APCT 100304R-HM	6.70	0.45	10.95	3.51	9.80	1.20	1		●		0.85-8.00	0.07-0.12
APCT 1003PDR-HM	6.70	0.50	10.95	3.51	9.80	1.20	2	●		●	0.90-8.00	0.07-0.15

• For cutting speed recommendations, see pages 616-620

For tools, see pages: APK-FE (279) • HM90 E90A-10 (32) • HM90 E90A-M-10 (39) • HM90 E90A-MM-10 (37) • HM90 E90A-MM-10-JHP (38) • HM90 F90AP-10 (236) • HM90 F90AP-10-JHP (237) • HM90 F90AP-AMT (237)

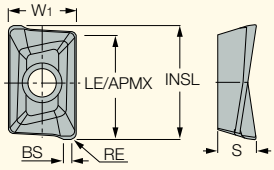


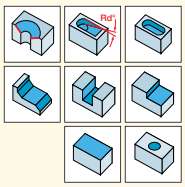


HELIMILL

APCR 1003PDFR-P

Super Positive Insert with a Polished Rake for Machining Aluminum





Designation	Dimensions W1	INSL	S	RE	BS	APMX	Tough ↔ Hard IC28	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
APCR 1003PDFR-P	6.70	11.20	3.76	0.50	1.20	9.80	●	●	0.90-8.00	0.07-0.25

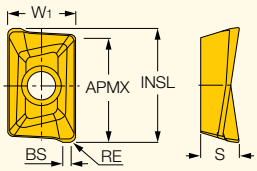
- Super positive rake sharp ground helical cutting edge, for finishing on aluminum, stainless steel and high temperature alloys
- For cutting speed recommendations, see pages 616-620

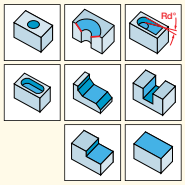
For tools, see pages: APK-FE (279) • HM90 E90A-10 (32) • HM90 E90A-M-10 (39) • HM90 E90A-MM-10 (37) • HM90 E90A-MM-10-JHP (38) • HM90 F90AP-10 (236) • HM90 F90AP-10-JHP (237) • HM90 F90AP-AMT (237)

HELIMILL

APKR 1003PDR

High Positive Inserts for Machining Stainless Steel and High Temperature Alloys

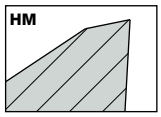


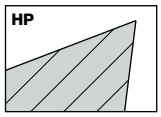


Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC28	IC330	IC328	IC716	IC840	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKR 1003PDR-HM	6.70	11.20	9.80	3.76	0.50	1.20	●	●	●			●	0.90-8.00	0.07-0.15
APKR 1003PDR-HP	6.70	11.50	9.80	3.80	0.80	1.90				●	●		0.90-8.00	0.07-0.15

- For cutting speed recommendations, see pages 616-620

For tools, see pages: APK-FE (279) • HM90 E90A-10 (32) • HM90 E90A-M-10 (39) • HM90 E90A-MM-10 (37) • HM90 E90A-MM-10-JHP (38) • HM90 F90AP-10 (236) • HM90 F90AP-10-JHP (237) • HM90 F90AP-AMT (237)

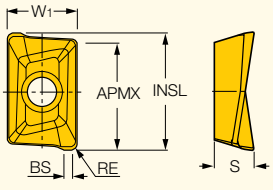


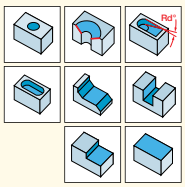


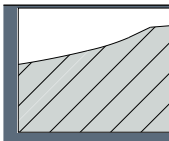
HELIMILL

APKT 1003PDR-HM

Inserts with 2 Helical Cutting Edges for General Use







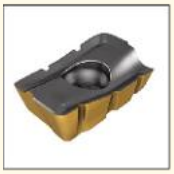
Designation	Dimensions W1	INSL	S	APMX	RE	BS	Tough ↔ Hard IC28	IC330	IC328	IC830	IC928	IC635	IC50M	IC250	IC950	IC30N	IC910	IC520M	IC20	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKT 1003PDR-HM	6.70	10.95	3.55	9.80	0.50	1.20	●	●	●	●	●	●	●	●	●	●	●	●	●	0.90-8.00	0.08-0.15

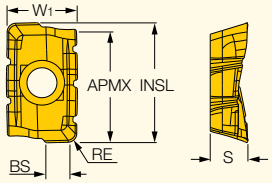
- For cutting speed recommendations, see pages 616-620

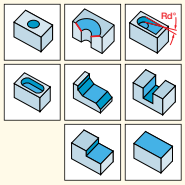
For tools, see pages: APK-FE (279) • E90AC (50) • HM90 E90A-10 (32) • HM90 E90A-M-10 (39) • HM90 E90A-MM-10 (37) • HM90 E90A-MM-10-JHP (38) • HM90 F90AP-10 (236) • HM90 F90AP-10-JHP (237) • HM90 F90AP-AMT (237)

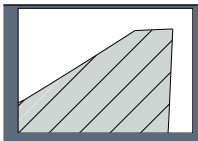
HELIMILL

APKT 1003PDR-HM-CS
Chip Splitting Insert for Rough Steel Milling, Specially Made for Extended Flute Tools or Long Overhang Applications









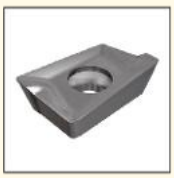
Designation	Dimensions W1	INSL	S	APMX	RE	BS	IC830	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKT 1003PDR-HM-CS	6.70	10.95	3.55	9.80	0.80	1.20	●	8.00-8.00 (1)	0.08-0.15

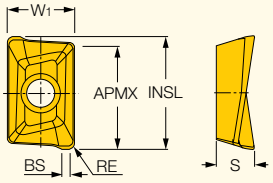
• For cutting speed recommendations, see pages 616-620
(1) Machine with maximum depth of cut

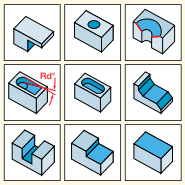
For tools, see pages: APK-FE (279) • E90AC (50) • HM90 E90A-10 (32) • HM90 E90A-M-10 (39) • HM90 E90A-MM-10 (37) • HM90 E90A-MM-10-JHP (38) • HM90 F90AP-10 (236) • HM90 F90AP-10-JHP (237) • HM90 F90AP-AMT (237)

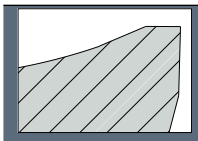
HELIMILL

APKT 1003PDTR/L-RM
Inserts with Reinforced Helical Cutting Edge for Interrupted Cut and Heavy Machining









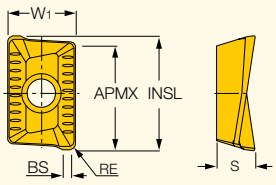
Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC28	IC328	IC928	IC250	IC950	IC910	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKT 1003PDTL-RM (1)	6.70	11.00	9.80	3.47	0.50	1.20		●						0.90-8.00	0.10-0.20
APKT 1003PDTR-RM	6.70	11.00	9.80	3.47	0.50	1.20	●	●	●	●	●	●	●	0.90-8.00	0.10-0.20

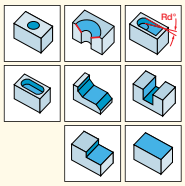
• APKT...L should be used only on left-hand tools. • For cutting speed recommendations, see pages 616-620
(1) PDTL-Left-hand inserts are used only for special tools.

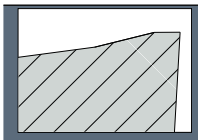
For tools, see pages: APK-FE (279) • ETS (389) • HM90 E90A-10 (32) • HM90 E90A-M-10 (39) • HM90 E90A-MM-10 (37) • HM90 E90A-MM-10-JHP (38) • HM90 F90AP-10 (236) • HM90 F90AP-10-JHP (237) • HM90 F90AP-AMT (237)

HELIMILL

APKT 1003PDTR-76
Inserts with 2 Helical Cutting Edges with Ribs Along the Edge for Interrupted Cuts







Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC330	IC328	IC830	IC928	IC950	IC910	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKT 1003PDTR-76	6.70	11.00	9.80	3.47	0.50	1.20	●	●	●	●	●	●	●	0.90-8.00	0.08-0.15

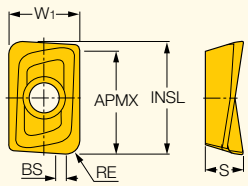
• Reinforced helical cutting edge with ribs on rake face to reduce heat transfer. Used for interrupted cuts and heavy machining
• For cutting speed recommendations, see pages 616-620

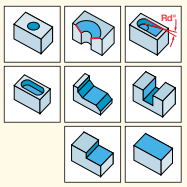
For tools, see pages: APK-FE (279) • E90AC (50) • HM90 E90A-10 (32) • HM90 E90A-M-10 (39) • HM90 E90A-MM-10 (37) • HM90 E90A-MM-10-JHP (38) • HM90 F90AP-10 (236) • HM90 F90AP-10-JHP (237) • HM90 F90AP-AMT (237)

HELIMILL

APKT 1003..TR-RM

Inserts with Various Corner Radii and a Reinforced Cutting Edge for Interrupted Cut and Heavy Machining

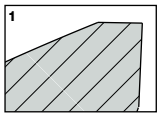


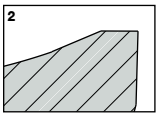


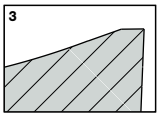
Designation	Dimensions RE	INSL	W1	APMX	S	BS	Fig.	Tough ↔ Hard IC28	IC330	IC328	IC928	IC950	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKT 100308PDTR-RM	0.80	11.00	6.70	9.80	3.47	0.90	2		●	●	●		●	1.20-8.00	0.08-0.15
APKT 100310PDR-RM	1.00	10.75	6.70	9.80	3.47	0.60	1	●		●				1.40-8.00	0.08-0.15
APKT 100312TR-RM	1.20	10.50	6.70	9.20	3.47	-	3	●		●	●		●	1.60-8.00	0.08-0.15
APKT 100316PDTR-RM	1.60	10.90	6.70	9.20	3.47	0.80	2			●	●			2.00-8.00	0.08-0.15
APKT 100320PDTR-RM	2.00	10.90	6.70	9.20	3.47	0.80	2			●	●	●		2.40-8.00	0.08-0.15
APKT 100332TR-RM	3.20	10.70	6.70	9.20	3.47	-	3			●	●			3.60-8.00	0.08-0.15
APKT 100340TR-RM	4.00	10.55	6.70	9.20	3.47	-	3			●				4.40-8.00	0.08-0.15

• For cutting speed recommendations, see pages 616-620

For tools, see pages: APK-FE (279) • HM90 E90A-10 (32) • HM90 E90A-M-10 (39) • HM90 E90A-MM-10 (37) • HM90 E90A-MM-10-JHP (38) • HM90 F90AP-10 (236) • HM90 F90AP-10-JHP (237) • HM90 F90AP-AMT (237)



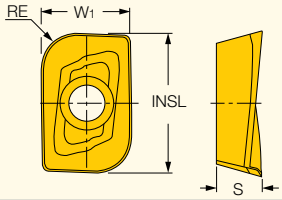


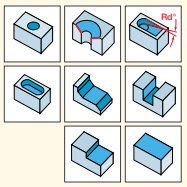


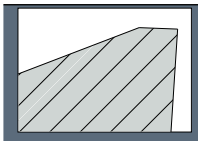
HELIMILL

APKT 1003..R

Inserts with Ground Large Corner Radii







Designation	Dimensions W1	INSL	S	RE	Tough ↔ Hard IC328	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKT 100325R	6.70	10.10	3.50	2.50	●	2.90-9.20	0.08-0.15
APKT 100330R	6.70	10.10	3.50	3.00	●	3.40-9.20	0.08-0.15
APKT 100340R	6.75	10.65	3.40	4.00	●	4.40-9.20	0.08-0.15

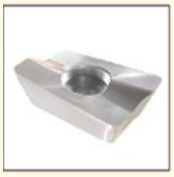
• Standard tool pocket radius should be increased to 0.5 mm larger than the insert radius • For cutting speed recommendations, see pages 616-620

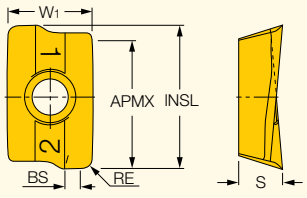
For tools, see pages: APK-FE (279) • HM90 E90A-10 (32) • HM90 E90A-M-10 (39) • HM90 E90A-MM-10 (37) • HM90 E90A-MM-10-JHP (38) • HM90 F90AP-10 (236) • HM90 F90AP-10-JHP (237) • HM90 F90AP-AMT (237)

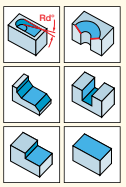
HELI2000

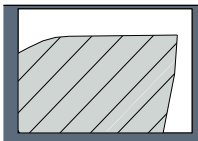
HM90 APKW 1003PDR

Inserts with a Reinforced Edge and Flat Rake for Hardened Steel and Milling Heavy Interrupted Cut









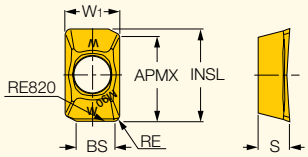
Designation	Dimensions W1	INSL	S	RE	BS	APMX	Tough ↔ Hard IC928	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 APKW 1003PDR	6.76	11.47	3.50	0.80	1.40	9.80	●	●	1.20-8.00	0.08-0.15

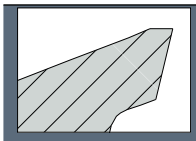
• Reinforced cutting edge, resistant to edge breakage and chipping • Recommended for milling at unfavorable conditions and heavy interrupted cut
• Different corner radii can be ground • For cutting speed recommendations, see pages 616-620

For tools, see pages: APK-FE (279) • HM90 E90A-10 (32) • HM90 E90A-M-10 (39) • HM90 E90A-MM-10 (37) • HM90 E90A-MM-10-JHP (38) • HM90 F90AP-10 (236) • HM90 F90AP-10-JHP (237) • HM90 F90AP-AMT (237)

HELI2000

HM90 APKT 1003PD-W
Wiper Insert





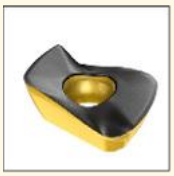
Designation	Dimensions W1	INSL	S	RE	BS	APMX	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 APKT 1003PD-W	6.69	11.65	3.55	0.80	4.40	9.80	●	0.10-1.00	0.15-0.30

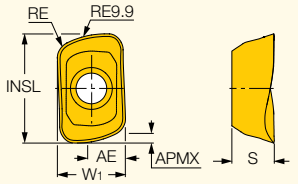
• Must be used together with HM90 APKT 1003PDR inserts • For cutting speed recommendations, see pages 616-620

For tools, see pages: HM90 E90A-10 (32) • HM90 E90A-M-10 (39) • HM90 E90A-MM-10 (37) • HM90 E90A-MM-10-JHP (38) • HM90 F90AP-10 (236) • HM90 F90AP-10-JHP (237) • HM90 F90AP-AMT (237)

HELIMILL

APKT 1003-FF
Insert for Fast Feed Milling



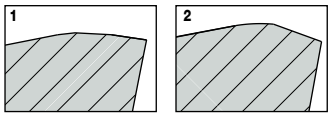


Designation	Dimensions W1	INSL	APMX	AE	S	RE	Rg(2)	Fig.	Tough ↔ Hard IC830	IC808	IC5600	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKT 1003R8T-FF	6.60	10.80	1.00	4.5	3.50	1.90	2.20	1	●	●		0.50-1.00	0.50-1.50
APKT 1003R8GT-FF (1)	6.60	10.80	1.00	4.5	3.50	1.90	2.20	2		●	●	0.50-1.00	0.50-1.50

• The actual diameter of the tool is 0.1 mm larger than the nominal diameter when using this insert • Tool corner should be modified by rounding to 2.0 mm.
• Should be used on tools of 12 mm diameter and up • At D.O.C. larger than a_p max, regular insert feed should be applied
• For cutting speed recommendations, see pages 616-620

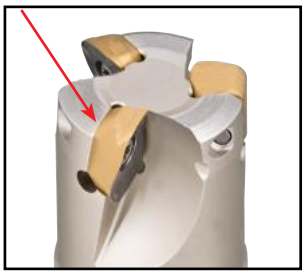
(1) Reinforced cutting-edge geometry for Fast Feed (FF) hardened materials up to 60 HRC
(2) Radius for programming

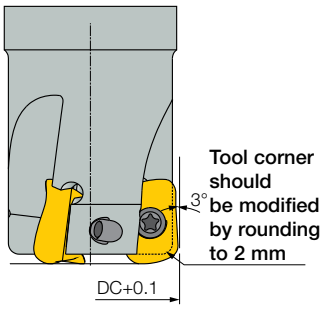
For tools, see pages: HM90 E90A-10 (32) • HM90 E90A-M-10 (39) • HM90 E90A-MM-10 (37) • HM90 E90A-MM-10-JHP (38) • HM90 F90AP-10 (236) • HM90 F90AP-10-JHP (237) • HM90 F90AP-AMT (237)



Standard Tool

Tool with a Modified Corner

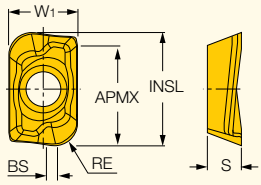


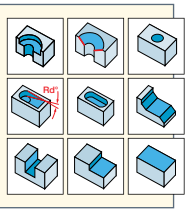


HELI2000

HM90 ADKT 1505

Inserts with 2 Helical Cutting Edges for General Use

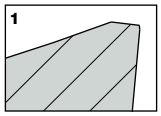


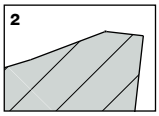


Designation	Dimensions W1	INSL	APMX	S	RE	BS	Fig.	Tough ↔ Hard IC882	IC330	IC328	IC830	IC928	IC950	IC380	IC808	IC908	IC810	IC910	IC5400	IC5600	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 ADKT 1505PDR	9.65	16.18	12.00	5.85	0.80	2.16	2	●	●	●	●	●	●	●	●	●	●	●	●	●	1.20-12.00	0.08-0.15
HM90 ADKT 1505PDR-MM	9.60	16.00	12.00	5.80	0.80	2.70	1				●										1.20-12.00	0.08-0.15
HM90 ADKT 150516PDR	9.65	15.60	12.00	5.92	1.60	1.37	2									●				●	2.00-12.00	0.08-0.15
HM90 ADKT 150520PDR	9.65	15.60	12.00	5.90	2.00	0.79	2									●				●	2.40-12.00	0.08-0.15
HM90 ADKT 150524PDR	9.65	15.60	12.00	5.80	2.40	0.52	2									●					2.80-12.00	0.08-0.15
HM90 ADKT 150532PDR	9.65	15.20	12.00	5.85	3.20	-	2									●				●	3.60-12.00	0.08-0.15
HM90 ADKT 150540PDR	9.65	14.83	12.00	5.80	4.00	-	2									●				●	4.40-12.00	0.08-0.15
HM90 ADKT 150550PDR	9.65	14.85	12.00	5.75	5.00	-	2									●				●	5.40-12.00	0.08-0.15
HM90 ADKT 150564PDR	9.65	14.85	12.00	5.65	6.40	-	2									●				●	6.80-12.00	0.08-0.15

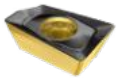
• For inserts with corner radii larger than 2.0 mm, the cutter body and seats should be modified • Inserts with corner radii larger than 0.8 mm should be used on ADK & SM tools only on the face of the cutter. • For cutting speed recommendations, see pages 616-620

For tools, see pages: F90AD-SFR (249) • HM90 E90AD-15 (43) • HM90 E90AD-M-15 (44) • HM90 E90AD-M-15-JHP (45) • HM90 E90AD-MM-15-JHP (46) • HM90 F90A-15 (247) • HM90 F90A-15-JHP (248) • SM (291)





HM90 ADKT 1505PDR-MM

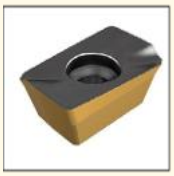


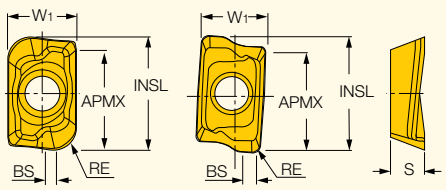
- Cutting edge geometry with low axial angle
- Reinforced cutting edge geometry, which provides better chipping resistance
- Wide frontal wiper that leaves excellent surface finish on the workpiece
- Used for unfavorable conditions and high feeds

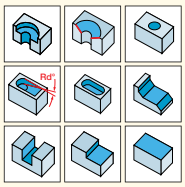
HELI2000

HM90 ADCT 1505

General Use Inserts with 2 Helical Cutting Edges for High 90° Shoulder Accuracy



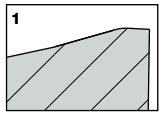


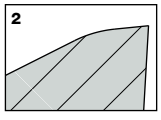


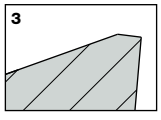
Designation	Dimensions W1	INSL	APMX	S	RE	BS	Fig.	Tough ↔ Hard IC882	IC830	IC380	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 ADCT 150508 PDTR	9.50	15.70	12.00	6.40	0.80	4.10	3		●			1.20-12.00	0.08-0.15
HM90 ADCT 1505PDR-PL	9.65	16.18	12.00	5.85	0.80	2.16	2		●		●	1.20-12.00	0.08-0.12
HM90 ADCT 150508R-T	9.65	16.18	12.00	5.85	0.80	2.16	1	●		●		1.20-12.00	0.08-0.10
HM90 ADCT 150516R-T	9.65	16.18	12.00	5.85	1.60	1.37	1			●		2.00-12.00	0.08-0.10
HM90 ADCT 150540R-T	9.65	16.18	12.00	5.85	4.00	-	1			●		4.40-12.00	0.08-0.10

• For inserts with corner radii larger than 2.0 mm, the cutter body and seats should be modified • Inserts with corner radii larger than 0.8 mm should be used on ADK & SM tools only on the face of the cutter. • For a more economical insert refer to ADKT 1505PDR-HM in the ADKT 1505PDR family
• For cutting speed recommendations, see pages 616-620

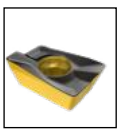
For tools, see pages: F90AD-SFR (249) • HM90 E90AD-15 (43) • HM90 E90AD-M-15 (44) • HM90 E90AD-M-15-JHP (45) • HM90 E90AD-MM-15-JHP (46) • HM90 F90A-15 (247) • HM90 F90A-15-JHP (248) • SM (291)





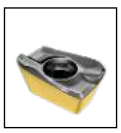


HM90 ADCT 150508 PDTR



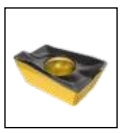
- Sharp ground cutting edge with a special edge preparation
- Ground all around, including clamping surfaces
- Low axial angle edge geometry
- Wide sharp-edged wiper for high surface finish
- High perpendicularity and mismatch accuracy when using tool diameters of up to 50 mm

HM90 ADCT 1505..R-T



- For machining titanium and super alloys
- Excellent surface finish
- Smoother cut
- Reduces edge burrs
- Reduces vibration and noise

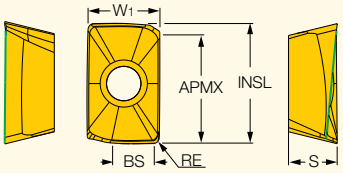
HM90 ADCT 1505..PDR-PL

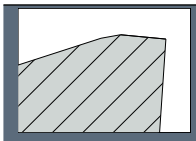


- Designed for optimal machining of stainless steel and high temperature alloys
- Sharp cutting edge and a positive rake geometry are optimized to avoid built-up edge
- Wiper bottom edge leaves an excellent surface finish
- Helical axial positive edge geometry

HELI2000

HM90 ADCT 1505PDR-CF
Inserts with 2 Different Cutting Edge Configurations Designed for Chatter Dampening





Designation	Dimensions W1	INSL	APMX	S	RE	BS	IC830	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 ADCT 1505PDR-CF	9.30	15.70	14.00	6.40	0.80	4.20	●	1.20-14.00	0.08-0.15

- For cutting speed recommendations, see pages 616-620

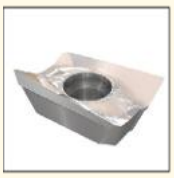
For tools, see pages: F90AD-SFR (249) • HM90 E90AD-15 (43) • HM90 E90AD-M-15 (44) • HM90 E90AD-M-15-JHP (45) • HM90 E90AD-MM-15-JHP (46) • HM90 F90A-15 (247) • HM90 F90A-15-JHP (248) • SM (291)

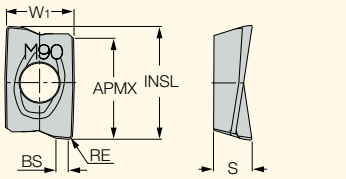
Edge helix angle is identified by different colors. Each cutting edge has a different axial angle, which is identified by either a yellow or black colored flank surface.

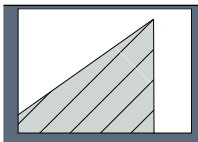
The inserts should be mounted in alternating edge configuration order (yellow followed by black) on the cutter.

HELI2000

HM90 ADCR 1505PDFR-P
Peripherally Ground Insert with a Super Positive Polished Rake for Machining Aluminum and High Temperature Alloys







Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC28	IC08	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 ADCR 1505PDFR-P	9.55	16.50	12.00	6.90	0.80	4.00	●	●	1.20-12.00	0.08-0.25

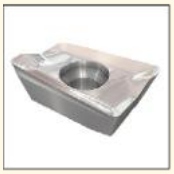
- Super positive chipformer peripherally ground (P - Polished rake) • Used for machining aluminum, titanium and magnesium
- For cutting speed recommendations, see pages 616-620

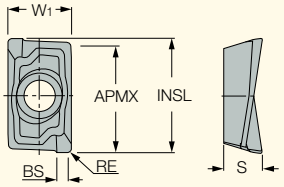
For tools, see pages: F90AD-SFR (249) • HM90 E90AD-15 (43) • HM90 E90AD-M-15 (44) • HM90 E90AD-M-15-JHP (45) • HM90 E90AD-MM-15-JHP (46) • HM90 F90A-15 (247) • HM90 F90A-15-JHP (248)

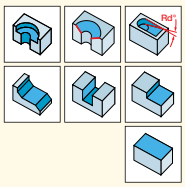
HELIMILL

ADCR 1505PDFR

Super Positive Precision Inserts for Aluminum, Stainless Steel and High Temperature Alloys





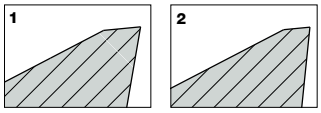


Designation	Dimensions W1	INSL	APMX	S	RE	BS	Fig.	Tough ↔ Hard IC28	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADCR 1505PDFR	9.50	15.95	12.00	5.64	0.80	1.60	1		●	1.20-12.00	0.15-0.25
ADCR 1505PDFR-P (1)	9.50	15.95	12.00	5.64	0.80	1.60	2	●		1.20-12.00	0.07-0.25

• For cutting speed recommendations, see pages 616-620

(1) Polished rake, used on titanium magnesium and aluminum

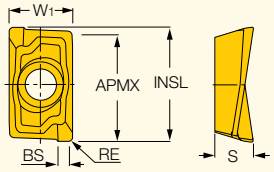
For tools, see pages: F90AD-SFR (249) • HM90 E90AD-15 (43) • HM90 E90AD-M-15 (44) • HM90 E90AD-M-15-JHP (45) • HM90 E90AD-MM-15-JHP (46) • HM90 F90A-15 (247) • HM90 F90A-15-JHP (248) • SM (291)

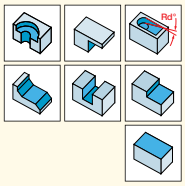


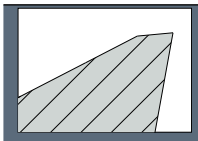
HELIMILL

ADKR 1505PDR/L

High Positive Inserts for Machining Steel, Stainless Steel and High Temperature Alloys







Designation	Dimensions INSL	W1	APMX	S	RE	BS	Tough ↔ Hard IC882	IC28	IC328	IC716	IC840	IC928	IC5820	IC950	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADKR 150504PDR-HM	16.30	9.60	12.00	5.63	0.40	1.60		●	●					●	0.80-12.00	0.07-0.15
ADKR 1505PDL-HM (1)	15.95	9.60	12.00	6.00	0.80	1.60			●						1.20-12.00	0.07-0.15
ADKR 1505PDR-HM	15.95	9.60	12.00	6.00	0.80	1.60		●	●			●			1.20-12.00	0.07-0.15
ADKR 1505PDR-HP (2)	16.18	9.60	14.00	6.48	0.80	2.50	●			●	●		●		1.20-14.00	0.07-0.15
ADKR 150532PDR-HP	15.40	9.60	12.00	6.20	3.20	1.60				●	●				3.60-12.00	0.07-0.15
ADKR 150540PDR-HP	15.40	9.60	12.00	6.20	4.00	1.60				●					4.00-12.00	0.07-0.15
ADKR 150560PDR-HP	15.10	9.60	12.00	6.00	6.00	2.50				●					6.00-12.00	0.07-0.15

• For cutting speed recommendations, see pages 616-620

(1) PDL - Left-hand inserts are used only for special tools

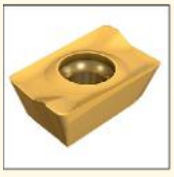
(2) IC840 grade inserts are not suitable for machining steel • Tool diameter increases by 0.1 when this insert is clamped

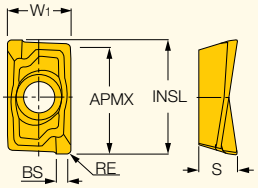
For tools, see pages: ETS (389) • F90AD-SFR (249) • HM90 E90AD-15 (43) • HM90 E90AD-M-15 (44) • HM90 E90AD-M-15-JHP (45) • HM90 E90AD-MM-15-JHP (46) • HM90 F90A-15 (247) • HM90 F90A-15-JHP (248) • SM (291)

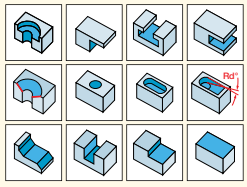
HELIMILL

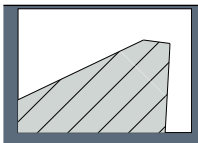
ADCT 1505PDFR-HM

Peripherally Ground Milling Inserts for Finishing and General Use







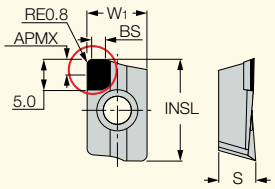


Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC28	IC328	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADCT 1505PDFR-HM	9.57	15.65	12.00	5.64	0.80	1.60	●	●	●	1.20-12.00	0.06-0.12

For tools, see pages: E90AC (50) • F90AD-SFR (249) • HM90 E90AD-15 (43) • HM90 E90AD-M-15 (44) • HM90 E90AD-M-15-JHP (45) • HM90 E90AD-MM-15-JHP (46) • HM90 F90A-15 (247) • HM90 F90A-15-JHP (248) • SM (291)

HELI2000

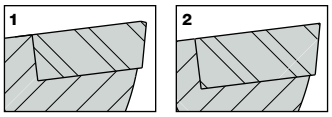
ADKW (CBN)
Single Corner R.H. Inserts with an IB85 PCBN Brazed Tip for Machining Hard Materials



Designation	Dimensions W1	INSL	S	BS	APMX	Fig.	IB85	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADKW 1505 PDER	9.60	16.18	5.83	1.45	4.50	2	●	0.10-2.00	0.10-0.25
ADKW 1505 PDTR	9.60	16.18	5.83	1.45	4.50	1	●	0.10-2.00	0.10-0.25

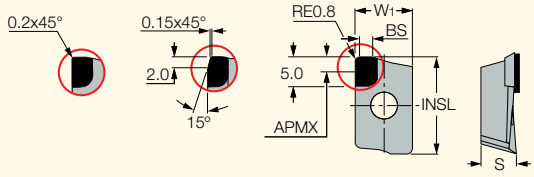
• Inserts are supplied with spare screws. • For cutting speed recommendations, see pages 616-620

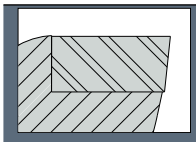
For tools, see pages: F90AD-SFR (249) • HM90 E90AD-15 (43) • HM90 E90AD-M-15 (44) • HM90 E90AD-M-15-JHP (45) • HM90 E90AD-MM-15-JHP (46) • HM90 F90A-15 (247) • HM90 F90A-15-JHP (248)



HELI2000

ADKW (PCD)
Single Corner R.H. PCD Tipped Inserts for Milling Aluminum





Designation	Dimensions W1	INSL	S	APMX	BS	Tough ↔ Hard ID8	ID5	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADKW 1505-75RM PDR	9.60	16.18	5.83	4.50	2.00		●	0.10-2.00	0.10-0.25
ADKW 150502X45 PDR	9.60	16.18	5.83	4.50	2.00		●	0.10-2.00	0.10-0.25
ADKW 150508 PDR	9.60	16.18	5.83	4.50	1.52	●	●	0.10-2.00	0.10-0.25

• The inserts are supplied with spare screws.

For tools, see pages: F90AD-SFR (249) • HM90 E90AD-15 (43) • HM90 E90AD-M-15 (44) • HM90 E90AD-M-15-JHP (45) • HM90 E90AD-MM-15-JHP (46) • HM90 F90A-15 (247) • HM90 F90A-15-JHP (248)

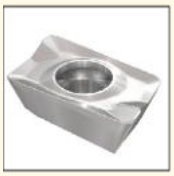
PCD
Recommended Machining Conditions

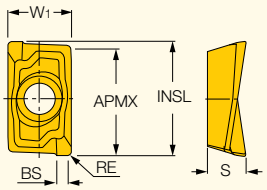
	Grade	D.O.C. (a_p) mm	Material	V_c m/min	Feed mm/tooth	Cutting Edge
N	ID5	<2.0	Aluminum alloys <12% silicon	300-3000	0.05-0.25	Sharp
		<2.0	Chipboard, fiberboard and plastics	2000-3000		
		<2.0	Copper alloys and brass	500-1500		
N	ID8	<2.0	Aluminum>12% silicon	250-1000		
		<2.0	Aluminum<12% silicon	300-3000		
		<2.0	Chipboard, fiberboard and plastics	2000-3000		
			MMC	200-600		

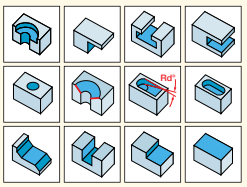
HELIMILL

ADKT 1505PDR/L-HM

Inserts with 2 Helical Cutting Edges for General Use







Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC28	IC328	IC928	IC950	IC908	IC30N	IC910	IC520M	IC5100	IC20	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADKT 1505PDR-HM	9.57	15.65	12.00	5.64	0.80	1.60	●	●	●	●	●	●	●	●	●	●	1.20-12.00	0.08-0.15
ADKT 1505PDL-HM (1)	9.57	15.70	12.00	5.64	0.80	1.60		●									1.20-12.00	0.08-0.15

- For cutting speed recommendations, see pages 616-620

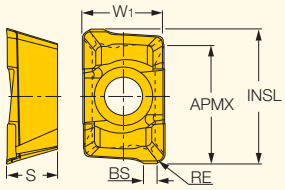
(1) PDL - Left-hand inserts are used only for special tools.

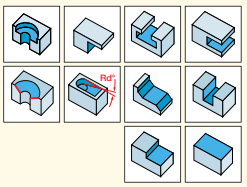
For tools, see pages: E90AC (50) • ETS (389) • F90AD-SFR (249) • HM90 E90AD-15 (43) • HM90 E90AD-M-15 (44) • HM90 E90AD-M-15-JHP (45) • HM90 E90AD-MM-15-JHP (46) • HM90 F90A-15 (247) • HM90 F90A-15-JHP (248) • SM (291)

HELISHRED

ADMT 1505PDR-HS

Inserts with a Chip Splitting Serrated Cutting Edge for Roughing





Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC328	IC928	IC250	IC950	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADMT 1505PDR-HS	9.60	15.85	12.00	5.92	0.80	2.00	●	●	●	●	12.00-12.00 (1)	0.10-0.20

- Self-balanced forces on rake face. Use for long overhang and extended flute cutters for reduced chattering. • For cutting speed recommendations, see pages 616-620

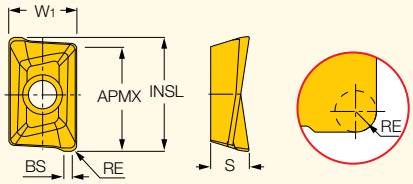
(1) Machine with maximum depth of cut

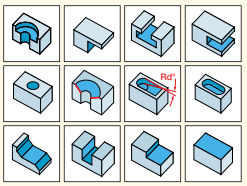
For tools, see pages: F90AD-SFR (249) • HM90 E90AD-15 (43) • HM90 E90AD-M-15 (44) • HM90 E90AD-M-15-JHP (45) • HM90 E90AD-MM-15-JHP (46) • HM90 F90A-15 (247) • HM90 F90A-15-JHP (248) • SM (291)

HELIMILL

ADKT 1505PDTR/L-RM

Inserts with Reinforced Helical Cutting Edge for Interrupted Cut and Heavy Machining





Designation	Dimensions W1	INSL	S	BS	RE	APMX	Tough ↔ Hard IC328	IC928	IC250	IC950	IC910	IC520M	DT7150	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADKT 1505PDTR-RM	9.54	15.75	5.63	1.60	1.00	12.00	●	●	●	●	●	●	●	●	1.40-12.00	0.10-0.20
ADKT 1505PDTL-RM (1)	9.54	15.80	5.63	1.60	1.00	12.00	●								1.40-12.00	0.10-0.20

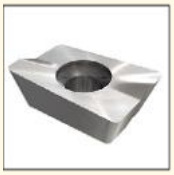
- For cutting speed recommendations, see pages 616-620

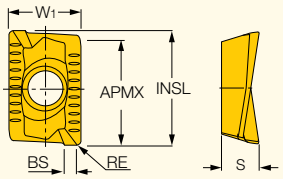
(1) PDTL-Left-hand inserts are used only for special tools.

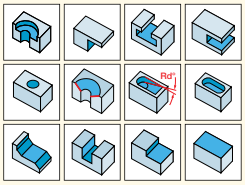
For tools, see pages: ETS (389) • F90AD-SFR (249) • HM90 E90AD-15 (43) • HM90 E90AD-M-15 (44) • HM90 E90AD-M-15-JHP (45) • HM90 E90AD-MM-15-JHP (46) • HM90 F90A-15 (247) • HM90 F90A-15-JHP (248) • SM (291)

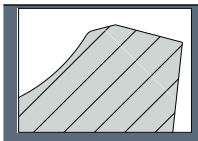
HELIMILL

ADKT 1505PDTR-76
Inserts with 2 Helical Cutting Edges with Ribs Along the Edge for Interrupted Cuts









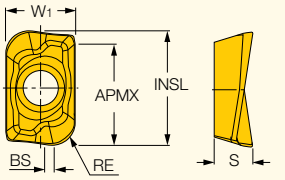
Designation	Dimensions W1	INSL	S	RE	BS	APMX	Tough ↔ Hard IC330	IC328	IC830	IC928	IC950	IC910	IC520M	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADKT 1505PDTR-76	9.54	15.75	5.63	1.00	1.60	12.00	●	●	●	●	●	●	●	2.00-12.00	0.08-0.15

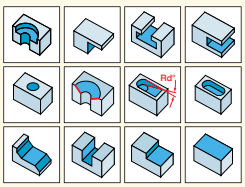
- Reinforced helical cutting edge with ribs on rake face reducing heat transfer, for interrupted cuts and medium to heavy machining.
- For cutting speed recommendations, see pages 616-620

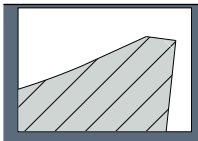
For tools, see pages: E90AC (50) • F90AD-SFR (249) • HM90 E90AD-15 (43) • HM90 E90AD-M-15 (44) • HM90 E90AD-M-15-JHP (45) • HM90 E90AD-MM-15-JHP (46) • HM90 F90A-15 (247) • HM90 F90A-15-JHP (248) • SM (291)

HELIMILL

ADKT 1505..R/L-HM
Inserts with 2 Helical Cutting Edges and Various Corner Radii for General Use







Designation	Dimensions RE	W1	BS	INSL	APMX	S	Tough ↔ Hard IC28	IC328	IC830	IC928	IC950	IC908	IC30N	IC910	IC520M	IC20	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADKT 150516L-HM (1)	1.60	9.57	1.37	15.60	12.00	5.60		●									2.00-12.00	0.08-0.15
ADKT 150516R-HM	1.60	9.57	1.37	15.60	12.00	5.60	●	●	●	●	●	●		●	●		2.00-12.00	0.08-0.15
ADKT 150520R-HM	2.00	9.57	1.00	15.50	12.00	5.20		●									2.40-12.00	0.08-0.15
ADKT 150524L-HM (1)	2.50	9.57	0.52	15.60	12.00	5.60		●									2.80-12.00	0.08-0.15
ADKT 150524R-HM	2.50	9.57	0.52	15.60	12.00	5.60		●	●	●				●			2.80-12.00	0.08-0.15
ADKT 150532L-HM (1)	3.20	9.57	-	15.50	12.00	5.60		●									3.60-12.00	0.08-0.15
ADKT 150532R-HM	3.20	9.57	-	15.50	12.00	5.60	●	●	●	●	●	●	●	●	●	●	3.60-12.00	0.08-0.15
ADKT 150540L-HM (1)	4.00	9.57	-	15.40	12.00	5.60		●									4.40-12.00	0.08-0.15
ADKT 150540R-HM	4.00	9.57	-	15.40	12.00	5.60		●		●							4.40-12.00	0.08-0.15
ADKT 150550L-HM (1)	5.00	9.57	-	15.10	12.00	5.30		●									5.40-12.00	0.08-0.15
ADKT 150550R-HM	5.00	9.57	-	15.10	12.00	5.30		●		●	●				●		5.40-12.00	0.08-0.15
ADKT 150564L-HM (1)	6.20	9.57	-	14.80	13.00	5.30		●									6.80-12.00	0.08-0.15
ADKT 150564R-HM	6.20	9.57	-	14.80	13.00	5.30			●	●	●						6.80-12.00	0.08-0.15

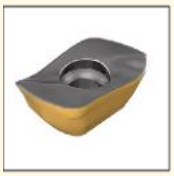
- For inserts with corner radii larger than 2.0 mm, the cutter body and seats should be modified tools only on the face of the cutter. • For cutting speed recommendations, see pages 616-620 • Inserts with corner radii larger than 0.8 mm should be used on ADK & SM

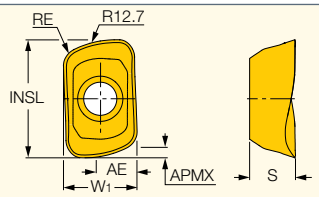
(1) L - Left-hand inserts are used only for special tools.

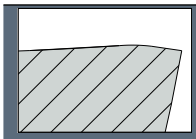
For tools, see pages: E90AC (50) • ETS (389) • F90AD-SFR (249) • HM90 E90AD-15 (43) • HM90 E90AD-M-15 (44) • HM90 E90AD-M-15-JHP (45) • HM90 E90AD-MM-15-JHP (46) • HM90 F90A-15 (247) • HM90 F90A-15-JHP (248) • SM (291)

HELIMILL

ADKT 1505-FF
Inserts for Fast Feed Milling







Designation	Dimensions							Tough ↔ Hard			Recommended Machining Data	
	W1	INSL	APMX	AE	S	RE	Rg(1)	IC330	IC928	IC808	a_p (mm)	f_z (mm/t)
ADKT 1505R8T-FF	9.90	15.90	1.50	6.6	6.20	2.70	3.50	●	●	●	0.50-1.00	0.50-1.50

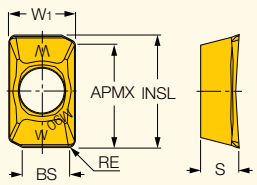
- The cutting diameter of the tool is 0.5 mm larger than the nominal diameter when using this insert. • Tool corner should be modified to 2.0 mm.
- At D.O.C. larger than apmax, regular insert feed should be applied.

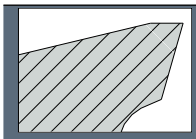
(1) Radius for programming

For tools, see pages: F90AD-SFR (249) • HM90 E90AD-15 (43) • HM90 E90AD-M-15 (44) • HM90 E90AD-M-15-JHP (45) • HM90 E90AD-MM-15-JHP (46) • HM90 F90A-15 (247) • HM90 F90A-15-JHP (248)

HELI2000

HM90 ADKT 1505PD-W
Wiper Insert for High Surface Finish





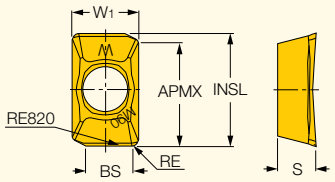
Designation	Dimensions						IC908	Recommended Machining Data	
	W1	INSL	APMX	S	BS	RE		a_p (mm)	f_z (mm/t)
HM90 ADKT 1505PD-W	9.52	16.75	15.00	5.83	5.92	0.80	●	0.10-1.00	0.15-0.30

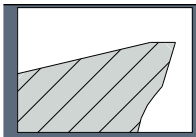
- Must be used together with HM90 ADKT 1505PDR inserts. • Use a single wiper insert per tool. • For cutting speed recommendations, see pages 616-620

For tools, see pages: F90AD-SFR (249) • HM90 E90AD-15 (43) • HM90 E90AD-M-15 (44) • HM90 E90AD-M-15-JHP (45) • HM90 E90AD-MM-15-JHP (46) • HM90 F90A-15 (247) • HM90 F90A-15-JHP (248)

HELIMILL

ADKT 1505PD-W
Wiper Insert for High Surface Finish





Designation	Dimensions						IC928	Recommended Machining Data	
	W1	INSL	APMX	S	BS	RE		a_p (mm)	f_z (mm/t)
ADKT 1505PD-W	9.57	16.00	14.63	5.60	6.53	1.00	●	0.10-1.00	0.15-0.30

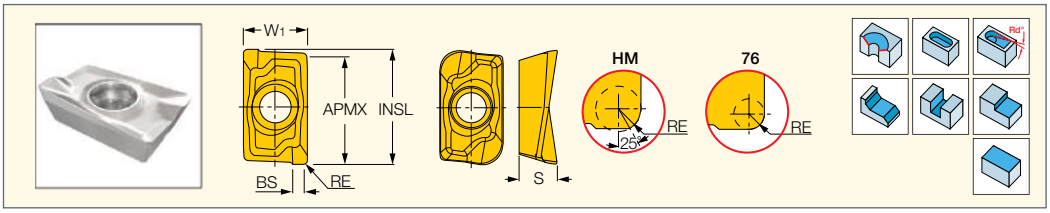
- Must be used together with ADKT 1505PDR inserts. • For cutting speed recommendations, see pages 616-620

For tools, see pages: F90AD-SFR (249) • HM90 E90AD-15 (43) • HM90 E90AD-M-15 (44) • HM90 E90AD-M-15-JHP (45) • HM90 E90AD-MM-15-JHP (46) • HM90 F90A-15 (247) • HM90 F90A-15-JHP (248)

HELIMILL

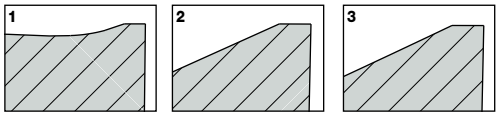
APKT 1604

Milling Inserts with a 16 mm Cutting Edge Length and Positive Rake Angle for General Use



Designation	Dimensions RE	W1	INSL	S	BS	APMX	Fig.	Tough ↔ Hard IC328	IC928	IC635	IC250	IC950	IC30N	IC910	IC520M	IC5100	IC20	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKT 1604PDL-HM	0.80	9.45	17.20	5.25	1.70	14.00	3	●										1.20-14.00	0.08-0.15
APKT 1604PDR-HM	0.80	9.45	17.20	5.25	1.78	14.00	3	●			●		●	●	●	●	●	1.20-14.00	0.08-0.15
APKT 1604PDR-76	0.80	9.45	17.30	5.30	1.80	14.00	1	●	●			●						1.20-14.00	0.10-0.20
APKT 160416R-HM	1.70	9.45	16.70	5.30	0.00	14.00	2	●				●						2.00-14.00	0.08-0.15
APKT 160424R-HM	2.40	9.45	16.70	5.30	0.00	14.00	2	●							●			2.80-14.00	0.08-0.15
APKT 160432R/L-HM	3.40	9.45	16.60	5.30	0.00	14.00	2	●										3.60-14.00	0.08-0.15
APKT 160448R-HM	4.88	9.45	16.40	5.20	0.00	14.00	2				●							5.20-14.00	0.08-0.15
APKT 160464L-HM	6.40	9.45	16.00	4.90	0.00	15.15	2								●			8.00-14.00	0.08-0.15
APKT 160464R-HM	6.40	9.45	16.00	4.90	0.00	15.15	2			●					●			8.00-14.00	0.08-0.15

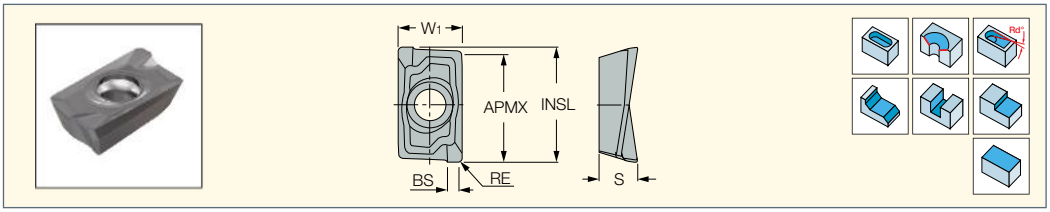
- For cutting speed recommendations, see pages 616-620

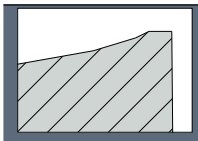


HELIMILL

APCR 1604

Super Positive and Polished Rake Insert for Machining Aluminum and High Temperature Alloys





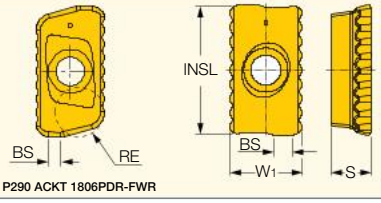
Designation	Dimensions INSL	APMX	W1	RE	BS	S	IC28	Recommended Machining Data a_p (mm)	f_z (mm/t)
APCR 1604PDFR-P	17.92	14.00	9.45	0.80	1.80	5.70	●	1.20-14.00	0.15-0.25

- For cutting speed recommendations, see pages 616-620

MILLSHRED P290 LINE

P290 ACKT

Single-Sided Rectangular Inserts with 2 Serrated Cutting Edges



P290 ACKT 1806PDR-FWR

Designation	Dimensions W1	INSL	S	RE(6)	BS	Tough ↔ Hard IC882	IC28	IC330	IC840	IC830	IC380	IC808	IC810	Recommended Machining Data a_p (mm)	f_z (mm/t)
P290 ACKT 1204PDR-FW	8.20	12.80	4.40	0.90	1.50	●		●		●		●		3.00-12.00	0.08-0.12
P290 ACKT 1204PDR-FWP	8.20	12.80	4.40	0.90	1.50				●					3.00-12.00	0.08-0.12
P290 ACKT 1806PDR-FW	10.70	18.50	6.00	1.20	2.00	●		●		●		●	●	5.00-18.00	0.08-0.12
P290 ACKT 1806PDR-FWE (1)	10.70	18.50	6.00	1.20	2.00			●		●	●			5.00-18.00	0.08-0.12
P290 ACKT 1806PDR-FWE-P (2)	10.70	18.50	6.00	1.20	2.00		●							5.00-18.00	0.08-0.12
P290 ACKT 1806PDR-FWP (3)	10.70	18.50	6.00	1.20	2.00				●					5.00-18.00	0.08-0.12
P290 ACKT 1806PDR-FWR (4)	10.70	20.20	6.00	3.80	1.90	●				●				5.00-18.00	0.08-0.12
P290 ACKT 1806PDR-FWW (5)	10.80	19.00	5.73	1.20	2.00							●		5.00-18.00	0.08-0.12

- For cutting speed recommendations, see pages 616-620

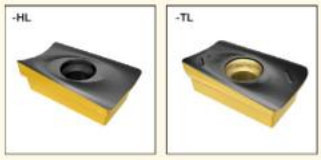
(1) A sharp edged insert, for long overhang applications or when machine power is limited
(2) Polished rake, used for rough milling of aluminum
(3) For titanium and austenitic stainless steel
(4) To be used only on the tool's first row for rough cutting when the required final corner radius should be up to 4 mm
(5) For unstable cutting condition
(6) Radius for programming

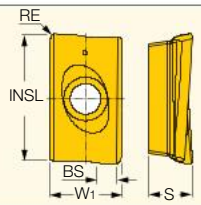
For tools, see pages: P290 ACK (281) • P290 ACK-C#-18 (282) • P290 ACK-M (280) • P290 EPW (48) • P290 EPW-M (49) • P290 FPW/FCT (253)
• P290 SM (282)

MILLSHRED P290 LINE

P290 ACCT/KT

Single-Sided Rectangular Inserts with Two 12 and 18mm Straight Cutting Edges





Designation	Dimensions W1	INSL	S	RE	BS	Tough ↔ Hard IC28	IC830	IC808	IC810	Recommended Machining Data a_p (mm)	f_z (mm/t)
P290 ACCT 1204PDR-TL	8.20	12.90	4.80	0.90	1.50		●			1.00-12.00	0.06-0.10
P290 ACCT 1204PDR-HL	8.20	13.00	4.80	0.40	2.20		●			1.00-12.00	0.06-0.10
P290 ACCT 1806PDR-HL	10.75	19.40	6.50	0.80	2.50		●	●	●	5.00-18.00	0.08-0.12
P290 ACCT 1806PDR-HL-P	10.75	19.40	6.50	0.80	2.50	●				5.00-18.00	0.08-0.12
P290 ACCT 1806PDR-TL	10.75	19.40	6.50	1.20	2.00		●	●		5.00-18.00	0.08-0.12
P290 ACKT 1806PDR-HL (1)	10.75	19.40	6.50	0.80	2.50		●			5.00-18.00	0.08-0.12

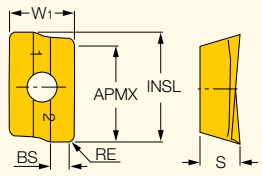
- HL - For finishing applications (a_e max=1 mm) • HL-P - Polished rake, used for aluminum • TL- Reinforced straight cutting edges, designed for rough and semi-finishmilling
- For cutting speed recommendations, see pages 616-620

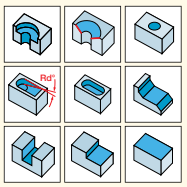
(1) Economic insert

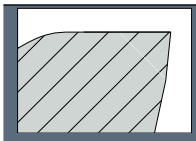
For tools, see pages: P290 ACK (281) • P290 ACK-C#-18 (282) • P290 ACK-M (280) • P290 EPW (48) • P290 EPW-M (49) • P290 FPW/FCT (253)
• P290 SM (282)

HELI2000

HM90 ADKW 1505PDR
Milling Inserts for Unfavorable Conditions and Heavy Interrupted Cut on Hardened Steel







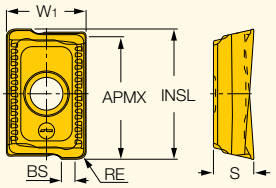
Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC928	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 ADKW 1505PDR	9.59	16.15	12.00	5.83	0.80	2.45	●	●	1.20-12.00	0.08-0.15

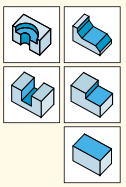
- Reinforced cutting edge, resistant to edge breakage and chipping
- Recommended for milling at unfavorable conditions and heavy interrupted cut
- Different corner radii can be ground
- For cutting speed recommendations, see pages 616-620

For tools, see pages: F90AD-SFR (249) • HM90 E90AD-15 (43) • HM90 E90AD-M-15 (44) • HM90 E90AD-M-15-JHP (45) • HM90 E90AD-MM-15-JHP (46) • HM90 F90A-15 (247) • HM90 F90A-15-JHP (248) • SM (291)

MILL2000

3M AXKT 1304
High Durability Inserts for Heavy Milling

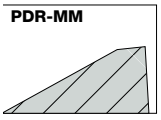




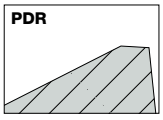
Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC330	IC328	IC830	IC928	IC950	IC808	IC908	IC810	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
3M AXKT 1304PDR	8.40	14.12	12.00	4.55	0.60	2.10	●	●	●		●	●	●	●		1.00-12.00	0.15-0.35
3M AXKT 1304PDR-MM	8.40	14.12	12.00	4.55	0.60	2.10		●		●	●		●		●	1.00-12.00	0.10-0.22

- For cutting speed recommendations, see pages 616-620

PDR-MM

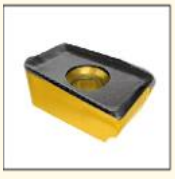


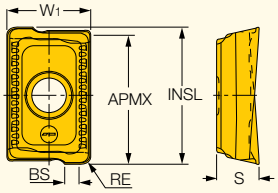
PDR

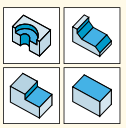


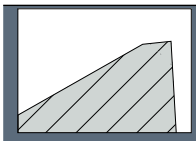
MILL2000

3M AXKT 1304..R-PDRMM
High Durability Inserts with a Variety of Corner Radii for Heavy Milling







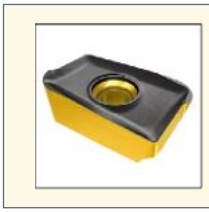


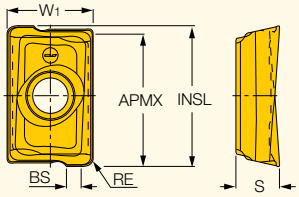
Designation	Dimensions W1	RE	INSL	APMX	S	BS	Tough ↔ Hard IC328	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
3M AXKT 130408R-PDRMM	8.40	0.80	14.12	12.00	4.54	1.40	●	●	1.20-12.00	0.10-0.22
3M AXKT 130412R-PDRMM	8.40	1.20	13.50	12.00	4.42	1.20	●	●	1.60-12.00	0.15-0.30
3M AXKT 130416R-PDRMM	8.40	1.60	13.50	12.00	4.36	0.80	●	●	2.00-12.00	0.15-0.30
3M AXKT 130424R-PDRMM	8.40	2.40	13.50	12.00	4.18	-		●	2.80-12.00	0.15-0.30

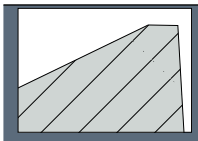
- Reduce feed by 50% during engagement and exit from the workpiece; this practice will substantially increase insert life
- Inserts with corner radii larger than 0.8 mm should be used on 3M SM-13 and 3M AXK tools only on the face of the cutter
- For cutting speed recommendations, see pages 616-620

MILL2000

3M AXKT 2006..R-PDR
High Durability Inserts with a Variety of Corner Radii for Heavy Milling





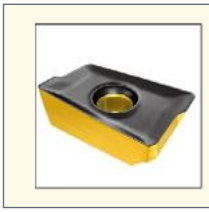


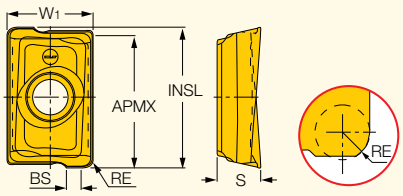
Designation	Dimensions W1	RE	INSL	APMX	S	BS	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
3M AXKT 200612R-PDR	13.50	1.20	22.00	20.00	6.75	2.20	●	1.60-20.00	0.15-0.30
3M AXKT 200616R-PDR	13.50	1.60	21.80	20.00	6.62	2.00	●	2.00-20.00	0.15-0.30
3M AXKT 200624R-PDR	13.50	2.40	22.00	20.00	6.55	1.55	●	2.80-20.00	0.15-0.30
3M AXKT 200632R-PDR	13.50	3.20	22.00	20.00	6.46	0.90	●	3.60-20.00	0.15-0.30

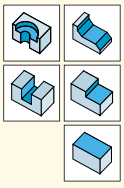
- Reduce feed by 50% during engagement and exit from the workpiece. This practice will substantially increase insert life.
- Inserts with corner radii larger than 0.8 mm should be used on 3M SM-20 tools only on the face of the cutter. • For cutting speed recommendations, see pages 616-620

MILL2000

3M AXKT-2006
High Durability Inserts for Heavy Milling Applications

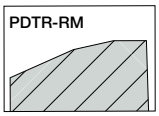


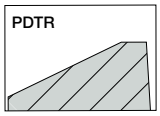




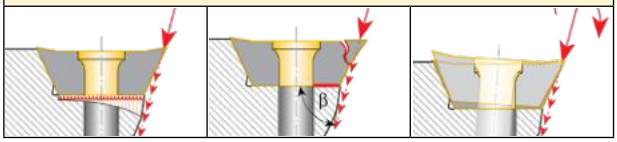
Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC328	IC830	IC928	IC4050	IC950	IC808	IC908	IC810	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
3M AXKT 2006PDTR-RM	13.50	22.40	20.00	6.80	1.00	3.34	●		●		●				●	1.40-20.00	0.20-0.40
3M AXKT 2006PDTR	13.50	22.50	20.00	6.80	1.00	3.05	●	●	●	●	●	●	●	●	●	1.40-20.00	0.15-0.30

- Reduce feed by 50% during engagement and exit from the workpiece; this practice will substantially increase insert life
- For cutting speed recommendations, see pages 616-620

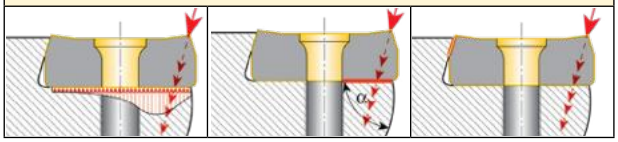




Conventional

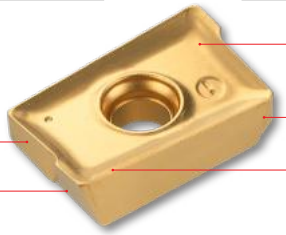


MILL2000



Dovetail side shape gives better support, eliminates possible pullout from seat

Ground wiper controls surface finish at high feeds



Helical cutting edge for a smooth cut

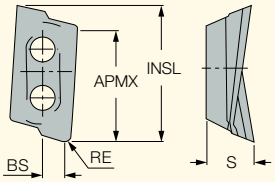
Thick insert for improved strength and rigidity

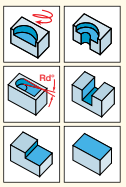
Positive rake angle for low cutting forces

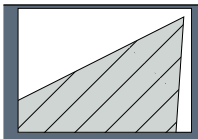
HELIPLUS

HP ADCR 1906

Milling Inserts with 19 mm Cutting Edge for Machining Aluminum







Designation	Dimensions RE	INSL	APMX	S	BS	IC28	Recommended Machining Data a_p (mm)	f_z (mm/t)
HP ADCR 190604PDFR-P	0.40	22.50	19.50	7.40	3.50	●	0.80-19.50	0.15-0.25

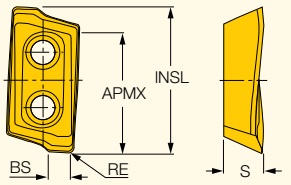
• Super positive rake angle, polished sharp cutting edge • For aluminum and high temperature alloys • For cutting speed recommendations, see pages 616-620

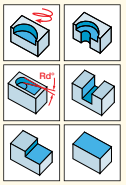
For tools, see pages: HP E90AT-19 (49) • HP F90AT-19 (253)

HELIPLUS

HP ADKT/ADCT 1906

Milling Inserts with 19 mm Cutting Edge for General Use

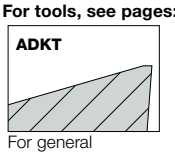




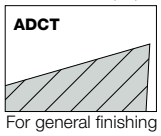
Designation	Dimensions INSL	APMX	RE	S	BS	Tough ↔ Hard IC328	IC928	IC950	IC908	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
HP ADCT 1906PDR	22.30	18.10	1.00	6.83	2.70	●	●		●		1.40-18.10	0.08-0.15
HP ADKT 190608PDTR	22.30	18.10	0.80	6.85	2.60	●	●		●	●	1.20-18.10	0.08-0.15
HP ADKT 190610PDTR	22.30	18.10	1.00	6.85	2.50		●	●		●	1.40-18.10	0.08-0.15
HP ADKT 190612PDTR	22.30	18.10	1.20	6.87	2.20	●			●	●	1.60-18.10	0.08-0.15
HP ADKT 190616PDTR	22.30	18.10	1.60	6.87	1.80	●	●		●		2.00-18.10	0.08-0.15
HP ADKT 190624PDTR	22.20	18.10	2.40	6.87	1.00	●	●		●	●	2.80-18.10	0.08-0.15
HP ADKT 190631PDTR	22.10	18.10	3.10	6.90	0.60				●		3.50-18.10	0.08-0.18
HP ADKT 190640PDTR	20.40	17.30	4.00	6.89	0.50		●		●	●	4.40-17.30	0.08-0.18

• For cutting speed recommendations, see pages 616-620

For tools, see pages: HP E90AT-19 (49) • HP F90AT-19 (253)



For general applications

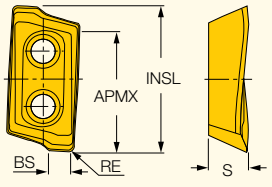


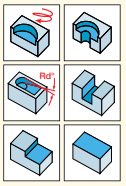
For general finishing and high temp. alloys

HELIPLUS

HP ADKT/ADCT 2207

Inserts with Two 22 mm Long Cutting Edges for General High Shoulder Milling

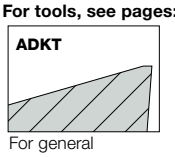




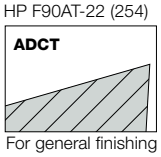
Designation	Dimensions INSL	APMX	S	RE	BS	Tough ↔ Hard IC328	IC928	IC950	IC908	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
HP ADCT 2207PDR	25.73	22.60	7.50	1.00	3.43	●	●		●		1.40-22.60	0.07-0.15
HP ADKT 2207PDTR	25.73	22.60	7.50	0.80	3.43	●	●	●	●	●	1.20-22.60	0.10-0.20

• For cutting speed recommendations, see pages 616-620

For tools, see pages: HP F90AT-22 (254)



For general applications

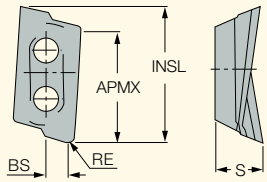


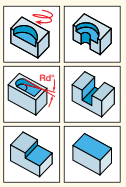
For general finishing and high temp. alloys

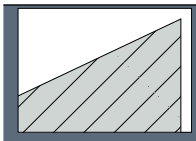
HELIPLUS

HP ADCR 2207

Milling Inserts with a Very Positive and Polished Rake for Machining Aluminum







Designation	Dimensions INSL	RE	APMX	S	BS	IC28	Recommended Machining Data a_p (mm)	f_z (mm/t)
HP ADCR 220704PDFR-P	27.70	0.40	22.00	9.60	4.88	●	0.80-22.00	0.08-0.25
HP ADCR 220704PDFR-P LM	26.14	0.40	22.00	7.52	3.81	●	0.80-22.00	0.08-0.25
HP ADCR 220720PDFR-P LM	25.90	2.00	22.00	7.40	2.50	●	2.40-22.00	0.08-0.25
HP ADCR 220732PDFR-P LM	25.70	3.20	22.00	7.49	1.20	●	3.60-22.00	0.08-0.25
HP ADCR 220750PDFR-P LM	24.30	5.00	22.00	7.49	0.47	●	5.40-22.00	0.08-0.25

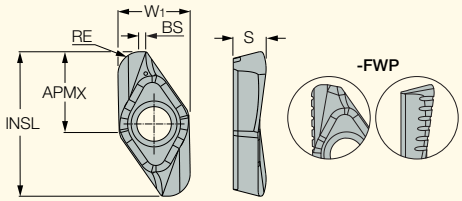
• LM insert provides high 90° shoulder accuracy, especially when using the 32-50 mm cutters • For cutting speed recommendations, see pages 616-620

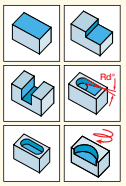
For tools, see pages: HP F90AT-22 (254)

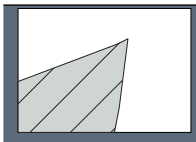
HELIALU

HSM90S APCR 1405

Super Positive Inserts with a Polished Rake for Machining Aluminum at High Rotation Speed







Designation	Dimensions W1	RE	APMX	INSL	BS	S	Tough ↔ Hard IC28	IC08	Recommended Machining Data a_p (mm)	f_z (mm/t)
HSM90S APCR 140508R-P	12.50	0.80	13.50	25.00	1.10	6.05	●	●	1.20-13.50	0.10-0.30
HSM90S APCR 140516R-P	12.50	1.60	13.50	25.00	1.10	6.00	●		2.00-13.50	0.10-0.30
HSM90S APCR 140520R-P	12.50	2.00	13.50	25.00	1.10	5.95	●	●	2.40-13.50	0.10-0.30
HSM90S APCR 140530R-P	12.50	3.00	13.50	25.00	1.10	5.85	●	●	3.40-13.50	0.10-0.30
HSM90S APCR 140532R-P	12.50	3.20	13.50	25.00	1.10	5.80	●	●	3.60-13.50	0.10-0.30
HSM90S APCR 140540R-P	12.50	4.00	13.50	25.00	1.10	5.70	●	●	4.40-13.50	0.10-0.30
HSM90S APCR 140550R-P (1)	12.50	5.00	13.50	25.00	0.20	5.50	●	●	5.40-13.50	0.10-0.30
HSM90S APCR 140564R-P (1)	12.50	6.40	11.00	25.00	0.40	5.50	●		6.80-11.00	0.10-0.30
HSM90S APCR 140520R-FWP (2)	12.50	2.00	13.50	25.00	1.10	5.95	●		2.40-13.50	0.10-0.30

• When machining at very high cutting speeds and replacing the insert, it is also recommended to replace the screw. • The inserts should be mounted on the cutter in an alternating edge configuration order when using -FWP geometry. • For cutting speed recommendations, see pages 616-620

(1) Tool's pocket should be modified by rounding its corners to R=2.5 mm

(2) Sharp, polished and serrated insert for rough aluminum machining

For tools, see pages: HSM90S EAL-14 (434) • HSM90S FAL-14 (434)

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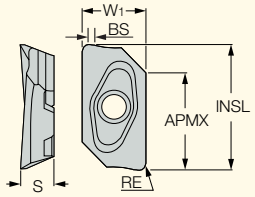
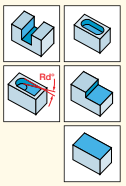
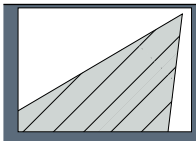
HM90 AXCR 1505

Super Positive Inserts with a Polished Rake for Machining Aluminum







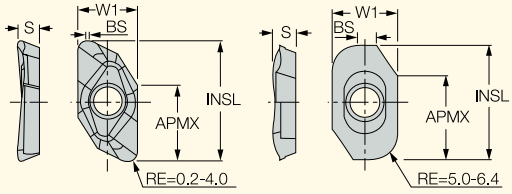
Designation	Dimensions W1	RE	APMX	INSL	BS	S	Tough ↔ Hard IC28	IC08	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 AXCR 150502R-P	10.00	0.20	14.00	19.20	1.55	5.00	●	●	0.60-14.00	0.10-0.20
HM90 AXCR 150504R-P	10.00	0.40	14.00	19.20	1.55	5.00	●	●	0.80-14.00	0.10-0.20
HM90 AXCR 150508R-P	10.00	0.80	14.00	19.20	1.55	5.00	●	●	1.20-14.00	0.10-0.20
HM90 AXCR 150520R-P	10.00	2.00	14.00	19.20	1.55	5.00	●	●	2.40-14.00	0.10-0.20
HM90 AXCR 150525R-P	10.00	2.50	14.00	19.20	1.55	5.00	●	●	2.90-14.00	0.10-0.20
HM90 AXCR 150530R-P	10.00	3.00	14.00	19.20	1.55	5.00	●	●	3.40-14.00	0.10-0.20
HM90 AXCR 150532R-P	10.00	3.20	14.00	19.20	1.55	5.00	●	●	3.60-14.00	0.10-0.20
HM90 AXCR 150540R-P	10.00	4.00	14.00	19.20	1.45	5.00	●	●	4.40-14.00	0.10-0.20

• For cutting speed recommendations, see pages 616-620

For tools, see pages: HM90 EAL-15 (438) • HM90 EAL-HSK63A-15 (439) • HM90 EAL-M-15-JHP (438) • HM90 EAL-MM-15-JHP (439) • HM90 FAL-15 (440)

HELIALU

HM90 APCR 1605..R-P
Super Positive Inserts with a Polished Rake for Machining Aluminum



Designation	Dimensions W1	RE	APMX	INSL	BS	S	Tough ↔ Hard IC28	IC08	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 APCR 160502R-P	12.80	0.20	15.50	25.20	1.00	4.80	•	•	0.60-15.50	0.15-0.25
HM90 APCR 160504R-P	12.80	0.40	15.50	25.20	1.00	4.80	•	•	0.80-15.50	0.15-0.25
HM90 APCR 160505R-P	12.80	0.50	15.50	25.50	1.00	4.80	•	•	0.90-15.50	0.15-0.25
HM90 APCR 160508R-P	12.80	0.80	15.50	25.20	1.00	4.80	•	•	1.20-15.50	0.15-0.25
HM90 APCR 160516R-P	12.80	1.60	15.50	25.50	1.00	4.80	•	•	2.00-15.50	0.15-0.25
HM90 APCR 160520R-P	12.80	2.00	15.50	25.40	1.00	4.80	•	•	2.40-15.50	0.15-0.25
HM90 APCR 160525R-P	12.80	2.50	15.50	25.40	1.00	4.80	•	•	2.90-15.50	0.15-0.25
HM90 APCR 160530R-P	12.80	3.00	15.50	24.40	1.00	4.80	•	•	3.40-15.50	0.15-0.25
HM90 APCR 160532R-P	12.80	3.20	15.50	24.40	1.00	4.80	•	•	3.60-15.50	0.15-0.25
HM90 APCR 160540R-P	12.80	4.00	15.50	23.40	1.00	4.80	•	•	4.40-15.50	0.15-0.25
HM90 APCR 160550R-P (1)	12.70	5.00	16.00	22.70	2.20	4.80	•	•	5.40-16.00	0.15-0.25
HM90 APCR 160560R-P (1)	12.70	6.00	16.00	22.70	1.90	4.80	•		6.40-16.00	0.15-0.25
HM90 APCR 160564R-P (1)	12.70	6.40	16.00	22.70	1.70	4.80	•		6.80-16.00	0.15-0.25

• It is recommended to use the insert and screw set when machining at very high cutting speeds. • For cutting speed recommendations, see pages 616-620
(1) Use with HM90 ....16BR tools only.

For tools, see pages: HM90 EAL-16 (435) • HM90 EAL-HSK63A-16 (436) • HM90 EAL-M-16-JHP (435) • HM90 EAL-MM-16-JHP (436) • HM90 FAL-16 (437) • HM90 FAL-16BR (437)

Insert and Screw Set (5+5) for High Speed Machining Applications

In order to maintain high machining reliability, we strongly recommend that when replacing the worn out insert, the clamping screw is replaced as well. Available are packages that contain 5 **HM90 APCR 1605..R-P IC28** or **HM90 AXCR 1505..R-P IC28** inserts and 5 matching screws.

These packages contain inserts with a weight tolerance of 0.02 gm.
This tight tolerance ensures the dynamic balance of the tool is maintained after insert indexing.

HM90 SET APCR-P

Set Designation		5 Included Inserts		5 Included Screws
HSM90 Set APCR 160502RP IC28	=	HM90 APCR 160502R-P IC28	+	SR 14-0180
HSM90 Set APCR 160504RP IC28	=	HM90 APCR 160504R-P IC28	+	SR 14-0180
HSM90 Set APCR 160508RP IC28	=	HM90 APCR 160508R-P IC28	+	SR 14-0180
HSM90 Set APCR 160516RP IC28	=	HM90 APCR 160516R-P IC28	+	SR 14-0180
HSM90 Set APCR 160520RP IC28	=	HM90 APCR 160520R-P IC28	+	SR 14-0180
HSM90 Set APCR 160525RP IC28	=	HM90 APCR 160525R-P IC28	+	SR 14-0180
HSM90 Set APCR 160532RP IC28	=	HM90 APCR 160532R-P IC28	+	SR 14-0180
HSM90 Set APCR 160540RP IC28	=	HM90 APCR 160540R-P IC28	+	SR 14-0180
HSM90 Set APCR 160564RP IC28	=	HM90 APCR 160564R-P IC28	+	SR 14-0180

HM90 SET AXCR-P

Set Designation		5 Included Inserts		5 Included Screws
HSM90 Set AXCR 150504RP IC28	=	HM90 AXCR 150504R-P IC28	+	SR 14-562
HSM90 Set AXCR 150520RP IC28	=	HM90 AXCR 150520R-P IC28	+	SR 14-562

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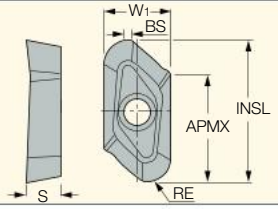
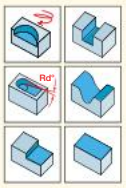
HM90 APCR 2206..R-P
Super Positive Inserts with a Polished Rake for Machining Aluminum





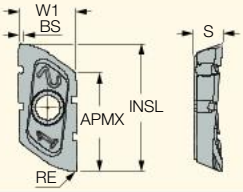
Designation	Dimensions W1	RE	APMX	INSL	BS	S	Tough ↔ Hard IC28	IC08	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 APCR 220605R-P	13.90	0.50	22.00	30.50	0.20	6.90	●		0.90-22.00	0.07-0.30
HM90 APCR 220608R-P	13.72	0.80	22.00	29.70	0.20	6.90	●	●	1.20-22.00	0.07-0.30
HM90 APCR 220616R-P	13.72	1.60	22.00	29.70	0.20	6.90	●	●	2.00-22.00	0.07-0.30
HM90 APCR 220623R-P	13.72	2.30	22.00	29.70	0.20	6.60	●	●	2.70-22.00	0.07-0.30
HM90 APCR 220632R-P	13.72	3.20	22.00	29.40	0.20	6.60	●	●	3.60-22.00	0.07-0.30
HM90 APCR 220640R-P	13.72	4.00	22.00	29.00	0.20	6.60	●	●	4.40-22.00	0.07-0.30
HM90 APCR 220650R-P	13.72	5.00	22.00	28.20	0.20	6.10	●		5.40-22.00	0.07-0.30
HM90 APCR 220664R-P	13.72	6.40	22.00	26.80	0.20	6.00	●	●	6.80-22.00	0.07-0.30

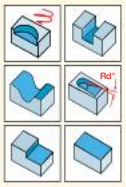
• For cutting speed recommendations, see pages 616-620

For tools, see pages: HM90 FAL-22 (440)

HELIALU

HM90 APCR 220605-CS
Chip Splitting Insert for Rough Milling of Aluminum





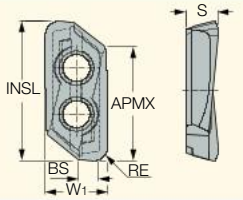
Designation	Dimensions W1	RE	APMX	INSL	BS	S	IC28	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 APCR 220605-CS	14.60	0.50	22.00	30.90	0.30	6.90	●	22.00-22.00 (1)	0.25-0.35

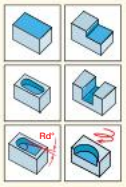
• To avoid incorrect mounting of the inserts, insert one pin into each tool pocket in an alternating order. As there is only one cavity at the insert bottom, this will prevent incorrect insert orientation. • To be used only on even number flute tools, when the "1" and "2" digits appear in an alternating order.
• For cutting speed recommendations, see pages 616-620
(1) Machine with maximum depth of cut

For tools, see pages: HM90 FAL-22 (440)

HELIALU

HSM90S APCR 2207
Super Positive Inserts with a Polished Rake for Machining Aluminum at High Rotational Speed





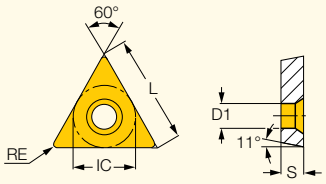
Designation	Dimensions W1	RE(1)	APMX	BS	INSL	S	IC08	Recommended Machining Data a_p (mm)	f_z (mm/t)
HSM90S APCR 220708R-P	13.10	0.80	22.00	5.00	29.20	6.90	●	1.20-22.00	0.15-0.30
HSM90S APCR 220716R-P	13.10	1.60	22.00	4.20	29.10	6.90	●	2.00-22.00	0.15-0.30
HSM90S APCR 220720R-P	13.10	2.00	22.00	3.90	29.10	6.80	●	2.40-22.00	0.15-0.30
HSM90S APCR 220730R-P	13.10	3.00	22.00	2.90	29.00	6.70	●	3.40-22.00	0.15-0.30
HSM90S APCR 220732R-P	13.10	3.20	22.00	2.70	29.00	6.70	●	3.60-22.00	0.15-0.30
HSM90S APCR 220740R-P	13.10	4.00	22.00	1.90	29.00	6.60	●	4.40-22.00	0.15-0.30
HSM90S APCR 220750R-P	13.10	5.00	22.00	0.90	28.90	6.50	●	5.40-22.00	0.15-0.30

• When machining at very high cutting speed it is recommended to replace the screw when replacing the insert • For cutting speed recommendations, see pages 616-620
(1) Measured on the cutter

For tools, see pages: HSM90S FAL-22 (441) • HSM90SFD-HSK A63/80-22 (441)

ISOTURN

TPMT
Triangular 11° Positive Inserts with a Positive Chipformer Exerts Low Cutting Forces for Internal Finish Turning



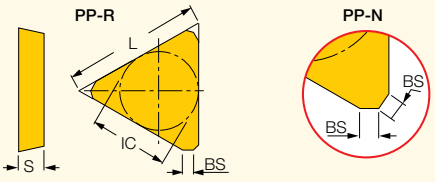
Designation	Dimensions L	IC	S	RE	D1	Tough ↔ Hard IC830	IC635	IC50M	IC8350	IC8250	IC8150	IC520M	IC20	IC70	IC806	IC807	IC907	Recommended Machining Data a_p (mm)(1)	f (mm/rev)(2)
TPMT 110202	11.00	6.35	2.38	0.20	3.00	•										•	•	0.20-2.00	0.05-0.25
TPMT 110204	11.00	6.35	2.38	0.40	3.00	•					•		•	•		•	•	1.00-3.00	0.12-0.30
TPMT 110208	11.00	6.35	2.38	0.80	3.00	•					•		•					1.00-4.00	0.15-0.30
TPMT 160304	16.50	9.52	3.18	0.40	4.30	•			•	•			•	•		•	•	1.00-4.00	0.12-0.30
TPMT 160308	16.50	9.52	3.18	0.80	4.30	•	•	•				•	•		•	•	•	5.00-12.00	0.15-0.35

• For cutting speed recommendations, see pages 616-620
(1) For turning
(2) For turning

For tools, see pages: E30 / T230 (51) • E45 / T245 (53) • E60 / T260 (53)

ISCARMILL

TPKN/TPKR
11° Positive Triangular Milling Inserts for General Use



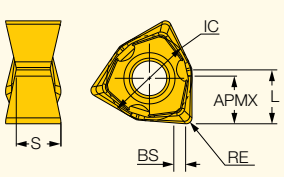
Designation	Dimensions IC	L	S	BS	Tough ↔ Hard IC328	IC928	IC50M	IC250	IC950	IC910	IC520M	IC20	Recommended Machining Data a_p (mm)	f_z (mm/t)
TPKN 1603PP-R-42	9.52	16.50	3.18	1.40								•	3.00-10.00	0.10-0.15
TPKN 1603PPFR	9.52	16.50	3.18	1.40								•	3.00-10.00	0.10-0.15
TPKN 1603PPTR	9.52	16.50	3.18	1.40			•				•		3.00-10.00	0.10-0.15
TPKN 1603PPTR-42	9.52	16.50	3.18	1.47	•		•	•					3.00-10.00	0.10-0.15
TPKR 1603PPTR-HS	9.52	16.50	3.50	1.45	•	•							3.00-10.00	0.12-0.20
TPKN 2204PDFR	12.70	22.00	4.76	1.40								•	3.00-15.00	0.10-0.15
TPKN 2204PDTR	12.70	22.00	4.76	1.45			•				•		3.00-15.00	0.10-0.15
TPKN 2204PDTR-42	12.70	22.00	4.76	1.80	•		•	•	•	•	•		3.00-15.00	0.10-0.15
TPKR 2204PD-R-76	12.70	22.00	4.76	1.80	•				•				3.00-15.00	0.10-0.15
TPKR 2204PDTR-HS	12.70	22.00	4.76	1.88	•	•		•			•		3.00-15.00	0.12-0.20

• For cutting speed recommendations, see pages 616-620

For tools, see pages: F90 (252)

HELIDO TRIGON LINE

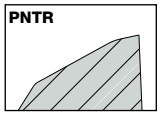
H690 WNMU 0403
Trigonal Inserts with 6 Helical Cutting Edges for 90° Shoulder Milling

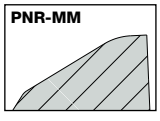


Designation	Dimensions L	APMX	IC	S	RE	BS	Tough ↔ Hard IC830	IC808	IC810	IC5400	IC5600	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
H690 WNMU 0403-PNTR	4.20	4.00	6.70	3.50	0.40	0.80			•			•	0.80-4.00	0.08-0.16
H690 WNMU 0403PNR-MM	4.20	4.00	6.70	3.50	0.40	0.80	•	•			•		0.80-4.00	0.04-0.16
H690 WNMU040308PNR-MM	4.20	4.00	6.70	3.50	0.80	0.40	•	•		•	•		1.20-4.00	0.04-0.16

• For cutting speed recommendations, see pages 616-620

For tools, see pages: H690 EWN-04 (14) • H690 EWN-MM-04 (14) • H690 FWN-04 (227)

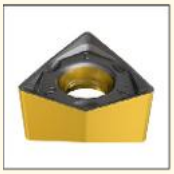


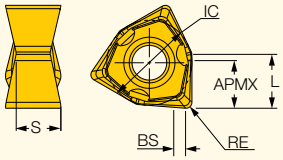


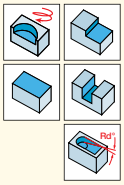
HELIDO TRIGON LINE

H690 WNHU/WNMU 0705

Trigonal Inserts with 6 Helical Cutting Edges for 90° Shoulder Milling







Designation	Dimensions L	APMX	IC	S	RE	BS	Tough ↔ Hard IC330	IC845	IC830	IC808	IC810	IC5400	IC5600	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
H690 WNHU 0705PNTR (1)	7.30	7.00	11.50	5.80	0.80	1.20				●					1.20-7.00	0.10-0.20
H690 WNMU 0705-PNTR (2)	7.30	7.00	11.50	5.90	0.80	1.20					●			●	1.20-7.00	0.10-0.35
H690 WNMU 070512PNTR	7.30	7.00	11.50	5.80	1.20	1.00		●							1.60-7.00	0.10-0.35
H690 WNMU 070516PNTR	7.30	7.00	11.50	5.80	1.60	0.60		●							2.00-7.00	0.10-0.35
H690 WNMU 070520PNTR	7.30	7.00	11.50	5.70	2.00	-		●							2.40-7.00	0.10-0.35
H690 WNMU 0705PNN-MM (3)	7.30	7.00	11.50	5.90	0.80	-	●		●			●			1.20-7.00	0.10-0.25
H690 WNMU 070512PNN-MM (3)	7.30	7.00	11.50	5.80	1.20	-				●					1.60-7.00	0.10-0.25
H690 WNMU070516PNN-MM (3)	7.30	7.00	11.50	5.70	1.60	-				●					2.00-7.00	0.10-0.25
H690 WNMU 070520PNN-MM (3)	7.30	7.00	11.50	5.70	2.00	-				●					2.40-7.00	0.10-0.25
H690 WNMU 0705PNR-MM (4)	7.30	7.00	11.50	5.90	0.80	1.20			●	●	●		●		1.20-7.00	0.10-0.25
H690 WNMU 0705PNR-RM (5)	7.30	7.00	11.50	5.80	0.80	1.20					●				1.20-7.00	0.15-0.40

- For cutting speed recommendations, see pages 616-620

(1) Peripherally ground

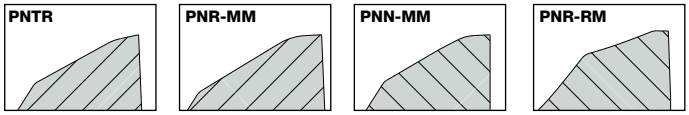
(2) General use insert with 6 right-hand cutting edges for milling a variety of cast iron and steel grades.

(3) 6 neutral cutting edges, for machining steel, can be used also for left-hand specially tailored milling tools.

(4) 6 right-hand cutting edges, used mainly for milling steel

(5) For heavy roughing applications

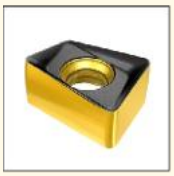
For tools, see pages: H690 EWN-07 (20) • H690 FWN-07 (230)

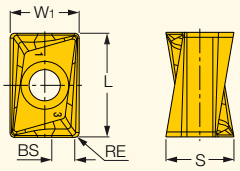


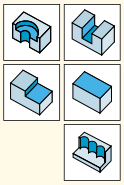
HELIDO 490 LINE

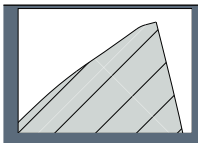
H490 ANKX/ANCX-09

Double-Sided Rectangular Inserts with 4 Helical Cutting Edges









Designation	Dimensions W1	APMX	L	S	RE	BS	Tough ↔ Hard IC330	IC830	IC380	IC808	IC810	IC5400	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
H490 ANCX 090404PDR	6.50	8.00	8.52	5.20	0.40	4.80		●		●				0.80-8.00	0.08-0.15
H490 ANCX 090408PDR	6.50	8.00	8.52	5.20	0.80	4.40	●	●	●	●	●			1.20-8.00	0.08-0.15
H490 ANCX 090412PDR	6.50	8.00	8.52	4.80	1.20	4.20		●		●	●			1.60-8.00	0.08-0.15
H490 ANCX 090416PDR	6.50	8.00	8.52	4.70	1.60	3.60		●		●	●			2.00-8.00	0.08-0.15
H490 ANKX 090408PNTR	6.50	8.00	8.52	5.20	0.80	5.00	●	●		●	●	●	●	1.20-8.00	0.10-0.18

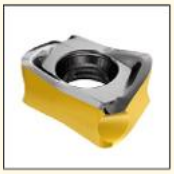
- ANKX-Utility inserts, ANCX-Precision inserts • For cutting speed recommendations, see pages 616-620

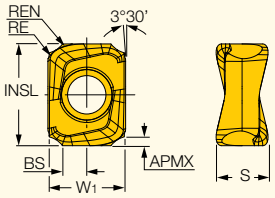
For tools, see pages: H490 ANK-09 (274) • H490 E90AX-09 (26) • H490 E90AX-M (27) • H490 E90AX-MM (27) • H490 F90AX-09 (232)

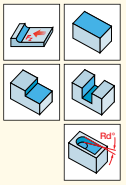
HELIDO 490 LINE

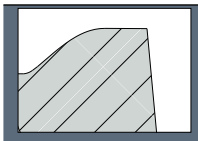
H490 ANKX 0904-FF

Double-Sided Rectangular Inserts with 4 Helical Cutting Edges for Fast Feed Milling at Small Depths of Cut









Designation	Dimensions W1	BS	APMX	INSL	S	RE	Rg(1)	REN	Tough ↔ Hard IC830	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
H490 ANKX 0904R12T-FF	6.20	2.30	0.70	8.50	4.30	1.00	1.20	5.00	●	●	0.50-1.00	0.50-1.50

- The cutting diameter of the tool is 0.12 mm larger than the nominal diameter when using this insert
- At D.O.C. larger than APMX, regular insert feed should be applied
- Enables ramping down at 1° maximum on 16 to 40 tool diameters

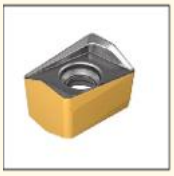
(1) Radius for programming

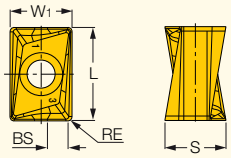
For tools, see pages: H490 E90AX-09 (26) • H490 E90AX-M (27) • H490 E90AX-MM (27) • H490 F90AX-09 (232)

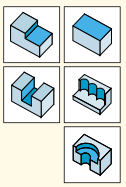
HELIDO 490 LINE

H490 ANKX/ANCX-12

Double-Sided Rectangular Inserts with 4 Helical Cutting Edges







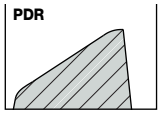
Designation	Dimensions W1	APMX	RE	S	L	BS	Tough ↔ Hard IC330	IC830	IC380	IC808	IC810	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
H490 ANCX 120508PDR	10.00	11.00	0.80	9.45	13.67	3.50		●		●			1.20-11.00	0.08-0.15
H490 ANKX 120504PNTR	10.00	11.00	0.40	9.15	13.70	3.80		●					0.80-11.00	0.10-0.30
H490 ANKX 120508PNTR	10.00	11.00	0.80	9.15	13.67	3.50	●	●	●	●	●	●	1.20-11.00	0.10-0.30
H490 ANKX 120510PNTR	10.00	11.00	1.00	8.90	13.70	3.40		●					1.40-11.00	0.10-0.30
H490 ANKX 120512PNTR	10.00	11.00	1.20	8.90	13.70	3.20		●					1.60-11.00	0.10-0.30
H490 ANKX 120516PNTR	10.00	11.00	1.60	8.60	13.70	2.80		●					2.00-11.00	0.10-0.30
H490 ANKX 120520PNTR	10.00	11.00	2.00	8.70	13.60	2.80		●					2.40-11.00	0.10-0.30
H490 ANKX 120524PNTR	10.00	11.00	2.40	8.60	13.70	2.80		●					2.80-11.00	0.10-0.30
H490 ANKX 1205PNTR-CS (1)	10.00	11.00	0.80	9.15	13.70	3.50		●					1.20-11.00	0.15-0.20
H490 ANKX 1205PNTR-RM	10.00	11.00	0.80	9.15	13.70	3.50		●		●			1.20-11.00	0.20-0.30

- ANKX-utility inserts, ANCX-precision inserts
- For cutting speed recommendations, see pages 616-620

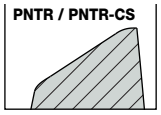
(1) The maximum feed per tooth for chip splitting effect is up to 0.20 mm/t.

For tools, see pages: H490 E90AX-12 (41) • H490 F90AX-12 (243) • H490 SM-12 (283)

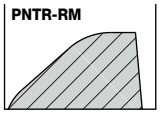
PDR



PNTR / PNTR-CS



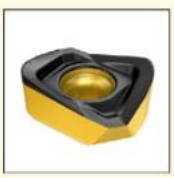
PNTR-RM

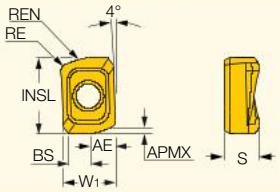


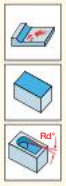
HELIDO 490 LINE

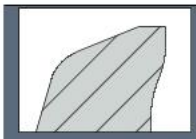
H490 ANKX/ANCX 1205-FF

Single-Sided Rectangular Inserts with 2 Helical Cutting Edges for Fast Feed Milling at Small Depths of Cut









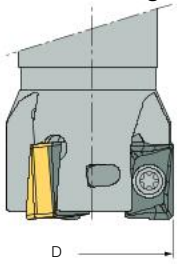
Designation	Dimensions									IC830	Recommended Machining Data	
	INSL	S	W1	BS	RE	Rg(1)	REN	APMX	AE		a_p (mm)	f_z (mm/t)
H490 ANKX 1205R15T-FF	13.50	6.40	10.20	3.50	1.50	2.50	6.00	1.40	5.1	●	0.50-2.00	1.00-2.00

- The cutting diameter of the tool is 0.5 mm larger than the nominal diameter when using this insert
- Tool corner should be modified by rounding to R2.0 mm
- At D.O.C. larger than APMX, regular insert feed should be applied.
- For cutting speed recommendations, see pages 616-620

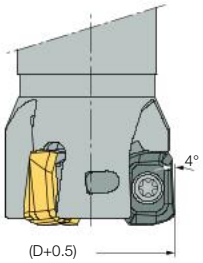
(1) Radius for programming

For tools, see pages: H490 E90AX-12 (41) • H490 F90AX-12 (243)

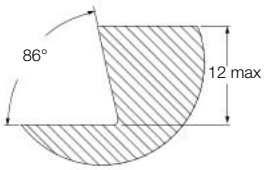
Insert Mounting in a Standard Tool



Tool with regular inserts



Tool with H490 ANKX 1205... FF inserts

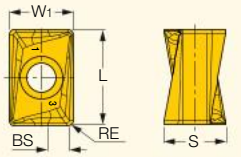


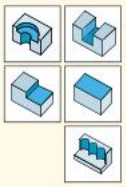
Shoulder angle when H490 ANKX 1205...-FF inserts are used

HELIDO 490 LINE

H490 ANKX/ANCX-17

Double-Sided Rectangular Inserts with 4 Helical Cutting Edges



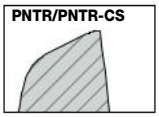


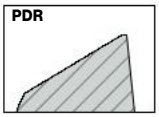
Designation	Dimensions						Tough ↔ Hard									Recommended Machining Data	
	L	APMX	RE	S	W1	BS	IC330	IC845	IC830	IC380	IC808	IC810	IC5400	DT7150	IC5100	a_p (mm)	f_z (mm/t)
H490 ANKX 170604PNTR	16.70	16.00	0.40	10.40	11.20	4.70			●							0.80-15.00	0.15-0.30
H490 ANCX 170608PDR	16.70	16.00	0.80	10.40	11.20	4.70	●		●	●	●	●				1.20-15.00	0.10-0.18
H490 ANKX 1706PNTR-CS (1)	16.70	16.00	0.80	10.40	11.20	4.70			●							1.20-15.00	0.15-0.22
H490 ANKX 1706PNTR-RM	16.70	16.00	0.80	10.40	11.20	4.70			●		●	●				1.20-15.00	0.20-0.40
H490 ANKX 170608PNTR	16.70	16.00	0.80	10.40	11.20	4.70	●	●	●		●	●	●	●	●	1.20-15.00	0.15-0.30
H490 ANKX 170612PNTR	16.90	16.00	1.20	10.50	11.00	3.50			●		●					1.60-15.00	0.15-0.30
H490 ANKX 170616PNTR	16.90	16.00	1.60	10.50	11.00	3.10			●		●					2.00-15.00	0.15-0.30
H490 ANKX 170620PNTR	16.90	16.00	2.00	10.50	11.00	2.70			●		●					2.40-15.00	0.15-0.30
H490 ANKX 170624PNTR	16.90	16.00	2.40	10.50	11.00	2.30			●		●					2.80-15.00	0.15-0.30

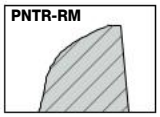
- ANKX-utility inserts. ANCX-precision inserts
- For cutting speed recommendations, see pages 616-620

(1) The maximum feed per tooth for chip splitting effect is up to 0.22 mm/t.

For tools, see pages: H490 E90AX-17 (47) • H490 F90AX-17 (251) • H490 SM-17 (290)



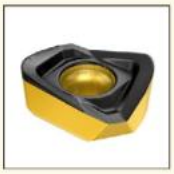


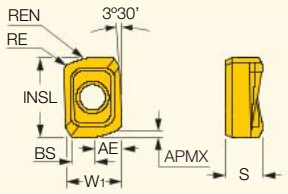


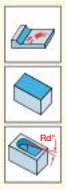
HELIDO 490 LINE

H490 ANKX 1706-FF

Single-Sided Rectangular Inserts with 2 Helical Cutting Edges for Fast Feed Milling at Small Depths of Cut







Designation	Dimensions									IC830	Recommended Machining Data	
	INSL	S	W1	BS	RE	Rg(1)	REN	APMX	AE		a_p (mm)	f_z (mm/t)
H490 ANKX 1706R15T-FF	16.80	7.80	11.70	4.60	1.60	2.85	15.00	1.60	6.1	●	0.50-2.00	1.00-2.00

- The cutting diameter of the tool is 1.5 mm larger than the nominal diameter when using this insert
- No tool radius modifications is required
- At D.O.C. larger than APMX, regular insert feed should be applied
- For cutting speed recommendations, see pages 616-620

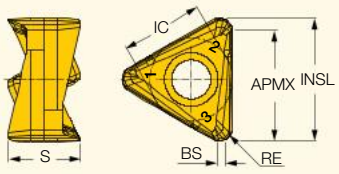
(1) Radius for programming

For tools, see pages: H490 E90AX-17 (47) • H490 F90AX-17 (251)

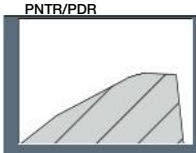
HELIDO 690 LINE

H690 TNKX/TNCX 1005

Triangular Inserts with 6 Helical Cutting Edges for 90° Shoulder Accuracy



PNTR/PDR



Designation	Dimensions						Tough ↔ Hard						Recommended Machining Data	
	INSL	APMX	IC	S	RE	BS	IC330	IC830	IC808	IC810	IC5400	IC5600	a_p (mm)	f_z (mm/t)
H690 TNKX 100504PNTR	8.48	8.00	6.20	4.70	0.40	0.80	●	●	●	●	●		0.80-8.00	0.08-0.15
H690 TNCX 100504 PDR (1)	8.60	8.00	6.20	4.70	0.40	0.70		●	●	●			0.80-8.00	0.08-0.13
H690 TNKX 100508PNTR	8.60	8.00	6.20	4.70	0.80	0.40		●	●	●		●	1.20-8.00	0.08-0.15

- For cutting speed recommendations, see pages 541,616-620

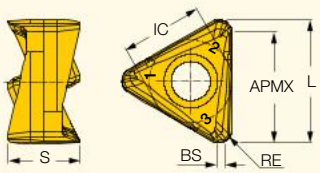
(1) Peripherally ground

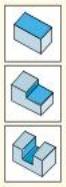
For tools, see pages: H690 E90AX-10 (39) • H690 F90AX-10 (238)

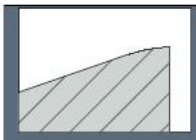
HELIDO 690 LINE

H690 TNKX 1606

Triangular Inserts with 6 Helical Cutting Edges for 90° Shoulders







Designation	Dimensions						Tough ↔ Hard							Recommended Machining Data	
	L	APMX	IC	S	RE	BS	IC330	IC845	IC830	IC808	IC810	IC5600	IC5100	a_p (mm)	f_z (mm/t)
H690 TNKX 1606PNTR-CS (1)	17.50	13.50	12.00	10.00	0.80	0.70			●					1.20-13.50	0.15-0.30
H690 TNKX 160610PNTR	17.50	13.50	12.00	10.00	1.00	0.70	●	●	●	●	●	●	●	1.40-13.50	0.15-0.30

- For cutting speed recommendations, see pages 616-620

(1) The maximum feed per tooth for chip splitting effect is up to 0.22 mm/t

For tools, see pages: H690 F90AX-16 (252)

Cutting Data

The attached tables provide cutting data recommendations for H690 TNKX 100504PNTR inserts.
For machining in unstable conditions, the recommended tooth load should be reduced by 20-30%.

Cutting Speed Recommendations for H690 TNKX 100504PNTR Inserts

ISO Class DIN/ISO 513	Workpiece Material					V_c, m/min, for Grades				
	Description	Typical Representative AISI/SAE/ASTM	Typical Representative DIN W.-Nr.	Hardness HB	ISCAR Mat. Group***	IC330	IC830	IC5400	IC808	IC810
P	non-alloy steel	1020	1.044	130-180	1	150-180	150-180	150-200	150-200	150-200
	alloy steel	4340	1.6582	260-300	8	100-120	140-150	120-170	140-170	140-170
	alloy steel	4340	1.6582	HRC 35-42**	9	80-100	80-100		120-150	
	high alloy steel	H13	1.2344	200-220	10	100-120	140-170		140-170	
	martensitic S.S.	420	1.4021	200	12	150-180	150-150	120-200	150-200	
M	austenitic S.S.	304L	1.4306	200	14	100-140	120-140		120-140	
	austenitic S.S.	316L	1.4404	140	14	100-140	120-140		120-140	
K	grey cast iron	class 40	0.6025 (GG25)	250	16		150-200			250-300
	nodular cast iron	class 65-45-12	0.7050 (GGG50)	200	17		150-180			200-250
H	hard steel	H11	1.2343	HRC 45-49	38.1				60-80	
	cast iron	P20	1.2330	HRC 50-55	38.2				40-60	

** Quenched and tempered
*** ISCAR material group in accordance with VDI 3323 standard

Feed Recommendations for H690 TNKX 100504PNTR Inserts

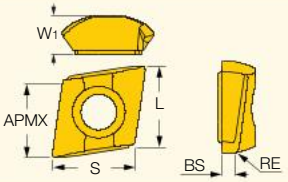
ISO Class DIN/ISO 513	Workpiece Material					F_z, mm/tooth, for Grades				
	Description	Typical Representative AISI/SAE/ASTM	Typical Representative DIN W.-Nr.	Hardness HB	ISCAR Mat. Group**	IC808	IC5400	IC810	IC830	IC330
P	non-alloy steel	1020	1.044	130-180	1	0.08-0.15	0.08-0.15		0.08-0.15	0.08-0.15
	alloy steel	4340	1.6582	260-300	8	0.08-0.15	0.08-0.15	0.08-0.15	0.08-0.15	0.08-0.15
	alloy steel	4340	1.6582	HRC 35-42*	9	0.08-0.12	0.08-0.12		0.08-0.12	0.08-0.12
	high alloy steel	H13	1.2344	200-220	10	0.08-0.15	0.08-0.15		0.08-0.15	0.08-0.12
	martensitic S.S.	420	1.4021	200	12	0.08-0.15			0.08-0.15	0.08-0.12
M	austenitic S.S.	304L	1.4306	200	14	0.08-0.12			0.08-0.12	0.08-0.12
	austenitic S.S.	316L	1.4404	140	14	0.08-0.12			0.08-0.12	0.08-0.12
K	grey cast iron	class 40	0.6025 (GG25)	250	16			0.08-0.12	0.08-0.12	
	nodular cast iron	class 65-45-12	0.7050 (GGG50)	200	17			0.08-0.12	0.08-0.12	
S	htsa	inconel 718	2.4668	HRC 36	34					
	titanium alloys	AMS R56400	3.7165 (Ti6Al4V)	HRC 34	37					
H	hard steel	H11	1.2343	HRC 45-49	38.1	0.06-0.1				
	cast iron	P20	1.2330	HRC 50-55	38.2	0.05-0.08				

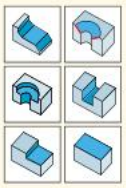
* Quenched and tempered
** ISCAR material group in accordance with VDI 3323 standard

SUMOMILL 290 LINE

T290 LNMT/LNHT 0502

Tangential Inserts with
2 Cutting Edges





Designation	Dimensions W1	L	APMX	S	BS	RE	Tough ↔ Hard IC330	IC830	IC808	IC810	IC5400	Recommended Machining Data a_p (mm)	f_z (mm/t)
T290 LNHT 050202TR	2.70	5.75	5.00	5.85	1.20	0.20		●	●			2.00-5.00	0.03-0.07
T290 LNHT 050204TR	2.70	5.75	5.00	5.85	1.00	0.40		●				2.00-5.00	0.03-0.07
T290 LNHT 050208TR	2.70	5.75	5.00	5.85	1.00	0.80		●				2.00-5.00	0.03-0.07
T290 LNHT 050210TR	2.70	5.75	5.00	5.85	1.00	1.00		●				2.00-5.00	0.03-0.07
T290 LNMT 050204TR	2.70	5.75	5.00	5.85	1.00	0.40	●	●	●	●	●	2.00-5.00	0.04-0.08

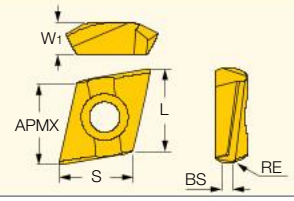
• LNMT-utility inserts. LNHT-precision inserts • For cutting speed recommendations, see pages 616-620

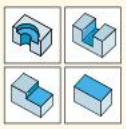
For tools, see pages: E30 / T230 (51) • E45 / T245 (53) • E60 / T260 (53) • T290 ELN-05 (18) • T290 ELN-MM-05 (18)

SUMOMILL 290 LINE

T290 LNMT/LNHT 1004

Tangential Insert with
2 Cutting Edges





Designation	Dimensions W1	L	APMX	S	BS	RE	Tough ↔ Hard IC330	IC830	IC808	IC810	IC5400	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
T290 LNHT 100405TR	4.10	10.40	10.00	8.90	1.30	0.50		●					3.00-9.00	0.08-0.20
T290 LNMT 100405TR	4.10	10.40	10.00	8.90	1.30	0.50	●	●	●	●	●	●	3.00-9.00	0.08-0.20

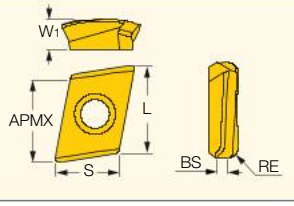
• LNMT-utility inserts, LNHT-precision inserts • For cutting speed recommendations, see pages 616-620

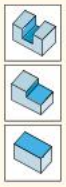
For tools, see pages: T290 ELN-10 (29) • T290 FLN-10 (234) • T290 LNK-10 (275)

SUMOMILL 290 LINE

T290 LNMT 1506

Tangential Insert with
2 Cutting Edges





Designation	Dimensions W1	L	APMX	S	BS	RE	Tough ↔ Hard IC830	IC808	IC810	Recommended Machining Data a_p (mm)	f_z (mm/t)
T290 LNMT 150608TR	5.60	15.90	15.00	11.50	2.00	0.80	●	●	●	5.00-15.00	0.10-0.22

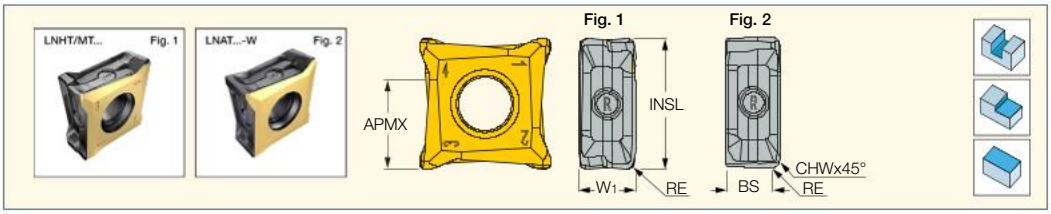
• LNMT-utility inserts • For cutting speed recommendations, see pages 616-620

For tools, see pages: T290 FLN-15 (244)

LOGIQ8TANG T890 MILLING LINE

T890 LN.. 1306

Tangentially Clamped Inserts
with 4 or 8 Cutting Edges



Designation	Dimensions APMX	INSL	W1	BS	RE	CHW	CEDC[2]	Fig.	Tough ↔ Hard IC845	IC830	IC5500	IC808	IC810	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
T890 LNHT 1306PNTR	9.50	13.78	6.00	1.00	0.80	-	8	1	●	●	●	●	●	●	1.00-9.50	0.10-0.20
T890 LNAT 1306PN-W [1]	9.50	13.92	5.90	4.30	0.60	0.60	4	2					●		0.50-1.00	0.10-0.20

[1] A wiper insert for finishing only
[2] Cutting edge count

For tools, see pages: T890HT ELN-R13 (40) • T890HT FLN-R13 (239)

Machining Recommendations for T890HT-13 Cutters

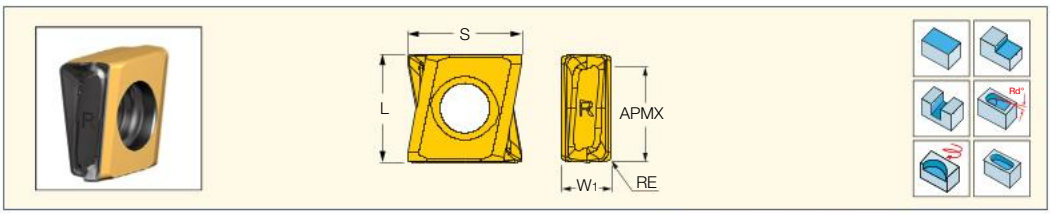
ISO class DIN/ISO 513	Workpiece Material Description	ISCAR mat. group*	Hardness HB	Typical Representative AISI/SAE/ASTM	DIN W.-Nr.	Carbide grade	Depth of cut [mm]	Cutting speed [m/min]	Feed per tooth mm/tooth]	Coolant
P	non-alloyed steel	1-5	130-180	1020	1.0402	IC830	1.0-9.5	140-170	0.12-0.20	dry/wet
						IC5400		140-180	0.12-0.18	dry
						IC808		150-180	0.12-0.18	dry
	low alloy steel	6-8	260-300	4340	1.6565	IC830	1.0-9.5	120-150	0.12-0.16	dry/wet
						IC808		130-160	0.10-0.14	dry
						IC5400		150-170	0.10-0.13	dry
						IC845	1.0-4.5	120-150	0.12-0.18	dry/wet
		9	HRC 35-42**	3135	1.5710	IC830	1.0-9.5	100-130	0.12-0.15	dry/wet
						IC808		120-150	0.10-0.13	dry
						IC5400		130-160	0.10-0.12	dry
						IC845	1.0-4.5	120-150	0.12-0.15	dry/wet
	ferritic/ martensitic stainless steel	12-13	200	420	1.4021	IC830	1.0-9.5	100-120	0.10-0.15	dry/wet
						IC808		100-130	0.10-0.13	dry
						IC5500	1.0-4.5	110-150	0.10-0.15	dry
K	grey cast iron	15-16	250	class 40	0.6025 (GG25)	IC810	1.0-9.5	200-250	0.10-0.20	dry
	nodular cast iron	17-18	200	class 65-45-12	0.7050 (GGG50)	IC810		180-200	0.10-0.20	

* ISCAR material group in accordance with VDI 3323 standard
** Quenched and tempered
For machining in unstable conditions, the recommended cutting data should be reduced by 20-30%
IC830 is a general purpose grade and it may be considered as the first-choice grade
IC845 is recommended for milling at relatively small depths of cut and for interrupted cutting applications
IC5500 is intended mainly for milling ferritic and martensitic stainless steel at increased speed

HELITANG T490 LINE

T490 LNMT 0502

Tangentially Clamped Inserts
with 4 Helical Cutting Edges



Designation	Dimensions W1	L	APMX	RE	S	Tough ↔ Hard IC830	IC808	IC810	IC5600	Recommended Machining Data f_z (mm/t)
T490 LNMT 0502PNR-RD	2.30	5.00	4.60	0.40	5.30	●	●	●	●	0.08-0.12

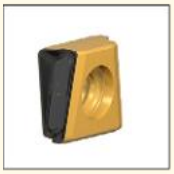
New

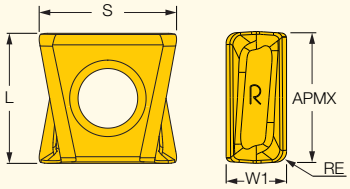
• For cutting speed recommendations, see pages 616-620

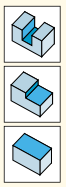
For tools, see pages: T490 ELN-05 (23) • T490 ELN-MM-05 (23) • T490 FM-05 (226)

TANGDISC

T490 LNHT 05-PNTN
HELI-TANG - Tangentially Clamped Inserts for Slotting and Precision Grooving







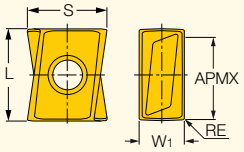
Designation	Dimensions W1	L	APMX	RE	S	Tough ↔ Hard IC830	IC808	IC810
T490 LNHT 0502-PNTN	2.30	5.00	4.60	0.40	5.30	●	●	●

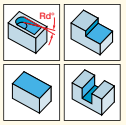
• For cutting speed recommendations, see pages 616-620

For tools, see pages: ETS-T490 (388) • SD-T490 (376)

HELITANG T490 LINE

T490 LNMT/LNHT 0804
Tangentially Clamped Inserts with 4 Helical Cutting Edges





Designation	Dimensions W1	L	APMX	RE[4]	S	Tough ↔ Hard IC330	IC845	IC830	IC808	IC810	IC5400	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
T490 LNMT 0804PNR	4.24	8.59	8.00	0.40	7.43	●		●	●	●	●	●	1.50-5.00	0.10-0.18
T490 LNHT 080404PNR	4.24	8.59	8.00	0.40	7.51	●	●	●	●	●			1.50-5.00	0.08-0.15
T490 LNMT 080408PNR	4.24	8.59	8.00	0.80	7.43			●	●	●			1.50-5.00	0.10-0.18
T490 LNHT 080408PNR	4.24	8.59	8.00	0.80	7.16	●		●	●	●			1.50-5.00	0.08-0.15
T490 LNHT 080412PNR	4.24	8.59	8.00	1.20	7.32	●		●	●	●			1.50-5.00	0.08-0.15
T490 LNMT 080412PNR	4.24	8.59	8.00	1.20	6.87			●					1.50-5.00	0.08-0.18
T490 LNHT 080416PNR	4.24	8.59	8.00	1.60	7.24	●		●	●	●			1.50-5.00	0.08-0.15
T490 LNMT 080416PNR	4.24	8.59	8.00	1.60	7.29				●				1.50-5.00	0.10-0.18
T490 LNMT 0804PNR-CS [1]	4.24	8.59	8.00	0.40	7.43			●	●				2.50-7.00	0.10-0.15
T490 LNHT 080404PNR-RD [2]	4.24	8.59	8.00	0.40	7.51			●					1.50-5.00	0.08-0.15
T490 LNMT 080404PNR-RD [2]	4.24	8.59	8.00	0.40	7.51			●					1.50-5.00	0.08-0.15
T490 LNHT080404PNR-PLS [3]	4.24	8.59	8.00	0.40	7.51			●					1.50-5.00	0.08-0.15

• LNMT-utility inserts, LNHT-precision inserts • For cutting speed recommendations, see pages 616-620

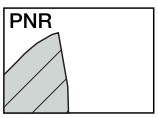
[1] Chip splitting cutting edge

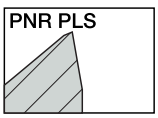
[2] Used for ramping down applications

[3] Positive rake angle for soft and gummy materials

[4] Radius obtained on workpiece

For tools, see pages: T490 ELN-08 (24) • T490 ELN-M (25) • T490 ELN-MM-08 (25) • T490 FLN-08 (231) • T490 LNM-08 (276) • T490 LNM-M-08 (276) • T490 SM-08 (283)





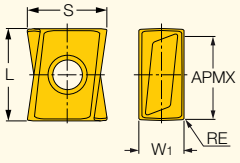
T490 LN... 080404PNR-RD

Tool Diameter	Rampdown LNHT	LNMT
16	2°	1.10°
18	1.85°	0.95°
20	1.70°	0.80°
25	-	0.55°
32	-	0.40°
40	-	0.30°

HELITANG T490 LINE

T490 LNMT/LNHT 1106

Tangentially Clamped Inserts
with 4 Helical Cutting Edges

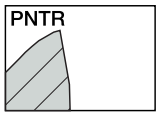


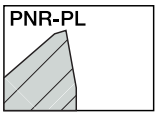
Designation	Dimensions W1	L	APMX	RE[8]	S	Tough ↔ Hard IC845	IC840	IC830	IC5500	IC808	IC810	Recommended Machining Data a_p (mm)	f_z (mm/t)
T490 LNHT 1106PNTR	6.00	10.50	9.00	0.80	11.30			●	●		●	1.50-9.00	0.10-0.20
T490 LNMT 1106PNTR [1]	6.00	10.50	9.00	0.80	11.30			●		●	●	1.50-9.00	0.10-0.20
T490 LNMT 1106PNR-PLS [2]	6.00	10.50	9.00	0.80	11.30	●						1.50-9.00	0.10-0.20
T490 LNHT 1106PNR-PL [3]	6.00	10.50	9.00	0.80	11.30		●					1.50-9.00	0.10-0.20
T490 LNHT 1106PNR-PLS [4]	6.00	10.50	9.00	0.80	11.30	●	●				●	1.50-9.00	0.10-0.20
T490 LNMT 1106PNTR-FW [5]	6.00	10.50	9.00	0.80	11.30			●				1.50-9.00	0.10-0.20
T490 LNHT 1106PNTR-RD [6]	6.00	10.50	9.00	0.80	11.30			●				1.50-9.00	0.10-0.20
T490 LNMT 1106PNTR-CS [7]	6.00	10.50	9.00	0.80	11.30			●				1.50-9.00	0.10-0.20
T490 LNMT 1106PNTR-CSG [7]	6.00	10.50	9.00	0.80	11.30						●	1.50-9.00	0.10-0.20

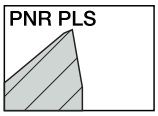
- For cutting speed recommendations, see pages 616-620

[1] Mounting this insert increases tool diameter up to 0.2 mm
[2] Positive rake angle for soft and gummy materials, mounting this insert increases tool diameter up to 0.2 mm
[3] Positive rake face, for stainless steel and high temperature alloys
[4] Positive rake angle for soft and gummy materials
[5] Chip splitting serrated cutting edge
[6] Used for ramping down applications with 25 mm and larger tools, see table below
[7] Chip splitting cutting edge
[8] Radius obtained on workpiece

For tools, see pages: T490 ELN-11 (40) • T490 FLN-11 (238) • T490 LNK-11 (277) • T490 SM-11 (283)







T490 LNHT 1106PNTR-RD

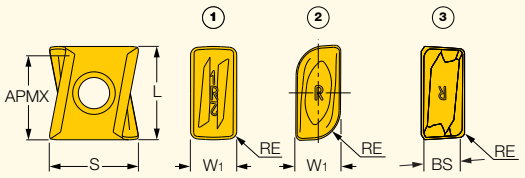
Tool Diameter	a - Rampdown
25	1.7°
32	1.5°
40	1.4°
50	1.1°
63	0.7°

Special chamfer for
ramping down applications

HELITANG T490 LINE

T490 LNMT/LNHT/LNAR 1306

Tangentially Clamped Inserts with 4 Helical Cutting Edges

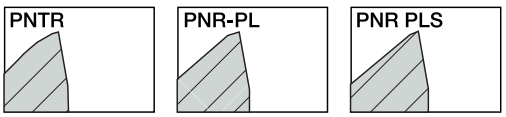


Right-hand shown

Designation	Dimensions W1	L	APMX	RE[12]	BS	S	Fig.	Tough ↔ Hard IC882	IC330	IC845	IC716	IC840	IC830	IC5820	IC5500	IC380	IC808	IC810	IC5400	DT7150	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
T490 LNAT 1306 PN-W [1]	6.65	14.20	0.50	1.00	4.80	13.10	3.										●					0.50-0.50	0.12-0.18
T490 LNAR 1306PN-R [2]	6.65	13.81	12.77	0.80	2.57	13.00	1.		●													4.00-12.00	0.08-0.20
T490 LNMT 1306PNTR	6.65	13.74	12.50	0.80	2.57	13.05	1.		●	●		●	●		●	●	●	●	●	●	●	4.00-12.00	0.10-0.25
T490 LNHT 1306PNTR	6.65	13.80	12.50	0.85	2.57	13.05	1.		●				●				●	●		●	●	4.00-12.00	0.10-0.20
T490 LNHT 1306PNTL [3]	6.65	13.81	12.50	0.85	2.57	13.05	1.						●				●	●				4.00-12.00	0.10-0.20
T490 LNMT 1306PNTL [3]	6.65	13.80	12.50	0.85	2.57	13.05	1.						●									4.00-12.00	0.10-0.20
T490 LNMT 1306PNTR-CS [4]	6.65	13.74	12.50	0.85	2.57	13.05	1.		●				●					●	●			4.00-12.00	0.10-0.20
T490 LNHT 1306PN-R-PL [5]	6.65	13.81	12.50	0.85	2.57	13.05	1.	●	●		●		●	●			●					4.00-12.00	0.10-0.20
T490 LNHT 1306PNR-PLS [6]	6.65	13.81	12.50	0.85	2.57	13.05	1.						●									4.00-12.00	0.10-0.20
T490 LNHT 1306PNTR-RD [7]	6.65	13.81	12.50	0.85	2.57	13.05	1.						●				●	●				4.00-12.00	0.10-0.20
T490 LNMT1306PNR-RD-CS [8]	6.65	13.74	12.50	0.85	2.57	13.05	1.						●									4.00-12.00	0.10-0.20
T490 LNMT1306PNR-RDPCS [9]	6.65	13.75	12.50	0.85	1.20	13.05	1.					●										4.00-12.00	0.10-0.20
T490 LNMT1306PNR-RDPL [10]	6.44	13.74	12.50	0.85	1.20	13.05	1.					●										1.00-12.50	0.10-0.20
T490 LNHT 130604PNTR	6.65	13.81	12.50	0.40	3.05	12.88	1.						●									4.00-12.00	0.10-0.20
T490 LNHT 130612PNTR	6.65	13.81	12.50	1.20	1.90	13.00	1.											●				4.00-12.00	0.10-0.20
T490 LNHT 130616PNTL [3]	6.65	13.81	12.50	1.60	1.73	12.88	1.						●									4.00-12.00	0.10-0.20
T490 LNHT 130616PNTR	6.65	13.81	12.50	1.60	1.73	12.88	1.		●				●				●					4.00-12.00	0.10-0.20
T490 LNMT 130616PNTR	6.65	13.75	12.50	1.60	1.82	12.88	1.						●					●				4.00-12.00	0.10-0.25
T490 LNHT 130624PNTL [3]	6.65	13.80	12.50	2.40	1.30	12.50	1.						●									4.00-12.00	0.10-0.20
T490 LNHT 130624PNTR	6.65	13.80	12.50	2.40	1.30	12.50	1.		●				●				●	●				4.00-12.00	0.10-0.20
T490 LNMT 130624PNTR	6.65	13.74	12.50	2.40	1.13	12.66	1.						●					●				4.00-12.00	0.10-0.20
T490 LNHT 130631PNTL [3]	6.65	13.81	12.50	3.10	0.62	12.37	1.						●									4.00-12.00	0.10-0.20
T490 LNHT 130631PNTR	6.65	13.81	12.50	3.10	0.62	12.37	1.		●				●				●					4.00-12.00	0.10-0.20
T490 LNMT 130631PNTR	6.65	13.75	12.50	3.10	0.60	12.45	1.		●				●									4.00-12.00	0.10-0.25
T490 LNHT 130640PNTR [11]	6.65	13.63	12.50	4.00	0.40	12.60	2.		●				●				●					4.00-12.00	0.10-0.20
T490 LNMT 130640PNTR [11]	6.65	13.63	12.50	4.00	1.80	12.60	2.						●									4.00-12.00	0.10-0.20
T490 LNHT 130650PNTR [11]	6.65	13.63	12.50	5.00	0.40	12.45	2.		●				●					●				4.00-12.00	0.10-0.20
T490 LNMT 130650PNTR [11]	6.65	13.63	12.50	5.00	0.80	12.36	2.						●									4.00-12.00	0.10-0.20
T490 LNHT 130660PNTR [11]	6.65	13.63	12.50	6.00	0.70	12.30	2.						●				●					4.00-12.00	0.10-0.25
T490 LNHT 130664PNTR [11]	6.65	13.63	12.50	6.35	0.43	12.28	2.		●				●				●					4.00-12.00	0.10-0.20
T490 LNMT 130664PNTR [11]	6.65	13.63	12.50	6.40	0.60	12.28	2.						●									4.00-12.00	0.10-0.20

For tools, see pages: FDN-CALN13 (350) • SDN-CALN13 (359) • T4..-SM Conical Shell Mills (247) • T490 CAP-13FT (245) • T490 ELN-13 (30)
• T490 ELN-M (19)
• T490 FLN-13 (207) • T490 LNK-13 (237) • T490 LNK-13-BT (238) • T490 LNK-13-CF (238) • T490 LNK-13-INT (238) • T490 LNK-BT-FT (247)
• T490 LNK-INT50-FT (246) • T490 LNK-M-13 (238) • T490 SM-13 (244) • T490 SM-13FT (244)• LNMT-utility inserts, LNHT-precision inserts
• For cutting speed recommendations, see pages 616-620

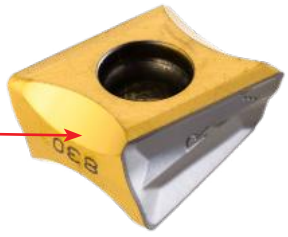
[1] A wiper insert with 2 cutting edges, for finishing only.
[2] For low carbon steel (ISO P, ISCAR mat. Group No. 1 and 2)
[3] Left-hand insert used on left-hand cartridges or on special left-hand cutters
[4] Chip splitting insert
[5] Positive rake face, for stainless steel and high temperature alloys
[6] Positive rake angle for soft and gummy materials
[7] Used for ramping down applications with 32 mm and larger tools, see table below
[8] Used for ramping down and chip splitting applications with 40 mm and larger tools, see table below
[9] Positive rake face, for stainless steel and high temp. alloys; used for ramping down and chip splitting applications.
[10] Positive rake face, for stainless steel and high temperature alloys with limited ramp down capability
[11] With 2 cutting edges
[12] Radius obtained on workpiece



T490 LNHT 1306PNTR-RD

Tool Diameter	a - Rampdown
32	2.8°
40	2.0°
50	1.5°
63	1.1°
80	0.9°
100	0.7°
125	0.5°

Special chamfer for ramping down applications



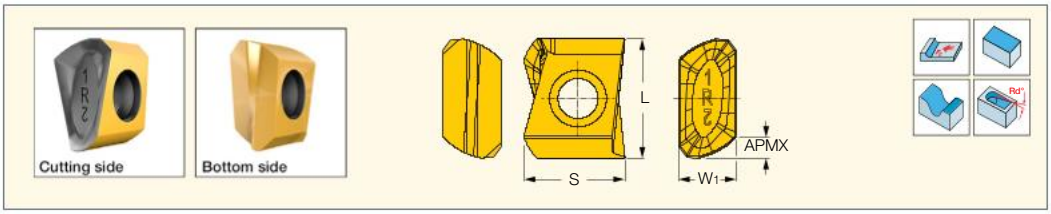
T490 LNMT1306PNR-RD-CS
T490 LNMT1306PNR-RDPCS
T490 LNMT1306PNR-RDPL

Tool Diameter	a - Rampdown
40	0.9°
50	0.7°
63	0.5°

HELITANG T490 LINE

T490 LNMT 1306PNR-FF

Tangentially Clamped
Inserts with 2 Cutting Edges
for Fast Feed Milling



Designation	Dimensions W1	L	APMX	Rg(1)	S	RMPX°(2)	IC830	Recommended Machining Data ap (mm)	fz (mm/t)
T490 LNMT 1306PNR-FF	6.65	13.68	1.00	1.95	11.56	-	●	0.60-1.00	0.50-1.50

- You can machine also at up to 12 mm D.O.C. but in this case a regular corner radius insert feed recommendations should be applied.
- For cutting speed recommendations, see pages 616-620

(1) Corner radius for CNC programming

(2) For possible ramping angle vs. tool diameter, see table below.

For tools, see pages: T490 ELN-13 (41) • T490 ELN-M (25) • T490 FLN-13 (244)

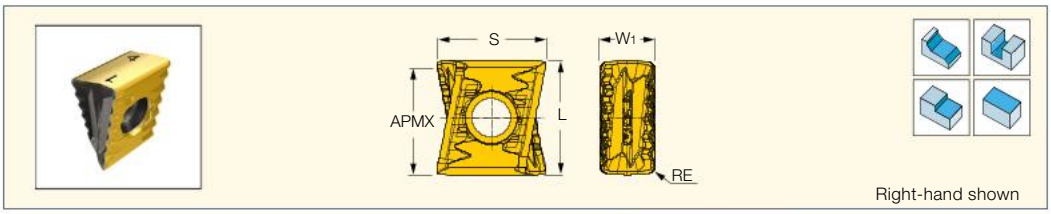
Ramp Down Application as Function of Cutter Diameter

Tool Diameter	a° - Rampdown
25	4.8°
32	3.3°
40	2.5°
50	1.8°
63	1.3°
80	1.0°
100	0.8°

HELITANG T490 LINE

T490 LNMT 1306PNTR-FW

Tangentially Clamped
Inserts with 4 Serrated and
Helical Cutting Edges



Designation	Dimensions W1	L	APMX	RE(2)	S	Tough ↔ Hard IC840	IC830	Recommended Machining Data ap (mm)	fz (mm/t)
T490 LNMT 1306PNTR-FW	6.65	13.73	12.70	0.80	13.06		●	4.00-12.00	0.10-0.20
T490 LNMT1306PNR-RDPFW (1)	6.65	13.73	12.70	0.80	13.06	●		4.00-12.00	0.10-0.18

- T490 LNMT 1306PNTR-FW cannot be used for ramping down and on full slot cutters • T490 LNMT1306PNR-RDPFW can be used for ramping down
- For cutting speed recommendations, see pages 616-620

(1) Positive rake face, to be used in long overhang applications and low power machines

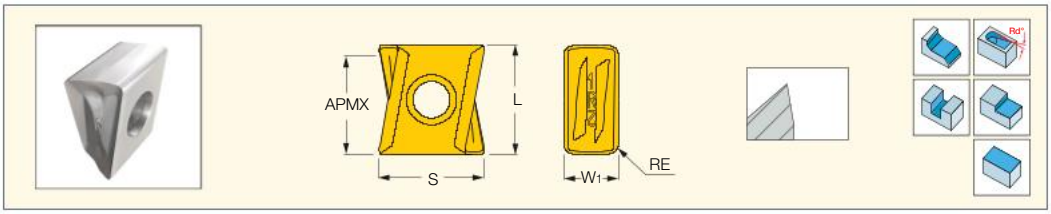
(2) Radius obtained on workpiece

For tools, see pages: T4..-SM Conical Shell Mills (288) • T490 CAP-13FT (285) • T490 ELN-13 (41) • T490 ELN-M (25) • T490 FLN-13 (244)
• T490 LNK-13 (277) • T490 LNK-13-BT (278) • T490 LNK-13-CF (278) • T490 LNK-13-INT (278) • T490 LNK-BT-FT (287) • T490 LNK-INT50-FT (286)
• T490 LNK-M-13 (277) • T490 SM-13 (284) • T490 SM-13FT (284)

HELITANG T490 LINE

T490 LNAR-P

Tangentially Clamped Precision Ground Inserts with a Super Positive Rake for Machining Aluminum



Designation	Dimensions W1	L	APMX	RE	S	IC07	Recommended Machining Data a_p (mm)	f_z (mm/t)
T490 LNAR 0804PN-R-P	4.25	8.60	8.00	0.40	7.50	●	1.00-5.00	0.08-0.15
T490 LNAR 1306PN-R-P	6.65	13.81	12.50	0.80	13.00	●	4.00-12.00	0.08-0.20
T490 LNAR 1306PNR-P-RD (1)	6.65	13.75	12.50	0.80	13.05	●	4.00-12.00	0.10-0.20
T490 LNAR 1607PN-R-P	7.05	17.05	16.00	0.80	15.90	●	5.00-14.00	0.15-0.25

• For T490 ELN-13 on diameter 25 mm at a_p=5, f_z=0.15 at a_p=10, f_z=0.1 • For cutting speed recommendations, see pages 616-620

(1) Used for ramping down applications on aluminum with 32 mm and larger tools, see table below

For tools, see pages: T4..-SM Conical Shell Mills (288) • T490 CAP-13FT (285) • T490 ELN-08 (24) • T490 ELN-13 (41) • T490 ELN-M (25) • T490 ELN-MM-08 (25) • T490 FLN-08 (231) • T490 FLN-13 (244) • T490 FLN-16 (250) • T490 LNK-13 (277) • T490 LNK-13-BT (278) • T490 LNK-13-CF (278) • T490 LNK-13-INT (278) • T490 LNK-BT-FT (287) • T490 LNK-INT50-FT (286) • T490 LNK-M-13 (277) • T490 LNM-08 (276) • T490 LNM-M-08 (276) • T490 SM-08 (283) • T490 SM-13 (284) • T490 SM-13FT (284)

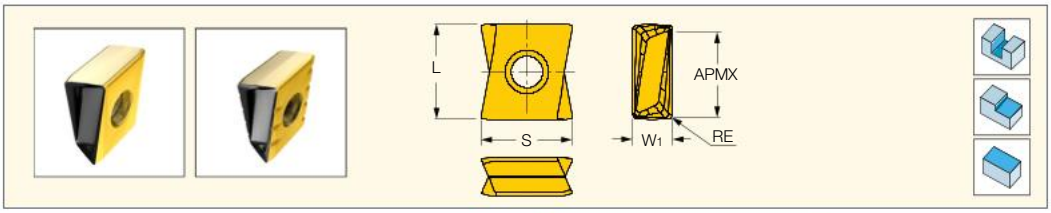
T490 LNAR 1306PNR-P-RD

Tool Diameter	a - Rampdown
32	2.8°
40	2.0°
50	1.5°
63	1.1°
80	0.9°
100	0.7°

HELITANG T490 LINE

T490 LNMT/LNHT 1607

Tangentially Clamped Inserts with 4 Helical Cutting Edges



Designation	Dimensions W1	L	APMX	RE	S	Tough ↔ Hard IC330	IC830	IC808	IC810	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
T490 LNHT 160708PNR	7.00	17.05	16.00	0.80	15.90		●	●	●		5.00-15.00	0.10-0.20
T490 LNHT 160712PNR	7.00	17.05	16.00	1.20	15.83				●		5.00-15.00	0.10-0.20
T490 LNHT 160716PNR	7.00	17.05	16.00	1.60	15.70		●	●	●		5.00-15.00	0.10-0.20
T490 LNHT 160724PNR	7.00	17.05	16.00	2.40	15.40		●	●	●		5.00-15.00	0.10-0.20
T490 LNHT 160732PNR	7.00	17.05	16.00	3.20	15.10		●	●	●		5.00-15.00	0.10-0.20
T490 LNMT 1607PN-R	7.00	17.05	16.00	0.80	15.83	●	●	●	●	●	5.00-15.00	0.15-0.25
T490 LNMT 1607PN-R-CS (1)	7.00	17.05	16.00	0.80	15.83		●				5.00-15.00	0.15-0.25

• LNMT-utility inserts, LNHT-precision inserts • For cutting speed recommendations, see pages 616-620

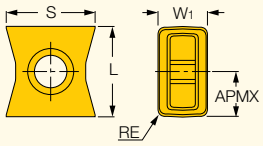
(1) Chip splitting insert

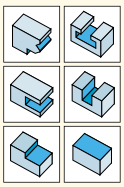
For tools, see pages: T490 FLN-16 (250)

TANGMILL TANGENTIAL LINE

LNKX/LNMT 1106

Tangentially Clamped Inserts with a Very Positive Chipformer and Reinforced Cutting Edge



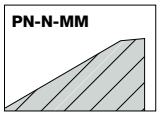


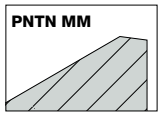
Designation	Dimensions W1	L	S	RE	APMX(1)	Tough ↔ Hard IC328	IC928	IC950	IC808	IC908	IC910	DT7150	IC5100	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNKX 1106PN-N MM	6.00	11.16	11.00	0.80	5.00	●	●	●			●	●		●	1.50-5.00	0.15-0.20
LNKX 1106PNTN MM	6.00	11.16	11.00	0.80	5.00		●				●			●	1.50-5.00	0.17-0.25
LNMT 1106PN-N MM	6.00	11.16	11.00	0.80	5.00	●	●		●	●	●	●	●		1.50-5.00	0.17-0.25

• Molded chipformer to produce positive cutting • Reduced cutting forces enable higher feed capability • LNKX... is peripherally ground for accuracy and improved surface finish • LNMT... is an economical utility insert • LNKX1106PNTN MM insert has a reinforced chamfered land • 4 R.H. and 4 L.H. cutting edges when used on F90LN... cutters • For cutting speed recommendations, see pages 616-620

(1) DOC when the insert is on the cutter

For tools, see pages: F90LN-N11 (240) • FDN-CALN11 (397) • SDN-CALN11 (407)

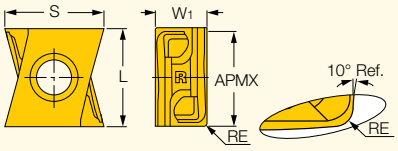


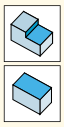


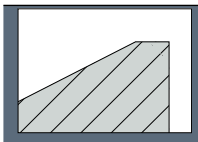
TANGMILL TANGENTIAL LINE

LNHT 1106 PN-R HT

Tangentially Clamped Inserts with 4 Straight Right-Hand Cutting Edges







Designation	Dimensions W1	L	S	RE	APMX(1)	Tough ↔ Hard IC928	IC908	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNHT 1106PN-R HT	5.97	11.16	11.00	0.80	10.00	●	●	●	2.00-7.00	0.15-0.25

• Right-hand insert with 4 cutting edges • Can machine a 90° shoulder according to the table below • For cutting speed recommendations, see pages 616-620

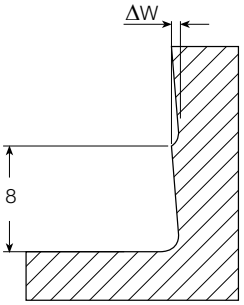
(1) APMX=10 mm for cast iron applications (for each pass), APMX=8 mm for steel applications

For tools, see pages: F90LN-N11 (240) • FDN-CALN11 (397) • SDN-CALN11 (407)

Mismatch as a function of tool diameter

LNHT 11..
Δh=8

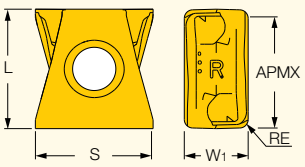
Dtool	ΔW
40	0.12
50	0.06
63	0.03
80	0.04
100	0.01
125	0.02

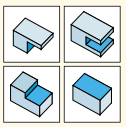


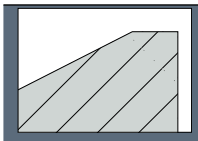
TANGMILL TANGENTIAL LINE

LNHT 1106 PN-N HT

Tangentially Clamped Inserts with Straight, Right- and Left-Hand Cutting Edges







Designation	Dimensions W1	L	S	RE	APMX(1)	Tough ↔ Hard IC928	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNHT 1106PN-N HT	5.97	11.16	11.00	0.80	10.00	●	●	2.00-7.00	0.15-0.25

• 2 right- and 2 left-hand cutting edges • Can machine 90° shoulders, see table below • For cutting speed recommendations, see pages 616-620

(1) APMX=10 mm for cast iron applications (for each pass), APMX=8 mm for steel applications

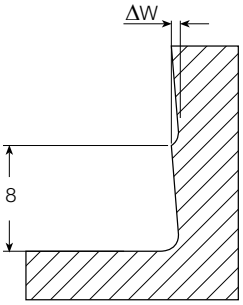
For tools, see pages: F90LN-N11 (240) • FDN-CALN11 (397) • SDN-CALN11 (407)

Mismatch as a function of tool diameter

LNHT 11..

Δh=8

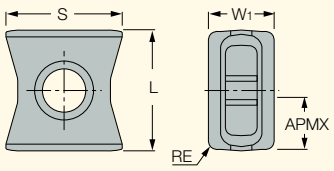
Dtool	ΔW
40	0.12
50	0.06
63	0.03
80	0.04
100	0.01
125	0.02

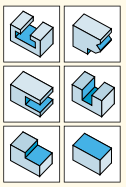


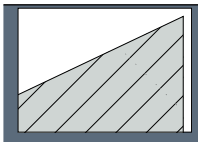
TANGMILL TANGENTIAL LINE

LNAR 1106

Tangentially Clamped Inserts with Positive Polished Rake







Designation	Dimensions W1	L	S	RE	APMX(1)	Tough ↔ Hard IC07	IC907	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAR 1106 PN-N	6.00	11.16	10.72	0.50	5.00		●	1.50-5.00	0.15-0.20
LNAR 1106 PN-N-P	6.00	11.16	10.72	0.50	5.00	●		1.50-5.00	0.15-0.20

• Polished rake and sharp cutting edge • Recommended for machining high silicon and cast aluminum, titanium and magnesium

• 4 R.H. and 4 L.H. cutting edges • For cutting speed recommendations, see pages 616-620

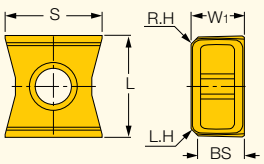
(1) D.O.C. when the insert is on the cutter

For tools, see pages: F90LN-N11 (240) • FDN-CALN11 (397) • SDN-CALN11 (407)

TANGMILL TANGENTIAL LINE

LNAT 1106-W

Tangentially Clamped Wiper Inserts



Designation	Dimensions W1	L	S	BS	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAT 1106PN-W (1)	5.97	11.38	10.94	4.90	●	0.50-2.00	0.10-0.15

• When feed per revolution is less than 4 mm it is recommended to use only one wiper insert. When feed per revolution is greater than 4 mm, it is recommended to use two wiper inserts. • For cutting speed recommendations, see pages 616-620

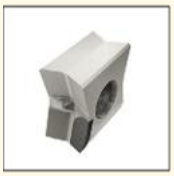
(1) Wiper insert with two right- and two left-hand cutting edges, for 90° lead angle in F90LN cutters.

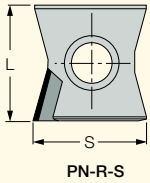
For tools, see pages: F90LN-N11 (240)

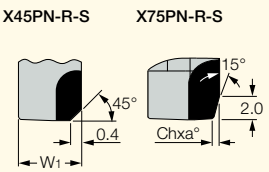
TANGMILL TANGENTIAL LINE

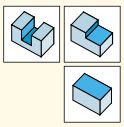
LNAR 1106 (PCD)

Tangentially Clamped Milling Inserts with a Brazed PCD Tip for Machining Aluminum

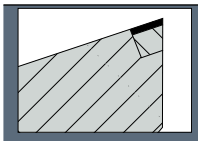








Single R.H. cutting edge PCD insert



Designation	Dimensions W1	L	S	RE	Ch	a°	APMX	Tough ↔ Hard ID8	ID5	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAR 110604PN-R-S	6.00	11.11	10.76	0.40	-	90	5.00	●	●	0.10-2.00	0.10-0.25
LNAR 110604X45PN-R-S	6.00	11.11	10.70	-	0.4	45	5.00	●	●	0.10-2.00	0.10-0.25
LNAR 110620X75PN-R-S	6.00	11.11	10.72	-	0.15	75	5.00		●	0.10-2.00	0.10-0.25

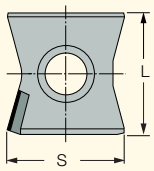
- The chamfered corner used for reduced chipping on the machined component edges
- Use ID5 for aluminum alloys with <12% silicon
- Use ID8 for aluminum alloys with >12% silicon
- The inserts are supplied with spare screws
- For D.O.C., cutting speed recommendations and grade data, see pages 616-620

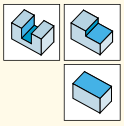
For tools, see pages: F90LN-N11 (240)

TANGMILL TANGENTIAL LINE

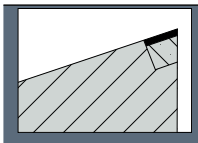
LNAR 1106PN-R-S-W (PCD)

Tangentially Clamped Wiper Milling Inserts with a Brazed PCD Tip for Machining Aluminum





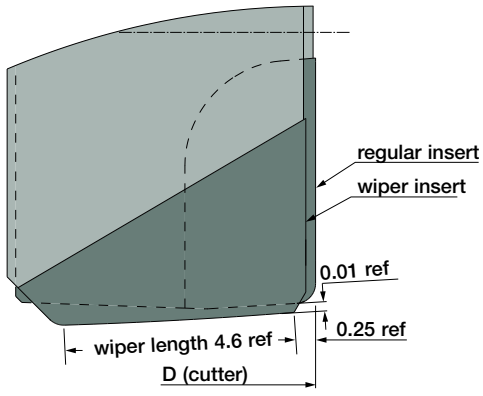
A single R.H. cutting edge PCD insert



Designation	Dimensions W1	L	S	ID5	Recommended Machining Data f_z (mm/t)
LNAR 1106PN-R-S-W	5.98	11.26	10.75	●	0.10-0.25

- The chamfered corner is used for reduced chipping on the machined component edges.
- The wiper insert should not be used with LNAR 110620x75PN-R-S inserts
- For D.O.C., cutting speed recommendations and grade data, see pages 616-620

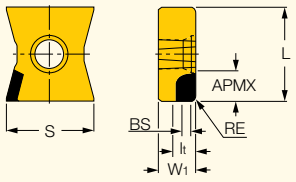
For tools, see pages: F90LN-N11 (240)

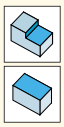


TANGMILL TANGENTIAL LINE

LNAW-11 (CBN)

Tangentially Clamped Inserts with a PCBN Brazed Tip for Machining Hard Materials





Single R.H. cutting edge insert

Designation	Dimensions W1	S	RE	L	APMX	BS	lt	IB85	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAW 1106PNTR-S	6.00	11.80	0.80	11.17	5.00	1.20	2.8	●	0.05-2.00	0.10-0.25
LNAW 1106PN-R-S	6.00	11.90	0.80	11.17	5.00	1.20	2.8	●	0.05-2.00	0.10-0.25

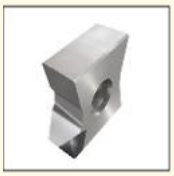
- LNAW PN-R.. is 0.03 mm edge-honed for finishing applications, while the LNAW PNTR... has a chamfered edge for rough milling applications.
- The inserts are supplied with spare screws.

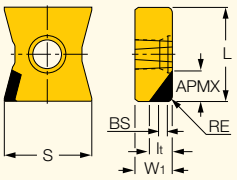
For tools, see pages: F90LN-N11 (240)

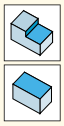
TANGMILL TANGENTIAL LINE

LNAW-15 (CBN)

Tangentially Clamped Inserts with a PCBN Brazed Tip for Machining Hard Materials





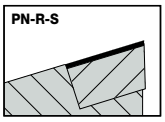


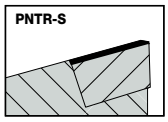
Single R.H. cutting edge insert

Designation	Dimensions W1	S	RE	L	APMX	BS	lt	IB85	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAW 1506PN-R-S	6.00	14.00	0.80	15.00	5.00	1.60	3.8	●	0.05-2.00	0.10-0.25
LNAW 1506PNTR-S	6.00	13.90	0.80	15.00	5.00	1.60	3.8	●	0.05-2.00	0.10-0.25

- LNAW PN-R.. is 0.03 mm edge-honed for finishing applications, while the LNAW PNTR... has a chamfered edge for rough milling applications.
- The inserts are supplied with spare screws.

For tools, see pages: F90LN-N15 (245) • SSB-LN15-R/L (410)

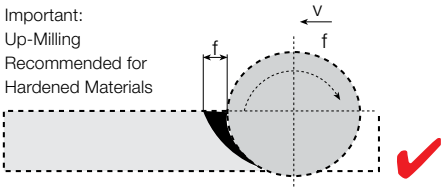




CBN Recommended Machining Conditions

	Grade		IB85		
	DOC mm	Material	V_c m/min	Feed mm/tooth	Cutting Edge
K	<0.5	Grey cast iron 200-280 HBN	500-1500	0.1-0.3	Chamfer Hone
	0.5-2.0		500-1100	0.1-0.25	Chamfer
	<0.5	CGI	400-600	0.1-0.2	Hone
S	0.5-2.0	Co based > 35 HRc Ni based > 35 HRc Fe based > 35 HRc Cr based > 35 HRc	150-200 120-150 60-120 50-75	0.05-0.15	Chamfer
H	<0.5	Hard steels > 45 HRc	80-180	0.1-0.25	Chamfer
	<2	Hard cast iron Ni hard	80-200	0.1-0.15	Chamfer
P	<2	Bearing steel	180-220	0.05-0.25	Chamfer
	<2	Ferrous powder metal	150-300	0.1-0.15	Chamfer

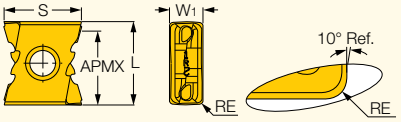
Important:
Up-Milling
Recommended for
Hardened Materials

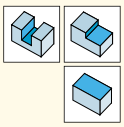


TANGMILL TANGENTIAL LINE

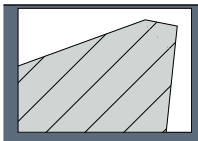
LNMT 1506PN-R-TS

Tangentially Clamped Inserts with a Serrated Cutting Edge for Chip Splitting





For R.H. tools



Designation	Dimensions W1	L	S	RE	APMX(1)	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNMT 1506PN-R TS	6.00	15.00	13.90	0.80	12.00	●	4.00-9.00	0.10-0.20

- Self balanced forces on rake face
- Used for long overhang and extended flute cutters, reduces chattering
- For cutting speed recommendations, see pages 616-620

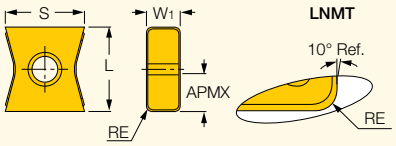
(1) apmax=8 mm for steel and 12 mm for cast iron

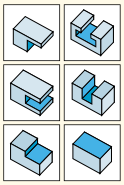
For tools, see pages: F90LN-N15 (245)

TANGMILL TANGENTIAL LINE

LNKX/LNMT 1506PNTN/PN-N MM

Tangentially Clamped Inserts with a Reinforced Negative Land for Unfavorable Conditions



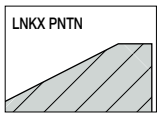


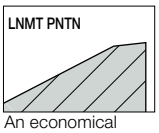
Designation	Dimensions W1	L	S	RE	APMX(1)	Tough ↔ Hard IC328	IC928	IC908	IC810	IC910	IC5400	DT7150	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNKX 1506PN-N MM	6.00	15.00	13.88	0.80	7.00	●	●	●			●			2.00-7.00	0.10-0.20
LNKX 1506PNTN	6.00	15.00	13.88	0.80	7.00				●	●			●	2.00-7.00	0.10-0.20
LNKX 150612-PNTN	6.00	15.00	13.88	1.20	7.00					●				2.00-7.00	0.10-0.20
LNMT 1506PN-N MM	6.00	15.00	13.95	0.80	7.00	●	●	●						2.00-7.00	0.10-0.20
LNMT 1506PNTN	6.00	15.00	13.95	0.80	7.00					●		●	●	2.00-7.00	0.10-0.20
LNMT 150616PN-N MM	6.00	15.00	13.95	1.60	7.00		●							2.00-7.00	0.10-0.20

- For cutting speed recommendations, see pages 616-620

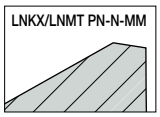
(1) D.O.C. when the insert is on the cutter.

For tools, see pages: F90LN-N15 (245) • FDN-CALN15 (400) • SDN-CALN15 (409) • SSB-LN15-R/L (410)





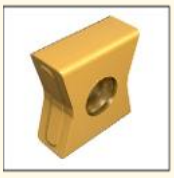
An economical class insert

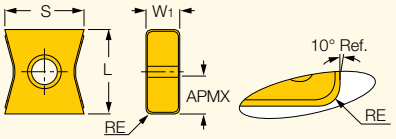


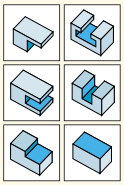
TANGMILL TANGENTIAL LINE

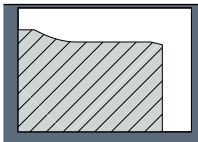
LNMW 1506 PNTN

Tangentially Clamped Insert for Machining Gray and Nodular Cast Iron









Designation	Dimensions W1	L	S	RE	APMX(1)	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNMW 1506 PNTN	6.00	15.00	13.98	0.80	7.00	●	2.00-7.00	0.20-0.30

- Flat rake, used for grey cast iron e.g. GG25 170-240 HBR
- For cutting speed recommendations, see pages 616-620

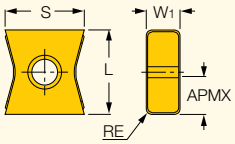
(1) DOC when the insert is on the cutter.

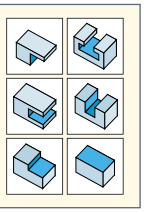
For tools, see pages: F90LN-N15 (245) • FDN-CALN15 (400) • SDN-CALN15 (409) • SSB-LN15-R/L (410)

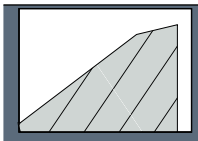
TANGMILL TANGENTIAL LINE

LNKX 1506PN-N PL

Tangentially Clamped Inserts with a Positive Land for Alloyed Steel, Stainless Steel and Cast Iron







Designation	Dimensions W1	L	S	RE	APMX(1)	Tough ↔ Hard IC328	IC928	IC908	IC910	DT7150	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNKX 1506PN-N PL	6.00	15.00	13.88	0.80	7.00	●	●	●	●	●	2.00-7.00	0.10-0.15

- Positive land (PL), leaves sharp edges without chipping on cast iron components • High shear rake for steel and stainless steel
- For cutting speed recommendations, see pages 616-620

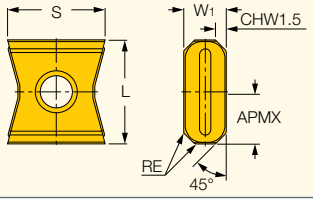
(1) D.O.C. when the insert is on the cutter.

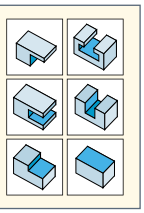
For tools, see pages: F90LN-N15 (245) • FDN-CALN15 (400) • SDN-CALN15 (409) • SSB-LN15-R/L (410)

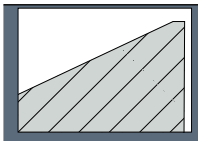
TANGMILL TANGENTIAL LINE

LNKX 1506 1.5X45 PN-N

Tangentially Clamped Chamfered Insert for 90° Cutters







Designation	Dimensions W1	L	S	RE	APMX	Tough ↔ Hard IC328	IC928	IC908	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNKX 1506 1.5X45PN-N	6.00	15.00	13.88	0.80	7.00	●	●	●	●	1.50-5.00	0.15-0.20

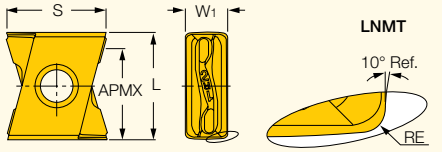
- A chamfered insert, used only on 90° cutters for smooth engagement • Chatter reduction and elimination of chipping on material edge during exit
- 4 R.H. and 4 L.H. cutting edges when used on F90LN.. cutters • For cutting speed recommendations, see pages 616-620

For tools, see pages: F90LN-N15 (245) • SSB-LN15-R/L (410)

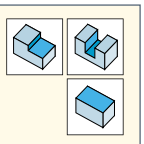
TANGMILL TANGENTIAL LINE

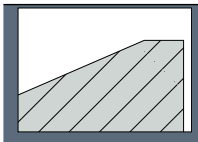
LNMT/LNHT 1506PN-R HT

Tangentially Clamped Inserts with 4 Straight Right-Hand Cutting Edges



The radius is not tangent to the cutting edge on the LNMT insert.





Designation	Dimensions W1	L	S	RE	APMX(1)	Tough ↔ Hard IC928	IC908	IC910	DT7150	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNHT 1506PN-R HT	6.00	15.00	13.94	0.80	12.00	●	●	●			3.00-12.00	0.15-0.25
LNMT 1506PN-R HT	6.00	15.00	13.93	0.80	12.00	●		●	●	●	3.00-12.00	0.15-0.20

- A right-hand insert, with 4 cutting edges, for high 90° shoulders • LNMT-utility inserts, LNHT-precision inserts • For cutting speed recommendations, see pages 616-620

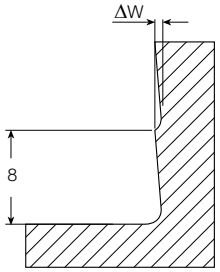
(1) APMX=9 mm for steel and 12 mm for cast iron

For tools, see pages: F90LN-N15 (245) • SSB-LN15-R/L (410)

Mismatch as a Function of Tool Diameter

LNMT 15..
Δh=8

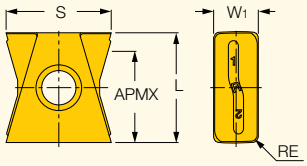
Cutting Dia.	ΔW
63	0.07
80	0.04
100	0.01
125	0.015



TANGMILL TANGENTIAL LINE

LNMT/LNHT 1506...-N HT

Tangentially Clamped Inserts with 4 Straight Cutting Edges: 2 L.H. and 2 R.H.



Designation	W1	L	S	RE	APMX[1]	Tough ↔ Hard IC928	Tough ↔ Hard IC910	Recommended Machining Data a_p (mm)	Recommended Machining Data f_z (mm/t)
LNMT 1506PN-N HT	6.00	15.00	14.03	0.80	14.00	●		3.00-12.00	0.15-0.25
LNMT 1506PNTN-HT	6.00	15.00	14.03	0.80	14.00		●	3.00-12.00	0.15-0.25
LNHT 1506PNTN HT	6.00	15.00	14.03	0.80	14.00		●	3.00-12.00	0.15-0.25

- A neutral insert, with 2 L.H. and 2 R.H. cutting edges • Can machine a 90° shoulder according to the table below
- For cutting speed recommendations, see pages 616-620

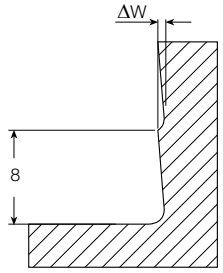
(1) APMX=9 mm for steel and 14 mm for cast iron

For tools, see pages: F90LN-N15 (245) • FDN-CALN15 (400) • SDN-CALN15 (409) • SSB-LN15-R/L (410)

Mismatch as a Function of Tool Diameter

LNMT 15..
Δh=8

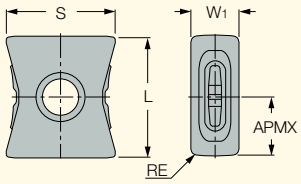
Cutting Dia.	ΔW
63	0.07
80	0.04
100	0.01
125	0.015

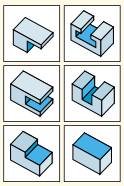


TANGMILL TANGENTIAL LINE

LNAR 1506

Tangentially Clamped Insert with a Positive Polished Land and Sharp Cutting Edge





Designation	W1	L	S	RE	APMX	IC07	Recommended Machining Data a_p (mm)	Recommended Machining Data f_z (mm/t)
LNAR 1506 PN-N-P	6.00	15.00	13.56	0.80	7.00	●	2.00-7.00	0.10-0.15

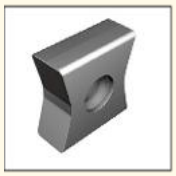
- Note: Do not use this insert on F86LNX tools • Recommended for machining high silicon aluminum, titanium and magnesium
- 4 R.H. and 4 L.H. cutting edges when used on F90LN.. cutters • For cutting speed recommendations, see pages 616-620

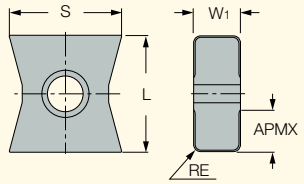
For tools, see pages: F90LN-N15 (245)

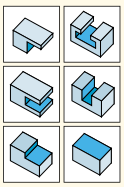
ISCAR CER LINE

LNHW 1506 PNTN (CER)

Tangentially Clamped Ceramic Insert for High Speed Machining of Gray and Nodular Cast Iron







Designation	Dimensions W1	L	S	RE	APMX(1)	Tough ↔ Hard IS8	IS26	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNHW 1506 PNTN	6.00	15.00	14.47	0.80	5.00	●	●	1.00-5.00	0.15-0.25

- Ceramic peripherally ground inserts for high speed machining of grey and nodular cast iron providing high surface finish
- Feature 4 L.H. and 4 R.H. cutting edges when used on F90LN.. cutters • For cutting speed recommendations, see pages 616-620

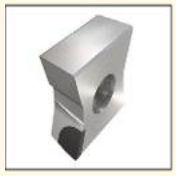
(1) D.O.C. when the insert is on the cutter

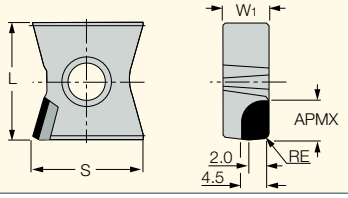
For tools, see pages: F90LN-N15 (245) • SSB-LN15-R/L (410)

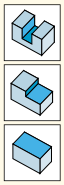
TANGMILL TANGENTIAL LINE

LNAR 1506 PN-R-S (PCD)

Tangentially Clamped Insert with a Brazed PCD Tip for Machining Aluminum







Designation	Dimensions W1	L	S	RE	APMX	Tough ↔ Hard ID8	ID5	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAR 150604PN-R-S	6.00	15.06	14.00	0.40	5.00	●	●	0.05-2.00	0.10-0.25

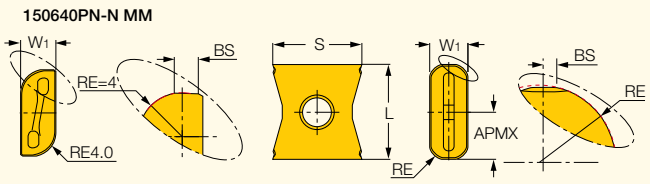
- The insert features a single R.H. cutting edge • Use ID5 for aluminum alloys with less than 12% silicon and ID8 for aluminum alloys with more than 12% silicon
- The inserts are supplied with spare screws • For D.O.C., cutting speed recommendations and grade data, see pages 616-620

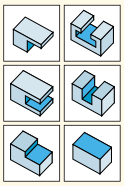
For tools, see pages: F90LN-N15 (245)

TANGMILL TANGENTIAL LINE

LNAT 1506..PN-N MM

Tangentially Clamped Precision Ground Inserts with Various Corner Radii for Corner Rounding





Designation	Dimensions W1	L	BS	S	RE	APMX	Tough ↔ Hard IC928	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAT 150616PN-N MM	6.00	15.00	1.39	13.88	1.60	7.00	●	●	4.00-8.00	0.08-0.15
LNAT 150625PN-N MM	6.00	15.00	0.60	13.88	2.50	7.00	●	●	4.00-8.00	0.08-0.15
LNAT 150632PN-N MM	6.00	15.00	0.53	13.88	3.20	7.00	●	●	4.00-8.00	0.08-0.15
LNAT 150640PN-N MM (1)	6.00	14.98	0.00	13.96	4.00	7.00	●		4.00-8.00	0.08-0.15

- Precision ground inserts • Various corner radii for square shoulder applications requiring larger corner radii • For cutting speed recommendations, see pages 616-620

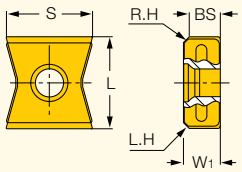
(1) Insert has 2 R.H. and 2 L.H. cutting edges.

For tools, see pages: F90LN-N15 (245) • SSB-LN15-R/L (410)

TANGMILL TANGENTIAL LINE

LNAT 1506-W

Tangentially Clamped Wiper Inserts



Designation	Dimensions W1	L	S	BS	Tough ↔ Hard IC908	IC910	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAT 1506PN-W	5.97	15.18	13.85	4.80	●	●	●	0.50-2.00	0.10-0.15

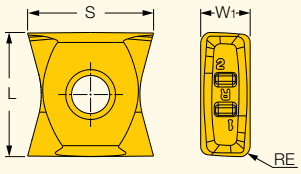
- Wiper insert with two right- and two left-hand wipers for 90° lead angle in F90LN cutters
- When feed per revolution is less than 4 mm, it is recommended to use only one wiper insert. For feed per revolution greater than 4 mm, use two wiper inserts
- For cutting speed recommendations, see pages 616-620

For tools, see pages: F90LN-N15 (245) • SSB-LN15-R/L (410)

TANGMILL TANGENTIAL LINE

LNAT 1506-PM

Tangentially Clamped Inserts with 4 Cutting Edges for Slotting Cutters



Designation	Dimensions W1	L	S	RE	Tough ↔ Hard IC830	IC810	Recommended Machining Data f_z (mm/t)
LNAT 150608-N-MM-PM	6.00	15.00	15.30	0.80	●		0.10-0.25
LNAT 150608-TN-PM	6.00	15.00	15.30	0.80	●		0.10-0.25
LNAT 150616-TN-PM	6.00	15.00	15.30	1.60	●	●	0.10-0.25
LNAT 150625-TN-PM	6.00	15.00	15.30	2.50	●	●	0.10-0.25
LNAT 150640-TN-PM	6.00	15.00	15.30	4.00	●		0.10-0.25

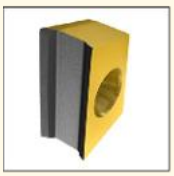
- For cutting speed recommendations, see pages 616-620

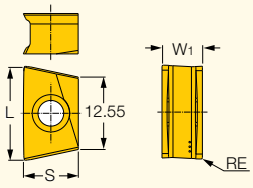
For tools, see pages: FDN-CAPM15 (399) • SDN-CAPM15 (408)

HELITANG

FIN LNAT 1607PN-R

Tangentially Clamped Peripherally Ground Inserts with 2 Positive Rake Cutting Edges for Finishing Applications





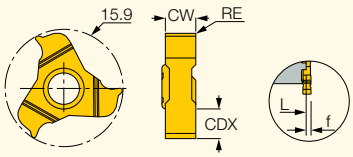
Designation	Dimensions W1	L	S	RE	Tough ↔ Hard IC830	IC808	Recommended Machining Data f_z (mm/t)
FIN LNAT 1607 PN-R	7.00	16.10	9.50	0.30	●	●	0.08-0.15

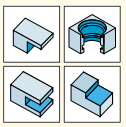
- For cutting speed recommendations, see pages 616-620

For tools, see pages: FIN LNK-BT (280) • FIN LNK-INT (280)

CHAMSLIT

TRI
Triple-Edged Groove Milling Inserts





Designation	Dimensions CW	CWTOL[1]	RE	CDX[2]	f	IC908	Recommended Machining Data f_z (mm/t)
TRI 16RK-1.2-0.05	1.20	0.020	0.05	4.60	0.50	●	0.02-0.08
TRI 16RK-1.4-0.1	1.40	0.020	0.10	4.80	0.50	●	0.02-0.10
TRI 16RK-1.5-0.1	1.50	0.020	0.10	4.80	0.50	●	0.03-0.12
TRI 16RK-1.7-0.1	1.70	0.020	0.10	4.80	0.50	●	0.03-0.12
TRI 16RK-1.95-0.15	1.95	0.020	0.15	4.80	0.50	●	0.04-0.15
TRI 16RK-2.0-0.2	2.00	0.020	0.20	4.80	0.50	●	0.04-0.15
TRI 16RK-2.25-0.15	2.25	0.020	0.15	4.80	0.75	●	0.04-0.15
TRI 16RK-2.75-0.15	2.75	0.020	0.15	4.80	1.39	●	0.04-0.20
TRI 16RK-3.0-0.2	3.00	0.020	0.20	4.80	1.39	●	0.04-0.20
TRI 16RK-3.25-0.15	3.25	0.020	0.15	4.80	1.39	●	0.04-0.20
TRI 16RK-4.0-0.2	4.00	0.020	0.20	4.80	2.43	●	0.05-0.25
TRI 16RK-4.25-0.15	4.25	0.020	0.15	4.80	0.95	●	0.05-0.25
TRI 16RK-5.0-0.2	5.00	0.020	0.20	4.80	2.15	●	0.05-0.30
TRI 16RK-5.25-0.15	5.25	0.020	0.15	4.80	2.15	●	0.05-0.30
TRI 16RK-6.0-0.2	6.00	0.020	0.20	4.80	3.15	●	0.05-0.30

• Inserts in width range of 6.0 to 6.5 mm can be supplied on request • For cutting speed recommendations, see pages 616-620

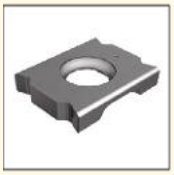
(1) Cutting width tolerance (+/-)

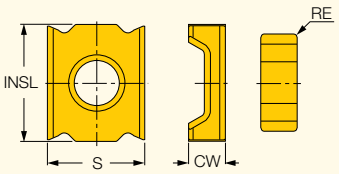
(2) Cutting depth maximum

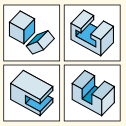
For tools, see pages: TRIB (377) • TRIB-SM (378)

MINI-TANGSLOT

LNET 08
Tangentially Clamped Inserts for Slotting and Grooving Cutters







Designation	Dimensions INSL	S	CW	RE	CEDC	Tough ↔ Hard IC928	IC910	Recommended Machining Data f_z (mm/t)
LNET 081808-TL (1)	8.40	6.85	1.80	0.80	2	●		0.08-0.12
LNET 081808-TR (2)	8.40	6.85	1.80	0.80	2	●		0.08-0.12
LNET 081804-TN-N	8.40	6.85	1.80	0.40	4	●	●	0.08-0.12
LNET 082604-TN-N	8.40	6.85	2.60	0.40	4	●	●	0.08-0.12
LNET 082608-TN-N	8.40	6.85	2.60	0.80	4	●		0.08-0.12
LNET 082804-TN-N	8.40	6.85	2.85	0.40	4	●		0.08-0.12
LNET 083004-TN-N	8.40	6.85	3.00	0.40	4	●	●	0.08-0.12
LNET 083008-TN-N	8.40	6.85	3.00	0.80	4	●		0.08-0.12
LNET 083204-TN-N	8.40	6.85	3.25	0.40	4	●		0.08-0.12
LNET 083504-TN-N	8.40	6.85	3.50	0.40	4	●	●	0.08-0.12
LNET 083508-TN-N	8.40	6.85	3.50	0.80	4	●		0.08-0.12
LNET 083704-TN-N	8.40	6.85	3.75	0.40	4	●		0.08-0.12
LNET 084004-TN-N	8.40	6.85	4.00	0.40	4	●		0.08-0.12
LNET 084008-TN-N	8.40	6.85	4.00	0.80	4	●		0.08-0.12
LNET 084204-TN-N	8.40	6.85	4.25	0.40	4	●		0.08-0.12
LNET 084504-TN-N	8.40	6.85	4.50	0.40	4	●	●	0.08-0.12

• For cutting speed recommendations, see pages 616-620

(1) Left hand insert

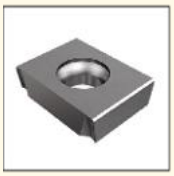
(2) Right hand insert

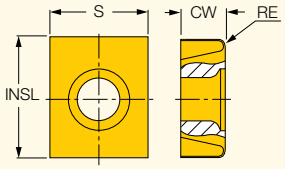
For tools, see pages: ETS-LN08 (382) • ETS-LN08-M (380) • ETS-LN08-MM (381) • FDN-LN08 (393) • SDN-LN08 (402)

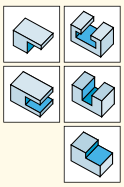
TANGSLOT

LNET 12-TN

Tangentially Clamped
Inserts with 4 Cutting Edges
for Slotting Cutters







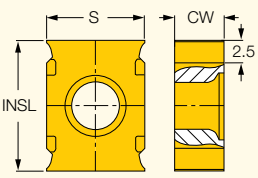
Designation	Dimensions CW	RE	S	INSL	Tough ↔ Hard IC328	IC928	IC910	Recommended Machining Data f_z (mm/t)
LNET 123504-TN	3.50	0.40	9.52	12.70	●	●	●	0.06-0.15
LNET 123508-TN	3.50	0.80	9.52	12.70		●	●	0.06-0.15
LNET 123516-TN	3.50	1.60	9.52	12.70		●		0.06-0.15
LNET 123520-TN	3.50	2.00	9.52	12.70		●		0.06-0.15
LNET 124004-TN	4.00	0.40	9.52	12.70		●	●	0.06-0.15
LNET 124008-TN	4.00	0.80	9.52	12.70		●	●	0.06-0.15
LNET 124016-TN	4.00	1.60	9.52	12.70		●		0.06-0.15
LNET 124020-TN	4.00	2.00	9.52	12.70		●		0.06-0.15
LNET 124504-TN	4.50	0.40	9.52	12.70	●	●	●	0.06-0.15
LNET 124508-TN	4.50	0.80	9.52	12.70	●	●	●	0.06-0.15
LNET 124516-TN	4.50	1.60	9.52	12.70		●		0.06-0.15
LNET 124520-TN	4.50	2.00	9.52	12.70		●		0.06-0.15
LNET 124804-TN	4.76	0.40	9.52	12.70	●	●	●	0.06-0.15
LNET 124808-TN	4.76	0.80	9.52	12.70		●		0.06-0.15
LNET 124816-TN	4.76	1.60	9.52	12.70		●		0.06-0.15
LNET 124820-TN	4.76	2.00	9.52	12.70		●		0.06-0.15
LNET 125004-TN	5.00	0.40	9.52	12.70		●	●	0.06-0.15
LNET 125008-TN	5.00	0.80	9.52	12.70		●	●	0.06-0.15
LNET 125016-TN	5.00	1.60	9.52	12.70		●		0.06-0.15
LNET 125020-TN	5.00	2.00	9.52	12.70		●		0.06-0.15
LNET 125504-TN	5.50	0.40	9.52	12.70		●	●	0.06-0.15
LNET 125508-TN	5.50	0.80	9.52	12.70		●	●	0.06-0.15
LNET 125516-TN	5.50	1.60	9.52	12.70	●	●	●	0.06-0.15
LNET 125520-TN	5.50	2.00	9.52	12.70		●		0.06-0.15
LNET 125708-TN	5.75	0.80	9.52	12.70		●	●	0.06-0.15
LNET 125716-TN	5.75	1.60	9.52	12.70		●		0.06-0.15
LNET 125720-TN	5.75	2.00	9.52	12.70		●		0.06-0.15
LNET 126504-TN	6.50	0.40	9.52	12.70			●	0.06-0.15
LNET 126508-TN	6.50	0.80	9.52	12.70			●	0.06-0.15
LNET 126516-TN	6.50	1.60	9.52	12.70		●		0.06-0.15
LNET 126520-TN	6.50	2.00	9.52	12.70		●		0.06-0.15
LNET 127704-TN	7.70	0.40	9.52	12.70			●	0.06-0.15
LNET 127708-TN	7.70	0.80	9.52	12.70			●	0.06-0.15
LNET 127716-TN	7.70	1.60	9.52	12.70		●		0.06-0.15
LNET 127720-TN	7.70	2.00	9.52	12.70		●		0.06-0.15

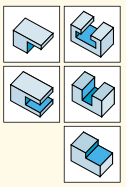
• For cutting speed recommendations, see pages 616-620

For tools, see pages: FDN-CALN12 (396) • FDN-LN12 (394) • SDN-CALN12 (404) • SDN-LN12 (403)

TANGSLOT

LNET 12-TN-MM
Tangentially Clamped Inserts with 4 Cutting Edges for Milling Deep and Long Slots on Steel





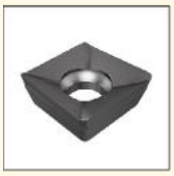
Designation	Dimensions CW	S	INSL	IC928	Recommended Machining Data f_z (mm/t)
LNET 123508-TN-MM	3.50	9.52	12.70	●	0.06-0.15
LNET 124008-TN-MM	4.00	9.52	12.70	●	0.06-0.15
LNET 124508-TN-MM	4.50	9.52	12.70	●	0.06-0.15
LNET 124808-TN-MM	4.77	9.52	12.70	●	0.06-0.15
LNET 125008-TN-MM	5.00	9.52	12.70	●	0.06-0.15
LNET 125508-TN-MM	5.50	9.52	12.70	●	0.06-0.15
LNET 126504-TN-MM	6.50	9.52	12.70	●	0.06-0.15
LNET 126508-TN-MM	6.50	9.52	12.70	●	0.06-0.15
LNET 127704-TN-MM	7.70	9.52	12.70	●	0.06-0.15
LNET 127708-TN-MM	7.70	9.52	12.70	●	0.06-0.15

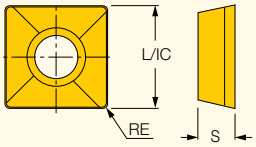
• Excellent chip evacuation • For cutting speed recommendations, see pages 616-620

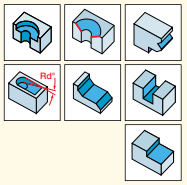
For tools, see pages: FDN-CALN12 (396) • FDN-LN12 (394) • SDN-CALN12 (404) • SDN-LN12 (403)

HELIQUAD

SOMT-HQ
Square Milling Inserts for General Use



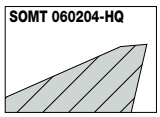


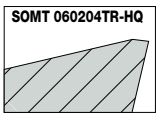


Designation	Dimensions L	S	RE	Tough ↔ Hard IC28	IC328	IC928	IC250	IC950	IC908	IC30N	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
SOMT 060204-HQ	6.16	2.56	0.40	●	●	●	●	●	●			0.80-5.80	0.07-0.10
SOMT 060204TR-HQ	6.16	2.56	0.40							●	●	0.80-5.80	0.08-0.12

• For cutting speed recommendations, see pages 616-620

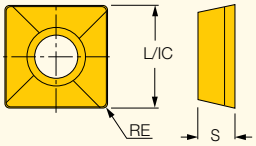
For tools, see pages: E45X (53) • E90X (20) • E90XC (50)

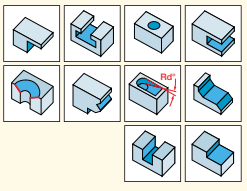




QUAD2000

QOMT-HQ
Insert with 4 Right- or Left-Hand Cutting Edges for General Use





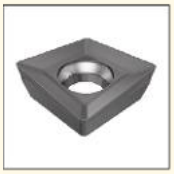
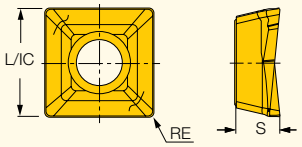
Designation	Dimensions L	S	RE	Tough ↔ Hard IC328	IC928	IC950	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
QOMT 060208TN-HQ	6.16	2.56	0.80	●	●	●	●	1.20-5.80	0.08-0.12

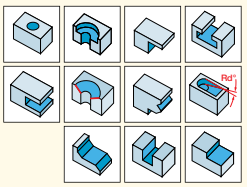
• For cutting speed recommendations, see pages 616-620

For tools, see pages: E45X (53) • E90X (20) • ETS (389) • FDN (390) • FDN-CF4 (395) • SDN (401)

HELIQUAD

XOMT-HQ
Square Inserts for Milling, Drilling and Boring with 2 Right- and 2 Left-Hand Cutting Edges for General Use

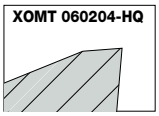



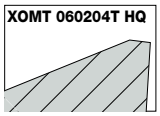


Designation	Dimensions L	S	RE	Tough ↔ Hard IC28	IC328	IC928	IC250	IC950	IC908	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
XOMT 060204-HQ	6.16	2.56	0.40	●	●	●	●	●	●		0.80-5.80	0.07-0.10
XOMT 060204T-HQ	6.16	2.56	0.40							●	0.80-5.80	0.10-0.15

• For cutting speed recommendations, see pages 616-620

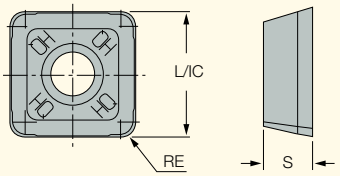
For tools, see pages: E45X (53) • E90X (20) • E90XC (50) • ETS (389) • FDN (390) • FDN-CF4 (395) • SDN (401)

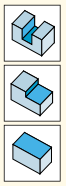




QUAD2000

QPMR 1004-HQ-M
Super Positive Square Milling Inserts for Machining Aluminum, Stainless Steel and High Temperature Alloys





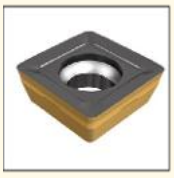
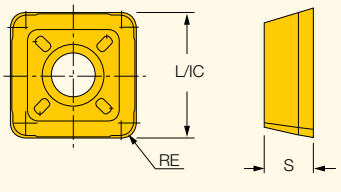
Designation	Dimensions L	S	RE	Tough ↔ Hard IC28	IC330	IC328	IC830	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
QPMR 100404PDN-HQ-M	10.35	4.48	0.40	●	●	●	●	●	0.80-9.60	0.08-0.15

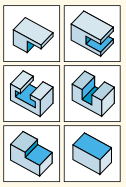
• Performs 90° Milling limited to a 2mm depth of cut • For cutting speed recommendations, see pages 616-620

For tools, see pages: E90SP (28) • F90SP-10 (234) • SPK (279)

QUAD2000

QPMT 100408PDTN
Neutral Insert with Reinforced Land for Slotting



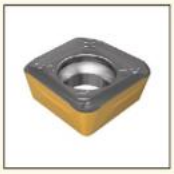
Designation	Dimensions L	S	RE	Tough ↔ Hard IC330	IC328	IC830	IC928	IC950	IC810	IC910	IC5400	IC5600	Recommended Machining Data a_p (mm)	f_z (mm/t)
QPMT 100408PDTN-M	10.35	4.12	0.70	●	●	●	●	●	●	●	●	●	1.10-9.60	0.08-0.15

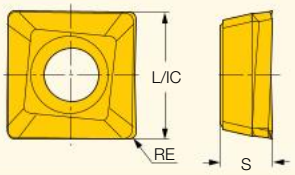
• For cutting speed recommendations, see pages 616-620

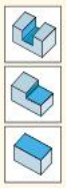
For tools, see pages: E90SP (28) • F90SP-10 (234) • FDN (390) • FST (409) • SDN (401) • SPK (279) • SSB (410)

HELIQUAD

SPMT-HQ
Square Positive Inserts for
Right-Hand Tools for General Use



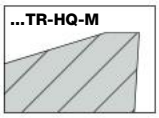


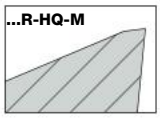


Designation	Dimensions L	S	RE	Tough ↔ Hard IC330	IC328	IC830	IC928	IC950	IC808	IC810	IC910	IC5400	IC5600	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
SPMT 100404R-HQ-M	10.20	4.23	0.40	●	●	●	●			●	●				0.80-9.60	0.08-0.20
SPMT 100408R-HQ-M	10.20	4.23	0.60	●	●	●	●	●		●	●				1.00-9.60	0.08-0.20
SPMT 100412R-HQ-M	10.20	4.23	1.20			●									1.60-9.60	0.08-0.20
SPMT 100416R-HQ-M	10.20	4.23	1.60		●	●									2.00-9.60	0.08-0.20
SPMT 100420R-HQ-M	10.20	4.23	2.00			●									2.40-9.60	0.08-0.20
SPMT 100408TR-HQ-M	10.20	4.23	0.80	●		●		●	●	●		●	●	●	1.20-9.60	0.08-0.20

• For cutting speed recommendations, see pages 616-620

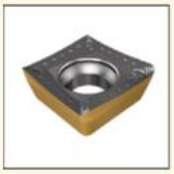
For tools, see pages: E90SP (28) • F90SP-10 (234) • SPK (279) • SSB (410)

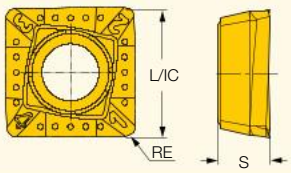


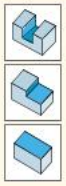


HELIQUAD

SPMT-HP
High Positive Inserts for
Machining Stainless Steel and
High Temperature Alloys







Designation	Dimensions L	S	RE	Tough ↔ Hard IC716	IC840	Recommended Machining Data a_p (mm)	f_z (mm/t)
SPMT 100408R-HP	10.20	4.23	0.80	●	●	1.20-9.60	0.08-0.20

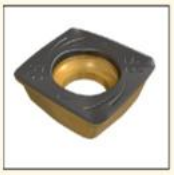
New

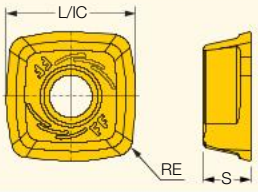
• For cutting speed recommendations, see pages 616-620

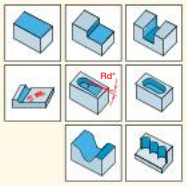
For tools, see pages: E90SP (28) • F90SP-10 (234) • SPK (279) • SSB (410)

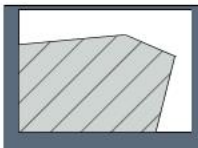
HELIQUAD

SPMT-FF
Insert with 4 Cutting Edges
for Fast Feed Milling









Designation	Dimensions L	S	RE	Rg(1)	Tough ↔ Hard IC808	IC5600	Recommended Machining Data f_z (mm/t)
SPMT 1004R15T-FF	6.00	3.56	1.50	2.00	●	●	0.10-1.40

New

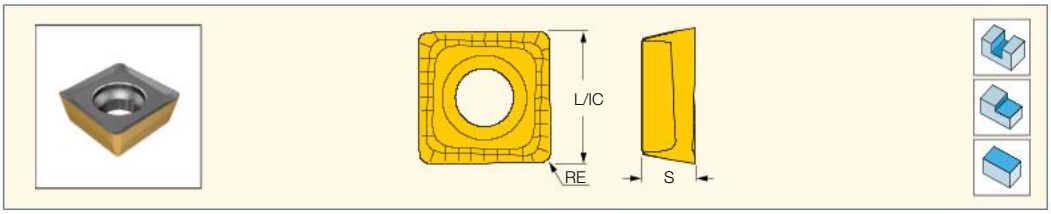
• For cutting speed recommendations, see pages 616-620

(1) Radius for programming

For tools, see pages: E90SP (28) • F90SP-10 (234)

HELIQUAD

SPCT/SPMR PDR
Precision Insert Used for Semi-Finishing and Finishing Applications



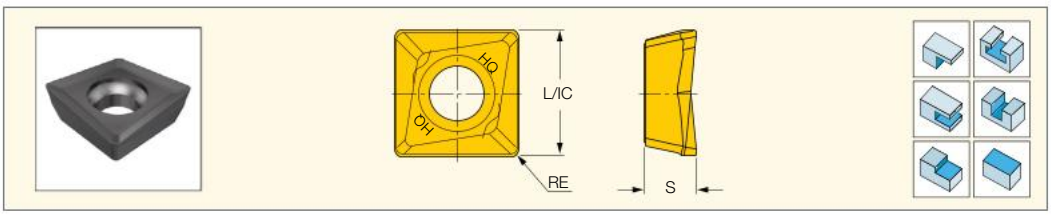
Designation	Dimensions L	S	RE	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
SPCT 100408PDR	10.20	4.13	0.80	●	1.20-9.60	0.08-0.12
SPMR 100408PDR	10.20	4.13	0.80	●	1.20-9.60	0.05-0.10

• For cutting speed recommendations, see pages 616-620

For tools, see pages: E90SP (28) • F90SP-10 (234) • SPK (279) • SSB (410)

HELIQUAD

XPMT-HQ
Insert with 2 Right- or Left-Hand Cutting Edges with Positive Land



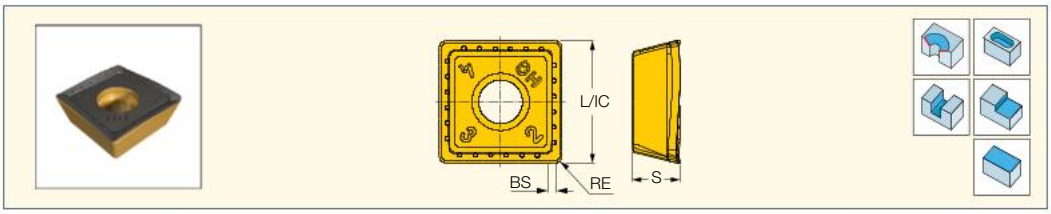
Designation	Dimensions L	S	RE	Tough ↔ Hard IC28	IC328	IC928	IC950	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
XPMT 100408-HQ	10.20	4.12	0.60	●	●	●	●	●	1.00-9.60	0.07-0.12

• For cutting speed recommendations, see pages 616-620

For tools, see pages: E90AC (50) • E90SP (28) • ETS (389) • F90SP-10 (234) • FDN (390) • FST (409) • SDN (401) • SPK (279) • SSB (410)

HELIQUAD

SDMT-PDR-HQ
General Use Inserts with Four Helical Cutting Edges for 90° Shoulder Milling



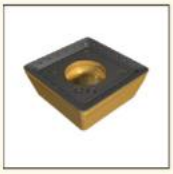
Designation	Dimensions L	S	RE	BS	Tough ↔ Hard IC28	IC330	IC328	IC845	IC830	IC928	IC5500	IC4050	IC950	IC808	IC908	IC810	IC910	IC5400	IC5600	Recommended Machining Data a_p (mm)	f_z (mm/t)
SDMT 1205PDR-HQ-HS	12.60	5.40	0.60	0.80					●											1.00-11.80	0.08-0.15
SDMT 1205PDR-HQ-M	12.70	5.00	0.80	1.60							●		●			●	●			1.20-11.80	0.08-0.15
SDMT 1205PDR-HQ-MM	12.70	5.00	0.80	0.80	●	●	●	●	●	●		●		●	●			●	●	1.20-11.80	0.07-0.20

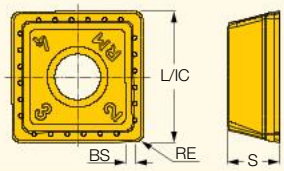
• For cutting speed recommendations, see pages 616-620

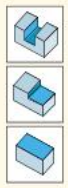
For tools, see pages: F90SD-12 (241) • SDK-12-C/HP (291)

HELIQUAD

SDMT-PDR-RM
Insert with Helical Cutting Edges for 90° Shoulder Milling







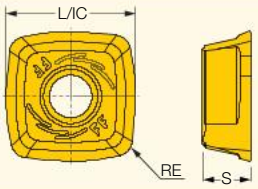
Designation	Dimensions L	S	RE	BS	Tough ↔ Hard IC328	IC830	IC928	IC808	IC910	IC5400	Recommended Machining Data a_p (mm)	f_z (mm/t)
SDMT 1205PDN-RM-M	12.70	5.00	0.80	1.60					●		1.20-11.80	0.08-0.15
SDMT 1205PDR-RM-MM	12.70	5.00	0.80	1.60	●	●	●	●		●	1.20-11.80	0.07-0.20
SDMT 120516PDR-RM-MM	12.70	5.00	1.60	0.80		●		●			2.00-11.80	0.07-0.20

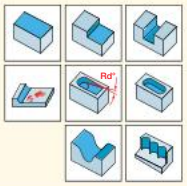
• For cutting speed recommendations, see pages 616-620

For tools, see pages: F90SD-12 (241) • SDK-12-C/HP (291)

HELIQUAD

SDMT-FF
Insert with 4 Cutting Edges for Fast Feed Milling





Designation	Dimensions L	S	RE	Rg(1)	Tough ↔ Hard IC808	IC5600	Recommended Machining Data f_z (mm/t)
SDMT 1205R16T-FF	13.70	5.10	1.60	2.60	●	●	0.10-1.40

New

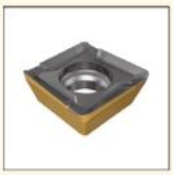
• For cutting speed recommendations, see pages 616-620

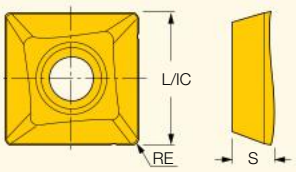
(1) Radius for programming

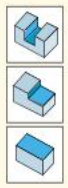
For tools, see pages: F90SD-12 (241)

HELIQUAD

SDMR-HQ
Super Positive Square Insert for Aluminum, Stainless Steel and High Temperature Alloys







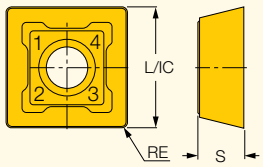
Designation	Dimensions L	S	RE	Tough ↔ Hard IC28	IC330	IC328	IC840	IC830	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
SDMR 1205PDR-HQ-M	12.70	5.10	1.00	●	●	●	●	●	●	1.40-11.80	0.07-0.12

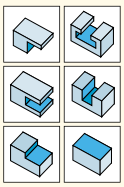
• For cutting speed recommendations, see pages 616-620

For tools, see pages: F90SD-12 (241)

HELiQUAD

QDCT-PDN
Precision Ground Neutral insert for General Use





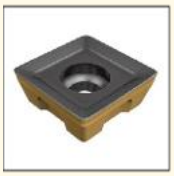
Designation	Dimensions L	S	RE	Tough ↔ Hard IC330	IC328	Recommended Machining Data a_p (mm)	f_z (mm/t)
QDCT 120508-PDN	12.70	4.92	0.80	•		1.20-11.80	0.08-0.12
QDCT 120516-PDN	12.70	4.92	1.60		•	2.00-11.80	0.08-0.12
QDCT 120524-PDN	12.70	4.92	2.40		•	2.80-11.80	0.08-0.12
QDCT 120532-PDN	12.70	4.92	3.20		•	3.60-11.80	0.08-0.12
QDCT 120508-PDN-F	12.70	4.92	0.80		•	1.20-11.80	0.08-0.12
QDCT 120516-PDN-F	12.70	4.92	1.60	•		2.00-11.80	0.08-0.12
QDCT 120524-PDN-F	12.70	4.92	2.40	•		2.80-11.80	0.08-0.12
QDCT 120532-PDN-F	12.70	4.92	3.20	•		3.60-11.80	0.08-0.12

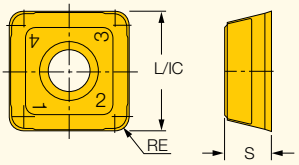
• Inserts with corner radii larger than 0.8 mm should be used only on the face of the SDK cutter • For cutting speed recommendations, see pages 616-620

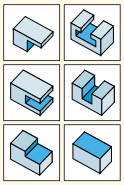
For tools, see pages: F90SD-12 (241) • FDN (390) • FST (409) • SDK-12-C/HP (291) • SDN (401) • SSB (410)

HELiQUAD

QDMT 1205..PDTN-M
Neutral Inserts for Slotting







Designation	Dimensions L	S	RE	Tough ↔ Hard IC330	IC328	IC830	IC928	IC950	IC808	IC908	IC810	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
QDMT 1205PDTN-M	12.70	5.00	0.80	•	•	•	•		•	•	•	•	1.20-11.80	0.07-0.20
QDMT 120516PDTN-M	12.70	5.00	1.60	•	•	•	•	•		•	•	•	2.00-11.80	0.07-0.20
QDMT 120520PDTN-M	12.70	5.00	2.00	•	•	•	•	•	•	•	•	•	2.40-11.80	0.07-0.20
QDMT 120524PDTN-M	12.70	5.00	2.40	•	•	•	•	•		•		•	2.80-11.80	0.07-0.20
QDMT 120532PDTN-M	12.70	5.00	3.20	•	•	•	•			•	•	•	3.60-11.80	0.07-0.20

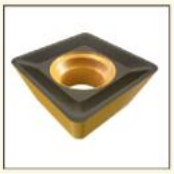
• Inserts with corner radii larger than 0.8 mm should be used only on the face of the SDK cutter • For cutting speed recommendations, see pages 616-620

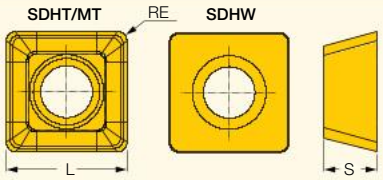
For tools, see pages: F90SD-12 (241) • FDN (390) • FST (409) • SDK-12-C/HP (291) • SDN (401) • SSB (410)

XQUAD EXTENDED FLUTE

SDHT/HW/MT 1004

Square Inserts for General Use Applications Carried On SDK Extended Flute Cutters.



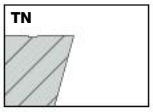


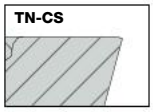
Designation	Dimensions L	S	RE	Tough ↔ Hard IC882	IC328	IC716	IC5820	IC380	Recommended Machining Data f_z (mm/t)
SDMT 100408-PDEN (1)	10.00	4.50	0.80		●				0.08-0.15
SDHT 100408-PDEN (2)	10.00	4.50	0.80	●			●		0.05-0.10
SDHW 100408-TN (3)	10.00	4.50	0.80	●		●	●	●	0.05-0.12
SDHW 100408-TN-CS (4)	10.00	4.50	0.80				●		0.05-0.12
SDHW 100440-TN	10.00	4.50	4.00				●		0.05-0.12

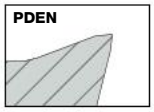
- For cutting speed recommendations, see pages 616-620

(1) First choice for machining steels
(2) First choice for machining stainless steel
(3) First choice for machining titanium
(4) Chip splitting cutting edge

For tools, see pages: SDK-10-C/HP (290)



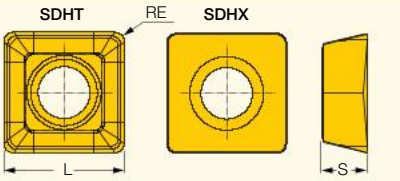




XQUAD EXTENDED FLUTE

SDHT/X 120508

Square Inserts for Machining Titanium, High Temperature Alloys and Stainless Steel

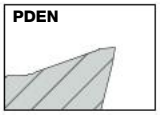


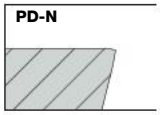
Designation	Dimensions L	S	RE	Tough ↔ Hard IC882	IC716	IC5820	Recommended Machining Data f_z (mm/t)
SDHT 120508-PDEN (1)	12.70	4.90	0.80			●	0.05-0.15
SDHX 120508-PD-N (2)	12.70	4.94	0.80	●	●	●	0.05-0.15

- For cutting speed recommendations, see pages 616-620

(1) First choice for machining stainless steel
(2) First choice for machining titanium

For tools, see pages: SDK-12-C/HP (291)

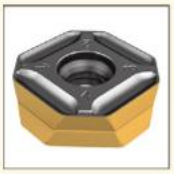


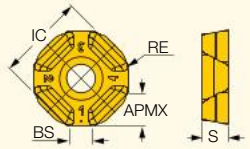


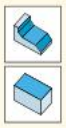
DOVEIQMILL 845 LINE

IQ845 SYHU-05

Square Inserts with 8 Cutting Edges







Designation	Dimensions APMX	BS	RE	IC	S	Tough ↔ Hard IC330	IC830	IC808	IC810	IC5400	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
IQ845 SYHU 0503ADN-ML (1)	2.60	2.00	0.80	8.30	3.00	●	●					0.10-2.60	0.08-0.25
IQ845 SYHU 0503ADN-MM (2)	2.60	2.00	0.80	8.30	3.00		●	●		●		0.10-2.60	0.08-0.25
IQ845 SYHU 0503ADTN (3)	2.60	2.00	0.80	8.30	3.00				●		●	0.10-2.60	0.08-0.25

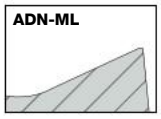
• For cutting recommendations, see pages 616-620

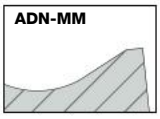
(1) For soft non-alloy and low-alloy steel

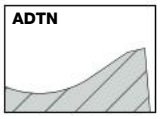
(2) For general applications

(3) For cast iron

For tools, see pages: IQ845 ESY-R05 (257) • IQ845 FSY-R05 (258)



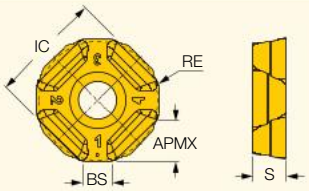


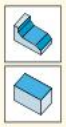


DOVEIQMILL 845 LINE

IQ845 SYHU-07

Square Inserts with 8 Cutting Edges





Designation	Dimensions APMX	BS	RE	IC	S	Tough ↔ Hard IC882	IC28	IC330	IC840	IC830	IC5500	IC808	IC810	IC5400	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
IQ845 SYHU 0704ADN (1)	4.60	3.40	0.80	13.80	4.20			●	●	●	●					1.00-4.00	0.10-0.20
IQ845 SYHU 070400ADN (1)	4.60	3.40	-	13.80	4.20					●						0.20-2.00	0.10-0.20
IQ845 SYHU 070400AD	4.60	3.40	-	13.80	4.20	●										0.20-2.00	0.10-0.20
IQ845 SYHU 0704ADN-MM (2)	4.60	3.40	0.80	13.80	4.20					●		●		●		1.00-4.00	0.15-0.30
IQ845 SYHU 070400N-MM (2)	4.60	3.40	-	13.80	4.20					●						0.20-2.00	0.15-0.30
IQ845 SYHU 0704ADTN (3)	4.60	3.40	0.80	13.80	4.20								●		●	1.00-4.00	0.15-0.30
IQ845 SYHU 070400ADTN (3)	4.60	3.40	-	13.80	4.20								●		●	0.20-2.00	0.15-0.30
IQ845 SYHU 0704ADN-P (4)	4.60	3.40	0.80	13.80	4.20		●									1.00-4.00	0.10-0.25

• For cutting recommendations, see pages 616-620

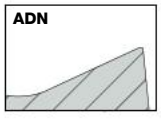
(1) For stainless steel and high temperature alloys

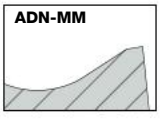
(2) For general applications

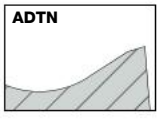
(3) For cast iron

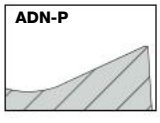
(4) For aluminum

For tools, see pages: IQ845 FSY-C#-R07 (264) • IQ845 FSY-R07 (264)



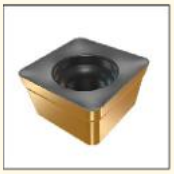


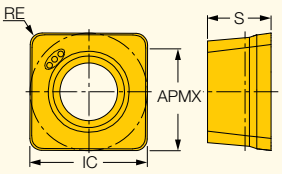




HELI4MILL

SOMT/CT 0402
Square Milling Inserts
for General Use

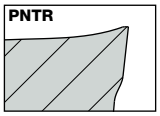


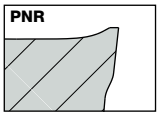


Designation	Dimensions APMX	RE	IC	S	Tough ↔ Hard IC830	IC808	IC810	Recommended Machining Data a_p (mm)	f_z (mm/t)
SOCT 040204 PNR	3.50	0.40	4.07	2.20	●	●		0.50-3.50	0.04-0.10
SOMT 040204 PNTR	3.50	0.40	4.07	2.20	●	●	●	0.50-3.50	0.04-0.10
SOMT 040208 PNTR	3.50	0.80	4.07	2.20		●		1.10-3.50	0.04-0.10
SOMT 040212 PNTR	3.50	1.20	4.07	2.20		●		1.50-3.50	0.04-0.10

• For cutting speed recommendations, see pages 616-620 • For left or right hand machining

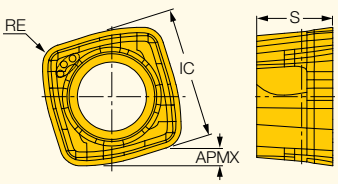
For tools, see pages: E90SO-04 (13) • E90SO-MM-04 (13)

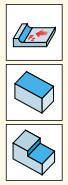


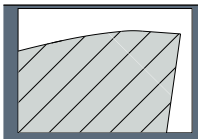


HELI4MILL

SOMT 0402-FF
Square Milling Inserts
for Fast Feed Milling







Designation	Dimensions IC	APMX	RE	Rg[1]	S	Tough ↔ Hard IC830	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
SOMT 040208 PNR-FF	4.08	0.50	0.80	1.10	2.20	●	●	0.10-0.50	0.10-0.50

• For cutting speed recommendations, see pages 616-620

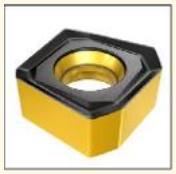
[1] Radius for programming

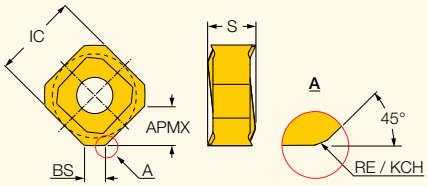
For tools, see pages: E90SO-04 (13) • E90SO-MM-04 (13)

HELIDO 800 LINE

S845 SNMU/SNHU-13

Double-Sided Square Inserts with 8 Cutting Edges





Designation	Dimensions IC	APMX	S	BS	RE	KCH	Tough ↔ Hard IC330	IC830	IC5500	IC808	IC810	IC5400	DT7150	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
S845 SNMU 1305ANTR (1)	13.00	6.00	6.20	3.00	0.80	-					●		●	●	2.00-6.00	0.20-0.40
S845 SNMU 1305ANR-MM	13.00	6.00	6.20	3.00	0.80	-	●	●		●		●			2.00-6.00	0.20-0.40
S845 SNMU 1305ANR-RM	13.00	6.00	6.12	3.00	1.20	-					●				2.00-6.00	0.20-0.40
S845 SNHU 1305ANTR (1)	13.00	6.00	6.20	3.00	0.80	-					●				2.00-6.00	0.15-0.30
S845 SNHU 1305ANR-MM	13.00	6.00	6.20	3.00	0.80	-	●	●	●	●		●			2.00-6.00	0.15-0.30
S845 SNHU 1305ANR-PL (2)	13.00	6.00	6.00	2.20	-	45.0 (3)	●	●							2.00-6.00	0.15-0.30

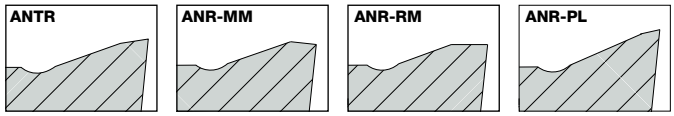
• S845 SNHU - Precision ground • S845 SNMU - Utility • For cutting speed recommendations, see pages 616-620

(1) For cast iron

(2) For high temperature alloys and stainless steel

(3) See drawing A

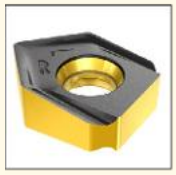
For tools, see pages: FF SOF (355) • SOE45 8/16 (52) • SOF45 (260)

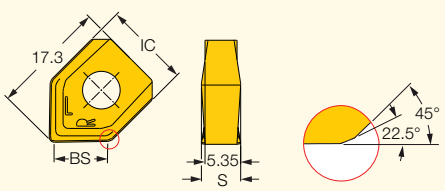


HELIDO 800 LINE

S845 SNHU 1305-W

Double-Sided Wiper Inserts with 4 Cutting Edges





Designation	Dimensions IC	S	BS	Tough ↔ Hard IC808	IC810	Recommended Machining Data a_p (mm)	f_z (mm/t)
S845 SNHU 1305AN-N-W	13.00	5.90	8.10	●	●	0.80-3.00	0.10-0.20

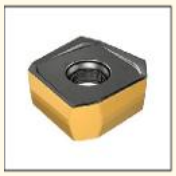
• Wiper insert with 4 cutting edges: 2 right- and 2 left-hand to be used with S845 SNMU/SNHU 13.. inserts • For cutting speed recommendations, see pages 616-620

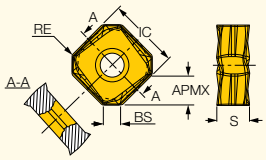
For tools, see pages: SOE45 8/16 (52) • SOF45 (260)

HELIDO 845 LINE

S845 SXMU/SXCU-16

Square Thick Inserts with 8 Helical Right-Hand Cutting Edges

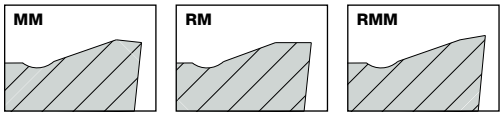




Designation	Dimensions L	S	BS	RE	APMX	Tough ↔ Hard IC330	IC328	IC830	IC928	IC808	IC908	IC810	IC910	IC5400	DT7150	IC5100	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
S845 SXMU 1606ADTR-MM	16.35	7.45	2.84	0.80	7.15		●	●	●	●	●	●	●	●	●	●	●	3.00-7.00	0.30-0.50
S845 SXMU 1606ADTR-RM	16.35	7.45	2.84	0.80	7.15							●			●			3.00-7.00	0.30-0.50
S845 SXCU 160608AD-RMM	16.35	7.45	2.84	0.80	7.15	●		●		●								3.00-7.00	0.20-0.35

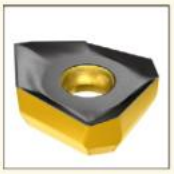
• When a wiper insert is being used, recommended a_p=0.8-3.0 mm, f_z=0.1-0.25 mm/t . • For cutting speed recommendations, see pages 616-620

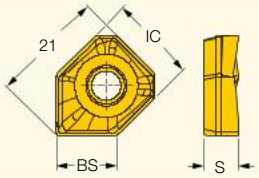
For tools, see pages: S845 F45SX-16 (265)

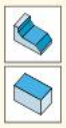


HELIDO 845 LINE

S845 SXHU 1606-W
HELI-DO Wiper Insert with a Single Cutting Edge







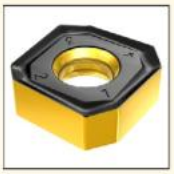
Designation	Dimensions IC	S	BS	APMX	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
S845 SXHU 1606AD-R-W	16.20	6.44	10.00	3.00	●	0.80-3.00	0.20-0.35

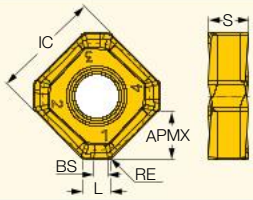
• When a wiper insert is being used, recommended a_p=0.8-3.0 mm, f_z=0.1-0.25 mm/t • For cutting speed recommendations, see pages 616-620

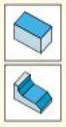
For tools, see pages: S845 F45SX-16 (265)

HELIDO 800 HD LINE

S845 SNMU/SNHU 1806
Square Inserts with 8 Helical Right-Hand Cutting Edges



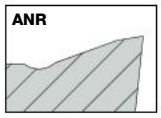


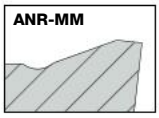


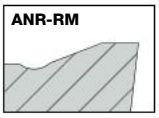
Designation	Dimensions IC	BS	CW	RE	APMX	S	Tough ↔ Hard IC330	IC845	IC830	IC808	IC810	IC5400	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
S845 SNMU 1806ANR	18.80	2.40	3.50	1.00	8.00	7.00					●			1.50-8.00	0.15-0.30
S845 SNMU 1806ANR-MM	18.80	2.40	3.50	1.00	8.00	7.00	●	●	●	●		●		1.50-8.00	0.15-0.30
S845 SNMU 1806ANR-RM	18.80	2.30	3.50	1.60	8.00	7.00					●		●	1.50-8.00	0.20-0.40
S845 SNHU 1806ANR	18.80	2.40	3.50	1.00	8.00	7.00					●		●	1.50-8.00	0.15-0.30
S845 SNHU 1806ANR-MM	18.80	2.40	3.50	1.00	8.00	7.00			●					1.50-8.00	0.15-0.30
S845 SNMU 1806ANR-HP	18.00	2.40	3.50	1.00	8.00	7.00	●		●					1.50-8.00	0.15-0.30

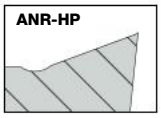
• For cutting speed recommendations, see pages 616-620

For tools, see pages: SOF45-R18 (267)



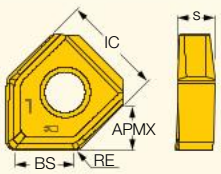






HELIDO 845 LINE

S845 SNHU 1806AN-N-W
Wiper Insert with 2 R.H. and 2 L.H. Cutting Edges



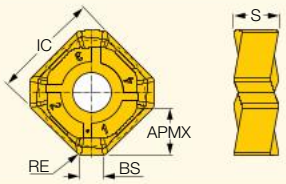
Designation	Dimensions IC	S	BS	APMX	IC810	Recommended Machining Data a_p (mm)	f_z (mm/t)
S845 SNHU 1806AN-N-W	18.80	7.00	10.00	8.00	●	0.50-2.00	0.10-0.25

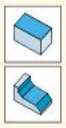
For tools, see pages: SOF45-R18 (267)

HELIDO 800 HD LINE

S845 SNMU 2608

Heavy Duty Thick Square Inserts with 8 Helical Right-Hand Cutting Edges

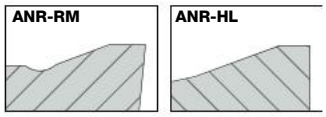




Designation	Dimensions IC	BS	RE	APMX	S	Tough ↔ Hard IC830	IC808	IC810	IC5400	Recommended Machining Data a_p (mm)	f_z (mm/t)
S845 SNMU 2608ANR-HL	26.30	2.60	1.60	11.00	10.90			●		2.00-11.00	0.25-0.40
S845 SNMU 2608ANR-RM	26.30	2.60	1.60	11.00	10.90	●	●		●	2.00-11.00	0.25-0.40

- For cutting speed recommendations, see pages 616-620

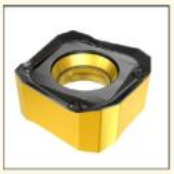
For tools, see pages: SOF45-26 (266) • SOF45WG-R26 (266)

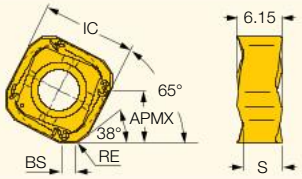


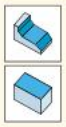
HELIDO 865 LINE

S865 SNMU 1305ZNTR

Double-Sided Square Inserts with 8 Cutting Edges



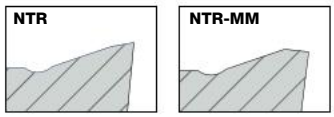




Designation	Dimensions L	S	APMX	BS	RE	Tough ↔ Hard IC330	IC830	IC808	IC810	IC5400	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
S865 SNMU 1305ZNTR	13.00	5.50	8.00	2.00	0.50				●		●	2.00-6.00	0.15-0.25
S865 SNMU 1305ZNTR-MM	13.00	5.50	8.00	2.00	0.50	●	●	●	●	●		2.00-6.00	0.15-0.25

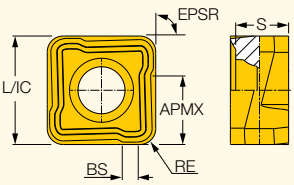
- Recommended a_p max on steel applications with coarse pitch cutters and cast iron with fine pitch cutters may be increased by up to 8 mm
- For cutting speed recommendations, see pages 616-620

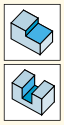
For tools, see pages: S865 FSN-13 (255)



NEODO S90° LINE

S890 SZMU-0804PN
Double-Sided Square Inserts
with 8 Cutting Edges

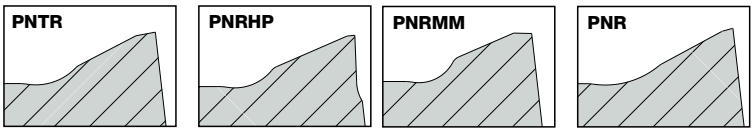




Designation	Dimensions IC	S	APMX	BS	RE	EPSR	Tough ↔ Hard IC882	IC845	IC830	IC808	IC810	IC5400	IC5600	IC5100	Recommended Machining Data f_z (mm/t)
S890 SZMU 080408PNTR	8.20	4.00	5.00	1.60	0.80	88.4					●			●	0.10-0.25
S890 SZMU 080412PNTR	8.20	4.00	5.00	1.20	1.20	88.4					●			●	0.12-0.25
S890 SZMU 080408PNRMM	8.20	4.00	5.00	1.60	0.80	88.4			●	●			●		0.08-0.20
S890 SZMU 080412PNRMM	8.20	4.00	5.00	1.20	1.20	88.4		●	●	●		●	●		0.10-0.25
S890 SZMU 080408PNRHP	8.20	4.00	5.00	1.60	0.80	88.4			●						0.08-0.20
S890 SZHU 080408PNR	8.20	4.00	5.00	1.60	0.80	88.4	●								0.08-0.20

• For cutting speed recommendations, see pages 616-620

For tools, see pages: S890 ESZ-MMT15-R08 (19) • S890 ESZ-R08 (18) • S890 FSZ-R08 (228)



When stepdown milling is performed using passes, the depth of cut per pass should not exceed the depth of cut recommended in the ISCAR catalog.

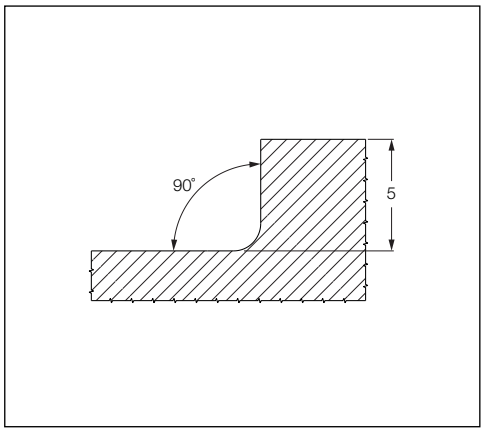


Fig. 1- Generated profile for a depth of cut of up to 5 mm

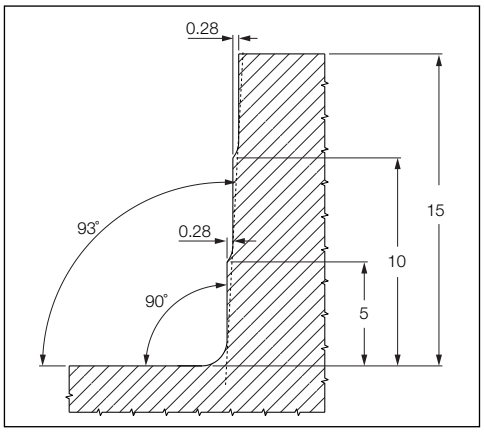
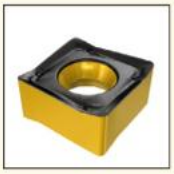


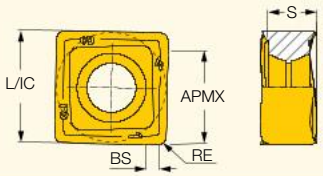
Fig. 2- Generated profile for a depth of cut in stepdown milling

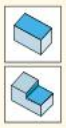
HELIDO 890 LINE

S890 SNMU 1305PN

Double-Sided Square Inserts
with 8 Cutting Edges





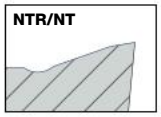


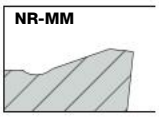
Designation	Dimensions IC	S	APMX	BS	RE[5]	Tough ↔ Hard IC330	IC830	IC808	IC810	IC5400	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
S890 SNMU 1305PNTR [1]	13.00	5.60	9.00	1.80	0.80	●	●	●	●	●	●	2.00-9.00	0.10-0.20
S890 SNMU 1305PNTN [2]	13.00	5.70	9.00	1.80	0.80			●	●			2.00-9.00	0.10-0.20
S890 SNMU 1305PNR-MM [3]	13.00	5.60	9.00	1.80	0.80		●	●			●	2.00-9.00	0.18-0.30
S890 SNHU 1305PN-R-W [4]	13.00	5.15	5.00	10.40	0.80				●			0.50-2.00	0.10-0.20

- For cutting speed recommendations, see pages 616-620

[1] General use, 8 right-hand cutting edges, for milling a variety of cast iron and steel workpiece materials.
[2] 8 neutral cutting edges, used for machining cast iron. Can be used for left-hand specially tailored milling cutters.
[3] 8 right-hand cutting edges, used mainly for milling steel (R.H. helix).
[4] Wiper insert with 4 right-hand cutting edges that provides substantially improved surface finish
[5] 1.2 & 2.0 corner radii - on request.

For tools, see pages: S890 FSN-13 (242) • S890 SSB-13 (410)

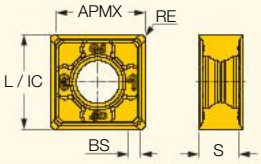


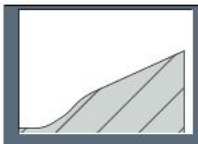


QUICKXFLUTE

S890 SNMU 1306HP

Double-Sided Square Inserts
with 8 Cutting Edges



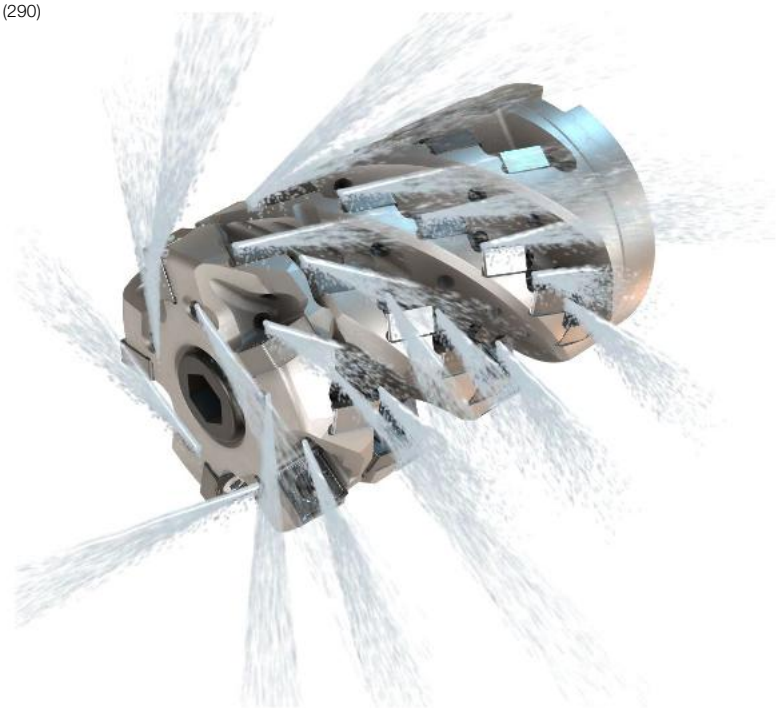


Designation	Dimensions IC	S	APMX	BS	RE	CEDC	Tough ↔ Hard IC882	IC716	IC840	IC830	IC5820	Recommended Machining Data a_p (mm)	f_z (mm/t)
S890 SNMU 130608HP	13.00	5.00	12.20	11.40	0.80	8	●	●	●	●	●	1.00-12.20	0.07-0.20
S890 SNMU 130632HP	13.00	5.00	12.20	9.00	3.20	4		●	●			3.40-12.20	0.07-0.20
S890 SNMU 130640HP	13.00	5.00	12.20	8.20	4.00	4		●	●			4.20-12.20	0.07-0.20

New

- For cutting speed recommendations, see pages 616-620

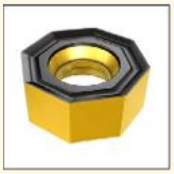
For tools, see pages: S890 SM (290)

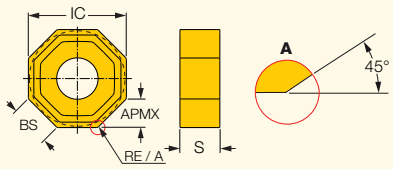


HELIDO 800 LINE

ONHU/ONMU-05

Octagonal Double-Sided Inserts with 16 Cutting Edges





Designation	Dimensions BS	IC	APMX	S	RE	Tough ↔ Hard IC330	IC830	IC808	IC810	IC5400	DT7150	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
ONHU 050500-PL (1)	4.50	13.00	3.50	5.08	-	●	●						1.50-3.00	0.15-0.20
ONHU 050500-R-HP	4.50	13.00	3.50	5.08	-		●						1.50-3.00	0.20-0.25
ONHU 050505-TN (2)	5.00	13.00	3.50	5.08	0.50	●	●	●	●				1.50-3.00	0.15-0.30
ONHU 050505-TN-MM (3)	5.00	13.00	3.50	5.08	0.50	●	●	●					1.50-3.00	0.20-0.30
ONMU 050505-TN (2)	5.00	13.00	3.50	5.08	0.50				●		●	●	1.50-3.00	0.20-0.30
ONMU 050505-TN-MM (3)	5.00	13.00	3.50	5.08	0.50	●	●	●		●			1.50-3.00	0.20-0.30

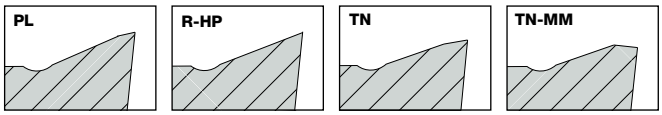
• ONHU - Precision ground • ONMU - Utility • For cutting speed recommendations, see pages 616-620

(1) For stainless steel and high temperature alloys

(2) For cast iron

(3) For general applications

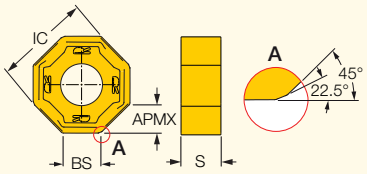
For tools, see pages: FF SOF (355) • SOE45 8/16 (52) • SOF45 (260)



HELIDO 800 LINE

ONHU 0505-W

Double-Sided Octagonal Wiper Inserts with 4 or 8 Cutting Edges



Designation	Dimensions IC	APMX	S	BS	Tough ↔ Hard IC808	IC810	Recommended Machining Data a_p (mm)	f_z (mm/t)
ONHU 0505AN-N-W (1)	13.00	2.00	4.90	4.70		●	0.50-2.00	0.15-0.30
ONHU 0505AN-R-W (2)	13.00	2.00	4.90	4.50	●	●	0.50-2.00	0.15-0.30

• To be used with ONMU/ONHU 05 inserts • For cutting speed recommendations, see pages 616-620

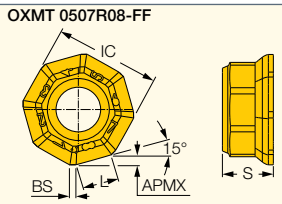
(1) Wiper insert with 4 right- and 4 left-hand cutting edges

(2) Wiper insert with 8 right-hand cutting edges

For tools, see pages: SOE45 8/16 (52) • SOF45 (260)

HELIDO 800 LINE

OXMT 0507
Octagonal High Feed 45° Inserts



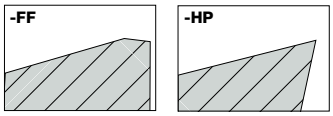
Designation	Dimensions APMX	IC	BS	S	L	Tough ↔ Hard IC830	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
OXMT 0507R08-FF (1)	1.20	14.50	0.80	7.00	5.00		•	0.50-1.20	0.50-1.80
OXMT 050705-R-HP (2)	2.70	15.10	1.24	7.00	4.30	•		0.50-2.50	0.12-0.30

• To be used without a seat • For cutting speed recommendations, see pages 616-620

(1) For high feed milling

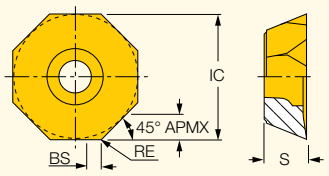
(2) 45° edge for austenitic stainless steel and high temperature alloys

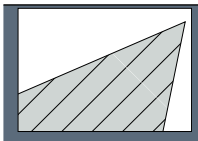
For tools, see pages: FF SOF (355) • SOE45 8/16 (52) • SOF45 (260)



HELIOCTO

OECR
Octagonal Milling Inserts with Positive Rake and Sharp Cutting Edges





Designation	Dimensions IC	APMX	BS	RE	S	Tough ↔ Hard IC28	IC830	IC928	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
OECR 060405AER	14.45	3.70	1.60	0.50	4.90				•	1.00-3.70	0.12-0.20
OECR 060405AER-P (1)	14.45	3.70	1.60	0.50	4.90	•	•	•		1.00-3.70	0.08-0.20

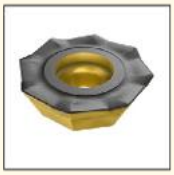
• For cutting speed recommendations, see pages 616-620

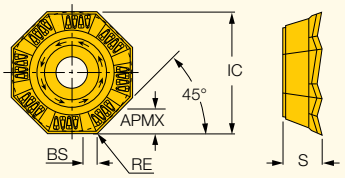
(1) Polished rake used for aluminum and titanium

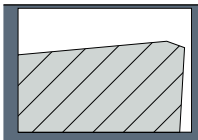
For tools, see pages: HOE-R06 (256) • HOF-R06 (256)

HELIOCTO

OEMT/OEKT 060405
Octagonal Milling Inserts for General Use







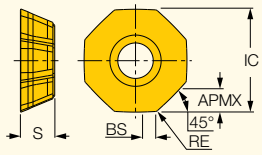
Designation	Dimensions IC	APMX	BS	RE	S	Tough ↔ Hard IC28	IC330	IC830	IC808	IC810	IC5400	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
OEMT 060405AER-76	14.27	2.50	1.60	0.50	4.74	•	•	•	•	•	•	•	1.00-2.45	0.15-0.25

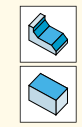
• For cutting speed recommendations, see pages 616-620

For tools, see pages: HOE-R06 (256) • HOF-R06 (256)

HELIOCTO

OEMW-AETN
Octagonal Flat Rake Inserts for Cast Iron





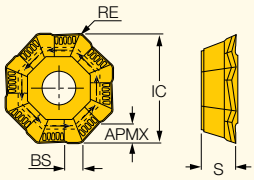
Designation	Dimensions IC	APMX	BS	RE	S	Tough ↔ Hard IC928	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
OEMW 060405-AETN	14.27	2.45	1.05	0.50	4.74	●	●	1.00-2.45	0.15-0.30

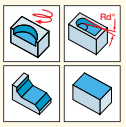
• For cutting speed recommendations, see pages 616-620

For tools, see pages: HOE-R06 (256) • HOF-R06 (256)

HELIOCTO

OFMT 07
Octagonal Milling Inserts for General Use





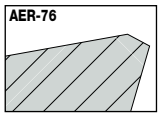
ECONOMICAL SOLUTION

Designation	Dimensions IC	APMX	BS	RE	S	Tough ↔ Hard IC28	IC330	IC328	IC830	IC928	IC5500	IC808	IC910	IC5400	Recommended Machining Data a_p (mm)	f_z (mm/t)
OFMT 07T3-AER-76	17.80	3.40	1.75	0.60	4.55	●	●		●						1.00-3.00	0.15-0.25
OFMT 07T3-AEN	18.07	3.90	1.60	0.60	4.54			●		●					1.00-3.00	0.15-0.25
OFMT 07T3-AETN (1)	18.07	3.90	1.75	1.00	4.54					●			●		1.00-3.00	0.20-0.35
OFMT 07T3-AEN-MS	18.05	4.00	1.60	0.80	4.55				●		●	●		●	1.00-3.00	0.10-0.30

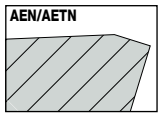
• For cutting speed recommendations, see pages 616-620

(1) Reinforced cutting edge

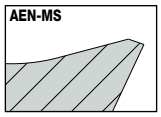
For tools, see pages: HOF-R07 (257)



For general use

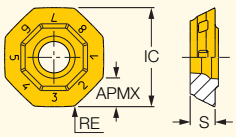


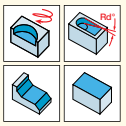
For general use
Reinforced cutting edge



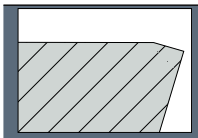
HELIOCTO

OFMW-AETN
Octagonal Milling Inserts for Heavy Duty Applications





ECONOMICAL SOLUTION



Designation	Dimensions IC	APMX	RE	S	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
OFMW 07T3-AETN	18.07	4.00	1.00	4.54	●	1.00-3.00	0.20-0.35

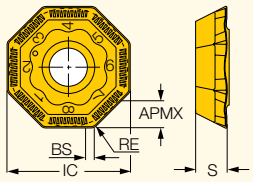
• For cutting speed recommendations, see pages 616-620

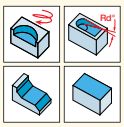
For tools, see pages: HOF-R07 (257)

HELIOCTO

OFCR/OFCT-AEN/AETN

Octagonal Milling Inserts with Positive Rake and Sharp Cutting Edges





ECONOMICAL SOLUTION

Designation	Dimensions IC	APMX	BS	RE	S	Tough ↔ Hard IC882	IC28	IC928	IC380	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
OFCR 07T3-AEN (1)	17.80	4.60	1.60	0.60	4.35	●		●	●	●	1.00-3.00	0.10-0.20
OFCR 07T3-AEN-P (2)	17.80	4.60	1.60	0.60	4.35		●				1.00-3.00	0.10-0.20
OFCT 07T3 AETN-16 (3)	18.00	4.60	1.60	1.00	4.50					●	1.00-3.00	0.15-0.25

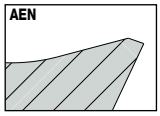
- For cutting speed recommendations, see pages 616-620

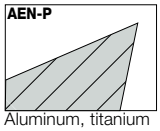
(1) For aluminum, titanium and stainless steel

(2) For aluminum, titanium and stainless steel, polished rake.

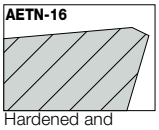
(3) For hardened and molded steel.

For tools, see pages: HOF-R07 (257)





Aluminum, titanium and stainless steel

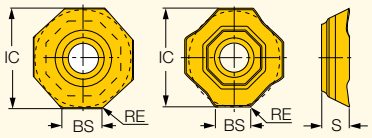


Hardened and molded steel

HELIOCTO

OFCR/OFCT-RW/AER (wiper)

Octagonal Milling Inserts with Four Wiper Cutting Edges



OFCT 07T3-RW-16
OFCR 07T3-RW-P

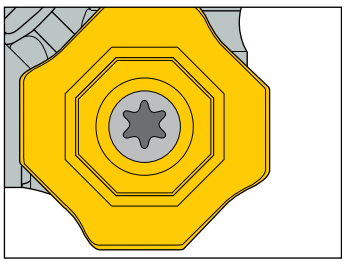
OFCT 07T3-AER

Designation	Dimensions IC	BS	S	RE	Tough ↔ Hard IC28	IC328	IC908	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
OFCT 07T3-RW-16	18.35	7.00	4.50	0.80			●		0.50-1.00	0.10-0.15
OFCR 07T3-RW-P	18.45	6.80	4.58	0.60	●				0.50-1.00	0.10-0.15
OFCT 07T3-AER	18.90	7.20	5.30	1.60		●		●	0.50-1.00	0.10-0.15

- For cutting speed recommendations, see pages 616-620

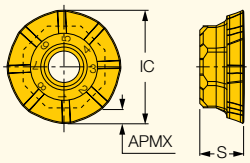
For tools, see pages: HOF-R07 (257)

A single wiper insert mounted on the HOF D..R07 cutter does the required job.
The wiper insert protrudes less than 0.1 mm axially. Wiper inserts have only 4 cutting edges.
There are 4 marks engraved on the wiper inserts. Pay attention when mounting the insert in the pocket that the marked cutting edges are parallel to the bottom of the cutter (see sketch).
Maximum depth of cut when using the wiper insert is 2.5 mm. It is recommended to use wiper inserts in a_p=0.5-1.0 mm to achieve the best results. The criterion for indexing the wiper insert should be the decreased quallity of the surface finish.
Recommended machining conditions for finishing operations:
V_c (finishing)= V_c (roughing) x 1.25 m/min f_z=0.10-0.15 mm/t



HELIOCTO

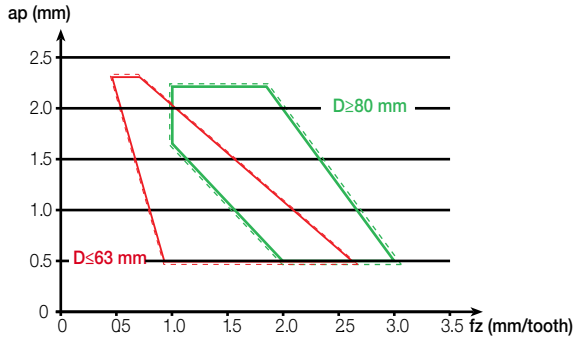
OFMW-FF
Inserts with 8 FEED-MILL Large Radii Segmented Cutting Edges for Fast Feed on HELI-OCTO Cutters



Designation	Dimensions APMX	IC	S	Tough ↔ Hard IC928	IC908	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
OFMW 0706R10-FF	2.20	20.40	8.00	●	●	●	1.00-2.20	0.40-1.50

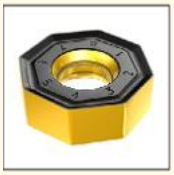
• To be used without a seat • For cutting speed recommendations, see pages 616-620

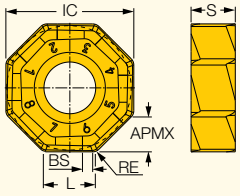
For tools, see pages: HOF-R07 (257)

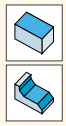


HELIDO 800 LINE

ONMU/ONHU 0706
Double-Sided Octagonal Inserts with 16 Cutting Edges







Designation	Dimensions IC	BS	L	APMX	S	RE	Tough ↔ Hard IC330	IC845	IC830	IC808	IC810	IC5400	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
ONHU 070600-PL-R	18.80	1.30	7.00	5.00	6.50	0.00			●					1.50-5.00	0.15-0.30
ONHU 070610-TL (1)	18.80	1.50	7.00	5.00	6.50	1.00					●			1.50-5.00	0.15-0.30
ONHU 070610-TR (2)	18.80	1.50	7.00	5.00	6.50	1.00					●		●	1.50-5.00	0.15-0.30
ONHU 070610-TR-MM	18.80	1.50	7.00	5.00	6.50	1.00			●					1.50-5.00	0.15-0.30
ONMU 070610 AR-HP	18.80	1.00	7.00	5.00	6.80	1.00	●		●					1.50-5.00	0.15-0.30
ONMU 070610-TR (2)	18.80	1.50	7.00	5.00	6.50	1.00					●		●	1.50-5.00	0.15-0.30
ONMU 070610-TR-MM	18.80	1.50	7.00	5.00	6.50	1.00	●	●	●	●		●		1.50-5.00	0.15-0.30
ONMU 070616-RM (3)	18.80	1.20	7.00	5.00	6.50	1.60					●		●	1.50-5.00	0.15-0.40

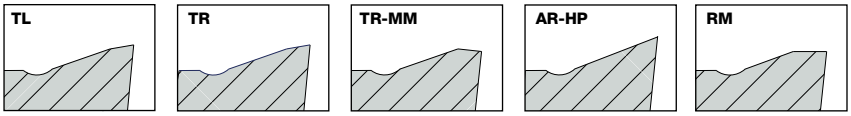
• For cutting speed recommendations, see pages 616-620

(1) For cast iron (left-hand)

(2) For cast iron

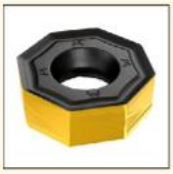
(3) Reinforced land for heavy machining

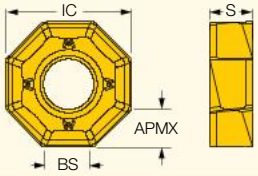
For tools, see pages: SOF45-R18 (267)



HELIDO 845 LINE

ONHU 0706AN-R-W
Double-Sided Octagonal Wiper Inserts with 8 Right-Hand Cutting Edges





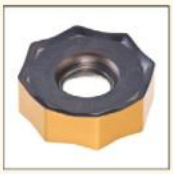
Designation	Dimensions IC	S	BS	APMX	IC810	Recommended Machining Data a_p (mm)	f_z (mm/t)
ONHU 0706AN-R-W	18.80	6.50	6.80	5.00	●	0.50-2.00	0.10-0.20

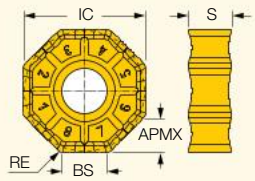
• Note : this insert is not intended to be mounted on a cutter carrying inserts ONHU 070600-PL-R • For cutting speed recommendations, see pages 616-620

For tools, see pages: SOF45-R18 (267)

HELIDO 800 HD LINE

ONMU 1008
Double-Sided Heavy Duty Octagonal Inserts with 16 Cutting Edges

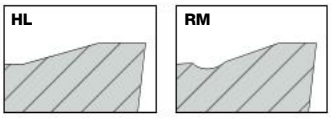




Designation	Dimensions IC	BS	APMX	S	RE	Tough ↔ Hard IC830	IC808	IC810	IC5400	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
ONMU 100816-N-HL	26.30	9.60	7.00	9.30	1.60			●		●	2.00-7.00	0.25-0.40
ONMU 100816-N-RM	26.30	9.60	7.00	9.30	1.60	●	●		●		2.00-7.00	0.25-0.40

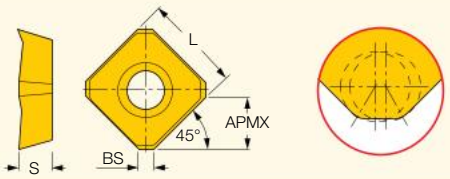
• For cutting speed recommendations, see pages 616-620

For tools, see pages: SOF45-26 (266) • SOF45WG-R26 (266)



ISCARMILL

SEKT-AF-R
Super Positive Square Milling Inserts for 45° Finishing and Medium Machining Soft Materials



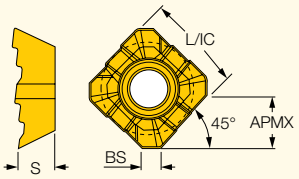
Designation	Dimensions S	BS	APMX	L	Tough ↔ Hard IC28	IC328	IC928	IC250	IC950	IC30N	IC520M	Recommended Machining Data a_p (mm)	f_z (mm/t)
SEKT 1204AFR-HM	5.16	2.16	6.40	12.90	●	●	●	●	●	●	●	2.00-6.00	0.10-0.15

• For cutting speed recommendations, see pages 616-620

For tools, see pages: F45ST (263)

ISOSHRED

SEMT 1204AF-R-HS
Square Milling Inserts with a Chip Splitting Serrated Cutting Edge for 45° Roughing



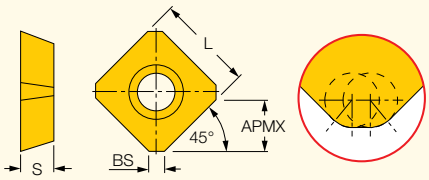
Designation	Dimensions L	S	BS	APMX	Tough ↔ Hard IC328	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
SEMT 1204AF-R-HS	12.65	4.76	2.26	6.00	●	●	2.00-6.00	0.20-0.30

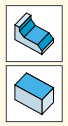
- For cutting speed recommendations, see pages 616-620

For tools, see pages: F45ST (263)

ISCARMILL

SEHW-AFTN
Precision Ground Sharp Cutting Edge Milling Inserts for General Use





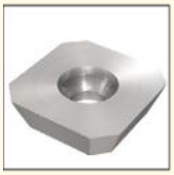
Designation	Dimensions L	S	BS	APMX	Tough ↔ Hard IC328	IC520M	Recommended Machining Data a_p (mm)	f_z (mm/t)
SEHW 1204AFTN	12.70	4.76	2.20	6.50	●	●	2.00-6.00	0.12-0.20

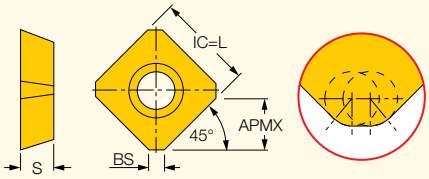
- For cutting speed recommendations, see pages 616-620

For tools, see pages: F45ST (263)

ISCARMILL

SEKT-AFTN
Square Screw-Clamped Inserts for Medium Machining





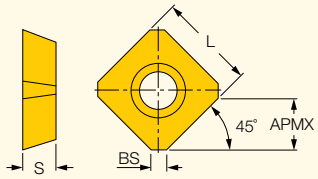
Designation	Dimensions L	S	BS	APMX	IC328	Recommended Machining Data a_p (mm)	f_z (mm/t)
SEKT 12T3AFTN	13.15	3.70	2.18	6.50	●	2.00-6.00	0.12-0.20

- For cutting speed recommendations, see pages 616-620

For tools, see pages: F45ST (263)

ISCARMILL

SEMT 12..AFTN-76
Milling Inserts with Ribs Along Edges for Heavy Machining



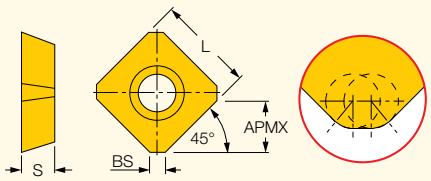
Designation	Dimensions L	S	BS	APMX	Tough ↔ Hard IC328	IC950	IC908	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
SEMT 1204AFTN-76	12.70	4.76	2.20	6.50	●	●			2.00-6.00	0.12-0.20
SEMT 12T3AFTN-76	13.15	3.70	2.20	6.50	●		●	●	2.00-6.00	0.12-0.20

• Use optional TSE 12T3-N seat on F45ST cutters • For cutting speed recommendations, see pages 616-620

For tools, see pages: F45ST (263)

ISCARMILL

SEHT-AFN
Precision Ground Sharp Cutting Edged General Use Milling Inserts for 45° Milling Cutters



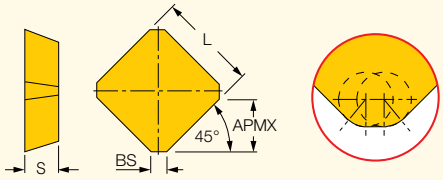
Designation	Dimensions L	S	BS	APMX	Tough ↔ Hard IC28	IC328	IC928	IC20	Recommended Machining Data a_p (mm)	f_z (mm/t)
SEHT 1204AFN	12.70	4.76	1.90	6.50	●	●	●		2.00-6.00	0.12-0.20
SEHT 1204AFN-P	12.70	4.76	1.90	6.50				●	2.00-6.00	0.12-0.20

• For cutting speed recommendations, see pages 616-620

For tools, see pages: F45ST (263)

ISCARMILL

SEKN-AF..
Flat Rake Face Milling Inserts for General Use



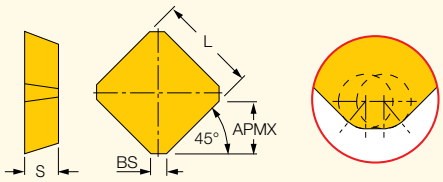
Designation	Dimensions L	S	BS	APMX	Tough ↔ Hard IC28	IC328	IC928	IC50M	IC250	IC950	IC30N	IC910	IC520M	IC20	Recommended Machining Data a_p (mm)	f_z (mm/t)
SEKN 1203AF-N	12.70	3.18	1.80	6.50		●									2.00-6.00	0.12-0.20
SEKN 1203AFFN	12.70	3.18	1.80	6.50	●									●	2.00-6.00	0.12-0.20
SEKN 1203AFTN	12.70	3.18	1.80	6.50		●	●	●	●	●	●	●	●		2.00-6.00	0.12-0.20
SEKN 1203AFTN-42	12.70	3.18	1.80	6.50		●				●		●			2.00-6.00	0.12-0.20
SEKN 1504AFTN	15.88	4.76	1.80	6.50		●									2.00-6.00	0.12-0.20

• For cutting speed recommendations, see pages 616-620

For tools, see pages: F45E (263)

ISCARMILL

SEKR-AF-N-42
Super Positive Square Milling Inserts for 45° Finishing and Medium Machining Soft Materials



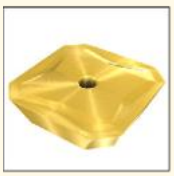
Designation	Dimensions L	S	BS	APMX	IC328	Recommended Machining Data a_p (mm)	f_z (mm/t)
SEKR 1203AF-N-42	12.70	3.18	1.80	6.50	●	2.00-6.00	0.10-0.15

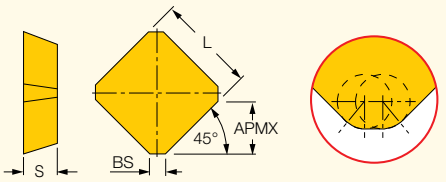
- For cutting speed recommendations, see pages 616-620

For tools, see pages: F45E (263)

ISCARMILL

SEKR-AF..-76
Square Milling Inserts with Ribs Along Edges for 45° Roughing Applications





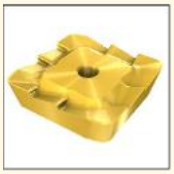
Designation	Dimensions L	S	BS	APMX	Tough ↔ Hard IC328	IC928	IC950	Recommended Machining Data a_p (mm)	f_z (mm/t)
SEKR 1203AFN-76	12.70	3.18	1.80	6.50	●	●	●	2.00-6.00	0.12-0.20
SEKR 1204AFN-76	12.70	4.76	1.80	6.22	●			2.00-6.00	0.08-0.15
SEKR 1504AFTN-76	15.88	4.76	1.80	8.43	●			2.00-6.00	0.12-0.17

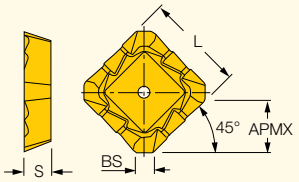
- For cutting speed recommendations, see pages 616-620

For tools, see pages: F45E (263)

ISCARMILL

SEKR-AFTR-HS
Square Milling Inserts with Chip Splitting Serrated Cutting Edge for 45° Roughing Applications





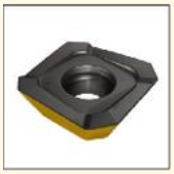
Designation	Dimensions L	S	BS	APMX	Tough ↔ Hard IC328	IC250	IC520M	Recommended Machining Data a_p (mm)	f_z (mm/t)
SEKR 1203AFTR-HS	12.70	3.18	1.80	6.50	●	●	●	2.00-6.00	0.15-0.25
SEKR 1204AFTR-HS	12.63	4.76	1.80	6.27	●			2.00-6.00	0.15-0.25
SEKR 1504AFTR-HS	15.88	4.76	1.80	8.30	●			2.00-6.00	0.15-0.25

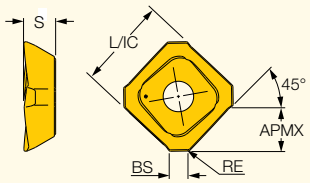
- For cutting speed recommendations, see pages 616-620

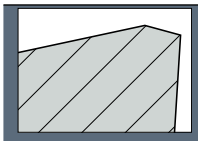
For tools, see pages: F45E (263)

HELIOCTO

SECT/SEMT 1404
Positive Square Inserts for
General Soft and Clean Cutting







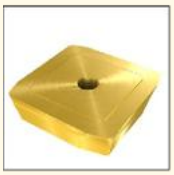
Designation	Dimensions L	S	BS	APMX	RE	Tough ↔ Hard IC330	IC840	IC830	IC808	IC810	IC5400	Recommended Machining Data a_p (mm)	f_z (mm/t)
SECT 140420AR	14.04	4.50	3.70	5.50	2.00		●	●				2.00-5.50	0.12-0.20
SEMT 140405ATR	14.20	4.95	2.75	5.50	0.50	●		●	●	●	●	2.00-5.50	0.12-0.20

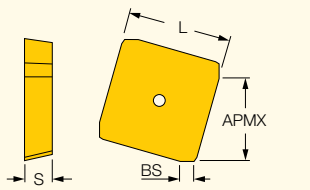
• SECT - Precision ground insert • SEMT - Utility insert • For cutting speed recommendations, see pages 616-620

For tools, see pages: HOE-R06 (256) • HOF-R06 (256)

ISCARMILL

SPKN ED..
Flat Rake Milling Inserts
for General Use





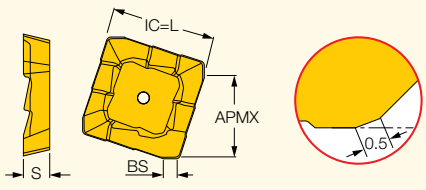
Designation	Dimensions L	S	BS	APMX	Tough ↔ Hard IC328	IC50M	IC250	IC950	IC910	IC520M	IC20	Recommended Machining Data a_p (mm)	f_z (mm/t)
SPKN 1203EDFR	12.70	3.18	1.54	9.50							●	3.00-8.00	0.08-0.15
SPKN 1203EDTR	12.70	3.18	1.40	9.50		●			●	●		3.00-8.00	0.08-0.15
SPKN 1504EDTR	15.88	4.76	1.40	11.50		●				●		3.00-8.00	0.08-0.15
SPKN 1203EDTL	12.70	3.18	1.70	9.50		●						3.00-8.00	0.08-0.15
SPKN 1203EDR-42	12.70	3.18	1.40	9.50							●	3.00-8.00	0.08-0.15
SPKN 1203EDTR-42	12.70	3.18	1.40	9.50	●	●	●	●				3.00-8.00	0.08-0.15
SPKN 1504EDTR-42	15.88	4.76	1.40	11.50	●	●						3.00-8.00	0.08-0.15

• For cutting speed recommendations, see pages 616-620

For tools, see pages: F75-M (254)

ISOSHRED

SPKR EDTR-HS
Square Positive Inserts with Chip
Splitting Serrated Cutting Edges



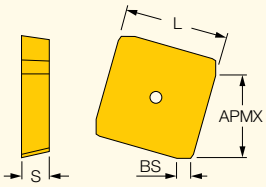
Designation	Dimensions L	S	BS	APMX	Tough ↔ Hard IC328	IC928	IC520M	Recommended Machining Data a_p (mm)	f_z (mm/t)
SPKR 1203EDTR-HS	12.70	3.18	1.60	9.50	●	●	●	3.00-9.00	0.10-0.20
SPKR 1504EDTR-HS	15.82	4.80	2.00	12.24	●	●		3.00-9.00	0.10-0.20

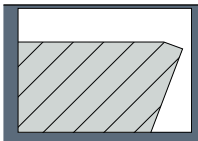
• For cutting speed recommendations, see pages 616-620

For tools, see pages: F75-M (254)

ISCARMILL

SPKR ED..-76
Square Milling Inserts with Ribs Along the Edges for 45° Roughing





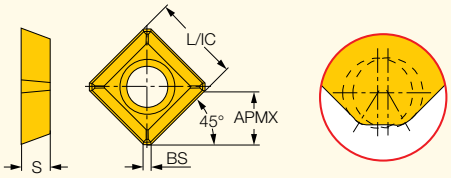
Designation	Dimensions L	S	BS	APMX	Tough ↔ Hard IC328	IC950	Recommended Machining Data a_p (mm)	f_z (mm/t)
SPKR 1203EDL-76	12.70	3.18	1.80	9.50	●		3.00-9.00	0.08-0.15
SPKR 1203EDR-76	12.70	3.18	1.80	9.50	●	●	3.00-9.00	0.08-0.15
SPKR 1504EDTR-76	15.88	4.76	1.73	12.65	●	●	3.00-9.00	0.08-0.15

- For cutting speed recommendations, see pages 616-620

For tools, see pages: F75-M (254)

ISCARMILL

SDMT-AD-N
Inserts for General Use on 45° Endmills



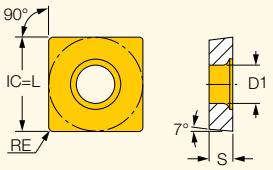
Designation	Dimensions L	S	APMX	BS	Tough ↔ Hard IC50M	IC520M	IC20	Recommended Machining Data a_p (mm)	f_z (mm/t)
SDMT 0903AD-N	9.52	3.18	5.60	0.90	●	●	●	2.00-4.00	0.12-0.15

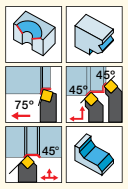
- For cutting speed recommendations, see pages 616-620

For tools, see pages: E45 / T245 (53)

ISOTURN

SCMT-19
Square Inserts with a 7° Positive Flank for Semi-Roughing at Medium to High Feeds





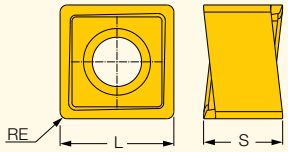
Designation	Dimensions L	S	RE	D1	Tough ↔ Hard IC830	IC20	IC5005	IC807	IC907	Recommended Machining Data a_p (mm)	f_z (mm/rev)
SCMT 120408-19	12.70	4.76	0.80	5.50	●	●	●	●	●	3.00-8.00	0.08-0.15
SCMT 120412-19	12.70	4.76	1.20	5.50		●				3.00-8.00	0.08-0.15

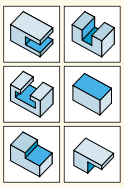
- For user guide and cutting speed recommendations, see pages 616-620

For tools, see pages: E45 / T245 (53)

HELISLOT

XNMU 06
Square Inserts with 4 Right-and 4 Left-Hand Cutting Edges





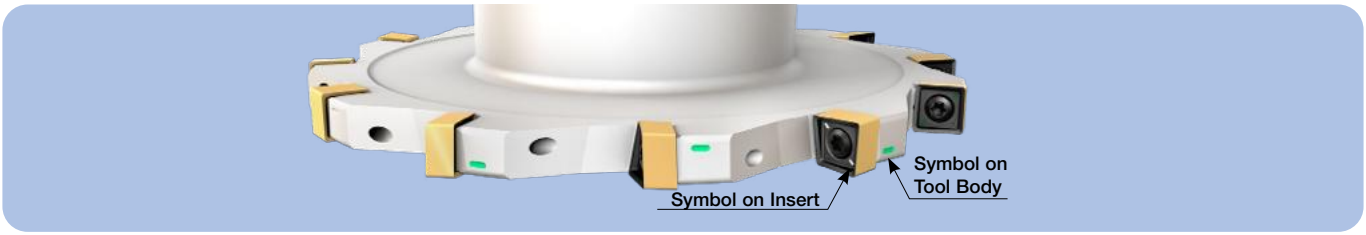
Designation	Dimensions APMX	L	S	RE	Tough ↔ Hard IC830	IC808	IC810	Recommended Machining Data f_z (mm/t)
XNMU 060304-PNTN	6.00	6.40	4.40	0.40	●	●	●	0.05-0.12

New

For tools, see pages: ETS-XN06 (387) • ETS-XN06-MM (386) • FDN-XN06 (397) • SDN-XN06 (405)

Mounting an XNMU 0603... Insert on Slot Milling Cutters

The Symbol on the Insert and Tool Body Must Align



Starting Feed Per Tooth fz for HELI-SLOT 06 Slotting Mills with Inserts XNMU 06...

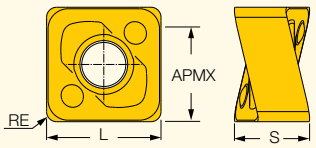
ISO Class DIN/ISO 513	Description	ISCAR Material Group**	Typical Representstive AISI/SAE/ASTM	Typical Representstive DIN W.-Nr.	Hardness, HB	Feed f_z mm/tooth Grades IC808	IC830
P	non-alloy steel	1	1020	1.0044	130-180	0.10-0.20	0.10-0.20
	alloy steel	8	4340	1.6582	260-300	0.08-0.12	0.08-0.12
	alloy steel	9	4340	1.6582	HRC 35-42*	0.08-0.12	0.08-0.12
	high alloy steel	10	H13	1.2344	200-220	0.08-0.12	0.08-0.12
	martensitic S.S.	12	420	1.4021	200	0.08-0.12	0.08-0.12
M	austenitic S.S.	14	304L	1.4306	200	0.08-0.12	0.08-0.12
	austenitic S.S.	14	316L	1.4404	140	0.08-0.12	0.08-0.12
K	grey cast iron	16	class 40	0.6025 (GG25)	250	0.10-0.20	
	nodular cast iron	17	class 65-45-12	0.7050 (GGG50)	200	0.08-0.15	
H	hard steel and cast iron	38.1	H11	1.2343	HRC 45-49	0.06-0.12	
		38.2	P20	1.2330	HRC 50-55	0.05-0.10	

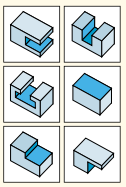
* Quenched and tempered
** ISCAR material group in accordance with VDI 3323 standard

HELISLOT

XNMU 09

Square Inserts with 4 Right- and 4 Left-Hand Cutting Edges





TN	Dimensions				Tough ↔ Hard			Recommended Machining Data
Designation	APMX	L	S	RE	IC830	IC808	IC5400	f_z (mm/t)
XNMU 090408-PNTN	8.20	9.10	5.95	0.80	●	●	●	0.05-0.15

For tools, see pages: ETS-XN09 (388) • FDN-XN09 (398) • SDN-XN09 (405)

Starting feed per tooth f_z for HELI-SLOT 09 slotting mills with inserts XNMU 09...

Workpiece Material						f_z (mm/t)		
		Typical representative				Grades		
ISO class DIN/ISO 513	Description	AISI/SAE/ASTM	DIN W.-Nr.	Hardness, HB	ISCAR mat. group**	IC808	IC5400	IC830
P	non-alloy steel	1020	1.0402	130-180	1	0.1-0.25	0.1-0.25	0.1-0.25
	alloy steel	4340	1.6582	260-300	8	0.1-0.2	0.1-0.2	0.1-0.2
	alloy steel	4340	1.6582	HRC 35-42*	9	0.1-0.15	0.1-0.15	0.1-0.18
	high alloy steel	H13	1.2344	200-220	10	0.1-0.2	0.1-0.2	0.1-0.2
	martensitic S.S.	420	1.4021	200	12	0.1-0.2	0.1-0.2	0.1-0.2
M	austenitic S.S.	304L	1.4306	200	14	0.1-0.15	0.1-0.15	0.1-0.15
	austenitic S.S.	316L	1.4404	140	14	0.1-0.15	0.1-0.15	0.1-0.2
K	grey cast iron	class 40	0.6025 (GG25)	250	16	0.1-0.3		
	nodular cast iron	class 65-45-12	0.7050 (GGG50)	200	17	0.1-0.25		
H	hardened steel	H11	1.2343	HRC 45-49	38.1	0.06-0.12	0.06-0.12	0.06-0.12
		P20	1.2330	HRC 50-55	38.2	0.05-0.1	0.05-0.1	0.05-0.1

* Quenched and tempered

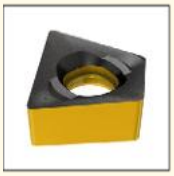
** ISCAR material group in accordance with VDI 3323 standard

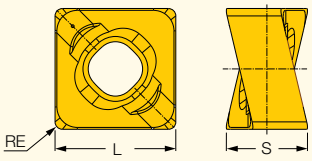
*** Recommendation for side slotting

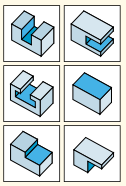
HELISLOT

XNMU 13

Square Inserts with 4 Right- and 4 Left-Hand Cutting Edges



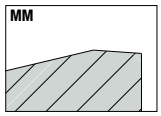


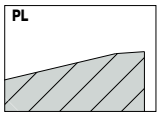


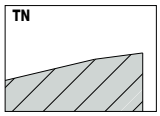
	Dimensions			Tough ↔ Hard								Recommended Machining Data
Designation	L	S	RE	IC330	IC845	IC830	IC380	IC808	IC810	IC5400	IC5100	f_z (mm/t)
XNMU 130608PNN-MM	13.00	8.50	0.80	●		●	●	●		●		0.08-0.20
XNHU 130608PNN-PL	13.00	8.80	0.80					●				0.08-0.20
XNMU 130608PNN-PL	13.00	8.80	0.80		●							0.08-0.20
XNMU 130608PNTN	13.00	8.80	0.80						●		●	0.08-0.20

• For cutting speed recommendations, see pages 616-620

For tools, see pages: ETS-XN13 (388) • FDN-XN13 (398) • SDN-XN13 (405) • SM-XN13 (286) • XNK-XN13 (279)



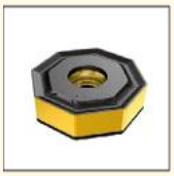


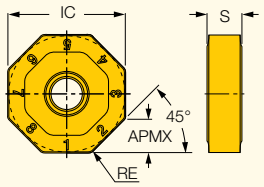


16MILL

ONHU/ONMU-08-TN/HL

Double-Sided Octagonal Face Milling Inserts for Cast Iron and Rough Applications



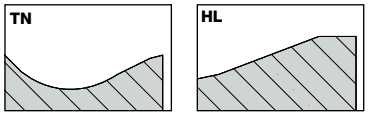


Designation	Dimensions IC	RE	S	APMX	Tough ↔ Hard IC908	IC810	IC910	DT7150	IC5100	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)(1)
ONHU 080608-TN	20.20	0.80	6.00	5.50			●	●		●	2.00-5.50	0.20-0.30
ONMU 080608-TN	20.20	0.80	6.00	5.50		●	●	●	●	●	2.00-5.50	0.20-0.30
ONMU 080612-HL	20.20	1.20	6.00	5.50	●		●				2.00-5.50	0.25-0.40

• TN - For cast iron • HL - For rough applications and inhomogeneous surfaces • For cutting speed recommendations, see pages 616-620

(1) For FEED-MILL tools, see the feed conditions for the FF NM tools

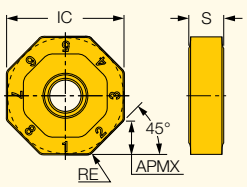
For tools, see pages: F45NM (259) • F45WG (258) • FF NM (354)

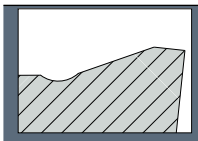


16MILL

ONHU/ONMU-08-TN-MM

Double-Sided Octagonal Face Milling Inserts for General Steel Machining





Designation	Dimensions IC	RE	S	APMX	Tough ↔ Hard IC330	IC328	IC830	IC928	IC808	IC908	IC910	IC5400	Recommended Machining Data a_p (mm)	f_z (mm/t)(1)
ONHU 080608-TN-MM	20.20	0.80	6.00	5.50		●		●		●	●		2.00-5.50	0.20-0.30
ONMU 080608-TN-MM	20.20	0.80	6.00	5.50	●	●	●	●	●	●		●	2.00-5.50	0.20-0.30

• For cutting speed recommendations, see pages 616-620

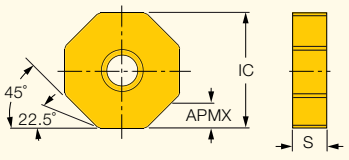
(1) For FEED-MILL tools, see the feed conditions for the FF NM tools

For tools, see pages: F45NM (259) • F45WG (258) • FF NM (354)

16MILL

ONHQ-TN

Octagonal Double-Sided Ceramic Face Milling Inserts



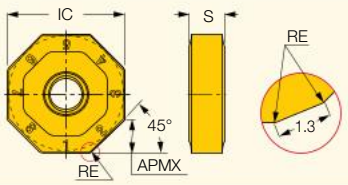
Designation	Dimensions IC	S	APMX	$Fzm_{(min)}$	$Fzm_{(max)}$	IS8	Recommended Machining Data a_p (mm)
ONHQ 0806-TN	20.20	6.00	5.50	0.15	0.25	●	1.00-

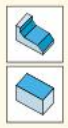
• For cutting speed recommendations, see pages 616-620

For tools, see pages: F45NM (259) • F45WG (258)

16MILL

ONHU 0806-N-PL
Octagonal Inserts with a Sharp Edge and Positive Land for Cast Iron





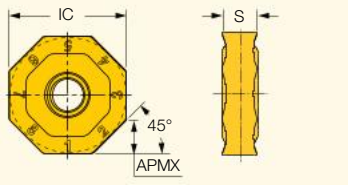
Designation	Dimensions IC	RE	S	APMX	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
ONHU 080600-N-PL	20.20	0.40	6.00	5.50	●	2.00-5.50	0.25-0.40

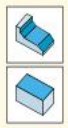
• For cutting speed recommendations, see pages 616-620

For tools, see pages: F45NM (259) • F45WG (258)

16MILL

ONHU/ONMU 080608 AN-N-HP
16MILL Double-Sided Octagonal Face Milling Inserts for High Temperature Alloys, Stainless Steel and Steels





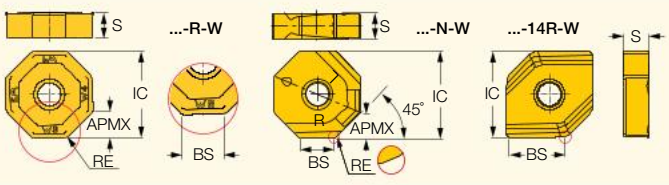
Designation	Dimensions IC	RE	S	APMX	Tough ↔ Hard IC328	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
ONHU 080608 AN-N-HP	20.20	0.80	6.00	5.50	●		2.00-5.50	0.25-0.40
ONMU 080608 AN-N-HP	20.20	0.80	6.00	5.50	●	●	2.00-5.50	0.25-0.40

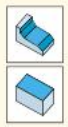
• For cutting speed recommendations, see pages 616-620

For tools, see pages: F45NM (259) • F45WG (258)

16MILL

ONHU 0806AN-W
Double-Sided Octagonal Wiper Inserts





Designation	Dimensions IC	RE	S	APMX	BS	Tough ↔ Hard IC910	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
ONHU 0806AN-N-W (1)	20.30	0.50	6.00	3.50	7.40	●	●	1.50-3.50	0.08-0.25
ONHU 0806AN-14R-W (2)	20.35	0.50	5.50	3.50	13.20	●		1.50-3.50	0.08-0.25
ONHU 0806AN-R-W (3)	20.40	0.40	6.00	3.50	7.20	●		1.50-3.50	0.08-0.25

• For cutting speed recommendations, see pages 616-620

(1) Wiper insert with 4 cutting edges, 2 right- and 2 left-hand

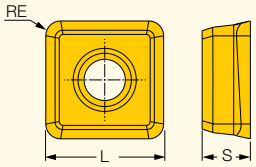
(2) Wiper insert with 4 cutting edges, recommended for fine pitch cutters; cutter diameters >160 mm

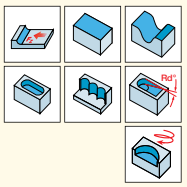
(3) Wiper insert with 4 cutting edges, recommended for fine pitch cutters; cutter diameters <125 mm

For tools, see pages: F45NM (259) • F45WG (258)

MILL4FEED

FFQ4 SOMT/W 0602
Single-Sided Square Inserts
with 4 Cutting Edges
for Fast Feed Milling



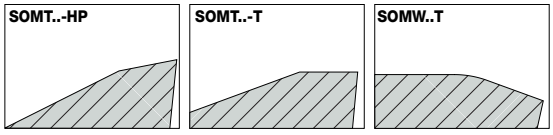


Designation	Dimensions L	S	RE	Tough ↔ Hard IC882	IC840	IC830	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
FFQ4 SOMT 060210HP	5.50	2.00	1.00	●	●			0.20-0.70	0.20-0.90
FFQ4 SOMT 060210T	5.50	2.04	1.00			●	●	0.20-0.70	0.20-1.00
FFQ4 SOMW 060213T	5.60	2.11	1.30				●	0.20-0.60	0.20-1.00

New

- For side plunging, the initial cutting feed is 0.1 mm/t
- T type for steel, ferritic and martensitic stainless steel and cast iron
- HP type for austenitic stainless steel and high temperature alloys
- SOMW- flat insert for hard material (up to 60 HRC) and uneven surface

For tools, see pages: FFQ4 D-C/W-06 (342) • FFQ4 D-M-06 (343) • FFQ4 D-MM-06 (343)



Average Cutting Data for FFQ4 Size 06 Fast Feed Cutters

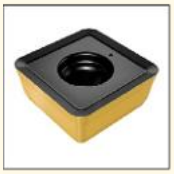
ISO	Material Group No.	Material		Condition	Hardness HB	Type of Insert	Depth of cut (mm)	Cutting Speed vc (m/min) for Grades IC808	IC830	IC840	IC882	Feed fz (mm/tooth)
P	1	non-alloy steel and cast steel, free cutting steel	<0.25% C	annealed	125	T	0.2-0.7	150-220	140-210	-	-	0.4-1.0
P	2		≥0.25% C	annealed	190			130-210	120-200	-	-	
P	3		<0.55% C	quenched and tempered	250			120-200	110-190	-	-	
P	4		≥0.55% C	annealed	220			120-190	110-180	-	-	
P	5			quenched and tempered	300			110-180	100-170	-	-	
P	6	low alloy and cast steel (less than 5% of alloying elements)		annealed	200			120-190	110-180	-	-	
P	7			quenched and tempered	275			110-180	100-170	-	-	
P	8				300			115-170	100-160	-	-	
P	9				350			110-170	100-160	-	-	
P	10	high alloyed steel, cast steel and tool steel		annealed	200			120-170	110-160	-	-	
P	11			quenched and tempered	325			100-150	90-140	-	-	
P	12	stainless steel and cast steel		ferritic / martensitic	200			110-160	100-150	-	-	
P	13			martensitic	240			100-150	90-135	-	-	
M	14	stainless steel and cast steel		austenitic, duplex	180	HP	0.2-0.7	-	-	90-160	90-160	0.4-0.8
K	15	gray cast iron (GG)		ferritic / pearlitic	180	T	0.2-0.7	150-220	140-210	-	-	0.4-1.0
K	16			pearlitic / martensitic	260					-	-	
K	17	nodular cast iron (GGG)		ferritic	160			120-200	120-190	-	-	
K	18			pearlitic	250					-	-	
K	19	malleable cast iron		ferritic	130			130-210	115-200	-	-	
K	20			pearlitic	230					-	-	
S	31	high temperature alloys	Fe based	annealed	200	HP	0.2-0.5	-	-	55-70	50-65	0.4-0.6
S	32			hardened	280			-	-	50-60	45-55	
S	33		Ni or Co based	annealed	250			-	-	35-45	30-40	0.4-0.7
S	34			hardened	350			-	-	30-35	25-35	
S	35			cast	320			-	-	25-35	25-35	
S	36	titanium alloys		pure	190			-	-	60-70	50-60	
S	37			alpha+beta alloys, hardened	310			-	-	35-50	35-45	0.4-0.6
H	38	hardened steel		hardened	55 HRC	SOMW	0.2-0.5	60-80	-	-	-	0.3-0.4
H	39			hardened	60 HRC			40-50	-	-	-	
H	40	chilled cast iron		cast	400			80-100	-	-	-	
H	41	cast iron		hardened	55 HRC			40-60	-	-	-	

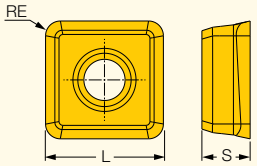
steel
stainless steel
cast iron
non-ferrous metals
superalloys and titanium
hard materials

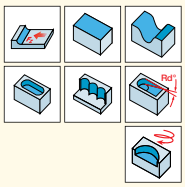
(1) Specific cutting force for 1 mm² chip section
(2) Chip thickness factor

MILL4FEED

FFQ4 SOMT/W 0904
Single-Sided Square Inserts
with 4 Cutting Edges
for Fast Feed Milling



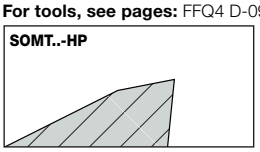


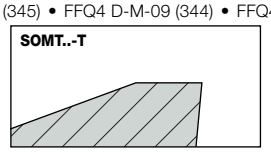


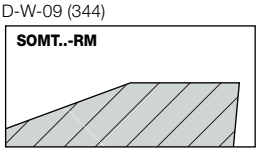
Designation	Dimensions L	S	RE	Tough ↔ Hard IC882	IC716	IC830	IC5820	IC808	IC810	IC5600	Recommended Machining Data a_p (mm)	f_z (mm/t)
FFQ4 SOMT 090412T	8.50	3.90	1.20			●		●	●	●	0.50-1.20	0.40-1.50
FFQ4 SOMT 0904RM-T	8.60	3.80	1.20					●			0.50-1.20	0.40-1.50
FFQ4 SOMT 0904RM-HP	8.60	3.80	1.20	●	●						0.50-1.20	0.40-1.50
FFQ4 SOMT 090412HP	8.50	3.80	1.20	●	●	●	●	●			0.50-1.20	0.40-1.40
FFQ4 SOMW 090420T	8.80	3.90	2.00					●			0.30-1.00	0.20-1.00

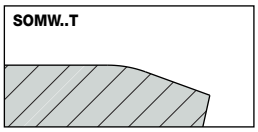
- For side plunging, the initial cutting feed is 0.1 mm/t • T type for steel, ferritic and martensitic stainless steel and cast iron
- RM-.. reinforced radius type for machining near straight shoulder walls • HP type for austenitic stainless steel and high temperature alloys
- SOMW- flat insert for hard material (up to 60 HRC) and uneven surface

For tools, see pages: FFQ4 D-09 (345) • FFQ4 D-M-09 (344) • FFQ4 D-W-09 (344)









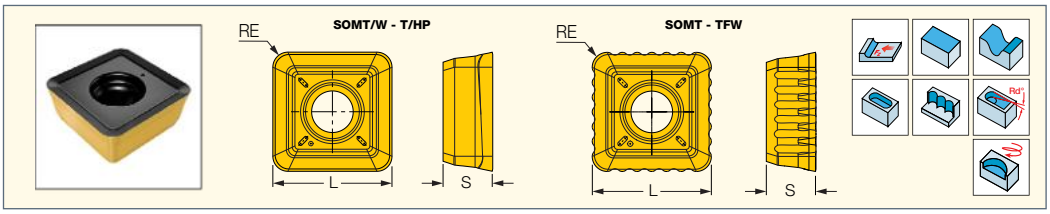
Average Cutting Data for FFQ4 Size 09 Fast Feed Cutters

Workpiece Material: ISO class DIN/ ISO 513	Description	ISCAR mat. group*	Hardness HB	Typical representative: AISI/SAE/ ASTM	DIN W.-Nr.	Insert type	Carbide grade	D.O.C. a_p (mm): Recom-mended	Range	Cutting speed v_c, (m/min)	Feed f_z (mm/tooth): Recom-mended	Range	Coolant
P	non-alloy steel	1-5	130-180	1020	1.0402	T/ RM-T	IC808	1.0	0.4-1.2	150-220	1.2	0.5-1.5	dry
							IC830			140-200	1.3	0.5-1.5	dry/wet
	low alloy steel	6-8	260-300	4340	1.6582		IC808			140-200	1.2	0.5-1.5	dry
							IC830			120-180	1.3	0.5-1.5	dry/wet
		9	HRC 35-42	3135	1.5710		IC808			130-180	1.2	0.5-1.4	dry
							IC830			120-160	1.2	0.5-1.4	dry/wet
	high alloy steel	10-11	200-220	H13	1.2344		IC808			120-170	1.2	0.5-1.4	dry
							IC830			100-150	1.3	0.5-1.4	dry/wet
	ferritic/martensitic	12-13	200	420	1.4021		IC808			110-160	1.2	0.5-1.4	dry
							IC830			100-150	1.3	0.5-1.4	dry/wet
M	austenitic stainless steel	14	200	304L	1.4306	HP/ RM-HP	IC830	1.0	0.4-1.2	80-120	1.0	0.5-1.2	wet
							IC808			100-160		0.5-1.2	
							IC5820			100-160		0.5-1.3	
							IC882			80-130		0.5-1.4	
K	gray cast iron	15-16	250	class 40	0.6025 (GG25)	T/ RM-T	IC810	1.2	0.4-1.2	150-220	1.2	0.5-1.5	dry
	nodular cast iron	17-18	200	class 65-45-12	0.7050 (GGG50)		IC810			120-200		0.5-1.5	
S	high temperature alloys and titanium	33-35	340	inconel 718	2.4668	HP/ RM-HP	IC830	1.0	0.4-1.2	25-30	0.5	0.5-1.0	wet
							IC808			25-35		0.5-1.0	
							IC5820			25-35		0.5-1.0	
							IC882			20-30		0.5-1.0	
		36-37	HRC 35-40	AMS R56400	3.7165 (Ti6Al4V ELI)		IC830			20-30	0.6	0.5-1.0	
							IC808			35-60		0.5-1.0	
							IC5820			25-40		0.5-1.0	
							IC882			25-35		0.5-1.0	
H	hardened steel	38	HRC 45-49	HARDOX 450 plate		SOMW	IC808	0.6	0.3-1.0	45-65	0.5	0.3-1.0	dry
			HRC 58-62	D2	1.2379			0.4	0.3-0.5	40-60	0.4	0.3-0.5	

* ISCAR material group in accordance with VDI 3323 standard ** Quenched and tempered
For machining under unstable conditions, the recommended cutting data should be reduced by 20-30%

MILL4FEED

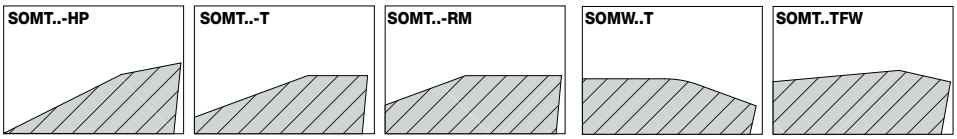
FFQ4 SOMT/W 1205
Single-Sided Square Inserts
with 4 Cutting Edges
for Fast Feed Milling



Designation	Dimensions L	S	RE	Tough ↔ Hard IC882	IC28	IC716	IC830	IC5820	IC808	IC810	Recommended Machining Data a_p (mm)	f_z (mm/t)
FFQ4 SOMT 1205RM-HP	12.70	5.20	1.60	•			•				0.50-1.50	0.40-1.80
FFQ4 SOMT 1205RM-T	12.70	5.20	1.60						•		0.50-1.50	0.40-2.00
FFQ4 SOMT 120516HP	12.70	5.20	1.60	•		•	•	•	•		0.50-1.50	0.40-1.80
FFQ4 SOMT 120516HP-P	12.70	5.20	1.60		•						0.50-1.50	0.40-1.80
FFQ4 SOMT 120516T	12.70	5.20	1.60				•		•		0.50-1.50	0.40-2.00
FFQ4 SOMT 120516TFW	12.70	5.20	1.60						•		0.50-1.50	0.20-1.20
FFQ4 SOMT 120516T20	12.70	5.20	1.60							•	0.50-1.50	0.40-2.00
FFQ4 SOMW 120530T	13.00	5.30	3.00						•		0.50-1.50	0.40-1.50

- For side plunging, the initial cutting feed is 0.1 mm/t • T for steel, ferritic and martensitic stainless steel and cast iron
- RM-.. for interrupted cut and machining near straight shoulder walls • HP for austenitic stainless steel and high temperature alloys
- HP-P for aluminum (positive rake face) • T20 for grey and nodular cast iron • TFW for unstable cutting conditions
- SOMW flat insert for hard material (up to 60 HRC) and uneven surface

For tools, see pages: FFQ4 D-12 (346)



Average Cutting Data for FFQ4 Size 12 Fast Feed Cutters

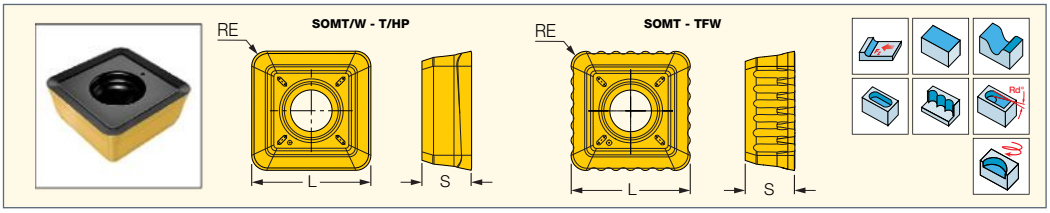
ISO class DIN/ ISO 513	Workpiece Material: Description	Material Group No.	Hardness HB	Typical materials: AISI/SAE/ ASTM/AA	Typical materials: W.-Nr./DIN	Insert type	Carbide grade	D.O.C. a_p (mm): Recommended	D.O.C. a_p (mm): Range	Cutting speed v_c (m/min)	Feed f_z (mm/tooth): Recommended	Feed f_z (mm/tooth): Range	Coolant
P	non-alloy steel and cast steel, free cutting steel	1-5	130-180	1020	1.0402	T / RM-T	IC808	1.2	0.4-1.5	150-220	1.5	0.5-2.0	dry
							IC830			140-200	1.6	0.5-2.0	dry/ wet
	low alloy and cast steel (less than 5% of alloying elements)	6-8	260-300	4340	1.6582		IC808			140-200	1.5	0.5-2.0	dry
							IC830			120-180	1.6	0.5-2.0	dry/ wet
		9	HRC 35-42*	3135	1.5710		IC808			130-180	1.5	0.5-1.8	dry
							IC830			120-160	1.5	0.5-1.8	dry/ wet
	high alloyed steel, cast steel and tool steel	10-11	200-220	H13	1.2344		IC808			120-170	1.3	0.5-1.8	dry
							IC830			100-150	1.4	0.5-1.8	dry/ wet
	stainless steel and cast steel	12-13	200	420	1.4021		IC808			110-160	1.3	0.5-1.8	dry
							IC830			100-150	1.4	0.5-1.8	dry/ wet
M	stainless steel and cast steel	14	200	304L	1.4306	HP/ RM-HP	IC830	1.0	0.4-1.5	80-120	1.0	0.5-1.5	wet
							IC808			100-160		0.5-1.5	
							IC5820			100-160		0.5-1.6	
							IC882			80-130		0.5-1.8	
K	gray cast iron (GG)	15-16	250	class 40	0.6025 (GG25)	T20 / T	IC810	1.5	0.4-1.5	150-220	1.5	0.5-2.0	dry
	nodular cast iron (GGG)	17-18	200	class 65-45-12	0.7050 (GGG50)					120-200		0.5-2.0	
N	wrought and cast aluminum alloys	21-24	60-100	7075	3.4365	HP-P	IC28	1.2	0.4-1.5	250-450	1.0	0.5-2.0	wet
	hight temperature	25	130	A03930	G-AlSi20MgNi					180-280		0.5-2.0	
S	high temperature alloys and titanium alloys	33-35	340	inconel 718	2.4668	HP/ RM-HP	IC830	1.0	0.4-1.5	25-30	0.5	0.5-1.0	wet
							IC808			25-35		0.5-1.0	
							IC5820			25-35		0.5-1.0	
							IC882			20-30		0.5-1.0	
		36-37	HRC 35-40	AMS R56400	3.7165 (Ti6Al4V ELI)		IC830			20-30	0.6	0.5-1.0	
							IC808			35-60		0.5-1.0	
							IC5820			25-40		0.5-1.0	
							IC882			25-35		0.5-1.0	
H	hardened steel	38	HRC 45-49	HARDOX 450 plate		SOMW	IC808	0.8	0.4-1.2	45-65	0.5	0.4-0.5	dry
			HRC 58-62	D2	1.2379			0.4	0.4-1.2	40-60	0.45	0.4-0.5	

* Quenched and tempered

For machining in unstable conditions, the recommended cutting data should be reduced by 20-30%

MILL4FEED

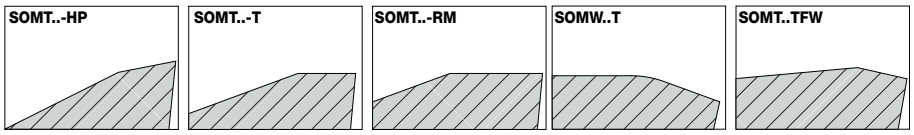
FFQ4 SOMT/W 1706
Single-Sided Square Inserts
with 4 Cutting Edges
for Fast Feed Milling



Designation	Dimensions L	S	RE	Tough ↔ Hard IC882	IC830	IC808	IC810	IC5600	Recommended Machining Data a_p (mm)	f_z (mm/t)
FFQ4 SOMT 1706RM-HP	17.50	6.00	2.50		●				1.20-2.50	0.40-1.20
FFQ4 SOMT 1706RM-T	17.50	6.00	2.50			●			1.20-3.00	0.40-2.00
FFQ4 SOMT 170625HP	17.50	6.00	2.50	●	●	●			1.20-3.00	0.40-1.50
FFQ4 SOMT 170625T	17.50	6.00	2.50		●	●	●	●	1.20-3.00	0.40-2.00
FFQ4 SOMT 170625TFW	17.50	6.00	2.50			●			1.20-3.00	0.20-1.20
FFQ4 SOMW 170640T	18.00	6.10	4.00			●			1.20-3.00	0.40-1.50

- For side plunging, the initial cutting feed is 0.1 mm/t • T type for steel, ferritic and martensitic stainless steel and cast iron
- RM-.. type for interrupted cut and machining near straight shoulder walls • HP type for austenitic stainless steel and high temperature alloys
- TFW type for unstable cutting conditions • SOMW- flat insert for hard material (up to 60 HRC) and uneven surface

For tools, see pages: FFQ4 D-17 (347)



Average Cutting Data for FFQ4 Size 17 Fast Feed Cutters

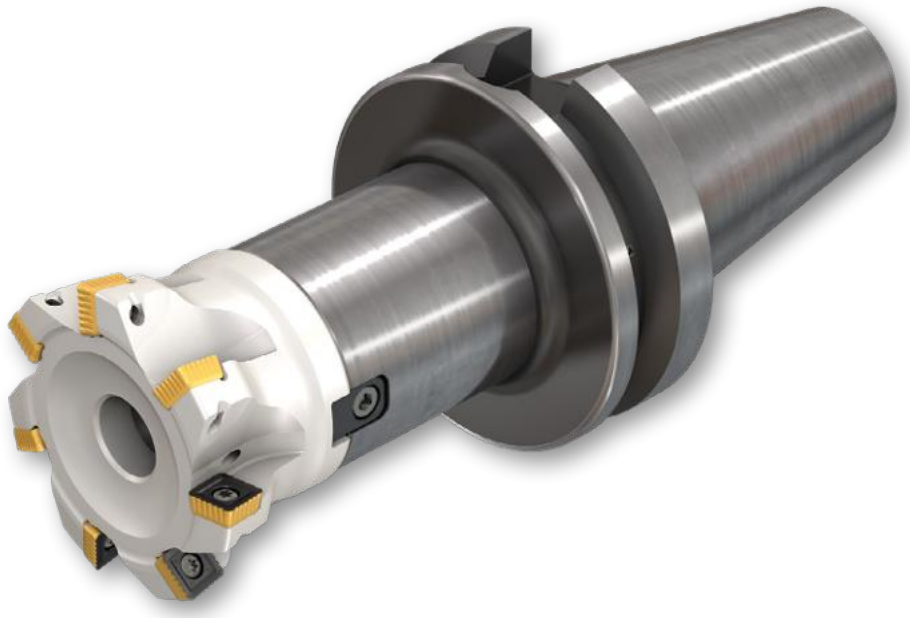
ISO Class DIN/ISO 513	Description	ISCAR Mat. Group*	Hardness, HB	Typical Representstive AISI/SAE/ASTM	Typical Representstive DIN W.-Nr.	Insert Type	Carbide Grade	D.O.C. Ap [mm] Recommended	D.O.C. Ap [mm] Range	Cutting Speed V_c [m/min]	Feed F_z [mm/tooth] Recommended	Feed F_z [mm/tooth] Range	Coolant
P	non-alloy steel and cast steel, free cutting steel	1-5	130-180	1020	1.0402	T / RM-T	IC808	2.5	0.4-3.0	150-220	1.5	0.5-2.0	dry
							IC830			140-200	1.6	0.5-2.0	dry/wet
	low alloy and cast steel (less than 5% of alloying elements)	6-8	260-300	4340	1.6582		IC808			140-200	1.5	0.5-2.0	dry
							IC830			120-180	1.6	0.5-2.0	dry/wet
		9	HRC 35-42**	3135	1.5710		IC808			130-180	1.5	0.5-1.8	dry
							IC830			120-160	1.5	0.5-1.8	dry/wet
	high alloyed steel, cast steel and tool steel	10-11	200-220	H13	1.2344		IC808			120-170	1.3	0.5-1.8	dry
							IC830			100-150	1.4	0.5-1.8	dry/wet
	stainless steel and cast steel	12-13	200	420	1.4021		IC808			110-160	1.3	0.5-1.8	dry
							IC830			100-150	1.4	0.5-1.8	dry/wet
M	stainless steel and cast steel	14	200	304L	1.4306	HP/ RM-HP	IC830	2.0	0.4-3.0	80-120	1.0	0.5-1.5	wet
							IC808			100-160		0.5-1.5	
							IC5820			100-160		0.5-1.6	
							IC882			80-130		0.5-1.8	
K	gray cast iron (GG)	15-16	250	class 40	0.6025 (GG25)	T	IC810	3.0	0.4-3.0	150-220	1.5	0.5-2.0	dry
	nodular cast iron (GGG)	17-18	200	class 65-45-12	0.7050 (GGG50)		IC810			120-200		0.5-2.0	
S	high temperature alloys and titanium alloys	33-35	340	inconel 718	2.4668	HP/ RM-HP	IC830	1.5	0.4-3.0	25-30	0.5	0.5-1.0	wet
							IC808			25-35		0.5-1.0	
							IC5820			25-35		0.5-1.0	
							IC882			20-30		0.5-1.0	
		36-37	HRC 35-40	AMS R56400	3.7165 (Ti6Al4V ELI)		IC830			20-30	0.6	0.5-1.0	
							IC808			35-60		0.5-1.0	
							IC5820			25-40		0.5-1.0	
							IC882			25-35		0.5-1.0	
H	hardened steel	38	HRC 45-49	HARDOX 450 plate		SOMW	IC808	1.0	0.4-2.5	45-65	0.5	0.4-1.0	dry
			HRC 58-62	D2	1.2379			0.5	0.4-2.5	40-60	0.4	0.4-0.5	

* ISCAR material group in accordance with VDI 3323 standard
** Quenched and tempered
For machining in unstable conditions, the recommended cutting data should be reduced by 20-30%

Recommended Cutting Conditions for Milling Inserts FFQ4 SOMT/W – TFW Type

ISO	Material		Condition	Hardness HB	Type of Insert	Depth of Cut (mm) Insert Size 12 (mm)	Depth of Cut (mm) Insert Size 17 (mm)	Cutting Speed V_c (m/min)	Feed F_z (mm/tooth)	Material Group No.
P	non-alloy steel and cast steel, free cutting steel	<0.25% C	annealed	125	TFW	0.7-1.5	1.5-3.0	150-220	0.4-1.2	1
		≥0.25% C	annealed	190				130-210		2
		<0.55% C	quenched and tempered	250				120-200		3
		≥0.55% C	annealed	220				120-190		4
			quenched and tempered	300				110-180		5
	low alloy and cast steel (less than 5% of alloying elements)		annealed	200				120-190		6
			quenched and tempered	275				110-180		7
				300				115-170		8
				350				110-170		9
	high alloyed steel, cast steel and tool steel		annealed	200				120-170		10
			quenched and tempered	325				100-150		11
	stainless steel and cast steel		ferritic / martensitic	200				110-160		12
			martensitic	240				100-150		13
K	gray cast iron (GG)		ferritic / pearlitic	180	TFW	0.7-1.4	1.5-3.0	150-220	0.4-1.2	15
			pearlitic / martensitic	260						16
	nodular cast iron (GGG)		ferritic	160				120-200		17
			pearlitic	250						18
	malleable cast iron		ferritic	130				130-210		19
			pearlitic	230						20
H	chilled cast iron		cast	400	TFW	0.7-1.4	1.5-3.0	80-100	0.4-1.2	40

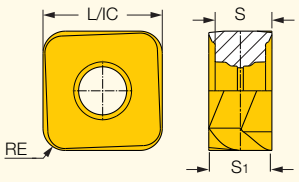
steel
cast iron
hard materials

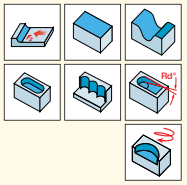


NEOFEED HIGH FEED LINE

FFQ8 SZMU

Double-Sided Square Inserts with 8 Cutting Edges for High Feed Milling

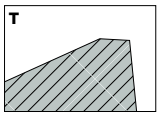


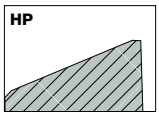


Designation	Dimensions L	S	S1	RE	Tough ↔ Hard IC882	IC830	IC808	IC810	Recommended Machining Data f_z (mm/t)
FFQ8 SZMU 120520HP	12.00	5.85	6.50	2.00	•	•	•		0.20-1.50
FFQ8 SZMU 120520T	12.00	5.85	6.50	2.00		•	•	•	0.40-1.50

- For side plunging, the initial cutting feed is 0.1 mm/t
- T- for steel, ferritic and martensitic stainless steel, cast iron and hardened steel
- HP - for austenitic stainless steel and high temperature alloys

For tools, see pages: FFQ8-12 (348) • MFQ8-12 (348)





Average Cutting Data for FFQ8 Fast Feed Cutters

Workpiece material: ISO class DIN/ ISO 513	Description	ISCAR mat. group*	Hardness HB	Typical representative: AISI/SAE/ ASTM	DIN W.-Nr.	Insert type	Carbide grade	Cutting speed v_c (m/min)	Fast feed (FF): D.O.C a_p (mm)	Feed f_z (mm/tooth)	Moderate feed (MF): D.O.C a_p (mm)	Feed f_z (mm/tooth)	Coolant
P	non-alloy steel	1-5	130-180	1020	1.0402	T	IC808	150-220	0.5-1.5	0.40-1.5	0.5-3.0	0.20-1.0	dry
							IC830	140-200		0.40-1.5		0.20-1.0	dry/wet
	low alloy steel	6-8	260-300	4340	1.6582		IC808	140-200		0.40-1.5		0.20-1.0	dry/wet
							IC830	120-180		0.40-1.5		0.20-1.0	dry/wet
		9	35-42** HRC	3135	1.5710		IC808	130-180		0.40-1.5		0.20-1.0	dry
							IC830	120-160		0.40-1.5		0.20-1.0	dry/wet
	high alloy steel	10-11	200-220	H13	1.2344		IC808	120-170		0.40-1.5		0.20-1.0	dry
							IC830	100-150		0.40-1.5		0.20-1.0	dry/wet
	ferritic/martensitic stainless steel	12-13	200	420	1.4021		IC808	110-160		0.40-1.5		0.20-1.0	dry
							IC830	100-150		0.40-1.5		0.20-1.0	dry/wet
M	austenitic stainless steel	14	200	304L	1.4306	HP	IC882	70-130	0.5-1.5	0.20-0.8	0.5-3.0	0.20-0.5	wet
							IC808	100-160		0.20-0.8		0.20-0.5	
							IC830	80-140		0.20-0.8		0.20-0.5	
K	gray cast iron	15-16	250	class 40	0.6025 (GG25)	T	IC810	150-220	0.5-1.5	0.40-1.5	0.5-3.0	0.40-1.0	dry
	nodular cast iron	17-18	200	class 65-45-12	0.7050 (GGG50)		IC810	120-200		0.40-1.5		0.40-1.0	
S	high temperature alloys and titanium alloys	31-32	220	330	1.4864	HP	IC882	40-60	0.5-1.5	0.20-0.8	0.5-3.0	0.20-0.5	wet
							IC808	40-80		0.20-0.8		0.20-0.5	
							IC830	40-75		0.20-0.8		0.20-0.5	
		33-35	340	inconel 718	2.4668		IC882	20-30		0.20-0.8		0.20-0.5	
							IC808	25-40		0.20-0.8		0.20-0.5	
							IC830	25-35		0.20-0.8		0.20-0.5	
		36-37	30-32 HRC	AMS R56400	3.7165		IC882	30-50		0.20-0.8		0.20-0.5	
							IC808	40-60		0.20-0.8		0.20-0.5	
							IC830	35-55		0.20-0.8		0.20-0.5	
H	hardened steel	38	45-49 HRC	HARDOX 450 plate		T	IC808	50-75	0.5-1.5	0.20-0.5	0.5-3.0	0.20-0.5	dry

* ISCAR material group in accordance with VDI 3323 standard

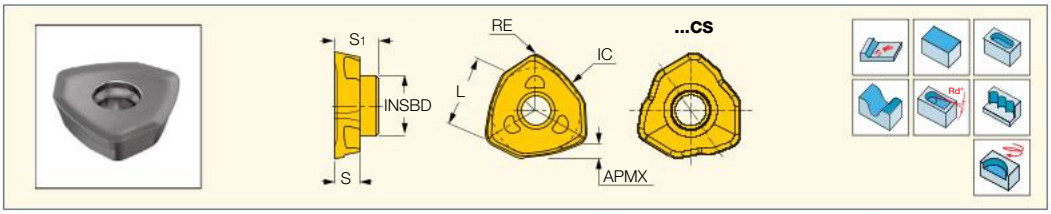
** Quenched and tempered

For machining under unstable conditions, the recommended cutting data should be reduced by 20-30%

FEEDMILL

FF WOCT/WOMT/WOMW

Arc Cutting Edge Inserts
for Fast Feed Machining
at Small Depths of Cut



Designation	Dimensions IC	L	S	S1	INSBD	RE	Rg(3)	APMX	Tough ↔ Hard IC882	IC328	IC928	IC908	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
FF WOCT 060212T	9.86	7.00	2.70	4.20	5.60	2.00	3.00	1.20		●	●	●		0.20-1.20	0.30-1.00
FF WOMT 060212T-M	9.86	7.00	2.70	4.20	5.60	2.00	3.00	1.20			●	●		0.20-1.20	0.70-1.50
FF WOMW 060212T-M (1)	9.86	7.00	2.70	4.70	5.60	2.00	3.00	1.20			●			0.20-1.20	0.50-3.50
FF WOCT 09T320T	14.50	10.60	3.95	6.50	9.30	2.00	4.00	2.00	●	●	●			0.20-2.00	0.30-1.00
FF WOMT 09T320-CS (2)	14.50	10.60	3.95	6.50	9.30	2.00	4.20	2.00				●		0.20-2.00	0.70-1.20
FF WOMT 09T320T	14.50	10.60	3.95	6.50	9.30	2.00	4.00	2.00			●	●	●	0.20-2.00	0.70-2.00
FF WOMW 09T320T (1)	14.50	10.60	4.00	6.50	9.30	2.00	4.00	2.00			●			0.20-2.00	0.50-3.50

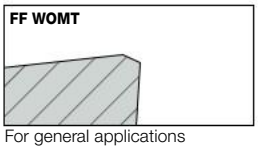
- For cutting speed recommendations, see pages 616-620

(1) Used for heavy machining, interrupted cuts and for hardened steel.

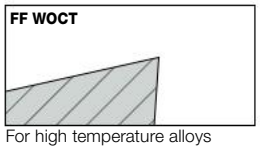
(2) Chip splitting insert - effective at depths of cut larger than 0.75 mm.

(3) Radius for programming

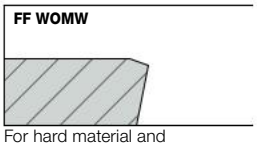
For tools, see pages: FF EW (349) • FF EW-CF (349) • FF EW-M (350) • FF FW (350)



For general applications



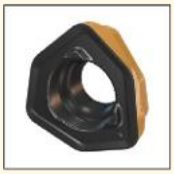
For high temperature alloys
and stainless steel

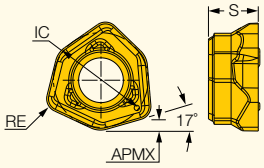


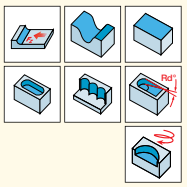
For hard material and
interrupted cut

MICRO 3 FEED
MF 300 ENDMILL

FFT3 WXMT 03
Single-Sided Small Trigon
Inserts for Fast Feed Milling







Designation	Dimensions IC	S	RE	APMX	Tough ↔ Hard IC882	IC830	IC5820	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
FFT3 WXMT 030206T	4.20	2.20	0.60	0.60	●	●	●	●	0.20-0.60	0.20-0.80

• For side plunging, the initial cutting feed is 0.08 mm/t

For tools, see pages: FFT3 EFM-03 (335) • FFT3 EFM-MM 03 (335)

Recommended Machining Conditions for FFT3-03 Fast Feed Endmills

ISO Class DIN/ ISO 513	Workpiece Material Description	ISCAR Mat. Group*	Hardness, HB	Typical Materials AISI/SAE/ ASTM	DIN W.-Nr.	Carbide Grade	D.O.C. a_p (mm)	Cutting Speed v_c (m/min)	Feed f_z (mm/tooth)	Coolant
P	non-alloy steel and cast steel, free cutting steel	1-5	130-180	1020	1.0402	IC808	0.20-0.60	120-200	0.30-0.80	dry/wet
						IC830		110-180	0.30-0.80	
	low alloy and cast steel (less than 5% of alloying elements)	6-8	260-300	4340	1.6582	IC808		100-180	0.30-0.70	
						IC830		90-160	0.30-0.70	
		9	HRC 35-42**	3135	1.5710	IC808		100-160	0.30-0.60	
						IC830		90-150	0.30-0.60	
	high alloyed steel, cast steel and tool steel	10-11	200-220	H13	1.2344	IC808		80-150	0.30-0.60	
						IC830		70-140	0.30-0.60	
	stainless steel and cast steel	12-13	200	420	1.4021	IC808		80-150	0.30-0.60	
						IC830		70-140	0.30-0.60	
M	stainless steel and cast steel	14	200	304L	1.4306	IC830	0.20-0.60	80-120	0.20-0.60	dry
						IC5820		100-160	0.20-0.50	
						IC882		80-130	0.20-0.50	
K	gray cast iron (GG)	15-16	250	class 40	0.6025 (GG25)	IC808	0.20-0.60	150-200	0.30-0.60	dry
	nodular cast iron (GGG)	17-18	200	class 65-45-12	0.7050 (GGG50)	IC808		140-180	0.30-0.60	
S	high temperature alloys and titanium	33-35	340	inconel 718	2.4668	IC882	0.2-0.50	20-30	0.20-0.40	wet
						IC5820		25-35	0.20-0.40	
						IC808		25-35	0.20-0.40	
						IC830		25-30	0.20-0.40	
		36-37	HRC 30-32	AMS R56400	3.7165 (Ti6Al4V ELI)	IC882		25-35	0.20-0.50	
						IC5820		25-40	0.20-0.50	
						IC808		25-35	0.20-0.50	
						IC830		20-30	0.20-0.50	
H	hardened steel	38	HRC 45-49	HARDOX 450 plate		IC808	0.20-0.50	50-75	0.20-0.40	dry/wet
	chilled cast iron	40	400	Ni-hard 1	0.9625			80-100	0.20-0.50	
	cast iron	41	500	A532 IID	0.9645			50-75	0.20-0.40	

* ISCAR material group in accordance with VDI 3323 standard

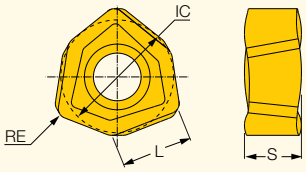
** Quenched and tempered

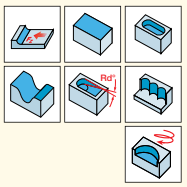
For machining under unstable conditions, the recommended cutting data should be reduced by 20-30%

HELI6FEED UPFEED LINE

H600 WXCU

Double-Sided Inserts with 6 Cutting Edges for Fast Feed Machining

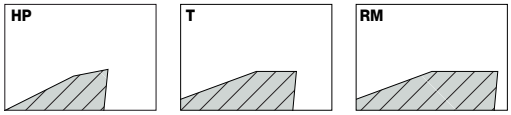




Designation	Dimensions IC	L	S	RE	Tough ↔ Hard IC882	IC330	IC830	IC5820	IC380	IC808	IC810	IC5600
H600 WXCU 040310HP	6.25	4.13	3.10	0.96	●	●	●					
H600 WXCU 040310T	6.25	4.13	3.10	0.96			●			●		●
H600 WXCU 05T312HP	8.33	5.50	4.20	1.20	●	●	●	●				
H600 WXCU 05T312T	8.33	5.50	4.20	1.20			●			●	●	
H600 WXCU 070515HP	11.14	7.16	5.90	1.50	●	●	●	●	●			
H600 WXCU 070515T	11.14	7.16	5.90	1.50			●			●	●	●
H600 WXCU 080612HP	13.65	8.80	6.80	1.20	●	●	●		●	●		
H600 WXCU 080612T	13.65	8.80	6.80	1.20			●			●	●	
H600 WXCU 080616RM	13.65	8.80	6.80	1.60			●			●		

- HP - for stainless steel and high temperature alloys • T - for alloy steel and cast iron ("I" mark on top rake face for identification)
- RM - for interrupted cut and hard materials

For tools, see pages: FF EWX (339) • FF EWX-M (340) • FF EWX-MM (341) • FF FWX (351) • MF EWX (341) • MF EWX-M (342) • MF FWX (352)

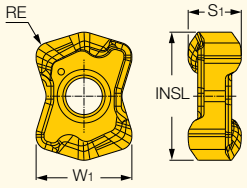


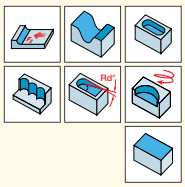
Inserts	Cutting Recommendations for FF Tools a_p (mm)	f_z (mm/t)	Radius for Programming on FF Tools	Cutting Recommendations for MF Tools a_p (mm)	f_z (mm/t)	Radius for Programming on MF Tools
H600 WXCU 040310HP	0.5-0.8	0.34-0.68	1.9	0.5-1.5	0.2-0.4	2.6
H600 WXCU 040310T	0.5-0.8	0.68-1.03	1.9	0.5-1.5	0.4-0.6	2.6
H600 WXCU 05T312HP	0.7-1.0	0.34-0.68	2.3	0.8-2.0	0.2-0.4	3.3
H600 WXCU 05T312T	0.7-1.0	0.68-1.03	2.3	0.8-2.0	0.4-0.6	3.3
H600 WXCU 070515HP	1.0-1.5	0.34-0.86	3.1	1-2.7	0.2-0.5	4.1
H600 WXCU 070515T	1.0-1.5	0.68-1.37	3.1	1-2.7	0.4-0.8	4.1
H600 WXCU 080612HP	1.5-2.0	0.34-0.86	3.3	1.8-3.5	0.2-0.5	4.8
H600 WXCU 080612T	1.5-2.0	0.68-1.37	3.3	1.8-3.5	0.4-0.8	4.8
H600 WXCU 080616RM	1.5-2.0	0.68-1.37	3.7	1.8-3.5	0.4-0.8	5.2

Inserts	Cutting Recommendations for FF Tools in plunging a_e (mm)	f_z (mm/t)	Radius for Programming on FF Tools	Cutting Recommendations for MF Tools in plunging a_e (mm)	f_z (mm/t)	Radius for Programming on MF Tools
H600 WXCU 040310HP	3.7	0.04-0.08	1.9	3.5	0.04-0.08	2.6
H600 WXCU 040310T	3.7	0.04-0.10	1.9	3.5	0.04-0.10	2.6
H600 WXCU 05T312HP	5	0.04-0.08	2.3	4.75	0.04-0.08	3.3
H600 WXCU 05T312T	5	0.04-0.10	2.3	4.75	0.04-0.10	3.3
H600 WXCU 070515HP	6.5	0.04-0.10	3.1	6.15	0.04-0.10	4.1
H600 WXCU 070515T	6.5	0.04-0.12	3.1	6.15	0.04-0.12	4.1
H600 WXCU 080612HP	8	0.04-0.10	3.3	7.65	0.04-0.10	4.8
H600 WXCU 080612T	8	0.04-0.12	3.3	7.65	0.04-0.12	4.8
H600 WXCU 080616RM	8	0.04-0.12	3.7	7.65	0.04-0.12	5.2

LOGIQ4FEED HIGH FEED MILLING

FFX4 XNMU/W-04
"Bone Shaped" Inserts
with 4 Cutting Edges
for Fast Feed Milling

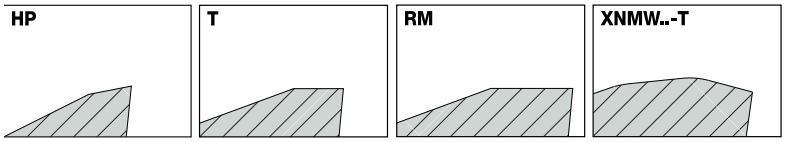




Designation	Dimensions INSL	S1	RE	W1	Tough ↔ Hard IC882	IC716	IC840	IC830	IC5820	IC808	IC810	IC5600	Recommended Machining Data a_p (mm)	f_z (mm/t)
FFX4 XNMU 040310HP	9.58	3.97	1.00	7.16	●	●	●	●	●				0.20-0.80	0.20-0.80
FFX4 XNMU 040310RM-HP	9.58	3.97	1.00	7.16	●					●			0.20-0.80	0.20-0.80
FFX4 XNMU 040310RM-T	9.58	3.95	1.00	7.16						●			0.20-0.80	0.40-1.20
FFX4 XNMU 040310T	9.58	3.95	1.00	7.16				●		●	●	●	0.20-0.80	0.40-1.20
FFX4 XNMW 040310T	9.27	3.97	1.14	7.16						●			0.20-0.60	0.20-1.20

- For side plunging, the initial cutting feed is 0.1 mm/t • HP- for austenitic stainless steel, titanium and high temperature alloys
- RM-reinforced type insert
- T- for steel, ferritic and martensitic stainless steel and cast iron • XNMW-T- for hard material (up to 49 HRC) and uneven surfaces

For tools, see pages: FFX4 ED (336) • FFX4 ED-M (336) • FFX4 ED-MM (337) • FFX4 FD-04 (337)



Average Cutting Data for FFX4 Fast Feed Cutters Size 04

ISO class DIN/ ISO 513	Description	Workpiece material ISCAR mat. group*	Hardness HB	Typical materials AISI/SAE/ASTM	Typical materials DIN W.-Nr.	Insert type	Carbide grade	D.O.C. a_p (mm)	Cutting Speed & Feed v_c (m/min)	f_z (mm/tooth)	Coolant
P	non-alloy steel	1-5	130-180	1020	1.040	T/RM-T	IC808	0.20-0.80	150-220	0.40-1.00	dry
							IC830		150-200	0.40-1.20	dry/wet
	low alloy steel	6-8	260-300	4340	1.658		IC808		150-200	0.40-0.90	dry
							IC830		120-180	0.40-1.10	dry/wet
		9	HRC 35-42**	3135	1.5710		IC808		130-180	0.40-0.80	dry
							IC830		120-160	0.40-1.00	dry/wet
	high alloy steel	10-11	200-220	H13	1.234		IC808		120-170	0.40-0.80	dry
							IC830		100-150	0.40-0.90	dry/wet
	ferritic/martensitic stainless steel	12-13	200	420	1.402		IC808		110-160	0.40-0.80	dry
							IC830		100-150	0.40-0.90	dry/wet
M	austenitic stainless steel	14	200	304L	1.431	HP/ RM-HP	IC830	0.20-0.80	80-120	0.20-0.80	wet
							IC840		80-140	0.20-0.80	
							IC5820		100-160	0.20-0.80	
							IC882		80-130	0.20-0.80	
K	grey cast iron	15-16	250	class 40	0.6025 (GG25)	T/RM-T	IC810	0.20-0.80	150-220	0.40-1.20	dry
	nodular cast iron	17-18	200	class 65-45-12	0.7050 (GGG50)		IC810		120-200	0.40-1.20	
S	high temperature alloys and titanium	31-32	220	330	1.486	HP/ RM-HP	IC882	0.20-0.80	40-60	0.20-0.70	wet
							IC5820		40-80	0.20-0.70	
							IC840		40-80	0.20-0.70	
							IC830		40-75	0.20-0.70	
		33-35	340	inconel 718	2.467		IC882		20-30	0.20-0.70	
							IC5820		25-35	0.20-0.70	
							IC840		25-35	0.20-0.70	
							IC830		25-30	0.20-0.70	
		36-37	30-32	AMS R56400	(Ti6Al4V ELI)		IC882		25-35	0.20-0.70	
							IC5820		25-40	0.20-0.70	
							IC840		25-35	0.20-0.70	
							IC830		20-30	0.20-0.70	
H	hardened steel	38	HRC 45-49	HARDOX 450 plate		XNMW	IC808	0.20-0.60	45-65	0.20-0.70	dry

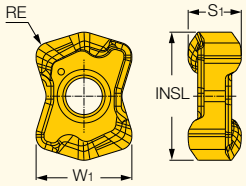
* ISCAR material group in accordance with VDI 3323 standard ** Quenched and tempered

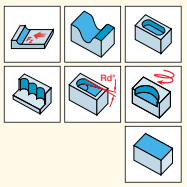
For machining under unstable conditions, the recommended cutting data should be reduced by 20-30%

LOGIQ4FEED HIGH FEED MILLING

FFX4 XNMU-08

"Bone Shaped" Inserts with 4 Cutting Edges for Fast Feed Milling

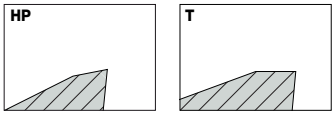




Designation	Dimensions INSL	S1	RE	W1	Tough ↔ Hard IC882	IC830	IC808	IC810	Recommended Machining Data a_p (mm)	f_z (mm/t)
FFX4 XNMU 080620HP	17.90	7.80	2.00	15.60	●	●	●		0.20-2.00	0.20-0.80
FFX4 XNMU 080620T	17.90	7.80	2.00	15.60		●	●	●	0.20-2.00	0.40-1.20

- For side plunging, the initial cutting feed is 0.1 mm/t
- T-for steel, ferritic and martensitic stainless steel, cast iron and hardened steel
- HP-for austenitic stainless steel and high temperature alloys

For tools, see pages: FFX4 FD-08 (338)



Average Cutting Data for FFX4 Fast Feed Cutters Size 08

ISO class DIN/ISO 513	Workpiece material Description	ISCAR mat. group*	Hardness HB	Typical representative AISI/SAE/ASTM	DIN W.-Nr.	Insert type	Carbide grade	D.O.C. a_p (mm)	Cutting speed v_c (m/min)	Feed f_z (mm/tooth)	Coolant
P	non-alloy steel	1-5	130-180	1020	1.0402	T	IC808	0.50-2.0	150-180	0.40-1.20	dry
							IC830		150-180	0.40-1.20	dry/wet
	low alloy steel	6-8	260-300	4340	1.6582		IC808		150-180	0.40-1.20	dry
							IC830		120-180	0.40-1.10	dry/wet
		9	HRC 35-42**	3135	1.5710		IC808		130-180	0.40-1.10	dry
							IC830		120-160	0.40-1.00	dry/wet
	high alloy steel	10-11	200-220	H13	1.2344		IC808		120-170	0.40-0.80	dry
							IC830		100-150	0.40-0.90	dry/wet
	ferritic/martensitic stainless steel	12-13	200	420	1.4021		IC808		110-160	0.40-0.80	dry
							IC830		100-150	0.40-0.90	dry/wet
M	austenitic stainless steel	14	200	304L	1.4306	HP	IC830	0.50-2.0	70-130	0.20-0.80	wet
							IC808		100-160	0.20-0.80	
							IC882		80-140	0.20-0.80	
K	gray cast iron	15-16	250	class 40	0.6025 (GG25)	T	IC810	0.50-2.0	150-220	0.40-1.20	dry
	nodular cast iron	17-18	200	class 65-45-12	0.7050 (GGG50)		IC810		120-200	0.40-1.20	
S	high temperature alloys and titanium	31-32	220	330	1.4864	HP	IC882	0.50-2.0	40-60	0.20-0.70	wet
							IC808		40-80	0.20-0.70	
							IC830		40-75	0.20-0.70	
		33-35	340	inconel 718	2.4668		IC882		20-30	0.20-0.70	
							IC808		25-40	0.20-0.70	
							IC830		25-35	0.20-0.70	
		36-37	30-32	AMS R56400	3.7165 (Ti6Al4V ELI)		IC882		30-50	0.20-0.70	
							IC808		40-60	0.20-0.70	
							IC830		35-55	0.20-0.70	
H	hardened steel	38	HRC 45-49	HARDOX 450 plate		T	IC808	0.50-2.0	50-75	0.20-0.50	dry

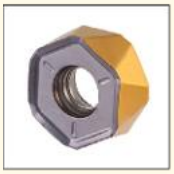
* ISCAR material group in accordance with VDI 3323 standard ** Quenched and tempered

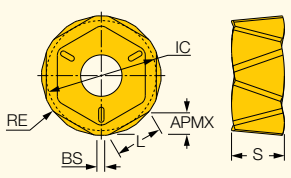
For machining under unstable conditions, the recommended cutting data should be reduced by 20-30%

HELI12FEED UPFEED LINE

H1200 HXCU 0606

Double-Sided Hexagonal Inserts with 12 Cutting Edges

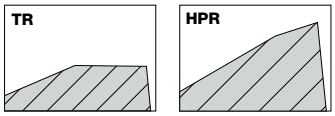




Designation	Dimensions APMX	L	BS	RE	IC	S	Tough ↔ Hard IC845	IC840	IC830	IC5500	IC808	IC810	Recommended Machining Data a_p (mm)	f_z (mm/t)
H1200 HXCU 0606-HPR	3.00	6.43	1.06	1.60	14.88	7.15		●	●		●		0.20-3.00	0.08-0.40
H1200 HXCU 0606-TR	3.00	6.43	1.06	1.60	14.88	7.15	●		●	●	●	●	0.20-3.00	0.25-0.65

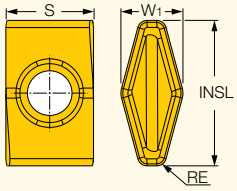
- TR-for steel and cast iron, HPR-for stainless steel and high temperature alloys
- For cutting speed recommendations, see pages 616-620

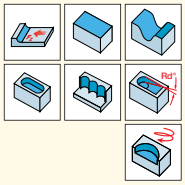
For tools, see pages: MF FHX-R06 (353)



TANG4FEED HI-FEED MILLING

FF VNMT 0706
Tangentially Clamped Inserts with 4 Cutting Edges for Fast Feed Milling





Designation	Dimensions W1	INSL	RE	S	Tough ↔ Hard IC882	IC845	IC840	IC830	IC5820	IC5500	IC808	IC810	IC5400	Recommended Machining Data a_p (mm)	f_z (mm/t)
FF VNMT 0706ZN-ER (1)	6.40	15.00	1.00	9.05	●	●	●	●	●		●	●	●	0.50-1.50	0.40-1.80
FF VNMT 0706ZN-ETR (2)	6.40	15.00	1.00	9.05				●		●	●	●		0.50-1.50	0.40-1.80

• For side plunging, the initial cutting feed is 0.1 mm/t
(1) For general applications
(2) Reinforced cutting edges for interrupted cut and unfavorable conditions

For tools, see pages: FFV-D-R-VN07 (353)

Average Cutting Data for FFV Size 07 Fast Feed Cutters

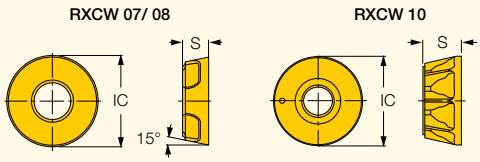
ISO class DIN/ ISO 513	Workpiece material: Description	ISCAR mat. group*	Hardness HB	Typical material: AISI/SAE/ ASTM	Typical material: DIN W.-Nr.	Insert type	Carbide grade	D.O.C. a_p (mm)	Cutting speed v_c (m/min)	Feed f_z (mm/tooth)	Coolant
P	non-alloy steel	1-5	130-180	1020	1.0402	ER / ETR	IC808	0.5-1.5	150-220	0.50-1.30	dry
							IC830		140-200	0.60-1.60	dry/wet
							IC845		130-180	0.70-1.80	dry/wet
							IC5400		150-250	0.50-1.10	dry
	low alloy steel	6-8	260-300	4340	1.6582		IC808		140-200	0.50-1.20	dry
							IC830		120-180	0.50-1.50	dry/wet
							IC845		100-160	0.60-1.60	dry/wet
							IC5400		140-220	0.50-1.30	dry
		9	HRC 35-42**	3135	1.5710		IC808		130-180	0.50-1.20	dry
							IC830		120-160	0.50-1.40	dry/wet
							IC845		100-150	0.50-1.50	dry/wet
							IC5400		130-190	0.50-1.10	dry
	high alloy steel	10-11	200-220	H13	1.2344		IC808		120-170	0.50-1.20	dry
							IC830		100-150	0.50-1.30	dry/wet
							IC845		90-140	0.50-1.40	dry/wet
							IC5400		120-180	0.50-1.10	dry
	ferritic/martensitic stainless steel	12-13	200	420	1.4021		IC808		110-160	0.50-1.20	dry
							IC830		100-150	0.50-1.30	dry/wet
							IC845		100-140	0.50-1.40	dry/wet
							IC5400		110-160	0.50-1.10	dry
M	austenitic stainless steel	14	200	304L	1.4306	ER	IC840	0.5-1.5	80-140	0.40-0.60	wet
							IC830		80-120	0.40-0.70	
							IC882		80-130	0.40-0.90	
							IC5820		100-160	0.40-0.80	
							IC808		100-160	0.40-0.70	
K	gray cast iron	15-16	250	class 40 class	0.6025 (GG25)	ER / ETR	IC810	0.5-1.5	150-220	0.50-1.80	dry
	nodular cast iron	17-18	200	65-45-12	0.7050 (GGG50)		IC810		120-200	0.50-1.80	
S	high temperature alloys and titanium	33-35	340	inconel 718	2.4668	ER	IC808	0.5-1.5	25-40	0.40-0.60	wet
							IC840		25-35	0.40-0.50	
							IC882		20-30	0.50-0.80	
							IC5820		25-35	0.50-0.70	
							IC830		20-30	0.40-0.60	
		36-37	HRC30-32	AMS R56400	3.7165 (Ti6Al4V ELI)		IC808		30-60	0.40-0.70	
							IC840		25-35	0.40-0.60	
							IC882		25-35	0.40-0.90	
							IC5820		20-30	0.40-0.80	
							IC830		20-30	0.40-0.70	
H	hardened steel	38.1	HRC 45-49	HARDOX 450 plate		ETR	IC808	0.5-1.5	75-90	0.40-0.80	dry

* ISCAR material group in accordance with VDI 3323 standard
** Quenched and tempered
For machining under unstable conditions, the recommended cutting data should be reduced by 20-30%

ISCARMILL

RXCW

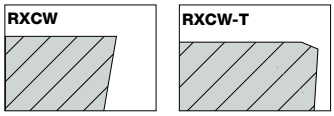
Precision Ground Flat Rake Round Milling Inserts



Designation	Dimensions IC	S	Tough ↔ Hard IC328	IC928	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
RXCW 0702	7.00	2.40	•	•	•	1.00-2.50	0.05-0.20
RXCW 0702-T	7.00	2.40			•	1.00-2.50	0.05-0.20
RXCW 0802	8.00	2.40	•	•	•	1.00-2.50	0.05-0.20
RXCW 0802-T	8.00	2.40			•	1.00-2.50	0.05-0.20
RXCW 10T3	10.00	3.97	•	•	•	1.00-5.00	0.10-0.25
RXCW 10T3-T	10.00	3.97			•	1.00-5.00	0.10-0.25

• For cutting speed recommendations, see pages 616-620

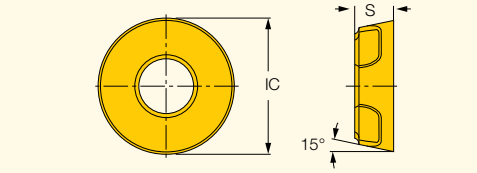
For tools, see pages: ER (319) • ER-M (320)



ISCARMILL

RXCR

Precision Ground Positive Rake Round Milling Inserts



Designation	Dimensions IC	S	Tough ↔ Hard IC328	IC928	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
RXCR 05T1	5.00	1.50	•		•	1.00-2.00	0.05-0.10
RXCR 0702	7.00	2.40	•			1.00-2.00	0.05-0.10
RXCR 0802	8.00	2.40	•			1.00-2.00	0.05-0.10
RXCR 10T3	10.00	3.97		•		1.00-5.00	0.10-0.25

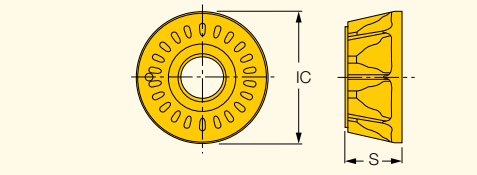
• For cutting speed recommendations, see pages 616-620

For tools, see pages: ER (319) • ER-M (320)

ISCARMILL

RXMT 10

Positive Rake Round Milling Inserts for Rough Operations



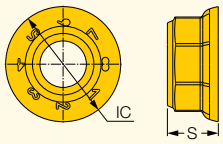
Designation	Dimensions IC	S	Tough ↔ Hard IC328	IC950	Recommended Machining Data a_p (mm)	f_z (mm/t)
RXMT 10T3-RM	10.00	3.97	•	•	1.00-5.00	0.10-0.25

• Star-shaped bottom for indexing and to prevent insert rotation • For cutting speed recommendations, see pages 616-620

For tools, see pages: ER (319) • ER-M (320)

HELIDO 800 LINE

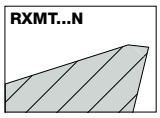
RXMT 1607
Round Milling Inserts

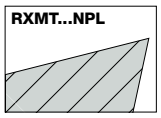


Designation	Dimensions IC	Dimensions S	IC830	Recommended Machining Data a_p (mm)	Recommended Machining Data f_z (mm/t)
RXMT 1607N	16.00	7.00	●	0.50-8.00	0.08-0.30
RXMT 1607NPL	16.00	7.00	●	0.50-8.00	0.08-0.30

• For cutting speed recommendations, see pages 616-620

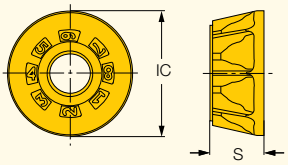
For tools, see pages: SOE45 8/16 (52) • SOF45 (260)

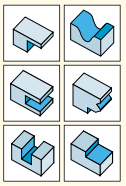




CHAMMILL

R90CW
Round Flat Rake Inserts
for Profile Milling





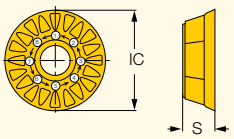
Designation	Dimensions IC	Dimensions S	IC908	Recommended Machining Data a_p (mm)	Recommended Machining Data f_z (mm/t)
R90CW 1205-T	12.00	5.00	●	2.00-6.00	0.12-0.20
R90CW 43-T	12.70	5.40	●	2.00-6.00	0.12-0.20

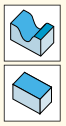
• For cutting speed recommendations, see pages 616-620

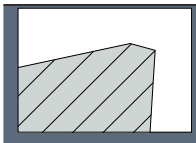
For tools, see pages: ER-M (320)

HELIOCTO

REMT-76
Round Milling Inserts with
Ribs on the Rake Face







Designation	Dimensions IC	Dimensions S	Tough ↔ Hard IC330	Tough ↔ Hard IC830	Recommended Machining Data a_p (mm)	Recommended Machining Data f_z (mm/t)
REMT 1505-LM-76	15.87	5.24	●	●	3.00-7.00	0.12-0.20

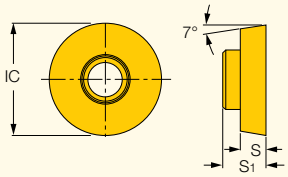
• For cutting speed recommendations, see pages 616-620

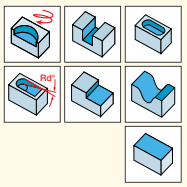
For tools, see pages: HOE-R06 (256) • HOF-R06 (256)

MILLSHRED ROUND LINE

RCMW/RCCW-MO

Round Flat Rake Milling Inserts





Designation	Dimensions IC	S	S1	Tough ↔ Hard IC928	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
RCCW 1206MO	12.00	4.00	6.40		•	2.50-5.00	0.15-0.40
RCMW 1607MO	16.00	5.00	7.90		•	3.00-6.00	0.20-0.75
RCMW 2009MO	20.00	6.00	9.40	•		4.00-8.00	0.20-0.75

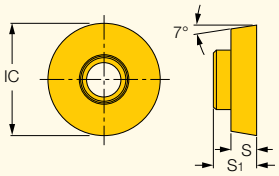
• For cutting speed recommendations, see pages 616-620

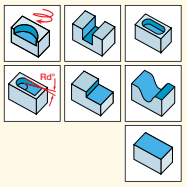
For tools, see pages: ERW (321) • ERW-M (322) • FRW (323)

MILLSHRED ROUND LINE

RCMT/RCCT-MO

Round Positive Rake Milling Inserts





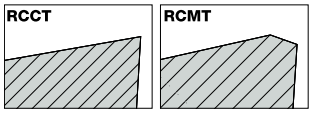
Designation	Dimensions IC	S	S1	Tough ↔ Hard IC882	IC28	IC328	IC928	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
RCCT 1004MO-P (1)	10.00	3.20	4.75		•				2.00-4.00	0.12-0.30
RCCT 1206MO	12.00	4.00	6.40	•		•	•	•	2.50-5.00	0.15-0.40
RCCT 1206MO-P (1)	12.00	4.00	6.40		•				2.50-5.00	0.15-0.40
RCCT 1206MO-T	12.00	4.00	6.40	•			•		2.50-5.00	0.15-0.40
RCCT 1607MO-P (1)	16.00	5.00	7.90		•				3.00-6.00	0.15-0.40
RCMT 1607MO	16.00	5.00	7.90				•	•	3.00-6.00	0.15-0.40
RCCT 2009MO-P (1)	20.00	6.00	9.40		•				4.00-8.00	0.15-0.40
RCMT 2009MO	20.00	6.00	9.40				•	•	4.00-8.00	0.15-0.40

• RCMT - Positive rake and reinforced cutting edge • RCCT - Positive rake and sharp cutting edge • Both used mainly on stainless steel

• For cutting speed recommendations, see pages 616-620

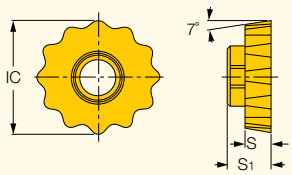
(1) Polish insert for aluminum

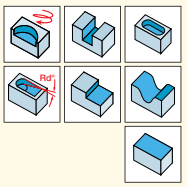
For tools, see pages: ERW (321) • ERW-M (322) • FRW (323)



MILLSHRED ROUND LINE

RCMT/RCMW/RCCW-FW
Fully Effective Serrated Inserts with Four Options for Indexing Orientation



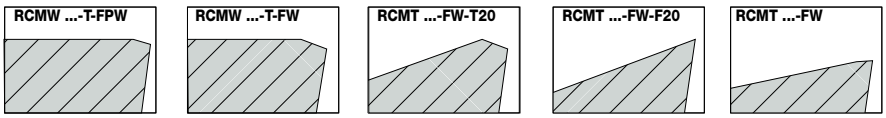


Designation	Dimensions IC	S	S1	Tough ↔ Hard IC28	IC830	IC928	IC808	IC908	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
RCMT 1004-FW (1)	10.00	3.20	4.80		●					2.00-4.00	0.15-0.30
RCMT 1004-FW-F20 (2)	10.00	3.20	4.80		●					2.00-4.00	0.15-0.30
RCMT 1004-FW-F20-P (3)	10.00	3.20	4.80	●						2.00-4.00	0.15-0.30
RCMT 1206-FW (1)	12.00	4.00	6.40			●				2.50-5.00	0.20-0.35
RCMT 1206-FW-F20 (2)	12.00	4.00	6.40			●		●		2.50-5.00	0.20-0.35
RCMT 1206-FW-F20-P (3)	12.00	4.00	6.40	●						2.50-5.00	0.20-0.35
RCMT 1206-FW-T20 (4)	12.00	4.00	6.40			●				2.50-5.00	0.20-0.35
RCMT 1607-FW (1)	16.00	5.00	7.90		●	●	●	●		3.00-6.00	0.20-0.35
RCMT 1607-FW-F20 (2)	16.00	5.00	7.90			●		●		3.00-6.00	0.20-0.35
RCMT 1607-FW-F20-P (3)	16.00	5.00	7.90	●						3.00-6.00	0.20-0.35
RCMT 1607-FW-T20 (4)	16.00	5.00	7.90			●		●		3.00-6.00	0.20-0.35
RCMW 1607-T-FPW (5)	16.00	5.00	7.90					●		3.00-6.00	0.20-0.35
RCMW 1607-T-FW (6)	16.00	5.00	7.90			●		●	●	3.00-6.00	0.20-0.35
RCMT 2009-FW (1)	20.00	6.00	9.40			●		●		4.00-8.00	0.20-0.35
RCMT 2009-FW-F20 (2)	20.00	6.00	9.40			●				4.00-8.00	0.20-0.35
RCMT 2009-FW-F20-P (3)	20.00	6.00	9.40	●						4.00-8.00	0.20-0.35
RCMT 2009-FW-T20 (4)	20.00	6.00	9.40			●				4.00-8.00	0.20-0.35
RCMW 2009-T-FW (6)	20.00	6.00	9.40			●				4.00-8.00	0.20-0.35

- For cutting speed recommendations, see pages 616-620

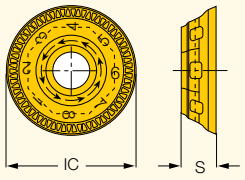
(1) For alloyed and stainless steel and exotic materials.
(2) For austenitic stainless steel, exotic materials and aluminum.
(3) Polish insert for aluminum
(4) For martensitic stainless steel
(5) For hardened steel
(6) For tool and die steel and cast iron

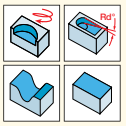
For tools, see pages: ERW (321) • ERW-M (322) • FRW (323)



HELIOCTO

RFMT 1905-76
Round Milling Inserts





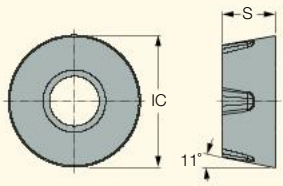
Designation	Dimensions IC	S	Tough ↔ Hard IC328	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
RFMT 1905-LM-76	19.74	5.48	●	●	3.00-8.00	0.15-0.25

- For cutting speed recommendations, see pages 616-620

For tools, see pages: HOF-R07 (257)

ROUNDMILL

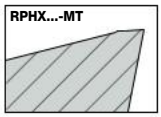
RPHX/RPMX
Round Milling Inserts with Specially Shaped Indexing Grooves



Designation	Dimensions IC	S	Tough ↔ Hard IC5820	IC5500	Recommended Machining Data a_p (mm)	f_z (mm/t)
RPHX 1003M0-MT5	10.00	3.30	●	●	0.50-3.10	0.15-0.35
RPMX 1003M0-HT5	10.00	3.30	●		0.50-3.10	0.15-0.25
RPHX 1204M0-MT5	12.00	4.78		●	0.50-3.80	0.20-0.45
RPHX 1204M0-HT5	12.00	4.78	●	●	0.50-3.80	0.15-0.40
RPMX 1204M0	12.00	4.78		●	0.50-5.60	0.20-0.45

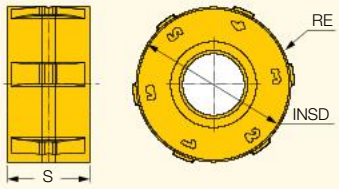
- MT - Recommended mainly for steel, ferritic and martensitic stainless steel (ISO P group)
- HT - Intended mostly for austenitic, duplex stainless steel and high temperature alloys (ISO M and S groups)

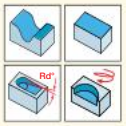
For tools, see pages: ERMT (320) • FRMT (321)



ROUNDMILL

RDS RNMU/RNMW
Double-Sided Round Inserts with 12 Cutting Edges for Profile Milling



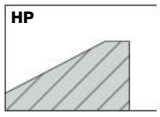


Designation	Dimensions INSD	RE	S	Tough ↔ Hard IC882	IC830	IC5500	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
RDS RNMU1255EN-HP	12.00	6.00	5.43	●	●	●		0.20-2.50	0.10-0.35
RDS RNMW1255EN-T	12.00	6.00	5.43				●	0.20-2.50	0.10-0.35

New

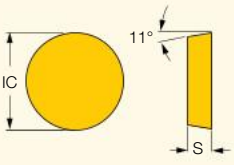
- HP- for austenitic stainless steel, titanium and high temperature alloys and soft steel
- T- for steel, ferritic and martensitic stainless steel, cast iron and hardened steel
- For cutting speed recommendations, see pages 616-620

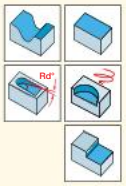
For tools, see pages: RDS ER-M (318) • RDS FR-12 (318)



ISCAR CER-LINE

RPGN (CER)
Positive Round Ceramic Inserts for Machining Cast Iron and Heat-Resistant Alloys





Designation	Dimensions IC	S	Tough ↔ Hard IS45	IS15	IS14	Recommended Machining Data a_p (mm)	f_z (mm/t)
RPGN 060200 E004	6.35	2.38	●	●	●	0.50-1.50	0.10-0.30
RPGN 060200 T00520	6.35	2.38	●			0.50-1.50	0.08-0.15
RPGN 060200 T01020	6.35	2.38	●	●	●	0.50-1.50	0.08-0.15

New

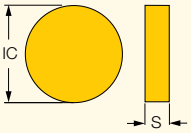
- For user guide and cutting speed recommendations, see pages 616-620

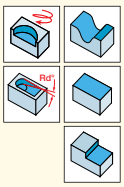
For tools, see pages: ERP (319)

ISCAR CER LINE

RNGN (CER)

Negative Round Double-Sided Ceramic Inserts for Machining Cast Iron, Hardened Steel, and Heat-Resistant Alloys





Designation	Dimensions IC	S	Tough ↔ Hard IS55	IS45	IS45C	IS26	IS15	IS14	IW10	IN20	IN16	IN16C	IN10	Recommended Machining Data a_p (mm)	f_z (mm/t)
RNGN 120700 E004	12.70	7.94	•	•			•	•	•					0.05-3.00	0.05-0.50
RNGN 120700 T01020	12.70	7.94	•			•	•	•	•					0.10-4.50	0.05-0.50
RNGN 120700 T00520	12.70	7.94		•					•					0.05-3.00	0.05-0.50
RNGN 120700 P20015	12.70	7.94								•	•		•	0.05-3.00	0.05-0.50

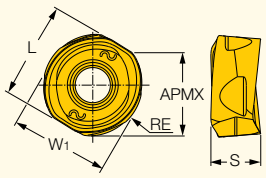
• For user guide and cutting speed recommendations, see pages 616-620

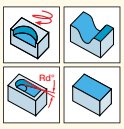
For tools, see pages: FRN (320)

HELIDO ROUND H400 LINE

H400 RNHU

Double-Sided Inserts with Four 5, 6 and 8 mm Radii Cutting Edges for Profile Milling





Designation	Dimensions RE	L	W1	APMX	S	Tough ↔ Hard IC330	IC830	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
H400 RNHU 1004-AX (1)	5.00	9.20	9.30	7.50	4.70		•	•	1.00-5.00	0.10-0.30
H400 RNHU 1004-HP (2)	5.00	9.20	9.30	7.50	4.05		•		1.00-5.00	0.10-0.30
H400 RNHU 1004-ML (3)	5.00	9.20	9.30	7.50	4.05		•	•	1.00-5.00	0.10-0.30
H400 RNHU 1205-AX (1)	6.00	11.00	11.20	8.70	5.20		•	•	2.00-6.00	0.15-0.30
H400 RNHU 1205-HP (2)	6.00	11.00	11.20	8.70	4.75	•	•		2.00-6.00	0.15-0.30
H400 RNHU 1205-ML (3)	6.00	11.00	11.20	8.70	4.75		•	•	2.00-6.00	0.15-0.30
H400 RNHU 1606-AX (1)	8.00	14.70	13.90	12.00	7.80	•	•	•	3.00-8.00	0.15-0.40
H400 RNHU 1606-HP (2)	8.00	14.70	13.90	12.00	7.80		•		3.00-8.00	0.15-0.40
H400 RNHU 1606-ML (3)	8.00	14.70	13.90	12.00	7.80		•	•	3.00-8.00	0.15-0.40

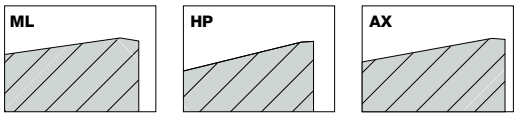
• For cutting speed recommendations, see pages 616-620

(1) First priority for austenitic stainless steel, second priority for steel, ferritic and martensitic stainless

(2) First priority for titanium and high temperature alloys, second priority for austenitic stainless steel

(3) First priority for steel, ferritic and martensitic stainless steel, second priority for austenitic stainless steel

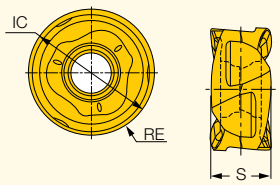
For tools, see pages: H400 ER-10 (324) • H400 ER-12 (324) • H400 ER-M (325) • H400 FR-10 (325) • H400 FR-12 (326) • H400 FR-16 (327)

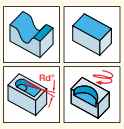


HELIDO ROUND H606 LINE

H606 RXCU 1206

Double-Sided Round Inserts with Six Cutting Edges for Profile Milling





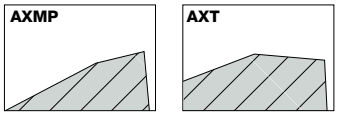
Designation	Dimensions INSD	RE	S	Tough ↔ Hard IC330	IC830	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
H606 RXCU 1206-AXMP (1)	12.20	6.00	5.90	•	•	•	2.00-6.00	0.10-0.40
H606 RXCU 1206-AXT (2)	12.20	6.00	5.90		•	•	2.00-6.00	0.10-0.40

• For cutting speed recommendations, see pages 616-620

(1) For stainless steel and high temperature alloys

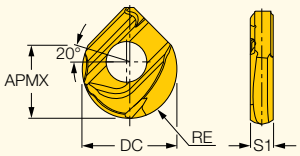
(2) For steel and cast iron applications

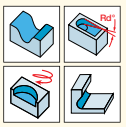
For tools, see pages: H606 ER-M (328) • H606 FR-12 (328)



BALLPLUS

HBR-QF
220° Spherical Profile Inserts for Roughing and Semi-Finishing, Up and Down Ramping and Undercutting





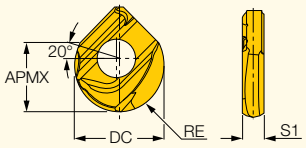
Designation	Dimensions DC	APMX	RE	S1	Tough ↔ Hard IC328	IC928	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
HBR D100-QF	10.00	6.70	5.00	2.30			●	1.50-5.00	0.08-0.15
HBR D120-QF	12.00	8.00	6.00	2.60	●		●	2.00-6.00	0.08-0.15
HBR D160-QF	16.00	10.30	8.00	3.37	●	●	●	2.50-8.00	0.08-0.15
HBR D200-QF	20.00	13.40	10.00	4.65	●		●	3.00-10.00	0.08-0.15
HBR D250-QF	25.00	16.70	12.50	5.40			●	4.00-12.50	0.08-0.15

• For cutting speed recommendations, see pages 616-620

For tools, see pages: HCM D10 (304) • HCM D12 (304) • HCM D16 (304) • HCM D20 (305) • HCM D25 (305) • HCM-M (306) • HCM-MM (307)

BALLPLUS

HBF-QF
220° Spherical Profile Inserts for Accurate Finishing, Up and Down Ramping and Undercutting



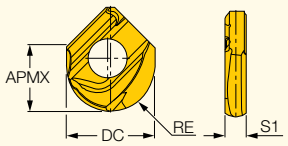
Designation	Dimensions DC	APMX	RE	S1	Tough ↔ Hard IC928	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
HBF D120-QF	12.00	8.00	6.00	2.60	●	●	2.00-6.00	0.03-0.15
HBF D160-QF	16.00	10.30	8.00	3.37		●	2.50-8.00	0.03-0.15
HBF D200-QF	20.00	13.40	10.00	4.65	●	●	3.00-10.00	0.03-0.15
HBF D250-QF	25.00	17.00	12.50	5.40	●	●	4.00-12.50	0.03-0.15

• For cutting speed recommendations, see pages 616-620

For tools, see pages: HCM D12 (304) • HCM D16 (304) • HCM D20 (305) • HCM D25 (305) • HCM-M (306) • HCM-MM (307)

BALLPLUS

HCR
Ball Nose Inserts with 2 Straight Tangent Cutting Edges (Fully Effective) for Cavity Profiling and Shouldering



Designation	Dimensions DC	APMX	RE	S1	Tough ↔ Hard IC328	IC928	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
HCR D100-QF	10.00	7.00	5.00	2.30			●	1.50-5.00	0.08-0.15
HCR D120-QF	12.00	9.00	6.00	2.60			●	2.00-8.50	0.08-0.15
HCR D120-QP	12.00	9.80	6.00	2.60	●	●		2.00-8.50	0.08-0.15
HCR D160-QF	16.00	11.30	8.00	3.37	●		●	2.50-11.00	0.08-0.15
HCR D200-QF	20.00	14.70	10.00	4.65			●	3.00-14.00	0.08-0.15
HCR D250-QF	25.00	18.40	12.50	5.40			●	4.00-17.50	0.08-0.15

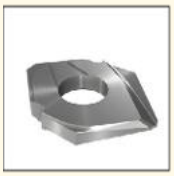
• QF - For general use applications • QP - Positive chipformer for low cutting forces. Recommended for machining aluminum, titanium and other exotic materials
• For cutting speed recommendations, see pages 616-620

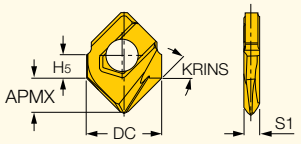
For tools, see pages: HCM D10 (304) • HCM D12 (304) • HCM D16 (304) • HCM D20 (305) • HCM D25 (305) • HCM-M (306) • HCM-MM (307)

BALLPLUS

HCD-QF

90° V-Shaped Inserts with 2 Cutting Edges for Chamfering, Countersinking and Spot Drilling





Designation	Dimensions DC	APMX	KRINS(1)	S1	H5	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
HCD D120-090-QF	12.00	5.00	45.0	2.60	4.00	●	1.50-4.00	0.08-0.15
HCD D124-090-QF	12.40	5.10	45.0	2.60	4.00	●	1.50-4.00	0.08-0.15
HCD D160-090-QF	16.00	7.50	45.0	3.37	4.50	●	2.00-6.00	0.08-0.15
HCD D205-090-QF	20.50	9.50	45.0	4.65	6.00	●	2.50-7.00	0.08-0.15
HCD D250-090-QF	25.00	12.00	45.0	5.40	7.00	●	3.00-9.00	0.08-0.15

• For cutting speed recommendations, see pages 616-620

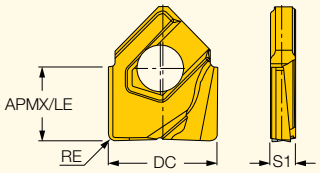
(1) Edge angle related to the wiper

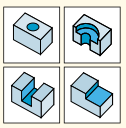
For tools, see pages: HCM D12 (304) • HCM D16 (304) • HCM D20 (305) • HCM D25 (305) • HCM-M (306) • HCM-MM (307)

BALLPLUS

HCC-QF

Inserts with 2 Cutting Edges (Fully Effective) for Shouldering, Slotting, Drilling and Countersinking





Designation	Dimensions DC	APMX	RE	S1	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
HCC D120-R0.5-QF	12.00	8.10	0.50	2.60	●	3.50-7.50	0.08-0.15
HCC D120-R1.0-QF	12.00	8.10	1.00	2.60	●	3.50-7.50	0.08-0.15
HCC D120-R2.0-QF	12.00	8.10	2.00	2.60	●	3.50-7.50	0.08-0.15
HCC D160-R0.5-QF	16.00	10.30	0.50	3.37	●	5.00-10.00	0.08-0.15
HCC D160-R1.0-QF	16.00	10.30	1.00	3.37	●	5.00-10.00	0.08-0.15
HCC D160-R2.0-QF	16.00	10.30	2.00	3.37	●	5.00-10.00	0.08-0.15
HCC D200-R0.5-QF	20.00	12.80	0.50	4.65	●	6.00-12.00	0.08-0.15
HCC D200-R1.0-QF	20.00	12.80	1.00	4.65	●	6.00-12.00	0.08-0.15
HCC D200-R2.0-QF	20.00	12.80	2.00	4.65	●	6.00-12.00	0.08-0.15
HCC D200-R3.0-QF	20.00	12.80	3.00	4.65	●	6.00-12.00	0.08-0.15
HCC D250-R1.0-QF	25.00	14.70	1.00	5.40	●	7.50-15.50	0.08-0.15
HCC D250-R2.0-QF	25.00	14.70	2.00	5.40	●	7.50-15.50	0.08-0.15
HCC D250-R3.0-QF	25.00	14.70	3.00	5.40	●	7.50-15.50	0.08-0.15
HCC D250-R4.0-QF	25.00	14.70	4.00	5.40	●	7.50-15.50	0.08-0.15

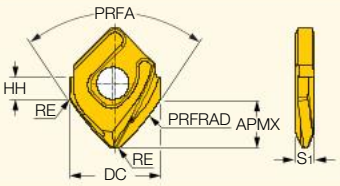
• For cutting speed recommendations, see pages 616-620

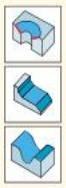
For tools, see pages: HCE (31) • HCE-MM (31) • HCM D12 (304) • HCM D16 (304) • HCM D20 (305) • HCM D25 (305) • HCM-M (306) • HCM-MM (307)

NEOBARREL PROFILE MILLING

HCT-QF

Taper Barrel-Shaped Inserts with 2 Cutting Edges





Designation	Dimensions DC	APMX	S1	RE	PRFRAD	PRFA	HH	IC908
HCT D120-QF	12.00	6.65	2.60	1.20	30.00	80.00	2.8	●
HCT D160-QF	16.00	8.50	3.37	1.60	45.00	80.00	3.3	●
HCT D200-QF	20.00	10.50	4.65	2.00	60.00	80.00	5.5	●
HCT D250-QF	25.00	12.50	5.40	3.00	75.00	80.00	5.9	●

New

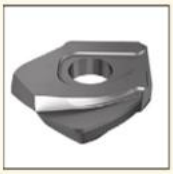
- For cutting speed recommendations, see pages 616-620

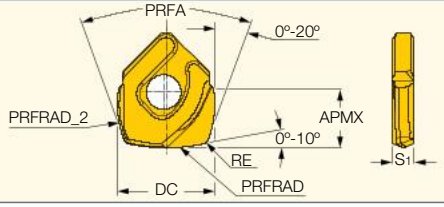
For tools, see pages: HCM D12 (304) • HCM D16 (304) • HCM D20 (305) • HCM D25 (305) • HCM-M (306) • HCM-MM (307)

NEOBARREL PROFILE MILLING

HLB-QF

Combined Barrel and Lens-shaped Inserts with 2 Cutting Edges





Designation	Dimensions DC	APMX	S1	RE	PRFRAD	PRFRAD_2	PRFA	IC908
HLB D120-QF	12.00	5.00	2.60	1.20	24.00	12.00	20.00	●
HLB D160-QF	16.00	7.00	3.37	1.50	32.00	16.00	20.00	●
HLB D200-QF	20.00	9.00	4.65	2.00	40.00	20.00	20.00	●
HLB D250-QF	25.00	11.00	5.40	2.50	50.00	25.00	20.00	●

New

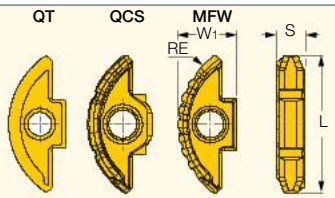
- For cutting speed recommendations, see pages 616-620

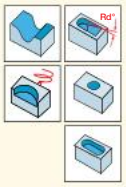
For tools, see pages: HCE (31) • HCE-MM (31) • HCM D12 (304) • HCM D16 (304) • HCM D20 (305) • HCM D25 (305) • HCM-M (306) • HCM-MM (307)

DROPMILL 3 FLUTE BALL NOSE

BLR

Round Segment Double-Sided Inserts for Ball Nose Milling Cutters





Designation	Dimensions RE(1)	L	W1	S	Tough ↔ Hard IC882	IC330	IC830	IC808	Recommended Machining Data f_z (mm/t)
BLR D160-MFW	8.00	13.10	6.10	2.55			●		0.08-0.15
BLR D160-QCS	8.00	13.10	6.10	2.55		●		●	0.08-0.15
BLR D160-QT	8.00	13.10	6.10	2.55	●				0.08-0.15
BLR D200-MFW	10.00	16.40	7.60	3.40			●		0.08-0.15
BLR D200-QCS	10.00	16.40	7.60	3.40		●		●	0.08-0.15
BLR D200-QT	10.00	16.40	7.60	3.40	●				0.08-0.15
BLR D250-MFW	12.50	20.50	8.90	3.80			●		0.08-0.15
BLR D250-QCS	12.50	20.50	8.90	3.80		●		●	0.08-0.15
BLR D250-QT	12.50	20.50	8.90	3.80	●				0.08-0.15
BLR D300-QCS	15.00	24.50	10.75	4.60			●	●	0.08-0.15
BLR D300-QT	15.00	24.50	10.75	4.60	●				0.08-0.15
BLR D320-MFW	16.00	26.30	11.00	4.60			●		0.08-0.25
BLR D320-QCS	16.00	26.30	11.00	4.60			●	●	0.08-0.25
BLR D320-QT	16.00	26.30	11.00	4.60	●				0.08-0.25
BLR D400-MFW	20.00	32.70	14.20	5.50			●		0.08-0.25
BLR D400-QCS	20.00	32.70	14.20	5.50		●		●	0.08-0.25
BLR D500-MFW	25.00	40.90	17.80	7.40		●			0.08-0.25
BLR D500-QCS	25.00	40.90	17.80	7.40		●		●	0.08-0.25

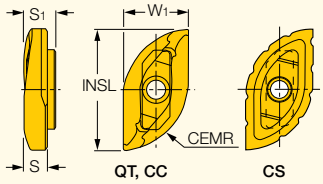
- MFW - Serrated cutting edge for roughing operations • QCS - Chip splitting cutting edge for semi-finish applications • QT - Round edge for finishinging applications
- For cutting speed recommendations, see pages 616-620

(1) Radius generated on workpiece

For tools, see pages: BLP Endmills (307) • BLP Shell Mill (308) • BLP-M (308)

DROPMILL

BCR
Ball Nose Inserts with a Straight Cutting Edge Tangent to a Round Corner



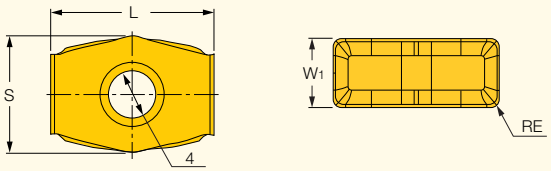
Designation	Dimensions CEMR[3]	INSL	W1	S1	S	Tough ↔ Hard IC328	IC928	IC808	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
BCR D120-QT	6.00	10.60	5.80	2.80	2.10	●			●	1.20-4.20	0.20-0.25
BCR D160-QT	8.00	12.70	7.70	4.40	3.30		●		●	1.60-5.60	0.20-0.25
BCR D200-CC [1]	10.00	17.00	9.20	4.70	3.60			●		2.00-7.00	0.20-0.25
BCR D200-QT	10.00	17.00	9.60	4.70	3.60				●	2.00-7.00	0.20-0.25
BCR D250-QT	12.50	20.00	11.80	5.70	4.20	●	●		●	2.50-8.75	0.20-0.25
BCR D300-QT	15.00	27.30	14.70	7.00	5.30	●	●			3.00-10.50	0.20-0.25
BCR D320-CS [2]	16.00	28.00	15.00	7.00	5.30				●	3.20-11.20	0.20-0.25
BCR D320-QT	16.00	28.00	15.10	7.00	5.30	●	●		●	3.20-11.20	0.20-0.25
BCR D400-CS [2]	20.00	35.40	18.80	9.40	6.30				●	4.00-14.00	0.20-0.25
BCR D400-QT	20.00	35.40	18.80	9.74	7.00	●				4.00-14.00	0.20-0.25
BCR D500-CS [2]	25.00	44.00	24.00	11.70	9.00				●	5.00-17.50	0.20-0.25

• For cutting speed recommendations, see pages 616-620
[1] Center Cutting
[2] Not recommended for stainless steel and high temperature alloys
[3] Radius generated on workpiece

For tools, see pages: BCM (309) • BCM-M (310) • BCM-MM (310)

ISCARPLUNGER

PLHT
Tangentially Clamped Inserts with 4 Cutting Edges for Plungers

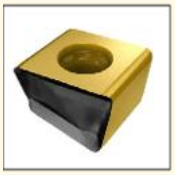


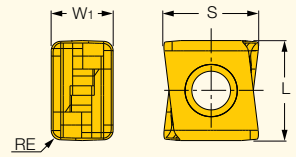
Designation	Dimensions W1	L	RE	S	Tough ↔ Hard IC328	IC908	Recommended Machining Data f_z (mm/t)
PLHT 1305-PDX	5.45	13.70	0.60	9.95	●	●	0.12-0.12

• For cutting speed recommendations, see pages 616-620

TANGPLUNGE
PLUNGING LINE

HTP LN.. 0604
Tangentially Clamped Inserts with 4 Cutting Edges for Plungers

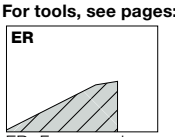




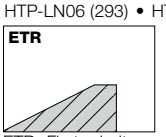
Designation	Dimensions W1	L	S	RE	Tough ↔ Hard IC330	IC830	IC808	IC810	IC07	Recommended Machining Data f_z (mm/t)
HTP LNAR 0604 FR-P	4.06	6.50	6.77	0.80					●	0.05-0.15
HTP LNHT 0604 ER	4.06	6.50	6.77	0.80	●	●	●	●		0.08-0.12
HTP LNHT 0604 ETR	4.06	6.50	6.77	0.80	●	●	●			0.08-0.12
HTP LNMT 0604 ER [1]	4.06	6.50	6.84	0.60		●	●			0.08-0.15

• FR-P-For machining aluminum, ER- For general applications, ETR- First priority for hardened steel • For cutting speed recommendations, see pages 616-620
[1] Mounting this insert increases tool diameter by 0.2 mm

For tools, see pages: HTP-LN06 (293) • HTP-M-LN06 (293)



ER- For general applications

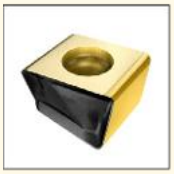


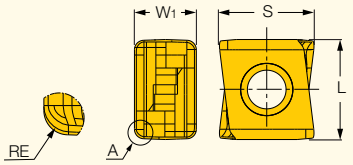
ETR- First priority for hardened steel

TANGPLUNGE PLUNGING LINE

HTP LN.. 1006

Tangentially Clamped Inserts with 4 Cutting Edges for Plungers





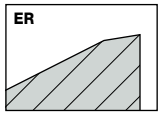
Designation	Dimensions W1	L	S	RE	Tough ↔ Hard IC330	IC830	IC808	IC810	IC07	Recommended Machining Data f_z (mm/t)
HTP LNAR 1006 FR (1)	6.50	10.50	10.13	1.00			●			0.05-0.15
HTP LNAR 1006 FR-P	6.50	10.50	10.13	1.00					●	0.05-0.15
HTP LNHT 1006 ER	6.50	10.50	9.93	1.00	●	●	●	●		0.10-0.15
HTP LNHT 1006 ETR	6.50	10.50	9.93	1.00	●	●	●			0.12-0.20
HTP LNMT 1006 ER (2)	6.50	10.50	9.96	1.00	●	●	●			0.08-0.15

• FR-P - For machining aluminum, ER- For general applications, ETR- First priority for hardened steel • For cutting speed recommendations, see pages 616-620

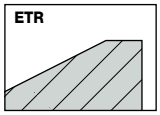
(1) FR - Sharp cutting edge for unstable conditions and for ISO S material

(2) Mounting this insert increases tool diameter by 0.1 mm

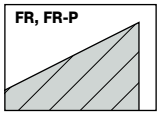
For tools, see pages: HTF-R-LN10 (233) • HTP-LN10 (294) • HTP-M-LN10 (294) • HTP-R-LN10 (294)



ER- for general applications



ETR- first priority for hardened steel

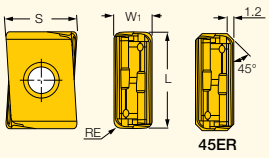


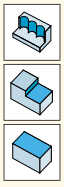
FR-P- for machining aluminum

TANGPLUNGE PLUNGING LINE

HTP LN.. 1606

Tangentially Clamped Inserts with 4 Cutting Edges for Plungers

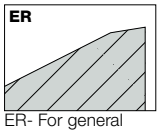




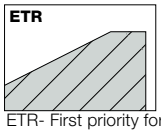
Designation	Dimensions W1	L	S	RE	Tough ↔ Hard IC328	IC928	IC908	IC810	IC910	IC07	Recommended Machining Data f_z (mm/t)
HTP LNAR 1606 FR-P	6.50	16.50	12.28	1.20						●	0.05-0.15
HTP LNHT 1606 ER	6.50	16.50	12.07	1.20	●	●	●		●		0.10-0.20
HTP LNHT 1606 ETR	6.50	16.50	12.03	1.20		●	●				0.10-0.20
HTP LNHT 16061.2X45ER	6.50	16.50	12.04	-		●					0.10-0.20
HTP LNMT 1606 ETR	6.50	16.50	12.04	1.20				●			0.08-0.15

• FR-P-For machining aluminum, ER- For general applications, ETR- First priority for hardened steel • For cutting speed recommendations, see pages 616-620

For tools, see pages: HTP-R-LN16 (295)



ER- For general applications

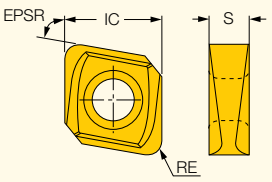


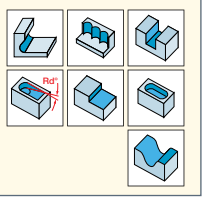
ETR- First priority for hardened steel

TORMILL

CNHT/MT 07

Toroidal Bull Nose Peripherally Ground Inserts with 4 Cutting Edges





Designation	Dimensions IC	RE	S	EPSR	Tough ↔ Hard IC808	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
CNHT 070305	7.00	0.50	3.60	80.0		●	0.10-1.50	0.10-0.25
CNMT 070308-MM (1)	7.00	0.80	4.00	80.0	●		0.80-4.00	0.12-0.30
CNHT 070310	7.00	1.00	3.60	80.0		●	0.10-1.50	0.10-0.25
CNHT 070315	7.00	1.50	3.60	80.0		●	0.10-1.50	0.10-0.25

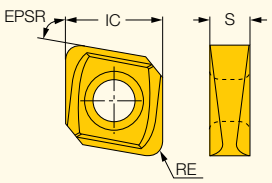
• For cutting speed recommendations, see pages 616-620

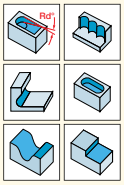
(1) Do not use on E93CN tools

For tools, see pages: E90CN (19) • E90CN-M (19) • E93CN-07 (311) • E93CN-M-07 (311) • E93CN-MM-07 (312)

TORMILL

ENHT
Toroidal Bull Nose
Peripherally Ground Inserts
with 4 Cutting Edges





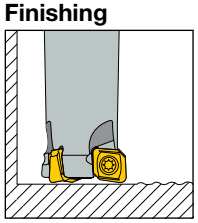
Designation	Dimensions IC	RE	S	EPSR	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
ENHT 100408	10.50	0.80	4.20	75.0	●	0.10-1.50	0.10-0.25
ENHT 100410	10.50	1.00	4.20	75.0	●	0.10-1.50	0.10-0.25
ENHT 100415	10.50	1.50	4.20	75.0	●	0.10-1.50	0.10-0.25
ENHT 100420	10.50	2.00	4.20	75.0	●	0.10-1.50	0.10-0.25
ENHT 100425	10.50	2.50	4.20	75.0	●	0.10-1.50	0.10-0.25
ENHT 100430	10.50	3.00	4.20	75.0	●	0.10-1.50	0.10-0.25

• For cutting speed recommendations, see pages 616-620

For tools, see pages: E93CN-10 (311) • E93CN-M-10 (312) • F93CN-10 (312)

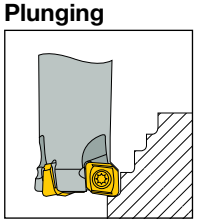
Machining Recommendations

Finishing



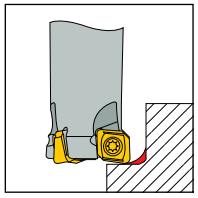
	Light	Medium	Heavy
a_p	0.1	0.5	1-1.5
f mm/t	0.25	0.15	0.1

Plunging



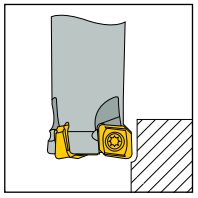
		Light	Medium	Heavy
a_e	CNHT	1	3	4.5
	ENHT	1	4	8.5
f mm/t		0.12	0.1	0.08

Machining Small Corner Radii



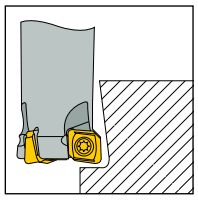
	Light	Medium	Heavy
a_p	0.1	0.5	1-2
a_e	0.1	0.5	1-2
f mm/t	0.25	0.15	0.1

Machining Long Unsupported Parts



	Light	Medium	Heavy
a_p	0.1	0.5	2
a_e	0.1	0.5	0.5
f mm/t	0.25	0.15	0.1

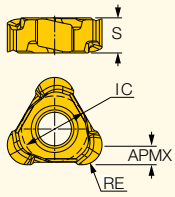
Undercut



	Light	Medium	Heavy
a_p	2	4	6
a_e	0.1	0.2	0.3
f mm/t	0.25	0.15	0.1

TOR6MILL PROFILING

TR6 TNCU/MU
Double-Sided Inserts with Six
Round Cutting Edges, Available
in 0.5 up to 3.0 mm Corner Radii



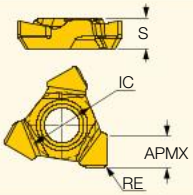
Designation	Dimensions RE	APMX	IC	S	Tough ↔ Hard IC882	IC830	IC808	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
TR6 TNCU 070205	0.50	0.50	5.30	2.50		●	●		0.20-0.50	0.10-0.30
TR6 TNCU 070210	1.00	1.00	5.30	2.50		●	●		0.20-1.00	0.10-0.30
TR6 TNMU 070215	1.50	1.50	5.30	2.50		●	●		0.20-1.50	0.10-0.30
TR6 TNCU 100405	0.50	0.50	7.30	4.20	●	●	●		0.20-0.50	0.10-0.30
TR6 TNCU 100410	1.00	1.00	7.30	4.20	●	●	●		0.20-1.00	0.10-0.30
TR6 TNCU 100415	1.50	1.50	7.30	4.20	●	●	●		0.20-1.50	0.10-0.30
TR6 TNMU 100415	1.50	1.50	7.30	4.20	●	●			0.20-1.50	0.10-0.30
TR6 TNCU 100420	2.00	2.00	7.30	4.20	●	●	●		0.20-2.00	0.10-0.30
TR6 TNCU 100425	2.50	2.50	7.30	4.20	●	●	●	●	0.20-2.50	0.10-0.30
TR6 TNCU 100430	3.00	3.00	7.30	4.20	●	●	●		0.20-3.00	0.10-0.30

• For cutting speed recommendations, see pages 616-620

For tools, see pages: TR6 ER (313) • TR6 ER-M (314) • TR6 FR (316)

TOR6MILL PROFILING

TR90 TXMT
Single-Sided Insert with Three Cutting Edges for 90° Shoulder and Face Milling



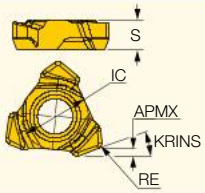
Designation	Dimensions APMX	RE	IC	S	Tough ↔ Hard IC830	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
TR90 TXMT 070204	2.50	0.40	5.30	2.40	●	●	0.50-2.50	0.10-0.20
TR90 TXMT 100408	4.00	0.80	7.30	3.90	●	●	0.90-4.00	0.10-0.20

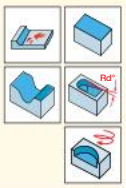
• For cutting speed recommendations, see pages 616-620

For tools, see pages: TR6 ER (313) • TR6 ER-M (314) • TR6 FR (316)

TOR6MILL PROFILING

TRFF TXMT
Single-Sided Insert with Three Cutting Edges for High Feed Machining





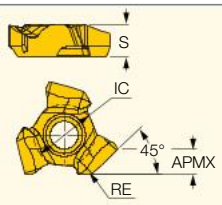
Designation	Dimensions APMX	RE	Rg(1)	IC	S	KRINS(2)	Tough ↔ Hard IC830	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
TRFF TXMT 0702	0.60	0.50	1.00	5.30	2.40	18.0	●	●	0.20-0.60	0.50-0.80
TRFF TXMT 1004	0.80	0.70	1.40	7.30	3.90	17.0	●	●	0.20-0.80	0.70-1.20

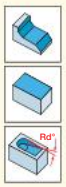
(1) Radius for programming
(2) Edge angle related to the wiper

For tools, see pages: TR6 ER (313) • TR6 ER-M (314) • TR6 FR (316)

TOR6MILL PROFILING

TR45 TXMT
Single-Sided Inserts with Three Cutting Edges for 45° Chamfering and Face Milling



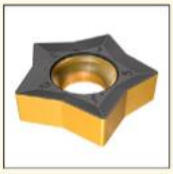


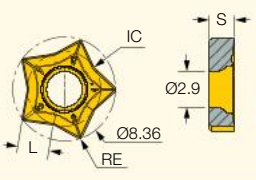
Designation	Dimensions APMX	RE	IC	S	Tough ↔ Hard IC830	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
TR45 TXMT 1004	3.00	0.40	7.30	3.90	●	●	1.00-3.00	0.20-0.40

For tools, see pages: TR6 ER (313) • TR6 ER-M (314) • TR6 FR (316)

CHAMFMILL CHAMFERING LINE

PNMT 0602-TN
Pentagonal Inserts for Upper and Bottom Chamfering





Designation	Dimensions L	RE	IC	S	IC830	Recommended Machining Data f_z (mm/t)
PNMT 0602-TN	2.30	0.20	6.00	2.10	●	0.07-0.12

• For cutting speed recommendations, see pages 616-620

For tools, see pages: CH45-MM-PN06 (51) • CH45-PN06 (51)

Accessories

Adjustable Torque Handles
Adjustable Torque Handles
for Screw Drivers

Designation	Range[1]	SSC[2]	Fig.
HSA 4 0.8-2NM	0.8-2	4.0	1
HSA 4 1-5NM	1-5	4.0	1
TSA 6 5-14NM	5-14	6.0	2

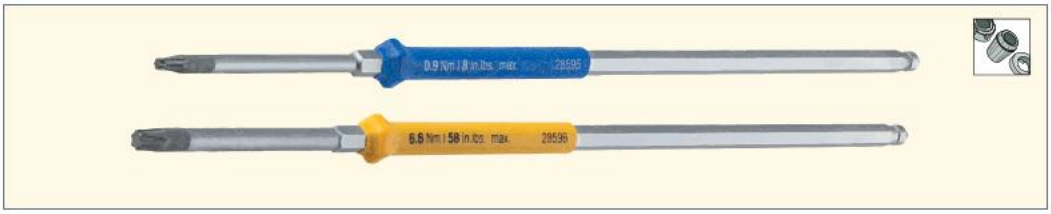
[1] Torque range N*m
[2] Blade's hexagonal driving size

Blades			Upper torque limit for adjusting an assembly with handles in Nm		
			HSA 4 0.8-2NM	HSA 4 1-5NM	TSA 6 5-14NM
Designation	Tip[1]	Hex size, mm	(Port size 4 mm)		(Port size 6 mm)
BLD 4 T07-0.9NM	T07	4	0.9	–	–
BLD 4 IP07-0.9NM	7IP		1.3		
BLD 4 IP07-1.2NM	7IP				
BLD 4 T08-1.2NM	T08				
BLD 4 IP08-1.2NM	8IP		2		
BLD 4 T09-2.0NM	T09		2	2.5	
BLD 4 IP09-2.0NM	9IP			3	
BLD 4 T10-3.2NM	T10			3.8	
BLD 4 IP10-3.2NM	10IP			4.5	
BLD 4 T15-4.8NM	T15			5	
BLD 4 IP15-4.8NM	IP15				
BLD 4 HEX4	SW4				8
BLD 6 T20	T20	6	–		10
BLD 6 T20IP	20IP				13
BLD 6 T25	T25				14
BLD 6 T25IP	25IP				
BLD 6 HEX4	SW4				
BLD 6 HEX5	SW5				
BLD 6 HEX6	SW6				

[1] **Tip designation:**
T... - Torx (hexalobular internal)
...IP - Torx Plus (Internal Plus)
SW... - Hex (Allen)
For handles with an inserted blade, the torque should not exceed the maximum value shown in the table.

Accessories

Torx/Hex Blades
Blades for Adjustable
Torque Handles



Designation	TQ[1]	SSC[2]	Key[3]
BLD 4 HEX4	8.0	4.0	HEX4
BLD 6 T20	10.0	6.0	T20
BLD 6 T20IP	13.0	6.0	IP20
BLD 6 HEX4	15.0	6.0	HEX4
BLD 6 HEX5	15.0	6.0	HEX5
BLD 6 HEX6	15.0	6.0	HEX6
BLD 6 T25	15.0	6.0	T25
BLD 6 T25IP	15.0	6.0	IP25

[1] Maximum tightening torque
[2] Blade's hexagonal driving size
[3] IP-TORX PLUS Tip

Accessories

HSD Fixed Torque Handles
Fixed Torque Handles
for Screw Drivers

Designation	TQ(1)	Color
HSD 4-0.65NM	0.6	Orange
HSD 4-0.9NM	0.9	Black
HSD 4-1.2NM	1.2	Green
HSD 4-2.0NM	2.0	Blue
HSD 4-3.2NM	3.2	Yellow
HSD 4-4.8NM	4.8	Grey

- For tightening torque of insert clamping screws, refer to table on page 621

(1) Torque N*m

Accessories

Key Blades
Key Blades for Fixed
Torque Handles

Designation	TQ(1)	Color
BLD 4 IP06-0.65NM	0.7	Orange
BLD 4 T06-0.65NM	0.7	Orange
BLD 4 IP07-0.9NM	0.9	Black
BLD 4 T07-0.9NM	0.9	Black
BLD 4 IP07-1.2NM	1.2	Green
BLD 4 IP08-1.2NM	1.2	Green
BLD 4 T08-1.2NM	1.2	Green
BLD 4 IP09-2.0NM	2.0	Blue
BLD 4 T09-2.0NM	2.0	Blue
BLD 4 IP10-3.2NM	3.2	Yellow
BLD 4 T10-3.2NM	3.2	Yellow
BLD 4 IP15-6.6NM	4.8	Grey
BLD 4 T15-4.8NM	4.8	Grey

- For tightening torque of insert clamping screws, refer to a table on page 621

(1) Maximum tightening torque

Cutting Speed Recommendations for Indexable Milling Cutters

ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Material Group No. (1)	CUTTING SPEED V_c (m/min) COATED							
							IC330/ 328	IC380	IC808/ 908	IC810/ 910	IC830/ 928	IC840	IC845	IC882
P	non-alloy steel and cast steel, free cutting steel	< 0.25 %C	annealed	420	125	1	140-200		210-300	190-260	150-240		130-220	
		>= 0.25 %C	annealed	650	190	2	130-190		200-280	170-240	140-230		120-200	
		< 0.55 %C	quenched and tempered	850	250	3	130-190		200-260	160-230	140-230		120-190	
		>= 0.55 %C	annealed	750	220	4	120-180		180-250	140-220	130-220		120-180	
			quenched and tempered	1000	300	5	120-170		180-240	140-210	130-200		110-180	
	low alloy and cast steel (less than 5% of alloying elements)		annealed	600	200	6	120-160		170-240	130-210	120-190		100-170	
			quenched and tempered	930	275	7	110-150		160-230	120-200	120-170		100-160	
				1000	300	8	100-140		150-230	110-200	110-170		100-150	
				1200	350	9	90-150		140-220	100-190	100-160		90-150	
	high alloyed steel, cast steel and tool steel		annealed	680	200	10	80-130		120-210	90-180	90-150		80-140	
			quenched and tempered	1100	325	11	80-120		110-170	80-160	90-140		80-130	
	stainless steel and cast steel		ferritic/ martensitic	680	200	12	100-140		150-230		110-160		110-160	
			martensitic	820	240	13	90-130		140-220		100-150		100-150	
M	stainless steel and cast steel		austenitic, duplex	600	180	14	80-120		100-160		100-150	90-160		70-140
K	grey cast iron (GG)		ferritic/pearlitic		180	15				220-320				
			pearlitic / martensitic		260	16				200-300				
	cast iron nodular (GGG)		ferritic		160	17				180-250				
			pearlitic		250	18				160-220				
	malleable cast iron		ferritic		130	19				200-300				
			pearlitic		230	20				170-280				
N	aluminum wrought alloys		not cureable		60	21								
			cured		100	22								
	aluminum cast alloys	<=12% Si	not cureable		75	23								
			cured		90	24								
		>12% Si	high temperature		130	25								
	copper alloys	>1% Pb	free cutting		110	26								
			brass		90	27								
			electrolytic copper		100	28								
	non metallic		duroplastics, fiber plastics			29								
			hard rubber			30								
S	high temp. alloys	Fe based	annealed		200	31	35-50	45-55	50-60		35-55	40-55		35-50
			cured		280	32	30-40	35-45	40-50		30-45	30-45		30-40
		Ni or Co based	annealed		250	33	25-35	30-45	35-50		30-45	30-40		25-35
			cured		350	34	20-25	25-35	25-35		25-35	25-30		20-25
			cast		320	35	25-30	30-35	30-40		30-35	30-35		25-30
	titanium alloys		pure	Rm = 400		36	45-80	55-100	65-110		50-90	50-90		45-80
			alpha+beta alloys cured	Rm = 1050		37	30-65	35-65	35-70		30-65	30-60		30-65
H	hardened steel		hardened		55 HRC	38		60-80	55-75					
			hardened		60 HRC	39		50-70	45-65					
	chilled cast iron		cast		400	40		100-110	90-105					
	cast iron		hardened		55 HRC	41		60-80	55-75					

Rm - ultimate tensile strength, MPa

(1) For ISCAR material group numbers and workpiece material list, see pages 820-910

CUTTING SPEED V_c (m/min)													
COATED						CERMET	UNCOATED		CBN		PCD		CERAMIC
IC950	IC5100 a-TEC	IC5400	IC5500	IC5820	DT7150 DO-TEC	IC30N	IC08	IC28	IB55	IB85	ID5	ID8	IS8
180-230		230-320	180-280			250-350							
160-190		210-300	160-260			200-300							
130-160		200-280	150-240			150-250							
120-140		200-260	130-240			135-200							
100-130		180-260	130-220			120-180							
160-210		170-250	130-210			180-240							
120-180		160-240	110-210			135-210							
100-160		150-240	110-200			120-200							
90-140		150-230	100-200			110-220							
80-100		120-220	100-190			110-160							
70-160		110-180	90-160			80-100							
		150-240	150-280			120-200							
		140-230	140-270			100-160							
				100-160									
70-180	230-350				140-270				500-900	500-1500			350-800
120-170	210-320				125-220				500-700	500-1200			250-600
130-240	200-300				190-330				500-700	500-1200			400-900
80-240	170-250				160-300				400-600	400-1000			250-600
130-240	220-320				180-350				500-900	500-1500			360-540
120-210	180-300				160-330				500-700	500-1200			300-440
							800-900	480-640			600-3000	500-2500	
							700-800	400-560			600-2500	500-2200	
							800-900	480-640			600-3000	500-2500	
							750-850	400-560			600-2800	500-2300	
							400-450	240-320			500-1200	400-1000	
							500-550	240-320			600-1500	500-1100	
							500-550	240-320			500-1000	400-800	
							350-380	160-240			700-2000	600-1800	
											1800-3000	1500-2500	
											1800-3000	1500-2500	
				45-55						150-200			
				35-45						120-150			
				35-45						70-120			
				25-35						60-90			
				30-35						70-100			
				55-95									
				30-65									
					50 -75	60-70			90-170	110-200			
					40-65	50-60			80-140	90-170			
					80-105	90-110			100-190	120-220			
					50-75	60-70			90-170	110-200			

PCD Recommended Machining Conditions

ISO	Grade	D.O.C. mm	Material	V_c m/min	Feed mm/tooth	Cutting Edge
N	ID5	<2.0	aluminum alloys <12% silicon	300-3000	0.05-0.25	sharp
		<2.0	chipboard fiberboard plastics	2000-3000	0.05-0.25	
		<2.0	copper brass alloys	500-1500	0.05-0.25	

CBN Recommended Machining Conditions

ISO	D.O.C. mm	Material	Grade					
			IB85			IB55		
			V_c m/min	Feed mm/ tooth	Cutting Edge	V_c m/min	Feed mm/ tooth	Cutting Edge
K	<0.5	grey cast iron HB 200-280	500-1500	0.1-0.3	chamfer hone			
	0.5-2.0		500-1100	0.1-0.25	chamfer			
	<0.5	compacted graphite iron GCI	400-600	0.1-0.2	hone			
S	0.5-2.0	Co based > 35 HRc Ni based > 35 HRc Fe based > 35 HRc Cr based > 35 HRc	150-200 120-150 60-120 50-75	0.05-0.15	chamfer			
H	<0.5	hardened steels > 45 HRc	80-180	0.1-0.25	chamfer	80-220	0.1-0.25	chamfer
	<2	hardened cast iron	80-200	0.1-0.15	chamfer			
P	<2	bearing steel	180-220	0.05-0.25	chamfer	180-220	0.1-0.15	chamfer
	<2	ferrous powder metal	150-300	0.1-0.15	chamfer	250-360	0.1-0.15	chamfer

Recommended Cutting Conditions for ADKT 1505R8T-FF Inserts

Workpiece Material						Carbide Grade	D.O.C. Ap [mm]	Cutting Speed V_c, [m/min]	Feed Per Tooth F_z, [mm/tooth]	Coolant
ISO Class DIN/ ISO 513	Description	ISCAR Mat. Group*	Typical AISI/SAE/ ASTM	Representative DIN W.-Nr.	Hardness, HB					
P	non-alloy steel and cast steel, free cutting steel	1	1020	1.0402	130-180	IC928	1-1.5	100-150	0.8-1.5	air
						IC808	1.5-2	100-170	0.7-1.3	
	low alloy and cast steel (less than 5% of alloying elements)	8	4340	1.6582	260-300	IC928	1-1.5	100-150	0.8-1.5	air
						IC808	1.5-2		0.5-1	
		9	3135	1.571	HRC 35-42**	IC928	0.5-1.1	80-120	0.4-1	air
						IC808	0.5-0.7		0.2-0.7	
	high alloyed steel, cast steel and tool steel	10	H13	1.2344	200-220	IC928	0.7-1.5	100-150	0.6-1.1	air
						IC808				
	martensitic stainless steel	12	420	1.4021	200	IC928	0.5-1.5	80-120	0.4-0.8	air
						IC330				
M	austenitic stainless steel	14	304L	1.4306	200	IC928	0.5-1	80-100	0.3-0.7	air
						IC330				
			316L	1.4404	140	IC928	0.5-1	80-100	0.3-0.6	
						IC330				
K	grey cast iron	16	class 40	0.6025 (GG25)	250	IC928	1-1.5	150-220	1-1.5	air
	nodular cast iron	17	cass 65-45-12	0.7050 (GGG50)	200	IC928	1-1.5	100-160	1-1.5	
S	high temperature alloys	34	inconel 718	2.4668	340	IC928	0.5-1	20-30	0.1-0.2	wet (emulsion)
		37	AMS R56400	3.7165 (Ti6Al4V)	HRC 40-45	IC928	0.5-1	22-45	0.4-0.6	

* ISCAR material grpoup in accordance with VDI 3323 standard

** Quenched and tempered

The data refer to W.O.C. no more than 0.7×DC and a cutter overhang to 2×DC, where DC - the cutter diameter

Cutting Recommendations for the HELI-QUAD-12 Complete Line

- The table below defines initial feed rates
- For initial cutting speeds, refer to **ISCAR**'s recommendations for carbide grades

Calculating cutting feed rate:
fz=fz0×Kef×Ks where

fz0 - Basic feed (Table 1),
Kef - Engagement factor (Table 2),
Ks - Stability factor (Table 3)

Table 1 - Basic Feed, fz0, Mm/tooth

ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Material No. (1)	fz0 for Insrt SIze/Geometry						
							SDMT 1205... PDR...-MM	SDMT 1205PDR-HQ-M	SDMT 1205PDN-RM-M	SDMT 1205PDR-HQ-HS	SDMR 1205... HQ-M	QDMT 1205... PDTN-M	QDCT 1205... PDN/-F
P	non-alloy steel and cast steel, free cutting steel	< 0.25 %C	annealed	420	125	1	0.2	0.15	-	0.15	0.12	0.2	0.12
		>= 0.25 %C	annealed	650	190	2							
		< 0.55 %C	quenched and tempered	850	250	3							
		>= 0.55 %C	annealed	750	220	4							
			quenched and tempered	1000	300	5							
	low alloy steel and cast steel (less than 5% of alloying elements)		annealed	600	200	6	0.2	0.15	-	0.15	0.10	0.2	0.10
			quenched and tempered	930	275	7							
				1000	300	8							
				1200	350	9	0.18	0.13	-	0.13	0.10	0.18	0.10
	high alloyed steel, cast steel, and tool steel		annealed	680	200	10							
			quenched and tempered	1100	325	11							
	stainless steel and cast steel		ferritic/ martensitic	680	200	12							
			martensitic	820	240	13							
M	stainless steel and cast steel		austenitic	600	180	14	-	-	-	-	0.10	-	0.10
K	grey cast iron (GG)		ferritic/pearlitic		180	15	-	0.15	0.15	-	-	0.2	-
			pearlitic		260	16							
	cast iron nodular (GGG)		ferritic		160	17							
			pearlitic		250	18							
	malleable cast iron		ferritic		130	19							
			pearlitic		230	20							
N	aluminum wrought alloys		not cureable		60	21	-	-	-	-	0.15	-	0.15
			cured		100	22							
	aluminum cast alloys	<=12% Si	not cureable		75	23							
			cured		90	24							
		>12% Si	high temperature		130	25							
	copper alloys	>1% Pb	free cutting		110	26							
			brass		90	27							
			electrolytic copper		100	28							
	non metallic		duroplastics, fiber plastics			29							
			hard rubber			30							
S	high temp. alloys	Fe based	annealed		200	31	-	-	-	-	0.07	-	0.07
			cured		280	32							
		Ni or Co based	annealed		250	33							
			cured		350	34							
			cast		320	35							
	titanium alloys		pure	Rm = 400 (2)		36					0.09		0.09
			alpha+beta alloys cured	Rm = 1050		37							
H	hardened steel		hardened		55 HRC	38	0.07	-	-	-	-	0.07	-
	chilled cast iron		cast		400	40	0.07	-	-	-	-	0.07	-
	cast iron		hardened		55 HRC	41	0.07	-	-	-	-	0.07	-

(1) in accordance with VDI3323 standard
(2) Rm - ultimate tensile strength, MPa

Table 2 - Engagement Factor Kef

a_e/D	0.5...1	0.25 up to 0.5	less than 0.25
Ke	1	1.1	1.3

a_e - Width of cut
D - cutting diameter

Table 3 - Stability Factor Ks

Stability	High	Moderate	Poor
Ks	1	0.9	0.7

GRADES for APPLICATIONS and MATERIALS

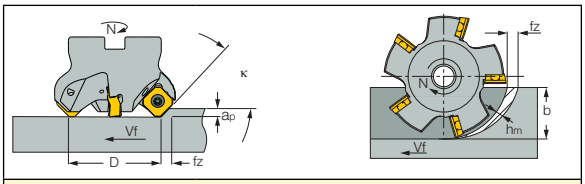
Material Groups		ISO P		ISO M	ISO K	ISO N	ISO S	ISO H
		1 - 11	12 - 13	14	15 - 20	21 - 28	31 - 37	38 - 41
		Steel	Stainless Steel Ferritic & Martensitic	Stainless Steel Austenitic & Duplex (Ferritic-Austenitic)	Cast Iron	Nonferrous	High Temp. Alloys	Hard Steel & Hardened Cast Iron
MILLING Indexable	Harder	IC5400	IC808 (908)	IC808 (908)	IS8	ID5	IC808 (908)	IB55
		IC30N					**IC840**	IB85
		IC808 (908)	IC5500	**IC840**	IC5100 (4100)		IC380	IC30N
		IC810 (910)*		IC830 (928)	DT7150	IC04	IC5820**	**IC808 (908)**
		IC830 (928)	**IC830 (928)**	**IC330 (328)**	**IC810 (910)**	IC08	**IC882**	DT7150
		IC845	IC330 (328)	IC882		**IC28**	IC330 (328)	
Coolant	Tougher	N	N	Y	N	Y	Y	N

First choice

* for steel castings

** for milling with high pressure coolant (HPC) supply

Milling Calculations



Calculations	
Cutting 4	$V_c = \frac{\pi \cdot D \cdot N}{1000 min}$ [m/min]
Spindle speed	$N = \frac{V_c \cdot 1000}{\pi \cdot D}$ [rev/min]
Feed speed	$V_f = f_z \cdot Z \cdot N$ [mm/min]
Feed per tooth	$f_z = \frac{V_n}{N \cdot Z}$ [mm/tooth]
Feed per revolution	$f_N = f_z \cdot Z$ [mm/rev]
Metal removal rate	$Q = \frac{ap \cdot b \cdot V_f}{1000}$ [cm³/min]
Machining time	$Th = \frac{Lw}{V_f}$ [min]
Specific cutting force	$K_c = K_{c1} \cdot hm^{-mc}$ [N/mm²]
Average chip thickness in shoulder milling for b/D≤0.1	$hm \approx f_z \cdot \sqrt{\frac{b}{D}}$ [mm]
Average chip thickness in shoulder milling for b/D>0.1	$hm = \frac{(sink \cdot 180 \cdot b \cdot f_z)}{\pi \cdot D \cdot \arcsin(b/D)}$ [mm]
Machining power	$P = \frac{(ap \cdot b \cdot V_f \cdot k_c)}{6 \cdot 107 \cdot h}$ [kW]

V_c	[m/min]	Cutting speed
D	[mm]	Tool diameter
N	[rev/min]	Spindle speed
V_f	[mm/min]	Feed speed
f_z	[mm/tooth]	Feed per tooth
Z		Number of teeth
fN	[mm/rev]	Feed per revolution
Q	[cm³/ min]	Metal removal rate
a_p	[mm]	Depth of cut
b	[mm]	Width of cut
Th	[min]	Machining time
Lw	[mm]	Machining length
K_c	[N/mm²]	Specific cutting force
Kc1(1)	[N/mm²]	Specific cutting force for 1 mm² chip section
hm	[mm]	Average chip thickness
mc(1)		Chip thickness factor
k	[degrees]	Cutting edge angle
P	[kW]	Machining power
h		Machine efficiency
P	=	Pc + Pm
P	-	Total Machining Power
Pc	-	Net Power=Cutting Power
Pm	-	Motor Power (while not cutting)

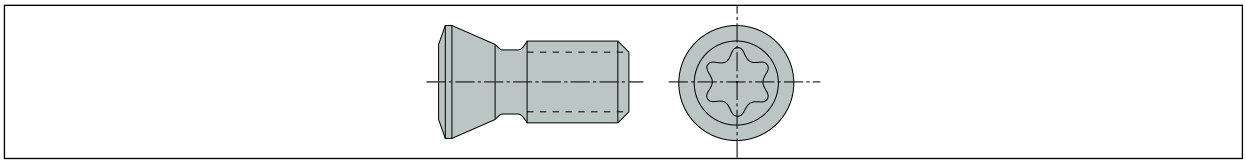
(1) See page 818

Values for Motor Power Pm

Max. Machine Power [kW]	Motor Power Pm [kW]
5.5	0.4
7.5	0.4-0.6
11.0	1.0
15.0	1.5
18.0	2.2
22.0	2.5

Motor Power Pm has a value of approximately 7 to 12% of Maximum Machine Power

Tightening Torque by Screw

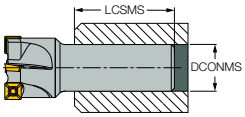
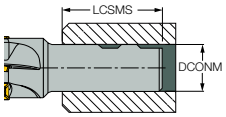
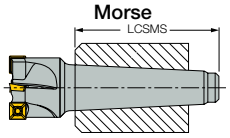


Screw	Thread	Overall Length [mm]	TORX Recess	Tightening Torque [Nxm]	Tightening Torque [lbfxin]
TS 18041I/HG	M1.8	4.1	IP 6	0.5	4.4
SR M2X0.4-2.9 T6-HG	M2	2.9	T 6	0.5	4.4
SR M2X0.4-3 T6	M2	2.9	T 6	0.5	4.4
SR M2X0.4-3.5 T6	M2	3.55	T 6	0.5	4.4
SR 34-533/L	M2	4.8	T 6	0.6	5.3
SR 34-533/L/HG	M2	4.8	T 6	0.6	5.3
SR 34-508	M2.2	4.6	T 7	0.9	8
SR 34-508/S-HG	M2.2	3.8	T 7	0.9	8
SR 34-508/L	M2.2	5.2	T 7	0.9	8
SR 14-548	M2.2	5.3	T 7	0.9	8
SR 14-505	M2.2	6.5	T 7	0.9	8
SR 114-018-L2.50	M2.5	2.5	T 6	0.6	5.3
SR 114-018-L3.40	M2.5	3.4	T 6	0.6	5.3
SR 114-018-L4.40	M2.5	4.4	T 6	0.6	5.3
SR 114-018-L5.30	M2.5	5.3	T 6	0.6	5.3
SR 10503833	M2.5	4.6	T 7	0.9	8
SR M2.5X5-T7-60	M2.5	5	T 7	0.9	8
SR 10503457	M2.5	5.2	T 6	0.9	8
SR 34-514	M2.5	5.2	T 7	0.9	8
SR 34-513	M2.5	5.5	T 8	1.2	10.6
SR M2.5-T8-MT	M2.5	5.5	T 8	1.2	10.6
SR 34-505	M2.5	5.5	T 8	1.2	10.6
SR 34-505/HG	M2.5	5.5	T 8	1.2	10.6
SR 34-505/L	M2.5	7.5	T 8	1.2	10.6
SR 34-505/LHG	M2.5	7.5	T 8	1.2	10.6
SR M2.5x6-T7-60	M2.5	6	T 7	0.9	8
SR M2.5X0.45-L6 IP7	M2.5	6	IP 7	0.9	8
SR 14-560	M2.5	6.4	T 8	1.2	10.6
SR 14-560-HG	M2.5	6.4	T 8	1.2	10.6
SR 14-560/S	M2.5	5.3	T 8	1.2	10.6
SR M2.6-L6.7-S11	M2.6x0.45	6.7	T 8	1.2	10.6
SR 10508082-HG	M3	6.8	T 8	1.2	10.6
SR 34-506	M3	6.5	T 9	2	17.7
SR 34-506/M	M3	7.4	T 9	2	17.7
SR 34-506/L	M3	8	T 9	2	17.7
SR M3×0.5-L7.4 IP9	M3	7.4	IP 9	2	17.7
SR 14-513	M3	8	T 9	2	17.7
SR 10508600	M3	8.1	T 9	2	17.7
SR 14-551	M3	8.2	T 9	2	17.7
SR 10504970	M3.5	8.1	IP15	3.2	28.3
SR 14-562	M3.5	8.7	T10	3.2	28.3
SR M3.5X0.6-L8.5 IP10	M3.5	8.5	IP15	3.2	28.36
SR 14-562/S	M3.5	6.5	T10	3.2	28.3
SR 14-562XL	M3.5	10.7	T10	3.2	28.3
SR 14-571	M3.5	8.7	T10	3.2	28.3
SR 14-571/L	M3.5	10	T10	3.2	28.3
SR 14-601	M3.5	11	T15	3.2	28.3
SR 34-550	M3.5	11.5	T10	3.2	28.3
SR 14-541	M4	7.9	T15	4.8	42.5
SR 14-506	M4	8.2	T15	4.8	42.5
SR M4X0.7-L9.5 IP15	M4	9.5	IP15	4.8	42.5
SR M4X0.7-L9.6 IP15	M4	9.65	IP15	4.8	42.5
SR M4X0.7-L11.5 IP15	M4	11.5	IP15	4.8	42.5

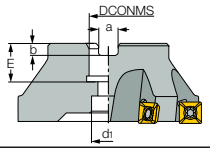
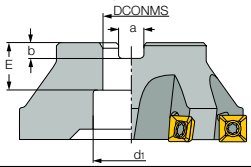
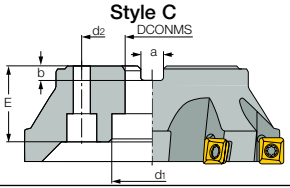
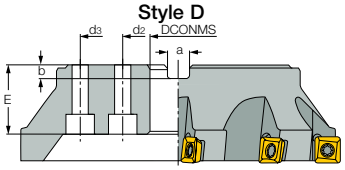
Screw	Thread	Overall Length [mm]	TORX Recess	Tightening Torque [Nxm]	Tightening Torque [lbfxin]
SR 16-236	M4	9.7	T15	5.3	47
SR 16-236/P	M4	11.3	T15	5.3	47
SR M4x0.7IP15	M4	10.5	IP15	4.8	42.5
SR 34-535	M4	11.5	T15	4.8	42,5
SR 34-535-SN	M4	11.5	T15	4.8 (3.2*)	42.5 (28.3*)
SR 34-535/L9.5-SN	M4	9.5	T15	4.8 (3.2*)	42.5 (28.3*)
SR 14-500 -L	M4x0.5	-	T15	4.8	42.5
SR 14-536	M4	12	T20	6	53
SR 14-536/S	M4	10.5	T20	6	53
SR M4-IP15-MT	M4	10.5	IP15	4.8	42.5
SR 14-536/M	M4	14.1	T20	6	53
SR 14-544	M4	12	T15	4.8	42.5
SR 14-544/S	M4	9.3	T15	4.8	42.5
SR 34-501	M4	7.4	T15	4.8	42.5
SR 11800745	M4	12.5	IP15	4.8	42.5
SR 34-510	M4	14.4	T15	4.8	42.5
SR 34-510/L...	M4	10... 11.7	T15	4.8	42.5
SR M4-L15-D4.5	M4	15	IP15	4.8	42.5
SR 14-592M	M5	8.7	T20	9	80
SR 14-592SM	M5	9	T20	9	80
SR 14-592XLM	M5	10.4	T20	9	80
SR 34-523	M5	9.5	T20	9	80
SR 14-0180	M5	10.4	T20	6	53
SR M5x0.8IP20-1	M5	10.8	IP20	6	53
SR 14-590	M5	11.2	T20	9	80
SR 10505427	M5	12	IP20	9	80
SR 10513105	M5	13	IP20	8	70.8
SR 10513105-L10.5	M5	10.5	IP20	8	70.8
SR 14-591	M5	13.5	T20	9	80
SR 14-591/H	M5	13.5	T20	9	80
SR 14-591/L	M5	16.2	T20	9	80
SR 34-511	M5	14	T20	9	80
SR M5X0.8 16 IP20	M5	16	IP20	9	80
SR M5-IP25-MT	M5	16.5	IP25	9	80
SR 14-519	M5	17	T20	9	80
SR 14-542	M5	18.3	T20	9	80
SR 16-212	M5	12.5	T20	9	80
SR 10503750	M6	18	T25	12	106
SR 10507547	M6	22.5	IP25	9	80
SR 34-516	M7x1	15.5	T25	12	106
SR 34-515	M8x1	17.2	T25	12	106
SR 10502813-HG-M	4-48 UNF	8.2	IP7	1.2	10.6
SR 10502813-HGSM	4-48 UNF	7	IP7	1.2	10.6
SR 11800866	12-28 UNF-RH/LH	18	IP15	6	53
SR 118-069	NF 1/4-28 NF	13.3	IP20	9	80
SR 1/4-28xIP25	1/4-48 UNF	18.7	IP25	9	80

* For T490...-11 cutters only

Endmill Shank Styles

	Shank Diameter DCONMS	LSCMS Min. Recommended
Cylindrical 	10 16 20 25 32 40	1.5xd 1.5xd 1.5xd 1.5xd 1.5xd 1.5xd
Weldon 	12 16 20 25 32 40 50	45 48 50 56 60 70 80
Morse 	CM 2 CM 3 CM 4	64.0 81.0 102.5

Face Mill Arbor Hole Styles

	DCONMS	E	D1	D2	D3	A	B
Style A 	16 22 27	19 20 23	13.5 18 38	—	—	8.4 10.4 12.4	5.6 6.5 7.0
Style B 	22 27 32 40	20 25 25 33	31 38 46 56	—	—	10.9 12.4 14.4 16.4	6.5 7.0 8.0 9.0
Style C 	40 60	33 38	65 —	66.7 101.6	—	16.4 25.7	9.0 14.0
Style D 	60	38	—	101.6	177.8	25.7	14.0

TOOLING SYSTEMS

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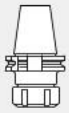
ER COLLET CHUCK pages 640-641 	ER COLLET CHUCK pages 660-664	ER COLLET CHUCK pages 710-712	ER COLLET CHUCK pages 693-695
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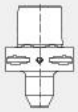
TAPPING page 656	ENDMILL pages 671-673	TAPPING page 733	ENDMILL pages 697-699 
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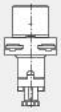
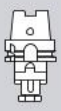
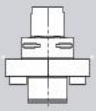
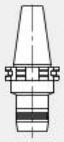
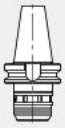
FLEX-FIT page 657	SHELL & FACE pages 682-683, 686	CLICK-FIT page 733	SHELL COMBI pages 702-704 
MAXIN POWER CHUCK page 642	SHELL COMBI page 684 	HYDRO-FIT pages 714-716	FACE MILL page 704 
HYDRO-FIT pages 643-644 	MORSE TAPER page 685	MAXIN POWER CHUCK page 713 	FLEX-FIT page 705
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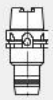
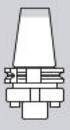
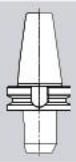
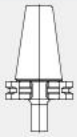
SHELL MILL pages 650-651	HYDRO-FIT pages 666-670 	SHELL MILL pages 726-728	BLANK page 707
FACE MILL page 652 		ENDMILL pages 716-719 	HYDRO-FIT page 696
MULTI-MASTER page 657 			EXTENSION REDUCTION page 706

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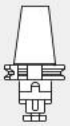
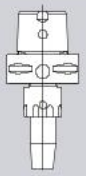
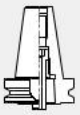
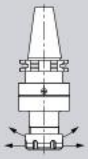
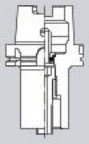
SHELL COMBI  page 653	MAXIN POWER CHUCK page 665	FACE MILL page 729	
CAMFIX page 654	SRKIN THERMAL CHUCK pages 674-681	SHELL COMBI page 730	QUICK-CLAMP  page 702
MORSE TAPER page 654	ADJ FINE-FIT page 687	CAMFIX  page 731	
ADJ FINE-FIT  page 655	CAMFIX  page 685	MORSE TAPER page 732	
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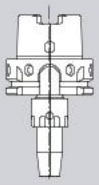
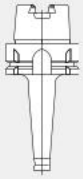
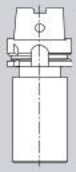
	QUICK-CLAMP  page 681		
	FLEX-FIT  page 689		
	BLANK  page 689		

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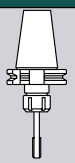
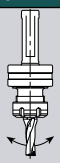
DIN69871 page 656 	**STRAIGHT ER COLLET** page 758 	pages 803-805	page 801	**ISO, BT-MAS, DIN69871** page 800
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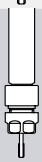
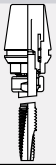
STRAIGHT page 757 				**CAMFIX C3, 4, 5, 6, 8** pages 799-800
GTIN-ER pages 760-761 				**UNIVERSAL** page 803

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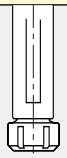
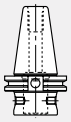
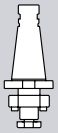
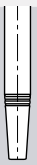
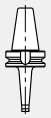
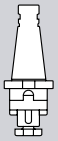
ER COLLET CHUCK page 737	ER COLLET CHUCK pages 740-744 	DIN69871 page 747	DIN69871 page 656 
SHELL MILL page 737 	SHRINK-IN page 744 	HSK pages 689	HSK page 688
FACE MILL page 738		BT page 734 	BT MAS page 733
SHELL COMBI page 738 		STRAIGHT SHANK page 747	
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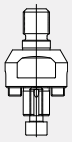
		SHELL MILL page 748 	

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ECCENTER SLEEVE page 754	SPR AA SPRING COLLET page 768	DIN 69871-SRK page 649	BT- SPIN-JET pages 793, 795	WRENCH pages 807, 809, 811
	SPR SEAL SPRING COLLETS page 771	HSK-SRK/ SRKIN pages 674-681	HSK- SPIN-JET pages 793, 796	PRESET & LOCK SCREW pages 806-807, 811-812
	SPR SEAL JET SPRING COLLETS pages 772-773	BT-SRKIN/ SRK pages 720-724	CAMFIX-SPIN-JET pages 794, 796	FACE SCREW pages 808, 810
	KITS, SETS SPRING COLLETS page 770	STRAIGHT SHANK page 744	ST- SPIN-JET pages 794, 797	D. RING page 808
	FLEX-FIT ER-ODP page 749	ER-SRK pages 781-783	DIN69871 SPIN-JET page 794	SPACER STUB page 809
	SC SPR/ SEAL COLLET pages 773-774	INDUCTION unit pages 784-786		COOLING TUBE pages 810, 812
	SC HYDRO-FIT page 776	SHRINK-IN CAMFIX pages 700-701		
	SHRINK-IN ER-SRK pages 781-782			
	GTIN ER pages 760-761			
	SD-ER page 374			

Balancing Elements

Balancing Definitions

Introduction

Balancing is the process of equalizing the mass distribution of a body so it rotates in its bearing without unbalanced centrifugal forces.

Balancing causes reduced vibration, lower spindle strain and improved machining qualities, and allows for higher cutting parameters.

The measuring equipment available today enables unbalance to be reduced to low limits. However, it would be uneconomical to exaggerate the quality requirements. It has therefore become necessary to determine to what extent the unbalance should be reduced and where the optimum economic and technical compromise on balance quality requirements would be struck.

Definition

G - Balance quality (mm/s)
e - Specific unbalance (gxmm/Kg)
Ω - Speed (rad/s)
N - Speed (rpm)
M - Mass of the body (kg)
m - Mass of the unbalance (g)
r - Radius of the unbalance (mm)
U - Residual unbalance (gxmm)

$$e = \frac{U}{M} \Rightarrow U = M \cdot e$$

$$\Omega = \frac{2\pi N}{60} = \frac{\pi N}{30}$$

Operation

Residual unbalance equals the tool's mass (M) times its eccentricity (e). Eccentricity measures the extent to which the tool's weight is off-center.

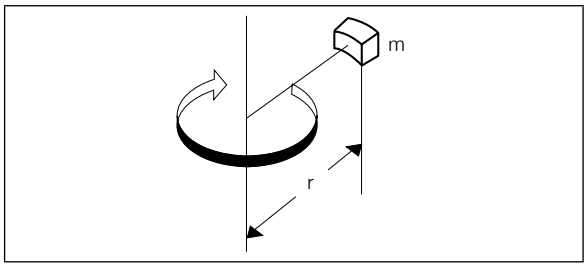
It is defined as the distance from the tool's center of the rotation to its true center of mass.
If eccentricity is measured in microns and tool mass is measured in kilograms, this unit yields residual unbalance in gram-millimeters.

Any two sets of mass and eccentricity that yield the same unbalance value will have the same effect on the tools, so long as the residual unbalance is in the same plane perpendicular to the rotation axis.

$$U = r \cdot m$$

The residual unbalance is independent of the speed. This value reflects the unbalance mass and its distance from the true center of mass. The residual unbalance value is measured on balancing machines.

Balancing Coolent Chucks



Example 1
U=2 g x mm can be treated as an unbalance mass of m=2 g in radial distance of r=1 mm or as a mass of m=0.1 g in radial distance of r=20 mm, etc.

Example 2
The residual unbalance is independent of the speed. This value reflects the unbalance mass and its distance from the true center of mass. The residual unbalance value is measured on balancing machines.

$$U = m \cdot r \Rightarrow m = \frac{U}{r} = \frac{4}{20} = 0.2g$$

G value reflects the balancing quality of a toolholder according to its rotational speed (N)

$$G = \Omega \cdot e = \frac{\pi \cdot N}{30} \cdot \frac{U}{M} = \frac{U \cdot N \cdot \pi}{M \cdot 30}$$

$$e = \frac{G \cdot 30}{\pi \cdot N}$$

Example 3
G value reflects the balancing quality of a toolholder according to its rotational speed (N).

$$G = \frac{\pi}{30} \cdot N \cdot \frac{U}{M} = \frac{\pi}{30} \cdot 15,000 \cdot \frac{8}{2,000} \approx 6.3 \text{ (mm/s)}$$

$$e = \frac{U}{M} = e = \frac{8}{2} = 4 \text{ (g} \cdot \text{mm/kg)}$$

The G value will change to G=2.5 mm/s when using the same toolholder at a rotational speed N=6, 000 rpm and to G=1.0 mm/s at N=2, 500 rpm.

Balance quality grades for various groups of representative rotors:

- General machine tool parts - G6.3
- General toolholders and machine drivers - G2.5
- Grinding machine drivers - G1.0
- Spindles of precision grinders - G0.4

Power Chucks

With this tool, only a small tightening torque compresses the frontal nose, providing an extremely high gripping force. It is designed for roughing and finishing applications in milling where high torque transmission, maximum accuracy, compactness and easy operation are required.

Features

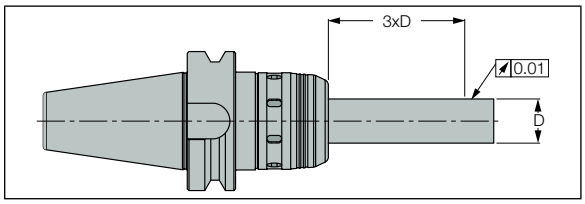
- The clamping nut is not threaded (as in ER collet chucks)
- Designed for direct chucking of the tool shank – no need for intermediate collet for maximum gripping force
- Sealed nut construction
- No axial drawback of the tool shank as chuck is tightened
- Thick wall construction to withstand greater side loading forces

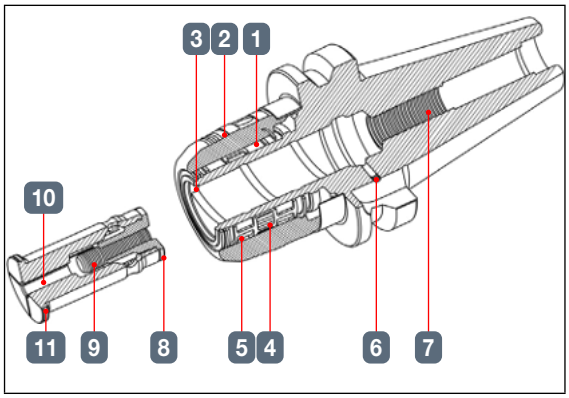
The high gripping force achieved by the **MAXIN** POWER CHUCK results from the shallow nose tapered cone (1) with helical slot (3) inside the internal chuck bore. It exerts a very high clamping force when the clamping nut (2) is rotated in the axial direction.The shallow taper of the tool nose (1) and the angled position of the needle bearing (4) that sit in the cage create the axial movement of the clamping nut (2).

This unique clamping mechanism eliminates axial movement of the shank while clamping, simplifying the preset process.

Runout Accuracy

Maximum runout at 3XD overhang is less 0.01 mm





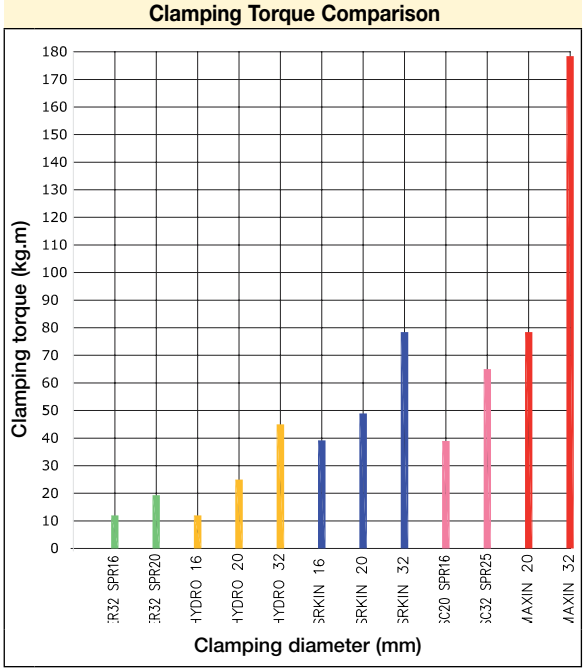
1. Shallow tapered front end cone
2. Clamping nut
3. Helical slot
4. Needle bearing cage
5. Front seal
6. Ventilation bore (thread M4)
7. Preset screw thread
8. Cap screw (for the preset screw)
9. Preset screw
10. Ground bore
11. Grip groove (for collet release)

Power Chucks

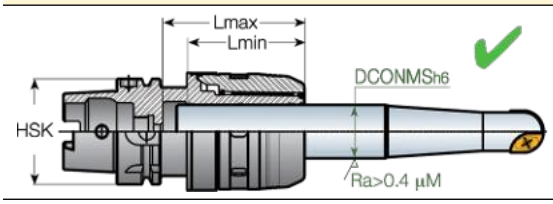
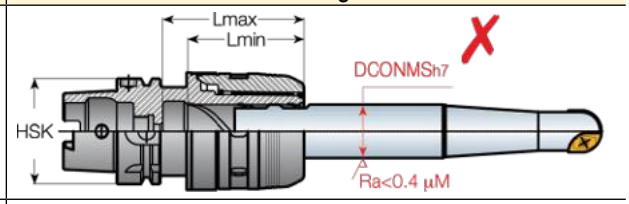
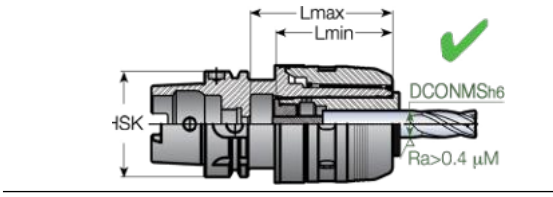
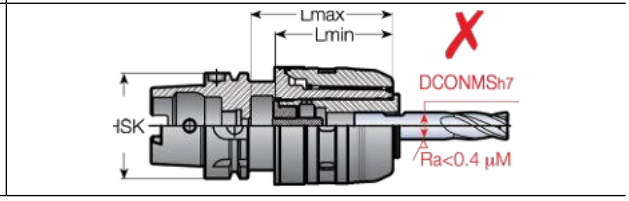
Assembly and Disassembly of Shank Cutter with Wrench

- Tighten the nut with the spanner wrench until clamping is achieved. Loosen the nut with the spanner wrench to remove the cutting tool.
- Instructions for proper use to avoid damage to the **MAXIN** mechanism, never tighten the clamping nut unless there is a shank inside the bore. After removing the cutting tool from the **MAXIN**, the clamping nut must be unscrewed one extra turn to prevent reduction of the clamping power and to ensure maximum gripping force.
- Preset screw in order to adjust the projection length of the cutting tool you can use a preset screw inside the **MAXIN** internal bore part #9. This is supplied as an optional accessory.
- Insertion of SC collets and shanks. The cutting tool should be inserted into the collet before inserting it into the **MAXIN** chuck. Insert the collet into the **MAXIN** chuck until the collet reaches the front end of the chuck. For maximum rigidity and accuracy insert the shank cutters to the full ground area of the collet.
- Preset Screw in order to adjust the length of the cutting tool, use a preset screw inside the collet (optional). When using SC collet inside the **MAXIN** chuck, the runout accuracy may be affected. In case of cutting tool damage or crash during machining, the **MAXIN** chuck has to be inspected for cracks and that proper runout is maintained.

Clamping Torque Comparison



ER Collent chuck
Hydraulic chuck
SRKIN
Power chuck & collet
Power chuck

Correct	Wrong
	
	

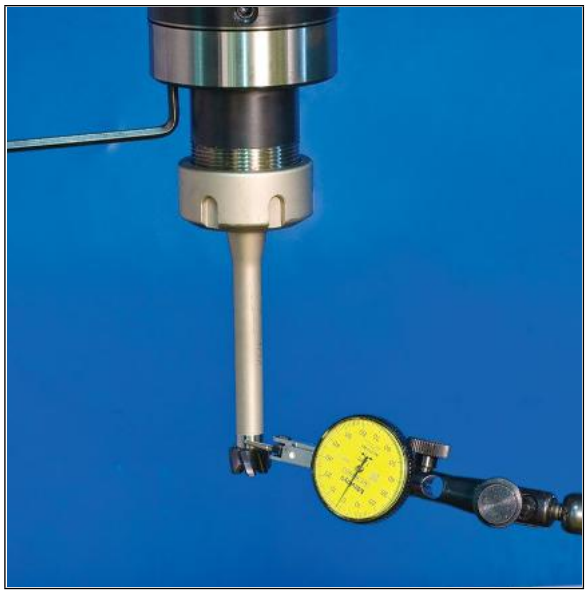
Do not use Weldon type shanks.

Insert shank at least Lmin into the chuck.

In order to maintain a firm grip, the shank's surface finish should have a roughness of at least N5.

ADJ Operating Instructions

Radial and Angular Alignment Toolholder



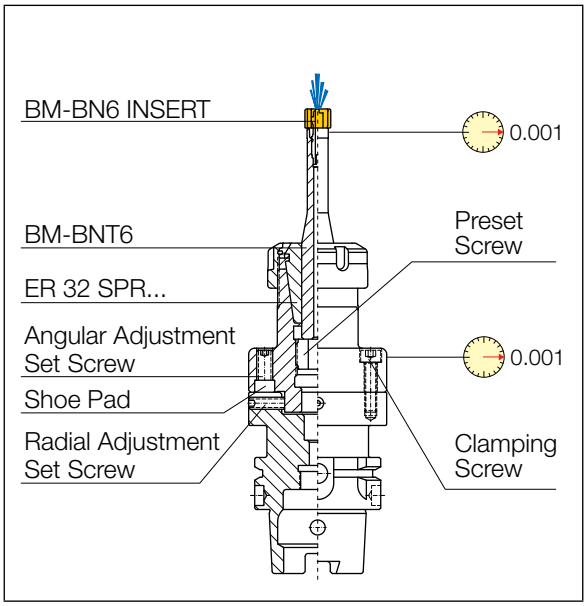
Tighten the Cutting Tool
Clamp the cutting tool into the chuck and make sure that screws no. **1** & **3** are tightened until a slight resistance is felt.

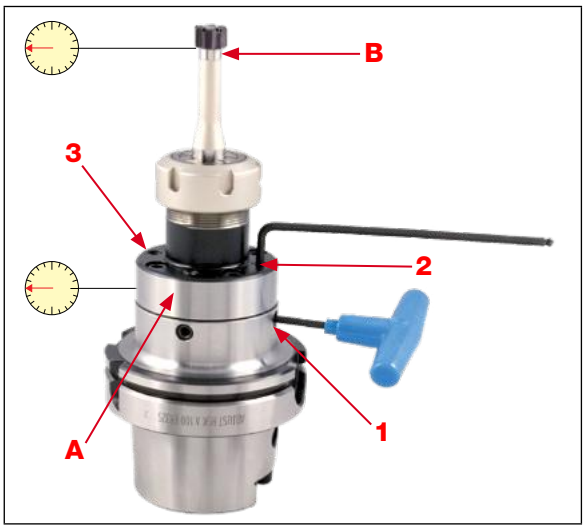
Radial Adjustment
Place the dial indicator (with a resolution of 0.001 mm) on the ground area **A** and adjust the runout to 0.001 mm. The adjustment should be made with the 4 screws (no. 1) located on the outer diameter of the toolholder.

Angular Adjustment
Place the dial indicator on the ground area **B**. Adjust the axial runout to 0.001 mm with 4 adjustment screws (no. 2) located on the face of the chuck.

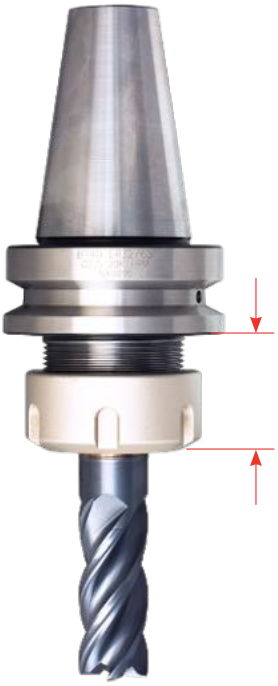
Final Clamping
Slightly tighten the 4 clamping screws (no. **3**) located on the face of the chuck, and then the 4 screws on the outer diameter.

Final Runout Check
After adjusting and tightening, recheck the axial and radial runout to make sure that runout of 0.001 mm is maintained. If necessary, do fine tuning.





Short Collet Chucks

SHORTIN	STANDARD
	

BT MAS-403	HSK DIN 69893	DIN 69871
Page 712	Page 665	Page 642

Advantages

- Shortest overhang
- Suitable for regular and shrink collets
- High gripping force
- Reduces vibration
- Better runout and repeatability
- Balanced to G2.5, 20, 000 rpm
- Symmetric design for high speed machining
- Cost effective

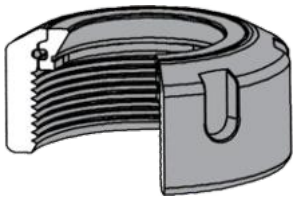
Short Collet Chuck ER

Short holder for ER spring and shrink collets for maximum rigidity and better cutting conditions.

ER - Collet Chuck Features

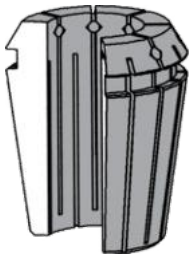
ER-TOP™ NUT

- Perfect balance and accuracy
- Exclusive anti-friction mechanism
- Powerful gripping force, 50-100% higher than conventional design
- Compact design, standard size, DIN 6499
- HARD TOUCH protective coating



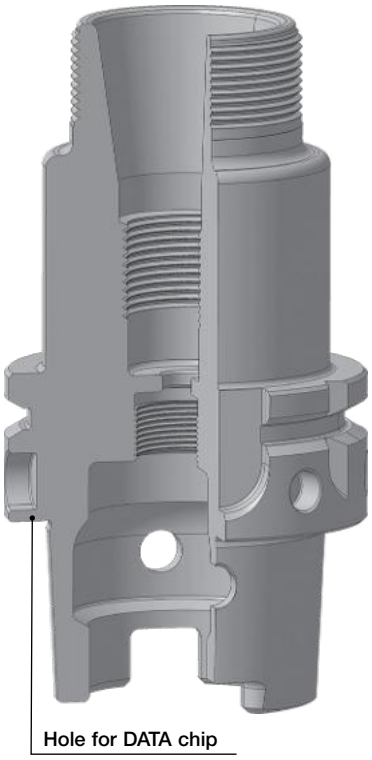
ER-COOLIT™ JET

- Ultra precision runout 0.005 mm
- Worldwide patented sealing system
- Special Corrosion protection
- Super-finished execution
- Collapsibility: 0.1 mm

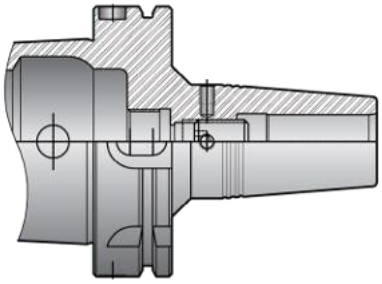
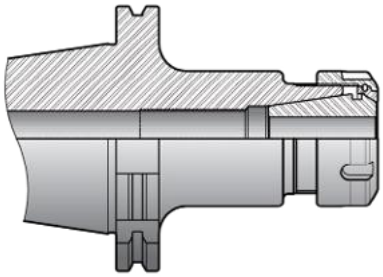
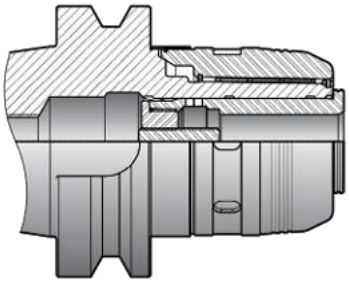
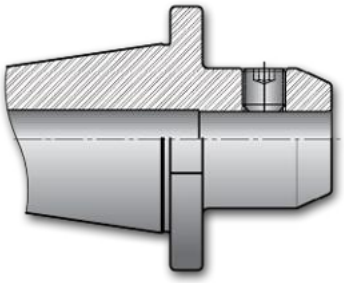
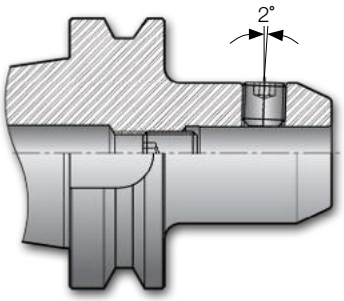


ER-COLLET CHUCK

- Runout O.D. - I.D. Max. 0.003
- Two hole for symmetrical design for high spindle speed from 20, 000 RPM
- Superior surface finish Ra 0.4
- Taper accuracy DIN standard



Recommmended Toolholder for Different Shank Types

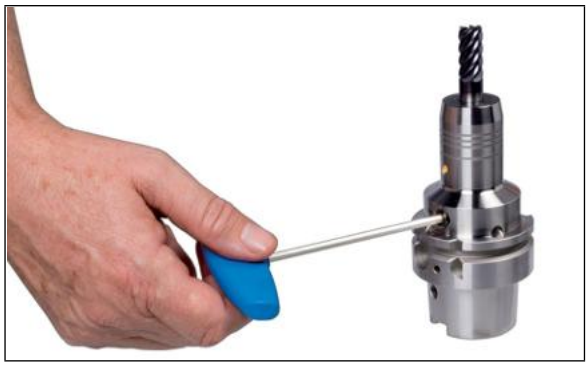
SRK/SRKIN	CYLINDRICAL SHANK
	
ER COLLET CHUCK DIN 6499	CYLINDRICAL SHANK
	
MAXIN POWER CHUCK	CYLINDRICAL SHANK
	
EM (DIN1835 FORM A/B)	WELDON SHANK
	
EM E (DIN1835 FORM E)	WHISTLE NOTCH SHANK
	

Hydraulic Chucks

ISCAR has expanded its toolholder clamping options by adding hydraulic chucks. These hydraulic chucks range from 6-32 mm. This type of chucking system is used for rotating and stationary applications.

Main Applications

- Fine and accurate machining
- Reaming
- Drilling
- Finish milling
- Internal turning

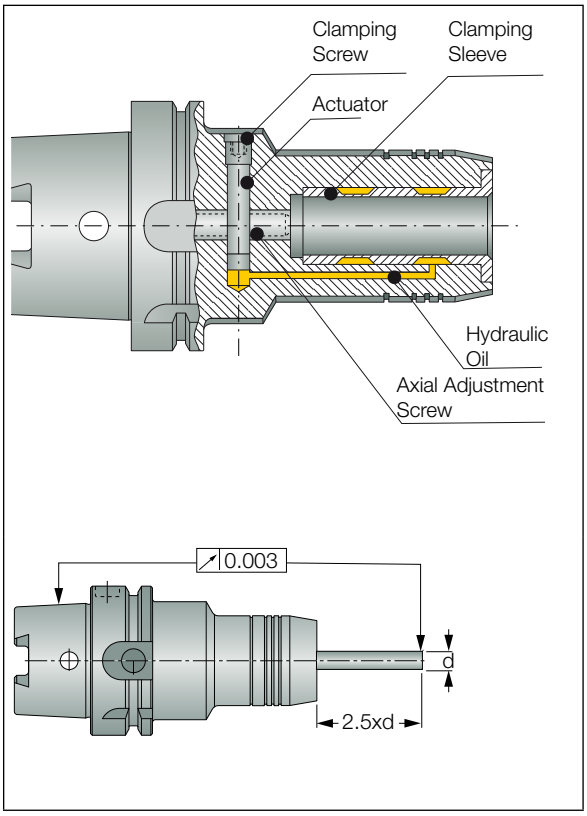


Features

- High runout accuracy of less than 0.003 mm
- Very low torque required to activate the clamping mechanism, by using a 4 mm Allen key
- Prolongs cutting tool life and improves surface finish due to vibration damping
- Easy presetting by using an internal preset screw
- All rotating chucks feature a symmetrical and balanced design for high speed machining of up to 25, 000 min^{-1}
- Consistent and secure clamping force when used within the recommended speed range
- Suitable for both Weldon and cylindrical shank clamping
- Very convenient and safe tool change on the machine

Two Main HYDRO-FIT Chuck Types Are Available

- Taper shanks for rotating applications
- VDI DIN 69880 in sizes 30 and 40 for stationary applications on CNC lathes



Operating Instructions

To Ensure Correct Functioning of the Hydraulic Chuck, the Following Instructions Should Be Followed:
Tools with cylindrical shanks and shanks Type AB with one Weldon flat (DIN 1835 part 1 and DIN 6535 HB) should have h6 tolerance. Tools with accordance to DIN 6535 HE (whistle notch) and Type B with two Weldon flats (DIN 1835 part 1) should be used in reduction sleeves, to avoid damaging the chucking bore.

- The tool shank must be burr-free and free of dirt. Insert the tool shank up to the stopper. Make sure that the minimum chucking length (L min) is maintained. If the minimum clamping depth is not met, there will be a loss of accuracy, the maximum admissible torque will be reduced, and the tool holder might get damaged.
- The clamping screw must be turned in manually with an Allen key to the limit stop. DO NOT APPLY EXCESSIVE FORCE. Tightening torque: Max.10Nm

Never Actuate the Actuation Screw with a Power Screwdriver! Do Not Attempt to Clamp the Chuck without a Shank Inside As This Will Damage the Expansion Clamping Sleeve.

- Do not combine several extensions
- To release the tool, turn the clamping screw in a counter-clockwise direction until tool can be removed.

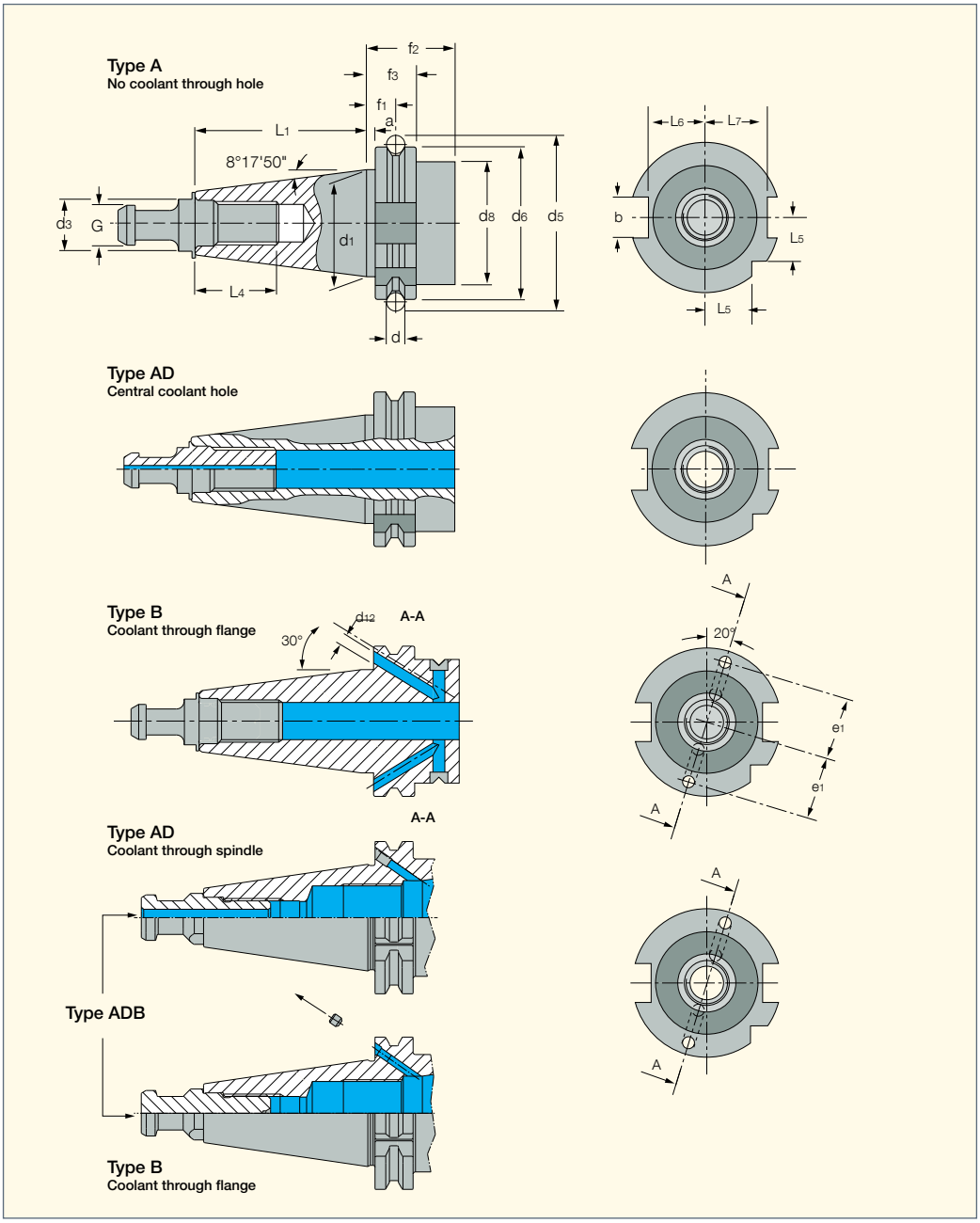
The Clamping Screw Is Not Secured Against Dropping Out! The Vent Screw of the Hydraulic System Is Protected with a Resin. Don't Remove It!

DIN69871-A/B

DIN69871

Toolholder Standard

DIN69871 Form A/AD/B/ADB

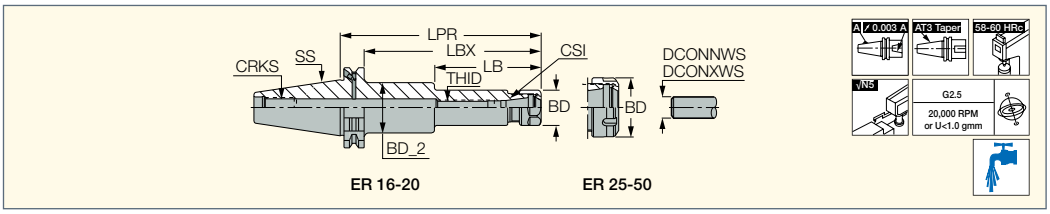


Shank	a±0.1	b (H12)	d	d1	G	d3 (H7)	d5 ±0.05	d6	d8 max	f1 ±0.1
SK 30	3.2	16.1	7	31.75	M12	13	59.30	50	45	11.1
SK 40	3.2	16.1	7	44.45	M16	17	72.30	63.55	50	11.1
SK 50	3.2	25.7	7	69.85	M24	25	107.25	97.50	80	11.1

Shank	f2 min.	f3 -0.1	L1 -0.3	L4 min.	L5 -0.3	L6 -0.4	L7 -0.4	e1 ±0.1	d12	TAPER AT3
SK 30	35	19.1	47.80	24	15.0	16.4	19.0	21	4	0.002
SK 40	35	19.1	68.40	32	18.5	22.8	25.0	27	4	0.003
SK 50	35	19.1	101.75	47	30.0	35.5	37.7	42	6	0.004

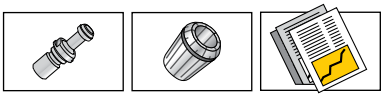
DIN69871

DIN69871-ER (form ADB)
DIN 6499 ER Collet Chucks with a DIN 69871 Form ADB Taper Shanks



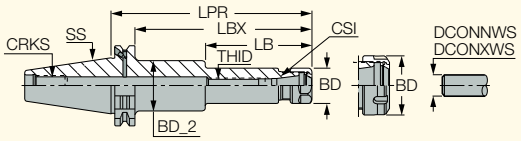
Designation	SS	CSI	DCONNWS[2]	DCONXWS[3]	LPR	LBX	LB	BD	BD_2	CRKS	THID	DCP[4]	kg
DIN69871 30 ER16X 63	30	ER16	0.5	10.0	63.00	43.9	28.00	28.00	-	M12	M10X1.5	0	0.46
DIN69871 40 ER16X 63	40	ER16	0.5	10.0	63.00	43.9	-	28.00	-	M16	M12X1.75	0	0.86
DIN69871 40 ER16X100	40	ER16	0.5	10.0	100.00	80.9	-	28.00	-	M16	M12X1.75	0	1.05
DIN69871 40 ER16X160 [1]	40	ER16	0.5	10.0	160.00	140.9	85.00	28.00	40.00	M16	M12X1.75	0	1.52
DIN69871 40 ER20X 63	40	ER20	1.0	13.0	63.00	43.9	-	34.00	-	M16	M12X1.75	0	0.91
DIN69871 40 ER20X100	40	ER20	1.0	13.0	100.00	80.9	-	34.00	-	M16	M12X1.75	0	1.16
DIN69871 40 ER20X160 [1]	40	ER20	1.0	13.0	160.00	140.9	91.00	34.00	44.00	M16	M12X1.75	0	1.72
DIN69871 40 ER25X 65	40	ER25	1.0	16.0	65.00	45.9	28.00	42.00	-	M16	M16X2	0	0.90
DIN69871 40 ER25X100	40	ER25	1.0	16.0	100.00	80.9	-	42.00	-	M16	M16X2	0	1.29
DIN69871 40 ER25X150	40	ER25	1.0	16.0	150.00	130.9	-	42.00	-	M16	M16X2	0	1.81
DIN69871 40 ER32X 65	40	ER32	2.0	20.0	65.00	45.9	32.00	50.00	40.40	M16	M22X1.5	0	0.85
DIN69871 40 ER32X100	40	ER32	2.0	20.0	100.00	80.9	35.00	50.00	49.00	M16	M22X1.5	0	1.20
DIN69871 40 ER32X150	40	ER32	2.0	20.0	150.00	130.9	35.00	50.00	49.00	M16	M22X1.5	0	2.17
DIN69871 40 ER40X 70	40	ER40	3.0	26.0	70.00	50.9	32.00	63.00	50.40	M16	M28X1.5	0	0.89
DIN69871 40 ER40X100	40	ER40	3.0	26.0	100.00	80.9	32.00	63.00	50.40	M16	M28X1.5	0	1.28
DIN69871 50 ER16X100	50	ER16	0.5	10.0	100.00	80.9	-	28.00	-	M24	M12X1.75	0	2.76
DIN69871 50 ER16X160 [1]	50	ER16	0.5	10.0	160.00	140.9	85.00	28.00	40.00	M24	M12X1.75	0	3.29
DIN69871 50 ER16X200 [1]	50	ER16	0.5	10.0	200.00	180.9	110.00	28.00	40.00	M24	M10X1.5	0	3.52
DIN69871 50 ER20X100	50	ER20	1.0	13.0	100.00	80.9	-	34.00	-	M24	M16X2	0	2.86
DIN69871 50 ER20X160 [1]	50	ER20	1.0	13.0	160.00	140.9	86.00	34.00	45.00	M24	M16X2	0	3.50
DIN69871 50 ER25X100	50	ER25	1.0	16.0	100.00	80.9	-	42.00	-	M24	M16X2	0	3.08
DIN69871 50 ER25X150	50	ER25	1.0	16.0	150.00	130.9	80.90	42.00	50.00	M24	M16X2	0	3.71
DIN69871 50 ER25X200 [1]	50	ER25	1.0	16.0	200.00	180.9	85.00	42.00	55.00	M24	M16X2	0	4.70
DIN69871 50 ER32X100	50	ER32	2.0	20.0	100.00	80.9	-	50.00	-	M24	M22X1.5	0	3.20
DIN69871 50 ER32X150	50	ER32	2.0	20.0	150.00	130.9	-	50.00	-	M24	M22X1.5	0	3.83
DIN69871 50 ER32X200 [1]	50	ER32	2.0	20.0	200.00	180.9	-	50.00	-	M24	M22X1.5	0	4.51
DIN69871 50 ER40X100	50	ER40	3.0	26.0	100.00	80.9	-	63.00	-	M24	M28X1.5	0	3.45
DIN69871 50 ER40X150	50	ER40	3.0	26.0	150.00	130.9	-	63.00	-	M24	M28X1.5	0	4.51
DIN69871 50 ER40X200 [1]	50	ER40	3.0	26.0	200.00	180.9	-	63.00	-	M24	M28X1.5	0	5.60
DIN69871 50 ER50X100	50	ER50	10.0	34.0	100.00	80.9	-	78.00	-	M24	M36X1.5	0	3.51
DIN69871 50 ER50X150	50	ER50	10.0	34.0	150.00	130.9	-	78.00	-	M24	M36X1.5	0	5.22

[1] Balanced to G6.3/12,000 RPM
[2] Minimum diameter
[3] Maximum diameter
[4] 1 - Slot for data chip, 0 - Without slot for data chip

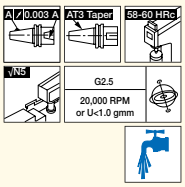

802-805 763-773 763-765

DIN69871

DIN69871-ER (form ADB)
DIN 6499 ER Collet Chucks with a DIN 69871 Form ADB Taper Shanks



ER 16-20 ER 25-50



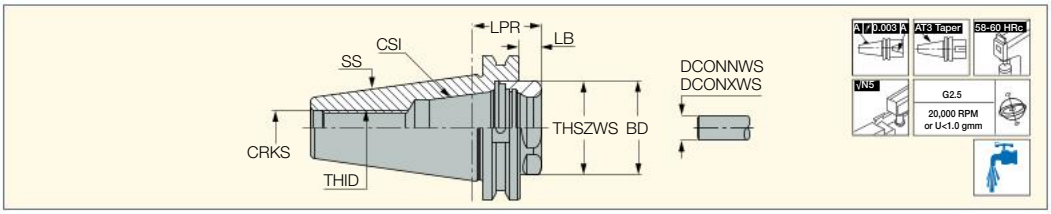
Spare Parts

Designation				
DIN69871 30 ER16X 63	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	
DIN69871 40 ER16X 63	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
DIN69871 40 ER16X100	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	
DIN69871 40 ER16X160	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	
DIN69871 40 ER20X 63	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
DIN69871 40 ER20X100	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
DIN69871 40 ER20X160	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
DIN69871 40 ER25X 65	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
DIN69871 40 ER25X100	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
DIN69871 40 ER25X150	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
DIN69871 40 ER32X 65	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*
DIN69871 40 ER32X100	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*
DIN69871 40 ER32X150	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*
DIN69871 40 ER40X 70	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 28X1.5*	
DIN69871 40 ER40X100	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 28X1.5*	
DIN69871 50 ER16X100	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
DIN69871 50 ER16X160	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
DIN69871 50 ER16X200	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	
DIN69871 50 ER20X100	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
DIN69871 50 ER20X160	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
DIN69871 50 ER25X100	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
DIN69871 50 ER25X150	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
DIN69871 50 ER25X200	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
DIN69871 50 ER32X100	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*
DIN69871 50 ER32X150	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*
DIN69871 50 ER32X200	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*
DIN69871 50 ER40X100	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 28X1.5*	
DIN69871 50 ER40X150	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 28X1.5*	
DIN69871 50 ER40X200	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 28X1.5*	
DIN69871 50 ER50X100	NUT ER50 UM	WRENCH ER50*		
DIN69871 50 ER50X150	NUT ER50 UM	WRENCH ER50*		

* Optional, to be ordered separately

DIN69871 SHORTIN

DIN69871-ER-SHORT
Short Front End ER Collet Chucks with DIN 69871 Form AD Tapered Shanks



Designation	SS	CSI	DCONNWS(1)	DCONXWS(2)	LPR	LB	BD	THSZWS	CRKS	THID	DCP(3)	kg
DIN69871 40 ER32 SHORT	40	ER32	2.0	20.0	25.10	6.0	40.00	M40X1.5	M16	-	0	0.58
DIN69871 50 ER32 SHORT	50	ER32	2.0	20.0	28.60	9.5	40.00	M40X1.5	M24	M22X1.5	0	2.38
DIN69871 50 ER40 SHORT	50	ER40	3.0	26.0	28.60	9.5	50.00	M50X1.5	M24	M28X1.5	0	2.14

(1) Minimum diameter
(2) Maximum diameter
(3) 1 - Slot for data chip, 0 - Without slot for data chip

802-805 763-773 763-765

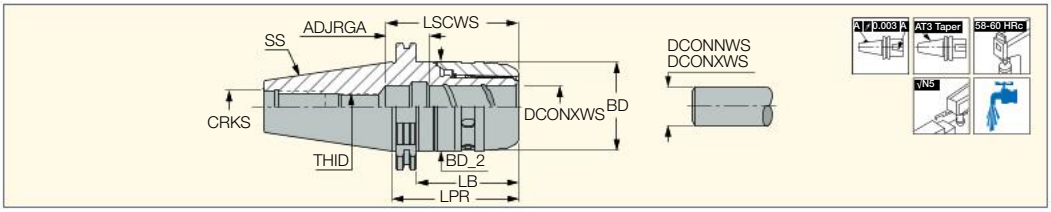
Spare Parts

Designation				
DIN69871 40 ER32 SHORT	NUT ER32 SHORT	WRENCH ER32 SHORT*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
DIN69871 50 ER32 SHORT	NUT ER32 SHORT	WRENCH ER32 SHORT*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*
DIN69871 50 ER40 SHORT	NUT ER40 SHORT	WRENCH ER40 SHORT*	PRESET ER-JET 28X1.5*	

* Optional, to be ordered separately

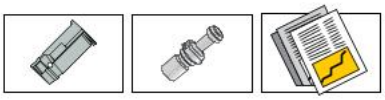
DIN69871 MAXIN

DIN69871-MAXIN
Power Chucks with DIN 69871 Form AD/B Taper Shanks



Designation	SS	DCONNWS(1)	DCONXWS(2)	BD	BD_2	LPR	LB	ADJRGA	LSCWS	THID	CRKS	DCP(3)	kg
DIN69871 40 MAXIN 20X 95	40	6.0	20.0	51.00	53.00	95.00	76.0	13.00	69.0	M16	M16	0	1.20
DIN69871 40 MAXIN 32X106	40	6.0	32.0	69.00	70.00	106.00	87.0	13.00	83.0	M16	M16	0	1.42
DIN69871 50 MAXIN 20X105	50	6.0	20.0	51.00	53.00	105.00	86.0	13.00	69.0	M16	M24	0	3.20
DIN69871 50 MAXIN 32X100	50	6.0	32.0	69.00	70.00	100.00	81.0	14.00	84.0	M20X2	M24	0	3.17
DIN69871 50 MAXIN 32X135	50	6.0	32.0	69.00	70.00	135.00	116.0	14.00	85.0	M20X2	M24	0	4.20

• Use of DCONXWS diameter tools provides best performance, as collets reduce the gripping force. • B is the designation for coolant through flange .
(1) Min. diameter by using a reduction collet
(2) Max. diameter without a collet
(3) 1 - Slot for data chip, 0 - Without slot for data chip


773-774 802-805 556-557

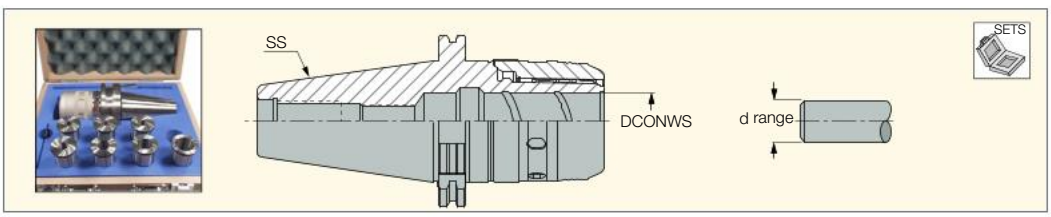
Spare Parts

Designation		
DIN69871 40 MAXIN 20X 95	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*
DIN69871 40 MAXIN 32X106	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*
DIN69871 50 MAXIN 20X105	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*
DIN69871 50 MAXIN 32X100	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*
DIN69871 50 MAXIN 32X135	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*

* Optional, to be ordered separately

DIN69871

KIT SK-MAXIN
Contains a DIN 69871 Holder with MAXIN Power Chuck and a Set of Collets with Various Bore Sizes



Designation	SS	DCONWS	Qty	d Range
KIT SK40 MAXIN 20X95 6	SK40	20.00	6	6,8,10,12,14,16
KIT SK40 MAXIN 32X106 7	SK40	32.00	7	6,8,10,12,16,20,25
KIT SK50 MAXIN 32X100 7	SK50	32.00	7	6,8,10,12,16,20,25

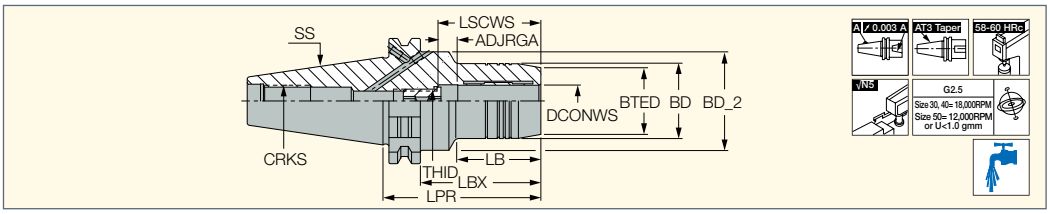
• Each kit contains one power chuck, a set of SC-SPR collets, extraction hook and wrench.

DIN69871

HYDROFIT HOLDING LINE

DIN69871-HYDRO

Hydraulic Chucks with DIN69871 Form ADB Shanks, for Semi-Finish and Finish Applications



Designation	SS	DCONWS	BTED	BD	BD_2	LPR	LBX	LB	ADJRGA	LSCWS	THID	CRKS	DCP(3)	kg
DIN69871 30 HYDRO 6X60 (1)	30	6.00	23.00	26.00	45.00	60.00	41.0	25.00	10.00	37.0	M5	M12	1	0.63
DIN69871 30 HYDRO 16X90 (1)	30	16.00	34.00	38.00	45.00	90.00	71.0	43.00	10.00	52.0	M12X1	M12	1	0.96
DIN69871 30 HYDRO 20X90 (1)	30	20.00	38.00	42.00	-	90.00	71.0	-	10.00	52.0	M12X1	M12	1	0.90
DIN69871 40 HYDRO 6X68 (1)	40	6.00	23.00	26.00	50.00	68.00	49.0	33.00	11.00	38.0	M5	M16	1	1.09
DIN69871 40 HYDRO 8X68 (1)	40	8.00	25.00	28.00	50.00	68.00	49.0	33.00	10.00	37.0	M6	M16	1	1.11
DIN69871 40 HYDRO 10X72 (1)	40	10.00	27.00	30.00	50.00	72.00	53.0	37.00	10.00	42.0	M8X1	M16	1	1.14
DIN69871 40 HYDRO 12X77 (1)	40	12.00	29.00	32.00	50.00	77.00	58.0	42.00	10.00	47.0	M10X1	M16	1	1.20
DIN69871 40 HYDRO 14X77 (1)	40	14.00	30.00	34.00	50.00	77.00	58.0	42.00	10.00	47.0	M10X1	M16	1	1.20
DIN69871 40 HYDRO 16X80 (1)	40	16.00	34.00	38.00	50.00	80.00	61.0	43.00	10.00	52.0	M12X1	M16	1	1.28
DIN69871 40 HYDRO 18X80 (1)	40	18.00	36.00	40.00	50.00	80.00	61.0	43.00	10.00	52.0	M12X1	M16	1	1.30
DIN69871 40 HYDRO 20X82 (1)	40	20.00	38.00	42.00	50.00	82.00	63.0	47.00	10.00	52.0	M12X1	M16	1	1.34
DIN69871 40 HYDRO 25X117 (1)	40	25.00	46.00	50.00	63.00	117.00	98.0	51.00	10.00	58.0	M16X1	M16	1	2.01
DIN69871 40 HYDRO 32X117 (1)	40	32.00	56.00	60.00	63.00	117.00	98.0	56.00	10.00	62.0	M16X1	M16	1	2.44
DIN69871 50 HYDRO 6X68 (2)	50	6.00	23.00	26.00	80.00	68.00	49.0	33.00	10.00	37.0	M5	M24	1	3.10
DIN69871 50 HYDRO 8X68 (2)	50	8.00	25.00	28.00	80.00	68.00	49.0	33.00	10.00	37.0	M6	M24	1	3.10
DIN69871 50 HYDRO 10X72 (2)	50	10.00	27.00	30.00	80.00	72.00	53.0	37.00	10.00	42.0	M8X1	M24	1	3.20
DIN69871 50 HYDRO 12X77 (2)	50	12.00	29.00	32.00	80.00	77.00	58.0	42.00	10.00	47.0	M10X1	M24	1	3.20
DIN69871 50 HYDRO 14X77 (2)	50	14.00	30.00	34.00	80.00	77.00	58.0	42.00	10.00	47.0	M10X1	M24	1	3.34
DIN69871 50 HYDRO 16X80 (2)	50	16.00	34.00	38.00	80.00	80.00	61.0	45.00	10.00	52.0	M12X1	M24	1	3.41
DIN69871 50 HYDRO 18X80 (2)	50	18.00	36.00	40.00	80.00	80.00	61.0	45.00	10.00	52.0	M12X1	M24	1	2.57
DIN69871 50 HYDRO 20X82 (2)	50	20.00	38.00	42.00	80.00	82.00	63.0	47.00	10.00	52.0	M16X1	M24	1	3.50
DIN69871 50 HYDRO 25X87 (2)	50	25.00	46.00	50.00	80.00	87.00	68.0	52.00	10.00	58.0	M16X1	M24	1	3.73
DIN69871 50 HYDRO 32X91 (2)	50	32.00	56.00	60.00	80.00	91.00	72.0	56.00	10.00	64.0	M16X1	M24	1	4.01

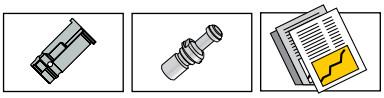
• Chucking forces will be reduced by 25% if reduction sleeves are used. • Note: Reduction sleeves are available for 12, 20, 25 and 32 mm bore diameters (ordered separately).

• The coolant passages in the B type flange are blocked with screws which can be removed when required. • Clamping wrench (wrench HYDRO HEX 4) and test bar should be ordered separately.

(1) Balanced to G2.5/18,000 RPM.

(2) Balanced to G2.5/12,000 RPM.

(3) Chip data inset



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Spare Parts

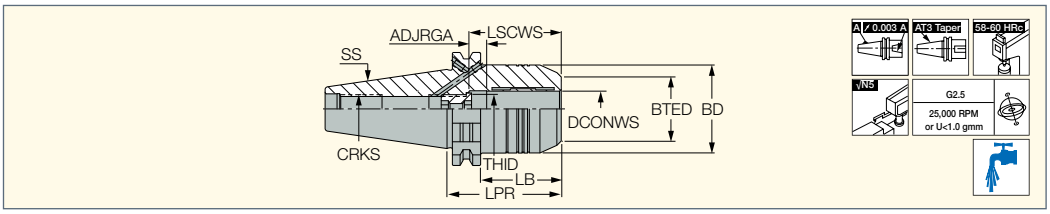
Designation			
DIN69871 30 HYDRO 6X60	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 6*	WRENCH HYDRO HEX 4*
DIN69871 30 HYDRO 16X90	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 16*	WRENCH HYDRO HEX 4*
DIN69871 30 HYDRO 20X90	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 20*	WRENCH HYDRO HEX 4*
DIN69871 40 HYDRO 6X68	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 6*	WRENCH HYDRO HEX 4*
DIN69871 40 HYDRO 8X68	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 8*	WRENCH HYDRO HEX 4*
DIN69871 40 HYDRO 10X72	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 10*	WRENCH HYDRO HEX 4*
DIN69871 40 HYDRO 12X77	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 12*	WRENCH HYDRO HEX 4*
DIN69871 40 HYDRO 14X77	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 14*	WRENCH HYDRO HEX 4*
DIN69871 40 HYDRO 16X80	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 16*	WRENCH HYDRO HEX 4*
DIN69871 40 HYDRO 18X80	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 18*	WRENCH HYDRO HEX 4*
DIN69871 40 HYDRO 20X82	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 20*	WRENCH HYDRO HEX 4*
DIN69871 40 HYDRO 25X117	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 25*	WRENCH HYDRO HEX 4*
DIN69871 40 HYDRO 32X117	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 32*	WRENCH HYDRO HEX 4*
DIN69871 50 HYDRO 6X68	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 6*	WRENCH HYDRO HEX 4*
DIN69871 50 HYDRO 8X68	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 8*	WRENCH HYDRO HEX 4*
DIN69871 50 HYDRO 10X72	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 10*	WRENCH HYDRO HEX 4*
DIN69871 50 HYDRO 12X77	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 12*	WRENCH HYDRO HEX 4*
DIN69871 50 HYDRO 14X77	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 14*	WRENCH HYDRO HEX 4*
DIN69871 50 HYDRO 16X80	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 16*	WRENCH HYDRO HEX 4*
DIN69871 50 HYDRO 18X80	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 18*	WRENCH HYDRO HEX 4*
DIN69871 50 HYDRO 20X82	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 20*	WRENCH HYDRO HEX 4*
DIN69871 50 HYDRO 25X87	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 25*	WRENCH HYDRO HEX 4*
DIN69871 50 HYDRO 32X91	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 32*	WRENCH HYDRO HEX 4*

* Optional, to be ordered separately

DIN69871

HYDROFIT HOLDING LINE

DIN69871-HYDRO HD
Heavy Duty, Short Hydraulic Chucks With DIN69871 form ADB shanks



Designation	SS	DCONWS	BTED	BD	LPR	LB	ADJRGA	LSCWS	THID	CRKS	DCP(1)	kg
SK40 HYDRO 12X50 HD	40	12.00	32.00	42.00	50.00	31.0	10.00	46.0	M8X1	M16	0	1.10
SK40 HYDRO 16X64.5 HD	40	16.00	38.00	49.25	64.50	45.5	8.00	51.0	M8X1	M16	0	1.20
SK40 HYDRO 20X64.5 HD	40	20.00	38.00	49.25	64.50	45.5	8.00	51.0	M8X1	M16	0	1.30
SK50 HYDRO 20X64.5 HD	50	20.00	38.00	49.25	64.50	45.5	8.00	51.0	M8X1	M24	0	3.10
SK50 HYDRO 32X81 HD	50	32.00	58.50	72.00	81.00	62.0	9.00	61.0	M8X1	M24	0	4.10

(1) 1 - Slot for data chip, 0 - Without slot for data chip

Spare Parts

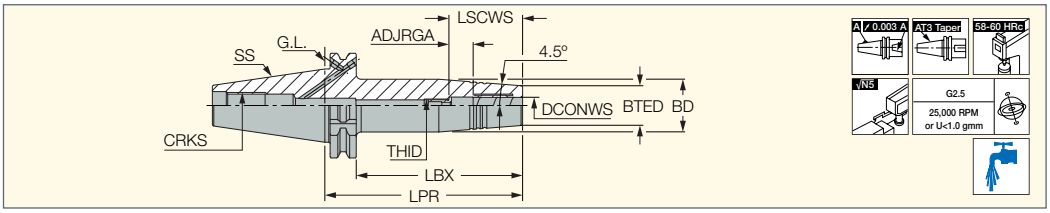
Designation	
SK40 HYDRO 12X50 HD	ALLEN KEY SW5X100*
SK40 HYDRO 16X64.5 HD	ALLEN KEY SW5X100*
SK40 HYDRO 20X64.5 HD	ALLEN KEY SW5X100*
SK50 HYDRO 20X64.5 HD	ALLEN KEY SW5X100*
SK50 HYDRO 32X81 HD	ALLEN KEY SW6X100*

* Optional, to be ordered separately

DIN69871

HYDROFIT HOLDING LINE

DIN69871-HYDRO SF
Slim Design, Hydraulic Chucks with DIN69871 Shanks



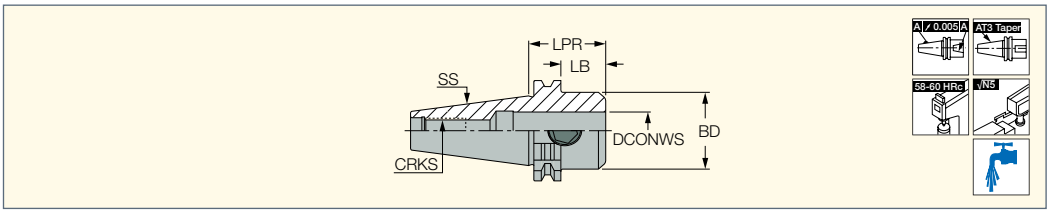
Designation	SS	DCONWS	BTED	BD	LPR	LBX	ADJRGA	LSCWS	THID	CRKS	DCP(1)	kg
SK40 HYDRO 6X120 SF	40	6.00	21.00	27.00	120.00	100.90	10.00	36.00	M5	M16	0	1.28
SK40 HYDRO 6X80 SF	40	6.00	21.00	27.00	80.00	60.90	10.00	36.00	M5	M16	0	1.08
SK40 HYDRO 8X120 SF	40	8.00	21.00	27.00	120.00	100.90	10.00	36.00	M6	M16	0	1.27
SK40 HYDRO 8X80 SF	40	8.00	21.00	27.00	80.00	60.90	10.00	36.00	M6	M16	0	1.06
SK40 HYDRO 10X120 SF	40	10.00	24.00	32.00	120.00	100.90	10.00	42.00	M8x1	M16	0	1.39
SK40 HYDRO 10X80 SF	40	10.00	24.00	32.00	80.00	60.90	10.00	42.00	M8x1	M16	0	1.11
SK40 HYDRO 12X120 SF	40	12.00	24.00	32.00	120.00	100.90	10.00	47.00	M10x1	M16	0	1.36
SK40 HYDRO 12X80 SF	40	12.00	24.00	32.00	80.00	60.90	10.00	47.00	M10x1	M16	0	1.09
SK40 HYDRO 16X120 SF	40	16.00	27.00	34.00	120.00	100.90	10.00	50.00	M12x1	M16	0	1.41
SK40 HYDRO 16X80 SF	40	16.00	27.00	34.00	80.00	60.90	10.00	50.00	M12x1	M16	0	1.11
SK40 HYDRO 20X120 SF	40	20.00	33.00	42.00	120.00	100.90	10.00	52.00	M16x1	M16	0	1.64
SK40 HYDRO 20X80 SF	40	20.00	33.00	42.00	80.00	60.90	10.00	52.00	M16x1	M16	0	1.22

New

(1) 1 - Slot for data chip, 0 - Without slot for data chip

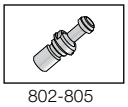
DIN69871

DIN69871-EM
(DIN 6359 short)
Short Side Clamp Endmill Holders (DIN 6359-HB) with DIN 69871 Form AD Taper Shanks for DIN 1835 Form B Weldon Shanks



Designation	SS	DCONWS	BD	LPR	LB	CRKS	DCP(1)	kg	
DIN69871 40 EM10X 45	40	10.00	35.00	45.00	25.9	M16	0	0.93	SR M10X12 DIN1835-B
DIN69871 40 EM12X 45	40	12.00	42.00	45.00	25.9	M16	0	0.99	SR M12X16 DIN1835-B
DIN69871 40 EM14X 45	40	14.00	44.00	45.00	25.9	M16	0	1.02	SR M12X16 DIN1835-B
DIN69871 40 EM16X 45	40	16.00	48.00	45.00	25.9	M16	0	1.05	SR M14X16 DIN1835-B
DIN69871 40 EM18X 45	40	18.00	49.00	45.00	25.9	M16	0	1.04	SR M14X16 DIN1835-B
DIN69871 40 EM20X 45	40	20.00	49.00	45.00	25.9	M16	0	1.00	SR M16X16 DIN1835-B
DIN69871 40 EM25X 45	40	25.00	49.00	45.00	25.9	M16	0	0.93	SR M18X2X10 EM SHORT

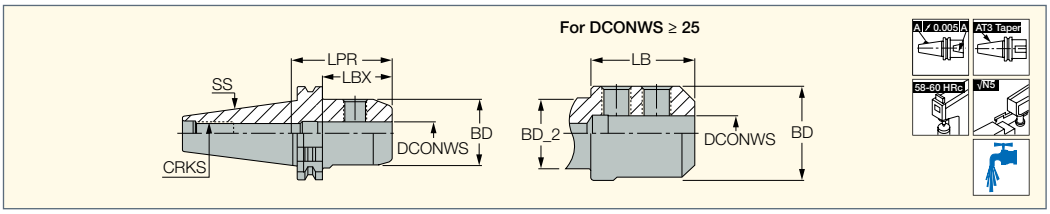
(1) 1 - Slot for data chip, 0 - Without slot for data chip



802-805

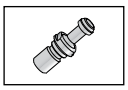
DIN69871

DIN69871-EM (DIN 6359-HB)
DIN 69871 Form AD Taper Shanks Holders with DIN 6359-HB for DIN 1835 Form B Weldon Shanks



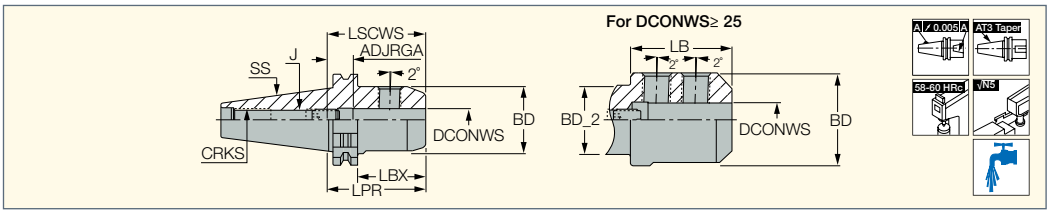
Designation	SS	DCONWS	BD	BD_2	LPR	LBX	LB	CRKS	DCP[1]	kg	
DIN69871 30 EM 8X 50	30	8.00	28.00	-	50.00	30.9	-	M12	0	0.49	SR M8X10 DIN1835-B
DIN69871 30 EM10X 50	30	10.00	35.00	-	50.00	30.9	-	M12	0	0.55	SR M10X12 DIN1835-B
DIN69871 30 EM16X 63	30	16.00	48.00	-	63.00	43.9	-	M12	0	0.81	SR M14X16 DIN1835-B
DIN69871 30 EM18X 72	30	18.00	50.00	-	72.00	52.9	-	M12	0	0.96	SR M14X16 DIN1835-B
DIN69871 30 EM20X70	30	20.00	52.00	-	72.00	52.9	-	M12	0	0.96	SR M16X16 DIN1835-B
DIN69871 40 EM 6X 50	40	6.00	25.00	-	50.00	30.9	-	M16	0	0.89	SR M6X10 DIN1835B
DIN69871 40 EM 8X 50	40	8.00	28.00	-	50.00	30.9	-	M16	0	0.91	SR M8X10 DIN1835-B
DIN69871 40 EM10X 50	40	10.00	35.00	-	50.00	30.9	-	M16	0	0.96	SR M10X12 DIN1835-B
DIN69871 40 EM12X 50	40	12.00	42.00	-	50.00	30.9	-	M16	0	1.04	SR M12X16 DIN1835-B
DIN69871 40 EM14X 63	40	14.00	44.00	-	63.00	43.9	-	M16	0	1.20	SR M12X16 DIN1835-B
DIN69871 40 EM16X 63	40	16.00	48.00	-	63.00	43.9	-	M16	0	1.20	SR M14X16 DIN1835-B
DIN69871 40 EM18X 63	40	18.00	50.00	-	63.00	43.9	-	M16	0	1.29	SR M14X16 DIN1835-B
DIN69871 40 EM20X 63	40	20.00	52.00	-	63.00	43.9	-	M16	0	1.26	SR M16X16 DIN1835-B
DIN69871 40 EM25X100	40	25.00	65.00	49.00	100.00	80.9	65.00	M16	0	2.23	SR M18X2X20 DIN1835-B
DIN69871 40 EM32X100	40	32.00	71.00	49.00	100.00	80.9	65.00	M16	0	2.42	SR M20X2X20 DIN1835-B
DIN69871 50 EM 6X 63	50	6.00	25.00	-	63.00	43.9	-	M24	0	2.70	SR M6X10 DIN1835B
DIN69871 50 EM 8X 63	50	8.00	28.00	-	63.00	43.9	-	M24	0	2.73	SR M8X10 DIN1835-B
DIN69871 50 EM10X 63	50	10.00	35.00	-	63.00	43.9	-	M24	0	2.83	SR M10X12 DIN1835-B
DIN69871 50 EM12X 63	50	12.00	42.00	-	63.00	43.9	-	M24	0	2.93	SR M12X16 DIN1835-B
DIN69871 50 EM14X 63	50	14.00	44.00	-	63.00	43.9	-	M24	0	2.91	SR M12X16 DIN1835-B
DIN69871 50 EM16X 63	50	16.00	48.00	-	63.00	43.9	-	M24	0	3.02	SR M14X16 DIN1835-B
DIN69871 50 EM18X 63	50	18.00	50.00	-	63.00	43.9	-	M24	0	3.08	SR M14X16 DIN1835-B
DIN69871 50 EM20X 63	50	20.00	52.00	-	63.00	43.9	-	M24	0	3.07	SR M16X16 DIN1835-B
DIN69871 50 EM25X 80	50	25.00	65.00	-	80.00	60.9	-	M24	0	3.70	SR M18X2X20 DIN1835-B
DIN69871 50 EM32X100	50	32.00	72.00	-	100.00	80.9	-	M24	0	4.44	SR M20X2X20 DIN1835-B
DIN69871 50 EM40X100	50	40.00	90.00	79.90	100.00	80.9	43.00	M24	0	5.05	SR M20X2X20 DIN1835-B
DIN69871 50 EM50X125	50	50.00	98.00	79.90	125.00	105.9	90.00	M24	0	6.80	SR M24X2X25 DIN1835-B

[1] 1 - Slot for data chip, 0 - Without slot for data chip


802-805

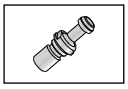
DIN69871

DIN69871-EM (DIN 6359-HE)
DIN 69871 Form AD Taper Shank Drill Holders with DIN 6359-HE for DIN 1835 Form E Whistle Notch Shanks



Designation	SS	DCONWS	BD	BD_2	LPR	LBX	LB	LSCWS	ADJRGA	THID(1)	Key(2)	CRKS	DCP(3)	kg
DIN69871 40 EM 8X 50E	40	8.00	28.00	28.00	50.00	30.9	-	45.0	10.00	M6	3.00	M16	0	0.94
DIN69871 40 EM10X 50E	40	10.00	35.00	35.00	50.00	30.9	-	49.0	10.00	M8	4.00	M16	0	1.00
DIN69871 40 EM12X 50E	40	12.00	42.00	42.00	50.00	30.9	-	54.0	10.00	M10	5.00	M16	0	1.07
DIN69871 40 EM16X 63E	40	16.00	48.00	48.00	63.00	43.9	-	57.0	10.00	M12	6.00	M16	0	1.28
DIN69871 40 EM18X 63E	40	18.00	50.00	50.00	63.00	43.9	-	57.0	10.00	M12	6.00	M16	0	1.31
DIN69871 40 EM20X 63E	40	20.00	52.00	52.00	63.00	43.9	-	59.0	10.00	M16	8.00	M16	0	1.25
DIN69871 40 EM25X100E	40	25.00	64.00	49.00	100.00	80.9	65.00	64.0	10.00	M20X1.5	10.00	M16	0	2.18
DIN69871 40 EM32X100E	40	32.00	71.00	49.00	100.00	80.9	65.00	68.0	10.00	M20X1.5	10.00	M16	0	2.40
DIN69871 50 EM12X 63E	50	12.00	42.00	42.00	63.00	43.9	-	54.0	10.00	M10	5.00	M24	0	2.98
DIN69871 50 EM14X 63E	50	14.00	44.00	44.00	63.00	43.9	-	54.0	10.00	M10	5.00	M24	0	3.02
DIN69871 50 EM16X 63E	50	16.00	48.00	48.00	63.00	43.9	-	57.0	10.00	M12	6.00	M24	0	3.07
DIN69871 50 EM20X 63E	50	20.00	52.00	52.00	63.00	43.9	-	59.0	10.00	M16	8.00	M24	0	3.11
DIN69871 50 EM25X 80E	50	25.00	65.00	65.00	80.00	60.9	-	64.0	10.00	M20X1.5	10.00	M24	0	3.67
DIN69871 50 EM32X100E	50	32.00	72.00	72.00	100.00	80.9	-	68.0	10.00	M20X1.5	10.00	M24	0	4.50
DIN69871 50 EM40X100E	50	40.00	90.00	79.90	100.00	80.9	43.00	78.0	10.00	M20X1.5	10.00	M24	0	5.05

(1) Adjustment screw has an internal coolant hole.
(2) Adjustment screw hexagon key size.
(3) 1 - Slot for data chip, 0 - Without slot for data chip


802-805

Spare Parts

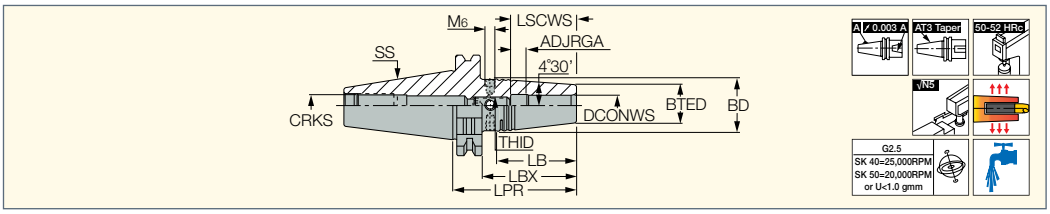
Designation		
DIN69871 40 EM 8X 50E	SR M8X10 DIN1835-B	PRESET M6X20B
DIN69871 40 EM10X 50E	SR M10X12 DIN1835-B	PRESET M8X20B
DIN69871 40 EM12X 50E	SR M12X16 DIN1835-B	PRESET M10X18B
DIN69871 40 EM16X 63E	SR M14X16 DIN1835-B	PRESET M12X18B
DIN69871 40 EM18X 63E	SR M14X16 DIN1835-B	PRESET M12X18B
DIN69871 40 EM20X 63E	SR M16X16 DIN1835-B	PRESET M16X20B
DIN69871 40 EM25X100E	SR M18X2X20 DIN1835-B	PRESET M20X20E
DIN69871 40 EM32X100E	SR M20X2X20 DIN1835-B	PRESET M20X20E
DIN69871 50 EM12X 63E	SR M12X16 DIN1835-B	PRESET M10X18B
DIN69871 50 EM14X 63E	SR M12X16 DIN1835-B	PRESET M10X18B
DIN69871 50 EM16X 63E	SR M14X16 DIN1835-B	PRESET M12X18B
DIN69871 50 EM20X 63E	SR M16X16 DIN1835-B	PRESET M16X20B
DIN69871 50 EM25X 80E	SR M18X2X20 DIN1835-B	PRESET M20X20E
DIN69871 50 EM32X100E	SR M20X2X20 DIN1835-B	PRESET M20X20E
DIN69871 50 EM40X100E	SR M20X2X20 DIN1835-B	PRESET M20X20E

DIN69871

SHRINKIN

DIN69871-SRKIN

Thermal Shrink Chucks with DIN 69871 Form AD Taper Shanks for Solid Carbide HSS and Steel Tools



Designation	SS	DCONWS	BTED	BD	LPR	LBX	LB	ADJRGA	LSCWS	THID	Key(3)	CRKS	DCP(4)	kg
DIN69871 40 SRKIN 6X80 (1)	40	6.00	21.00	27.00	80.00	60.9	38.00	11.00	36.0	M5	2.50	M16	0	0.99
DIN69871 40 SRKIN 8X80 (1)	40	8.00	21.00	27.00	80.00	60.9	38.00	11.00	36.0	M6	3.00	M16	0	1.00
DIN69871 40 SRKIN 10X80 (1)	40	10.00	24.00	32.00	80.00	60.9	50.50	11.00	42.0	M8	4.00	M16	0	1.05
DIN69871 40 SRKIN 12X80 (1)	40	12.00	24.00	32.00	80.00	60.9	50.80	16.00	47.0	M10	5.00	M16	0	1.04
DIN69871 40 SRKIN 14X80 (1)	40	14.00	27.00	34.00	80.00	60.9	44.20	11.00	47.0	M10	5.00	M16	0	1.15
DIN69871 40 SRKIN 16X80 (1)	40	16.00	27.00	34.00	80.00	60.9	44.20	11.00	50.0	M12	6.00	M16	0	1.07
DIN69871 40 SRKIN 18X80 (1)	40	18.00	33.00	42.00	80.00	60.9	57.00	11.00	50.0	M12	6.00	M16	0	1.21
DIN69871 40 SRKIN 20X80 (1)	40	20.00	33.00	42.00	80.00	60.9	57.00	11.00	52.0	M16	8.00	M16	0	1.16
DIN69871 40 SRKIN 25X100 (1)	40	25.00	44.00	53.00	100.00	80.9	57.00	11.00	58.0	M16	8.00	M16	0	1.71
DIN69871 50 SRKIN 6X 80 (2)	50	6.00	21.00	27.00	80.00	60.9	38.00	11.00	36.0	M5	2.50	M24	0	2.72
DIN69871 50 SRKIN 8X 80 (2)	50	8.00	21.00	27.00	80.00	60.9	38.00	11.00	36.0	M6	3.00	M24	0	2.71
DIN69871 50 SRKIN 10X 80 (2)	50	10.00	24.00	32.00	80.00	60.9	51.00	11.00	42.0	M8	4.00	M24	0	2.81
DIN69871 50 SRKIN 12X 80 (2)	50	12.00	24.00	32.00	80.00	60.9	51.00	11.00	47.0	M10	5.00	M24	0	2.79
DIN69871 50 SRKIN 14X 80 (2)	50	14.00	27.00	34.00	80.00	60.9	45.00	11.00	47.0	M10	5.00	M24	0	2.84
DIN69871 50 SRKIN 16X 80 (2)	50	16.00	27.00	34.00	80.00	60.9	45.00	11.00	50.0	M12	6.00	M24	0	2.76
DIN69871 50 SRKIN 18X 80 (2)	50	18.00	33.00	42.00	80.00	60.9	57.00	11.00	50.0	M12	6.00	M24	0	2.90
DIN69871 50 SRKIN 20X 80 (2)	50	20.00	33.00	42.00	80.00	60.9	57.00	11.00	52.0	M16	8.00	M24	0	2.92
DIN69871 50 SRKIN 25X100 (2)	50	25.00	44.00	53.00	100.00	80.9	57.00	11.00	58.0	M16	8.00	M24	0	3.51
DIN69871 50 SRKIN 32X100 (2)	50	32.00	44.00	53.00	100.00	80.9	57.00	11.00	58.0	M18	8.00	M24	0	3.36

- Use only inductive heating device for SRKIN holders

(1) Balanced to G2.5/25.000 RPM

(2) Balanced to G2.5/20.000 RPM

(3) Hex key size for the rear stopper screw

(4) 1 - Slot for data chip, 0 - Without slot for data chip

802-805 778-780, 639 784-786

Spare Parts

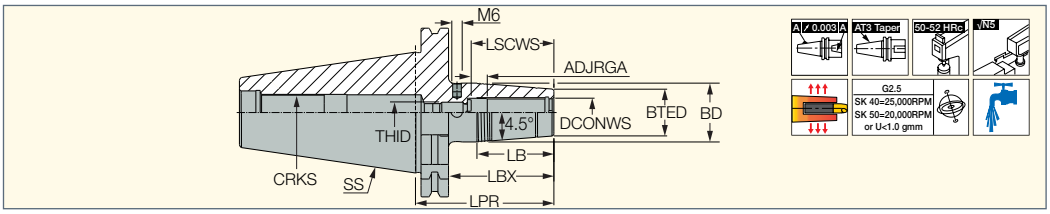
Designation	
DIN69871 40 SRKIN 6X80	PRESET M5X18B
DIN69871 40 SRKIN 8X80	PRESET M6X20B
DIN69871 40 SRKIN 10X80	PRESET M8X20B
DIN69871 40 SRKIN 12X80	PRESET M10X18B
DIN69871 40 SRKIN 14X80	PRESET M10X18B
DIN69871 40 SRKIN 16X80	PRESET M12X18B
DIN69871 40 SRKIN 18X80	PRESET M12X18B
DIN69871 40 SRKIN 20X80	PRESET M16X20B
DIN69871 40 SRKIN 25X100	PRESET M16X25B
DIN69871 50 SRKIN 6X 80	PRESET M5X18B
DIN69871 50 SRKIN 8X 80	PRESET M6X20B
DIN69871 50 SRKIN 10X 80	PRESET M8X20B
DIN69871 50 SRKIN 12X 80	PRESET M10X18B
DIN69871 50 SRKIN 14X 80	PRESET M10X18B
DIN69871 50 SRKIN 16X 80	PRESET M12X18B
DIN69871 50 SRKIN 18X 80	PRESET M12X18B
DIN69871 50 SRKIN 20X 80	PRESET M16X20B
DIN69871 50 SRKIN 25X100	PRESET M16X25B
DIN69871 50 SRKIN 32X100	PRESET M16X25B

DIN69871

X-STREAM JET TOOLHOLDING

DIN69871-SRKIN-CX

Thermal Shrink Chucks with DIN69871 Form AD Tapered Shank and Jet Coolant Grooves along the Shank Bore



Designation	SS	DCONWS	BTED	BD	LPR	LBX	LB	LSCWS	ADJRGA	THID	Key(1)	CRKS	DCP(2)	kg
DIN69871 40 SRKIN 6X80 CX	40	6.00	21.00	27.00	80.00	60.90	38.00	34.00	9.50	M5	2.50	M16	0	0.99
DIN69871 40 SRKIN 8X80 CX	40	8.00	21.00	27.00	80.00	60.90	38.00	34.00	9.50	M6	3.00	M16	0	1.00
DIN69871 40 SRKIN 10X80CX	40	10.00	24.00	32.00	80.00	60.90	51.00	39.80	9.30	M8	4.00	M16	0	1.05
DIN69871 40 SRKIN 12X80CX	40	12.00	24.00	32.00	80.00	60.90	51.00	44.80	9.30	M10	5.00	M16	0	1.05
DIN69871 40 SRKIN 14X80CX	40	14.00	27.00	34.00	80.00	60.90	45.00	44.80	9.30	M10	5.00	M16	0	1.15
DIN69871 40 SRKIN 16X80CX	40	16.00	27.00	34.00	80.00	60.90	45.00	47.80	9.30	M12	6.00	M16	0	1.07
DIN69871 40 SRKIN 20X80CX	40	20.00	33.00	42.00	80.00	60.90	57.00	49.00	8.50	M16	8.00	M16	0	1.16
DIN69871 40 SRKIN25X100CX	40	25.00	44.00	53.00	100.00	80.90	57.00	55.00	8.50	M16	8.00	M16	0	1.71
DIN69871 50 SRKIN 6X80 CX	50	6.00	21.00	27.00	80.00	61.00	38.00	34.00	9.50	M5	2.50	M24	0	2.72
DIN69871 50 SRKIN 8X80 CX	50	8.00	21.00	27.00	80.00	60.90	38.00	34.00	9.50	M6	3.00	M24	0	2.71
DIN69871 50 SRKIN 10X80CX	50	10.00	24.00	32.00	80.00	60.90	51.00	39.80	9.30	M8	4.00	M24	0	2.81
DIN69871 50 SRKIN 12X80CX	50	12.00	24.00	32.00	80.00	60.90	51.00	44.80	9.30	M10	5.00	M24	0	2.79
DIN69871 50 SRKIN 14X80CX	50	14.00	27.00	34.00	80.00	60.90	45.00	44.80	9.30	M10	5.00	M24	0	2.84
DIN69871 50 SRKIN 16X80CX	50	16.00	27.00	34.00	80.00	60.90	45.00	47.80	9.30	M12	6.00	M24	0	2.76
DIN69871 50 SRKIN 18X80CX	50	18.00	33.00	42.00	80.00	60.90	57.00	47.80	9.30	M12	6.00	M24	0	2.90
DIN69871 50 SRKIN 20X80CX	50	20.00	33.00	42.00	80.00	60.90	57.00	49.00	8.50	M16	8.00	M24	0	2.92
DIN69871 50 SRKIN25X100CX	50	25.00	44.00	53.00	100.00	80.90	57.00	55.00	8.50	M16	8.00	M24	0	3.51
DIN69871 50 SRKIN32X100CX	50	32.00	44.00	53.00	100.00	80.90	57.00	59.00	8.50	M16	8.00	M24	0	3.36

- Use only inductive heating device for SRKIN holders
- Preset screw CX allows supply of coolant via JET channels - do not remove

(1) Hex key size for the rear stopper screw

(2) 1 - Slot for data chip, 0 - Without slot for data chip

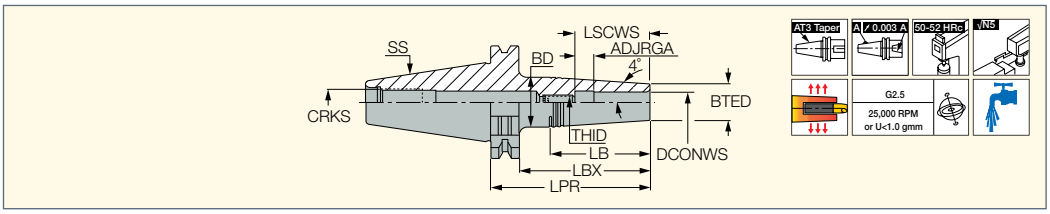
Spare Parts

Designation	
DIN69871 40 SRKIN 6X80 CX	PRESET CX M5X13
DIN69871 40 SRKIN 8X80 CX	PRESET CX M6X12
DIN69871 40 SRKIN 10X80CX	PRESET CX M8X16
DIN69871 40 SRKIN 12X80CX	PRESET CX M10X16
DIN69871 40 SRKIN 14X80CX	PRESET CX M10X16
DIN69871 40 SRKIN 16X80CX	PRESET CX M12X16
DIN69871 40 SRKIN 20X80CX	PRESET CX M16X14
DIN69871 40 SRKIN25X100CX	PRESET CX M16X14
DIN69871 50 SRKIN 6X80 CX	PRESET CX M5X13
DIN69871 50 SRKIN 8X80 CX	PRESET CX M6X12
DIN69871 50 SRKIN 10X80CX	PRESET CX M8X16
DIN69871 50 SRKIN 12X80CX	PRESET CX M10X16
DIN69871 50 SRKIN 14X80CX	PRESET CX M10X16
DIN69871 50 SRKIN 16X80CX	PRESET CX M12X16
DIN69871 50 SRKIN 18X80CX	PRESET CX M12X16
DIN69871 50 SRKIN 20X80CX	PRESET CX M16X14
DIN69871 50 SRKIN25X100CX	PRESET CX M16X14
DIN69871 50 SRKIN32X100CX	PRESET CX M16X14

DIN69871

SHRINKIN

DIN69871-SRK
Thermal SHRINK-INg Chucks with DIN 69871 Form AD Taper Shanks



Designation	SS	DCONWS	BTED	BD	LPR	LBX	LB	ADJRGA	LSCWS	THID	Key(1)	CRKS	DCP(2)	kg
DIN69871 40 SRK 3X50	40	3.00	10.00	15.00	69.10	50.0	35.50	6.00	16.0	M6	3.00	M16	0	0.83
DIN69871 40 SRK 3X85	40	3.00	10.00	19.00	104.10	85.0	64.10	6.00	16.0	M6	3.00	M16	0	0.89
DIN69871 40 SRK 4X50	40	4.00	10.00	15.00	69.10	50.0	35.50	6.00	18.0	M6	3.00	M16	0	0.82
DIN69871 40 SRK 4X85	40	4.00	10.00	19.00	104.10	85.0	64.10	6.00	18.0	M6	3.00	M16	0	0.90
DIN69871 40 SRK 5X50	40	5.00	10.00	15.00	69.10	50.0	35.50	6.00	21.0	M6	3.00	M16	0	0.84
DIN69871 40 SRK 5X85	40	5.00	10.00	19.00	104.10	85.0	64.10	6.00	21.0	M6	3.00	M16	0	0.89
DIN69871 40 SRK 6X50	40	6.00	11.00	16.00	69.10	50.0	35.50	6.00	24.0	M8	4.00	M16	0	0.84
DIN69871 40 SRK 6X85	40	6.00	11.00	20.00	104.10	85.0	64.10	6.00	24.0	M8	4.00	M16	0	0.82
DIN69871 40 SRK 8X50	40	8.00	14.00	20.00	69.10	50.0	42.50	6.00	31.0	M10	5.00	M16	0	0.84
DIN69871 40 SRK 8X85	40	8.00	14.00	23.00	104.10	85.0	63.90	6.00	31.0	M10	5.00	M16	0	0.94
DIN69871 40 SRK 10X50	40	10.00	16.00	22.00	69.10	50.0	42.40	6.00	36.0	M12	6.00	M16	0	0.87
DIN69871 40 SRK 10X85	40	10.00	16.00	24.50	104.10	85.0	60.30	6.00	36.0	M12	6.00	M16	0	0.94
DIN69871 40 SRK 12X50	40	12.00	20.00	26.00	69.10	50.0	42.30	10.00	42.0	M10	5.00	M16	0	0.92
DIN69871 40 SRK 12X85	40	12.00	20.00	28.00	104.10	85.0	56.60	10.00	42.0	M10	5.00	M16	0	1.05

• To be used for carbide tools only. • Preset sco G2.5/25,000 RPM. • For through tool coolant, preset screw must be removed

(1) Hex key size for the rear stopper screw

(2) 1 - Slot for data chip, 0 - Without slot for data chip

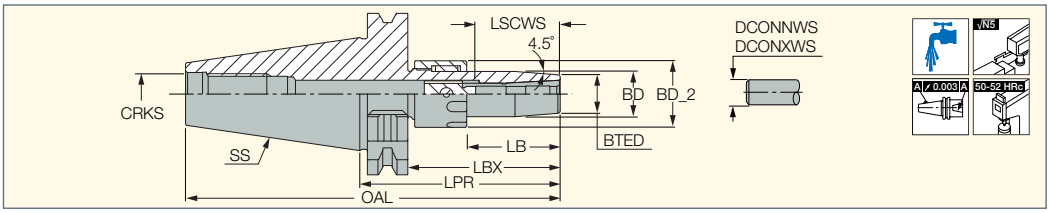
Spare Parts

Designation	
DIN69871 40 SRK 3X50	SR M6X10 DIN916
DIN69871 40 SRK 3X85	SR M6X10 DIN916
DIN69871 40 SRK 4X50	SR M6X10 DIN916
DIN69871 40 SRK 4X85	SR M6X10 DIN916
DIN69871 40 SRK 5X50	SR M6X10 DIN916
DIN69871 40 SRK 5X85	SR M6X10 DIN916
DIN69871 40 SRK 6X50	SR M8X12 DIN916
DIN69871 40 SRK 6X85	SR M8X12 DIN916
DIN69871 40 SRK 8X50	SR M10X10 DIN913
DIN69871 40 SRK 8X85	SR M10X10 DIN913
DIN69871 40 SRK 10X50	SR M12X10 DIN913
DIN69871 40 SRK 10X85	SR M12X10 DIN913
DIN69871 40 SRK 12X50	SR M10X18 DIN913
DIN69871 40 SRK 12X85	SR M10X18 DIN913

DIN69871

QUICKCLAMP

DIN69871-MS
QUICK-CLAMP System for Small Cutting Tools with DIN69871 Form AD Shank



Designation	DCONNWS(1)	DCONXWS(2)	SS	BTED	BD	BD_2	LPR	LBX	LB	OAL	LSCWS	CRKS	DCP(3)
DIN69871 40 MS6X60	3.00	6.00	40	15.00	17.80	26.20	79.10	60.00	36.00	147.50	33.00	M16	0

New

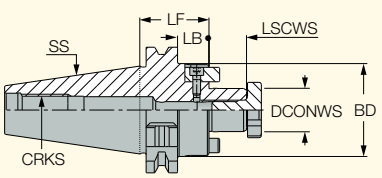
(1) Minimum diameter

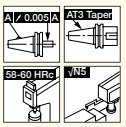
(2) Maximum diameter

(3) 1 - Slot for data chip, 0 - Without slot for data chip

DIN69871

DIN69871-SEM
ISO 3937 Shell Mill Holders with
DIN 69871 Form AD
Taper Shanks

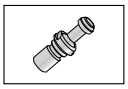




Designation	SS	DCONWS	BD	LF	LSCWS	LB	CRKS	DCP(1)	kg
DIN69871 30 SEM22X 50	30	22.00	47.00	50.00	19.00	30.9	M12	0	0.80
DIN69871 30 SEM27X 50	30	27.00	58.00	50.00	21.00	30.9	M12	0	0.92
DIN69871 40 SEM16X35	40	16.00	38.00	35.00	17.00	15.9	M16	0	0.92
DIN69871 40 SEM22X 35	40	22.00	47.00	35.00	19.00	15.9	M16	0	1.02
DIN69871 40 SEM27X 60	40	27.00	58.00	60.00	21.00	40.9	M16	0	1.60
DIN69871 40 SEM32X 60	40	32.00	66.00	60.00	24.00	40.9	M16	0	1.78
DIN69871 40 SEM40X 60	40	40.00	82.00	60.00	27.00	40.9	M16	0	2.16
DIN69871 50 SEM16X35	50	16.00	38.00	35.00	17.00	15.9	M24	0	2.70
DIN69871 50 SEM22X 35	50	22.00	47.00	35.00	19.00	15.9	M24	0	2.80
DIN69871 50 SEM22X50X200	50	22.00	50.00	200.00	19.00	180.9	M24	0	5.21
DIN69871 50 SEM27X 35	50	27.00	58.00	35.00	21.00	15.9	M24	0	2.94
DIN69871 50 SEM32X 35	50	32.00	66.00	35.00	24.00	15.9	M24	0	3.16
DIN69871 50 SEM32X78X370	50	32.00	78.00	370.00	24.00	350.9	M24	0	15.76
DIN69871 50 SEM40X 50	50	40.00	82.00	50.00	27.00	30.9	M24	0	3.81
DIN69871 50 SEM50X 60	50	50.00	81.00	60.00	30.00	40.9	M24	0	4.85

- For internal coolant through the holder, the related COOLANT SET should be ordered via Accessories (applicable to certain tools only)

(1) 1 - Slot for data chip, 0 - Without slot for data chip



802-805

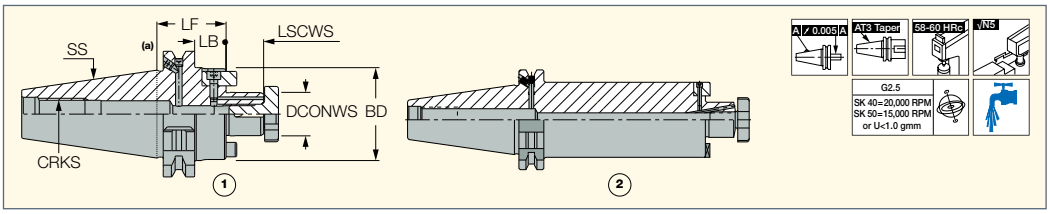
Spare Parts

Designation				
DIN69871 30 SEM22X 50	M10 CLAMP SCREW SEM22	SR M4X10DIN912	DR.DOG 10S	WRENCH M10 SEMC 22*
DIN69871 30 SEM27X 50	M12 CLAMP SCREW SEM27	SR M5X14DIN912	DR.DOG 12S	WRENCH M12 SEMC 27*
DIN69871 40 SEM16X35	M8 CLAMP SCREW SEM16	SR M3X10DIN912	DR.DOG 8S	WRENCH M8 SEMC16*
DIN69871 40 SEM22X 35	M10 CLAMP SCREW SEM22	SR M4X10DIN912	DR.DOG 10S	WRENCH M10 SEMC 22*
DIN69871 40 SEM27X 60	M12 CLAMP SCREW SEM27	SR M5X14DIN912	DR.DOG 12S	WRENCH M12 SEMC 27*
DIN69871 40 SEM32X 60	M16 CLAMP SCREW SEM32	SR M5X14DIN912	DR.DOG 14X13S	WRENCH M16 SEMC 32*
DIN69871 40 SEM40X 60	M20 CLAMP SCREW SEM40	SR M6X20 DIN912	DR.DOG 16X18S	WRENCH M20 SEMC 40*
DIN69871 50 SEM16X35	M8 CLAMP SCREW SEM16	SR M3X10DIN912	DR.DOG 8S	WRENCH M8 SEMC16*
DIN69871 50 SEM22X 35	M10 CLAMP SCREW SEM22	SR M4X10DIN912	DR.DOG 10S	WRENCH M10 SEMC 22*
DIN69871 50 SEM22X50X200	M10 CLAMP SCREW SEM22	SR M4X10DIN912	DR.DOG 10S	WRENCH M10 SEMC 22*
DIN69871 50 SEM27X 35	M12 CLAMP SCREW SEM27	SR M5X14DIN912	DR.DOG 12S	WRENCH M12 SEMC 27*
DIN69871 50 SEM32X 35	M16 CLAMP SCREW SEM32	SR M5X14DIN912	DR.DOG 14X13S	WRENCH M16 SEMC 32*
DIN69871 50 SEM32X78X370	M16 CLAMP SCREW SEM32	SR M5X20DIN912	DR.DOG 14X16S	WRENCH M16 SEMC 32*
DIN69871 50 SEM40X 50	M20 CLAMP SCREW SEM40	SR M6X20 DIN912	DR.DOG 16X18S	WRENCH M20 SEMC 40*
DIN69871 50 SEM50X 60	M24 CLAMP SCREW SEM50	SR M6X16 DIN912		WRENCH M24 SEMC 50*

* Optional, to be ordered separately

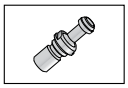
DIN69871

DIN69871-SEM-C
ISO 3937 Shell Mill Holders with Coolant Holes and DIN 69871 Form ADB Tapered Shanks



Designation	SS	DCONWS	BD	LF	LSCWS	LB	CRKS	Fig.	DCP(2)	kg
DIN69871 40 SEM16X 35 C	40	16.00	38.00	35.00	17.00	15.9	M16	1.	0	0.94
DIN69871 40 SEM16X100 C	40	16.00	38.00	100.00	17.00	80.9	M16	1.	0	1.48
DIN69871 40 SEM22X 35 C	40	22.00	47.00	35.00	19.00	15.9	M16	1.	0	1.02
DIN69871 40 SEM22X100 C	40	22.00	47.00	100.00	19.00	80.9	M16	1.	0	0.94
DIN69871 40 SEM27X 60 C	40	27.00	58.00	60.00	21.00	40.9	M16	1.	0	1.20
DIN69871 40 SEM27X100 C	40	27.00	58.00	100.00	21.00	80.9	M16	1.	0	2.32
DIN69871 40 SEM32X 60 C	40	32.00	66.00	60.00	24.00	40.9	M16	1.	0	1.69
DIN69871 40 SEM32X78X50C	40	32.00	78.00	50.00	24.00	30.9	M16	1.	0	1.75
DIN69871 40 SEM32X78X100C	40	32.00	78.00	100.00	24.00	80.9	M16	1.	0	3.58
DIN69871 50 SEM16X 35 C	50	16.00	38.00	35.00	17.00	15.9	M24	1.	0	2.68
DIN69871 50 SEM16X100 C	50	16.00	38.00	100.00	17.00	80.9	M24	1.	0	3.24
DIN69871 50 SEM22X 35 C	50	22.00	47.00	35.00	19.00	15.9	M24	1.	0	2.77
DIN69871 50 SEM22X100 C	50	22.00	47.00	100.00	19.00	80.9	M24	1.	0	3.59
DIN69871 50 SEM22X48X200C (1)	50	22.00	48.00	200.00	19.00	181.0	M24	2.	0	5.00
DIN69871 50 SEM22X61X300C (1)	50	22.00	61.00	300.00	19.00	281.0	M24	2.	0	8.75
DIN69871 50 SEM27X 35 C	50	27.00	58.00	35.00	21.00	15.9	M24	1.	0	2.88
DIN69871 50 SEM27X100 C	50	27.00	58.00	100.00	21.00	80.9	M24	1.	0	4.15
DIN69871 50 SEM27X61X300C (1)	50	27.00	61.00	300.00	21.00	281.0	M24	2.	0	8.70
DIN69871 50 SEM32X 35 C	50	32.00	66.00	35.00	24.00	15.9	M24	1.	0	3.00
DIN69871 50 SEM32X100 C	50	32.00	66.00	100.00	24.00	80.9	M24	1.	0	4.64
DIN69871 50 SEM32X78X50C	50	32.00	78.00	50.00	24.00	30.9	M24	1.	0	3.85
DIN69871 50 SEM32X78X100C	50	32.00	78.00	100.00	24.00	80.9	M24	1.	0	5.61
DIN69871 50 SEM32X78X370C (1)	50	32.00	78.00	370.00	24.00	351.0	M24	2.	0	15.42

• (a) If the B type coolant option is required, the plug screw must be removed from the flange cooling hole (use a 2 mm hex key)
(1) Symmetrical design. However, the family's balance values are not guaranteed for this tool
(2) 1 - Slot for data chip, 0 - Without slot for data chip


802-805

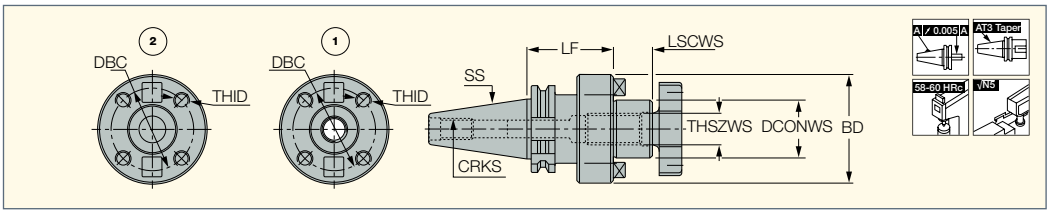
Spare Parts

Designation				
DIN69871 40 SEM16X 35 C	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	DR.DOG 8S	SR M3X10DIN912
DIN69871 40 SEM16X100 C	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	DR.DOG 8S	SR M3X10DIN912
DIN69871 40 SEM22X 35 C	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912
DIN69871 40 SEM22X100 C	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912
DIN69871 40 SEM27X 60 C	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	DR.DOG 12S	SR M5X12 DIN912
DIN69871 40 SEM27X100 C	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	DR.DOG 12S	SR M5X12 DIN912
DIN69871 40 SEM32X 60 C	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	DR.DOG 14X13S	SR M5X14DIN912
DIN69871 40 SEM32X78X50C	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	DR.DOG 14X13S	SR M5X14DIN912
DIN69871 40 SEM32X78X100C	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	DR.DOG 14X13S	SR M5X14DIN912
DIN69871 50 SEM16X 35 C	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	DR.DOG 8S	SR M3X10DIN912
DIN69871 50 SEM16X100 C	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	DR.DOG 8S	SR M3X10DIN912
DIN69871 50 SEM22X 35 C	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912
DIN69871 50 SEM22X100 C	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912
DIN69871 50 SEM22X48X200C	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912
DIN69871 50 SEM22X61X300C	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912
DIN69871 50 SEM27X 35 C	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	DR.DOG 12S	SR M5X12 DIN912
DIN69871 50 SEM27X100 C	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	DR.DOG 12S	SR M5X12 DIN912
DIN69871 50 SEM27X61X300C	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27	DR.DOG 12S	SR M5X12 DIN912
DIN69871 50 SEM32X 35 C	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	DR.DOG 14X13S	SR M5X14DIN912
DIN69871 50 SEM32X100 C	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	DR.DOG 14X13S	SR M5X14DIN912
DIN69871 50 SEM32X78X50C	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	DR.DOG 14X13S	SR M5X14DIN912
DIN69871 50 SEM32X78X100C	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	DR.DOG 14X13S	SR M5X14DIN912
DIN69871 50 SEM32X78X370C	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	DR.DOG 14X16S	SR M5X20DIN912

* Optional, to be ordered separately

DIN69871

DIN69871-FM
DIN 6357 Face Mill Holders with
DIN 69871 Form A/AD
Taper Shanks



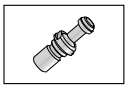
Designation	SS	DCONWS	BD	DBC	LF	LSCWS	THID	THSZWS	CRKS	Fig.	DCP(3)	kg
DIN69871 40 FM 40 (1)	40	40.00	88.00	66.70	60.00	27.00	M12	M20	M16	1.	0	2.25
DIN69871 50 FM 40X70 (1)	50	40.00	88.00	66.70	70.00	27.00	M12	M20	M24	1.	0	4.87
DIN69871 50 FM 60 (2)	50	60.00	128.00	101.60	70.00	40.00	M16	-	M24	2.	0	7.32

- Peripheral clamping screws are not supplied.

(1) Form AD

(2) Form A

(3) 1 - Slot for data chip, 0 - Without slot for data chip



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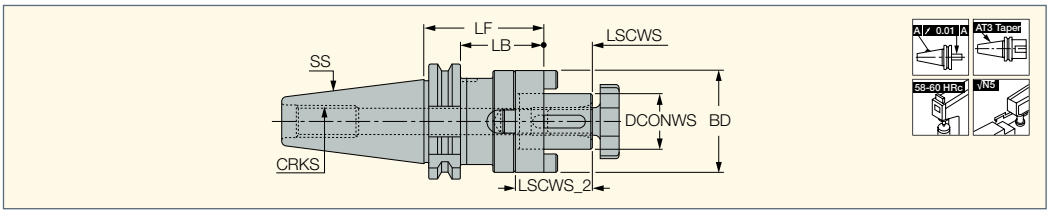
Spare Parts

Designation			
DIN69871 40 FM 40	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	DR. DOG 16 E
DIN69871 50 FM 40X70	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	DR. DOG 16 E
DIN69871 50 FM 60			DR. DOG 1E

* Optional, to be ordered separately

DIN69871

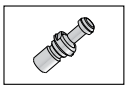
DIN69871-SEMC
DIN 6358 COMBI Shell Mill Holders with DIN 69871 Form AD Taper Shanks



Designation	SS	DCONWS	LF	LSCWS	LB	LSCWS_2	BD	CRKS	DCP(1)	kg
DIN69871 30 SEMC 16X 50	30	16.00	50.00	17.00	30.9	27.00	32.00	M12	0	0.53
DIN69871 30 SEMC 22X 50	30	22.00	50.00	19.00	30.9	31.00	40.00	M12	0	0.61
DIN69871 40 SEMC 16X 55	40	16.00	55.00	17.00	35.9	27.00	32.00	M16	0	1.01
DIN69871 40 SEMC 16X100	40	16.00	100.00	17.00	80.9	27.00	32.00	M16	0	1.30
DIN69871 40 SEMC 22X 55	40	22.00	55.00	19.00	35.9	31.00	40.00	M16	0	1.05
DIN69871 40 SEMC 22X100	40	22.00	100.00	19.00	80.9	31.00	40.00	M16	0	1.47
DIN69871 40 SEMC 27X 55	40	27.00	55.00	21.00	35.9	33.00	48.00	M16	0	1.25
DIN69871 40 SEMC 27X100	40	27.00	100.00	21.00	80.9	33.00	48.00	M16	0	1.89
DIN69871 40 SEMC 32X 60	40	32.00	60.00	24.00	40.9	38.00	58.00	M16	0	1.41
DIN69871 40 SEMC 32X100	40	32.00	100.00	24.00	80.9	38.00	58.00	M16	0	2.24
DIN69871 40 SEMC 40X 60	40	40.00	60.00	27.00	40.9	41.00	70.00	M16	0	1.63
DIN69871 50 SEMC 16X 55	50	16.00	55.00	17.00	35.9	27.00	32.00	M24	0	2.80
DIN69871 50 SEMC 16X100	50	16.00	100.00	17.00	80.9	27.00	32.00	M24	0	3.54
DIN69871 50 SEMC 22X 55	50	22.00	55.00	19.00	35.9	31.00	40.00	M24	0	2.82
DIN69871 50 SEMC 22X100	50	22.00	100.00	19.00	80.9	31.00	40.00	M24	0	3.60
DIN69871 50 SEMC 27X 55	50	27.00	55.00	21.00	35.9	33.00	48.00	M24	0	3.06
DIN69871 50 SEMC 27X100	50	27.00	100.00	21.00	80.9	33.00	48.00	M24	0	3.82
DIN69871 50 SEMC 32X 55	50	32.00	55.00	24.00	35.9	38.00	58.00	M24	0	3.23
DIN69871 50 SEMC 32X100	50	32.00	100.00	24.00	80.9	38.00	58.00	M24	0	4.32
DIN69871 50 SEMC 40X 55	50	40.00	55.00	27.00	35.9	41.00	70.00	M24	0	3.43
DIN69871 50 SEMC 40X100	50	40.00	100.00	27.00	80.9	41.00	70.00	M24	0	5.24
DIN69871 50 SEMC 50X 70	50	50.00	70.00	30.00	50.9	46.00	90.00	M24	0	4.58

- For internal coolant through the holder, the related COOLANT SET should be ordered via Accessories (applicable to certain tools only)

(1) 1 - Slot for data chip, 0 - Without slot for data chip



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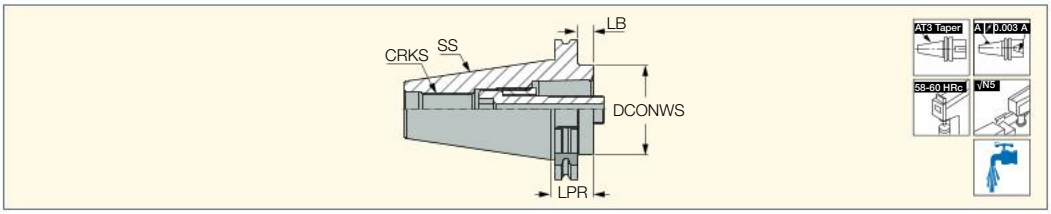
Spare Parts

Designation				
DIN69871 30 SEMC 16X 50	16 D.RING SEMC	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	KEY SEMC 16 4X4X20
DIN69871 30 SEMC 22X 50	22 D.RING SEMC	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	KEY SEMC 22 6X6X25
DIN69871 40 SEMC 16X 55	16 D.RING SEMC	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	KEY SEMC 16 4X4X20
DIN69871 40 SEMC 16X100	16 D.RING SEMC	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	KEY SEMC 16 4X4X20
DIN69871 40 SEMC 22X 55	22 D.RING SEMC	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	KEY SEMC 22 6X6X25
DIN69871 40 SEMC 22X100	22 D.RING SEMC	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	KEY SEMC 22 6X6X25
DIN69871 40 SEMC 27X 55	27 D.RING SEMC	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	KEY SEMC 27 7X7X25
DIN69871 40 SEMC 27X100	27 D.RING SEMC	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	KEY SEMC 27 7X7X25
DIN69871 40 SEMC 32X 60	32 D.RING SEMC	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	KEY SEMC 32 8X7X28
DIN69871 40 SEMC 32X100	32 D.RING SEMC	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	KEY SEMC 32 8X7X28
DIN69871 40 SEMC 40X 60	40 D.RING SEMC	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	KEY SEMC 40 10X8X32
DIN69871 50 SEMC 16X 55	16 D.RING SEMC	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	KEY SEMC 16 4X4X20
DIN69871 50 SEMC 16X100	16 D.RING SEMC	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	KEY SEMC 16 4X4X20
DIN69871 50 SEMC 22X 55	22 D.RING SEMC	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	KEY SEMC 22 6X6X25
DIN69871 50 SEMC 22X100	22 D.RING SEMC	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	KEY SEMC 22 6X6X25
DIN69871 50 SEMC 27X 55	27 D.RING SEMC	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	KEY SEMC 27 7X7X25
DIN69871 50 SEMC 27X100	27 D.RING SEMC	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	KEY SEMC 27 7X7X25
DIN69871 50 SEMC 32X 55	32 D.RING SEMC	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	KEY SEMC 32 8X7X28
DIN69871 50 SEMC 32X100	32 D.RING SEMC	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	KEY SEMC 32 8X7X28
DIN69871 50 SEMC 40X 55	40 D.RING SEMC	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	KEY SEMC 40 10X8X32
DIN69871 50 SEMC 40X100	40 D.RING SEMC	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	KEY SEMC 40 10X8X32
DIN69871 50 SEMC 50X 70	50 D.RING SEMC	M24 CLAMP SCREW SEM50	WRENCH M24 SEMC 50*	KEY SEMC 50 12X8X36

* Optional, to be ordered separately

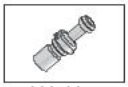
DIN69871 CAMFIX

DIN69871-C#
CAMFIX (ISO 26623-1)
Holders with DIN 69871
Form AD Tape red Shanks



Designation	SS	DCONWS	LPR	LB	CRKS	DCP(1)	kg
C4 AD SKA 40X30	40	40.00	30.00	11.00	M16	0	0.83
C5 AD SKA 40X40	40	50.00	40.00	21.00	M16	0	0.90
C5 AD SKA 50X30	50	50.00	30.00	11.00	M24	0	2.61
C6 AD SKA 50X30	50	63.00	30.00	11.00	M24	0	2.55
C8 AD SKA 50X70	50	80.00	70.00	51.00	M24	0	3.77

(1) 1 - Slot for data chip, 0 - Without slot for data chip


802-805

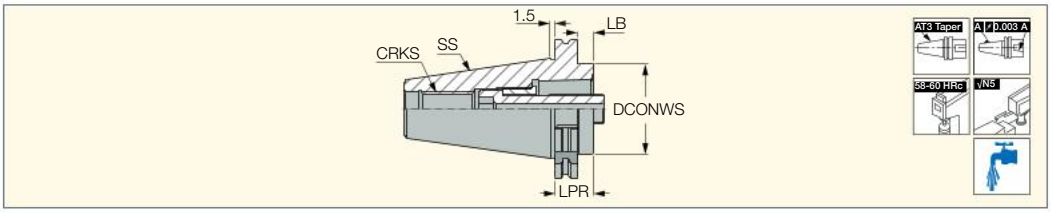
Spare Parts

Designation						
C4 AD SKA 40X30	SR M14X58 C4	HW 8.0*	MT RING M22X17XC4			WRENCH C4 DRW NUT*
C5 AD SKA 40X40	SR M16X70 C5	HW 10.0	MT RING M25X20XC5			WRENCH C5 DRW NUT
C5 AD SKA 50X30	SR M16X70 C5	HW 10.0*	MT RING M25X20XC5	SR M4X4 DIN913	HW 2.0*	WRENCH C5 DRW NUT*
C6 AD SKA 50X30	SR M20X87 C6/8	HW 14.0*	MT RING M30X24XC6/8			WRENCH C6-8 DRW NUT*
C8 AD SKA 50X70	SR M20X87 C6/8	HW 14.0*	MT RING M30X24XC6/8	SR M4X4 DIN913	HW 2.0*	WRENCH C6-8 DRW NUT*

* Optional, to be ordered separately

DIN69871 CAMFIX

DIN69871-C#-FC
CAMFIX (ISO 26623-1)
Holders with DIN 69871 Face
Contact AD Tapered Shanks

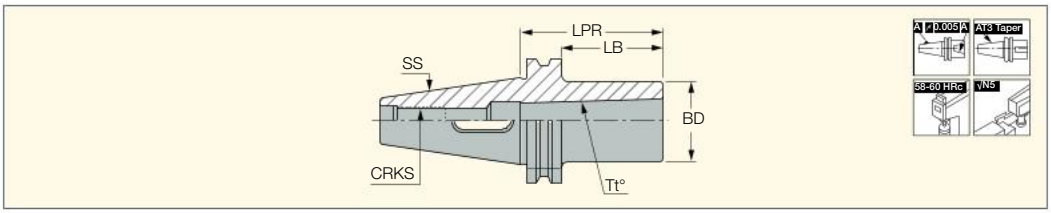


Designation	SS	DCONWS	LPR	LB	CRKS	DCP(1)	kg
C5 AD SK50FC X30	50	50.00	28.50	11.00	M24x3	0	3.30
C6 AD SK50FC X50	50	63.00	48.50	31.00	M24x3	0	3.45

New
(1) 1 - Slot for data chip, 0 - Without slot for data chip

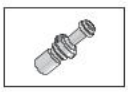
DIN69871

DIN69871-MT
DIN 6383 Morse Taper Adapters
with DIN 228-2 Form D Tang and
DIN 69871 Form A Taper Shanks



Designation	SS	Tt°	LPR	LB	BD	CRKS	DCP(1)	kg
DIN69871 40 MT1X 50	40	MT1	50.00	30.9	25.00	M16	0	0.88
DIN69871 40 MT2X 50	40	MT2	50.00	30.9	32.00	M16	0	0.90
DIN69871 40 MT3X 70	40	MT3	70.00	50.9	40.00	M16	0	1.04
DIN69871 40 MT4X 95	40	MT4	95.00	75.9	48.00	M16	0	1.30
DIN69871 50 MT1X 45	50	MT1	45.00	25.9	25.00	M24	0	2.65
DIN69871 50 MT2X 60	50	MT2	60.00	40.9	32.00	M24	0	2.72
DIN69871 50 MT3X 65	50	MT3	65.00	45.9	40.00	M24	0	2.75
DIN69871 50 MT4X 95	50	MT4	95.00	75.9	48.00	M24	0	3.04
DIN69871 50 MT5X105	50	MT5	105.00	85.9	63.00	M24	0	3.20

(1) 1 - Slot for data chip, 0 - Without slot for data chip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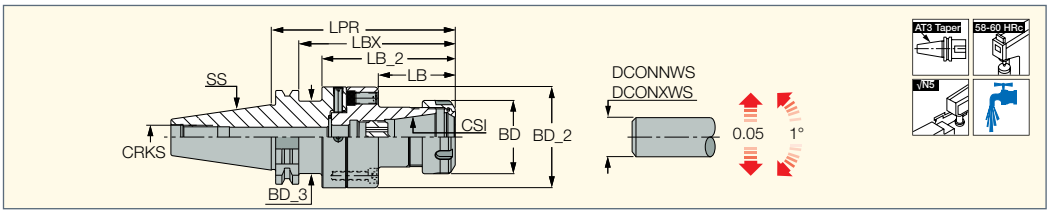
DIN69871 FINEFIT

ADJ DIN69871-ER
Center Alignment DIN 6499 ER Collet Chucks with DIN 69871 Form AD/B Taper Shanks

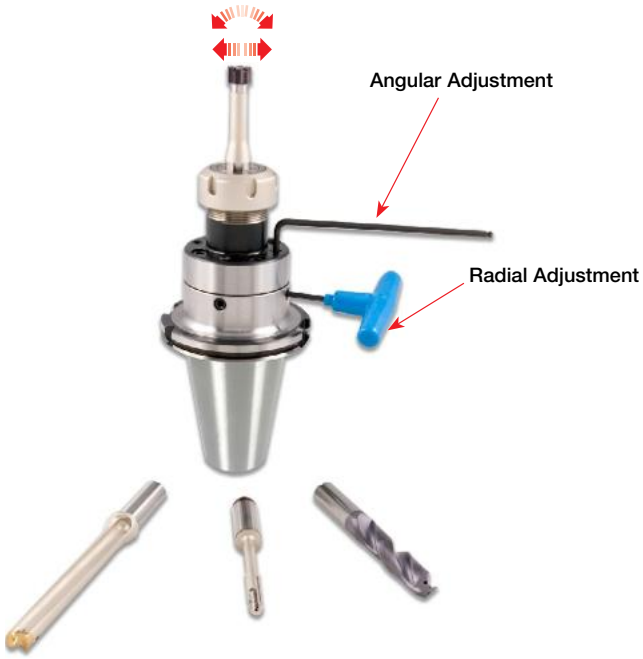


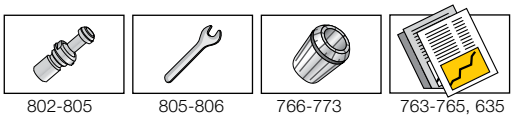
Designation	SS	CSI	DCONNWS(1)	DCONXWS(2)	LPR	LB	LBX	LB_2	BD	BD_2	BD_3	CRKS	kg
ADJ DIN69871 40 D70 ER32	40	ER32	2.0	20.0	124.50	52.50	105.4	89.50	50.00	70.00	46.00	M16	2.36
ADJ DIN69871 50 D70 ER32	50	ER32	2.0	20.0	124.50	52.50	105.4	-	50.00	70.00	-	M24	4.29

- Radial adjustment 0.05 mm Angular adjustment 1°

(1) Minimum diameter

(2) Maximum diameter





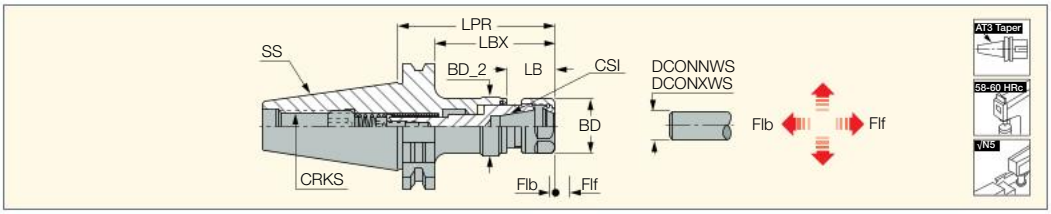
802-805 | 805-806 | 766-773 | 763-765, 635

Spare Parts

Designation	
ADJ DIN69871-ER	ADJ ER32 NOSE

DIN69871 GTI

GTI DIN69871-ER (tapping)
DIN 6499 ER Tapping Attachments with DIN 69871 Form A Tapered Shanks



Designation	SS	CSI	Tap min	Tap max	DCONNWS(1)	DCONXWS(2)	LPR	LBX	LB	BD	BD_2	Flf	Flb	CRKS	DCP(3)	kg
GTI DIN69871 40 ER16	40	ER16	M3	M10	0.5	10.0	81.20	62.1	24.60	28.00	29.50	8.0	3.0	M16	0	2.40
GTI DIN69871 40 ER32	40	ER32	M6	M20	2.0	20.0	111.40	92.3	33.00	50.00	56.50	9.0	4.0	M16	0	2.28
GTI DIN69871 40 ER40	40	ER40	M6	M28	3.0	26.0	129.40	110.3	51.00	63.00	56.50	9.0	4.0	M16	0	2.40
GTI DIN69871 50 ER16	50	ER16	M3	M10	0.5	10.0	104.80	85.7	24.60	28.00	29.50	8.0	3.0	M24	0	2.95
GTI DIN69871 50 ER32	50	ER32	M6	M20	2.0	20.0	113.30	94.4	33.00	50.00	56.50	9.0	4.0	M24	0	3.90
GTI DIN69871 50 ER40	50	ER40	M6	M28	3.0	26.0	132.40	113.3	51.00	63.00	56.50	9.0	4.0	M24	0	4.39

(1) Minimum diameter
(2) Maximum diameter
(3) 1 - Slot for data chip, 0 - Without slot for data chip

802-805 766-773 763-765, 635

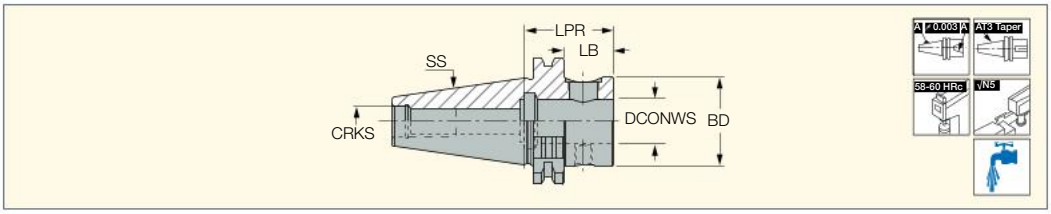
Spare Parts

Designation		
GTI DIN69871 40 ER16	NUT ER16 TOP	WRENCH ER16*
GTI DIN69871 40 ER32	NUT ER32 TOP	WRENCH ER32*
GTI DIN69871 40 ER40	NUT ER40 TOP	WRENCH ER40*
GTI DIN69871 50 ER16	NUT ER16 TOP	WRENCH ER16*
GTI DIN69871 50 ER32	NUT ER32 TOP	WRENCH ER32*
GTI DIN69871 50 ER40	NUT ER40 TOP	WRENCH ER40*

* Optional, to be ordered separately

DIN69871 CLICKFIT

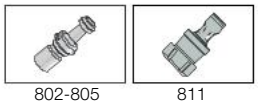
DIN69871-CF
DIN69871 Form ADB Tapered Shanks to CLICK-FIT Adapters



Designation	SS	DCONWS	LPR	LB	BD	CRKS	DCP(1)	kg
DIN69871 40 CF4-S	40	25.00	44.10	25.0	44.50	M16	0	0.93
DIN69871 40 CF4-L	40	25.00	100.00	80.9	44.50	M16	0	1.55
DIN69871 50 CF4-S	50	25.00	44.10	25.0	44.50	M24	0	2.70
DIN69871 50 CF4-L	50	25.00	100.00	80.9	44.50	M24	0	3.54

- Tightening torque: 6 Kgxm

(1) 1 - Slot for data chip, 0 - Without slot for data chip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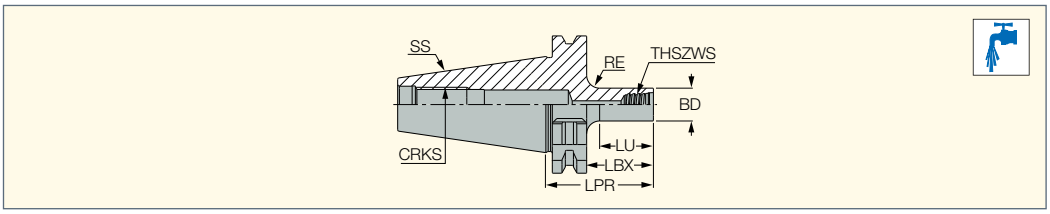
Spare Parts

Designation				
DIN69871-CF	SCREW M16X1.5 FOR CF4	WRENCH HW 8 200X36 DIN911	OR 15X3N	WRENCH REAL C.F M8

DIN69871

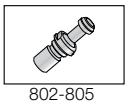
MULTI-MASTER

MM S-A-SK
DIN 69871 Integral Tapered Shanks Mount MULTI-MASTER Milling Heads



Designation	SS	CRKS	THSZWS	BD	LPR	LBX	LU	RE	kg
MM S-A-H040-SK 40-T06	40	M16	T06	9.25	40.00	21.0	15.00	6.0	0.86
MM S-A-H045-SK 40-T08	40	M16	T08	11.60	45.00	26.0	20.00	6.0	0.87
MM S-A-H050-SK 40-T10	40	M16	T10	15.30	50.00	31.0	25.00	6.0	0.83
MM S-A-H050-SK 40-T12	40	M16	T12	18.30	50.00	31.0	25.00	6.0	0.90
MM S-A-H050-SK 40-T15	40	M16	T15	23.90	50.00	31.0	25.00	6.0	0.09

• Do not apply lubricant to the threaded connection • For adaptation, see page 746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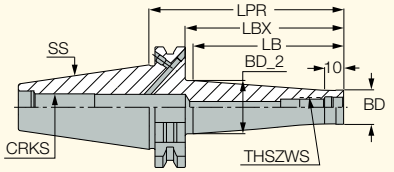
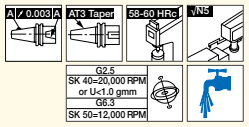
DIN69871 FLEXFIT

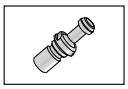
DIN69871-ODP
FLEX-FIT Threaded Connection Shanks with Integral DIN 69871 Form ADB Taper Adaptation

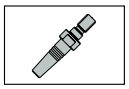




Designation	SS	THSZWS	BD	BD_2	LPR	LBX	LB	CRKS	DCP(1)	kg
DIN69871 40 ODP 6X58	40	M06	9.80	13.00	58.00	38.9	30.00	M16	0	0.82
DIN69871 40 ODP 6X98	40	M06	9.80	23.00	98.00	78.9	70.00	M16	0	0.91
DIN69871 40 ODP 8X58	40	M08	13.10	15.00	58.00	38.9	30.00	M16	0	0.82
DIN69871 40 ODP 8X98	40	M08	13.10	23.00	98.00	78.9	70.00	M16	0	0.92
DIN69871 40 ODP10X58	40	M10	18.00	20.00	58.00	38.9	30.00	M16	0	0.84
DIN69871 40 ODP10X98	40	M10	18.00	28.00	98.00	78.9	70.00	M16	0	1.00
DIN69871 40 ODP12X58	40	M12	21.00	24.00	58.00	38.9	30.00	M16	0	0.88
DIN69871 40 ODP12X98	40	M12	21.00	31.00	98.00	78.9	70.00	M16	0	1.07
DIN69871 40 ODP16X58	40	M16	29.00	28.60	58.00	38.9	35.00	M16	0	0.91
DIN69871 40 ODP16X98	40	M16	29.00	34.00	98.00	78.9	70.00	M16	0	1.15
DIN69871 50 ODP12X 78	50	M12	23.00	30.00	78.00	58.9	50.00	M24	0	2.74
DIN69871 50 ODP12X128	50	M12	23.00	40.00	128.00	108.9	100.00	M24	0	3.14
DIN69871 50 ODP12X178	50	M12	23.00	40.00	178.00	158.9	150.00	M24	0	3.38
DIN69871 50 ODP12X228	50	M12	23.00	46.00	228.00	208.9	200.00	M24	0	4.19
DIN69871 50 ODP16X 78	50	M16	29.00	34.00	78.00	58.9	50.00	M24	0	2.95
DIN69871 50 ODP16X128	50	M16	29.00	40.00	128.00	108.9	100.00	M24	0	3.20
DIN69871 50 ODP16X178	50	M16	29.00	55.00	178.00	158.9	150.00	M24	0	4.08
DIN69871 50 ODP16X228	50	M16	29.00	55.00	228.00	208.9	200.00	M24	0	4.64

(1) 1 - Slot for data chip, 0 - Without slot for data chip


802-805

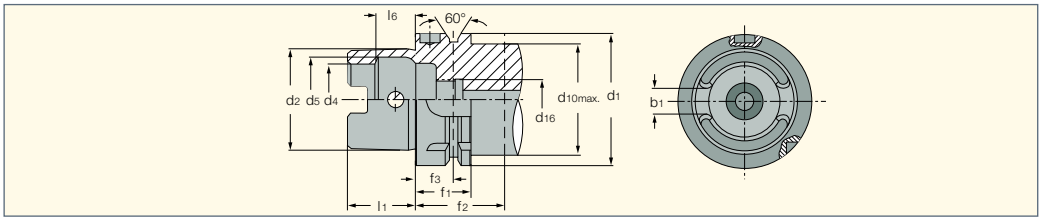

747-749

746

DIN 69893 HSK A / E

HSK DIN 69893 (ISO 12164-1 Standard)

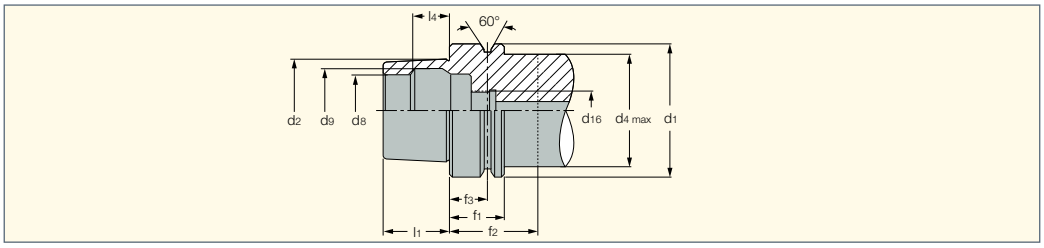
DIN 69893 Form A



HSK-A	d1 h10	d2	d4 H10	d5 H11	d10 max	d16	l1-0.2	l6 Js10	b1±0.04(1)	f1 -0.1	f2 min	f3 ±0.1
40	40	30	21	25.5	34	M12x1	20	11.42	8.05	20	35	16
50	50	38	26	32.0	42	M16x1	25	14.13	10.54	26	42	18
63	63	48	34	40.0	53	M18x1	32	18.13	12.54 (12.42)	26	42	18
80	80	60	42	50.0	67	M20x1.5	40	22.85	16.04	26	42	18
100	100	75	53	63.0	85	M24x1.5	50	28.56	20.02 (19.9)	29	45	20

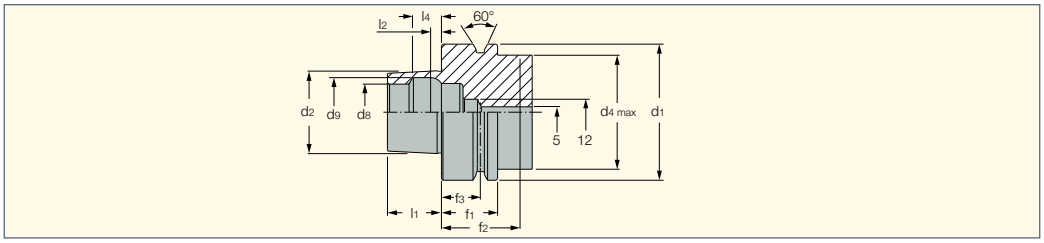
(1) The dimensions in parentheses refer to dimension b1 only for HSK A...WH tools. These tools feature key slot gap and tolerance, used on turning tools for accurate cutting edge height position, (according to Japanese ICTM standard and ISO 12164/3 standard).

DIN 69893 Form E



HSK-E	d1 h10	d2	d4 max	d8 H10	d9 H11	d16	l1-0.2	L4 Js10	f1-0.1	f2 min	f3±0.1
32	32	24	26	17	19	M10X1	16	8.92	20	35	16
40	40	30	34	21	25.5	M12X1	20	11.42	20	35	16
50	50	38	42	26	32.0	M16X1	25	14.13	26	42	18
63	63	48	53	34	40.0	M18X1	32	18.13	26	42	18

DIN 69893 Form F (1)



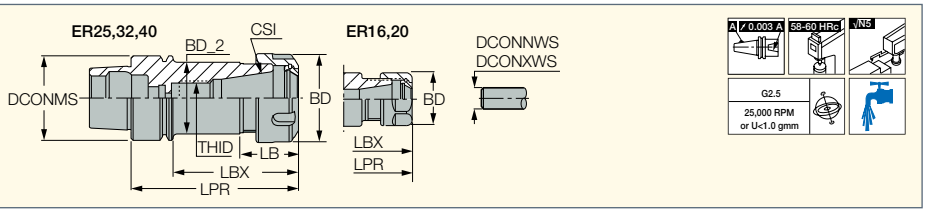
HSK-F	d1 h10	d2	d4 max	d8 H10	d9 H11	l1-0.2	l2	l4 Js10	f1-0.1	f2 min	f3±0.1
63	63	38	53	26	32	25	5.0	14.13	26	42	18

(1) Without crosshole.

HSK

HSK E-ER

DIN6499 ER Collet Chucks with HSK DIN69893 Form E Tapered Shanks



Designation	DCONMS	CSI	DCONNWS(2)	DCONXWS(3)	BD	BD_2	LPR	LBX	LB	THID	DCP(4)	kg
HSK E32 ER16X60	32.00	ER16	0.5	10.0	28.00	22.40	60.00	40.0	21.50	M10x1-6H	0	0.22
HSK E32 ER20X60	32.00	ER20	1.0	13.0	34.00	25.40	60.00	40.0	26.00	M10x1-6H	0	0.18
HSK E32 ER25X65	32.00	ER25	1.0	16.0	42.00	25.80	65.00	45.0	30.00	M10x1-6H	0	0.20
HSK E40 ER16X60	40.00	ER16	0.5	10.0	28.00	28.00	60.00	40.0	27.10	M12X1-6H	0	0.28
HSK E40 ER16X80	40.00	ER16	0.5	10.0	28.00	28.00	80.00	60.0	27.10	M10x1.5-6H	0	0.36
HSK E40 ER20X80	40.00	ER20	1.0	13.0	34.00	33.80	80.00	60.0	28.00	M12	0	0.44
HSK E40 ER25X80	40.00	ER25	1.0	16.0	42.00	33.80	80.00	60.0	28.00	M18X1.5	0	0.42
HSK E40 ER32X80	40.00	ER32	2.0	20.0	50.00	40.10	80.00	60.0	31.00	M22X1.5	0	0.41
HSK E50 ER16X100	50.00	ER16	0.5	10.0	28.00	28.00	100.00	74.0	27.00	M10	0	0.64
HSK E50 ER16X100M (1)	50.00	ER16	0.5	10.0	22.00	22.00	100.00	74.0	25.60	M10	0	0.55
HSK E50 ER16X80	50.00	ER16	0.5	10.0	28.00	28.00	80.00	54.0	27.10	M10	0	0.55
HSK E50 ER20X80	50.00	ER20	1.0	13.0	34.00	34.00	80.00	54.0	28.00	M12	0	0.60
HSK E50 ER25X80	50.00	ER25	1.0	16.0	42.00	32.40	80.00	54.0	28.00	M16	0	0.60
HSK E50 ER32X100	50.00	ER32	2.0	20.0	50.00	40.00	100.00	74.0	31.00	M22X1.5	0	0.78
HSK E50 ER32X80	50.00	ER32	2.0	20.0	50.00	40.00	80.00	54.0	31.00	M16X1-6H	0	0.63
HSK E63 ER16X100	63.00	ER16	0.5	10.0	28.00	28.00	100.00	74.0	27.10	M10	0	0.91
HSK E63 ER16X80	63.00	ER16	0.5	10.0	28.00	28.00	80.00	54.0	27.10	M10	0	0.92
HSK E63 ER20X75	63.00	ER20	1.0	13.0	34.00	34.00	75.00	49.0	28.00	M18X1-6H	0	0.90
HSK E63 ER32X100	63.00	ER32	2.0	20.0	50.00	50.00	100.00	75.0	36.00	M22X1.5	0	1.28

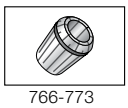
- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately).

(1) Equipped with nut ER 16 MINI

(2) Minimum diameter

(3) Maximum diameter

(4) 1 - Slot for data chip, 0 - Without slot for data chip


766-773

763-765

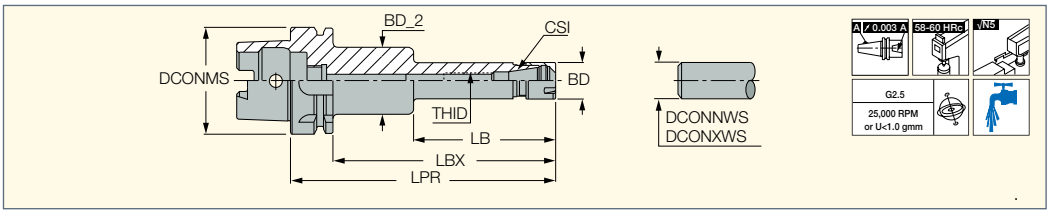
Spare Parts

Designation					
HSK E32 ER16X60	NUT ER16 TOP	WRENCH ER16*			
HSK E32 ER20X60	NUT ER20 TOP	WRENCH ER20*			
HSK E32 ER25X65	NUT ER25 TOP	WRENCH ER25*			
HSK E40 ER16X60	NUT ER16 TOP	WRENCH ER16*		COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E40 ER16X80	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E40 ER20X80	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E40 ER25X80	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 18X1.5*	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E40 ER32X80	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E50 ER16X100	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK E50 ER16X100M	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK E50 ER16X80	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK E50 ER20X80	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK E50 ER25X80	NUT ER25 TOP	WRENCH ER25*		COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK E50 ER32X100	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK E50 ER32X80	NUT ER32 TOP	WRENCH ER32*		COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK E63 ER16X100	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK E63 ER16X80	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK E63 ER20X75	NUT ER20 TOP	WRENCH ER20*		COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK E63 ER32X100	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*

* Optional, to be ordered separately

HSK

HSK A-ER-M (mini)
DIN6499 ER Mini Collet
Chucks with HSK DIN69893
Form A Tapered Shanks



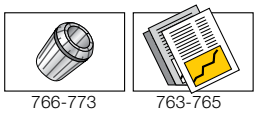
Designation	DCONMS	CSI	DCONNWS(1)	DCONXWS(2)	BD	BD_2	LPR	LBX	LB	THID	DCP(3)	kg
HSK A50 ER16X100M	50.00	ER16	0.5	10.0	22.00	-	100.00	74.0	-	M10	1	0.50
HSK A50 ER20X100M*	50.00	ER20	1.0	13.0	28.00	-	100.00	74.0	-	M12	1	0.61
HSK A63 ER11X160M	63.00	ER11	0.5	7.0	16.00	19.50	160.00	134.0	94.50	M6	1	0.94
HSK A63 ER16X100M	63.00	ER16	0.5	10.0	22.00	-	100.00	74.0	-	M10	1	0.80
HSK A63 ER16X120M	63.00	ER16	0.5	10.0	22.00	40.00	120.00	94.0	78.00	M10	1	0.94
HSK A63 ER16X160M	63.00	ER16	0.5	10.0	22.00	40.00	160.00	134.0	85.00	M10	1	1.26
HSK A63 ER20X100M	63.00	ER20	1.0	13.0	28.00	-	100.00	74.0	-	M12	1	0.85
HSK A63 ER20X120M	63.00	ER20	1.0	13.0	28.00	-	120.00	94.0	-	M12	1	0.92
HSK A63 ER20X160M	63.00	ER20	1.0	13.0	28.00	45.00	160.00	134.0	85.00	M12	1	1.46
HSK A100 ER16X100M	100.00	ER16	0.5	10.0	22.00	-	100.00	71.0	-	M10	1	2.16
HSK A100 ER16X160M	100.00	ER16	0.5	10.0	22.00	40.00	160.00	131.0	85.00	M10	1	2.65
HSK A100 ER20X100M	100.00	ER20	1.0	13.0	28.00	-	100.00	71.0	-	M12	1	2.22
HSK A100 ER20X160M	100.00	ER20	1.0	13.0	28.00	50.00	160.00	131.0	85.00	M12	1	2.82

- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately).

(1) Minimum diameter

(2) Maximum diameter

(3) 1 - Slot for data chip, 0 - Without slot for data chip



766-773 763-765

Spare Parts

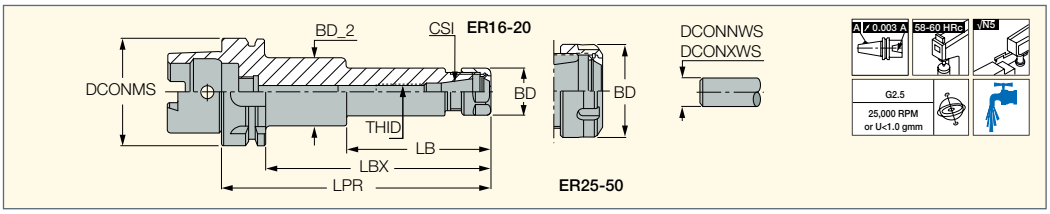
Designation					
HSK A50 ER16X100M	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A50 ER20X100M*	NUT ER20 MINI	WRENCH ER20 MINI*	PRESET ER-JET 12X1.75*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A63 ER16X100M	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER16X120M	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER16X160M	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER20X100M	NUT ER20 MINI	WRENCH ER20 MINI*	PRESET ER-JET 12X1.75*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER20X120M	NUT ER20 MINI	WRENCH ER20 MINI*	PRESET ER-JET 12X1.75*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER20X160M	NUT ER20 MINI	WRENCH ER20 MINI*	PRESET ER-JET 12X1.75*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A100 ER16X100M	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ER16X160M	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ER20X100M	NUT ER20 MINI	WRENCH ER20 MINI*	PRESET ER-JET 12X1.75*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ER20X160M	NUT ER20 MINI	WRENCH ER20 MINI*	PRESET ER-JET 12X1.75*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*

* Optional, to be ordered separately

HSK

HSK A-ER

DIN6499 ER Collet Chucks with HSK DIN69893 Form A Tapered Shanks



Designation	DCONMS	CSI	DCONNWS[2]	DCONXWS[3]	BD	BD_2	LPR	LBX	LB	THID	DCP[4]	kg
HSK A40 ER16X60	40.00	ER16	0.5	10.0	28.00	28.00	60.00	40.0	27.00	M10X1.5-6H	1	0.27
HSK A40 ER16X80	40.00	ER16	0.5	10.0	28.00	28.00	80.00	60.0	27.00	M10	1	0.36
HSK A40 ER25X100	40.00	ER25	1.0	16.0	42.00	32.40	100.00	80.0	28.00	M16	1	0.49
HSK A40 ER25X60	40.00	ER25	1.0	16.0	42.00	32.40	60.00	40.0	28.00	M16X2-6H	1	0.41
HSK A40 ER25X80	40.00	ER25	1.0	16.0	42.00	32.40	80.00	60.0	28.00	M18X1.5	1	0.50
HSK A40 ER32X100	40.00	ER32	2.0	20.0	50.00	40.40	100.00	80.0	31.00	M22X1.5	1	0.58
HSK A50 ER16X100	50.00	ER16	0.5	10.0	28.00	28.00	100.00	74.0	27.00	M10	1	0.61
HSK A50 ER20X100	50.00	ER20	1.0	13.0	34.00	34.00	100.00	74.0	28.00	M12	1	0.70
HSK A50 ER25X100*	50.00	ER25	1.0	16.0	42.00	41.80	100.00	74.0	28.50	M16	1	0.79
HSK A50 ER25X80*	50.00	ER25	1.0	16.0	42.00	32.40	80.00	54.0	28.00	M8	1	0.53
HSK A50 ER32X100	50.00	ER32	2.0	20.0	50.00	40.40	100.00	74.0	31.00	M22X1.5	1	0.76
HSK A50 ER32X160*	50.00	ER32	2.0	20.0	50.00	40.00	160.00	134.0	-	M22X1.5	1	1.00
HSK A63 ER16X80	63.00	ER16	0.5	10.0	28.00	-	80.00	54.0	-	M10	1	0.75
HSK A63 ER16X100	63.00	ER16	0.5	10.0	28.00	28.00	100.00	74.0	27.00	M10	1	0.86
HSK A63 ER16X120	63.00	ER16	0.5	10.0	28.00	28.00	120.00	94.0	27.00	M10	1	0.96
HSK A63 ER16X160	63.00	ER16	0.5	10.0	28.00	40.00	160.00	134.0	85.60	M10	1	1.38
HSK A63 ER16X180 [1]	63.00	ER16	0.5	10.0	28.00	44.20	180.00	154.0	84.00	-	1	1.45
HSK A63 ER20X100	63.00	ER20	1.0	13.0	34.00	34.00	100.00	74.0	28.00	M12	1	0.94
HSK A63 ER20X120	63.00	ER20	1.0	13.0	34.00	34.00	120.00	94.0	28.00	M12	1	1.09
HSK A63 ER20X160	63.00	ER20	1.0	13.0	34.00	45.00	160.00	134.0	85.00	M12	1	1.59
HSK A63 ER25X100	63.00	ER25	1.0	16.0	42.00	42.00	100.00	74.0	28.50	M16	1	1.10
HSK A63 ER25X120	63.00	ER25	1.0	16.0	42.00	42.00	120.00	94.0	28.50	M16	1	3.70
HSK A63 ER25X160	63.00	ER25	1.0	16.0	42.00	42.00	160.00	134.0	28.50	M16	1	4.50
HSK A63 ER25X80	63.00	ER25	1.0	16.0	42.00	42.00	80.00	54.0	28.50	M8	1	0.92
HSK A63 ER32X100	63.00	ER32	2.0	20.0	50.00	50.00	100.00	74.0	36.00	M22X1.5	1	1.18
HSK A63 ER32X120	63.00	ER32	2.0	20.0	50.00	50.00	120.00	94.0	36.00	M22X1.5	1	1.46
HSK A63 ER32X160	63.00	ER32	2.0	20.0	50.00	50.00	160.00	134.0	36.00	M22X1.5	1	1.99
HSK A63 ER32X80	63.00	ER32	2.0	20.0	50.00	40.00	80.00	54.0	31.00	M18X1-6H	1	0.84
HSK A63 ER40X100	63.00	ER40	3.0	26.0	63.00	50.40	100.00	74.0	34.00	M28X1.5	1	1.16
HSK A63 ER40X120	63.00	ER40	3.0	26.0	63.00	50.40	120.00	94.0	34.00	M28X1.5	1	1.38
HSK A63 ER40X160	63.00	ER40	3.0	26.0	63.00	50.40	160.00	134.0	34.00	M28X1.5	1	1.99
HSK A63 ER40X 80	63.00	ER40	3.0	26.0	63.00	50.40	80.00	54.0	34.00	M18X1-6H	1	0.92
HSK A100 ER16X100	100.00	ER16	0.5	10.0	28.00	28.00	100.00	71.0	27.00	M10	1	2.21
HSK A100 ER16X160	100.00	ER16	0.5	10.0	28.00	40.00	160.00	131.0	85.00	M10	1	2.71
HSK A100 ER20X100	100.00	ER20	1.0	13.0	34.00	34.00	100.00	71.0	28.00	M12	1	2.29
HSK A100 ER20X160	100.00	ER20	1.0	13.0	34.00	50.00	160.00	131.0	85.00	M12	1	3.08
HSK A100 ER25X100	100.00	ER25	1.0	16.0	42.00	42.00	100.00	71.0	28.50	M16	1	2.47
HSK A100 ER25X120	100.00	ER25	1.0	16.0	42.00	42.00	120.00	91.0	28.50	M16	1	2.65
HSK A100 ER25X160	100.00	ER25	1.0	16.0	42.00	42.00	160.00	134.0	28.50	M16	1	3.02
HSK A100 ER32X100	100.00	ER32	2.0	20.0	50.00	50.00	100.00	71.0	36.00	M22X1.5	1	2.69
HSK A100 ER32X120	100.00	ER32	2.0	20.0	50.00	50.00	120.00	91.0	36.00	M22X1.5	1	2.80
HSK A100 ER32X160	100.00	ER32	2.0	20.0	50.00	50.00	160.00	131.0	36.00	M22X1.5	1	3.32
HSK A100 ER40X100	100.00	ER40	3.0	26.0	63.00	63.00	100.00	71.0	37.00	-	1	2.80
HSK A100 ER40X120	100.00	ER40	3.0	26.0	63.00	63.00	120.00	91.0	37.00	M28X1.5	1	3.17
HSK A100 ER40X160	100.00	ER40	3.0	26.0	63.00	63.00	160.00	131.0	37.00	M28X1.5	1	4.08
HSK A100 ER50X100	100.00	ER50	10.0	34.0	78.00	78.00	100.00	71.0	50.00	M22X1.5	1	2.88

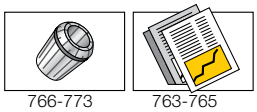
- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately).

[1] Attention: different design

[2] Minimum diameter

[3] Maximum diameter

[4] 1 - Slot for data chip, 0 - Without slot for data chip



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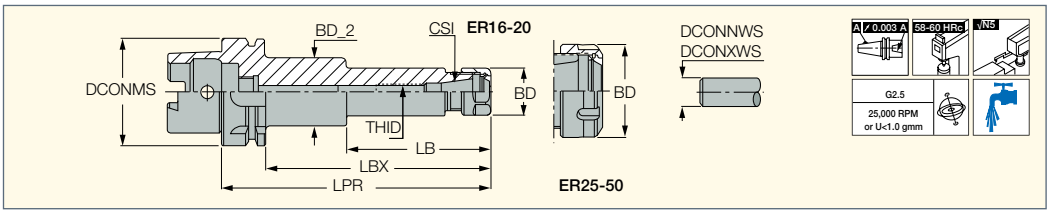
Continued

HSK

HSK A-ER
DIN6499 ER Collet Chucks with
HSK DIN69893 Form A
Tapered Shanks



Spare Parts

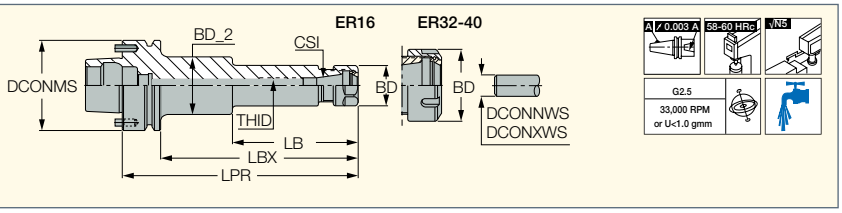
Designation					
HSK A40 ER16X60	NUT ER16 TOP	WRENCH ER16*		COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK A40 ER16X80	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK A40 ER25X100	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK A40 ER25X60	NUT ER25 TOP	WRENCH ER25*		COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK A40 ER25X80	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK A40 ER32X100	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK A50 ER16X100	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A50 ER20X100	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A50 ER25X100*	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A50 ER25X80*	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A50 ER32X100	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A50 ER32X160*	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A63 ER16X80	NUT ER16 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER16X100	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER16X120	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER16X160	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER16X180	NUT ER16 TOP	WRENCH ER16*		COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER20X100	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER20X120	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER20X160	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER25X100	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER25X120	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER25X160	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER25X80	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 8X1.25*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER32X100	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER32X120	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER32X160	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER32X80	NUT ER32 TOP	WRENCH ER32*		COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER40X100	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 28X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER40X120	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 28X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER40X160	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 28X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ER40X 80	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 28X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A100 ER16X100	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ER16X160	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ER20X100	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ER20X160	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ER25X100	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ER25X120	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ER25X160	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ER32X100	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ER32X120	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ER32X160	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ER40X100	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 28X1.5*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ER40X120	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 28X1.5*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ER40X160	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 28X1.5*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ER50X100	NUT ER50 UM	WRENCH ER50*		COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*

* Optional, to be ordered separately

HSK

HSK FM-ER

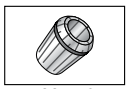
DIN6499 ER Collet Chucks with HSK DIN69893 FM Tapered Shanks with Two Pins for MAKINO Machine MAG Models



Designation	DCONMS	CSI	LPR	DCONNWS(2)	DCONXWS(3)	BD	BD_2	LBX	LB	THID	DCP(4)	kg
HSK FM63 ER16X80 (1)	63.00	ER16	80.00	0.5	10.0	28.00	-	54.0	-	M10	0	0.81
HSK FM63 ER16X100 (1)	63.00	ER16	100.00	0.5	10.0	28.00	-	74.0	-	M10	0	0.87
HSK FM63 ER16X120 (1)	63.00	ER16	120.00	0.5	10.0	28.00	-	94.0	-	M10	0	0.98
HSK FM63 ER16X160 (1)	63.00	ER16	160.00	0.5	10.0	28.00	40.00	134.0	85.60	M10	0	1.32
HSK FM63 ER32X80 (1)	63.00	ER32	80.00	2.0	20.0	50.00	-	54.0	-	-	0	0.96
HSK FM63 ER32X100 (1)	63.00	ER32	100.00	2.0	20.0	50.00	-	74.0	-	M22X1.5	0	1.22
HSK FM63 ER40X80	63.00	ER40	80.00	3.0	26.0	63.00	50.00	54.0	32.00	-	0	0.94
HSK FM63 ER40X100 (1)	63.00	ER40	100.00	3.0	26.0	63.00	50.00	74.0	32.00	M22X1.5	0	1.16
HSK FM80 ER16X85	80.00	ER16	85.00	0.5	10.0	28.00	-	59.0	-	M10	0	3.00
HSK FM80 ER16X120	80.00	ER16	120.00	0.5	10.0	28.00	-	94.0	-	M10	0	3.70
HSK FM80 ER32X85	80.00	ER32	85.00	2.0	20.0	50.00	-	59.0	-	M8	0	3.00
HSK FM80 ER32X120	80.00	ER32	120.00	2.0	20.0	50.00	-	94.0	-	M22X1.5	0	1.88

- Used on Makino machine models MAG
- The anti-slip pins can be removed, turning the toolholders into a standard HSK F63 type
- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately)

(1) Please check availbility
(2) Minimum diameter
(3) Maximum diameter
(4) 1 - Slot for data chip, 0 - Without slot for data chip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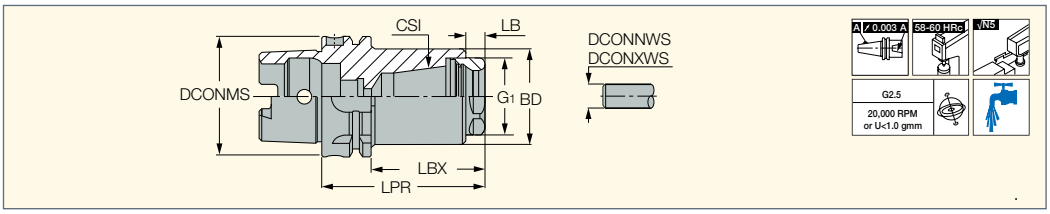
Spare Parts

Designation					
HSK FM63 ER16X80	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK FM63 ER16X100	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK FM63 ER16X120	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK FM63 ER16X160	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK FM63 ER32X80	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK FM63 ER32X100	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK FM63 ER40X80	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 16X2*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK FM63 ER40X100	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 28X1.5*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK FM80 ER16X85	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK FM80 ER16X120	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK FM80 ER32X85	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 8X1.25*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK FM80 ER32X120	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*

* Optional, to be ordered separately

HSK SHORTIN

HSK A-ER-SHORT
Short DIN6499 ER Collet Chucks with HSK DIN69893 Form A Tapered Shanks



Designation	DCONMS	CSI	DCONNWS(1)	DCONXWS(2)	BD	LPR	LBX	LB	G1	DCP(3)	kg
HSK A63 ER32 SHORT	63.00	ER32	2.0	20.0	50.00	81.00	55.0	9.50	M40X1.5	1	1.13
HSK A100 ER32 SHORT	100.00	ER32	2.0	20.0	50.00	89.50	60.5	9.50	M40X1.5	1	2.54
HSK A100 ER40 SHORT	100.00	ER40	3.0	26.0	70.00	104.50	75.5	9.50	M50X1.5	1	3.51

- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately).

(1) Minimum diameter
(2) Maximum diameter
(3) 1 - Slot for data chip, 0 - Without slot for data chip

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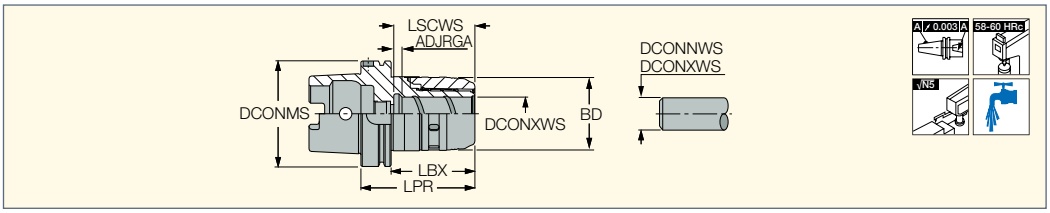
Spare Parts

Designation				
HSK A63 ER32 SHORT	NUT ER32 SHORT	WRENCH ER32 SHORT*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A100 ER32 SHORT	NUT ER32 SHORT	WRENCH ER32 SHORT*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ER40 SHORT	NUT ER40 SHORT	WRENCH ER40 SHORT*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*

* Optional, to be ordered separately

HSK MAXIN

HSK A-MAXIN
Power Chucks with HSK DIN69893 Form A Tapered Shanks



Designation	DCONMS	DCONNWS(1)	DCONXWS(2)	BD	LPR	LBX	ADJRGA	LSCWS	DCP(3)	kg
HSK A63 MAXIN20X95	63.00	6.0	20.0	53.00	95.00	69.0	9.50	65.5	1	1.02
HSK A63 MAXIN32X113	63.00	6.0	32.0	70.00	113.00	87.0	15.00	85.0	1	1.32
HSK A100 MAXIN20X115	100.00	6.0	20.0	53.00	115.00	86.0	13.00	69.0	1	2.61
HSK A100 MAXIN32X110	100.00	6.0	32.0	70.00	110.00	81.0	8.00	78.0	1	2.72
HSK A100 MAXIN32X135	100.00	6.0	32.0	70.00	135.00	106.0	16.00	87.0	1	3.45

- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately). • Use of DCONXWS diameter tools provides best performance, as collets reduce the gripping force.

(1) Minimum diameter by using a reduction collet
(2) Max. diameter without a collet
(3) 1 - Slot for data chip, 0 - Without slot for data chip

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Spare Parts

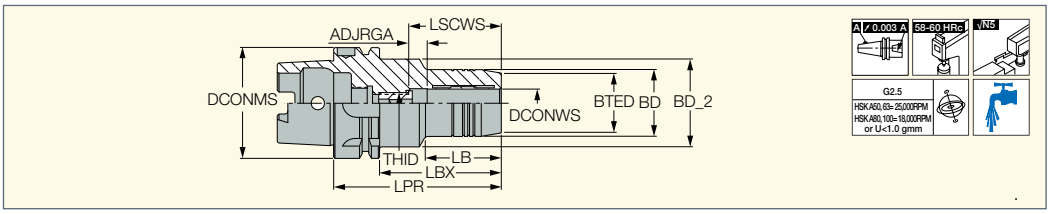
Designation				
HSK A63 MAXIN20X95	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 MAXIN32X113	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A100 MAXIN20X115	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 MAXIN32X110	WRENCH MAXIN 32 HOOK*		COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 MAXIN32X135	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*

* Optional, to be ordered separately

HSK HYDROFIT HOLDING LINE

HSK A-HYDRO

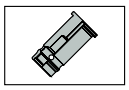
Hydraulic Chucks with HSK DIN69893 Form A Tapered Shanks, for Semi-Finish and Finish Applications



Designation	DCONMS	DCONWS	BTED	BD	BD_2	LPR	LBX	LB	ADJRGA	LSCWS	THID	DCP(1)	kg
HSK A50 HYDRO 6X80	50.00	6.00	23.00	26.00	42.00	80.00	54.0	35.00	10.00	37.0	M5	1	0.75
HSK A50 HYDRO 8X80	50.00	8.00	25.00	28.00	42.00	80.00	54.0	36.00	10.00	37.0	M6	1	0.77
HSK A50 HYDRO 10X85	50.00	10.00	27.00	30.00	42.00	85.00	59.0	41.00	10.00	42.0	M8X1	1	0.80
HSK A50 HYDRO 12X90	50.00	12.00	29.00	32.00	42.00	90.00	64.0	47.00	10.00	47.0	M10X1	1	0.80
HSK A50 HYDRO 14X90	50.00	14.00	30.00	34.00	42.00	90.00	64.0	49.00	10.00	47.0	M10X1	1	0.80
HSK A50 HYDRO 16X95	50.00	16.00	34.00	38.00	42.00	95.00	69.0	52.00	10.00	52.0	M12X1	1	0.96
HSK A50 HYDRO 18X95	50.00	16.00	36.00	40.00	42.00	95.00	69.0	52.00	10.00	52.0	M12X1	1	0.98
HSK A50 HYDRO 20X100	50.00	20.00	38.00	42.00	42.00	100.00	74.0	74.00	10.00	52.0	M10X1	1	1.08
HSK A63 HYDRO 6X80	63.00	6.00	23.00	26.00	50.00	80.00	54.0	33.00	10.00	37.0	M5	1	1.09
HSK A63 HYDRO 8X80	63.00	8.00	25.00	28.00	50.00	80.00	54.0	33.00	10.00	37.0	M6	1	1.10
HSK A63 HYDRO 10X85	63.00	10.00	27.00	30.00	50.00	85.00	59.0	39.00	10.00	42.0	M8X1	1	1.13
HSK A63 HYDRO 12X90	63.00	12.00	29.00	32.00	50.00	90.00	64.0	44.00	10.00	47.0	M10X1	1	1.18
HSK A63 HYDRO 14X90	63.00	14.00	30.00	34.00	50.00	90.00	64.0	46.00	10.00	47.0	M10X1	1	1.13
HSK A63 HYDRO 16X95	63.00	16.00	34.00	38.00	50.00	95.00	69.0	52.00	10.00	52.0	M12X1	1	1.28
HSK A63 HYDRO 18X95	63.00	18.00	36.00	40.00	50.00	95.00	69.0	52.00	10.00	52.0	M12X1	1	1.32
HSK A63 HYDRO 20X100	63.00	20.00	38.00	42.00	50.00	100.00	74.0	58.00	10.00	52.0	M16X1	1	1.32
HSK A63 HYDRO 25X120	63.00	25.00	46.00	50.00	50.00	120.00	94.0	94.00	10.00	58.0	M16X1	1	1.83
HSK A63 HYDRO 32X125	63.00	32.00	56.00	60.00	53.00	125.00	99.0	83.00	10.00	62.0	M16X1	1	2.32
HSK A80 HYDRO 6X85	80.00	6.00	23.00	26.00	50.00	85.00	59.0	37.00	10.00	37.0	M5	1	1.71
HSK A80 HYDRO 14X95	80.00	14.00	30.00	34.00	50.00	95.00	69.0	47.00	10.00	47.0	M10X1	1	2.40
HSK A80 HYDRO 16X100	80.00	16.00	34.00	38.00	56.00	100.00	74.0	52.00	10.00	52.0	M12X1	1	1.91
HSK A80 HYDRO 18X100	80.00	18.00	36.00	40.00	50.00	100.00	74.0	52.00	10.00	52.0	M12X1	1	1.92
HSK A80 HYDRO 20X105	80.00	20.00	38.00	42.00	50.00	105.00	79.0	52.00	10.00	52.0	M16X1	1	2.09
HSK A80 HYDRO 25X115	80.00	25.00	46.00	50.00	50.00	115.00	89.0	58.00	10.00	58.0	M16X1	1	2.35
HSK A80 HYDRO 32X120	80.00	32.00	56.00	60.00	50.00	120.00	94.0	62.00	10.00	62.0	M16X1	1	2.65
HSK A100 HYDRO 6X85	100.00	6.00	23.00	26.00	50.00	85.00	56.0	29.00	10.00	37.0	M5	1	2.57
HSK A100 HYDRO 8X85	100.00	8.00	25.00	28.00	50.00	85.00	56.0	29.00	10.00	37.0	M6	1	2.54
HSK A100 HYDRO 10X90	100.00	10.00	27.00	30.00	50.00	90.00	61.0	35.00	10.00	42.0	M8X1	1	2.55
HSK A100 HYDRO 12X95	100.00	12.00	29.00	32.00	50.00	95.00	66.0	40.00	10.00	47.0	M10X1	1	2.60
HSK A100 HYDRO 14X95	100.00	14.00	30.00	34.00	63.00	95.00	66.0	42.00	10.00	47.0	M10X1	1	2.81
HSK A100 HYDRO 16X100	100.00	16.00	34.00	38.00	50.00	100.00	71.0	47.00	10.00	52.0	M12X1	1	2.73
HSK A100 HYDRO 18X100	100.00	18.00	36.00	40.00	50.00	100.00	71.0	48.00	10.00	52.0	M12X1	1	2.76
HSK A100 HYDRO 20X105	100.00	20.00	38.00	42.00	63.00	105.00	76.0	54.00	10.00	52.0	M16X1	1	2.83
HSK A100 HYDRO 25X115	100.00	25.00	46.00	50.00	63.00	115.00	86.0	51.00	10.00	58.0	M16X1	1	3.47
HSK A100 HYDRO 32X120	100.00	32.00	56.00	60.00	63.00	120.00	91.0	59.00	10.00	62.0	M16X1	1	3.73

• Chucking forces will be reduced by 25% if reduction sleeves are used. • A cooling tube must be used with coolant through HSK spindles (order separately).
• Reduction sleeves are available for 12, 20, 25 and 32 mm bore diameters (must be ordered separately). • Clamping wrench (wrench HYDRO HEX 4) and test bar to be ordered separately.

(1) 1 - Slot for data chip, 0 - Without slot for data chip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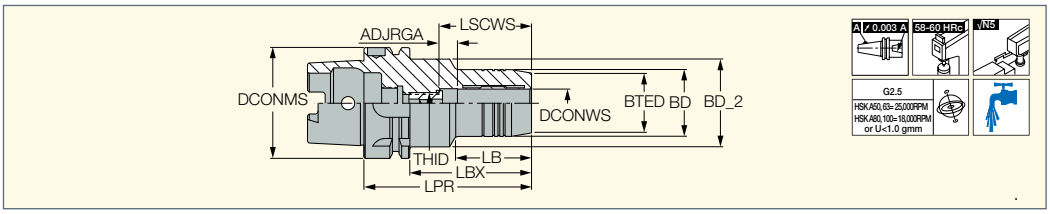
HSK HYDROFIT HOLDING LINE

HSK A-HYDRO

Hydraulic Chucks with HSK DIN69893 Form A Tapered Shanks, for Semi-Finish and Finish Applications



Spare Parts

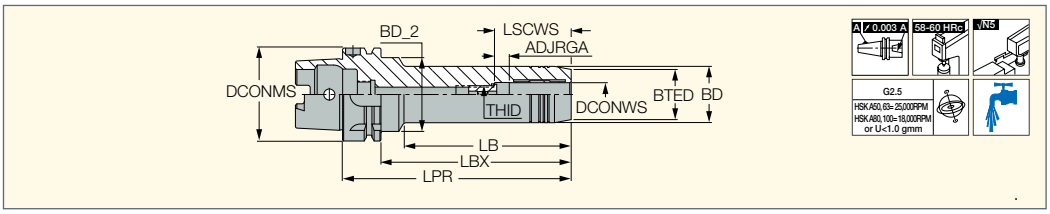
Designation					
HSK A50 HYDRO 6X80	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 6*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A50 HYDRO 8X80	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 8*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A50 HYDRO 10X85	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 10*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A50 HYDRO 12X90	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 12*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A50 HYDRO 14X90	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 14*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A50 HYDRO 16X95	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 16*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A50 HYDRO 18X95	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 18*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A50 HYDRO 20X100	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 20*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A63 HYDRO 6X80	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 6*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 8X80	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 8*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 10X85	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 10*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 12X90	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 12*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 14X90	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 14*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 16X95	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 16*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 18X95	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 18*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 20X100	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 20*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 25X120	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 25*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 32X125	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 32*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A80 HYDRO 6X85	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 6*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A 80*	WRENCH COOL TUBE HSK80*
HSK A80 HYDRO 14X95	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 14*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A 80*	WRENCH COOL TUBE HSK80*
HSK A80 HYDRO 16X100	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 16*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A 80*	WRENCH COOL TUBE HSK80*
HSK A80 HYDRO 18X100	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 18*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A 80*	WRENCH COOL TUBE HSK80*
HSK A80 HYDRO 20X105	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 20*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A 80*	WRENCH COOL TUBE HSK80*
HSK A80 HYDRO 25X115	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 25*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A 80*	WRENCH COOL TUBE HSK80*
HSK A80 HYDRO 32X120	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 32*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A 80*	WRENCH COOL TUBE HSK80*
HSK A100 HYDRO 6X85	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 6*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 8X85	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 8*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 10X90	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 10*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 12X95	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 12*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 14X95	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 14*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 16X100	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 16*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 18X100	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 18*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 20X105	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 20*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 25X115	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 25*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 32X120	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 32*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*

* Optional, to be ordered separately

HSK HYDROFIT HOLDING LINE

HSK A-HYDRO (long)

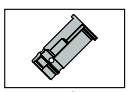
Long Projection Hydraulic Chucks with HSK DIN69893 Form A Tapered Shanks, for Semi-Finish and Finish Applications



Designation	DCONMS	DCONWS	BTED	BD	BD_2	LPR	LBX	LB	ADJRGA	LSCWS	THID	DCP(1)	kg
HSK A63 HYDRO 6X150	63.00	6.00	23.00	26.00	50.00	150.00	124.0	103.00	10.00	37.0	M5	1	1.36
HSK A63 HYDRO 6X200	63.00	6.00	23.00	26.00	50.00	200.00	174.0	153.00	10.00	37.0	M5	1	1.57
HSK A63 HYDRO 8X150	63.00	8.00	25.00	28.00	50.00	150.00	124.0	104.00	10.00	37.0	M6	1	1.41
HSK A63 HYDRO 8X200	63.00	8.00	25.00	28.00	50.00	200.00	174.0	154.00	10.00	37.0	M6	1	1.68
HSK A63 HYDRO 10X150	63.00	10.00	27.00	30.00	50.00	150.00	124.0	104.00	10.00	42.0	M8X1	1	1.45
HSK A63 HYDRO 10X200	63.00	10.00	27.00	30.00	50.00	200.00	174.0	154.00	10.00	42.0	M8X1	1	1.74
HSK A63 HYDRO 12X150	63.00	12.00	29.00	32.00	50.00	150.00	124.0	105.00	10.00	47.0	M10X1	1	1.49
HSK A63 HYDRO 12X200	63.00	12.00	29.00	32.00	50.00	200.00	174.0	155.00	10.00	47.0	M10X1	1	1.83
HSK A63 HYDRO 14X150	63.00	14.00	30.00	34.00	50.00	150.00	124.0	105.00	10.00	47.0	M10X1	1	1.58
HSK A63 HYDRO 14X200	63.00	14.00	30.00	34.00	50.00	200.00	174.0	155.00	10.00	47.0	M10X1	1	1.95
HSK A63 HYDRO 16X150	63.00	16.00	34.00	38.00	50.00	150.00	124.0	106.50	10.00	52.0	M12X1	1	1.74
HSK A63 HYDRO 16X200	63.00	16.00	34.00	38.00	50.00	200.00	174.0	156.50	10.00	52.0	M12X1	1	2.17
HSK A63 HYDRO 18X150	63.00	18.00	36.00	40.00	50.00	150.00	124.0	107.00	10.00	52.0	M12X1	1	1.81
HSK A63 HYDRO 18X200	63.00	18.00	36.00	40.00	50.00	200.00	174.0	157.00	10.00	52.0	M12X1	1	2.30
HSK A63 HYDRO 20X150	63.00	20.00	38.00	42.00	50.00	150.00	124.0	108.00	10.00	52.0	M12X1	1	1.89
HSK A63 HYDRO 20X200	63.00	20.00	38.00	42.00	50.00	200.00	174.0	158.00	10.00	52.0	M12X1	1	2.43
HSK A63 HYDRO 25X150	63.00	25.00	46.00	50.00	50.00	150.00	124.0	-	10.00	58.0	M16X1	1	2.29
HSK A63 HYDRO 25X200	63.00	25.00	46.00	50.00	50.00	200.00	174.0	-	10.00	58.0	M16X1	1	3.05
HSK A100 HYDRO 6X150	100.00	6.00	23.00	26.00	50.00	150.00	121.0	100.00	10.00	37.0	M5	1	3.00
HSK A100 HYDRO 6X200	100.00	6.00	23.00	26.00	63.00	200.00	171.0	144.00	10.00	37.0	M5	1	3.29
HSK A100 HYDRO 8X150	100.00	8.00	25.00	28.00	63.00	150.00	121.0	94.50	10.00	37.0	M6	1	3.07
HSK A100 HYDRO 8X200	100.00	8.00	25.00	28.00	63.00	200.00	171.0	144.50	10.00	37.0	M6	1	3.29
HSK A100 HYDRO 10X150	100.00	10.00	27.00	30.00	63.00	150.00	121.0	95.00	10.00	42.0	M8X1	1	3.11
HSK A100 HYDRO 10X200	100.00	10.00	27.00	30.00	50.00	200.00	171.0	151.00	10.00	42.0	M8X1	1	3.27
HSK A100 HYDRO 12X150	100.00	12.00	29.00	32.00	63.00	150.00	121.0	95.50	10.00	47.0	M10X1	1	3.15
HSK A100 HYDRO 12X200	100.00	12.00	29.00	32.00	63.00	200.00	171.0	145.50	10.00	47.0	M10X1	1	3.46
HSK A100 HYDRO 14X150	100.00	14.00	30.00	34.00	50.00	150.00	121.0	97.00	10.00	47.0	M10X1	1	3.05
HSK A100 HYDRO 14X200	100.00	14.00	30.00	34.00	50.00	200.00	171.0	147.00	10.00	47.0	M10X1	1	3.56
HSK A100 HYDRO 16X150	100.00	16.00	38.00	38.00	63.00	150.00	121.0	97.50	10.00	52.0	M12X1	1	3.15
HSK A100 HYDRO 16X200	100.00	16.00	38.00	38.00	63.00	200.00	171.0	147.50	10.00	52.0	M12X1	1	3.73
HSK A100 HYDRO 18X150	100.00	18.00	36.00	40.00	50.00	150.00	121.0	107.00	10.00	52.0	M12X1	1	3.25
HSK A100 HYDRO 18X200	100.00	18.00	36.00	40.00	63.00	200.00	171.0	148.00	10.00	52.0	M12X1	1	3.86
HSK A100 HYDRO 20X150	100.00	20.00	38.00	42.00	63.00	150.00	121.0	99.00	10.00	52.0	M12X1	1	3.46
HSK A100 HYDRO 20X200	100.00	20.00	38.00	42.00	63.00	200.00	171.0	149.00	10.00	52.0	M12X1	1	4.01
HSK A100 HYDRO 25X150	100.00	25.00	46.00	50.00	50.00	150.00	121.0	-	10.00	58.0	M16X1	1	3.65
HSK A100 HYDRO 25X200	100.00	25.00	46.00	50.00	63.00	200.00	171.0	136.00	10.00	58.0	M16X1	1	4.67
HSK A100 HYDRO 32X200	100.00	32.00	56.00	60.00	60.00	200.00	171.0	-	10.00	62.0	M16X1	1	5.36

• Chucking forces will be reduced by 25% if reduction sleeves are used. • A cooling tube must be used with coolant through HSK spindles (order separately).
• Reduction sleeves are available for 12, 20, 25 and 32 mm bore diameters (must be ordered separately). • Clamping wrench (wrench HYDRO HEX4) and test bar to be ordered separately.

(1) 1 - Slot for data chip, 0 - Without slot for data chip

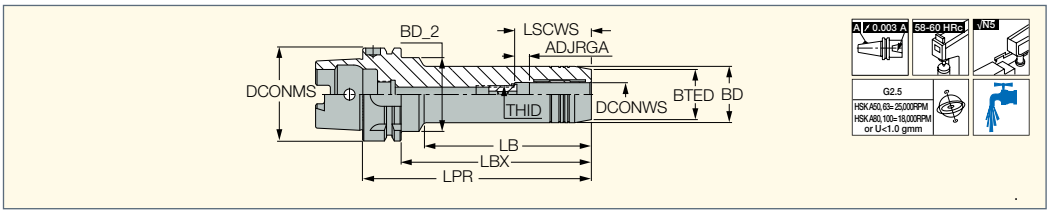

776

637

Continued

HSK HYDROFIT HOLDING LINE

HSK A-HYDRO (long)
Long Projection Hydraulic Chucks with HSK DIN69893 Form A Tapered Shanks, for Semi-Finish and Finish Applications



Spare Parts

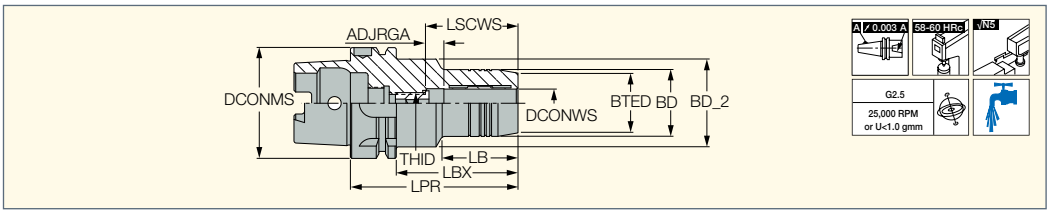
Designation					
HSK A63 HYDRO 6X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 6*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 6X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 6*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 8X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 8*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 8X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 8*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 10X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 10*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 10X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 10*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 12X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 12*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 12X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 12*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 14X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 14*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 14X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 14*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 16X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 16*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 16X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 16*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 18X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 18*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 18X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 18*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 20X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 20*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 20X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 20*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 25X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 25*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 25X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 25*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A100 HYDRO 6X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 6*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 6X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 6*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 8X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 8*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 8X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 8*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 10X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 10*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 10X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 10*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 12X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 12*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 12X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 12*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 14X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 14*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 14X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 14*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 16X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 16*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 16X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 16*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 18X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 18*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 18X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 18*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 20X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 20*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 20X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 20*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 25X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 25*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 25X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 25*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 HYDRO 32X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 32*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*

* Optional, to be ordered separately

HSK HYDROFIT HOLDING LINE

HSK A-HYDRO HD

Heavy Duty, Short Hydraulic Chucks With HSK DIN69893 Form A Shanks



Designation	DCONWS	BTED	BD_2	BD	LPR	LB	ADJRGA	LSCWS	THID	DCP(1)	kg
HSK A63 HYDRO 12X80 HD	12.00	32.00	52.50	42.00	80.00	34.50	10.00	46.0	M8X1	1	1.25
HSK A63 HYDRO 16X80 HD	16.00	38.00	-	52.50	80.00	-	8.00	51.0	M8X1	1	1.32
HSK A63 HYDRO 20X80 HD	20.00	38.00	-	52.50	80.00	-	8.00	51.0	M8X1	1	1.45
HSK A100 HYDRO 20X90 HD	20.00	38.00	-	52.50	90.00	-	8.00	51.0	M8X1	1	1.92
HSK A100 HYDRO 32X100 HD	32.00	58.50	-	72.00	100.00	-	9.00	61.0	M8X1	1	3.80

(1) 1 - Slot for data chip, 0 - Without slot for data chip

Spare Parts

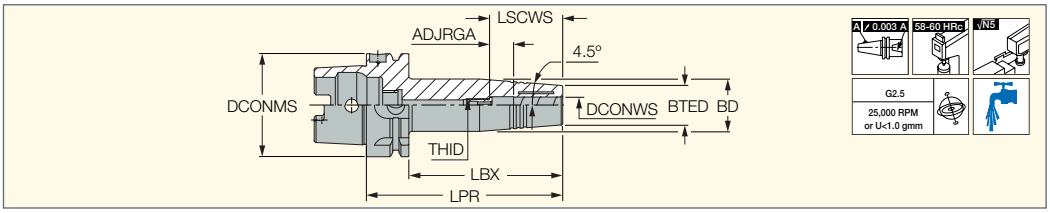
Designation			
HSK A63 HYDRO 12X80 HD	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	ALLEN KEY SW5X100*
HSK A63 HYDRO 16X80 HD	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	ALLEN KEY SW5X100*
HSK A63 HYDRO 20X80 HD	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	ALLEN KEY SW5X100*
HSK A100 HYDRO 20X90 HD	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	ALLEN KEY SW5X100*
HSK A100 HYDRO 32X100 HD	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	ALLEN KEY SW6X100*

* Optional, to be ordered separately

HSK HYDROFIT HOLDING LINE

HSK A-HYDRO SF

Slim Design, Hydraulic Chucks with HSK A Shanks



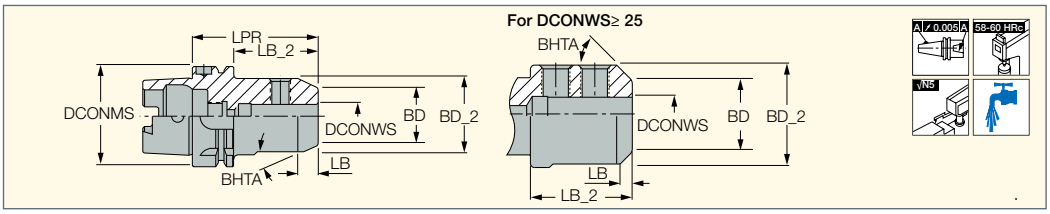
Designation	DCONMS	DCONWS	BTED	BD	LPR	LBX	ADJRGA	LSCWS	THID	DCP(1)	kg
HSK A63 HYDRO 6X120 SF	63.00	6.00	21.00	27.00	120.00	94.00	10.00	38.20	M5x0.8	1	1.04
HSK A63 HYDRO 6X80 SF	63.00	6.00	21.00	27.00	80.00	54.00	10.00	38.20	M10x1	1	0.87
HSK A63 HYDRO 8X120 SF	63.00	8.00	21.00	27.00	120.00	94.00	10.00	38.20	M7x1	1	1.03
HSK A63 HYDRO 8X80 SF	63.00	8.00	21.00	27.00	80.00	54.00	10.00	38.20	M10x1	1	0.86
HSK A63 HYDRO 10X120 SF	63.00	10.00	24.00	32.00	120.00	94.00	10.00	43.20	M8x1	1	1.15
HSK A63 HYDRO 10X85 SF	63.00	10.00	24.00	32.00	85.00	59.00	10.00	42.70	M10x1	1	0.94
HSK A63 HYDRO 12X120 SF	63.00	12.00	24.00	32.00	120.00	94.00	10.00	47.70	M10x1	1	1.12
HSK A63 HYDRO 12X90 SF	63.00	12.00	24.00	32.00	90.00	64.00	10.00	47.70	M10x1	1	0.95
HSK A63 HYDRO 14X120 SF	63.00	14.00	27.00	34.00	120.00	94.00	10.00	48.70	M10x1	1	1.19
HSK A63 HYDRO 14X90 SF	63.00	14.00	27.00	34.00	90.00	64.00	10.00	64.00	M10x1	1	0.99
HSK A63 HYDRO 16X120 SF	63.00	16.00	27.00	34.00	120.00	94.00	10.00	53.20	M12x1	1	1.17
HSK A63 HYDRO 16X95 SF	63.00	16.00	27.00	34.00	95.00	69.00	10.00	53.20	M12x1	1	1.00
HSK A63 HYDRO 20X100 SF	63.00	20.00	33.00	42.00	100.00	74.00	10.00	55.70	M16x1	1	1.18
HSK A63 HYDRO 20X120 SF	63.00	20.00	33.00	42.00	120.00	94.00	10.00	55.70	M16x1	1	1.39

New

(1) 1 - Slot for data chip, 0 - Without slot for data chip

HSK

HSK A-EM (DIN 1835 Form B)
DIN6359 Side Clamp Holders
for DIN 1835 Form B Weldon
Shanks with HSK DIN69893
Form A Tapered Shanks



Designation	DCONMS	DCONWS	BD	BD_2	LPR	LB	LB_2	BHTA	DCP(1)	kg
HSK A50 EM8X65*	50.00	8.00	20.00	28.00	65.00	8.6	39.00	25.0	1	0.56
HSK A50 EM10X80*	50.00	10.00	25.00	35.00	80.00	10.7	54.00	25.0	1	1.25
HSK A50 EM16X80*	50.00	16.00	36.00	48.00	80.00	12.9	54.00	25.0	1	1.00
HSK A50 EM20X80*	50.00	20.00	34.00	52.00	80.00	8.6	54.00	25.0	1	0.99
HSK A63 EM6X65	63.00	6.00	15.00	25.00	65.00	10.7	39.00	25.0	1	0.77
HSK A63 EM8X65	63.00	8.00	20.00	28.00	65.00	8.6	39.00	25.0	1	0.79
HSK A63 EM10X65	63.00	10.00	25.00	35.00	65.00	10.7	39.00	25.0	1	0.88
HSK A63 EM12X80	63.00	12.00	30.00	42.00	80.00	12.9	54.00	25.0	1	1.13
HSK A63 EM14X80	63.00	14.00	32.00	44.00	80.00	12.9	54.00	25.0	1	1.16
HSK A63 EM16X80	63.00	16.00	36.00	48.00	80.00	12.9	54.00	25.0	1	1.28
HSK A63 EM18X80	63.00	18.00	38.00	50.00	80.00	12.9	54.00	25.0	1	1.29
HSK A63 EM20X80	63.00	20.00	40.00	52.00	80.00	12.9	54.00	25.0	1	1.32
HSK A63 EM25X110	63.00	25.00	45.00	65.00	110.00	10.0	84.00	45.0	1	2.21
HSK A63 EM32X110	63.00	32.00	56.00	72.00	110.00	8.0	84.00	45.0	1	2.41
HSK A100 EM6X80	100.00	6.00	15.00	25.00	80.00	10.7	51.00	25.0	1	2.20
HSK A100 EM8X80	100.00	8.00	20.00	28.00	80.00	8.6	51.00	25.0	1	2.24
HSK A100 EM10X80	100.00	10.00	25.00	35.00	80.00	10.7	51.00	25.0	1	2.36
HSK A100 EM12X80	100.00	12.00	30.00	42.00	80.00	12.9	51.00	25.0	1	2.45
HSK A100 EM14X80	100.00	14.00	32.00	44.00	80.00	12.9	51.00	25.0	1	2.00
HSK A100 EM16X100	100.00	16.00	36.00	48.00	100.00	12.9	71.00	25.0	1	2.86
HSK A100 EM20X100	100.00	20.00	40.00	52.00	100.00	12.9	71.00	25.0	1	2.93
HSK A100 EM25X100	100.00	25.00	45.00	65.00	100.00	10.0	71.00	45.0	1	3.45
HSK A100 EM32X100	100.00	32.00	56.00	72.00	100.00	8.0	71.00	45.0	1	3.67
HSK A100 EM40X110	100.00	40.00	60.00	85.00	110.00	12.5	81.00	45.0	1	4.50

- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately).

(1) 1 - Slot for data chip, 0 - Without slot for data chip

Spare Parts

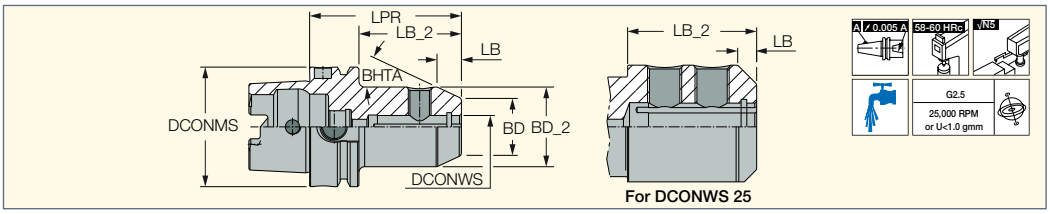
Designation			
HSK A50 EM8X65*	SR M8X10 DIN1835-B	WRENCH COOL TUBE HSK50*	COOLING TUBE HSK A50*
HSK A50 EM10X80*	SR M10X12 DIN1835-B	WRENCH COOL TUBE HSK50*	COOLING TUBE HSK A50*
HSK A50 EM16X80*	SR M14X16 DIN1835-B	WRENCH COOL TUBE HSK50*	COOLING TUBE HSK A50*
HSK A50 EM20X80*	SR M16X16 DIN1835-B	WRENCH COOL TUBE HSK50*	COOLING TUBE HSK A50*
HSK A63 EM6X65	SR M6X10 DIN1835B	WRENCH COOL TUBE HSK63*	COOLING TUBE HSK A63*
HSK A63 EM8X65	SR M8X10 DIN1835-B	WRENCH COOL TUBE HSK63*	COOLING TUBE HSK A63*
HSK A63 EM10X65	SR M10X12 DIN1835-B	WRENCH COOL TUBE HSK63*	COOLING TUBE HSK A63*
HSK A63 EM12X80	SR M12X16 DIN1835-B	WRENCH COOL TUBE HSK63*	COOLING TUBE HSK A63*
HSK A63 EM14X80	SR M12X16 DIN1835-B	WRENCH COOL TUBE HSK63*	COOLING TUBE HSK A63*
HSK A63 EM16X80	SR M14X16 DIN1835-B	WRENCH COOL TUBE HSK63*	COOLING TUBE HSK A63*
HSK A63 EM18X80	SR M14X16 DIN1835-B	WRENCH COOL TUBE HSK63*	COOLING TUBE HSK A63*
HSK A63 EM20X80	SR M16X16 DIN1835-B	WRENCH COOL TUBE HSK63*	COOLING TUBE HSK A63*
HSK A63 EM25X110	SR M18X2X20 DIN1835-B	WRENCH COOL TUBE HSK63*	COOLING TUBE HSK A63*
HSK A63 EM32X110	SR M20X2X20 DIN1835-B	WRENCH COOL TUBE HSK63*	COOLING TUBE HSK A63*
HSK A100 EM6X80	SR M6X10 DIN1835B	WRENCH COOL TUBE HSK100*	COOLING TUBE HSK A100*
HSK A100 EM8X80	SR M8X10 DIN1835-B	WRENCH COOL TUBE HSK100*	COOLING TUBE HSK A100*
HSK A100 EM10X80	SR M10X12 DIN1835-B	WRENCH COOL TUBE HSK100*	COOLING TUBE HSK A100*
HSK A100 EM12X80	SR M12X16 DIN1835-B	WRENCH COOL TUBE HSK100*	COOLING TUBE HSK A100*
HSK A100 EM14X80	SR M12X16 DIN1835-B	WRENCH COOL TUBE HSK100*	COOLING TUBE HSK A100*
HSK A100 EM16X100	SR M14X16 DIN1835-B	WRENCH COOL TUBE HSK100*	COOLING TUBE HSK A100*
HSK A100 EM20X100	SR M16X16 DIN1835-B	WRENCH COOL TUBE HSK100*	COOLING TUBE HSK A100*
HSK A100 EM25X100	SR M18X2X20 DIN1835-B	WRENCH COOL TUBE HSK100*	COOLING TUBE HSK A100*
HSK A100 EM32X100	SR M20X2X20 DIN1835-B	WRENCH COOL TUBE HSK100*	COOLING TUBE HSK A100*
HSK A100 EM40X110	SR M20X2X20 DIN1835-B	WRENCH COOL TUBE HSK100*	COOLING TUBE HSK A100*

* Optional, to be ordered separately

HSK X-STREAM JET TOOLHOLDING

HSK A-EM-CX

DIN6359 Side Clamp Holders for DIN 1835 Form B Weldon Shanks with Jet Coolant HSK DIN69893 Form A Tapered Shanks



Designation	DCONMS	DCONWS	BD	BD_2	LPR	LB	LB_2	BHTA	DCP(1)	kg
HSK A63 EM6X100 CX	63.00	6.00	15.00	25.00	100.00	10.7	74.00	25.0	1	0.85
HSK A63 EM6X65 CX	63.00	6.00	15.00	25.00	65.00	10.7	39.00	25.0	1	0.77
HSK A63 EM8X65 CX	63.00	8.00	20.00	28.00	65.00	8.6	39.00	25.0	1	0.79
HSK A63 EM10X65 CX	63.00	10.00	25.00	35.00	65.00	10.7	39.00	25.0	1	0.79
HSK A63 EM12X100 CX	63.00	12.00	30.00	42.00	100.00	12.9	74.00	25.0	1	1.40
HSK A63 EM12X80 CX	63.00	12.00	30.00	42.00	80.00	12.9	54.00	25.0	1	0.81
HSK A63 EM16X100 CX	63.00	16.00	36.00	48.00	100.00	12.9	74.00	25.0	1	0.93
HSK A63 EM16X80 CX	63.00	16.00	36.00	48.00	80.00	12.9	54.00	25.0	1	0.87
HSK A63 EM20X80 CX	63.00	20.00	40.00	52.00	80.00	12.9	54.00	25.0	1	0.97
HSK A63 EM25X110 CX	63.00	25.00	45.00	65.00	110.00	10.0	68.00	45.0	1	1.15

New

- A cooling tube must be used with all coolant through HSK spindles (should be ordered separately).

(1) 1 - Slot for data chip, 0 - Without slot for data chip

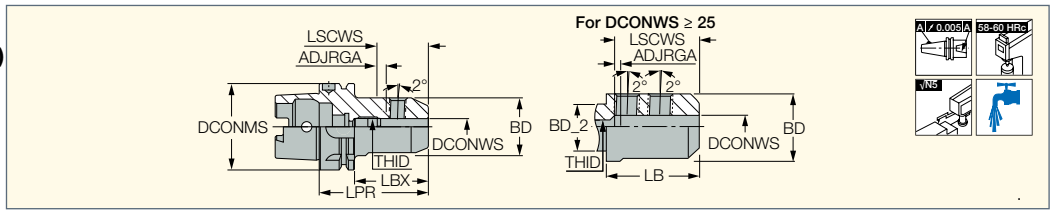
Spare Parts

Designation			
HSK A63 EM6X100 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	SR M6X10 DIN1835B
HSK A63 EM6X65 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	SR M6X10 DIN1835B
HSK A63 EM8X65 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	SR M8X10 DIN1835-B
HSK A63 EM10X65 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	SR M10X12 DIN1835-B
HSK A63 EM12X80 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	SR M12X16 DIN1835-B
HSK A63 EM16X100 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	SR M14X16 DIN1835-B
HSK A63 EM16X80 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	SR M14X16 DIN1835-B
HSK A63 EM20X80 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	SR M16X16 DIN1835-B
HSK A63 EM25X110 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	SR M18X2X20 DIN1835-B

* Optional, to be ordered separately

HSK

HSK A-EM (DIN 1835 Form E)
DIN6359 Side Clamp Holders for DIN 1835 Form E Whistle Notch Shanks with HSK DIN69893 Form A Tapered Shanks



Designation	DCONMS	DCONWS	BD	BD_2	LPR	LBX	LB	ADJRGA	LSCWS	THID(1)	Key(2)	DCP(3)	kg
HSK A63 EM6X80 E	63.00	6.00	25.00	-	80.00	54.0	-	8.00	40.0	M5	2.50	1	0.82
HSK A63 EM8X80 E	63.00	8.00	28.00	-	80.00	54.0	-	5.00	40.0	M6	3.00	1	0.86
HSK A63 EM10X80 E	63.00	10.00	35.00	-	80.00	54.0	-	5.00	44.0	M8	4.00	1	1.00
HSK A63 EM12X90 E	63.00	12.00	42.00	-	90.00	64.0	-	5.00	49.0	M10	5.00	1	1.23
HSK A63 EM14X90 E	63.00	14.00	44.00	-	90.00	64.0	-	5.00	49.0	M10	5.00	1	1.29
HSK A63 EM16X100 E	63.00	16.00	48.00	-	100.00	74.0	-	5.00	52.0	M12	6.00	1	1.51
HSK A63 EM18X100 E	63.00	18.00	50.00	-	100.00	74.0	-	8.00	55.0	M12	6.00	1	1.60
HSK A63 EM20X100 E	63.00	20.00	52.00	-	100.00	74.0	-	5.00	54.0	M16	8.00	1	1.65
HSK A63 EM25X110 E	63.00	25.00	65.00	52.80	110.00	84.0	65.50	7.00	61.0	M16	8.00	1	2.23
HSK A63 EM32X110 E	63.00	32.00	72.00	52.80	110.00	84.0	65.50	5.00	63.0	M20X1.5	10.00	1	2.43
HSK A100 EM8X90 E	100.00	8.00	28.00	-	90.00	61.0	-	5.00	40.0	M6	3.00	1	2.29
HSK A100 EM12X100 E	100.00	12.00	42.00	-	100.00	71.0	-	10.00	54.0	M10	5.00	1	2.74
HSK A100EM 14X100 E	100.00	14.00	44.00	-	100.00	71.0	-	10.00	54.0	M10	5.00	1	2.71
HSK A100EM 16X100 E	100.00	16.00	48.00	-	100.00	71.0	-	5.00	52.0	M12	6.00	1	2.88
HSK A100EM 18X100 E	100.00	18.00	50.00	-	100.00	71.0	-	5.00	52.0	M12	6.00	1	2.93
HSK A100 EM20X110 E	100.00	20.00	52.00	-	110.00	81.0	-	5.00	54.0	M16	8.00	1	3.10
HSK A100 EM25X120 E	100.00	25.00	65.00	-	120.00	91.0	-	7.00	61.0	M20X1.5	10.00	1	3.88
HSK A100 EM32X120 E	100.00	32.00	72.00	-	120.00	91.0	-	5.00	63.0	M20X2.5	10.00	1	4.32

- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately).

(1) Adjustment screw has an internal coolant hole.

(2) Adjustment screw hexagon key size

(3) 1 - Slot for data chip, 0 - Without slot for data chip

Spare Parts

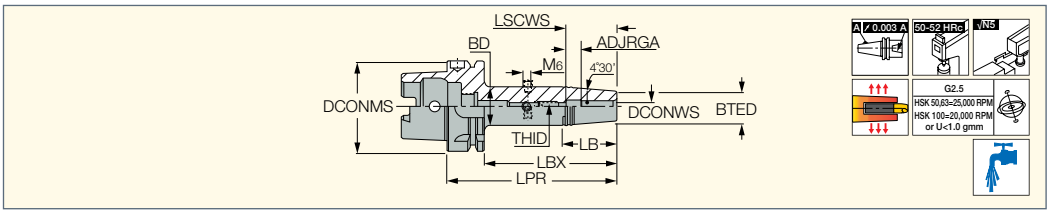
Designation				
HSK A63 EM6X80 E	SR M6X10 DIN1835B	PRESET M5X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 EM8X80 E	SR M8X10 DIN1835-B	PRESET M6X20B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 EM10X80 E	SR M10X12 DIN1835-B	PRESET CAP M8X12B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 EM12X90 E	SR M12X16 DIN1835-B	PRESET M10X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 EM14X90 E	SR M12X16 DIN1835-B	PRESET M10X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 EM16X100 E	SR M14X16 DIN1835-B	PRESET M12X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 EM18X100 E	SR M14X16 DIN1835-B	PRESET M12X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 EM20X100 E	SR M16X16 DIN1835-B	PRESET M16X20B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 EM25X110 E	SR M18X2X20 DIN1835-B	PRESET M16X20B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 EM32X110 E	SR M20X2X20 DIN1835-B	PRESET M20X20E	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A100 EM8X90 E	SR M8X10 DIN1835-B	PRESET M6X20B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 EM12X100 E	SR M12X16 DIN1835-B	PRESET M10X18B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100EM 14X100 E	SR M12X16 DIN1835-B	PRESET M10X18B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100EM 16X100 E	SR M14X16 DIN1835-B	PRESET M12X18B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100EM 18X100 E	SR M14X16 DIN1835-B	PRESET M12X18B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 EM20X110 E	SR M16X16 DIN1835-B	PRESET M16X20B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 EM25X120 E	SR M18X2X20 DIN1835-B	PRESET M20X20E	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 EM32X120 E	SR M20X2X20 DIN1835-B	PRESET M20X20E	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*

* Optional, to be ordered separately

HSK SHRINKIN

HSK A-SRKIN

Thermal Shrink Chucks with HSK
DIN69893 Form A
Tapered Shanks



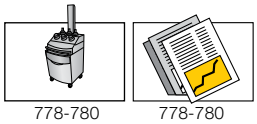
Designation	DCONMS	DCONWS	BTED	BD	LPR	LBX	LB	ADJRGA	LSCWS	THID	Key(2)	DCP(3)	kg
HSK A50 SRKIN6X80*	50.00	6.00	21.00	27.00	80.00	54.0	38.00	11.00	36.0	M5	2.50	1	0.56
HSK A63 SRKIN6X120	63.00	6.00	21.00	27.00	120.00	94.0	38.00	11.00	36.0	M5	2.50	1	1.00
HSK A63 SRKIN6X160	63.00	6.00	21.00	27.00	160.00	134.0	38.00	11.00	36.0	M5	2.50	1	1.19
HSK A63 SRKIN6X80	63.00	6.00	21.00	27.00	80.00	54.0	38.00	11.00	36.0	M5	2.50	1	0.83
HSK A63 SRKIN8X120	63.00	8.00	21.00	27.00	120.00	94.0	38.00	11.00	36.0	M6	3.00	1	0.98
HSK A63 SRKIN8X160	63.00	8.00	21.00	27.00	160.00	134.0	38.00	11.00	36.0	M6	3.00	1	1.16
HSK A63 SRKIN8X80	63.00	8.00	21.00	27.00	80.00	54.0	38.00	11.00	36.0	M6	3.00	1	0.88
HSK A63 SRKIN10X120	63.00	10.00	24.00	32.00	120.00	94.0	51.00	11.00	42.0	M8	4.00	1	1.09
HSK A63 SRKIN10X160	63.00	10.00	24.00	32.00	160.00	134.0	51.00	11.00	42.0	M8	4.00	1	1.36
HSK A63 SRKIN10X85	63.00	10.00	24.00	32.00	85.00	59.0	51.00	11.00	42.0	M8	4.00	1	0.89
HSK A63 SRKIN12X120	63.00	12.00	24.00	32.00	120.00	94.0	51.00	11.00	47.0	M10	5.00	1	1.00
HSK A63 SRKIN12X160	63.00	12.00	24.00	32.00	160.00	134.0	51.00	11.00	47.0	M10	5.00	1	1.33
HSK A63 SRKIN12X90	63.00	12.00	24.00	32.00	90.00	64.0	51.00	11.00	47.0	M8	4.00	1	0.91
HSK A63 SRKIN14X120	63.00	14.00	27.00	34.00	120.00	94.0	45.00	11.00	47.0	M10	5.00	1	1.15
HSK A63 SRKIN14X160	63.00	14.00	27.00	34.00	160.00	134.0	45.00	11.00	47.0	M10	5.00	1	1.44
HSK A63 SRKIN14X90	63.00	14.00	27.00	34.00	90.00	64.0	45.00	11.00	47.0	M10	5.00	1	0.94
HSK A63 SRKIN16X120	63.00	16.00	27.00	34.00	120.00	94.0	44.00	11.00	50.0	M12	6.00	1	1.11
HSK A63 SRKIN16X160	63.00	16.00	27.00	34.00	160.00	134.0	44.00	11.00	50.0	M12	6.00	1	1.41
HSK A63 SRKIN16X75 (1)	63.00	16.00	27.00	34.00	75.00	49.0	44.00	11.00	50.0	-	-	1	0.85
HSK A63 SRKIN16X95	63.00	16.00	27.00	34.00	95.00	69.0	44.00	11.00	50.0	M12	6.00	1	0.96
HSK A63 SRKIN18X120	63.00	18.00	33.00	42.00	120.00	94.0	57.00	11.00	50.0	M12	6.00	1	1.39
HSK A63 SRKIN18X160	63.00	18.00	33.00	42.00	160.00	134.0	57.00	11.00	50.0	M12	6.00	1	1.82
HSK A63 SRKIN18X95	63.00	18.00	33.00	42.00	95.00	69.0	57.00	11.00	50.0	M12	6.00	1	1.14
HSK A63 SRKIN20X100	63.00	20.00	33.00	42.00	100.00	74.0	57.00	11.00	52.0	M16	8.00	1	1.11
HSK A63 SRKIN20X120	63.00	20.00	33.00	42.00	120.00	94.0	57.00	11.00	52.0	M16	8.00	1	1.33
HSK A63 SRKIN20X160	63.00	20.00	33.00	42.00	160.00	134.0	57.00	11.00	52.0	M16	8.00	1	1.77
HSK A63 SRKIN20X75 (1)	63.00	20.00	33.00	41.00	75.00	49.0	-	9.00	50.0	-	-	1	0.93
HSK A63 SRKIN25X115	63.00	25.00	44.00	53.00	115.00	89.0	55.00	11.00	58.0	M16	8.00	1	1.70
HSK A63 SRKIN25X85 (1)	63.00	25.00	44.00	53.00	85.00	59.0	-	11.00	58.0	-	-	1	1.27
HSK A63 SRKIN32X120	63.00	32.00	44.00	53.00	120.00	94.0	55.00	11.00	58.0	M16	8.00	1	1.68
HSK A63 SRKIN32X85	63.00	32.00	44.00	53.00	85.00	59.0	-	11.00	58.0	-	-	1	1.11
HSK A100 SRKIN6X120	100.00	6.00	21.00	27.00	120.00	91.0	38.00	11.00	36.0	M5	2.50	1	2.32
HSK A100 SRKIN6X160	100.00	6.00	21.00	27.00	160.00	131.0	38.00	11.00	36.0	M6	3.00	1	2.54
HSK A100 SRKIN6X85	100.00	6.00	21.00	27.00	85.00	56.0	38.00	11.00	36.0	M5	2.50	1	2.18
HSK A100 SRKIN8X120	100.00	8.00	21.00	27.00	120.00	91.0	38.00	11.00	36.0	M6	3.00	1	2.36
HSK A100 SRKIN8X160	100.00	8.00	21.00	27.00	160.00	131.0	38.00	11.00	36.0	M6	3.00	1	2.55
HSK A100 SRKIN8X85	100.00	8.00	21.00	27.00	85.00	56.0	38.00	11.00	36.0	M6	3.00	1	2.16
HSK A100 SRKIN10X120	100.00	10.00	24.00	32.00	120.00	91.0	51.00	11.00	42.0	M8	4.00	1	2.43
HSK A100 SRKIN10X160	100.00	10.00	24.00	32.00	160.00	131.0	51.00	11.00	42.0	M8	4.00	1	2.71
HSK A100 SRKIN10X90	100.00	10.00	24.00	32.00	90.00	61.0	51.00	11.00	42.0	M8	4.00	1	2.24
HSK A100 SRKIN12X120	100.00	12.00	24.00	32.00	120.00	91.0	51.00	11.00	47.0	M10	5.00	1	2.47
HSK A100 SRKIN12X160	100.00	12.00	24.00	32.00	160.00	131.0	51.00	11.00	47.0	M10	5.00	1	2.70
HSK A100 SRKIN12X95	100.00	12.00	24.00	32.00	95.00	66.0	51.00	11.00	47.0	M10	5.00	1	2.28
HSK A100 SRKIN14X120	100.00	14.00	27.00	34.00	120.00	91.0	45.00	11.00	47.0	M10	5.00	1	2.51
HSK A100 SRKIN14X160	100.00	14.00	27.00	34.00	160.00	131.0	45.00	11.00	47.0	M10	5.00	1	2.79
HSK A100 SRKIN14X95	100.00	14.00	27.00	34.00	95.00	66.0	45.00	11.00	47.0	M10	5.00	1	2.27
HSK A100 SRKIN16X100	100.00	16.00	27.00	34.00	100.00	71.0	45.00	11.00	50.0	M12	6.00	1	2.35
HSK A100 SRKIN16X120	100.00	16.00	27.00	34.00	120.00	91.0	45.00	11.00	50.0	M12	6.00	1	2.50
HSK A100 SRKIN16X160	100.00	16.00	27.00	34.00	160.00	131.0	45.00	11.00	50.0	M12	6.00	1	2.74
HSK A100 SRKIN18X100	100.00	18.00	33.00	42.00	100.00	71.0	57.00	11.00	50.0	M12	6.00	1	2.50
HSK A100 SRKIN20X105	100.00	20.00	33.00	42.00	105.00	76.0	57.00	11.00	52.0	M16	8.00	1	2.50
HSK A100 SRKIN20X120	100.00	20.00	33.00	42.00	120.00	91.0	57.00	11.00	52.0	M16	8.00	1	1.20
HSK A100 SRKIN20X160	100.00	20.00	33.00	42.00	160.00	131.0	57.00	11.00	52.0	M16	8.00	1	3.21
HSK A100 SRKIN25X115	100.00	25.00	44.00	53.00	115.00	86.0	57.00	11.00	58.0	M16	8.00	1	3.04
HSK A100 SRKIN32X120	100.00	32.00	44.00	53.00	120.00	91.0	57.00	11.00	58.0	M16	8.00	1	2.99

- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately)
- Use only inductive heating device for SRKIN holders

(1) Shorter projection than DIN 69882-8, use special IND S DISC

(2) Adjustment screw hexagon key size

(3) 1 - Slot for data chip, 0 - Without slot for data chip



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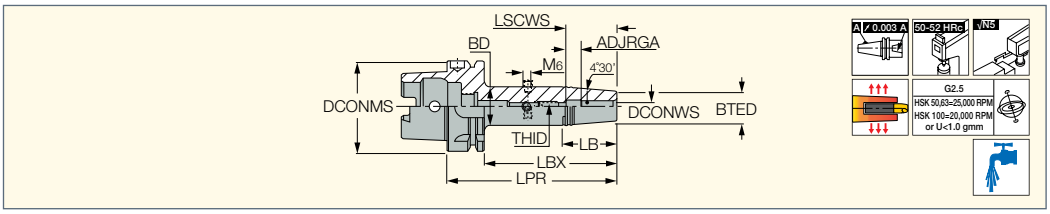
Continued

HSK SHRINKIN

HSK A-SRKIN

Thermal Shrink Chucks
with HSK DIN69893 Form A
Tapered Shanks



Spare Parts

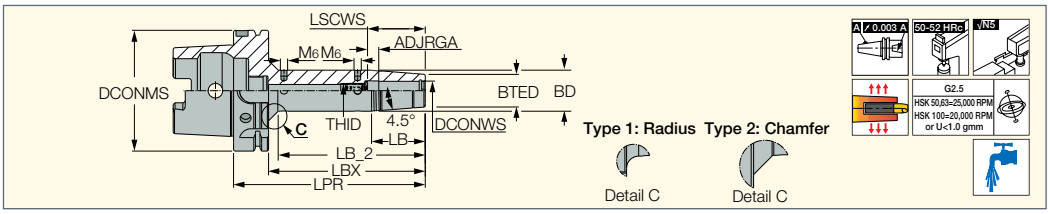
Designation			
HSK A50 SRKIN6X80*	PRESET M5X18B	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A63 SRKIN6X120	PRESET M5X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN6X160	PRESET M5X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN6X80	PRESET M5X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN8X120	PRESET M6X20B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN8X160	PRESET M6X20B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN8X80	PRESET M6X20B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN10X120	PRESET M8X20B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN10X160	PRESET M8X20B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN10X85	PRESET M8X20B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN12X120	PRESET M10X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN12X160	PRESET M10X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN12X90	PRESET M10X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN14X120	PRESET M10X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN14X160	PRESET M10X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN14X90	PRESET M10X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN16X120	PRESET M12X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN16X160	PRESET M12X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN16X75		COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN16X95	PRESET CX M12X16	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN18X120	PRESET M12X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN18X160	PRESET M12X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN18X95	PRESET M12X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN20X100	PRESET M16X20B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN20X120	PRESET M16X20B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN20X160	PRESET M16X20B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN20X75		COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN25X115	PRESET M16X25B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN25X85		COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN32X120	PRESET M16X25B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN32X85		COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A100 SRKIN6X120	PRESET M5X18B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN6X160	PRESET M5X18B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN6X85	PRESET M5X18B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN8X120	PRESET M6X20B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN8X160	PRESET M6X20B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN8X85	PRESET M6X20B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN10X120	PRESET M8X20B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN10X160	PRESET M8X20B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN10X90	PRESET M8X20B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN12X120	PRESET M10X18B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN12X160	PRESET M10X18B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN12X95	PRESET M10X18B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN14X120	PRESET M10X18B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN14X160	PRESET M10X18B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN14X95	PRESET M10X18B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN16X100	PRESET M12X18B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN16X120	PRESET M12X18B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN16X160	PRESET M12X18B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN18X100	PRESET M12X18B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN20X105		COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN20X120	PRESET M16X20B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN20X160	PRESET M16X20B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN25X115	PRESET M16X20B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN32X120	PRESET M16X25B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*

* Optional, to be ordered separately

HSK X-STREAM JET TOOLHOLDING

HSK A-SRKIN-CX

Thermal Shrink Chucks with HSK DIN69893 Form A Tapered Shank and Jet Coolant Grooves along the Shank Bore



Designation	DCONMS	DCONWS	BTED	BD	LB	LB_2	LBX	LPR	ADJRGA	LSCWS	THID	Key(2)	Fig.	DCP(3)	kg
HSK A63 SRKIN6X80 CX	63.00	6.00	21.00	27.00	38.10	49.00	54.00	80.00	9.40	34.00	M5	2.50	1	1	0.83
HSK A63 SRKIN6X120 CX	63.00	6.00	21.00	27.00	38.10	89.00	94.00	120.00	9.40	34.00	M5	2.50	1	1	1.00
HSK A63 SRKIN8X80 CX	63.00	8.00	21.00	27.00	38.10	49.00	54.00	80.00	9.50	34.00	M6	3.00	1	1	0.85
HSK A63 SRKIN8X120 CX	63.00	8.00	21.00	27.00	38.10	89.00	94.00	120.00	9.50	34.00	M6	3.00	1	1	1.05
HSK A63 SRKIN10X85 CX	63.00	10.00	24.00	32.00	50.80	57.50	59.00	85.00	9.30	39.80	M8	4.00	1	1	0.87
HSK A63 SRKIN10X120 CX	63.00	10.00	24.00	32.00	50.80	89.00	94.00	120.00	9.30	39.80	M8	4.00	1	1	1.07
HSK A63 SRKIN12X90 CX	63.00	12.00	24.00	32.00	50.80	59.00	64.00	90.00	9.30	44.80	M10	5.00	1	1	0.90
HSK A63 SRKIN12X120 CX	63.00	12.00	24.00	32.00	50.80	89.00	94.00	120.00	9.30	44.80	M10	5.00	1	1	1.15
HSK A63 SRKIN14X90 CX	63.00	14.00	27.00	34.00	44.50	59.00	64.00	90.00	9.30	44.80	M10	5.00	1	1	1.02
HSK A63 SRKIN16X75 CX (1)	63.00	16.00	27.00	34.00	44.50	47.00	49.00	75.00	7.05	46.00	M5	2.50	1	1	0.82
HSK A63 SRKIN16X95 CX	63.00	16.00	27.00	34.00	44.50	64.00	69.00	95.00	9.30	47.80	M12	6.00	1	1	1.00
HSK A63 SRKIN16X120 CX	63.00	16.00	27.00	34.00	44.50	89.00	94.00	120.00	9.30	47.80	M12	6.00	1	1	1.20
HSK A63 SRKIN18X95 CX	63.00	18.00	33.00	42.00	57.20	66.00	69.00	95.00	9.30	47.80	M12	6.00	1	1	1.20
HSK A63 SRKIN20X75 CX (1)	63.00	20.00	33.00	41.00	-	47.00	49.00	75.00	5.05	46.00	M5	2.50	1	1	0.92
HSK A63 SRKIN20X100 CX	63.00	20.00	33.00	42.00	57.20	69.00	74.00	100.00	8.50	49.00	M16	8.00	1	1	1.18
HSK A63 SRKIN20X120 CX	63.00	20.00	33.00	42.00	57.20	89.00	94.00	120.00	8.50	49.00	M16	8.00	1	1	1.38
HSK A63 SRKIN25X85 CX (1)	63.00	25.00	44.00	52.20	52.10	58.20	59.00	85.00	9.05	56.00	M5	2.50	1	1	1.26
HSK A63 SRKIN32X85 CX	63.00	32.00	44.00	52.20	52.10	58.20	59.00	85.00	5.50	56.00	M5	2.50	1	1	1.11
HSK A100 SRKIN6X85 CX	100.00	6.00	21.00	27.00	38.10	48.00	56.00	85.00	9.70	34.00	M5	2.50	2	1	2.21
HSK A100 SRKIN8X85 CX	100.00	8.00	21.00	27.00	38.10	48.00	56.00	85.00	9.50	34.00	M6	3.00	2	1	2.21
HSK A100 SRKIN10X90 CX	100.00	10.00	24.00	32.00	50.80	53.90	61.00	90.00	9.30	39.80	M8	4.00	2	1	2.29
HSK A100 SRKIN12X95 CX	100.00	12.00	24.00	32.00	50.80	59.00	66.00	95.00	9.30	44.80	M10	5.00	2	1	2.30
HSK A100 SRKIN14X95 CX	100.00	14.00	27.00	34.00	44.50	58.00	66.00	95.00	9.30	44.80	M10	5.00	2	1	2.36
HSK A100 SRKIN16X100 CX	100.00	16.00	27.00	34.00	44.50	63.00	71.00	100.00	9.30	47.80	M12	6.00	2	1	2.37
HSK A100 SRKIN18X100 CX	100.00	18.00	33.00	42.00	57.20	67.00	71.00	100.00	9.30	47.80	M12	6.00	2	1	2.53
HSK A100 SRKIN20X105 CX	100.00	20.00	33.00	42.00	57.20	69.00	76.00	105.00	8.50	49.00	M16	8.00	2	1	2.57
HSK A100 SRKIN25X115 CX	100.00	25.00	44.00	53.00	57.20	81.00	86.00	115.00	8.50	56.00	M16	8.00	1	1	3.07
HSK A100 SRKIN32X120 CX	100.00	32.00	44.00	53.00	57.20	89.00	91.00	120.00	8.50	59.00	M16	8.00	2	1	2.98

- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately)
- Use only inductive heating device for SRKIN holders
- Preset screw CX allows supply of coolant via JET channels - do not remove

(1) Shorter projection than DIN 69882-8, use special IND S DISC

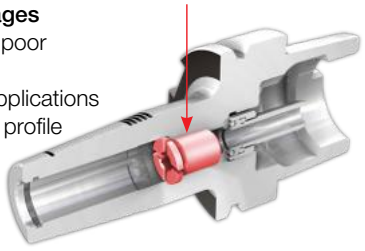
(2) Adjustment screw hexagon key size

(3) 1 - Slot for data chip, 0 - Without slot for data chip

Features

- Increased coolant velocity is obtained due to flow rate conservation and a smaller coolant discharge area
- Coolant directed to cutting edges
- Prolonged tool life
- Eliminates chip sticking at the cutting edges
- Suitable for High Speed Milling
- Effective chip evacuation prevents chip re-cutting

Applications and Advantages



- CNC milling machines with poor external coolant flow
- Cavity and pocket milling applications
- Semi-finishing and finishing profile milling titanium blisk blades
- Milling applications that generate high temperatures, such as very hard alloy steels, high temperature alloys etc.

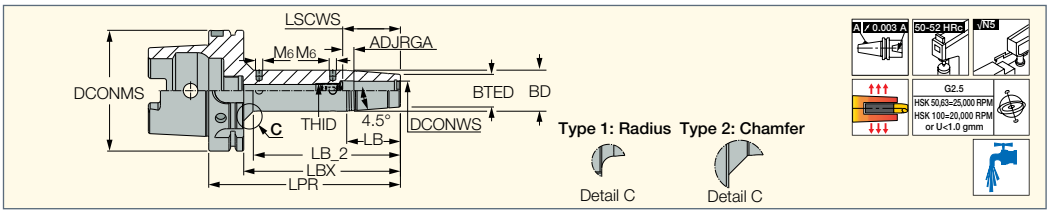
Note: Preset CX screw allows coolant supply via jet channels - do not remove!

Continued

HSK X-STREAM JET TOOLHOLDING

HSK A-SRKIN-CX

Thermal Shrink Chucks with HSK DIN69893 Form A Tapered Shank and Jet Coolant Grooves along the Shank Bore



Spare Parts

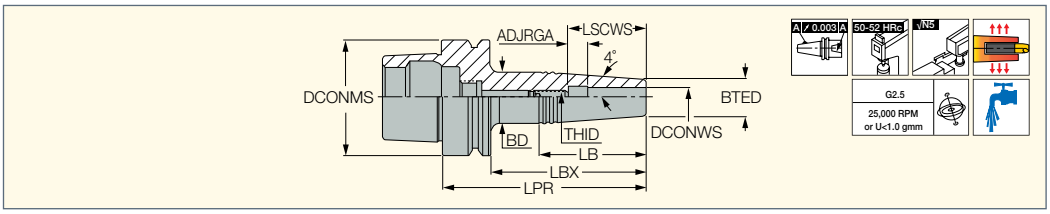
Designation			
HSK A63 SRKIN6X80 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	PRESET CX M5X13
HSK A63 SRKIN6X120 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	PRESET CX M5X13
HSK A63 SRKIN8X80 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	PRESET CX M6X12
HSK A63 SRKIN8X120 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	PRESET CX M6X12
HSK A63 SRKIN10X85 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	PRESET CX M8X16
HSK A63 SRKIN10X120 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	PRESET CX M8X16
HSK A63 SRKIN12X90 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	PRESET CX M10X16
HSK A63 SRKIN12X120 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	PRESET CX M10X16
HSK A63 SRKIN14X90 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	PRESET CX M10X16
HSK A63 SRKIN16X75 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	PRESET CX M5X5
HSK A63 SRKIN16X95 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	PRESET CX M12X16
HSK A63 SRKIN16X120 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	PRESET CX M12X16
HSK A63 SRKIN18X95 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	PRESET CX M12X16
HSK A63 SRKIN20X75 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	PRESET CX M5X5
HSK A63 SRKIN20X100 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	PRESET CX M16X14
HSK A63 SRKIN20X120 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	PRESET CX M16X14
HSK A63 SRKIN25X85 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	PRESET CX M5X5
HSK A63 SRKIN32X85 CX	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	PRESET CX M5X5
HSK A100 SRKIN6X85 CX	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	PRESET CX M5X13
HSK A100 SRKIN8X85 CX	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	PRESET CX M6X12
HSK A100 SRKIN10X90 CX	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	PRESET CX M8X16
HSK A100 SRKIN12X95 CX	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	PRESET CX M10X16
HSK A100 SRKIN14X95 CX	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	PRESET CX M10X16
HSK A100 SRKIN16X100 CX	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	PRESET CX M12X16
HSK A100 SRKIN18X100 CX	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	PRESET CX M12X16
HSK A100 SRKIN20X105 CX	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	PRESET CX M16X14
HSK A100 SRKIN25X115 CX	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	PRESET CX M16X14
HSK A100 SRKIN32X120 CX	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	PRESET CX M16X14

* Optional, to be ordered separately

HSK SHRINKIN

HSK E-SRK

Thermal Chuck Collets with HSK DIN69893 Form E Tapered Shanks for Solid Carbide Tools Only

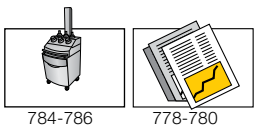


Designation	DCONMS	DCONWS	BTED	BD	LPR	LBX	LB	ADJRGA	LSCWS	THID	Key(1)	DCP(2)	kg
HSK E32 SRK3X45	32.00	3.00	10.00	13.00	65.00	45.0	30.00	6.00	16.0	M4	2.00	0	0.17
HSK E32 SRK4X45	32.00	4.00	10.00	15.00	65.00	45.0	35.00	6.00	18.0	M5	2.00	0	0.17
HSK E32 SRK6X45	32.00	6.00	11.00	16.00	65.00	45.0	35.00	10.00	28.0	M4	2.00	0	0.17
HSK E32 SRK10X45	32.00	10.00	16.00	22.00	65.00	45.0	42.00	10.00	40.0	M4	2.00	0	0.20
HSK E40 SRK3X45	40.00	3.00	10.00	13.00	65.00	45.0	30.00	6.00	16.0	M5	2.50	0	0.24
HSK E40 SRK3X80	40.00	3.00	10.00	19.00	100.00	80.0	64.00	6.00	16.0	M5	2.50	0	0.30
HSK E40 SRK4X45	40.00	4.00	10.00	15.00	65.00	45.0	35.00	6.00	18.0	M5	2.50	0	0.24
HSK E40 SRK4X80	40.00	4.00	10.00	19.00	100.00	80.0	64.00	6.00	18.0	M5	2.50	0	0.31
HSK E40 SRK5X45	40.00	5.00	10.00	15.00	65.00	45.0	35.00	10.00	25.0	M4	2.00	0	0.24
HSK E40 SRK5X80	40.00	5.00	10.00	19.00	100.00	80.0	64.00	10.00	25.0	M4	2.00	0	0.32
HSK E40 SRK6X45	40.00	6.00	11.00	16.00	65.00	45.0	35.00	10.00	28.0	M5	2.50	0	0.23
HSK E40 SRK6X80	40.00	6.00	11.00	20.00	100.00	80.0	64.00	10.00	28.0	M5	2.50	0	0.32
HSK E40 SRK8X45	40.00	8.00	14.00	20.00	65.00	45.0	42.00	10.00	35.0	M5	2.50	0	0.27
HSK E40 SRK10X45	40.00	10.00	16.00	22.00	65.00	45.0	42.00	10.00	40.0	M5	2.50	0	0.27
HSK E40 SRK10X80	40.00	10.00	16.00	24.50	100.00	80.0	60.00	10.00	40.0	M8	4.00	0	0.39
HSK E40 SRK12X45	40.00	12.00	20.00	26.00	65.00	45.0	42.00	10.00	42.0	M5	2.50	0	0.32
HSK E40 SRK12X80	40.00	12.00	20.00	28.00	100.00	80.0	56.00	10.00	42.0	M10	5.00	0	0.46
HSK E50 SRK3X45	50.00	3.00	10.00	15.00	71.00	45.0	36.00	6.00	16.0	M5	2.50	0	0.45
HSK E50 SRK3X80	50.00	3.00	10.00	19.00	106.00	80.0	64.00	6.00	16.0	M5	2.50	0	0.51
HSK E50 SRK4X45	50.00	4.00	10.00	15.00	71.00	45.0	36.00	6.00	18.0	M5	2.50	0	0.49
HSK E50 SRK4X80	50.00	4.00	10.00	19.00	106.00	80.0	64.00	6.00	18.0	M5	2.50	0	0.50
HSK E50 SRK6X45	50.00	6.00	11.00	16.00	71.00	45.0	36.00	10.00	28.0	M5	2.50	0	0.45
HSK E50 SRK6X80	50.00	6.00	11.00	20.00	106.00	80.0	64.00	10.00	28.0	M5	2.50	0	0.51
HSK E50 SRK8X 45	50.00	8.00	14.00	20.00	71.00	45.0	43.00	10.00	35.0	M6	3.00	0	0.47
HSK E50 SRK8X 80	50.00	8.00	14.00	23.00	106.00	80.0	64.00	10.00	35.0	M6	3.00	0	0.56
HSK E50 SRK10X45	50.00	10.00	16.00	22.00	71.00	45.0	42.00	10.00	40.0	M6	3.00	0	0.48
HSK E50 SRK10X80	50.00	10.00	16.00	24.50	106.00	80.0	60.00	10.00	40.0	M8	4.00	0	0.60
HSK E50 SRK12X45	50.00	12.00	20.00	26.00	71.00	45.0	42.00	10.00	42.0	M6	3.00	0	0.50

• A cooling tube must be used with all coolant through HSK spindles (to be ordered separately). • To be used for carbide tools only.

(1) Adjustment screw hexagon key size

(2) 1 - Slot for data chip, 0 - Without slot for data chip



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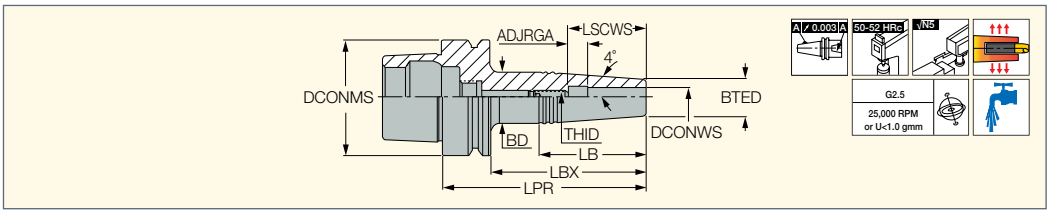
HSK SHRINKIN

HSK E-SRK
Thermal Chuck Collets with HSK DIN69893 Form E Tapered Shanks for Solid Carbide Tools Only



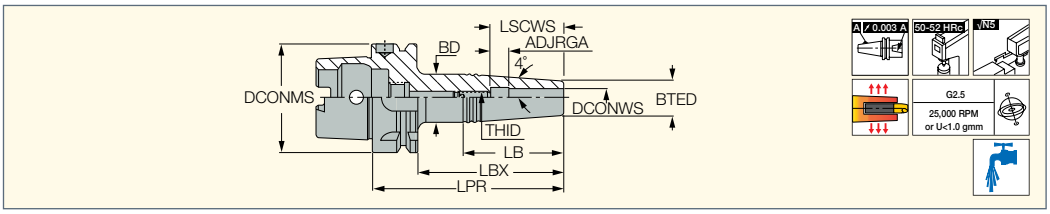
Spare Parts

Designation			
HSK E32 SRK3X45	SR M4X10 DIN913	COOLING TUBE HSK A32*	WRENCH COOL TUBE HSK32*
HSK E32 SRK4X45	SR M5X20 DIN913	COOLING TUBE HSK A32*	WRENCH COOL TUBE HSK32*
HSK E32 SRK6X45	SR M4X20 DIN916	COOLING TUBE HSK A32*	WRENCH COOL TUBE HSK32*
HSK E32 SRK10X45	SR M4X20 DIN916	COOLING TUBE HSK A32*	WRENCH COOL TUBE HSK32*
HSK E40 SRK3X45	SR M5X10 DIN913	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E40 SRK3X80	SR M5X10 DIN913	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E40 SRK4X45	SR M5X10 DIN913	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E40 SRK4X80	SR M5X10 DIN913	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E40 SRK5X45	SR M4X20 DIN916	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E40 SRK5X80	SR M4X20 DIN916	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E40 SRK6X45	SR M5X20 DIN913	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E40 SRK6X80	SR M5X20 DIN913	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E40 SRK8X45	SR M5X20 DIN913	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E40 SRK10X45	SR M5X10 DIN913	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E40 SRK10X80	SR M8X20 DIN913	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E40 SRK12X45	SR M5X10 DIN913	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E40 SRK12X80	SR M10X18 DIN913	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E50 SRK3X45	SR M5X10 DIN913	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK E50 SRK3X80	SR M5X10 DIN913	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK E50 SRK4X45	SR M5X10 DIN913	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK E50 SRK4X80	SR M5X10 DIN913	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK E50 SRK6X45	SR M5X20 DIN913	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK E50 SRK6X80	SR M5X20 DIN913	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK E50 SRK8X 45	SR M6X10 DIN916	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK E50 SRK8X 80	PRESET M6X20B	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK E50 SRK10X45	SR M6X10 DIN916	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK E50 SRK10X80	SR M8X12 DIN916	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK E50 SRK12X45	SR M6X10 DIN916	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*

* Optional, to be ordered separately

HSK SHRINKIN

HSK A-SRK
Thermal Chuck Collets with HSK DIN69893 Form A Tapered Shanks for Solid Carbide Tools Only

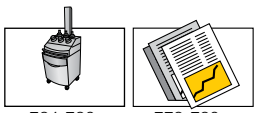


Designation	DCONMS	DCONWS	BTED	BD	LPR	LBX	LB	ADJRGA	LSCWS	THID	Key(1)	DCP(2)	kg
HSK A63 SRK 3X50	63.00	3.00	10.00	17.00	76.00	50.0	-	6.00	16.0	M6	3.00	1	0.68
HSK A63 SRK 3X85	63.00	3.00	10.00	21.00	111.00	85.0	79.00	6.00	16.0	M6	3.00	1	0.74
HSK A63 SRK 4X50	63.00	4.00	10.00	17.00	76.00	50.0	-	6.00	18.0	M6	3.00	1	0.68
HSK A63 SRK 4X85	63.00	4.00	10.00	21.00	111.00	85.0	79.00	6.00	18.0	M6	3.00	1	0.73
HSK A63 SRK 5X50	63.00	5.00	10.00	17.00	76.00	50.0	-	6.00	21.0	M6	3.00	1	0.68
HSK A63 SRK 5X85	63.00	5.00	10.00	21.00	111.00	85.0	79.00	6.00	21.0	M6	3.00	1	0.76
HSK A63 SRK 6X50	63.00	6.00	11.00	18.00	76.00	50.0	-	6.00	24.0	M8	4.00	1	0.67
HSK A63 SRK 6X85	63.00	6.00	11.00	22.00	111.00	85.0	79.00	6.00	24.0	M8	4.00	1	0.74
HSK A63 SRK 8X50	63.00	8.00	14.00	20.00	76.00	50.0	43.00	11.00	36.0	M6	3.00	1	0.71
HSK A63 SRK 8X85	63.00	8.00	14.00	23.00	111.00	85.0	64.00	11.00	36.0	M6	3.00	1	0.80
HSK A63 SRK 10X50	63.00	10.00	16.00	23.00	76.00	50.0	-	11.00	41.0	M8	4.00	1	0.72
HSK A63 SRK 10X85	63.00	10.00	16.00	26.00	111.00	85.0	72.00	11.00	41.0	M8	4.00	1	0.82
HSK A63 SRK 12X50	63.00	12.00	20.00	27.00	76.00	50.0	-	11.00	43.0	M8	4.00	1	0.75
HSK A63 SRK 12X85	63.00	12.00	20.00	30.00	111.00	85.0	72.00	11.00	43.0	M8	4.00	1	0.92

- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately). • To be used for carbide tools only.
- Remove preset screw for coolant through.

(1) Key for the adjustment screw.

(2) 1 - Slot for data chip, 0 - Without slot for data chip



784-786 778-780

Spare Parts

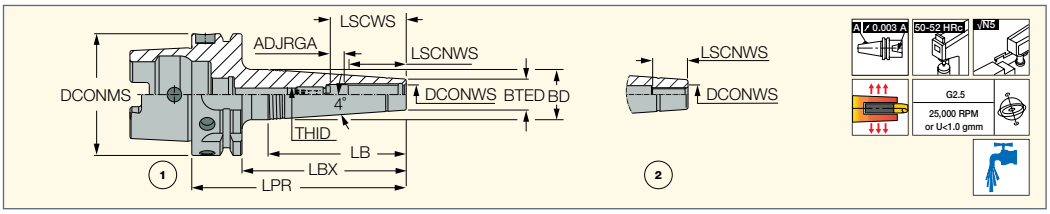
Designation			
HSK A63 SRK 3X50	SR M6X10 DIN916	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 3X85	SR M6X10 DIN916	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 4X50	SR M6X10 DIN916	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 4X85	SR M6X10 DIN916	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 5X50	SR M6X10 DIN916	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 5X85	SR M6X10 DIN916	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 6X50	SR M8X12 DIN916	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 6X85	SR M8X12 DIN916	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 8X50	PRESET M6X20B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 8X85	PRESET M6X20B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 10X50	SR M8X12 DIN916	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 10X85	SR M8X20 DIN913	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 12X50	SR M8X12 DIN916	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 12X85	SR M8X20 DIN913	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*

* Optional, to be ordered separately

HSK X-STREAM JET TOOLHOLDING

HSK A-SRK-CX

Thermal Shrink Chucks with HSK DIN69893 Form A Tapered Shank and Jet Coolant Grooves for Solid Carbide Tools Only



Designation	DCONMS	DCONWS	BTED	BD	LPR	LBX	LB	ADJRGA	LSCWS	LSCNWS	THID	Key	DCP(2)	Fig.	kg
HSK A63 SRK 3X50 CX (1)	63.00	3.00	10.00	17.00	76.00	50.00	-	-	-	10.00	-	-	1	2	0.77
HSK A63 SRK 3X85 CX (1)	63.00	3.00	10.00	21.00	111.00	85.00	78.70	-	-	10.00	-	-	1	2	0.84
HSK A63 SRK 4X50 CX (1)	63.00	4.00	10.00	17.00	76.00	50.00	-	-	-	12.00	-	-	1	2	0.77
HSK A63 SRK 4X85 CX (1)	63.00	4.00	10.00	21.00	111.00	85.00	78.70	-	-	12.00	-	-	1	2	0.83
HSK A63 SRK 5X50 CX (1)	63.00	5.00	10.00	17.00	76.00	50.00	-	-	-	15.00	-	-	1	2	0.62
HSK A63 SRK 5X85 CX (1)	63.00	5.00	10.00	21.00	111.00	85.00	78.70	-	-	15.00	-	-	1	2	0.83
HSK A63 SRK 6X50 CX	63.00	6.00	11.00	18.00	76.00	50.00	-	8.90	26.90	18.00	M5	2.50	1	1	0.68
HSK A63 SRK 6X85 CX	63.00	6.00	11.00	22.00	111.00	85.00	78.70	8.90	26.90	18.00	M5	2.50	1	1	0.76
HSK A63 SRK 8X50 CX	63.00	8.00	14.00	20.00	76.00	50.00	42.90	9.50	34.50	25.00	M6	3.00	1	1	0.69
HSK A63 SRK 8X85 CX	63.00	8.00	14.00	23.00	111.00	85.00	64.40	9.50	34.50	25.00	M6	3.00	1	1	0.90
HSK A63 SRK 10X50 CX	63.00	10.00	16.00	23.00	76.00	50.00	-	9.50	39.50	30.00	M6	3.00	1	1	0.81
HSK A63 SRK 10X85 CX	63.00	10.00	16.00	26.00	111.00	85.00	71.50	9.30	39.30	30.00	M8	4.00	1	1	0.56
HSK A63 SRK 12X50 CX	63.00	12.00	20.00	27.00	76.00	50.00	-	9.50	41.50	32.00	M6	3.00	1	1	0.85
HSK A63 SRK 12X85 CX	63.00	12.00	20.00	30.00	111.00	85.00	71.50	9.30	41.30	32.00	M10	5.00	1	1	1.01

New

- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately).
- For solid carbide tools
- Preset screw CX allows supply of coolant via JET channels - not to be removed!

(1) Without preset screw

(2) 1 - Slot for data chip, 0 - Without slot for data chip

Spare Parts

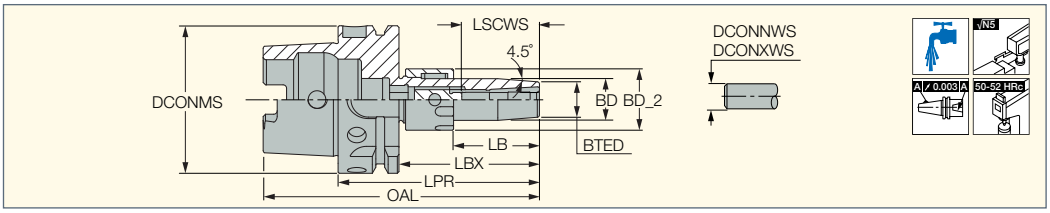
Designation			
HSK A63 SRK 3X50 CX		COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 3X85 CX		COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 4X50 CX		COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 4X85 CX		COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 5X50 CX		COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 5X85 CX		COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 6X50 CX	PRESET CX M5X13	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 6X85 CX	PRESET CX M5X13	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 8X50 CX	PRESET CX M6X12	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 8X85 CX	PRESET CX M6X12	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 10X50 CX	PRESET CX M6X12	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 10X85 CX	PRESET CX M8X16	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 12X50 CX	PRESET CX M6X12	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 12X85 CX	PRESET CX M10X16	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*

* Optional, to be ordered separately

HSK QUICKCLAMP

HSK-A-MS

QUICK-CLAMP System for Small Cutting Tools with HSK ISO12164-1 Shank



Designation	DCONNWS(1)	DCONXWS(2)	BTED	BD	BD_2	LB	LBX	LPR	OAL	DCONMS	LSCWS	DCP(3)
HSK A63 MS6X60	3.00	6.00	15.00	17.80	26.20	36.00	60.00	86.00	118.00	63.00	33.00	1

New

(1) Minimum diameter

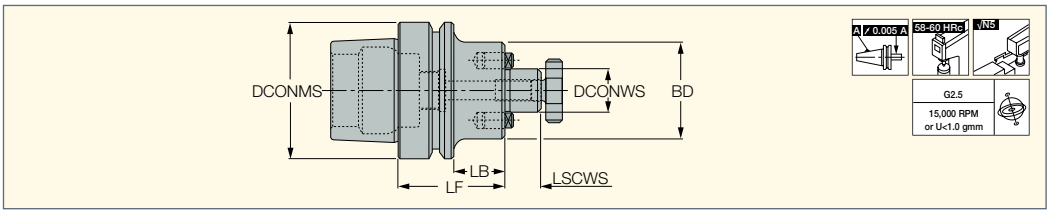
(2) Maximum diameter

(3) 1 - Slot for data chip, 0 - Without slot for data chip

HSK

HSK E-SEM

ISO 3937 Shell Mill Holders
with HSK E DIN69893
Form E Tapered Shanks



Designation	DCONMS	DCONWS	BD	LF	LB	LSCWS	DCP(1)	kg
HSK E40 SEM 22X50	40.00	22.00	47.00	50.00	30.0	19.00	0	0.54

• A cooling tube must be used with all coolant through HSK spindles (to be ordered separately). • For internal coolant through the holder, the related COOLANT SET to be ordered via Accessories (applicable to certain tools only)

(1) 1 - Slot for data chip, 0 - Without slot for data chip

Spare Parts

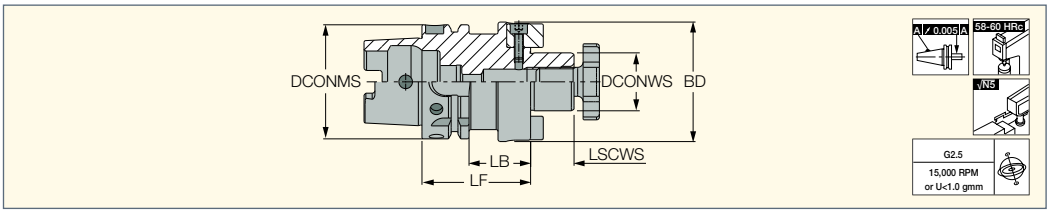
Designation					
HSK E40 SEM 22X50	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*	DR.DOG 10S

* Optional, to be ordered separately

HSK

HSK A-SEM

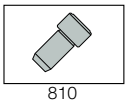
ISO 3937 Shell Mill Holders
with HSK DIN69893 Form A
Tapered Shanks



Designation	DCONMS	DCONWS	BD	LF	LSCWS	LB	DCP(1)	kg
HSK A63 SEM16X50	63.00	16.00	38.00	50.00	17.00	24.0	1	0.86
HSK A63 SEM22X50	63.00	22.00	47.00	50.00	19.00	24.0	1	0.60
HSK A63 SEM27X60	63.00	27.00	58.00	60.00	21.00	34.0	1	1.30
HSK A63 SEM32X60	63.00	32.00	66.00	60.00	24.00	34.0	1	1.41
HSK A63 SEM40X60	63.00	40.00	82.00	60.00	27.00	24.0	1	1.76
HSK A100 SEM22X50	100.00	22.00	47.00	50.00	19.00	21.0	1	2.30
HSK A100 SEM27X50	100.00	27.00	58.00	50.00	21.00	21.0	1	2.48
HSK A100 SEM32X50	100.00	32.00	66.00	50.00	24.00	21.0	1	2.63
HSK A100 SEM40X60	100.00	40.00	82.00	60.00	27.00	31.0	1	3.37
HSK A100 SEM50X70	100.00	50.00	81.00	70.00	30.00	41.0	1	4.29

• A cooling tube must be used with all coolant through HSK spindles (to be ordered separately). • For internal coolant through the holder, the related COOLANT SET to be ordered via Accessories (applicable to certain tools only)

(1) 1 - Slot for data chip, 0 - Without slot for data chip



810

Spare Parts

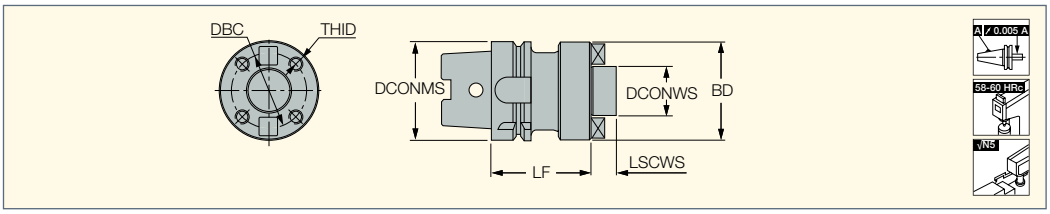
Designation						
HSK A63 SEM16X50	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	DR.DOG 8S	SR M3X10DIN912
HSK A63 SEM22X50	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	DR.DOG 10S	SR M4X10DIN912
HSK A63 SEM27X60	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	DR.DOG 12S	SR M5X14DIN912
HSK A63 SEM32X60	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	DR.DOG 14X13S	SR M5X14DIN912
HSK A63 SEM40X60	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	DR.DOG 16X18S	SR M6X20 DIN912
HSK A100 SEM22X50	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	DR.DOG 10S	SR M4X10DIN912
HSK A100 SEM27X50	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	DR.DOG 12S	SR M5X14DIN912
HSK A100 SEM32X50	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	DR.DOG 14X13S	SR M5X14DIN912
HSK A100 SEM40X60	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	DR.DOG 16X18S	SR M6X20 DIN912
HSK A100 SEM50X70	M24 CLAMP SCREW SEM50	WRENCH M12 SEMC 27*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*		SR M6X16 DIN912

* Optional, to be ordered separately

HSK

HSK A-FM

DIN 6357 Face Mill Holders with HSK DIN 69893 Form A Tapered Shanks



Designation	DCONMS	DCONWS	BD	LF	LSCWS	DBC	THID	DCP(1)	kg			
HSK A100 FM60X70	100.00	60.00	128.00	70.00	40.00	101.60	M16	1	5.77	DR. DOG 1E	SR M12X25 DIN 912	SR M16X50 DIN912

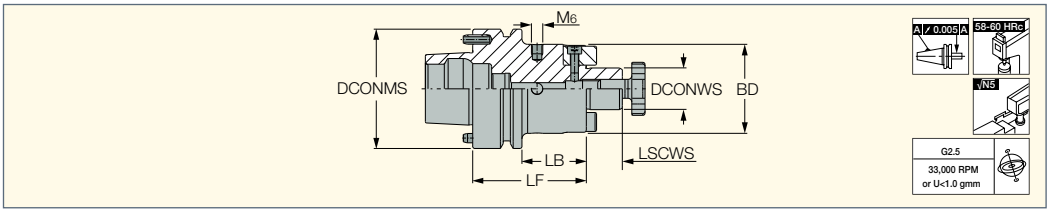
- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately).
- Peripheral clamping screws are not supplied.

(1) 1 - Slot for data chip, 0 - Without slot for data chip

HSK

HSK FM-SEM

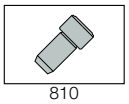
Shell Mill Adapters with HSK DIN69893 FM Tapered Shanks with Two Pins for MAKINO Machine MAG Models



Designation	DCONMS	DCONWS	LF	BD	LSCWS	LB	DCP(1)	kg
HSK FM63 SEM 22X60	63.00	22.00	60.00	47.00	19.00	34.0	0	1.13

- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately)
- The orientation pins can be removed, turning the toolholder into a standard HSK F63 type
- For internal coolant through the holder, the related COOLANT SET should be ordered via Accessories (select tools only)

(1) 1 - Slot for data chip, 0 - Without slot for data chip



810

Spare Parts

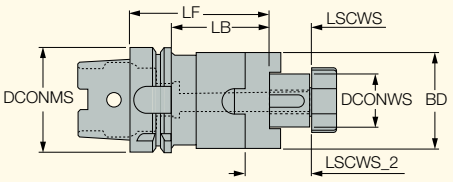
Designation					
HSK FM63 SEM 22X60	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*	DR.DOG 10S

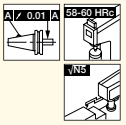
* Optional, to be ordered separately

HSK

HSK A-SEMC

DIN 6358 COMBI Shell Mill Holders with HSK DIN 69893 Form A Tapered Shanks



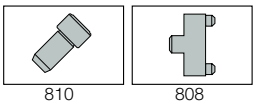


For internal coolant through the holder, the related COOLANT SET should be ordered via Accessories (applicable to certain tools only)

Designation	DCONMS	DCONWS	BD	LF	LB	LSCWS	LSCWS_2	DCP(1)	kg
HSK A63 SEMC16X60	63.00	16.00	32.00	60.00	34.0	17.00	27.00	1	0.82
HSK A63 SEMC22X60	63.00	22.00	40.00	60.00	34.0	19.00	31.00	1	0.91
HSK A63 SEMC27X60	63.00	27.00	48.00	60.00	34.0	21.00	33.00	1	1.00
HSK A63 SEMC32X60	63.00	32.00	58.00	60.00	34.0	24.00	38.00	1	1.13
HSK A63 SEMC40X70	63.00	40.00	70.00	70.00	44.0	27.00	41.00	1	1.52
HSK A100 SEMC16X60	100.00	16.00	32.00	60.00	31.0	17.00	27.00	1	2.17
HSK A100 SEMC22X60	100.00	22.00	40.00	60.00	31.0	19.00	31.00	1	2.24
HSK A100 SEMC27X60	100.00	27.00	48.00	60.00	31.0	21.00	33.00	1	2.35
HSK A100 SEMC32X60	100.00	32.00	58.00	60.00	31.0	24.00	38.00	1	2.50
HSK A100 SEMC40X70	100.00	40.00	70.00	70.00	41.0	27.00	41.00	1	3.04
HSK A100 SEMC50X80	100.00	50.00	90.00	80.00	51.0	30.00	46.00	1	4.03

- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately).
- When mounting slitting cutters, remove the driving ring and use spacer rings.
- Verify that the weight of the entire tool as sembly does not exceed the machine spindle's carrying capability.

(1) 1 - Slot for data chip, 0 - Without slot for data chip



810 808

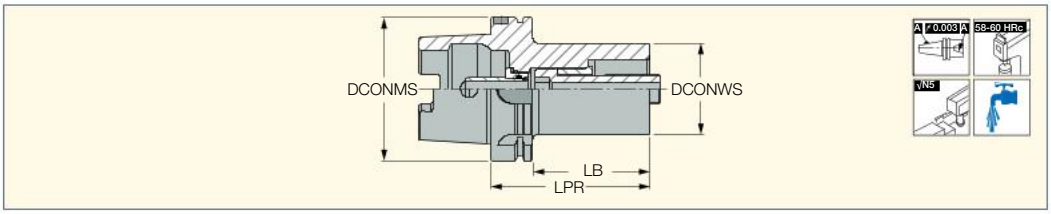
Spare Parts

Designation						
HSK A63 SEMC16X60	16 D.RING SEMC	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	KEY SEMC 16 4X4X20
HSK A63 SEMC22X60	22 D.RING SEMC	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	KEY SEMC 22 6X6X25
HSK A63 SEMC27X60	27 D.RING SEMC	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	KEY SEMC 27 7X7X25
HSK A63 SEMC32X60	32 D.RING SEMC	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	KEY SEMC 32 8X7X28
HSK A63 SEMC40X70	40 D.RING SEMC	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	KEY SEMC 40 10X8X32
HSK A100 SEMC16X60	16 D.RING SEMC	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	KEY SEMC 16 4X4X20
HSK A100 SEMC22X60	22 D.RING SEMC	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	KEY SEMC 22 6X6X25
HSK A100 SEMC27X60	27 D.RING SEMC	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	KEY SEMC 27 7X7X25
HSK A100 SEMC32X60	32 D.RING SEMC	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	KEY SEMC 32 8X7X28
HSK A100 SEMC40X70	40 D.RING SEMC	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	KEY SEMC 40 10X8X32
HSK A100 SEMC50X80	50 D.RING SEMC	M24 CLAMP SCREW SEM50	WRENCH M24 SEMC 50*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	KEY SEMC 50 12X8X36

* Optional, to be ordered separately

HSK CAMFIX

HSK-C#
CAMFIX (ISO 26623-1)
Holders with HSK ISO 12164-3
Form A Tapered Shanks



Designation	DCONMS	DCONWS	LPR	LB	DCP(1)	kg
C4 AD HSK A63WHX080	63.00	40.00	80.00	54.00	1	1.10
C5 AD HSK A63WHX90	63.00	50.00	90.00	64.00	1	1.44
C5 AD HSK A100WHX100	100.00	50.00	100.00	71.00	1	2.90
C6 AD HSK A100WHX110	100.00	63.00	110.00	81.00	1	3.61
C8 AD HSK A100WHX120	100.00	80.00	120.00	91.00	1	4.79

- Note: To enable clamping the part to be attached, first remove the cooling tube

(1) 1 - Slot for data chip, 0 - Without slot for data chip

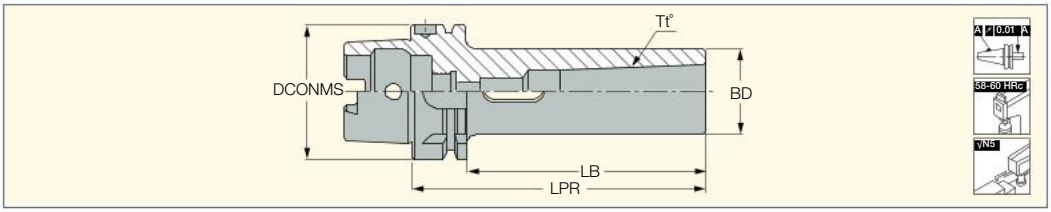
Spare Parts

Designation						
C4 AD HSK A63WHX080	SR M14X58 C4	HW 8.0*	MT RING M22X17XC4	COOLING TUBE HSK A63	WRENCH COOL TUBE HSK63*	WRENCH C4 DRW NUT*
C5 AD HSK A63WHX90	SR M16X70 C5	HW 10.0*	MT RING M25X20XC5	COOLING TUBE HSK A63	WRENCH COOL TUBE HSK63*	WRENCH C5 DRW NUT*
C5 AD HSK A100WHX100	SR M16X70 C5	HW 10.0*	MT RING M25X20XC5	COOLING TUBE HSK A100	WRENCH COOL TUBE HSK100*	WRENCH C5 DRW NUT*
C6 AD HSK A100WHX110	SR M20X87 C6/8	HW 14.0*	MT RING M30X24XC6/8	COOLING TUBE HSK A100C6/8	WRENCH COOL TUBE HSK100*	WRENCH C6-8 DRW NUT*
C8 AD HSK A100WHX120	SR M20X87 C6/8	HW 14.0*	MT RING M30X24XC6/8	COOLING TUBE HSK A100C6/8	WRENCH COOL TUBE HSK100*	WRENCH C6-8 DRW NUT*

* Optional, to be ordered separately

HSK

HSK A-MT
DIN 6383/DIN 228-2
Form D Tang Morse Taper
Adapters with DIN 69893/A
HSK Tapered Shanks

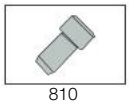


Designation	DCONMS	Tt°	BD	LPR	LB	DCP(1)	kg		
HSK A63 MT1X110	63.00	MT1	25.00	110.00	84.0	1	0.92	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 MT2X120	63.00	MT2	32.00	120.00	94.0	1	1.09	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 MT3X140	63.00	MT3	40.00	140.00	114.0	1	1.45	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 MT4X160	63.00	MT4	48.00	160.00	134.0	1	1.89	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A100 MT1X110	100.00	MT1	25.00	110.00	81.0	1	2.27	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 MT2X120	100.00	MT2	32.00	120.00	91.0	1	2.39	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 MT3X150	100.00	MT3	40.00	150.00	121.0	1	2.83	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 MT4X170	100.00	MT4	48.00	170.00	141.0	1	3.31	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 MT5X200	100.00	MT5	63.00	200.00	171.0	1	4.60	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*

- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately).

(1) 1 - Slot for data chip, 0 - Without slot for data chip

* Optional, to be ordered separately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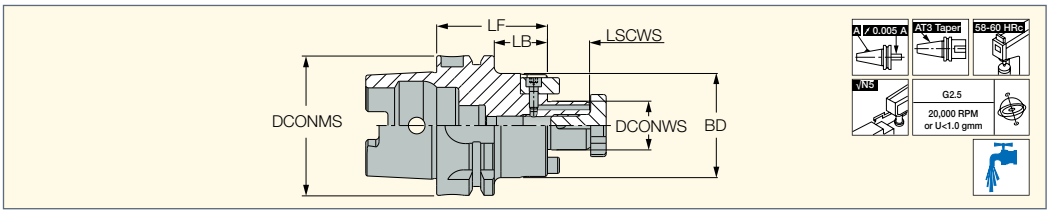
HSK

HSK A-SEM-C

Shell Mill Holders with Coolant Holes and DIN69893 form A HSK Tapered Shanks



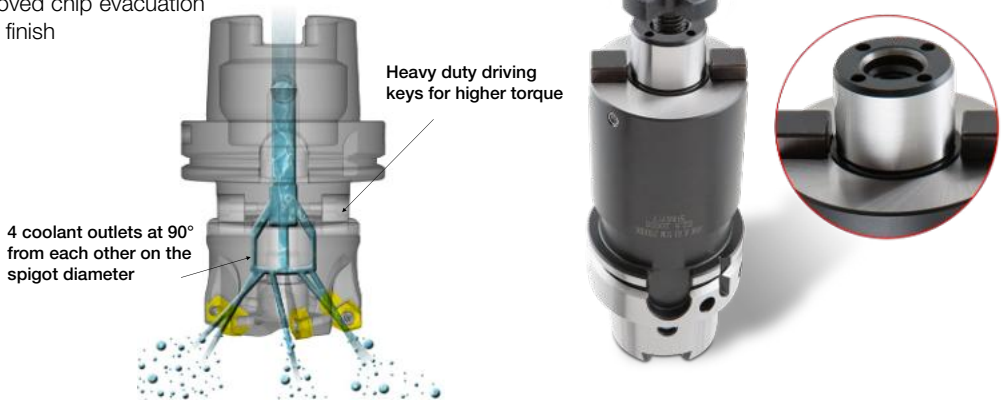
Designation	DCONMS	DCONWS	BD	LF	LB	LSCWS	DCP(1)	kg
HSK A63 SEM16X50C	63.00	16.00	38.00	50.00	24.0	17.00	1	0.84
HSK A63 SEM16X100C	63.00	16.00	38.00	100.00	74.0	17.00	1	1.16
HSK A63 SEM22X50C	63.00	22.00	47.00	50.00	24.0	19.00	1	0.97
HSK A63 SEM22X100C	63.00	22.00	47.00	100.00	74.0	19.00	1	1.68
HSK A63 SEM27X60C	63.00	27.00	58.00	60.00	34.0	21.00	1	1.28
HSK A63 SEM27X100C	63.00	27.00	58.00	100.00	74.0	21.00	1	2.00
HSK A63 SEM32X60C	63.00	32.00	66.00	60.00	34.0	24.00	1	1.38
HSK A63 SEM32X78X60C	63.00	32.00	78.00	60.00	34.0	24.00	1	1.90
HSK A63 SEM32X78X100C	63.00	32.00	78.00	100.00	74.0	24.00	1	3.33
HSK A100 SEM16X50C	100.00	16.00	38.00	50.00	21.0	17.00	1	2.20
HSK A100 SEM16X100C	100.00	16.00	38.00	100.00	71.0	17.00	1	2.59
HSK A100 SEM22X50C	100.00	22.00	47.00	50.00	21.0	19.00	1	1.50
HSK A100 SEM22X100C	100.00	22.00	47.00	100.00	71.0	19.00	1	3.15
HSK A100 SEM27X50C	100.00	27.00	58.00	50.00	21.0	21.00	1	2.70
HSK A100 SEM27X100C	100.00	27.00	58.00	100.00	71.0	21.00	1	3.46
HSK A100 SEM32X50C	100.00	32.00	66.00	50.00	21.0	24.00	1	2.60
HSK A100 SEM32X100C	100.00	32.00	66.00	100.00	71.0	24.00	1	2.81
HSK A100 SEM32X78X60C	100.00	32.00	78.00	60.00	31.0	24.00	1	3.33
HSK A100 SEM32X78X100C	100.00	32.00	78.00	100.00	71.0	24.00	1	4.80

- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately).

(1) 1 - Slot for data chip, 0 - Without slot for data chip

Advantages

- Prolonged insert life (especially when milling titanium and aluminum)
- Symmetrical design – may be used at high RPM
- Heavy duty driving keys for higher torque transfer
- Dramatically improved chip evacuation
- Improved surface finish



Spare Parts

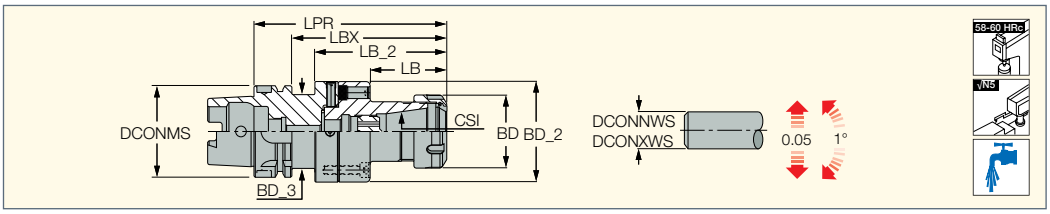
Designation						
HSK A63 SEM16X50C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	WRENCH M8 SEMC16*
HSK A63 SEM16X100C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	WRENCH M8 SEMC16*
HSK A63 SEM22X50C	M10 CLAMP SCREW SEM22	DR.DOG 10S	SR M4X10DIN912	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	WRENCH M10 SEMC 22*
HSK A63 SEM22X100C	M10 CLAMP SCREW SEM22	DR.DOG 10S	SR M4X10DIN912	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	WRENCH M10 SEMC 22*
HSK A63 SEM27X60C	M12 CLAMP SCREW SEM27	DR.DOG 12S	SR M5X12 DIN912	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	WRENCH M12 SEMC 27*
HSK A63 SEM27X100C	M12 CLAMP SCREW SEM27	DR.DOG 12S	SR M5X12 DIN912	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	WRENCH M12 SEMC 27*
HSK A63 SEM32X60C	M16 CLAMP SCREW SEM32	DR.DOG 14X13S	SR M5X14DIN912	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	WRENCH M16 SEMC 32*
HSK A63 SEM32X78X60C	M16 CLAMP SCREW SEM32	DR.DOG 14X13S	SR M5X14DIN912	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	WRENCH M16 SEMC 32*
HSK A63 SEM32X78X100C	M16 CLAMP SCREW SEM32	DR.DOG 14X13S	SR M5X14DIN912	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	WRENCH M16 SEMC 32*
HSK A100 SEM16X50C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	WRENCH M8 SEMC16*
HSK A100 SEM16X100C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	WRENCH M8 SEMC16*
HSK A100 SEM22X50C	M10 CLAMP SCREW SEM22	DR.DOG 10S	SR M4X10DIN912	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	WRENCH M10 SEMC 22*
HSK A100 SEM22X100C	M10 CLAMP SCREW SEM22	DR.DOG 10S	SR M4X10DIN912	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	WRENCH M10 SEMC 22*
HSK A100 SEM27X50C	M12 CLAMP SCREW SEM27	DR.DOG 12S	SR M5X12 DIN912	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	WRENCH M12 SEMC 27*
HSK A100 SEM27X100C	M12 CLAMP SCREW SEM27	DR.DOG 12S	SR M5X12 DIN912	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	WRENCH M12 SEMC 27*
HSK A100 SEM32X50C	M16 CLAMP SCREW SEM32	DR.DOG 14X13S	SR M5X14DIN912	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	WRENCH M16 SEMC 32*
HSK A100 SEM32X100C	M16 CLAMP SCREW SEM32	DR.DOG 14X13S	SR M5X14DIN912	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	WRENCH M16 SEMC 32*
HSK A100 SEM32X78X60C	M16 CLAMP SCREW SEM32	DR.DOG 14X13S	SR M5X14DIN912	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	WRENCH M16 SEMC 32*
HSK A100 SEM32X78X100C	M16 CLAMP SCREW SEM32	DR.DOG 14X13S	SR M5X14DIN912	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	WRENCH M16 SEMC 32*

* Optional, to be ordered separately

HSK FINEFIT

ADJ HSK A-ER

DIN6499 ER Collet Chucks with Center Alignment (FINE-FIT) and HSK DIN69893/A Tapered Shanks



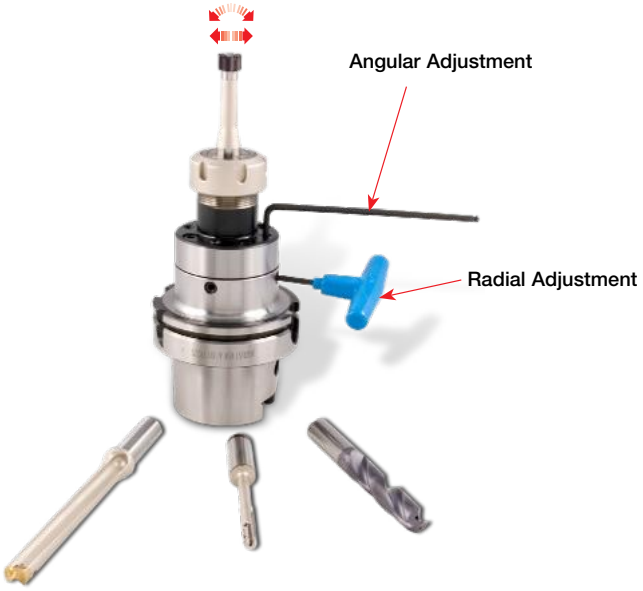
Designation	DCONMS	CSI	DCONNWS(1)	DCONXWS(2)	BD_2	BD_3	BD	LPR	LBX	LB	LB_2	DCP(3)	kg
ADJ HSK A63 D70 ER32	63.00	ER32	2.0	20.0	70.00	46.00	50.00	134.50	108.5	52.50	92.50	1	2.25
ADJ HSK A100 D70 ER32	100.00	ER32	2.0	20.0	70.00	-	50.00	130.00	101.0	53.00	-	1	3.64

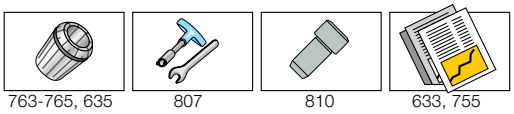
- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately). • Radial adjustment 0.05 mm Angular adjustment 1°

(1) Minimum diameter

(2) Maximum diameter

(3) 1 - Slot for data chip, 0 - Without slot for data chip





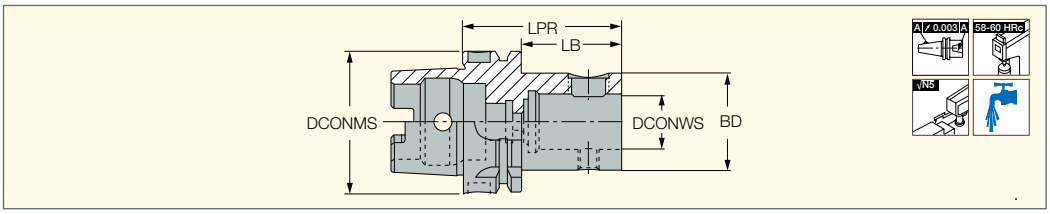
763-765, 635 | 807 | 810 | 633, 755

Spare Parts

Designation	
ADJ HSK A-ER	ADJ ER32 NOSE

HSK CLICKFIT

HSK A-CF (CLICK-FIT)
Modular Connections (CLICK-FIT) with HSK DIN69893/A Tapered Shanks



Designation	DCONMS	DCONWS	LPR	LB	BD	DCP(1)	kg
HSK A63 CF4-S	63.00	25.00	70.00	44.0	44.50	1	1.00
HSK A100 CF4-S	100.00	25.00	76.00	47.0	44.50	1	2.42

• Tightening torque: 6 Kgxm • A cooling tube must be used with all coolant through HSK spindles (to be ordered separately)
(1) 1 - Slot for data chip, 0 - Without slot for data chip

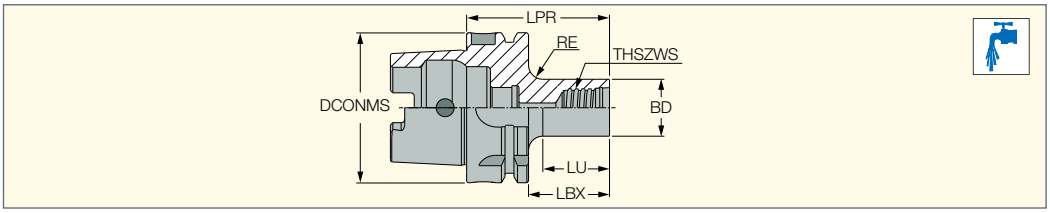
Spare Parts

Designation						
HSK A63 CF4-S	SCREW M16X1.5 FOR CF4	WRENCH HW 8 200X36 DIN911	OR 15X3N	WRENCH REAL C.F M8	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A100 CF4-S	SCREW M16X1.5 FOR CF4	WRENCH HW 8 200X36 DIN911	OR 15X3N	WRENCH REAL C.F M8	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*

* Optional, to be ordered separately

HSK MULTI-MASTER

MM S-A-HSK
MULTI-MASTER Threaded Connection Shanks with an Integral HSK DIN 69893 Form A Tapered Adaptation

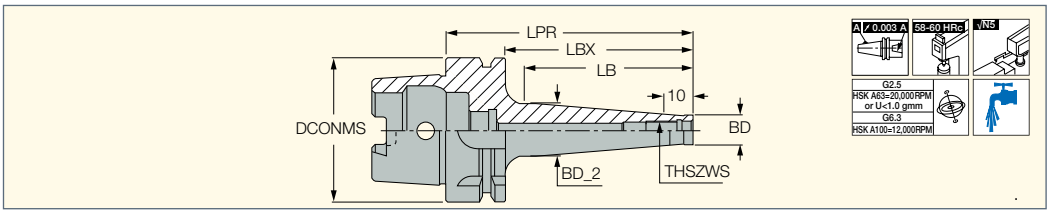


Designation	DCONMS	THSZWS	BD	LPR	LBX	LU	RE	DCP(1)	kg
MM S-A-H035-HSK A40-T05	40.00	T05	7.60	35.00	15.0	10.00	5.0	1	0.20
MM S-A-H040-HSK A40-T06	40.00	T06	9.25	40.00	20.0	15.00	5.0	1	0.28
MM S-A-H045-HSK A40-T08	40.00	T08	11.60	45.00	25.0	20.00	5.0	1	0.24
MM S-A-H050-HSK A40-T10	40.00	T10	15.30	50.00	30.0	25.00	5.0	1	0.23
MM S-A-H050-HSK A40-T12	40.00	T12	18.30	50.00	30.0	25.00	5.0	1	0.27
MM S-A-H050-HSK A63-T06	63.00	T06	9.25	50.00	24.0	18.00	6.0	1	0.70
MM S-A-H050-HSK A63-T08	63.00	T08	11.60	50.00	24.0	18.00	6.0	1	0.72
MM S-A-H055-HSK A63-T10	63.00	T10	15.30	55.00	29.0	23.00	6.0	1	0.73
MM S-A-H055-HSK A63-T12	63.00	T12	18.30	55.00	29.0	23.00	6.0	1	0.40
MM S-A-H055-HSK A63-T21	63.00	T21	30.00	55.00	29.0	19.00	10.0	1	0.83
MM S-A-H060-HSK A63-T15	63.00	T15	23.90	62.00	34.0	28.00	6.0	1	0.76
MM S-A-H080-HSK A63-T21	63.00	T21	30.00	80.00	54.0	44.00	10.0	1	0.94

• Do not apply lubricant to the threaded connection • For adaptation options, see page 746
(1) 1 - Slot for data chip, 0 - Without slot for data chip

HSK FLEXFIT

HSK A-ODP (FLEX-FIT)
FLEX-FIT Threaded Adaptation with HSK DIN 69893/A Tapered Shanks

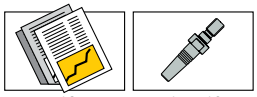


Designation	DCONMS	THSZWS	BD	BD_2	LPR	LBX	LB	DCP(1)	kg		
HSK A32 ODP12X42	32.00	M12	21.00	20.60	42.00	22.0	-	1	0.17	COOLING TUBE HSK A32*	WRENCH COOL TUBE HSK32*
HSK A50 ODP12X48	50.00	M12	21.00	20.60	48.00	22.0	-	1	0.46	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A63 ODP6X109	63.00	M06	9.80	23.00	109.00	83.0	75.00	1	0.74	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ODP8X109	63.00	M08	13.10	23.00	109.00	83.0	75.00	1	0.77	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ODP8X59	63.00	M08	13.10	15.00	59.00	33.0	25.00	1	0.68	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ODP10X109	63.00	M10	18.00	28.00	109.00	83.0	75.00	1	0.87	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ODP10X59	63.00	M10	18.00	20.00	59.00	33.0	25.00	1	0.70	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ODP12X109	63.00	M12	21.00	31.00	109.00	83.0	75.00	1	0.93	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ODP12X59	63.00	M12	21.00	23.50	59.00	33.0	25.00	1	0.71	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ODP16X109	63.00	M16	29.00	34.00	109.00	83.0	75.00	1	1.05	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ODP16X59	63.00	M16	29.00	34.60	59.00	33.0	25.00	1	0.79	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A100 ODP12X137	100.00	M12	23.00	30.00	137.00	108.0	100.00	1	2.58	COOLING TUBE HSK A100	WRENCH COOL TUBE HSK100
HSK A100 ODP12X187	100.00	M12	23.00	40.00	187.00	158.0	150.00	1	2.86	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ODP12X237	100.00	M12	23.00	46.00	237.00	208.0	200.00	1	3.40	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ODP12X87	100.00	M12	23.00	30.00	87.00	58.0	50.00	1	2.23	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ODP16X137	100.00	M16	29.00	41.50	137.00	108.0	100.00	1	2.68	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ODP16X187	100.00	M16	29.00	55.00	187.00	158.0	150.00	1	3.58	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ODP16X237	100.00	M16	29.00	55.00	237.00	208.0	200.00	1	4.07	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 ODP16X87	100.00	M16	29.00	31.50	87.00	58.0	50.00	1	2.20	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*

- A cooling tube must be used with all coolant through HSK spindles (to be ordered separately).

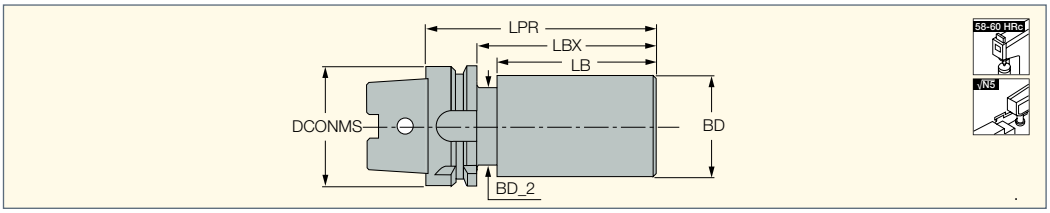
(1) 1 - Slot for data chip, 0 - Without slot for data chip

* Optional, to be ordered separately



HSK

HSK A-B-MN (blanks)
Blanks with HSK DIN69893/A Tapered Shanks



Designation	DCONMS	BD	BD_2	LPR	LBX	LB	DCP(1)	kg
HSK A63 B16MN 100	63.00	63.00	52.80	100.00	74.0	55.50	1	2.31
HSK A63 B16MN 200	63.00	63.00	52.80	200.00	174.0	155.50	1	4.75
HSK A100 B16MN 100	100.00	102.00	85.00	100.00	71.0	54.80	1	6.22
HSK A100 B16MN 200	100.00	102.00	85.00	200.00	171.0	154.80	1	12.90

- Material: Case hardened alloy steel, nose core hardness 22-30 HRC, nose surface hardness 57-60 HRC
- Tensile strength: min 760 Mpa

(1) 1 - Slot for data chip, 0 - Without slot for data chip

Spare Parts

Designation		
HSK A-B-MN (blanks)	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*

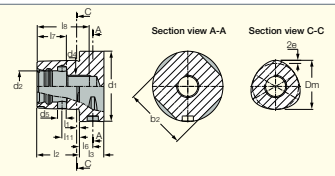
* Optional, to be ordered separately

CAMFIX DIN 26623-1

CAMFIX

CAMFIX ISO 26623-1

Toolholder Standard



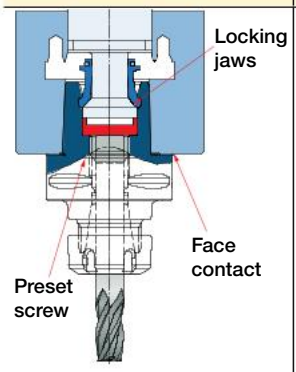
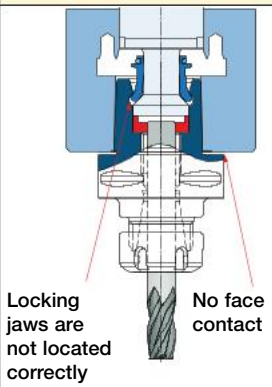
CAMFIX	b2	d1 ±0.1	d2	d4	d5 ±0.1	Dm	e	l1	l2 ±0.1	l3 min	l6 ±0.15	l7 ±0.15	l8 min	l11 ±0.1
C3	28.3	32	15	M12x1.5	3.6	22	0.7	2.5	19	15	6	13	25	8
C4	35.3	40	18	M14x1.5	4.6	28	0.9	2.5	24	20	8	15	30	8
C5	44.4	50	21	M16x1.5	6.1	35	1.12	3	30	20	10	20	37	14
C6	55.8	63	28	M20x2	8.1	44	1.4	3	38	22	12	27	47	15.5
C8	71.1	80	32	M20x2	9.1	55	2	3	48	30	12	28	48	25
C8X	88.7	100	32	M20x2	9.1	55	2	3	48	32	16	28	48	25
C10	88.3	100	43	M20x2	12	72	2.8	3	60	36	16	40	70	26.5

CAMFIX - ISO 26623-1 Standard Quick Change Shanks

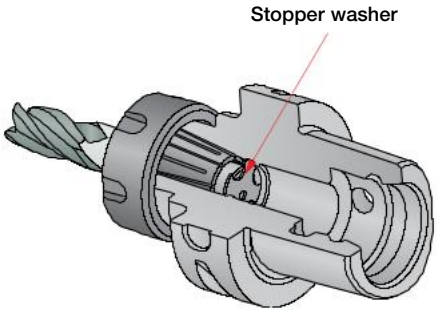
Features

- Symmetrical design: Due to the symmetrical design, the torque load is distributed on the polygon, providing a self-centering effect.
- Rigidity: The **CAMFIX** clamping mechanism is extremely rigid against bending forces.
- Accuracy: The taper and face contact ensure high repeatability within 2 microns, when operated with an automatic tool changer.

CAMFIX chucking Instructions please be careful when clamping cylindrical shank cutting tools into **CAMFIX** holders such as **ER collet** chucks or **EM holders**. In cases when the diameter of the shank is smaller than the **CAMFIX** through hole, it may penetrate into the drawbar mechanism area and prevent proper clamping.

Correct Clamping	Wrong Clamping
✔	✗
	
Use a preset screw to prevent the cutter shank from entering into the clamping mechanism zone, so the drawbar locking jaws can function correctly.	The cutter shank enters into the locking mechanism zone, preventing the drawbar locking jaws to reach their correct clamping position.

In order to prevent too deep insertion of the cutting tools, the short length ER16, 20, 25, 32, 40 collet chucks and EM 6-50 mm endmill holders are equipped with permanent stoppers.



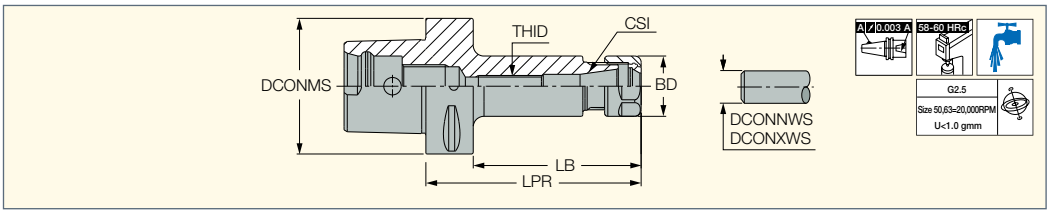
ER Chucks

A special washer is installed as a permanent stopper.

CAMFIX

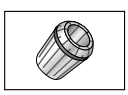
C#-ER

DIN 6499 ER Collet Chucks
with CAMFIX (ISO 26623-1)
Exchangeable Tapered Shanks



Designation	DCONMS	CSI	DCONNWS[2]	DCONXWS[3]	BD	LPR	LB	THID	CDI[4]	kg
C3 ER16X45	32.00	ER16	1.0	10.0	28.00	45.00	30.0	-	0	0.20
C3 ER20X45	32.00	ER20	1.0	13.0	34.00	45.00	30.0	-	0	0.22
C4 ER16X70	40.00	ER16	1.0	10.0	28.00	70.00	50.0	M10	1	0.38
C4 ER20X35 [1]	40.00	ER20	1.0	13.0	34.00	35.00	27.0	-	1	0.16
C4 ER20X52	40.00	ER20	1.0	13.0	34.00	52.00	32.0	-	1	0.29
C4 ER25X38 [1]	40.00	ER25	1.0	16.0	42.00	38.00	30.0	-	1	0.18
C4 ER25X52	40.00	ER25	1.0	16.0	42.00	52.00	32.0	-	1	0.30
C4 ER32X54	40.00	ER32	2.0	20.0	50.00	54.00	34.0	-	1	0.48
C5 ER16X100	50.00	ER16	1.0	10.0	28.00	100.00	80.0	M10	1	0.78
C5 ER16X130	50.00	ER16	1.0	10.0	28.00	130.00	110.0	M10	1	0.79
C5 ER20X055	50.00	ER20	1.0	13.0	34.00	55.00	35.0	-	1	0.50
C5 ER20X100	50.00	ER20	1.0	13.0	34.00	100.00	80.0	M12	1	0.79
C5 ER20X130	50.00	ER20	1.0	13.0	34.00	130.00	110.0	M12	1	0.97
C5 ER25X055	50.00	ER25	1.0	16.0	42.00	55.00	35.0	-	1	0.52
C5 ER25X100	50.00	ER25	1.0	16.0	42.00	100.00	80.0	M16	1	0.93
C5 ER32X057	50.00	ER32	2.0	20.0	50.00	57.00	36.0	-	1	0.50
C5 ER32X100	50.00	ER32	2.0	20.0	50.00	100.00	36.0	M22X1.5	1	1.05
C6 ER16X100	63.00	ER16	1.0	10.0	28.00	100.00	78.0	M10	1	0.99
C6 ER16X130	63.00	ER16	1.0	10.0	28.00	130.00	108.0	M10	1	1.12
C6 ER16X160	63.00	ER16	1.0	10.0	28.00	160.00	138.0	M10	1	1.24
C6 ER20X060	63.00	ER20	1.0	13.0	34.00	60.00	38.0	-	1	0.84
C6 ER20X100	63.00	ER20	1.0	13.0	34.00	100.00	78.0	M12	1	1.09
C6 ER20X130	63.00	ER20	1.0	13.0	34.00	130.00	108.0	M12	1	1.26
C6 ER20X160	63.00	ER20	1.0	13.0	34.00	160.00	138.0	M12	1	1.47
C6 ER25X060	63.00	ER25	1.0	16.0	42.00	60.00	38.0	-	1	0.86
C6 ER25X100	63.00	ER25	1.0	16.0	42.00	100.00	78.0	M16	1	1.39
C6 ER25X130	63.00	ER25	1.0	16.0	42.00	130.00	108.0	M16	1	1.68
C6 ER25X160	63.00	ER25	1.0	16.0	42.00	160.00	138.0	M16	1	1.83
C6 ER32X060	63.00	ER32	2.0	20.0	50.00	60.00	36.0	-	1	1.06
C6 ER32X100	63.00	ER32	2.0	20.0	50.00	100.00	78.0	M22X1.5	1	1.38
C6 ER32X130	63.00	ER32	2.0	20.0	50.00	130.00	108.0	M22X1.5	1	1.75
C6 ER32X160	63.00	ER32	2.0	20.0	50.00	160.00	138.0	M22X1.5	1	2.21
C6 ER40X065	63.00	ER40	3.0	26.0	63.00	65.00	37.0	-	1	0.93
C6 ER40X100	63.00	ER40	3.0	26.0	63.00	100.00	78.0	M28X1.5	1	1.59
C6 ER40X130	63.00	ER40	3.0	26.0	63.00	130.00	108.0	M28X1.5	1	2.18
C8 ER32X100	80.00	ER32	2.0	20.0	50.00	100.00	70.0	M22x1.5	1	2.20
C8 ER32X160	80.00	ER32	2.0	20.0	50.00	160.00	130.0	M22x1.5	1	3.08
C8 ER32X70	80.00	ER32	2.0	20.0	50.00	70.00	40.0	-	1	1.81
C8 ER40X100	80.00	ER40	3.0	26.0	63.00	100.00	70.0	M28x1.5	1	0.86
C8 ER40X160	80.00	ER40	3.0	26.0	63.00	160.00	130.0	M28x1.5	1	3.80
C8 ER40X70	80.00	ER40	3.0	26.0	63.00	70.00	40.0	-	1	1.82

[1] Short adapter without gripper grooves: NOT for ATC.Cannot be used in CAMFIX modular system (Extension, Reduction atc.)
[2] Minimum diameter
[3] Maximum diameter [1] 1 - Slot for data chip, 0 - Without slot for data chip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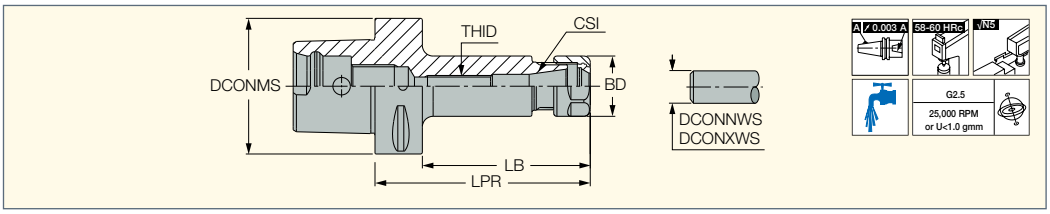
CAMFIX

C#-ER

DIN 6499 ER Collet Chucks
with CAMFIX (ISO 26623-1)
Exchangeable Tapered Shanks



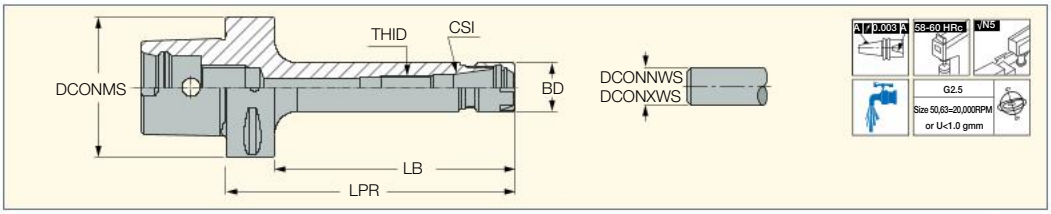
Spare Parts

Designation						
C3 ER16X45	NUT ER16 TOP		WRENCH ER16*	COOLING TUBE C3*	WRENCH COOL TUBE C3*	
C3 ER20X45	NUT ER20 TOP		WRENCH ER20*	COOLING TUBE C3*	WRENCH COOL TUBE C3*	
C4 ER16X70	NUT ER16 TOP	PRESET ER-JET 10X1.5*	WRENCH ER16*	COOLING TUBE C4*	WRENCH COOL TUBE C4*	
C4 ER20X35	NUT ER20 TOP		WRENCH ER20*	COOLING TUBE C4*	WRENCH COOL TUBE C4*	
C4 ER20X52	NUT ER20 TOP		WRENCH ER20*	COOLING TUBE C4*	WRENCH COOL TUBE C4*	
C4 ER25X38	NUT ER25 TOP		WRENCH ER25*	COOLING TUBE C4*	WRENCH COOL TUBE C4*	
C4 ER25X52	NUT ER25 TOP		WRENCH ER25*	COOLING TUBE C4*	WRENCH COOL TUBE C4*	
C4 ER32X54	NUT ER32 TOP		WRENCH ER32*	COOLING TUBE C4*	WRENCH COOL TUBE C4*	
C5 ER16X100	NUT ER16 TOP	PRESET ER-JET 10X1.5*	WRENCH ER16*	COOLING TUBE C5*	WRENCH COOL TUBE C5*	
C5 ER16X130	NUT ER16 TOP	PRESET ER-JET 10X1.5*	WRENCH ER16*	COOLING TUBE C5*	WRENCH COOL TUBE C5*	
C5 ER20X055	NUT ER20 TOP		WRENCH ER20*	COOLING TUBE C5*	WRENCH COOL TUBE C5*	
C5 ER20X100	NUT ER20 TOP	PRESET ER-JET 12X1.75*	WRENCH ER20*	COOLING TUBE C5*	WRENCH COOL TUBE C5*	PRESET ER-JET 12X1.75L*
C5 ER20X130	NUT ER20 TOP	PRESET ER-JET 12X1.75*	WRENCH ER20*	COOLING TUBE C5*	WRENCH COOL TUBE C5*	PRESET ER-JET 12X1.75L*
C5 ER25X055	NUT ER25 TOP		WRENCH ER25*	COOLING TUBE C5*	WRENCH COOL TUBE C5*	
C5 ER25X100	NUT ER25 TOP	PRESET ER-JET 16X2*	WRENCH ER25*	COOLING TUBE C5*	WRENCH COOL TUBE C5*	PRESET ER-JET 16X2L*
C5 ER32X057	NUT ER32 TOP		WRENCH ER32*	COOLING TUBE C5*	WRENCH COOL TUBE C5*	
C5 ER32X100	NUT ER32 TOP	PRESET ER-JET 22X1.5*	WRENCH ER32*	COOLING TUBE C5*	WRENCH COOL TUBE C5*	PRESET ER-JET 22X1.5L*
C6 ER16X100	NUT ER16 TOP	PRESET ER-JET 10X1.5*	WRENCH ER16*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	
C6 ER16X130	NUT ER16 TOP	PRESET ER-JET 10X1.5*	WRENCH ER16*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	
C6 ER16X160	NUT ER16 TOP	PRESET ER-JET 10X1.5*	WRENCH ER16*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	
C6 ER20X060	NUT ER20 TOP		WRENCH ER20*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	
C6 ER20X100	NUT ER20 TOP	PRESET ER-JET 12X1.75*	WRENCH ER20*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	PRESET ER-JET 12X1.75L*
C6 ER20X130	NUT ER20 TOP	PRESET ER-JET 12X1.75*	WRENCH ER20*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	PRESET ER-JET 12X1.75L*
C6 ER20X160	NUT ER20 TOP	PRESET ER-JET 12X1.75*	WRENCH ER20*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	PRESET ER-JET 12X1.75L*
C6 ER25X060	NUT ER25 TOP		WRENCH ER25*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	
C6 ER25X100	NUT ER25 TOP	PRESET ER-JET 16X2*	WRENCH ER25*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	PRESET ER-JET 16X2L*
C6 ER25X130	NUT ER25 TOP	PRESET ER-JET 16X2*	WRENCH ER25*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	PRESET ER-JET 16X2L*
C6 ER25X160	NUT ER25 TOP	PRESET ER-JET 16X2*	WRENCH ER25*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	PRESET ER-JET 16X2L*
C6 ER32X060	NUT ER32 TOP		WRENCH ER32*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	
C6 ER32X100	NUT ER32 TOP	PRESET ER-JET 22X1.5*	WRENCH ER32*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	PRESET ER-JET 22X1.5L*
C6 ER32X130	NUT ER32 TOP	PRESET ER-JET 22X1.5*	WRENCH ER32*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	PRESET ER-JET 22X1.5L*
C6 ER32X160	NUT ER32 TOP	PRESET ER-JET 22X1.5*	WRENCH ER32*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	PRESET ER-JET 22X1.5L*
C6 ER40X065	NUT ER40 TOP		WRENCH ER40*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	
C6 ER40X100	NUT ER40 TOP	PRESET ER-JET 28X1.5*	WRENCH ER40*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	
C6 ER40X130	NUT ER40 TOP	PRESET ER-JET 28X1.5*	WRENCH ER40*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	
C8 ER32X100	NUT ER32 TOP	PRESET ER-JET 22X1.5*	WRENCH ER32*	COOLING TUBE C8*	WRENCH COOL TUBE C8*	PRESET ER-JET 22X1.5L*
C8 ER32X160	NUT ER32 TOP	PRESET ER-JET 28X1.5*	WRENCH ER32*	COOLING TUBE C8*	WRENCH COOL TUBE C8*	
C8 ER32X70	NUT ER32 TOP		WRENCH ER32*	COOLING TUBE C8*	WRENCH COOL TUBE C8*	
C8 ER40X100	NUT ER40 TOP	PRESET ER-JET 28X1.5*	WRENCH ER40*	COOLING TUBE C8*	WRENCH COOL TUBE C8*	
C8 ER40X160	NUT ER40 TOP		WRENCH ER40*	COOLING TUBE C8*	WRENCH COOL TUBE C8*	
C8 ER40X70	NUT ER40 TOP		WRENCH ER40*	COOLING TUBE C8*	WRENCH COOL TUBE C8*	

* Optional, to be ordered separately

CAMFIX

C#-ER-M
DIN 6499 ER Long Mini
Collet Chucks with CAMFIX
(ISO 26623-1 standard)
Exchangeable Tapered Shanks



Designation	DCONMS	CSI	DCONNWS(1)	DCONXWS(2)	BD	LPR	LB	THID	DCP(3)	kg
C4 ER16X70 M	40.00	ER16	0.5	10.0	22.00	70.00	50.0	M10	1	0.32
C5 ER16X100 M	50.00	ER16	0.5	10.0	22.00	100.00	80.0	M10	1	0.57
C5 ER16X130 M	50.00	ER16	0.5	10.0	22.00	130.00	110.0	M10	1	0.56
C6 ER16X100 M	63.00	ER16	0.5	10.0	22.00	100.00	78.0	M10	1	0.90
C6 ER16X130 M	63.00	ER16	0.5	10.0	22.00	130.00	108.0	M10	1	1.07
C6 ER16X160 M	63.00	ER16	0.5	10.0	22.00	160.00	138.0	M10	1	1.07

(1) Minimum diameter
(2) Maximum diameter
(3) 1 - Slot for data chip, 0 - Without slot for data chip

807 766-773 763-765, 635

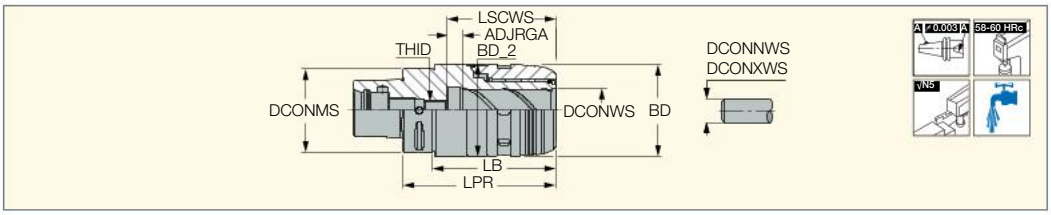
Spare Parts

Designation				
C4 ER16X70 M	NUT ER16 MINI	COOLING TUBE C4*	WRENCH COOL TUBE C4*	WRENCH ER16 MINI*
C5 ER16X100 M	NUT ER16 MINI	COOLING TUBE C5*	WRENCH COOL TUBE C5*	WRENCH ER16 MINI*
C5 ER16X130 M	NUT ER16 MINI	COOLING TUBE C5*	WRENCH COOL TUBE C5*	WRENCH ER16 MINI*
C6 ER16X100 M	NUT ER16 MINI	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH ER16 MINI*
C6 ER16X130 M	NUT ER16 MINI	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH ER16 MINI*
C6 ER16X160 M	NUT ER16 MINI	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH ER16 MINI*

* Optional, to be ordered separately

CAMFIX MAXIN

C#-MAXIN
MAXIN Power Chucks with
CAMFIX (ISO 26623-1 standard)
Exchangeable Shanks



Designation	DCONMS	DCONNWS(1)	DCONXWS(2)	BD	BD_2	LPR	LB	ADJRGA	LSCWS	THID	DCP(3)	kg
C5 MAXIN 20X100	50.00	6.0	20.0	51.00	53.00	96.00	75.0	12.00	67.0	M16	1	0.87
C6 MAXIN20X95	63.00	6.0	20.0	51.00	53.00	96.00	73.0	12.00	67.0	M16	1	1.10
C6 MAXIN32X115	63.00	6.0	32.0	69.00	70.00	115.00	93.0	12.00	82.0	M16	1	1.86
C8 MAXIN20X95	80.00	6.0	20.0	51.00	53.00	96.00	65.0	12.00	67.0	M16	1	2.05
C8 MAXIN32X115	80.00	6.0	32.0	69.00	70.00	115.00	85.0	12.00	82.0	M16	1	2.83

• Can be used for carbide and HSS tools • The adjustment screw has an internal coolant hole • Use of DCONXWS diameter tools provides best performance, as collets reduce the gripping force.
(1) Minimum diameter by using a reduction collet
(2) Maximum diameter by using a reduction collet
(3) 1 - Slot for data chip, 0 - Without slot for data chip

807 773-774 631-632

Spare Parts

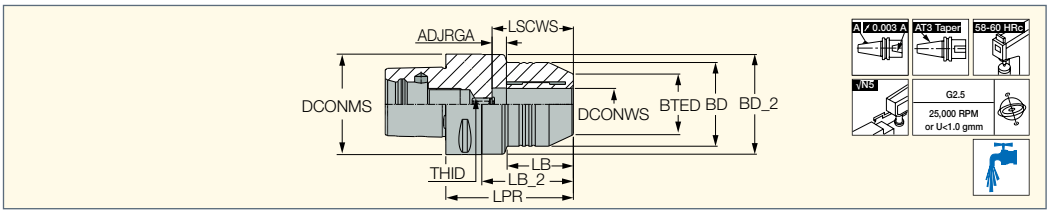
Designation				
C5 MAXIN 20X100	COOLING TUBE C5*	WRENCH COOL TUBE C5*	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*
C6 MAXIN20X95	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*
C6 MAXIN32X115	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*
C8 MAXIN20X95	COOLING TUBE C8*	WRENCH COOL TUBE C8*	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*
C8 MAXIN32X115	COOLING TUBE C8*	WRENCH COOL TUBE C8*	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*

* Optional, to be ordered separately

CAMFIX HYDROFIT HOLDING LINE

C#-HYDRO HD

Hydraulic Chucks with CAMFIX Shanks



Designation	DCONMS	DCONWS	BTED	BD	BD_2	LB	LB_2	LPR	ADJRGA	LSCWS	THID	kg
C4 HYDRO 12X65 HD	40.00	12.00	32.00	-	39.50	-	44.00	65.00	10.00	46.00	M8X1	0.66
C4 HYDRO 20X83 HD	40.00	20.00	38.00	-	45.50	-	62.40	83.00	10.00	51.00	M8X1	0.67
C5 HYDRO 12X70 HD	50.00	12.00	32.00	42.00	49.50	33.00	50.00	70.00	10.00	46.00	M8X1	1.44
C5 HYDRO 20X75 HD	50.00	20.00	38.00	-	49.50	-	54.00	75.00	10.00	51.00	M8X1	1.44
C6 HYDRO 12X75 HD	63.00	12.00	32.00	42.00	62.50	33.00	53.00	75.00	10.00	51.00	M8X1	1.44
C6 HYDRO 20X80 HD	63.00	20.00	38.00	53.00	62.50	41.00	57.40	80.00	10.00	51.00	M8X1	1.59
C6 HYDRO 20X120 HD	63.00	20.00	38.00	52.50	62.50	41.00	97.40	120.00	10.00	51.00	M8X1	2.51
C6 HYDRO 32X90 HD	63.00	32.00	58.50	-	62.50	-	67.00	90.00	10.00	61.00	M8X1	1.94

Spare Parts

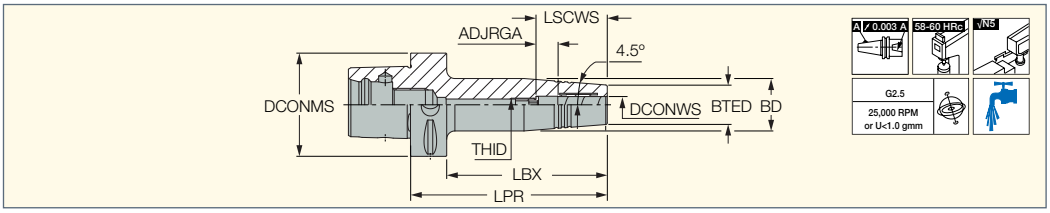
Designation			
C4 HYDRO 12X65 HD	COOLING TUBE C4*	WRENCH COOL TUBE C4*	ALLEN KEY SW5X100*
C4 HYDRO 20X83 HD	COOLING TUBE C4*	WRENCH COOL TUBE C4*	ALLEN KEY SW5X100*
C5 HYDRO 12X70 HD	COOLING TUBE C5*	WRENCH COOL TUBE C5*	ALLEN KEY SW5X100*
C5 HYDRO 20X75 HD	COOLING TUBE C5*	WRENCH COOL TUBE C5*	ALLEN KEY SW5X100*
C6 HYDRO 12X75 HD	COOLING TUBE C6*	WRENCH COOL TUBE C6*	ALLEN KEY SW5X100*
C6 HYDRO 20X80 HD	COOLING TUBE C6*	WRENCH COOL TUBE C6*	ALLEN KEY SW5X100*
C6 HYDRO 20X120 HD	COOLING TUBE C6*	WRENCH COOL TUBE C6*	ALLEN KEY SW5X100*
C6 HYDRO 32X90 HD	COOLING TUBE C6*	WRENCH COOL TUBE C6*	ALLEN KEY SW5X100*

* Optional, to be ordered separately

CAMFIX HYDROFIT HOLDING LINE

C#-HYDRO SF

Slim Design, Hydraulic Chucks with CAMFIX Shanks



Designation	DCONMS	DCONWS	BTED	BD	LBX	LPR	ADJRGA	LSCWS	THID	DCP[1]	kg
C6 HYDRO 6X120 SF	63.00	6.00	21.00	27.00	98.00	120.00	10.00	36.00	M5	0	0.00
C6 HYDRO 6X80 SF	63.00	6.00	21.00	27.00	58.00	80.00	10.00	36.00	M5	0	1.00
C6 HYDRO 8X120 SF	63.00	8.00	21.00	27.00	98.00	120.00	10.00	36.00	M6	0	1.17
C6 HYDRO 8X80 SF	63.00	8.00	21.00	27.00	58.00	80.00	10.00	36.00	M6	0	1.00
C6 HYDRO 10X120 SF	63.00	10.00	24.00	32.00	98.00	120.00	10.00	42.00	M8x1	0	1.28
C6 HYDRO 10X80 SF	63.00	10.00	24.00	32.00	58.00	80.00	10.00	42.00	M8x1	0	1.04
C6 HYDRO 12X120 SF	63.00	12.00	24.00	32.00	98.00	120.00	10.00	47.00	M10x1	0	1.26
C6 HYDRO 12X80 SF	63.00	12.00	24.00	32.00	58.00	80.00	10.00	47.00	M10x1	0	1.03
C6 HYDRO 16X120 SF	63.00	16.00	27.00	34.00	98.00	120.00	10.00	50.00	M12x1	0	1.30
C6 HYDRO 16X85 SF	63.00	16.00	27.00	34.00	63.00	85.00	10.00	50.00	M12x1	0	1.08
C6 HYDRO 20X85 SF	63.00	20.00	33.00	42.00	63.00	85.00	10.00	52.00	M16x1	0	1.20

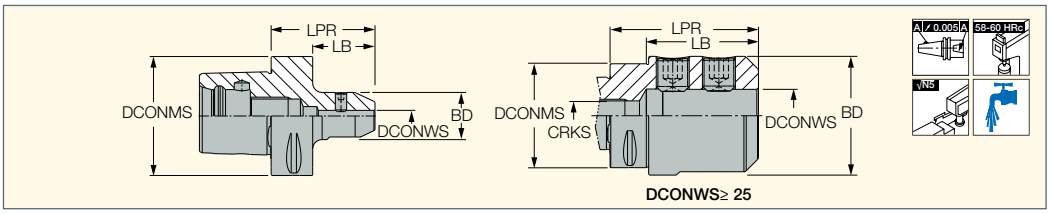
New

[1] 1 - Slot for data chip, 0 - Without slot for data chip

CAMFIX

C#-EM

DIN 1835 Form B Weldon Endmill Holders with CAMFIX (ISO 26623-1) Exchangeable Tapered Shanks



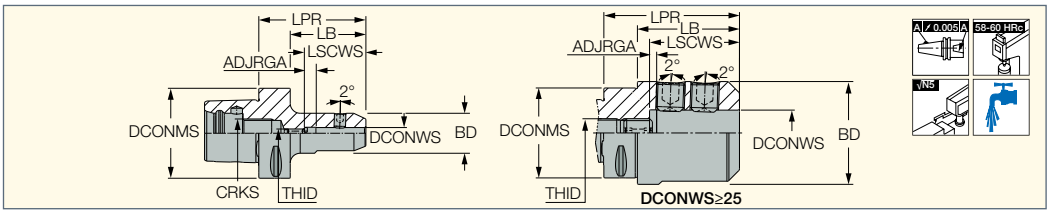
Designation	DCONMS	DCONWS	BD	LPR	LB	CRKS	DCP(1)	kg				
C3 EM 6X45	32.00	6.00	25.00	45.00	30.0	M12	0	0.23	SR M6X10 DIN1835B	HW 3.0*		
C3 EM 8X45	32.00	8.00	28.00	45.00	30.0	M12	0	0.25	SR M8X10 DIN1835-B	HW 4.0*		
C3 EM10X50	32.00	10.00	35.00	50.00	35.0	M12	0	0.35	SR M10X12 DIN1835-B	HW 5.0*		
C3 EM12X55	32.00	12.00	42.00	55.00	40.0	M12	0	0.40	SR M12X16 DIN1835-B	HW 6.0*		
C4 EM10X50	40.00	10.00	35.00	50.00	30.0	M14	1	0.42	SR M10X12 DIN1835-B	HW 5.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 EM12X55	40.00	12.00	42.00	55.00	35.0	M14	1	0.54	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 EM14X55	40.00	14.00	44.00	55.00	35.0	M14	1	0.57	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 EM16X60	40.00	16.00	48.00	60.00	40.0	M14	1	0.68	SR M14X16 DIN1835-B	HW 6.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 EM6X50	40.00	6.00	25.00	50.00	30.0	M14	1	0.35	SR M6X10 DIN1835B	HW 3.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 EM8X50	40.00	8.00	28.00	50.00	30.0	M14	1	0.37	SR M8X10 DIN1835-B	HW 4.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C5 EM10X55	50.00	10.00	35.00	55.00	35.0	M16	1	0.69	SR M10X12 DIN1835-B	HW 5.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 EM12X60	50.00	12.00	42.00	60.00	40.0	M16	1	0.83	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 EM14X60	50.00	14.00	44.00	60.00	40.0	M16	1	0.87	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 EM16X60	50.00	16.00	48.00	60.00	40.0	M16	1	0.85	SR M14X16 DIN1835-B	HW 6.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 EM18X60	50.00	18.00	50.00	60.00	40.0	M16	1	0.46	SR M14X16 DIN1835-B	HW 6.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 EM20X60	50.00	20.00	52.00	60.00	40.0	M16	1	0.90	SR M16X16 DIN1835-B	HW 8.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 EM25X85	50.00	25.00	65.00	85.00	65.0	M16	1	1.66	SR M18X2X20 DIN1835-B	HW 10.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 EM6X50	50.00	6.00	25.00	50.00	30.0	M16	1	0.52	SR M6X10 DIN1835B	HW 3.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 EM8X50	50.00	8.00	28.00	50.00	30.0	M16	1	0.54	SR M8X10 DIN1835-B	HW 4.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C6 EM10X60	63.00	10.00	35.00	60.00	38.0	M20	1	1.00	SR M10X12 DIN1835-B	HW 5.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM12X60	63.00	12.00	42.00	60.00	38.0	M20	1	1.08	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM14X60	63.00	14.00	44.00	60.00	38.0	M20	1	1.11	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM16X65	63.00	16.00	48.00	65.00	43.0	M20	1	1.25	SR M14X16 DIN1835-B	HW 6.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM18X65	63.00	18.00	50.00	65.00	43.0	M20	1	1.20	SR M14X16 DIN1835-B	HW 6.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM20X65	63.00	20.00	52.00	65.00	43.0	M20	1	1.26	SR M16X16 DIN1835-B	HW 8.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM25X80	63.00	25.00	65.00	80.00	58.0	M20	1	1.83	SR M18X2X20 DIN1835-B	HW 10.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM32X90	63.00	32.00	72.00	90.00	68.0	M20	1	2.28	SR M20X2X20 DIN1835-B	HW 10.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM40X100	63.00	40.00	90.00	100.00	78.0	M20	1	3.43	SR M20X2X20 DIN1835-B	HW 10.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM6X55	63.00	6.00	25.00	55.00	33.0	M20	1	0.86	SR M6X10 DIN1835B	HW 3.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM8X55	63.00	8.00	28.00	55.00	33.0	M20	1	0.89	SR M8X10 DIN1835-B	HW 4.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C8 EM10X70	80.00	10.00	35.00	70.00	40.0	M20	1	2.00	SR M10X12 DIN1835-B	HW 5.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 EM12X70	80.00	12.00	42.00	70.00	40.0	M20	1	2.20	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 EM14X70	80.00	14.00	44.00	70.00	40.0	M20	1	2.10	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 EM16X70	80.00	16.00	48.00	70.00	40.0	M20	1	2.16	SR M14X16 DIN1835-B	HW 6.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 EM20X70	80.00	20.00	52.00	70.00	40.0	M20	1	2.18	SR M16X16 DIN1835-B	HW 8.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 EM25X90	80.00	25.00	65.00	90.00	60.0	M20	1	2.89	SR M18X2X20 DIN1835-B	HW 10.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 EM32X95	80.00	32.00	72.00	95.00	65.0	M20	1	3.20	SR M20X2X20 DIN1835-B	HW 10.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 EM40X110	80.00	40.00	90.00	110.00	80.0	M20	1	4.73	SR M20X2X20 DIN1835-B	HW 10.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 EM50X120	80.00	50.00	98.00	120.00	90.0	M20	1	5.30	SR M24X2X25 DIN1835-B	HW 12.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 EM6X70	80.00	6.00	25.00	70.00	40.0	M20	1	1.86	SR M6X10 DIN1835B	HW 3.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 EM8X70	80.00	8.00	28.00	70.00	40.0	M20	1	1.90	SR M8X10 DIN1835-B	HW 4.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*

(1) 1 - Slot for data chip, 0 - Without slot for data chip

* Optional, to be ordered separately

CAMFIX

C#-EM-E
DIN 1835 Form E Drill Holders
with CAMFIX (ISO 26623-1)
Exchangeable Tapered Shanks



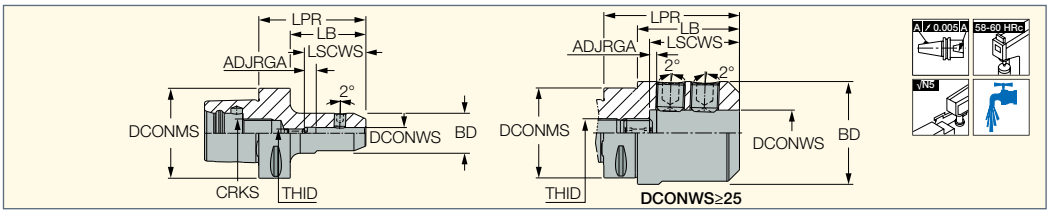
Designation	DCONMS	DCONWS	BD	LPR	ADJRGA	LSCWS	LB	CRKS	THID	DCP(1)	kg
C3 EM 6X70 E	32.00	6.00	25.00	70.00	5.00	35.0	50.0	M12	M5	0	0.30
C4 EM8X70 E	40.00	8.00	28.00	70.00	8.00	43.0	50.0	M14	M6	1	0.46
C4 EM12X75 E	40.00	12.00	42.00	75.00	5.00	49.0	55.0	M14	M10	1	0.75
C4 EM14X75 E	40.00	14.00	44.00	75.00	5.00	49.0	55.0	M14	M10	1	0.79
C5 EM10X70 E	50.00	10.00	35.00	70.00	6.00	45.0	50.0	M16	M8	1	0.75
C5 EM12X75 E	50.00	12.00	42.00	75.00	5.00	49.0	55.0	M16	M10	1	1.01
C5 EM14X75 E	50.00	14.00	44.00	75.00	5.00	49.0	55.0	M16	M10	1	0.97
C5 EM16X80 E	50.00	16.00	48.00	80.00	5.00	52.0	60.0	M16	M12	1	1.21
C5 EM18X80 E	50.00	18.00	50.00	80.00	5.00	52.0	60.0	M16	M12	1	1.18
C5 EM20X85 E	50.00	20.00	52.00	85.00	6.00	55.0	65.0	M16	M16	1	1.29
C6 EM6X75 E	63.00	6.00	25.00	75.00	6.00	36.0	53.0	M20	M5	1	0.93
C6 EM8X75 E	63.00	8.00	28.00	75.00	8.00	43.0	53.0	M20	M6	1	1.00
C6 EM10X75 E	63.00	10.00	35.00	75.00	7.00	46.0	53.0	M20	M8	1	1.17
C6 EM12X80 E	63.00	12.00	42.00	80.00	5.00	49.0	58.0	M20	M10	1	1.37
C6 EM14X80 E	63.00	14.00	44.00	80.00	5.00	49.0	58.0	M20	M10	1	1.34
C6 EM16X85 E	63.00	16.00	48.00	85.00	5.00	52.0	63.0	M20	M12	1	1.49
C6 EM18X85 E	63.00	18.00	50.00	85.00	5.00	52.0	63.0	M20	M12	1	1.63
C6 EM20X85 E	63.00	20.00	52.00	85.00	6.00	55.0	63.0	M20	M16	1	1.57
C6 EM25X90 E	63.00	25.00	65.00	90.00	6.00	60.0	68.0	M20	M20	1	2.10
C6 EM32X95 E	63.00	32.00	72.00	95.00	5.00	63.0	73.0	M20	M20	1	2.50
C8 EM8X65E	80.00	8.00	28.00	65.00	8.00	43.0	35.0	M20	M6	1	1.90
C8 EM10X65E	80.00	10.00	35.00	65.00	7.00	46.0	35.0	M20	M8	1	1.96
C8 EM12X70E	80.00	12.00	42.00	70.00	5.00	49.0	40.0	M20	M10	1	2.10
C8 EM14X70E	80.00	14.00	44.00	70.00	5.00	49.0	40.0	M20	M10	1	2.12
C8 EM16X75E	80.00	16.00	48.00	75.00	5.00	52.0	45.0	M20	M12	1	2.10
C8 EM18X75E	80.00	18.00	50.00	75.00	5.00	52.0	45.0	M20	M12	1	2.26
C8 EM20X80E	80.00	20.00	52.00	80.00	8.00	57.0	50.0	M20	M16	1	2.36
C8 EM25X90E	80.00	25.00	65.00	90.00	6.00	60.0	60.0	M20	M20	1	2.89
C8 EM32X95E	80.00	32.00	72.00	95.00	6.00	64.0	65.0	M20	M20	1	3.24

- The adjustment screw has an internal coolant hole.

(1) 1 - Slot for data chip, 0 - Without slot for data chip

CAMFIX

C#-EM-E
DIN 1835 Form E Drill Holders
with CAMFIX (ISO 26623-1)
Exchangeable Tapered Shanks



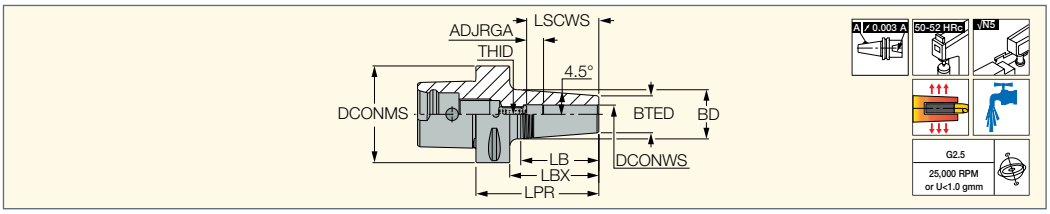
Spare Parts

Designation						
C3 EM 6X70 E	SR M6X10 DIN1835B	PRESET M5X18B	HW 3.0*	HW 2.5*		
C4 EM8X70 E	SR M8X10 DIN1835-B	PRESET CAP M6X12B	HW 3.0*	HW 4.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 EM12X75 E	SR M12X16 DIN1835-B	PRESET CX M10X16	HW 5.0*	HW 6.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 EM14X75 E	SR M12X16 DIN1835-B	PRESET CX M10X16	HW 5.0*	HW 6.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C5 EM10X70 E	SR M10X12 DIN1835-B	PRESET CAP M8X12B	HW 4.0*	HW 5.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 EM12X75 E	SR M12X16 DIN1835-B	PRESET CX M10X16	HW 5.0*	HW 6.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 EM14X75 E	SR M12X16 DIN1835-B	PRESET CX M10X16	HW 5.0*	HW 6.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 EM16X80 E	SR M14X16 DIN1835-B	PRESET CX M12X16	HW 6.0*		COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 EM18X80 E	SR M14X16 DIN1835-B	PRESET CX M12X16	HW 6.0*		COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 EM20X85 E	SR M16X16 DIN1835-B	PRESET CX M16X14	HW 8.0*		COOLING TUBE C5*	WRENCH COOL TUBE C5*
C6 EM6X75 E	SR M6X10 DIN1835B	PRESET M5X18B	HW 3.0*	HW 2.5*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM8X75 E	SR M8X10 DIN1835-B	PRESET CAP M6X12B	HW 3.0*	HW 4.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM10X75 E	SR M10X12 DIN1835-B	PRESET CAP M8X12B	HW 4.0*	HW 5.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM12X80 E	SR M12X16 DIN1835-B	PRESET CX M10X16	HW 5.0*	HW 6.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM14X80 E	SR M12X16 DIN1835-B	PRESET CX M10X16	HW 5.0*	HW 6.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM16X85 E	SR M14X16 DIN1835-B	PRESET CX M12X16	HW 6.0*		COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM18X85 E	SR M14X16 DIN1835-B	PRESET CX M12X16	HW 6.0*		COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM20X85 E	SR M16X16 DIN1835-B	PRESET CX M16X14	HW 8.0*		COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM25X90 E	SR M18X2X20 DIN1835-B	PRESET M20X20E	HW 10.0*	HW 6.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM32X95 E	SR M20X2X20 DIN1835-B	PRESET M20X20E	HW 10.0*	HW 6.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C8 EM8X65E	SR M8X10 DIN1835-B	PRESET CAP M6X12B	HW 3.0*	HW 4.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 EM10X65E	SR M10X12 DIN1835-B	PRESET CAP M8X12B	HW 4.0*	HW 5.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 EM12X70E	SR M12X16 DIN1835-B	PRESET CX M10X16	HW 5.0*	HW 6.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 EM14X70E	SR M12X16 DIN1835-B	PRESET CX M10X16	HW 5.0*	HW 6.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 EM16X75E	SR M14X16 DIN1835-B	PRESET CX M12X16	HW 6.0*		COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 EM18X75E	SR M14X16 DIN1835-B	PRESET CX M12X16	HW 6.0*		COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 EM20X80E	SR M16X16 DIN1835-B	PRESET CX M16X14	HW 8.0*		COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 EM25X90E	SR M18X2X20 DIN1835-B	PRESET M20X20E	HW 10.0*	HW 6.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 EM32X95E	SR M20X2X20 DIN1835-B	PRESET M20X20E	HW 10.0*	HW 6.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*

* Optional, to be ordered separately

CAMFIX SHRINKIN

C#-SRKIN
Thermal Shrink Chucks with Integral CAMFIX (ISO 26623-1) Tapered Shanks for Solid Carbide, HSS and Steel Tools

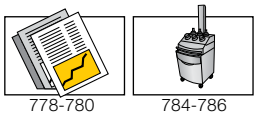


Designation	DCONMS	DCONWS	BTED	BD	LPR	LBX	LB	ADJRGA	LSCWS	THID	Key(1)	DCP(2)	kg
C4 SRKIN 6X75	40.00	6.00	21.00	27.00	75.00	55.0	38.10	11.00	36.0	M5	2.50	1	0.00
C4 SRKIN 8X75	40.00	8.00	21.00	27.00	75.00	55.0	38.10	11.00	36.0	M6	3.00	1	0.46
C4 SRKIN 10X75	40.00	10.00	24.00	32.00	75.00	55.0	50.80	11.00	42.0	M8	4.00	1	0.49
C4 SRKIN 12X75	40.00	12.00	24.00	32.00	75.00	55.0	50.80	11.00	47.0	M10	5.00	1	0.48
C4 SRKIN 14X80	40.00	14.00	27.00	34.00	80.00	60.0	44.50	11.00	47.0	M10	5.00	1	0.55
C4 SRKIN 16X80	40.00	16.00	27.00	34.00	80.00	60.0	44.50	11.00	50.0	M12	6.00	1	0.53
C4 SRKIN 18X80	40.00	18.00	33.00	42.00	80.00	60.0	57.20	11.00	50.0	M12	6.00	1	0.66
C4 SRKIN 20X85	40.00	20.00	33.00	42.00	85.00	65.0	57.20	11.00	52.0	M16	8.00	1	0.13
C5 SRKIN 6X75	50.00	6.00	21.00	27.00	75.00	55.0	38.10	11.00	36.0	M5	2.50	1	0.62
C5 SRKIN 8X75	50.00	8.00	21.00	27.00	75.00	55.0	38.10	11.00	36.0	M6	3.00	1	0.63
C5 SRKIN 10X75	50.00	10.00	24.00	32.00	75.00	55.0	51.30	11.00	42.0	M8	4.00	1	0.67
C5 SRKIN 12X75	50.00	12.00	24.00	32.00	75.00	55.0	51.30	11.00	47.0	M10	5.00	1	0.64
C5 SRKIN 14X80	50.00	14.00	27.00	34.00	80.00	60.0	44.50	11.00	47.0	M10	5.00	1	0.73
C5 SRKIN 16X80	50.00	16.00	27.00	34.00	80.00	60.0	44.50	11.00	50.0	M12	6.00	1	0.68
C5 SRKIN 18X80	50.00	18.00	33.00	42.00	80.00	60.0	57.20	11.00	50.0	M12	6.00	1	0.84
C5 SRKIN 20X85	50.00	20.00	33.00	42.00	85.00	65.0	57.20	11.00	52.0	M16	8.00	1	0.85
C5 SRKIN 25X90	50.00	25.00	44.00	53.00	90.00	70.0	57.20	11.00	58.0	M16	8.00	1	1.13
C6 SRKIN 6X80	63.00	6.00	21.00	27.00	80.00	58.0	38.10	11.00	36.0	M5	2.50	1	0.95
C6 SRKIN 8X80	63.00	8.00	21.00	27.00	80.00	58.0	38.10	11.00	36.0	M6	3.00	1	0.94
C6 SRKIN 10X80	63.00	10.00	24.00	32.00	80.00	58.0	50.80	11.00	42.0	M8	4.00	1	1.07
C6 SRKIN 12X80	63.00	12.00	24.00	32.00	80.00	58.0	50.80	11.00	47.0	M10	5.00	1	1.01
C6 SRKIN 14X85	63.00	14.00	27.00	34.00	85.00	63.0	44.50	11.00	47.0	M10	5.00	1	1.08
C6 SRKIN 16X85	63.00	16.00	27.00	34.00	85.00	63.0	44.50	11.00	50.0	M12	6.00	1	1.06
C6 SRKIN 18X85	63.00	18.00	33.00	42.00	85.00	63.0	57.20	11.00	50.0	M12	6.00	1	1.21
C6 SRKIN 20X85	63.00	20.00	33.00	42.00	85.00	63.0	57.20	11.00	52.0	M16	8.00	1	1.16
C6 SRKIN 25X90	63.00	25.00	44.00	53.00	90.00	68.0	57.20	11.00	58.0	M16	8.00	1	1.50
C6 SRKIN 32X95	63.00	32.00	44.00	53.00	95.00	73.0	57.20	11.00	58.0	M16	8.00	1	1.46

- The adjustment screw has an internal coolant hole
- Use only inductive heating device for SRKIN holders

(1) Hex key size for the rear stopper screw

(2) 1 - Slot for data chip, 0 - Without slot for data chip


778-780 784-786

Spare Parts

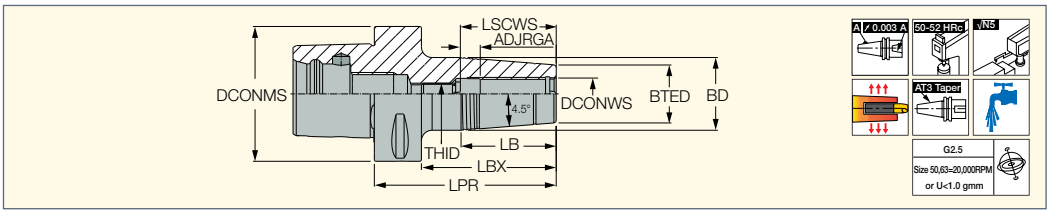
Designation			
C4 SRKIN 6X75	PRESET M5X18B	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 SRKIN 8X75	PRESET M6X20B	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 SRKIN 10X75	PRESET CX M8X16	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 SRKIN 12X75	PRESET CX M10X16	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 SRKIN 14X80	PRESET CX M10X16	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 SRKIN 16X80	PRESET CX M12X16	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 SRKIN 18X80	PRESET CX M12X16	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 SRKIN 20X85	PRESET CX M16X14	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C5 SRKIN 6X75	PRESET M5X18B	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 SRKIN 8X75	PRESET M6X20B	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 SRKIN 10X75	PRESET CX M8X16	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 SRKIN 12X75	PRESET CX M10X16	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 SRKIN 14X80	PRESET CX M10X16	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 SRKIN 16X80	PRESET CX M12X16	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 SRKIN 18X80	PRESET CX M12X16	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 SRKIN 20X85	PRESET CX M16X14	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 SRKIN 25X90	PRESET CX M16X14	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C6 SRKIN 6X80	PRESET M5X18B	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 8X80	PRESET M6X20B	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 10X80	PRESET CX M8X16	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 12X80	PRESET CX M10X16	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 14X85	PRESET CX M10X16	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 16X85	PRESET CX M12X16	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 18X85	PRESET CX M12X16	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 20X85	PRESET CX M16X14	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 25X90	PRESET CX M16X14	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 32X95	PRESET CX M16X14	COOLING TUBE C6*	WRENCH COOL TUBE C6*

* Optional, to be ordered separately

CAMFIX X-STREAM JET TOOLHOLDING

C#-SRKIN-CX

Thermal Shrink Chucks with CAMFIX (ISO 26623-1) Tapered Shank and Jet Coolant Grooves along the Shank Bore



Designation	DCONMS	DCONWS	BTED	BD	LPR	LBX	LB	LSCWS	ADJRGA	THID	Key(1)	DCP(2)	kg
C6 SRKIN 6X80 CX	63.00	6.00	21.00	27.00	80.00	58.00	38.10	34.00	9.50	M5	2.50	1	0.95
C6 SRKIN 8X80 CX	63.00	8.00	21.00	27.00	80.00	58.00	38.10	34.00	9.50	M6	3.00	1	0.94
C6 SRKIN 10X80 CX	63.00	10.00	24.00	32.00	80.00	58.00	50.80	39.80	9.30	M8	4.00	1	1.07
C6 SRKIN 12X80 CX	63.00	12.00	24.00	32.00	80.00	58.00	50.80	44.80	9.30	M10	5.00	1	1.01
C6 SRKIN 14X85 CX	63.00	14.00	27.00	34.00	85.00	63.00	44.50	44.80	9.30	M10	5.00	1	1.08
C6 SRKIN 16X85 CX	63.00	16.00	27.00	34.00	85.00	63.00	44.50	47.80	9.30	M12	6.00	1	1.06
C6 SRKIN 18X85 CX	63.00	18.00	33.00	42.00	85.00	63.00	57.20	47.80	9.30	M12	6.00	1	1.21
C6 SRKIN 20X85 CX	63.00	20.00	33.00	42.00	85.00	63.00	57.20	49.00	8.50	M16	8.00	1	1.16
C6 SRKIN 25X90 CX	63.00	25.00	44.00	53.00	90.00	68.00	57.20	55.00	8.50	M16	8.00	1	1.50
C6 SRKIN 32X95 CX	63.00	32.00	44.00	53.00	95.00	73.00	57.20	59.00	8.50	M16	8.00	1	1.46
C8 SRKIN 6X90 CX	80.00	6.00	21.00	27.00	90.00	60.00	38.10	33.90	9.40	M5	2.50	1	2.05
C8 SRKIN 8X90 CX	80.00	8.00	21.00	27.00	90.00	60.00	38.10	34.00	9.50	M6	3.00	1	2.05
C8 SRKIN 10X90 CX	80.00	10.00	24.00	32.00	90.00	60.00	50.80	39.80	9.30	M8	4.00	1	2.10
C8 SRKIN 12X90 CX	80.00	12.00	24.00	32.00	90.00	60.00	50.80	44.80	9.30	M10	5.00	1	2.08
C8 SRKIN 12X120 CX	80.00	12.00	24.00	32.00	120.00	90.00	50.80	44.80	9.30	M10	5.00	1	0.00
C8 SRKIN 12X160 CX	80.00	12.00	24.00	32.00	160.00	130.00	50.80	44.80	9.30	M10	5.00	1	2.60
C8 SRKIN 16X95 CX	80.00	16.00	27.00	34.00	95.00	65.00	44.50	47.80	9.30	M12	6.00	1	0.00
C8 SRKIN 16X120 CX	80.00	16.00	27.00	34.00	120.00	90.00	44.50	47.80	9.30	M12	6.00	1	2.32
C8 SRKIN 16X160 CX	80.00	16.00	27.00	34.00	160.00	130.00	44.50	47.80	9.30	M12	6.00	1	2.66
C8 SRKIN 20X95 CX	80.00	20.00	33.00	42.00	95.00	65.00	57.20	49.00	8.50	M16	8.00	1	2.24
C8 SRKIN 25X100 CX	80.00	25.00	44.00	53.00	100.00	70.00	57.20	55.00	8.50	M16	8.00	1	2.49
C8 SRKIN 32X115 CX	80.00	32.00	44.00	53.00	115.00	85.00	57.20	59.00	8.50	M16	8.00	1	2.70

• Use only inductive heating device for SRKIN holders • Preset screw CX allows supply of coolant via JET channels - do not remove

(1) Hex key size for the rear stopper screw

(2) 1 - Slot for data chip, 0 - Without slot for data chip

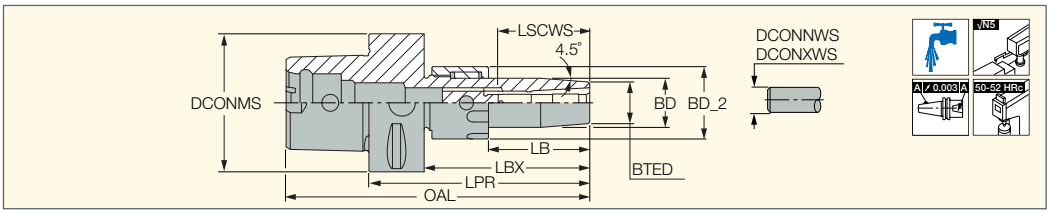
Spare Parts

Designation			
C6 SRKIN 6X80 CX	PRESET CX M5X13	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 8X80 CX	PRESET CX M6X12	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 10X80 CX	PRESET CX M8X16	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 12X80 CX	PRESET CX M10X16	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 14X85 CX	PRESET CX M10X16	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 16X85 CX	PRESET CX M12X16	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 18X85 CX	PRESET CX M12X16	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 20X85 CX	PRESET CX M16X14	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 25X90 CX	PRESET CX M16X14	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 32X95 CX	PRESET CX M16X14	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C8 SRKIN 6X90 CX	PRESET CX M5X13	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 SRKIN 8X90 CX	PRESET CX M6X12	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 SRKIN 10X90 CX	PRESET CX M8X16	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 SRKIN 12X90 CX	PRESET CX M10X16	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 SRKIN 12X120 CX	PRESET CX M10X16	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 SRKIN 12X160 CX	PRESET CX M10X16	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 SRKIN 16X95 CX	PRESET CX M12X16	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 SRKIN 16X120 CX	PRESET CX M12X16	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 SRKIN 16X160 CX	PRESET CX M12X16	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 SRKIN 20X95 CX	PRESET CX M16X14	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 SRKIN 25X100 CX	PRESET CX M16X14	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 SRKIN 32X115 CX	PRESET CX M16X14	COOLING TUBE C8*	WRENCH COOL TUBE C8*

* Optional, to be ordered separately

CAMFIX
QUICKCLAMP

C#-MS
QUICK-CLAMP System for Small Cutting Tools with Camfix ISO26623-1 Shank



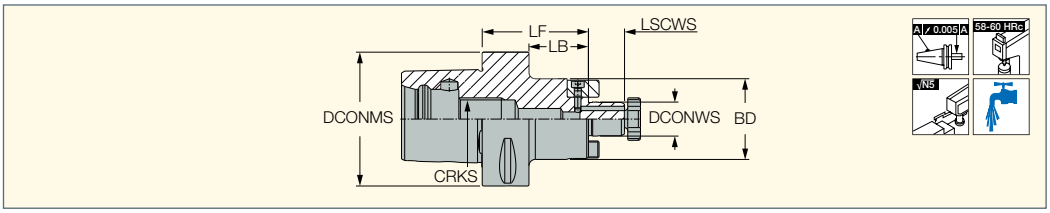
Designation	DCONNWS(1)	DCONXWS(2)	BTED	BD	BD_2	LPR	LBX	LB	DCONMS	LSCWS	OAL	DCP(3)
C5 MS6X60	3.00	6.00	15.00	17.80	26.20	80.00	60.00	36.00	50.00	33.00	110.00	1
C6 MS6X60	3.00	6.00	15.00	17.80	26.20	82.00	60.00	36.00	63.00	33.00	120.00	1

New

(1) Minimum diameter
(2) Maximum diameter
(3) 1 - Slot for data chip, 0 - Without slot for data chip

CAMFIX

C#-SEM-C
ISO 3937 Shell Mill Holders with Coolant Holes and CAMFIX (ISO 26623-1) Exchangeable Tapered Shanks



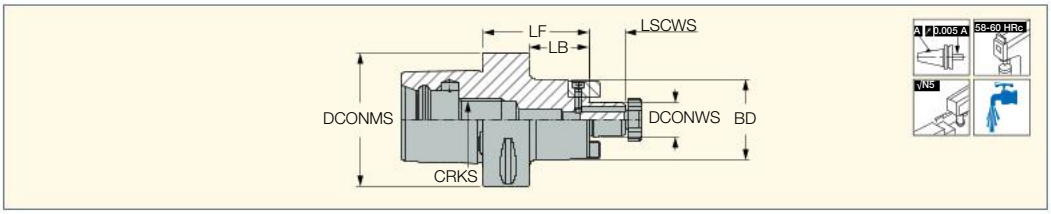
Designation	DCONMS	DCONWS	BD	LSCWS	LB	LF	CRKS	DCP(1)	kg
C3 SEM 16X30 C	32.00	16.00	38.00	17.00	13.0	30.00	M12	0	0.24
C4 SEM16X32 C	40.00	16.00	38.00	17.00	12.0	32.00	M14	1	0.36
C4 SEM16X55 C	40.00	16.00	38.00	17.00	35.0	55.00	M14	1	0.54
C4 SEM22X40 C	40.00	22.00	47.00	19.00	20.0	40.00	M14	1	0.52
C4 SEM22X55 C	40.00	22.00	47.00	19.00	33.0	55.00	M14	1	0.80
C5 SEM16X35 C	50.00	16.00	38.00	17.00	15.0	35.00	M16	1	0.57
C5 SEM16X70 C	50.00	16.00	38.00	17.00	50.0	70.00	M16	1	0.85
C5 SEM22X35 C	50.00	22.00	47.00	19.00	15.0	35.00	M16	1	0.65
C5 SEM22X70 C	50.00	22.00	47.00	19.00	50.0	70.00	M16	1	1.09
C5 SEM27X40 C	50.00	27.00	58.00	21.00	20.0	40.00	M16	1	0.85
C5 SEM32X40 C	50.00	32.00	63.00	24.00	20.0	40.00	M16	1	0.93
C6 SEM16X100 C	63.00	16.00	38.00	17.00	78.0	100.00	M20	1	1.41
C6 SEM16X50 C	63.00	16.00	38.00	17.00	28.0	50.00	M20	1	1.00
C6 SEM22X100 C	63.00	22.00	47.00	19.00	78.0	100.00	M20	1	1.81
C6 SEM22X50 C	63.00	22.00	47.00	19.00	28.0	50.00	M20	1	1.15
C6 SEM27X100 C	63.00	27.00	58.00	21.00	78.0	100.00	M20	1	2.33
C6 SEM27X60 C	63.00	27.00	58.00	21.00	37.0	60.00	M20	1	1.52
C6 SEM32X60 C	63.00	32.00	66.00	24.00	37.0	60.00	M16	1	1.79
C6 SEM40X60 C	63.00	40.00	82.00	27.00	37.0	60.00	M20	1	2.34
C8 SEM16X100C	80.00	16.00	38.00	17.00	70.0	100.00	M20	1	2.32
C8 SEM16X50 C	80.00	16.00	38.00	17.00	20.0	50.00	M20	1	1.90
C8 SEM22X100C	80.00	22.00	47.00	19.00	70.0	100.00	M20	1	2.88
C8 SEM22X50 C	80.00	22.00	47.00	19.00	20.0	50.00	M20	1	2.01
C8 SEM27X100C	80.00	27.00	58.00	21.00	70.0	100.00	M20	1	3.14
C8 SEM27X50 C	80.00	27.00	58.00	21.00	20.0	50.00	M20	1	2.18
C8 SEM32X100C	80.00	32.00	66.00	24.00	70.0	100.00	M16	1	3.56
C8 SEM32X50 C	80.00	32.00	66.00	24.00	20.0	50.00	M16	1	2.28
C8 SEM32X78X100C	80.00	32.00	78.00	24.00	70.0	100.00	M20	1	4.50
C8 SEM32X78X50C	80.00	32.00	78.00	24.00	20.0	50.00	M20	1	2.20
C8 SEM40X60 C	80.00	40.00	82.00	27.00	30.0	60.00	M20	1	2.99

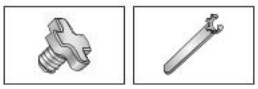
(1) 1 - Slot for data chip, 0 - Without slot for data chip

Continued

CAMFIX

C#-SEM-C
ISO 3937 Shell Mill Holders with Coolant Holes and CAMFIX (ISO 26623-1) Exchangeable Tapered Shanks




808 809

Spare Parts

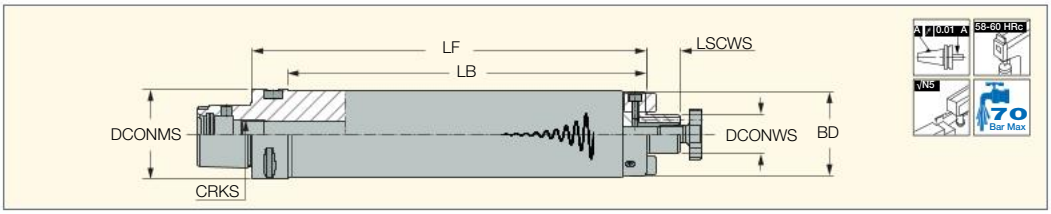
Designation								
C3 SEM 16X30 C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	WRENCH M8 SEMC16*	HW 2.5*			
C4 SEM16X32 C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	WRENCH M8 SEMC16*	HW 2.5*	COOLING TUBE C4*	WRENCH COOL TUBE C4*	
C4 SEM16X55 C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	WRENCH M8 SEMC16*	HW 2.5*	COOLING TUBE C4*	WRENCH COOL TUBE C4*	
C4 SEM22X40 C	M10 CLAMP SCREW SEM22	DR.DOG 10S	SR M4X10DIN912	WRENCH M10 SEMC 22*	HW 3.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*	
C4 SEM22X55 C	M10 CLAMP SCREW SEM22	DR.DOG 10S	SR M4X10DIN912	WRENCH M10 SEMC 22*	HW 3.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*	
C5 SEM16X35 C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	WRENCH M8 SEMC16*	HW 2.5*	COOLING TUBE C5*	WRENCH COOL TUBE C5*	
C5 SEM16X70 C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	WRENCH M8 SEMC16*	HW 2.5*	COOLING TUBE C5*	WRENCH COOL TUBE C5*	
C5 SEM22X35 C	M10 CLAMP SCREW SEM22	DR.DOG 10S	SR M4X10DIN912	WRENCH M10 SEMC 22*	HW 3.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*	
C5 SEM22X70 C	M10 CLAMP SCREW SEM22	DR.DOG 10S	SR M4X10DIN912	WRENCH M10 SEMC 22*	HW 3.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*	
C5 SEM27X40 C	M12 CLAMP SCREW SEM27	DR.DOG 12S	SR M5X14DIN912	WRENCH M12 SEMC 27*	HW 4.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*	
C5 SEM32X40 C	M16 CLAMP SCREW SEM32	DR.DOG 14X13S	SR M5X14DIN912	WRENCH M16 SEMC 32*	HW 4.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*	
C6 SEM16X100 C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	WRENCH M8 SEMC16*	HW 2.5*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	
C6 SEM16X50 C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	WRENCH M8 SEMC16*	HW 2.5*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	
C6 SEM22X100 C	M10 CLAMP SCREW SEM22	DR.DOG 10S	SR M4X10DIN912	WRENCH M10 SEMC 22*	HW 2.5*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	
C6 SEM22X50 C	M10 CLAMP SCREW SEM22	DR.DOG 10S	SR M4X10DIN912	WRENCH M10 SEMC 22*	HW 3.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	
C6 SEM27X100 C	M12 CLAMP SCREW SEM27	DR.DOG 12S	SR M5X14DIN912	WRENCH M12 SEMC 27*	HW 4.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	
C6 SEM27X60 C	M12 CLAMP SCREW SEM27	DR.DOG 12S	SR M5X14DIN912	WRENCH M12 SEMC 27*	HW 4.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	
C6 SEM32X60 C	M16 CLAMP SCREW SEM32	DR.DOG 14X13S	SR M5X14DIN912	WRENCH M16 SEMC 32*	HW 4.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	
C6 SEM40X60 C	M20 CLAMP SCREW SEM40	DR.DOG 16X18S	SR M6X20 DIN912	WRENCH M20 SEMC 40*	HW 5.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	
C8 SEM16X100C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	WRENCH M8 SEMC16*	HW 2.5*	COOLING TUBE C8*	WRENCH COOL TUBE C8*	
C8 SEM16X50 C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	WRENCH M8 SEMC16*	HW 2.5*	COOLING TUBE C8*	WRENCH COOL TUBE C8*	
C8 SEM22X100C	M10 CLAMP SCREW SEM22	DR.DOG 10S	SR M4X10DIN912	WRENCH M10 SEMC 22*	HW 3.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*	
C8 SEM22X50 C	M10 CLAMP SCREW SEM22	DR.DOG 10S	SR M4X10DIN912	WRENCH M10 SEMC 22*	HW 3.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*	
C8 SEM27X100C	M12 CLAMP SCREW SEM27	DR.DOG 12S	SR M5X12 DIN912*	SR M5X14DIN912	WRENCH M12 SEMC 27*	HW 4.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 SEM27X50 C	M12 CLAMP SCREW SEM27	DR.DOG 12S	SR M5X14DIN912	WRENCH M12 SEMC 27*	HW 4.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*	
C8 SEM32X100C	M16 CLAMP SCREW SEM32	DR.DOG 14X13S	SR M5X14DIN912	WRENCH M16 SEMC 32*	HW 4.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*	
C8 SEM32X50 C	M16 CLAMP SCREW SEM32	DR.DOG 14X13S	SR M5X14DIN912	WRENCH M16 SEMC 32*	HW 4.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*	
C8 SEM32X78X100C	M16 CLAMP SCREW SEM32	DR.DOG 14X13S	SR M5X14DIN912	WRENCH M16 SEMC 32*	HW 4.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*	
C8 SEM32X78X50C	M16 CLAMP SCREW SEM32	DR.DOG 14X13S	SR M5X14DIN912	WRENCH M16 SEMC 32*	HW 4.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*	
C8 SEM40X60 C	M20 CLAMP SCREW SEM40	DR.DOG 16X18S	SR M6X20 DIN912	WRENCH M20 SEMC 40*	HW 5.0*	COOLING TUBE C8*	WRENCH COOL TUBE C8*	

* Optional, to be ordered separately

CAMFIX

WHISPERLINE

AV C#-SEM
Anti-Vibration Shell Mill Holders with Coolant Holes and CAMFIX (ISO 26623-1) Shanks



Designation	DCONMS	DCONWS	BD	LSCWS	LB	LF	CRKS	DCP(1)	kg
AV C5 SEM22 48X220	50.00	22.00	48.00	19.00	200.0	220.00	M16	1	3.80
AV C5 SEM22 48X270	50.00	22.00	48.00	19.00	250.0	270.00	M16	1	4.70
AV C6 SEM22 48X270	63.00	22.00	48.00	19.00	248.0	270.00	M20	1	4.60
AV C6 SEM22 61X260	63.00	22.00	61.00	19.00	238.0	260.00	M20	1	7.50
AV C6 SEM22 61X310	63.00	22.00	61.00	19.00	288.0	310.00	M20	1	8.70
AV C6 SEM27 61X250	63.00	27.00	61.00	21.00	228.0	250.00	M20	1	7.40
AV C6 SEM27 61X300	63.00	27.00	61.00	21.00	278.0	300.00	M20	1	8.50

New

(1) 1 - Slot for data chip, 0 - Without slot for data chip

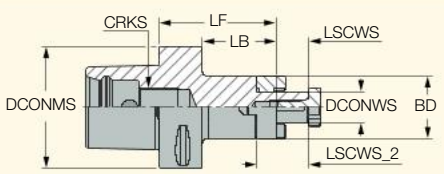
Spare Parts

Designation						
AV C5 SEM22 48X220	SR M4X10DIN912	DR.DOG 10S	M10 CLAMP SCREW SEM22	COOLING TUBE C5*	WRENCH COOL TUBE C5*	WRENCH M10 SEMC 22*
AV C5 SEM22 48X270	SR M4X10DIN912	DR.DOG 10S	M10 CLAMP SCREW SEM22	COOLING TUBE C5*	WRENCH COOL TUBE C5*	WRENCH M10 SEMC 22*
AV C6 SEM22 48X270	SR M4X10DIN912	DR.DOG 10S	M10 CLAMP SCREW SEM22	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH M10 SEMC 22*
AV C6 SEM22 61X260	SR M4X10DIN912	DR.DOG 10S	M10 CLAMP SCREW SEM22	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH M10 SEMC 22*
AV C6 SEM22 61X310	SR M4X10DIN912	DR.DOG 10S	M10 CLAMP SCREW SEM22	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH M10 SEMC 22*
AV C6 SEM27 61X250	SR M5X14DIN912	DR.DOG 12S	M12 CLAMP SCREW SEM27	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH M12 SEMC 27*
AV C6 SEM27 61X300	SR M5X14DIN912	DR.DOG 12S	M12 CLAMP SCREW SEM27	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH M12 SEMC 27*

* Optional, to be ordered separately

CAMFIX

C#-SEMC
DIN 6358 COMBI Shell Mill Holders with CAMFIX (ISO 26623-1) Exchangeable Tapered Shanks



Designation	DCONMS	DCONWS	LF	BD	LB	LSCWS	LSCWS_2	CRKS	DCP(1)	kg
C3 SEMC 16X30	32.00	16.00	30.00	32.00	10.0	17.00	27.00	M12	0	0.40
C4 SEMC16X45	40.00	16.00	45.00	32.00	25.0	17.00	27.00	M14	1	0.36
C4 SEMC22X45	40.00	22.00	45.00	40.00	25.0	19.00	31.00	M14	1	0.40
C5 SEMC16X55	50.00	16.00	55.00	32.00	35.0	17.00	27.00	M16	1	0.60
C5 SEMC22X65	50.00	22.00	65.00	40.00	45.0	19.00	31.00	M16	1	0.79
C5 SEMC27X85	50.00	27.00	85.00	48.00	65.0	21.00	33.00	M16	1	1.22
C6 SEMC16X60	63.00	16.00	60.00	32.00	38.0	17.00	27.00	M20	1	0.95
C6 SEMC16X100	63.00	16.00	100.00	32.00	78.0	17.00	27.00	M20	1	1.28
C6 SEMC22X60	63.00	22.00	60.00	40.00	38.0	19.00	31.00	M20	1	1.25
C6 SEMC22X100	63.00	22.00	100.00	40.00	78.0	19.00	31.00	M20	1	1.40
C6 SEMC27X60	63.00	27.00	60.00	48.00	38.0	21.00	33.00	M20	1	1.21
C6 SEMC27X100	63.00	27.00	100.00	48.00	78.0	21.00	33.00	M20	1	1.69
C6 SEMC32X60	63.00	32.00	60.00	58.00	38.0	24.00	38.00	M20	1	1.35
C6 SEMC40X70	63.00	40.00	70.00	70.00	48.0	27.00	41.00	M20	1	1.95

- For internal coolant through the holder, the related COOLANT SET should be ordered via Accessories (applicable to certain tools only)

(1) 1 - Slot for data chip, 0 - Without slot for data chip

808 809

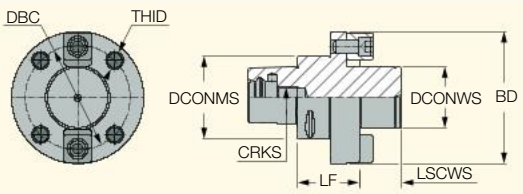
Spare Parts

Designation						
C3 SEMC 16X30	16 D.RING SEMC	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*			KEY SEMC 16 4X4X20
C4 SEMC16X45	16 D.RING SEMC	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	COOLING TUBE C4*	WRENCH COOL TUBE C4*	KEY SEMC 16 4X4X20
C4 SEMC22X45	22 D.RING SEMC	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22	COOLING TUBE C4*	WRENCH COOL TUBE C4*	KEY SEMC 22 6X6X25
C5 SEMC16X55	16 D.RING SEMC	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16	COOLING TUBE C5*	WRENCH COOL TUBE C5*	KEY SEMC 16 4X4X20
C5 SEMC22X65	22 D.RING SEMC	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	COOLING TUBE C5*	WRENCH COOL TUBE C5*	KEY SEMC 22 6X6X25
C5 SEMC27X85	27 D.RING SEMC	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	COOLING TUBE C5*	WRENCH COOL TUBE C5*	KEY SEMC 27 7X7X25
C6 SEMC16X60	16 D.RING SEMC	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	KEY SEMC 16 4X4X20
C6 SEMC16X100	16 D.RING SEMC	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	KEY SEMC 16 4X4X20
C6 SEMC22X60	22 D.RING SEMC	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	KEY SEMC 22 6X6X25
C6 SEMC22X100	22 D.RING SEMC	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	KEY SEMC 22 6X6X25
C6 SEMC27X60	27 D.RING SEMC	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	KEY SEMC 27 7X7X25
C6 SEMC27X100	27 D.RING SEMC	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	KEY SEMC 27 7X7X25
C6 SEMC32X60	32 D.RING SEMC	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	KEY SEMC 32 8X7X28
C6 SEMC40X70	40 D.RING SEMC	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	COOLING TUBE C6*	WRENCH COOL TUBE C6*	KEY SEMC 40 10X8X32

* Optional, to be ordered separately

CAMFIX

C#-FM
DIN 6357 Face Mill Holders with CAMFIX (ISO 26623-1) Tapered Shanks



Designation	DCONMS	DCONWS	LSCWS	LF	BD	DBC	THID	CRKS	DCP(1)	kg
C8 FM 60X60	80.00	60.00	40.00	60.00	128.00	101.60	M16	M20	1	5.22

- Peripheral clamping screws are not supplied.

(1) 1 - Slot for data chip, 0 - Without slot for data chip

808 809

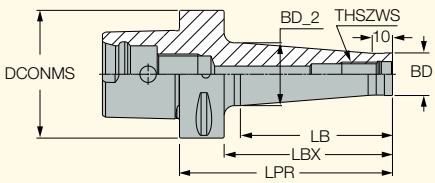
Spare Parts

Designation					
C8 FM 60X60	COOLING TUBE C8*	WRENCH COOL TUBE C8*	SR M16X50 DIN912	DR. DOG 1E	SR M12X25 DIN 912

* Optional, to be ordered separately

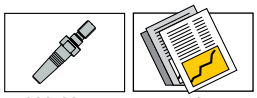
CAMFIX FLEXFIT

C#-ODP (FLEX-FIT)
FLEX-FIT Threaded Connection Shanks with CAMFIX (ISO 26623-1) Adaptation



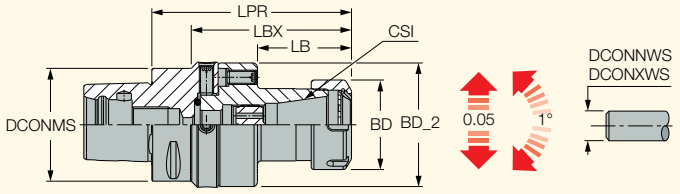
Designation	DCONMS	THSZWS	BD	BD_2	LPR	LBX	LB	DCP(1)	kg		
C3 ODP 12X53	32.00	M12	21.00	26.00	53.00	38.0	23.00	0	0.32		
C4 ODP 10X53	40.00	M10	18.00	23.00	53.00	33.0	23.00	1	0.33	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 ODP 12X53	40.00	M12	21.00	26.00	53.00	33.0	23.00	1	0.33	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 ODP 16X53	40.00	M16	29.00	34.00	53.00	33.0	23.00	1	0.40	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C5 ODP 10X53	50.00	M10	18.00	19.50	53.00	33.0	25.00	1	0.49	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ODP 12X103	50.00	M12	21.00	31.00	103.00	83.0	75.00	1	0.72	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ODP 12X53	50.00	M12	21.00	23.50	53.00	33.0	25.00	1	0.50	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ODP 16X103	50.00	M16	29.00	36.00	103.00	83.0	75.00	1	0.85	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ODP 16X53	50.00	M16	29.00	34.00	53.00	33.0	25.00	1	0.57	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C6 ODP 10X105	63.00	M10	18.00	28.00	105.00	83.0	75.00	1	1.00	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ODP 10X130	63.00	M10	18.00	32.00	130.00	108.0	100.00	1	0.80	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ODP 10X55	63.00	M10	18.00	19.50	55.00	33.0	25.00	1	0.82	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ODP 12X105	63.00	M12	21.00	31.00	105.00	83.0	75.00	1	1.07	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ODP 12X130	63.00	M12	21.00	36.00	130.00	108.0	100.00	1	1.26	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ODP 12X55	63.00	M12	21.00	23.50	55.00	33.0	25.00	1	0.84	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ODP 16X105	63.00	M16	29.00	34.00	105.00	83.0	75.00	1	1.20	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ODP 16X130	63.00	M16	29.00	41.00	130.00	108.0	100.00	1	1.49	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ODP 16X55	63.00	M16	29.00	34.00	55.00	33.0	25.00	1	0.89	COOLING TUBE C6*	WRENCH COOL TUBE C6*

(1) 1 - Slot for data chip, 0 - Without slot for data chip
* Optional, to be ordered separately


802-805 746

CAMFIX FINEFIT

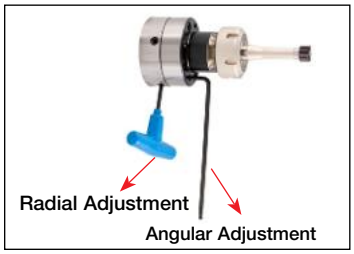
ADJ C#-ER
FINE-FIT Center Alignment Shank and Base with CAMFIX Adaptations for Specially Tailored Toolholders

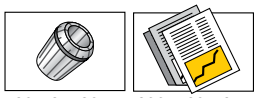


Designation	DCONMS	CSI	DCONNWS(1)	DCONXWS(2)	BD_2	BD	LPR	LBX	LB	DCP(3)	kg
ADJ C4 ER32	40.00	ER32	2.0	20.0	70.00	50.00	110.00	89.5	52.50	1	1.58
ADJ C5 ER32	50.00	ER32	2.0	20.0	70.00	50.00	115.00	95.0	52.50	1	2.12
ADJ C6 ER32	63.00	ER32	2.0	20.0	70.00	50.00	111.50	89.5	52.50	1	2.07

- Radial adjustment 0.05 mm, Angular adjustment 1°

(1) Minimum diameter
(2) Maximum diameter
(3) 1 - Slot for data chip, 0 - Without slot for data chip



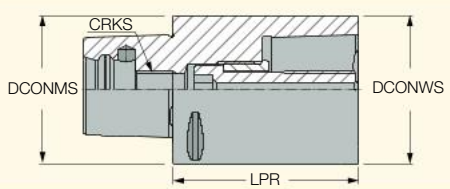

763-765, 635 633, 763-765

Spare Parts

Designation	
ADJ C#-ER	ADJ ER32 NOSE

CAMFIX

EX C# (CAMFIX extension)
CAMFIX Extension Adapters



Designation	DCONMS	DCONWS	LPR	CRKS	DCP(1)	kg
C3 EX C3X080	32.00	32.00	80.00	M12	0	0.50
C4 EX C4X060	40.00	40.00	60.00	M14	0	0.50
C4 EX C4X080	40.00	40.00	80.00	M14	0	0.70
C5 EX C5X080	50.00	50.00	80.00	M16	0	1.13
C5 EX C5X100	50.00	50.00	100.00	M16	0	1.42
C6 EX C6X100	63.00	63.00	100.00	M20	0	2.23
C6 EX C6X140	63.00	63.00	140.00	M20	0	3.13
C8 EX C8X100	80.00	80.00	100.00	M20	0	3.65
C8 EX C8X125	80.00	80.00	125.00	M20	0	4.60

(1) 1 - Slot for data chip, 0 - Without slot for data chip

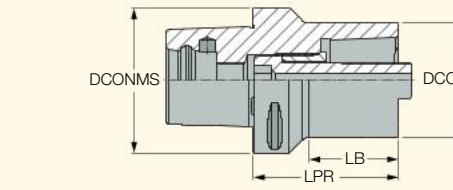
Spare Parts

Designation						
C3 EX C3X080	SR M12X50 C3	HW 7.0*	MT RING M18X15XC3	COOLING TUBE C3*	WRENCH COOL TUBE C3*	WRENCH C3 DRW NUT*
C4 EX C4X060	SR M14X58 C4	HW 8.0*	MT RING M22X17XC4	COOLING TUBE C4*	WRENCH COOL TUBE C4*	WRENCH C4 DRW NUT*
C4 EX C4X080	SR M14X58 C4	HW 8.0*	MT RING M22X17XC4	COOLING TUBE C4*	WRENCH COOL TUBE C4*	WRENCH C4 DRW NUT*
C5 EX C5X080	SR M16X70 C5	HW 10.0*	MT RING M25X20XC5	COOLING TUBE C5*	WRENCH COOL TUBE C5*	WRENCH C5 DRW NUT*
C5 EX C5X100	SR M16X70 C5	HW 10.0*	MT RING M25X20XC5	COOLING TUBE C5*	WRENCH COOL TUBE C5*	WRENCH C5 DRW NUT*
C6 EX C6X100	SR M20X87 C6/8	HW 14.0*	MT RING M30X24XC6/8	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH C6-8 DRW NUT*
C6 EX C6X140	SR M20X87 C6/8	HW 14.0*	MT RING M30X24XC6/8	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH C6-8 DRW NUT*
C8 EX C8X100	SR M20X87 C6/8	HW 14.0*	MT RING M30X24XC6/8	COOLING TUBE C8*	WRENCH COOL TUBE C8*	WRENCH C6-8 DRW NUT*
C8 EX C8X125	SR M20X87 C6/8	HW 14.0*	MT RING M30X24XC6/8	COOLING TUBE C8*	WRENCH COOL TUBE C8*	WRENCH C6-8 DRW NUT*

* Optional, to be ordered separately

CAMFIX

RE-C#
CAMFIX Reduction Adapters



Designation	DCONMS	DCONWS	LPR	LB	DCP(1)	kg
C6 RE C3X070	63.00	32.00	70.00	39.00	0	1.10
C8 RE C3X060	80.00	32.00	60.00	29.30	0	1.70
C6 RE C4X080	63.00	40.00	80.00	51.40	0	1.20
C8 RE C4X070	80.00	40.00	70.00	36.50	0	1.90
C6 RE C5X080	63.00	50.00	80.00	51.50	0	1.50
C8 RE C5X080	80.00	50.00	80.00	49.30	0	2.20
C8 RE C6X080	80.00	63.00	80.00	53.10	0	2.50
C8 RE C6X120	80.00	63.00	120.00	12.00	0	4.00

(1) 1 - Slot for data chip, 0 - Without slot for data chip

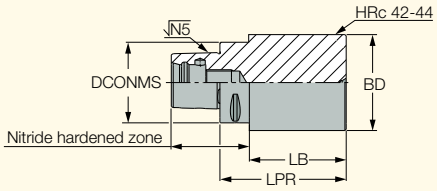
Spare Parts

Designation						
C6 RE C3X070	SR M12X50 C3	HW 7.0*	MT RING M18X15XC3	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH C3 DRW NUT*
C8 RE C3X060	SR M12X50 C3	HW 7.0*	MT RING M18X15XC3	COOLING TUBE C8*	WRENCH COOL TUBE C8*	WRENCH C3 DRW NUT*
C6 RE C4X080	SR M14X58 C4	HW 8.0*	MT RING M22X17XC4	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH C4 DRW NUT*
C8 RE C4X070	SR M14X58 C4	HW 8.0*	MT RING M22X17XC4	COOLING TUBE C8*	WRENCH COOL TUBE C8*	WRENCH C4 DRW NUT*
C6 RE C5X080	SR M16X70 C5	HW 10.0*	MT RING M25X20XC5	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH C5 DRW NUT*
C8 RE C5X080	SR M16X70 C5	HW 10.0*	MT RING M25X20XC5	COOLING TUBE C8*	WRENCH COOL TUBE C8*	WRENCH C5 DRW NUT*
C8 RE C6X080	SR M20X87 C6/8	HW 14.0*	MT RING M30X24XC6/8	COOLING TUBE C8*	WRENCH COOL TUBE C8*	WRENCH C6-8 DRW NUT*
C8 RE C6X120	SR M20X87 C6/8	HW 14.0*	MT RING M30X24XC6/8	COOLING TUBE C8*	WRENCH COOL TUBE C8*	WRENCH C6-8 DRW NUT*

* Optional, to be ordered separately

CAMFIX

C#-B4340 (blank)
Blanks with CAMFIX
(ISO 26623-1 Standard)
Exchangeable Tapered Shanks



Designation	DCONMS	BD	LPR	LB	DCP(1)	kg		
C3 B4340 032090	32.00	32.00	90.00	-	0	0.60	COOLING TUBE C3*	WRENCH COOL TUBE C3*
C3 B4340 050125	32.00	50.00	125.00	108.2	0	1.81	COOLING TUBE C3*	WRENCH COOL TUBE C3*
C3 B4340 060090	32.00	60.00	90.00	73.2	0	0.28	COOLING TUBE C3*	WRENCH COOL TUBE C3*
C3 B4340 070060	32.00	70.00	60.00	43.2	0	0.00	COOLING TUBE C3*	WRENCH COOL TUBE C3*
C3 B4340 090070	32.00	90.00	70.00	53.0	0	2.80	COOLING TUBE C3*	WRENCH COOL TUBE C3*
C4 B4340 040055	40.00	40.00	55.00	35.0	1	1.02	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 B4340 040095	40.00	40.00	95.00	75.0	1	0.00	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 B4340 052065	40.00	52.00	65.00	44.0	1	0.00	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 B4340 060165	40.00	60.00	165.00	144.0	1	3.47	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 B4340 066055	40.00	66.00	55.00	35.0	1	1.16	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 B4340 080050	40.00	80.00	50.00	28.2	1	1.38	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 B4340 080075	40.00	80.00	75.00	54.0	1	2.38	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 B4340 100085	40.00	100.00	85.00	64.0	1	4.10	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C5 B4340 050125	50.00	50.00	125.00	105.0	1	2.06	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 B4340 075065	50.00	75.00	65.00	43.2	1	3.80	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 B4340 075175	50.00	75.00	175.00	154.0	1	5.79	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 B4340 090050	50.00	90.00	50.00	28.2	1	2.30	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 B4340 090065	50.00	90.00	65.00	43.2	1	1.95	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 B4340 090080	50.00	90.00	80.00	59.0	1	3.37	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 B4340 110090	50.00	110.00	90.00	69.0	1	5.61	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C6 B4340 063100	63.00	63.00	100.00	78.0	1	2.72	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 B4340 075195	63.00	75.00	195.00	172.0	1	6.78	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 B4340 095050	63.00	95.00	50.00	26.2	1	2.25	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 B4340 110085	63.00	110.00	85.00	62.0	1	5.38	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 B4340 120180	63.00	120.00	180.00	157.0	1	14.73	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 B4340 130095	63.00	130.00	95.00	72.0	1	8.24	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C8 B4340 080200	80.00	80.00	200.00	170.0	1	8.45	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 B4340 120160	80.00	120.00	160.00	129.0	1	13.21	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 B4340 130090	80.00	130.00	90.00	59.0	1	7.89	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 B4340 145200	80.00	145.00	200.00	169.0	1	23.95	COOLING TUBE C8*	WRENCH COOL TUBE C8*

- Material SAE 4340

(1) 1 - Slot for data chip, 0 - Without slot for data chip

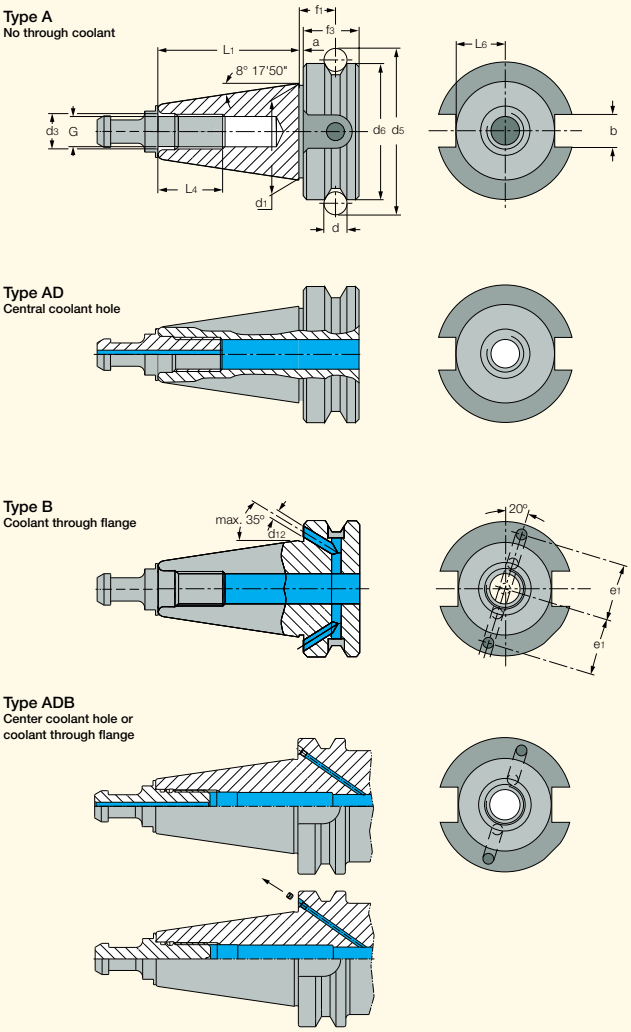
* Optional, to be ordered separately

BT MAS-403

BT MAS

Toolholder Standard

"ADB" holders provide both "AD" and "B" type coolant flow options

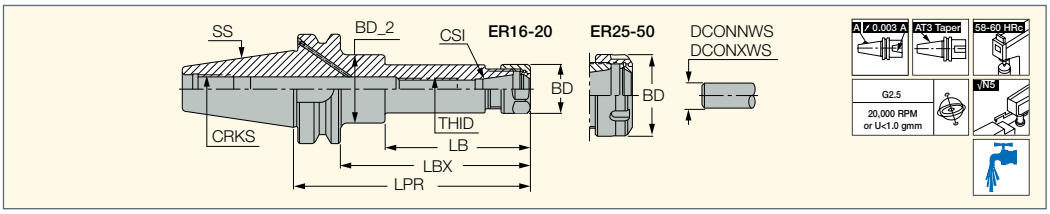


Shank	a	b (H12)	d	d1	G	d3 (H8)	d5	d6 (H8)	f1 ±0.1
BT 30	2	16.1	8	31.75	M12	12.5	56.144	46	13.6
BT 40	2	16.1	10	44.45	M16	17.0	75.679	63	16.6
BT 50	3	25.7	15	69.85	M24	25.0	119.020	100	23.2

Shank	f3	L1 ±0.2	L4 MIN	L6-0.2	e1 ±0.1	d12	Taper AT3
BT 30	20	48.4	24	16.3	21	4	0.002
BT 40	25	65.4	30	22.6	27	4	0.003
BT 50	35	101.8	45	35.4	42	6	0.004

BT MAS

BT-ER
DIN6499 ER Collet Chucks
with BT MAS-403 ADB
Tapered Shanks



Designation	SS	CSI	DCONNWS[3]	DCONXWS[4]	LPR	LBX	LB	BD	BD_2	THID	CRKS	DCP[5]	kg
BT30 ER16X 70 [1]	30	ER16	0.5	10.0	70.00	48.0	-	28.00	-	M10	M12	0	0.47
BT30 ER16X100 [1]	30	ER16	0.5	10.0	100.00	73.0	-	28.00	-	M10	M12	0	0.61
BT30 ER20X 70 [1]	30	ER20	1.0	13.0	70.00	48.0	-	34.00	-	M12	M12	0	0.51
BT30 ER25X 60 [1]	30	ER25	1.0	16.0	60.00	38.0	-	42.00	-	M16	M12	0	0.46
BT30 ER32X 60 [1]	30	ER32	2.0	20.0	60.00	38.0	-	50.00	-	M18X1.5	M12	0	0.42
BT40 ER11X100 M	40	ER11	0.5	7.0	100.00	73.0	-	16.00	-	M6	M16	0	1.06
BT40 ER16X 70	40	ER16	0.5	10.0	70.00	43.0	-	28.00	-	M12	M16	0	1.06
BT40 ER16X100	40	ER16	0.5	10.0	100.00	73.0	-	28.00	-	M12	M16	0	1.20
BT40 ER16X100 M	40	ER16	0.5	10.0	100.00	73.0	-	22.00	-	M10	M16	0	1.16
BT40 ER16X150	40	ER16	0.5	10.0	150.00	123.0	86.00	28.00	40.00	M12	M16	0	1.56
BT40 ER16X200 [2]	40	ER16	0.5	10.0	200.00	173.0	110.00	28.00	40.00	M10	M16	0	1.84
BT40 ER20X 70	40	ER20	1.0	13.0	70.00	43.0	-	34.00	-	M12	M16	0	1.07
BT40 ER20X100	40	ER20	1.0	13.0	100.00	73.0	-	34.00	-	M12	M16	0	1.27
BT40 ER20X120	40	ER20	1.0	13.0	120.00	93.0	-	34.00	-	M12	M16	0	1.39
BT40 ER20X150	40	ER20	1.0	13.0	150.00	123.0	-	34.00	-	M12	M16	0	1.61
BT40 ER25X 60	40	ER25	1.0	13.0	60.00	33.0	-	42.00	-	M16	M16	0	1.00
BT40 ER25X100	40	ER25	1.0	16.0	100.00	73.0	-	42.00	-	M16	M16	0	1.40
BT40 ER25X150	40	ER25	1.0	16.0	150.00	123.0	-	42.00	-	M16	M16	0	2.07
BT40 ER32X 60	40	ER32	2.0	20.0	60.00	33.0	-	50.00	-	M22X1.5	M16	0	0.90
BT40 ER32X100	40	ER32	2.0	20.0	100.00	73.0	-	50.00	-	M22X1.5	M16	0	1.45
BT40 ER32X120	40	ER32	2.0	20.0	120.00	93.0	-	50.00	-	M22X1.5	M16	0	1.74
BT40 ER32X150	40	ER32	2.0	20.0	150.00	123.0	-	50.00	-	M22X1.5	M16	0	2.19
BT40 ER32X200 [2]	40	ER32	2.0	20.0	200.00	173.0	113.00	50.00	57.00	M22X1.5	M16	0	3.02
BT40 ER40X 80	40	ER40	3.0	26.0	80.00	53.0	-	63.00	-	M28X1.5	M16	0	1.33
BT40 ER40X100	40	ER40	3.0	26.0	100.00	73.0	-	63.00	-	M28X1.5	M16	0	1.32
BT40 ER40X150	40	ER40	3.0	26.0	150.00	123.0	-	63.00	-	M28X1.5	M16	0	2.03
BT40 ER50X 90	40	ER50	10.0	34.0	90.00	63.0	-	78.00	-	M28X1.5	M16	0	1.27
BT50 ER16X100	50	ER16	0.5	10.0	100.00	62.0	-	28.00	-	M12	M24	0	3.70
BT50 ER16X125	50	ER16	0.5	10.0	125.00	87.0	-	28.00	-	M12	M24	0	3.94
BT50 ER16X150	50	ER16	0.5	10.0	150.00	112.0	-	28.00	-	M12	M24	0	3.99
BT50 ER16X200 [2]	50	ER16	0.5	10.0	200.00	162.0	85.00	28.00	40.00	M10	M24	0	4.51
BT50 ER20X100	50	ER20	1.0	10.0	100.00	62.0	-	34.00	-	M12	M24	0	3.81
BT50 ER20X125	50	ER20	1.0	13.0	125.00	87.0	-	34.00	-	M12	M24	0	4.16
BT50 ER20X150	50	ER20	1.0	13.0	150.00	112.0	-	34.00	-	M12	M24	0	4.06
BT50 ER20X200 [2]	50	ER20	1.0	13.0	200.00	162.0	85.00	34.00	50.00	M12	M24	0	5.04
BT50 ER25X100	50	ER25	1.0	16.0	100.00	62.0	-	42.00	-	M16	M24	0	3.90
BT50 ER25X150	50	ER25	1.0	16.0	150.00	112.0	-	42.00	-	M16	M24	0	4.31
BT50 ER25X200 [2]	50	ER25	1.0	16.0	200.00	162.0	87.00	42.00	55.00	M16	M24	0	5.29
BT50 ER32X100	50	ER32	2.0	20.0	100.00	62.0	-	50.00	-	M22X1.5	M24	0	4.01
BT50 ER32X125	50	ER32	2.0	20.0	125.00	87.0	-	50.00	-	M12	M24	0	4.24
BT50 ER32X150	50	ER32	2.0	20.0	150.00	112.0	-	50.00	-	M22X1.5	M24	0	4.64
BT50 ER32X200 [2]	50	ER32	2.0	20.0	200.00	162.0	88.00	50.00	63.00	M22X1.5	M24	0	5.80
BT50 ER40X100	50	ER40	3.0	26.0	100.00	62.0	-	63.00	-	M28X1.5	M24	0	4.03
BT50 ER40X150	50	ER40	3.0	26.0	150.00	112.0	-	63.00	-	M28X1.5	M24	0	5.05
BT50 ER40X200 [2]	50	ER40	3.0	26.0	200.00	162.0	-	63.00	-	M28X1.5	M24	0	6.23
BT50 ER50X100	50	ER50	3.0	26.0	100.00	62.0	-	78.00	-	M36X1.5	M24	0	0.01
BT50 ER50X150	50	ER50	10.0	34.0	150.00	112.0	-	78.00	-	M36X1.5	M24	0	5.50

- B is the designation for coolant through flange.

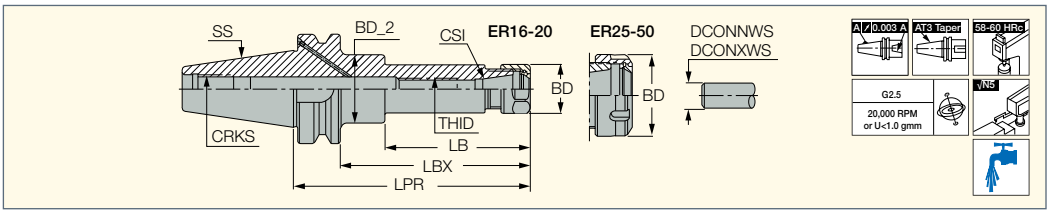
[1] AD TYPE
[2] Balanced to G6.3/12,000 RPM
[3] Minimum diameter
[4] Maximum diameter
[5] 1 - Slot for data chip, 0 - Without slot for data chip

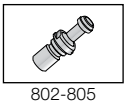
Continued

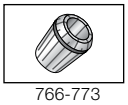
BT MAS

BT-ER

DIN6499 ER Collet Chucks
with BT MAS-403 ADB
Tapered Shanks




802-805


766-773

763-765, 635

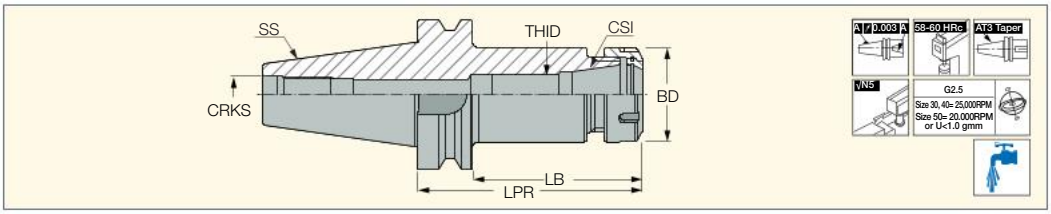
Spare Parts

Designation						
BT30 ER16X 70	NUT ER16 TOP		WRENCH ER16*	PRESET ER-JET 10X1.5*		
BT30 ER16X100	NUT ER16 TOP		WRENCH ER16*	PRESET ER-JET 10X1.5*		
BT30 ER20X 70	NUT ER20 TOP		WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*	
BT30 ER25X 60	NUT ER25 TOP		WRENCH ER25*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*	
BT30 ER32X 60	NUT ER32 TOP		WRENCH ER32*	PRESET ER-JET 18X1.5*	PRESET ER-JET 18X1.5L*	
BT40 ER11X100 M		NUT ER11 MINI				WRENCH ER11 MINI*
BT40 ER16X 70	NUT ER16 TOP		WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*	
BT40 ER16X100	NUT ER16 TOP		WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*	
BT40 ER16X150	NUT ER16 TOP		WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*	
BT40 ER16X200	NUT ER16 TOP		WRENCH ER16*	PRESET ER-JET 10X1.5*		
BT40 ER20X 70	NUT ER20 TOP		WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*	
BT40 ER20X100	NUT ER20 TOP		WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*	
BT40 ER20X120	NUT ER20 TOP		WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*	
BT40 ER20X150	NUT ER20 TOP		WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*	
BT40 ER25X 60	NUT ER25 TOP		WRENCH ER25*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*	
BT40 ER25X100	NUT ER25 TOP		WRENCH ER25*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*	
BT40 ER25X150	NUT ER25 TOP		WRENCH ER25*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*	
BT40 ER32X 60	NUT ER32 TOP		WRENCH ER32*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*	
BT40 ER32X100	NUT ER32 TOP		WRENCH ER32*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*	
BT40 ER32X120	NUT ER32 TOP		WRENCH ER32*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*	
BT40 ER32X150	NUT ER32 TOP		WRENCH ER32*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*	
BT40 ER32X200	NUT ER32 TOP		WRENCH ER32*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*	
BT40 ER40X 80	NUT ER40 TOP		WRENCH ER40*	PRESET ER-JET 28X1.5*		
BT40 ER40X100	NUT ER40 TOP		WRENCH ER40*	PRESET ER-JET 28X1.5*		
BT40 ER40X150	NUT ER40 TOP		WRENCH ER40*	PRESET ER-JET 28X1.5*		
BT40 ER50X 90	NUT ER50 UM		WRENCH ER50*	PRESET ER-JET 28X1.5*		
BT50 ER16X100	NUT ER16 TOP		WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*	
BT50 ER16X125	NUT ER16 TOP		WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*	
BT50 ER16X150	NUT ER16 TOP		WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*	
BT50 ER16X200	NUT ER16 TOP		WRENCH ER16*	PRESET ER-JET 10X1.5*		
BT50 ER20X100	NUT ER20 TOP		WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*	
BT50 ER20X125	NUT ER20 TOP		WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*	
BT50 ER20X150	NUT ER20 TOP		WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*	
BT50 ER20X200	NUT ER20 TOP		WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*	
BT50 ER25X100	NUT ER25 TOP		WRENCH ER25*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*	
BT50 ER25X150	NUT ER25 TOP		WRENCH ER25*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*	
BT50 ER25X200	NUT ER25 TOP		WRENCH ER25*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*	
BT50 ER32X100	NUT ER32 TOP		WRENCH ER32*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*	
BT50 ER32X125	NUT ER32 TOP		WRENCH ER32*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*	
BT50 ER32X150	NUT ER32 TOP		WRENCH ER32*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*	
BT50 ER32X200	NUT ER32 TOP		WRENCH ER32*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*	
BT50 ER40X100	NUT ER40 TOP		WRENCH ER40*	PRESET ER-JET 28X1.5*		
BT50 ER40X150	NUT ER40 TOP		WRENCH ER40*	PRESET ER-JET 28X1.5*		
BT50 ER40X200	NUT ER40 TOP		WRENCH ER40*	PRESET ER-JET 28X1.5*		
BT50 ER50X100	NUT ER50 UM		WRENCH ER50*	PRESET ER-JET 28X1.5*		
BT50 ER50X150	NUT ER50 UM		WRENCH ER50*	PRESET ER-JET 28X1.5*		

* Optional, to be ordered separately

BT MAS

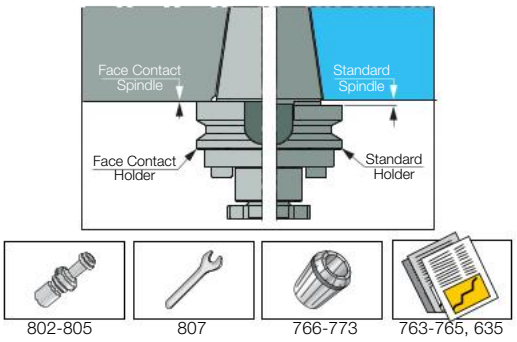
BT-FC-ER
ER Collet Chucks with BT MAS-403 Face Contact AD Tapered Shanks



Designation	SS	CSI	BD	LPR	LB	THID	CRKS	DCP(1)	kg	
BT30 FC ER16X70	30	ER16	28.00	70.00	48.0	M10	M12	0	0.60	NUT ER16 TOP
BT30 FC ER16X100	30	ER16	28.00	100.00	79.0	M10	M12	0	0.61	NUT ER16 TOP
BT30 FC ER20X70	30	ER20	34.00	70.00	48.0	M12	M12	0	0.51	NUT ER20 TOP
BT30 FC ER25X60	30	ER25	42.00	60.00	38.0	M16	M12	0	0.47	NUT ER25 TOP
BT30 FC ER32X60	30	ER32	50.00	60.00	38.0	M18	M12	0	0.46	NUT ER32 TOP
BT40 FC ER16X70	40	ER16	28.00	70.00	44.0	M12	M16	0	1.05	NUT ER16 TOP
BT40 FC ER16X100	40	ER16	28.00	100.00	74.0	M12	M16	0	1.17	NUT ER16 TOP
BT40 FC ER32X60	40	ER32	50.00	60.00	34.0	M22X1.5	M16	0	0.92	NUT ER32 TOP
BT40 FC ER32X100	40	ER32	50.00	100.00	74.0	M22X1.5	M16	0	1.54	NUT ER32 TOP
BT40 FC ER40X80	40	ER40	63.00	80.00	54.0	M28X1.5	M16	0	1.09	NUT ER40 TOP
BT50 FC ER16X100	50	ER16	28.00	100.00	63.5	M12	M24	0	3.91	NUT ER16 TOP
BT50 FC ER16X150	50	ER16	28.00	150.00	113.5	M12	M24	0	3.96	NUT ER16 TOP
BT50 FC ER32X100	50	ER32	50.00	100.00	63.5	M22X1.5	M24	0	3.98	NUT ER32 TOP
BT50 FC ER32X150	50	ER32	50.00	150.00	113.5	M22X1.5	M24	0	4.65	NUT ER32 TOP
BT50 FC ER40X100	50	ER40	63.00	100.00	63.5	M28X1.5	M24	0	4.03	NUT ER40 TOP
BT50 FC ER40X150	50	ER40	63.00	150.00	113.5	M28X1.5	M24	0	5.60	NUT ER40 TOP

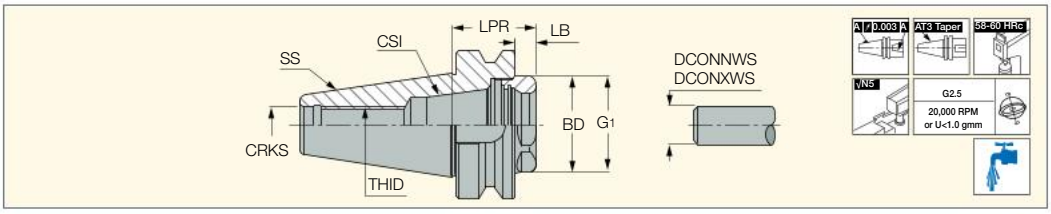
(1) 1 - Slot for data chip, 0 - Without slot for data chip

BT-FC Face Contact Taper



BT MAS SHORT

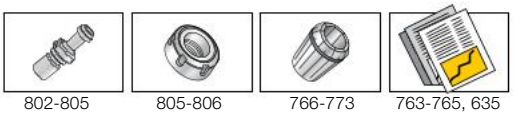
BT-ER-SHORT
Short ER Collet Chucks with BT MAS-403 AD Tapered Shanks



Designation	SS	CSI	DCONNWS(1)	DCONXWS(2)	LPR	LB	BD	THID	CRKS	G1	DCP(3)	kg
BT30 ER20 SHORT	30	ER20	1.0	13.0	23.70	5.2	25.00	M12	M12	M25X1.5	0	0.30
BT40 ER32 SHORT	40	ER32	2.0	20.0	36.50	6.0	40.00	M16	M16	M40X1.5	0	0.74
BT40 ER40 SHORT	40	ER40	3.0	26.0	43.00	6.0	50.00	M16	M16	M50X1.5	0	0.78
BT50 ER32 SHORT	50	ER32	2.0	20.0	44.00	6.0	40.00	M22X1.5	M24	M40X1.5	0	3.36
BT50 ER40 SHORT	50	ER40	3.0	26.0	44.00	6.0	50.00	M28X1.5	M24	M50X1.5	0	3.09

- B is the designation for coolant through flange.

(1) Minimum diameter
(2) Maximum diameter
(3) 1 - Slot for data chip, 0 - Without slot for data chip



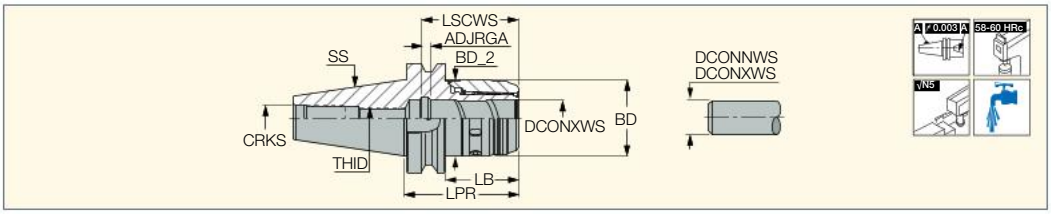
Spare Parts

Designation				
BT30 ER20 SHORT	NUT ER20 SHORT		PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
BT40 ER32 SHORT	NUT ER32 SHORT	WRENCH ER32 SHORT*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
BT40 ER40 SHORT	NUT ER40 SHORT	WRENCH ER40 SHORT*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
BT50 ER32 SHORT	NUT ER32 SHORT	WRENCH ER32 SHORT*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*
BT50 ER40 SHORT	NUT ER40 SHORT	WRENCH ER40 SHORT*	PRESET ER-JET 28X1.5*	

* Optional, to be ordered separately

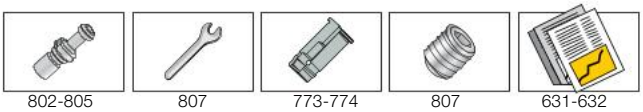
BT MAS MAXIN

BT-MAXIN
Power Chucks with BT MAS-403 ADB Tapered Shanks



Designation	SS	DCONNWS(1)	DCONXWS(2)	BD	BD_2	LPR	LB	ADJRGA	LSCWS	THID	CRKS	DCP(3)	kg
BT40 MAXIN 20X 85	40	6.0	20.0	51.00	52.00	85.00	58.0	12.00	68.0	M16	M16	0	1.12
BT40 MAXIN 32X108	40	6.0	32.0	69.00	70.00	108.00	81.0	13.00	83.0	M16	M16	0	1.60
BT50 MAXIN 20X105	50	6.0	20.0	51.00	52.00	105.00	67.0	13.00	69.0	M16	M24	0	3.90
BT50 MAXIN 20X105 ADB	50	6.0	20.0	51.00	52.00	105.00	67.0	13.00	69.0	M16	M24	0	0.00
BT50 MAXIN 32X106	50	6.0	32.0	69.00	70.00	106.00	68.0	14.00	83.0	M20X2	M24	0	3.80
BT50 MAXIN 32X106 ADB	50	6.0	32.0	69.00	70.00	106.00	68.0	14.00	83.0	M20X2	M24	0	0.00
BT50 MAXIN 32X135	50	6.0	32.0	69.00	70.00	135.00	97.0	15.00	84.0	M20X2	M24	0	4.60

(1) Minimum diameter by using a reduction collet
(2) Max. diameter without a collet
(3) 1 - Slot for data chip, 0 - Without slot for data chip


802-805 | 807 | 773-774 | 807 | 631-632

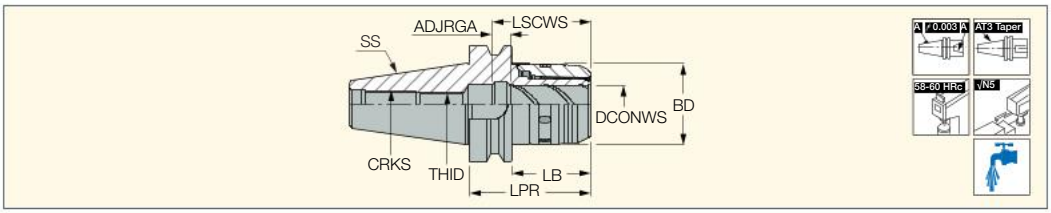
Spare Parts

Designation		
BT40 MAXIN 20X 85	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*
BT40 MAXIN 32X108	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*
BT50 MAXIN 20X105	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*
BT50 MAXIN 20X105 ADB	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*
BT50 MAXIN 32X106	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*
BT50 MAXIN 32X106 ADB	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*
BT50 MAXIN 32X135	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*

* Optional, to be ordered separately

BT MAS MAXIN

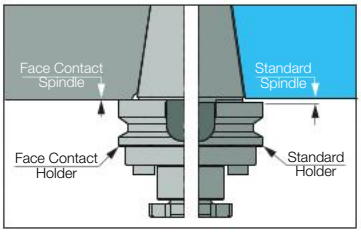
BT-FC-MAXIN
Power Chucks with BT MAS-403 Face Contact AD Tapered Shanks



Designation	SS	DCONNWS(1)	DCONXWS(2)	BD	LPR	LB	ADJRGA	LSCWS	THID	CRKS	DCP(3)	kg
BT40 FC MAXIN20X85	40	6.0	20.0	53.00	85.00	58.0	12.80	68.3	M16	M16	0	1.67
BT40 FC MAXIN32X108	40	6.0	32.0	70.00	108.00	80.5	13.00	83.0	M16	M16	0	1.65
BT50 FC MAXIN20X105	50	6.0	20.0	53.00	105.00	67.0	13.10	68.6	M16	M24	0	3.80
BT50 FC MAXIN32X106	50	6.0	32.0	69.90	106.00	68.0	14.30	83.3	M20X2	M24	0	3.92

(1) By using a reduction collet
(2) Without a collet
(3) 1 - Slot for data chip, 0 - Without slot for data chip

BT-FC Face Contact Taper



807 | 773-774 | 802-805 | 807 | 631-632

Spare Parts

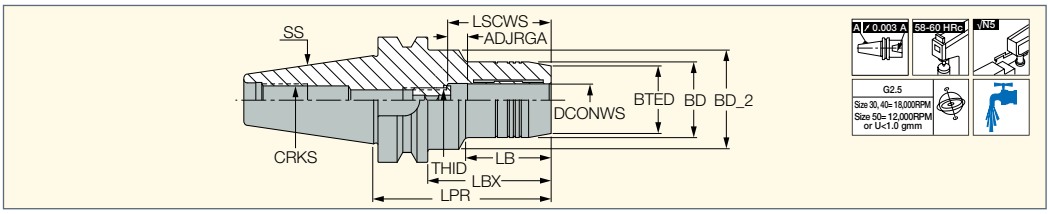
Designation		
BT40 FC MAXIN20X85	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*
BT40 FC MAXIN32X108	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*
BT50 FC MAXIN20X105	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*
BT50 FC MAXIN32X106	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*

* Optional, to be ordered separately

BT MAS HYDROFIT HOLDING LINE

BT-HYDRO

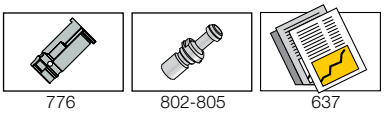
Hydraulic Chucks with MAS-BT Form AD Shanks,for Semi-Finish and Finish Applications



Designation	SS	DCONWS	BTED	BD	BD_2	LPR	LBX	LB	ADJRGA	LSCWS	THID	CRKS	DCP(1)	kg
BT30 HYDRO 8X64	30	8.00	25.00	28.00	45.00	64.00	42.0	29.00	10.00	37.0	M6	M12	0	0.68
BT30 HYDRO 10X64	30	10.00	27.00	30.00	-	64.00	42.0	-	10.00	42.0	M8X1	M12	0	0.59
BT30 HYDRO 12X72	30	12.00	29.00	32.00	-	72.00	50.0	-	10.00	47.0	M10X1	M12	0	0.70
BT30 HYDRO 14X70	30	14.00	30.00	34.00	-	70.00	48.0	-	10.00	47.0	M10X1	M12	0	0.69
BT30 HYDRO 16X90	30	16.00	34.00	38.00	50.00	90.00	63.0	47.50	10.00	52.0	M12X1	M12	0	1.00
BT30 HYDRO 18X90	30	18.00	36.00	40.00	42.00	90.00	68.0	52.00	10.00	52.0	M12X1	M12	0	0.97
BT30 HYDRO 20X90	30	20.00	38.00	42.00	-	90.00	68.0	-	10.00	52.0	M12X1	M12	0	0.56
BT40 HYDRO 6X90	40	6.00	23.00	26.00	50.00	90.00	63.0	43.00	10.00	37.0	M5	M16	0	1.39
BT40 HYDRO 8X90	40	8.00	25.00	28.00	50.00	90.00	63.0	43.50	10.00	37.0	M6	M16	0	1.40
BT40 HYDRO 10X90	40	10.00	27.00	30.00	50.00	90.00	63.0	44.00	10.00	42.0	M8X1	M16	0	1.44
BT40 HYDRO 12X90	40	12.00	29.00	32.00	50.00	90.00	63.0	44.50	10.00	47.0	M10X1	M16	0	1.45
BT40 HYDRO 14X90	40	14.00	30.00	34.00	50.00	90.00	63.0	47.50	10.00	47.0	M10X1	M16	0	1.35
BT40 HYDRO 16X90	40	16.00	34.00	38.00	50.00	90.00	63.0	47.50	10.00	52.0	M12X1	M16	0	1.51
BT40 HYDRO 18X90	40	18.00	36.00	40.00	50.00	90.00	63.0	47.50	10.00	52.0	M12X1	M16	0	1.54
BT40 HYDRO 20X90	40	20.00	38.00	42.00	50.00	90.00	63.0	47.50	10.00	52.0	M12X1	M16	0	1.56
BT40 HYDRO 25X90	40	25.00	46.00	50.00	63.00	90.00	55.0	55.00	10.00	58.0	M12X1	M16	0	1.67
BT40 HYDRO 32X110	40	32.00	56.00	60.00	60.00	110.00	81.5	81.50	10.00	62.0	M16X1	M16	0	2.36
BT50 HYDRO 6X110	50	6.00	23.00	26.00	80.00	110.00	72.0	43.00	10.00	37.0	M5	M24	0	4.73
BT50 HYDRO 8X110	50	8.00	25.00	28.00	80.00	110.00	72.0	43.50	10.00	37.0	M6	M24	0	4.76
BT50 HYDRO 10X110	50	10.00	27.00	30.00	80.00	110.00	72.0	44.00	10.00	42.0	M8X1	M24	0	4.77
BT50 HYDRO 12X110	50	12.00	29.00	32.00	80.00	110.00	72.0	42.00	10.00	47.0	M10X1	M24	0	4.80
BT50 HYDRO 14X110	50	14.00	30.00	34.00	80.00	110.00	72.0	42.00	10.00	47.0	M10X1	M24	0	4.69
BT50 HYDRO 16X110	50	16.00	34.00	38.00	80.00	110.00	72.0	45.00	10.00	52.0	M12X1	M24	0	4.80
BT50 HYDRO 18X110	50	18.00	36.00	40.00	80.00	110.00	72.0	45.00	10.00	52.0	M12X1	M24	0	4.89
BT50 HYDRO 20X110	50	20.00	38.00	42.00	80.00	110.00	72.0	47.50	10.00	52.0	M12X1	M24	0	4.83
BT50 HYDRO 25X110	50	25.00	46.00	50.00	80.00	110.00	72.0	47.50	10.00	58.0	M12X1	M24	0	4.95
BT50 HYDRO 32X110	50	32.00	56.00	60.00	80.00	110.00	72.0	47.50	10.00	64.0	M12X1	M24	0	5.12

- Chucking forces will be reduced by 25% if reduction sleeves are used. • Reduction sleeves are available for 12, 20, 25 and 32 mm bore diameters (order separately).
- The coolant passages in the B type flange are blocked with screws which can be removed when required.
- Clamping wrench (wrench HYDRO HEX 4) and test bar to be ordered separately.

(1) 1 - Slot for data chip, 0 - Without slot for data chip



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Spare Parts

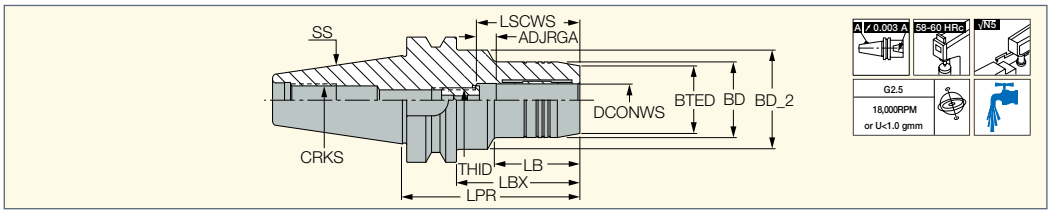
Designation			
BT30 HYDRO 8X64	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 8*
BT30 HYDRO 10X64	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 10*
BT30 HYDRO 12X72	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 12*
BT30 HYDRO 14X70	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 14*
BT30 HYDRO 16X90	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 16*
BT30 HYDRO 18X90	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 18*
BT30 HYDRO 20X90	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 20*
BT40 HYDRO 6X90	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 6*
BT40 HYDRO 8X90	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 8*
BT40 HYDRO 10X90	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 10*
BT40 HYDRO 12X90	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 12*
BT40 HYDRO 14X90	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 14*
BT40 HYDRO 16X90	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 16*
BT40 HYDRO 18X90	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 18*
BT40 HYDRO 20X90	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 20*
BT40 HYDRO 25X90	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 25*
BT40 HYDRO 32X110	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 32*
BT50 HYDRO 6X110	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 6*
BT50 HYDRO 8X110	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 8*
BT50 HYDRO 10X110	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 10*
BT50 HYDRO 12X110	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 12*
BT50 HYDRO 14X110	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 14*
BT50 HYDRO 16X110	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 16*
BT50 HYDRO 18X110	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 18*
BT50 HYDRO 20X110	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 20*
BT50 HYDRO 25X110	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 25*
BT50 HYDRO 32X110		WRENCH HYDRO HEX 4*	TEST BAR HYDRO 32*

* Optional, to be ordered separately

BT MAS HYDROFIT HOLDING LINE

BT-FC-HYDRO

Hydraulic Chucks with MAS-BT Face Contact Form AD Shanks, for Semi-Finish and Finish Applications



Designation	SS	DCONWS	LPR	BTED	BD	BD_2	LBX	LB	ADJRGA	LSCWS	THID	CRKS	DCP(1)	kg
BT30 FC HYDRO 6X60	30	6.00	60.00	23.00	26.00	-	38.0	33.00	10.00	37.0	M5	M12	0	0.50
BT30 FC HYDRO 8X64	30	8.00	64.00	25.00	28.00	45.00	42.0	29.00	6.00	37.0	M6	M12	0	0.60
BT30 FC HYDRO 10X64	30	10.00	64.00	27.00	30.00	-	42.0	37.00	10.00	42.0	M8x1	M12	0	0.50
BT30 FC HYDRO 12X72	30	12.00	72.00	29.00	32.00	-	50.0	43.00	10.00	50.0	M10x1	M12	0	0.60
BT30 FC HYDRO 14X70	30	14.00	70.00	30.00	34.00	-	48.0	33.00	10.00	48.0	M8x1	M12	0	0.70
BT30 FC HYDRO 16X90	30	16.00	90.00	34.00	38.00	-	68.0	52.00	10.00	52.0	M10x1	M12	0	0.90
BT30 FC HYDRO 18X90	30	18.00	90.00	36.00	40.00	-	68.0	52.00	10.00	52.0	M10x1	M12	0	0.90
BT30 FC HYDRO 20X90	30	20.00	90.00	38.00	42.00	42.00	68.0	-	10.00	52.0	M10x1	M12	0	0.90

- Chucking forces will be reduced by 25% if reduction sleeves are used
- Reduction sleeves are available for 12, and 20 mm bore diameters (order separately)
- Clamping wrench (wrench HYDRO HEX 4) and test bar to be ordered separately

(1) 1 - Slot for data chip, 0 - Without slot for data chip

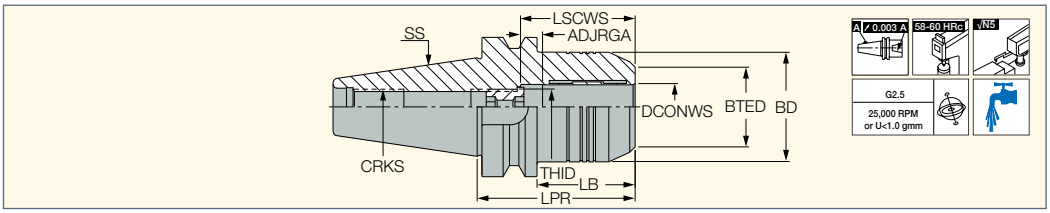
Spare Parts

Designation	
BT-FC-HYDRO	HYDRO CLAMP SCREW M8X14

BT MAS HYDROFIT HOLDING LINE

BT-HYDRO HD

Heavy Duty, Short Hydraulic Chucks With BT Form ADB Shanks



Designation	SS	DCONWS	BTED	BD	LPR	LB	ADJRGA	LSCWS	THID	CRKS	DCP(1)	kg
BT40 HYDRO 12X58 HD	40.0	12.00	32.00	42.00	58.00	31.0	10.00	46.0	M8X1	M16	0	1.23
BT40 HYDRO 16X72.5 HD	40.0	16.00	38.00	49.25	72.50	45.5	8.00	51.0	M8X1	M16	0	1.30
BT40 HYDRO 20X72.5 HD	40.0	20.00	38.00	49.25	72.50	45.5	8.00	51.0	M8X1	M16	0	1.40
BT50 HYDRO 20X83.5 HD	50.0	20.00	38.00	49.25	83.50	45.5	8.00	51.0	M8X1	M24	0	4.10
BT50 HYDRO 32X90 HD	50.0	32.00	58.50	72.00	90.00	52.0	9.00	61.0	M8X1	M24	0	4.60

(1) 1 - Slot for data chip, 0 - Without slot for data chip

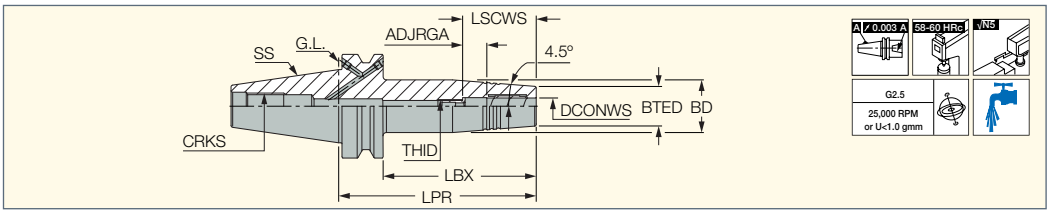
Spare Parts

Designation	
BT40 HYDRO 12X58 HD	ALLEN KEY SW5X100*
BT40 HYDRO 16X72.5 HD	ALLEN KEY SW5X100*
BT40 HYDRO 20X72.5 HD	ALLEN KEY SW5X100*
BT50 HYDRO 20X83.5 HD	ALLEN KEY SW5X100*
BT50 HYDRO 32X90 HD	ALLEN KEY SW6X100*

* Optional, to be ordered separately

BT MAS HYDROFIT HOLDING LINE

BT-HYDRO SF
Slim Design, Hydraulic Chucks with BT Shanks



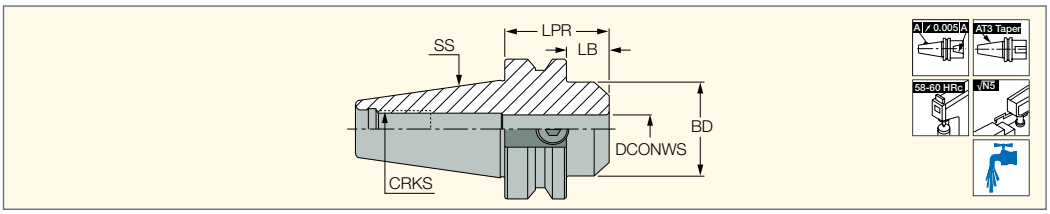
Designation	SS	DCONWS	BTED	BD	LPR	LBX	ADJRGA	LSCWS	THID	CRKS	DCP(1)	kg
BT30 HYDRO 6X80 SF	30	6.00	21.00	27.00	80.00	58.00	10.00	36.00	M5	M12	0	0.00
BT30 HYDRO 8X80 SF	30	8.00	21.00	27.00	80.00	58.00	10.00	36.00	M6	M12	0	0.00
BT30 HYDRO 10X80 SF	30	10.00	24.00	32.00	80.00	58.00	10.00	43.20	M8x1	M12	0	0.68
BT30 HYDRO 12X80 SF	30	12.00	24.00	32.00	80.00	58.00	10.00	47.00	M10x1	M12	0	0.67
BT30 HYDRO 16X80 SF	30	16.00	27.00	34.00	80.00	58.00	10.00	50.00	M12x1	M12	0	0.00
BT30 HYDRO 20X90 SF	30	20.00	33.00	42.00	90.00	68.00	10.00	52.00	M16x1	M12	0	0.88
BT40 HYDRO 6X120 SF	40	6.00	21.00	27.00	120.00	93.00	10.00	36.00	M5	M16	0	1.41
BT40 HYDRO 6X90 SF	40	6.00	21.00	27.00	90.00	63.00	10.00	36.00	M5	M16	0	1.28
BT40 HYDRO 8X120 SF	40	8.00	21.00	27.00	120.00	93.00	10.00	36.00	M6	M16	0	1.39
BT40 HYDRO 8X90 SF	40	8.00	21.00	27.00	90.00	63.00	10.00	36.00	M6	M16	0	1.27
BT40 HYDRO 10X120 SF	40	10.00	24.00	32.00	120.00	93.00	10.00	43.20	M8x1	M16	0	1.49
BT40 HYDRO 10X90 SF	40	10.00	24.00	32.00	90.00	63.00	10.00	43.20	M8x1	M16	0	1.32
BT40 HYDRO 12X120 SF	40	12.00	24.00	32.00	120.00	93.00	10.00	47.00	M10x1	M16	0	1.47
BT40 HYDRO 12X90 SF	40	12.00	24.00	32.00	90.00	63.00	10.00	47.00	M10x1	M16	0	1.30
BT40 HYDRO 16X120 SF	40	16.00	27.00	34.00	120.00	93.00	10.00	50.00	M12x1	M16	0	1.51
BT40 HYDRO 16X90 SF	40	16.00	27.00	34.00	90.00	63.00	10.00	50.00	M12x1	M16	0	1.32
BT40 HYDRO 20X120 SF	40	20.00	33.00	42.00	120.00	93.00	10.00	52.00	M16x1	M16	0	1.72
BT40 HYDRO 20X90 SF	40	20.00	33.00	42.00	90.00	63.00	10.00	52.00	M16x1	M16	0	1.44

New

(1) 1 - Slot for data chip, 0 - Without slot for data chip

BT MAS

BT-EM (Short)
Short DIN6359 / DIN 1835 Form B Weldon Endmill Holders with BT MAS-403 AD Tapered Shanks



Designation	SS	DCONWS	LPR	LB	BD	CRKS	DCP(1)	kg	
BT40 EM 10X 45	40	10.00	45.00	18.0	35.00	M16	0	1.05	SR M10X12 DIN1835-B
BT40 EM 12X 45	40	12.00	45.00	18.0	42.00	M16	0	1.08	SR M12X16 DIN1835-B
BT40 EM 14X 45	40	14.00	45.00	18.0	44.00	M16	0	1.06	SR M12X16 DIN1835-B
BT40 EM 16X 45	40	16.00	45.00	18.0	48.00	M16	0	1.16	SR M14X16 DIN1835-B
BT40 EM 20X 45	40	20.00	45.00	18.0	52.00	M16	0	1.13	SR M16X10.3 EM SHORT
BT40 EM 25X 45	40	25.00	45.00	-	63.00	M16	0	1.12	SR M18X2X10 EM SHORT

- B is the designation for coolant through flange.

(1) 1 - Slot for data chip, 0 - Without slot for data chip

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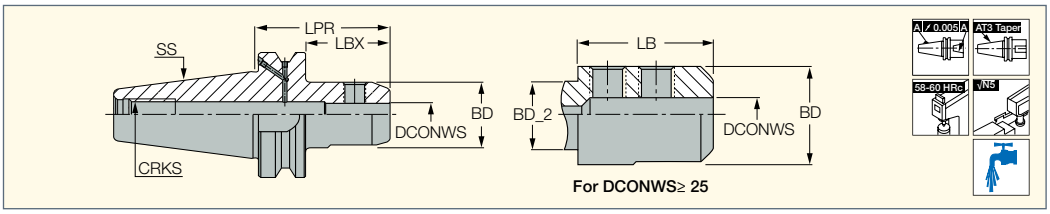
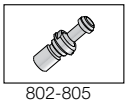
BT MAS

BT-EM (DIN 1835 Form B)
DIN6359 / DIN 1835 Form B
Weldon Endmill Holders with BT MAS-403 ADB Tapered Shanks



Designation	SS	DCONWS	LPR	BD	BD_2	LBX	LB	CRKS	DCP(2)	kg	
BT30 EM 6X 50 (1)	30	6.00	50.00	25.00	-	28.0	-	M12	0	0.46	SR M6X10 DIN1835B
BT30 EM 8X 60 (1)	30	8.00	60.00	28.00	-	38.0	-	M12	0	0.52	SR M8X10 DIN1835-B
BT30 EM 10X 60 (1)	30	10.00	60.00	35.00	-	38.0	-	M12	0	0.61	SR M10X12 DIN1835-B
BT30 EM 12X 60 (1)	30	12.00	60.00	42.00	-	38.0	-	M12	0	0.73	SR M12X16 DIN1835-B
BT30 EM 14X50 (1)	30	14.00	50.00	44.00	-	38.0	-	M12	0	0.73	SR M12X16 DIN1835-B
BT30 EM 16X 60 (1)	30	16.00	60.00	46.00	-	38.0	-	M12	0	0.79	SR M14X16 DIN1835-B
BT30 EM 18X 60 (1)	30	18.00	60.00	50.00	-	38.0	-	M12	0	0.76	SR M14X16 DIN1835-B
BT30 EM 20X 80 (1)	30	20.00	80.00	52.00	-	58.0	-	M12	0	1.04	SR M16X16 DIN1835-B
BT40 EM 6X 50 (1)	40	6.00	50.00	25.00	-	23.0	-	M16	0	1.02	SR M6X10 DIN1835B
BT40 EM 8X 50	40	8.00	50.00	28.00	-	23.0	-	M16	0	1.01	SR M8X10 DIN1835-B
BT40 EM 10X 65	40	10.00	65.00	35.00	-	38.0	-	M16	0	1.17	SR M10X12 DIN1835-B
BT40 EM 12X 65	40	12.00	65.00	42.00	-	38.0	-	M16	0	1.29	SR M12X16 DIN1835-B
BT40 EM 14X 63	40	14.00	65.00	44.00	-	38.0	-	M16	0	1.30	SR M12X16 DIN1835-B
BT40 EM 16X 65	40	16.00	65.00	48.00	-	38.0	-	M16	0	1.35	SR M14X16 DIN1835-B
BT40 EM 20X 75	40	20.00	75.00	52.00	-	48.0	-	M16	0	1.54	SR M16X16 DIN1835-B
BT40 EM 20X120	40	20.00	120.00	52.00	-	93.0	-	M16	0	2.25	SR M16X16 DIN1835-B
BT40 EM 25X105	40	25.00	105.00	65.00	61.00	78.0	68.00	M16	0	2.61	SR M18X2X20 DIN1835-B
BT40 EM 32X110	40	32.00	110.00	71.00	61.00	83.0	73.00	M16	0	2.84	SR M20X2X20 DIN1835-B
BT50 EM 6X 70 (1)	50	6.00	70.00	25.00	-	32.0	-	M24	0	3.68	SR M6X10 DIN1835B
BT50 EM 8X 70 (1)	50	8.00	70.00	28.00	-	32.0	-	M24	0	3.58	SR M8X10 DIN1835-B
BT50 EM 10X 70	50	10.00	70.00	35.00	-	32.0	-	M24	0	3.68	SR M10X12 DIN1835-B
BT50 EM 12X100	50	12.00	100.00	42.00	-	62.0	-	M24	0	4.01	SR M12X16 DIN1835-B
BT50 EM 14X100	50	14.00	100.00	44.00	-	62.0	-	M24	0	4.13	SR M12X16 DIN1835-B
BT50 EM 16X100	50	16.00	100.00	48.00	-	62.0	-	M24	0	4.17	SR M14X16 DIN1835-B
BT50 EM 18X100	50	18.00	100.00	50.00	-	62.0	-	M24	0	4.29	SR M14X16 DIN1835-B
BT50 EM 20X100	50	20.00	100.00	52.00	-	62.0	-	M24	0	4.28	SR M16X16 DIN1835-B
BT50 EM 25X115	50	25.00	115.00	65.00	-	77.0	-	M24	0	5.06	SR M18X2X20 DIN1835-B
BT50 EM 32X115	50	32.00	115.00	71.00	-	77.0	-	M24	0	5.28	SR M20X2X20 DIN1835-B
BT50 EM 40X115	50	40.00	115.00	90.00	-	77.0	-	M24	0	6.17	SR M20X2X20 DIN1835-B
BT50 EM 50X125	50	50.00	125.00	98.00	-	87.0	-	M24	0	6.94	SR M24X2X25 DIN1835-B

(1) Type AD
(2) 1 - Slot for data chip, 0 - Without slot for data chip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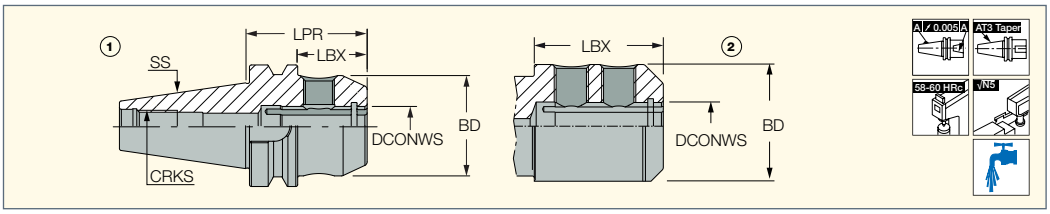
BT MAS

BT-EM-CX
DIN6359 / DIN 1835 Form B Weldon Endmill Holders with Jet Coolant Grooves for BT MAS-403 Tapered Shanks

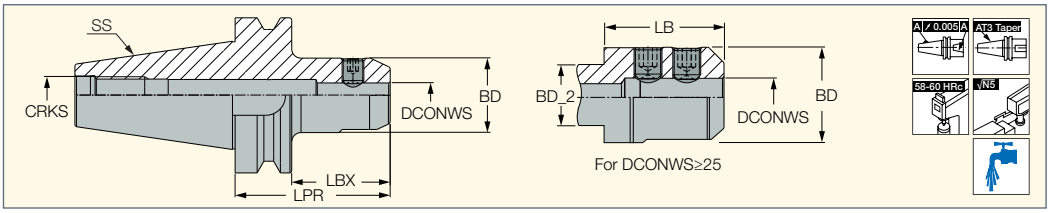


Designation	SS	DCONWS	LPR	BD	LBX	CRKS	DCP(1)	Fig.	kg	
BT40 EM 6X50 CX	40	6.00	50.00	25.00	23.0	M16	0	1	1.07	SR M6X10 DIN1835B
BT40 EM 8X50 CX	40	8.00	50.00	28.00	23.0	M16	0	1	1.09	SR M8X10 DIN1835-B
BT40 EM 10X63 CX	40	10.00	63.00	35.00	36.0	M16	0	1	1.22	SR M10X12 DIN1835-B
BT40 EM 12X63 CX	40	12.00	63.00	42.00	36.0	M16	0	1	1.26	SR M12X16 DIN1835-B
BT40 EM 16X63 CX	40	16.00	63.00	48.00	36.0	M16	0	1	1.40	SR M14X16 DIN1835-B
BT40 EM 20X63 CX	40	20.00	63.00	52.00	36.0	M16	0	1	1.40	SR M16X16 DIN1835-B
BT40 EM 25X45 CX	40	25.00	45.00	61.00	18.0	M16	0	1	1.17	SR M18X2X10 EM SHORT
BT40 EM 25X90 CX	40	25.00	90.00	65.00	63.0	M16	0	2	2.25	SR M18X2X20 DIN1835-B
BT40 EM 32X100 CX	40	32.00	100.00	72.00	65.0	M16	0	2	2.70	SR M20X2X20 DIN1835-B
BT50 EM 12X80 CX	50	12.00	80.00	42.00	42.0	M24	0	1	4.00	SR M12X16 DIN1835-B
BT50 EM 16X80 CX	50	16.00	80.00	48.00	42.0	M24	0	1	4.10	SR M14X16 DIN1835-B
BT50 EM 20X80 CX	50	20.00	80.00	52.00	42.0	M24	0	1	4.30	SR M16X16 DIN1835-B
BT50 EM 25X100 CX	50	25.00	100.00	65.00	62.0	M24	0	2	5.60	SR M18X2X20 DIN1835-B
BT50 EM 32X105 CX	50	32.00	105.00	72.00	67.0	M24	0	2	5.80	SR M20X2X20 DIN1835-B
BT50 EM 40X110 CX	50	40.00	110.00	80.00	72.0	M24	0	2	5.20	SR M20X2X20 DIN1835-B

(1) 1 - Slot for data chip, 0 - Without slot for data chip

BT MAS

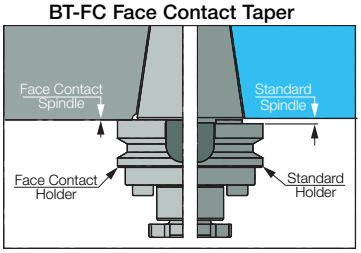
BT-FC-EM
DIN1835 Form B Endmills with BT MAS-403 Face Contact AD Tapered Shanks

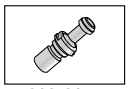


Designation	SS	DCONWS	BD	BD_2	LPR	LBX	LB	CRKS	DCP(1)	kg
BT30 FC EM12X60	30	12.00	42.00	-	60.00	38.0	-	M12	0	0.73
BT30 FC EM16X60	30	16.00	45.90	-	60.00	38.0	-	M12	0	0.80
BT30 FC EM20X80	30	20.00	52.00	44.40	80.00	58.0	48.00	M12	0	1.04
BT40 FC EM10X65	40	10.00	35.00	-	65.00	39.0	-	M16	0	1.25
BT40 FC EM12X65	40	12.00	42.00	-	65.00	39.0	-	M16	0	1.29
BT40 FC EM16X65	40	16.00	48.00	-	65.00	39.0	-	M16	0	1.37
BT40 FC EM20X75	40	20.00	52.00	-	75.00	49.0	-	M16	0	1.56
BT40 FC EM25X105	40	25.00	65.00	61.00	105.00	79.0	68.00	M16	0	2.54
BT40 FC EM32X110	40	32.00	71.00	61.00	110.00	83.0	73.00	M16	0	1.87
BT50 FC EM12X100	50	12.00	42.00	-	100.00	62.0	-	M24	0	4.25
BT50 FC EM16X100	50	16.00	48.00	-	100.00	63.5	-	M24	0	4.22
BT50 FC EM20X100	50	20.00	52.00	-	100.00	63.5	-	M24	0	4.33
BT50 FC EM25X115	50	25.00	65.00	-	115.00	78.5	-	M24	0	5.36
BT50 FC EM32X115	50	32.00	71.00	-	115.00	78.5	-	M24	0	5.38
BT50 FC EM40X115	50	40.00	90.00	-	115.00	78.5	-	M24	0	6.29
BT50 FC EM50X125	50	50.00	100.00	-	125.00	87.0	-	M24	0	7.32

(1) 1 - Slot for data chip, 0 - Without slot for data chip

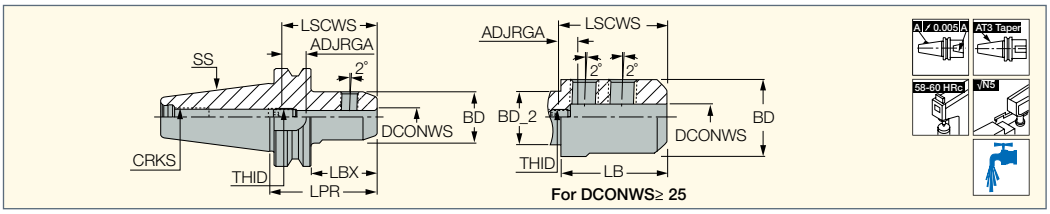
BT-FC Face Contact Taper




802-805

BT MAS

BT-EM (DIN 1835 Form E)
DIN6359 / DIN 1835 Form E
Drill Holders with BT MAS-403
AD Tapered Shanks



Designation	SS	DCONWS	BD	BD_2	LPR	LBX	LB	ADJRGA	LSCWS	THID(1)	Key(2)	CRKS	DCP(3)	kg
BT40 EM 16X 65 E	40	16.00	48.00	-	65.00	38.0	-	10.00	57.0	M12	6.00	M16	0	1.38
BT40 EM 20X 75 E	40	20.00	52.00	-	75.00	48.0	-	10.00	59.0	M16	8.00	M16	0	1.55
BT40 EM 25X105 E	40	25.00	65.00	61.00	105.00	78.0	68.00	10.00	64.0	M20X1.5	10.00	M16	0	2.45
BT40 EM 32X110 E	40	32.00	71.00	61.00	110.00	83.0	73.00	10.00	68.0	M20X1.5	10.00	M16	0	2.80
BT50 EM 10X 70 E	50	10.00	35.00	-	70.00	32.0	-	10.00	49.0	M8	4.00	M24	0	3.70
BT50 EM 12X100 E	50	12.00	42.00	-	100.00	62.0	-	10.00	54.0	M10	5.00	M24	0	4.06
BT50 EM 14X100 E	50	14.00	44.00	-	100.00	62.0	-	10.00	54.0	M10	5.00	M24	0	4.20
BT50 EM 20X100 E	50	20.00	52.00	-	100.00	62.0	-	10.00	59.0	M16	8.00	M24	0	4.36
BT50 EM 25X115 E	50	25.00	65.00	-	115.00	77.0	-	10.00	64.0	M20X1.5	10.00	M24	0	5.08
BT50 EM 32X115 E	50	32.00	71.00	-	115.00	77.0	-	10.00	68.0	M20X1.5	10.00	M24	0	5.25
BT50 EM 40X115 E	50	40.00	90.00	-	115.00	77.0	-	10.00	78.0	M20X1.5	10.00	M24	0	6.14
BT50 EM 50X125 E	50	50.00	98.00	-	125.00	67.0	-	10.00	88.0	M20X1.5	10.00	M24	0	6.94
BT50 EM 6X 70 E	50	6.00	25.00	-	70.00	32.0	-	10.00	45.0	M5	2.50	M24	0	3.70

- B is the designation for coolant through flange.

(1) Adjustment screw has an internal coolant hole.

(2) Adjustment screw hexagon key size

(3) 1 - Slot for data chip, 0 - Without slot for data chip

802-805

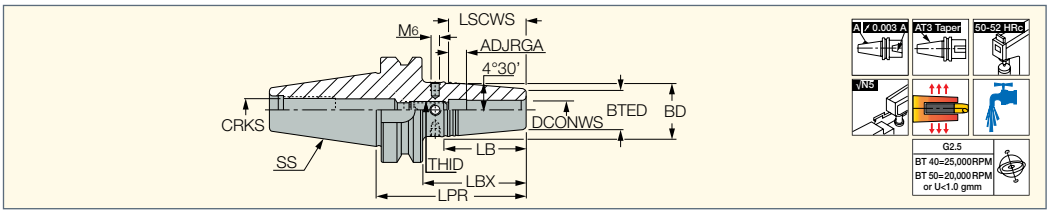
Spare Parts

Designation		
BT40 EM 16X 65 E	SR M14X16 DIN1835-B	PRESET M12X18B
BT40 EM 20X 75 E	SR M16X16 DIN1835-B	PRESET M16X20B
BT40 EM 25X105 E	SR M18X2X20 DIN1835-B	PRESET M20X20E
BT40 EM 32X110 E	SR M20X2X20 DIN1835-B	PRESET M20X20E
BT50 EM 10X 70 E	SR M10X12 DIN1835-B	PRESET M8X20B
BT50 EM 12X100 E	SR M12X16 DIN1835-B	PRESET M10X18B
BT50 EM 14X100 E	SR M12X16 DIN1835-B	PRESET M10X18B
BT50 EM 20X100 E	SR M16X16 DIN1835-B	PRESET M16X20B
BT50 EM 25X115 E	SR M18X2X20 DIN1835-B	PRESET M20X20E
BT50 EM 32X115 E	SR M20X2X20 DIN1835-B	PRESET M20X20E
BT50 EM 40X115 E	SR M20X2X20 DIN1835-B	PRESET M20X20E
BT50 EM 50X125 E	SR M24X2X25 DIN1835-B	PRESET M20X20E
BT50 EM 6X 70 E	SR M6X10 DIN1835B	PRESET M5X18B

BT MAS SHRINKIN

BT-SRKIN

Thermal Shrink Chucks with BT MAS-403 AD Tapered Shanks for Carbide HSS and Steel Tools



Designation	SS	DCONWS	BD	BTED	LPR	LBX	LB	ADJRGA	LSCWS	THID	Key(1)	CRKS	DCP(2)	kg
BT40 SRKIN 6X 90	40	6.00	27.00	21.00	90.00	63.0	38.00	11.00	36.0	M5	2.50	M16	0	1.13
BT40 SRKIN 8X 90	40	8.00	27.00	21.00	90.00	63.0	38.00	11.00	36.0	M6	3.00	M16	0	1.07
BT40 SRKIN 10X 90	40	10.00	32.00	24.00	90.00	63.0	50.50	11.00	42.0	M8	4.00	M16	0	1.23
BT40 SRKIN 12X 90	40	12.00	32.00	24.00	90.00	63.0	50.50	11.00	47.0	M10	5.00	M16	0	1.13
BT40 SRKIN 14X 90	40	14.00	34.00	27.00	90.00	63.0	44.50	11.00	47.0	M10	5.00	M16	0	1.26
BT40 SRKIN 16X 90	40	16.00	34.00	27.00	90.00	63.0	44.50	11.00	50.0	M12	6.00	M16	0	1.23
BT40 SRKIN 16X120	40	16.00	34.00	27.00	120.00	93.0	44.50	11.00	50.0	M12	6.00	M16	0	1.43
BT40 SRKIN 18X 90	40	18.00	42.00	33.00	90.00	63.0	57.00	11.00	50.0	M12	6.00	M16	0	1.40
BT40 SRKIN 20X 90	40	20.00	42.00	33.00	90.00	63.0	57.00	11.00	52.0	M16	6.00	M16	0	1.30
BT40 SRKIN 25X110	40	25.00	53.00	44.00	110.00	83.0	57.00	11.00	58.0	M16	6.00	M16	0	1.84
BT50 SRKIN 6X100	50	6.00	27.00	21.00	100.00	62.0	38.10	11.00	36.0	M5	2.50	M24	0	3.67
BT50 SRKIN 8X100	50	8.00	27.00	21.00	100.00	62.0	38.00	11.00	36.0	M6	3.00	M24	0	3.78
BT50 SRKIN 10X100	50	10.00	32.00	24.00	100.00	62.0	51.00	11.00	42.0	M8	4.00	M24	0	3.78
BT50 SRKIN 12X100	50	12.00	32.00	24.00	100.00	62.0	51.00	11.00	47.0	M10	5.00	M24	0	3.74
BT50 SRKIN 14X100	50	14.00	34.00	27.00	100.00	62.0	44.50	11.00	47.0	M10	5.00	M24	0	3.80
BT50 SRKIN 16X100	50	16.00	34.00	27.00	100.00	62.0	44.50	11.00	50.0	M12	6.00	M24	0	3.70
BT50 SRKIN 18X100	50	18.00	42.00	33.00	100.00	62.0	57.00	11.00	50.0	M12	6.00	M24	0	3.92
BT50 SRKIN 20X100	50	20.00	42.00	33.00	100.00	62.0	57.00	11.00	52.0	M16	6.00	M24	0	3.77
BT50 SRKIN 25X120	50	25.00	53.00	44.00	120.00	82.0	57.00	11.00	58.0	M16	6.00	M24	0	4.50
BT50 SRKIN 32X120	50	32.00	53.00	44.00	120.00	82.0	57.00	11.00	58.0	M16	6.00	M24	0	4.34

- Use only inductive heating device for SRKIN holders

(1) Hex key size for the rear stopper screw

(2) 1 - Slot for data chip, 0 - Without slot for data chip

802-805 778-780 784-786

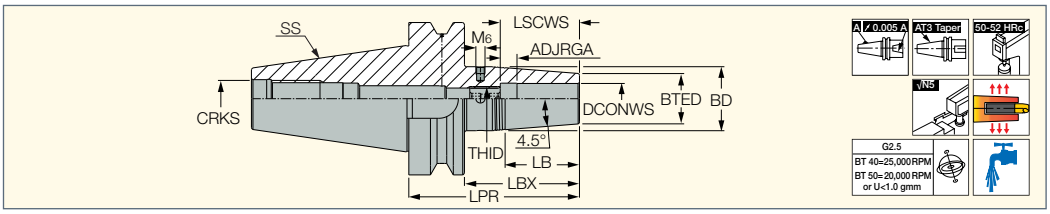
Spare Parts

Designation	
BT40 SRKIN 6X 90	PRESET M5X18B
BT40 SRKIN 8X 90	PRESET M6X20B
BT40 SRKIN 10X 90	PRESET M8X20B
BT40 SRKIN 12X 90	PRESET M10X18B
BT40 SRKIN 14X 90	PRESET M10X18B
BT40 SRKIN 16X 90	PRESET M12X18B
BT40 SRKIN 16X120	PRESET M12X18B
BT40 SRKIN 18X 90	PRESET M12X18B
BT40 SRKIN 20X 90	PRESET M16X20B
BT40 SRKIN 25X110	PRESET M16X25B
BT50 SRKIN 6X100	PRESET M5X18B
BT50 SRKIN 8X100	PRESET M6X20B
BT50 SRKIN 10X100	PRESET M8X20B
BT50 SRKIN 12X100	PRESET M10X18B
BT50 SRKIN 14X100	PRESET M10X18B
BT50 SRKIN 16X100	PRESET M12X18B
BT50 SRKIN 18X100	PRESET M12X18B
BT50 SRKIN 20X100	PRESET M16X20B
BT50 SRKIN 25X120	PRESET M16X25B
BT50 SRKIN 32X120	PRESET M16X25B

BT MAS SHRINKIN

BT-FC-SRKIN

Thermal Shrink Chucks with
BT MAS-403 Face Contact
AD Tapered Shanks

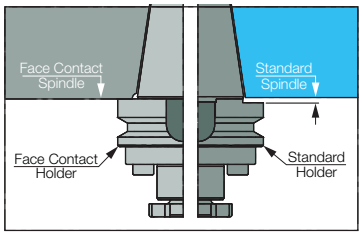


Designation	SS	DCONWS	BTED	BD	LPR	LBX	LB	ADJRGA	LSCWS	THID	CRKS	DCP(1)	kg
BT40 FC SRKIN 6X90	40	6.00	21.00	27.00	90.00	64.0	38.00	11.00	36.0	M5	M16	0	1.16
BT40 FC SRKIN 8X90	40	8.00	21.00	27.00	90.00	64.0	38.00	11.00	36.0	M6	M16	0	1.14
BT40 FC SRKIN10X90	40	10.00	24.00	32.00	90.00	64.0	50.80	11.00	42.0	M8	M16	0	1.29
BT40 FC SRKIN12X90	40	12.00	24.00	32.00	90.00	64.0	50.80	11.00	47.0	M10	M16	0	1.28
BT40 FC SRKIN14X90	40	14.00	27.00	34.00	90.00	64.0	44.50	11.00	47.0	M10	M16	0	1.32
BT40 FC SRKIN16X90	40	16.00	27.00	34.00	90.00	64.0	44.50	11.00	50.0	M12	M16	0	1.31
BT40 FC SRKIN18X90	40	18.00	33.00	42.00	90.00	64.0	57.20	11.00	50.0	M12	M16	0	3.00
BT40 FC SRKIN20X90	40	20.00	33.00	42.00	90.00	64.0	57.20	11.00	52.0	M16	M16	0	1.43
BT40 FC SRKIN25X110	40	25.00	44.00	53.00	110.00	84.0	57.20	11.00	58.0	M16	M16	0	2.03
BT50 FC SRKIN 6X100	50	6.00	21.00	27.00	100.00	63.5	38.00	11.00	36.0	M6	M24	0	13.99
BT50 FC SRKIN 8X100	50	8.00	21.00	27.00	100.00	63.5	38.00	11.00	36.0	M5	M24	0	3.86
BT50 FC SRKIN10X100	50	10.00	24.00	32.00	100.00	63.5	50.80	11.00	42.0	M8	M24	0	10.00
BT50 FC SRKIN12X100	50	12.00	24.00	32.00	100.00	63.5	50.80	11.00	47.0	M10	M24	0	3.73
BT50 FC SRKIN14X100	50	14.00	27.00	34.00	100.00	63.5	44.50	11.00	47.0	M10	M24	0	10.00
BT50 FC SRKIN16X100	50	16.00	27.00	34.00	100.00	63.5	44.50	11.00	50.0	M12	M24	0	3.76
BT50 FC SRKIN20X100	50	20.00	33.00	42.00	100.00	63.5	57.20	11.00	52.0	M16	M24	0	3.87
BT50 FC SRKIN25X120	50	25.00	44.00	53.00	120.00	83.5	57.20	11.00	58.0	M16	M24	0	4.47
BT50 FC SRKIN32X120	50	32.00	44.00	53.00	120.00	83.5	57.20	11.50	62.0	M16	M24	0	10.00

- Use only inductive heating device for SRKIN holders

(1) 1 - Slot for data chip, 0 - Without slot for data chip

BT-FC Face Contact Taper



802-805 778-780 784-786

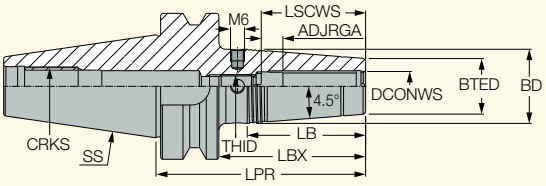
Spare Parts

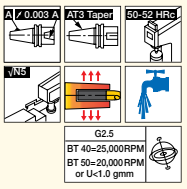
Designation	
BT40 FC SRKIN 6X90	PRESET M5X18B
BT40 FC SRKIN 8X90	PRESET M6X20B
BT40 FC SRKIN10X90	PRESET M8X20B
BT40 FC SRKIN12X90	PRESET M10X18B
BT40 FC SRKIN14X90	PRESET M10X18B
BT40 FC SRKIN16X90	PRESET M12X18B
BT40 FC SRKIN18X90	PRESET M12X18B
BT40 FC SRKIN20X90	PRESET M16X20B
BT40 FC SRKIN25X110	PRESET M16X25B
BT50 FC SRKIN 6X100	PRESET M5X18B
BT50 FC SRKIN 8X100	PRESET M6X20B
BT50 FC SRKIN10X100	PRESET M8X20B
BT50 FC SRKIN12X100	PRESET M10X18B
BT50 FC SRKIN14X100	PRESET M10X18B
BT50 FC SRKIN16X100	PRESET M12X18B
BT50 FC SRKIN20X100	PRESET M16X20B
BT50 FC SRKIN25X120	PRESET M16X25B
BT50 FC SRKIN32X120	PRESET M16X25B

BT MAS X-STREAM JET TOOLHOLDING

BT-SRKIN-CX

Thermal Shrink Chucks with BT MAS-403 Form AD Tapered Shank and Jet Coolant Grooves along the Shank Bore





Designation	SS	DCONWS	BTED	BD	LPR	LBX	LB	LSCWS	ADJRGA	THID	Key(1)	CRKS	DCP(2)	kg
BT40 SRKIN 6X90 CX	40	6.00	21.00	27.00	90.00	63.00	38.00	34.00	9.50	M5	2.50	M16	0	1.13
BT40 SRKIN 8X90 CX	40	8.00	21.00	27.00	90.00	63.00	38.00	34.00	9.50	M6	3.00	M16	0	1.07
BT40 SRKIN 10X90 CX	40	10.00	24.00	32.00	90.00	63.00	50.80	39.80	9.30	M8	4.00	M16	0	1.23
BT40 SRKIN 12X90 CX	40	12.00	24.00	32.00	90.00	63.00	50.80	44.80	9.30	M10	5.00	M16	0	1.13
BT40 SRKIN 14X90 CX	40	14.00	27.00	34.00	90.00	63.00	44.50	44.80	9.30	M10	5.00	M16	0	1.20
BT40 SRKIN 16X90 CX	40	16.00	27.00	34.00	90.00	63.00	44.50	47.80	9.30	M12	6.00	M16	0	1.23
BT40 SRKIN 20X90 CX	40	20.00	33.00	42.00	90.00	63.00	57.00	49.00	8.50	M16	8.00	M16	0	1.30
BT40 SRKIN 25X110 CX	40	25.00	44.00	53.00	110.00	83.00	57.00	55.00	8.50	M16	8.00	M16	0	1.84
BT50 SRKIN 6X100 CX	50	6.00	21.00	26.00	100.00	62.00	32.00	34.00	9.50	M5	2.50	M24	0	3.67
BT50 SRKIN 8X100 CX	50	8.00	21.00	27.00	100.00	62.00	38.00	34.00	9.50	M6	3.00	M24	0	3.78
BT50 SRKIN 10X100 CX	50	10.00	24.00	32.00	100.00	62.00	50.80	39.80	9.30	M8	4.00	M24	0	3.78
BT50 SRKIN 12X100 CX	50	12.00	24.00	32.00	100.00	62.00	50.80	44.80	9.30	M10	5.00	M24	0	3.74
BT50 SRKIN 14X100 CX	50	14.00	27.00	34.00	100.00	62.00	44.50	44.80	9.30	M10	5.00	M24	0	3.80
BT50 SRKIN 16X100 CX	50	16.00	27.00	34.00	100.00	62.00	44.50	47.80	9.30	M12	6.00	M24	0	3.70
BT50 SRKIN 20X100 CX	50	20.00	33.00	42.00	100.00	62.00	57.00	49.00	8.50	M16	8.00	M24	0	3.77
BT50 SRKIN 25X120 CX	50	25.00	44.00	53.00	120.00	82.00	57.00	55.00	8.50	M16	8.00	M24	0	4.50
BT50 SRKIN 32X120 CX	50	32.00	44.00	53.00	120.00	82.00	57.00	59.00	8.50	M16	8.00	M24	0	4.35

• Use only inductive heating device for SRKIN holders • Preset screw CX allows supply of coolant via JET channels - do not remove

(1) Hex key size for the rear stopper screw

(2) 1 - Slot for data chip, 0 - Without slot for data chip

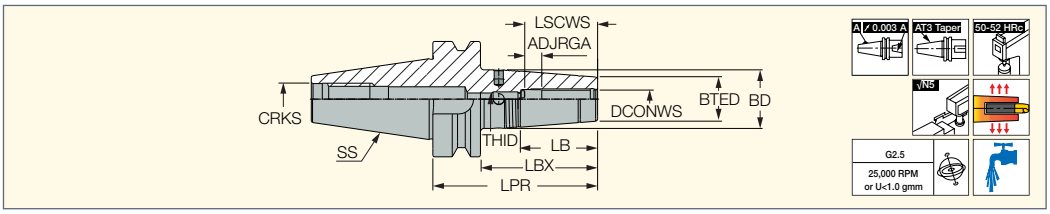
Spare Parts

Designation	
BT40 SRKIN 6X90 CX	PRESET CX M5X13
BT40 SRKIN 8X90 CX	PRESET CX M6X12
BT40 SRKIN 10X90 CX	PRESET CX M8X16
BT40 SRKIN 12X90 CX	PRESET CX M10X16
BT40 SRKIN 14X90 CX	PRESET CX M10X16
BT40 SRKIN 16X90 CX	PRESET CX M12X16
BT40 SRKIN 20X90 CX	PRESET CX M16X14
BT40 SRKIN 25X110 CX	PRESET CX M16X14
BT50 SRKIN 6X100 CX	PRESET CX M5X13
BT50 SRKIN 8X100 CX	PRESET CX M6X12
BT50 SRKIN 10X100 CX	PRESET CX M8X16
BT50 SRKIN 12X100 CX	PRESET CX M10X16
BT50 SRKIN 14X100 CX	PRESET CX M10X16
BT50 SRKIN 16X100 CX	PRESET CX M12X16
BT50 SRKIN 20X100 CX	PRESET CX M16X14
BT50 SRKIN 25X120 CX	PRESET CX M16X14
BT50 SRKIN 32X120 CX	PRESET CX M16X14

BT MAS SHRINKIN

BT-FC-SRKIN-CX

Thermal Shrink Chucks with BT-FC-SRKIN-CX Form AD Tapered Shank and Jet Coolant Grooves along the Shank Bore



Designation	SS	DCONWS	BTED	BD	LPR	LBX	LB	ADJRGA	LSCWS	THID	CRKS	DCP(1)	kg
BT40 FC SRKIN 6X90 CX	40	6.00	21.00	27.00	90.00	64.0	30.10	9.40	33.9	M5	M16	0	1.26
BT40 FC SRKIN 8X90 CX	40	8.00	21.00	27.00	90.00	64.0	30.10	9.50	34.0	M6	M16	0	1.25
BT40 FC SRKIN 10X90 CX	40	10.00	24.00	32.00	90.00	64.0	42.80	9.30	39.8	M8	M16	0	1.30
BT40 FC SRKIN 12X90 CX	40	12.00	24.00	32.00	90.00	64.0	42.80	9.30	44.8	M10	M16	0	1.30
BT40 FC SRKIN 14X90 CX	40	14.00	27.00	34.00	90.00	64.0	36.50	9.30	44.8	M10	M16	0	1.40
BT40 FC SRKIN 16X90 CX	40	16.00	27.00	34.00	90.00	64.0	36.50	9.30	47.8	M12	M16	0	1.45
BT40 FC SRKIN 20X90 CX	40	20.00	33.00	42.00	90.00	64.0	49.20	8.50	49.0	M16	M16	0	1.50
BT40 FC SRKIN 25X110 CX	40	25.00	44.00	53.00	110.00	84.0	49.20	8.50	55.0	M16	M16	0	2.04

New

- Use only inductive heating device for SRKIN holders

(1) 1 - Slot for data chip, 0 - Without slot for data chip

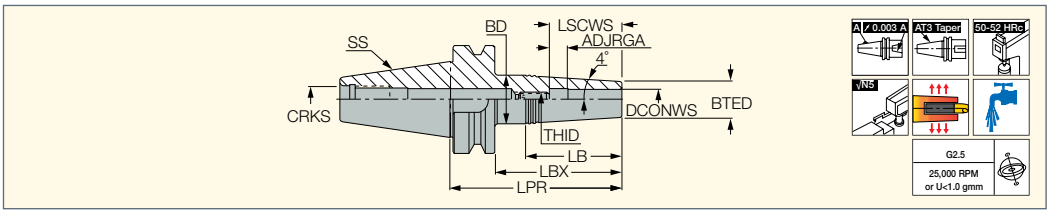
Spare Parts

Designation	
BT40 FC SRKIN 6X90 CX	PRESET CX M5X13
BT40 FC SRKIN 8X90 CX	PRESET CX M6X12
BT40 FC SRKIN 10X90 CX	PRESET CX M8X16
BT40 FC SRKIN 12X90 CX	PRESET CX M10X16
BT40 FC SRKIN 14X90 CX	PRESET CX M10X16
BT40 FC SRKIN 16X90 CX	PRESET CX M12X16
BT40 FC SRKIN 20X90 CX	PRESET CX M16X14
BT40 FC SRKIN 25X110 CX	PRESET CX M16X14

BT MAS SHRINKiN

BT-SRK

Thermal Shrink Chucks with BT MAS-403 Tapered Shanks for Carbide Tools



Designation	SS	DCONWS	BTED	BD	LPR	LBX	LB	ADJRGA	LSCWS	THID	Key(1)	CRKS	DCP(2)	kg
BT30 SRK 3X50	30	3.00	10.00	15.00	72.00	50.0	36.30	6.00	16.0	M6	3.00	M12	0	0.43
BT30 SRK 4X50	30	4.00	10.00	15.00	72.00	50.0	36.30	6.00	18.0	M6	3.00	M12	0	0.43
BT30 SRK 5X50	30	5.00	10.00	15.00	72.00	50.0	36.30	6.00	21.0	M6	3.00	M12	0	0.42
BT30 SRK 6X50	30	6.00	11.00	16.00	72.00	50.0	36.60	6.00	24.0	M8	4.00	M12	0	0.43
BT30 SRK 8X50	30	8.00	14.00	20.00	72.00	50.0	43.30	6.00	31.0	M10	5.00	M12	0	0.45
BT30 SRK10X50	30	10.00	16.00	22.00	72.00	50.0	42.80	10.00	40.0	M8	4.00	M12	0	0.47
BT30 SRK12X50	30	12.00	20.00	26.00	72.00	50.0	42.70	10.00	42.0	M10	5.00	M12	0	0.51
BT40 SRK 3X50	40	3.00	10.00	15.00	77.00	50.0	35.55	6.00	16.0	M6	3.00	M16	0	1.00
BT40 SRK 3X85	40	3.00	10.00	19.00	112.00	85.0	64.15	6.00	16.0	M6	3.00	M16	0	1.00
BT40 SRK 4X50	40	4.00	10.00	15.00	77.00	50.0	35.55	6.00	18.0	M6	3.00	M16	0	0.98
BT40 SRK 4X85	40	4.00	10.00	19.00	112.00	85.0	64.15	6.00	18.0	M6	3.00	M16	0	1.06
BT40 SRK 5X50	40	5.00	10.00	15.00	77.00	50.0	35.55	6.00	21.0	M6	3.00	M16	0	1.00
BT40 SRK 5X85	40	5.00	10.00	19.00	112.00	85.0	64.15	6.00	21.0	M6	3.00	M16	0	1.00
BT40 SRK 6X50	40	6.00	11.00	16.00	77.00	50.0	35.50	6.00	24.0	M8	4.00	M16	0	0.98
BT40 SRK 6X85	40	6.00	11.00	20.00	112.00	85.0	64.15	6.00	24.0	M8	4.00	M16	0	1.00
BT40 SRK 8X50	40	8.00	14.00	20.00	77.00	50.0	42.50	6.00	31.0	M10	5.00	M16	0	1.00
BT40 SRK 8X85	40	8.00	14.00	23.00	112.00	85.0	63.95	6.00	31.0	M10	5.00	M16	0	1.15
BT40 SRK 10X50	40	10.00	16.00	22.00	77.00	50.0	42.40	6.00	36.0	M12	6.00	M16	0	1.04
BT40 SRK 10X85	40	10.00	16.00	24.50	112.00	85.0	60.28	6.00	36.0	M12	6.00	M16	0	1.12
BT40 SRK 12X50	40	12.00	20.00	26.00	77.00	50.0	42.30	10.00	42.0	M10	5.00	M16	0	1.06
BT40 SRK 12X85	40	12.00	20.00	28.00	112.00	85.0	56.60	10.00	42.0	M10	5.00	M16	0	1.22

• Preset screw without coolant hole • For through tool coolant, preset screw must be removed

(1) Hex key size for the rear stopper screw

(2) 1 - Slot for data chip, 0 - Without slot for data chip

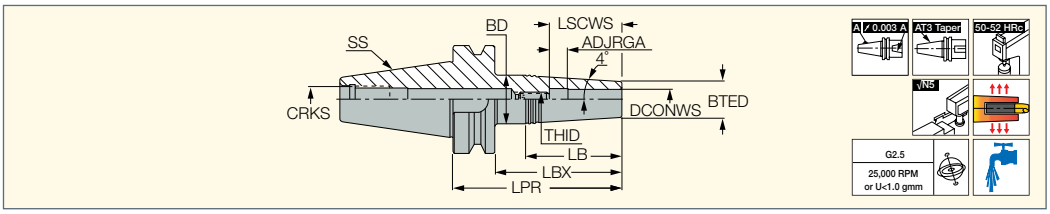
802-805 778-780 784-786

Spare Parts

Designation		
BT30 SRK 3X50	SR M6X10 DIN916	
BT30 SRK 4X50	SR M6X10 DIN916	
BT30 SRK 5X50	SR M6X10 DIN916	
BT30 SRK 6X50	SR M8X12 DIN916	
BT30 SRK 8X50	SR M10X10 DIN913	
BT30 SRK10X50		PRESET M8X20B
BT30 SRK12X50		PRESET M10X18B
BT40 SRK 3X50	SR M6X10 DIN916	
BT40 SRK 3X85	SR M6X10 DIN916	
BT40 SRK 4X50	SR M6X10 DIN916	
BT40 SRK 4X85	SR M6X10 DIN916	
BT40 SRK 5X50	SR M6X10 DIN916	
BT40 SRK 5X85	SR M6X10 DIN916	
BT40 SRK 6X50	SR M8X12 DIN916	
BT40 SRK 6X85	SR M8X12 DIN916	
BT40 SRK 8X50	SR M10X10 DIN913	
BT40 SRK 8X85	SR M10X10 DIN913	
BT40 SRK 10X50	SR M12X10 DIN913	
BT40 SRK 10X85	SR M12X10 DIN913	
BT40 SRK 12X50	SR M10X18 DIN913	
BT40 SRK 12X85		PRESET M10X18B

BT MAS SHRINKIN

BT-FC-SRK
Thermal Shrink Chucks with BT MAS-403 Face Contact AD Tapered Shanks



Designation	SS	DCONWS	BTED	BD	LPR	LBX	LB	ADJRGA	LSCWS	THID	CRKS	DCP(1)	kg
BT30 FC SRK 3X50	30	3.00	9.93	15.00	72.00	50.0	36.30	0.00	10.0	M6	M12	0	0.32
BT30 FC SRK 4X50	30	4.00	9.93	15.00	72.00	50.0	36.30	0.00	12.0	M6	M12	0	0.46
BT30 FC SRK 6X50	30	6.00	10.88	16.00	72.00	50.0	36.60	0.00	18.0	M8	M12	0	0.52
BT30 FC SRK 8X50	30	8.00	13.95	20.00	72.00	50.0	43.30	0.00	25.0	M10	M12	0	0.48
BT30 FC SRK12X50	30	12.00	20.03	26.00	72.00	50.0	42.70	10.00	42.0	M10	M12	0	0.53

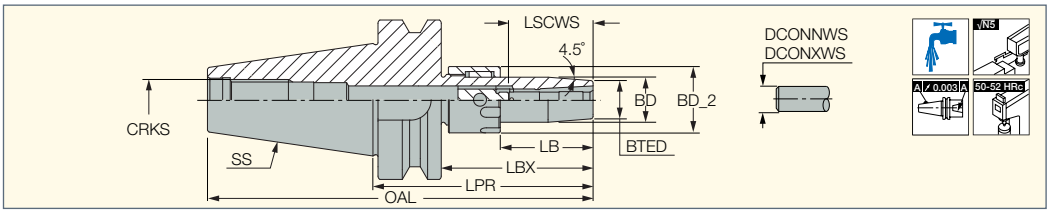
• Use only inductive heating device for SRKIN holders • For through tool coolant, preset screw must be removed
(1) 1 - Slot for data chip, 0 - Without slot for data chip

Spare Parts

Designation		
BT30 FC SRK 3X50	SR M6X10 DIN916	
BT30 FC SRK 4X50	SR M6X10 DIN916	
BT30 FC SRK 6X50	SR M8X12 DIN916	
BT30 FC SRK 8X50	SR M10X10 DIN913	
BT30 FC SRK12X50		PRESET M10X18B

BT MAS QUICKCLAMP

BT-MS
QUICK-CLAMP System for Small Cutting Tools with BT MAS-403 Form AD Shank

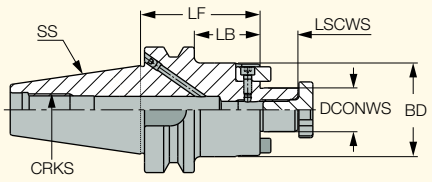


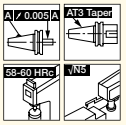
Designation	DCONNWS(1)	DCONXWS(2)	SS	BTED	BD	BD_2	LPR	LB	LBX	OAL	LSCWS	CRKS	DCP(3)
BT40 MS6X60	3.00	6.00	BT40	15.00	17.80	26.20	87.00	36.00	60.00	152.40	33.00	M16	0

New
(1) Minimum diameter
(2) Maximum diameter
(3) 1 - Slot for data chip, 0 - Without slot for data chip

BT MAS

BT-SEM
ISO 3937 Shell Mill Holders
with BT MAS-403 ADB
Tapered Shanks

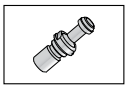




Designation	SS	DCONWS	LF	BD	LSCWS	LB	CRKS	DCP(1)	kg
BT30 SEM 16X50	30	16.00	50.00	38.00	17.00	28.0	M12	0	0.62
BT30 SEM 22X50	30	22.00	50.00	47.00	19.00	28.0	M12	0	0.77
BT30 SEM 27X50	30	27.00	50.00	58.00	21.00	18.0	M12	0	0.88
BT40 SEM 16X120	40	16.00	120.00	38.00	17.00	93.0	M16	0	1.82
BT40 SEM 16X60	40	16.00	60.00	38.00	17.00	33.0	M16	0	1.29
BT40 SEM 22X120	40	22.00	120.00	47.00	19.00	93.0	M16	0	2.38
BT40 SEM 22X60	40	22.00	60.00	47.00	19.00	33.0	M16	0	1.45
BT40 SEM 27X105	40	27.00	105.00	58.00	21.00	78.0	M16	0	2.62
BT40 SEM 27X45	40	27.00	45.00	58.00	21.00	18.0	M16	0	1.39
BT40 SEM 32X60	40	32.00	60.00	65.50	24.00	23.0	M16	0	1.88
BT40 SEM 32X75	40	32.00	75.00	65.00	24.00	36.0	M16	0	2.26
BT40 SEM 40X60	40	40.00	60.00	82.00	27.00	23.0	M16	0	2.25
BT40 SEM 40X75	40	40.00	75.00	82.00	27.00	38.0	M16	0	3.10
BT50 SEM 16X120	50	16.00	120.00	38.00	17.00	82.0	M24	0	4.40
BT50 SEM 16X75	50	16.00	75.00	38.00	17.00	37.0	M24	0	3.86
BT50 SEM 22X120	50	22.00	120.00	47.00	19.00	82.0	M24	0	4.63
BT50 SEM 22X50X220	50	22.00	220.00	50.00	19.00	182.0	M24	0	6.52
BT50 SEM 22X64X320	50	22.00	320.00	64.00	19.00	282.0	M24	0	10.51
BT50 SEM 22X75	50	22.00	75.00	47.00	19.00	37.0	M24	0	4.10
BT50 SEM 27X105	50	27.00	105.00	58.00	21.00	67.0	M24	0	5.08
BT50 SEM 27X60	50	27.00	60.00	58.00	21.00	22.0	M24	0	4.15
BT50 SEM 32X48	50	32.00	48.00	78.00	24.00	10.0	M24	0	3.96
BT50 SEM 32X75	50	32.00	75.00	66.00	24.00	37.0	M24	0	4.65
BT50 SEM 40X48	50	40.00	48.00	82.00	27.00	10.0	M24	0	4.27
BT50 SEM 40X75	50	40.00	75.00	82.00	27.00	37.0	M24	0	5.33

- For internal coolant through the holder, the related COOLANT SET should be ordered via Accessories (applicable to certain tools only)

(1) 1 - Slot for data chip, 0 - Without slot for data chip



802-805

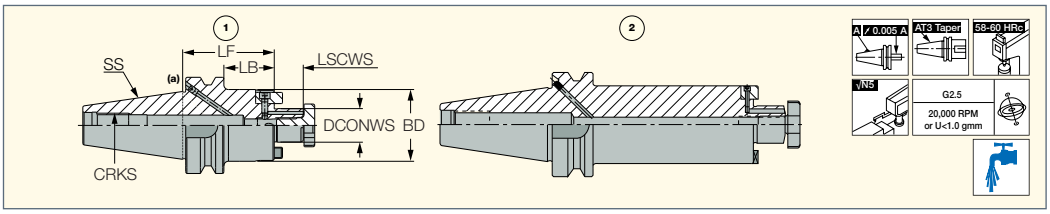
Spare Parts

Designation					
BT30 SEM 16X50	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	DR.DOG 8S	SR M3X10DIN912	
BT30 SEM 22X50	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912	
BT30 SEM 27X50	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	DR.DOG 12S	SR M5X14DIN912	
BT40 SEM 16X120	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	DR.DOG 8S	SR M3X10DIN912	SR M4X4 DIN913
BT40 SEM 16X60	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	DR.DOG 8S	SR M3X10DIN912	SR M4X4 DIN913
BT40 SEM 22X120	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912	SR M4X4 DIN913
BT40 SEM 22X60	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912	SR M4X4 DIN913
BT40 SEM 27X105	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	DR.DOG 12S	SR M5X14DIN912	SR M4X4 DIN913
BT40 SEM 27X45	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	DR.DOG 12S	SR M5X14DIN912	SR M4X4 DIN913
BT40 SEM 32X60	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	DR.DOG 14X13S	SR M5X14DIN912	SR M4X4 DIN913
BT40 SEM 32X75	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	DR.DOG 14X13S	SR M5X14DIN912	SR M4X4 DIN913
BT40 SEM 40X60	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	DR.DOG 16X18S	SR M6X20 DIN912	SR M4X4 DIN913
BT40 SEM 40X75	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	DR.DOG 16X18S	SR M6X20 DIN912	SR M4X4 DIN913
BT50 SEM 16X120	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	DR.DOG 8S	SR M3X10DIN912	SR M4X4 DIN913
BT50 SEM 16X75	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	DR.DOG 8S	SR M3X10DIN912	SR M4X4 DIN913
BT50 SEM 22X120	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912	SR M4X4 DIN913
BT50 SEM 22X50X220	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912	SR M4X4 DIN913
BT50 SEM 22X64X320	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912	SR M4X4 DIN913
BT50 SEM 22X75	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912	SR M4X4 DIN913
BT50 SEM 27X105	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	DR.DOG 12S	SR M5X14DIN912	SR M4X4 DIN913
BT50 SEM 27X60	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	DR.DOG 12S	SR M5X14DIN912	SR M4X4 DIN913
BT50 SEM 32X48	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*		SR M5X14DIN912	SR M4X4 DIN913
BT50 SEM 32X75	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	DR.DOG 14X13S	SR M5X14DIN912	SR M4X4 DIN913
BT50 SEM 40X48	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	DR. DOG 16 E	SR M5X16 DIN912	SR M4X4 DIN913
BT50 SEM 40X75	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	DR.DOG 16X18S	SR M6X20 DIN912	SR M4X4 DIN913

* Optional, to be ordered separately

BT MAS

BT-SEM-C
ISO 3937 Shell Mill Holders with Coolant Holes and BT MAS-403 ADB Tapered Shanks



Designation	SS	DCONWS	BD	LF	LSCWS	LB	CRKS	DCP(2)	Fig.	kg
BT40 SEM 16X60C	40	16.00	38.00	60.00	17.00	33.0	M16	0	1.	1.21
BT40 SEM 16X100C	40	16.00	38.00	100.00	17.00	73.0	M16	0	1.	1.57
BT40 SEM 22X60C	40	22.00	47.00	60.00	19.00	33.0	M16	0	1.	1.10
BT40 SEM 22X100C	40	22.00	47.00	100.00	19.00	73.0	M16	0	1.	2.03
BT40 SEM 27X45C	40	27.00	58.00	45.00	21.00	18.0	M16	0	1.	1.32
BT40 SEM 27X100C	40	27.00	58.00	100.00	21.00	73.0	M16	0	1.	2.44
BT40 SEM 32X60C	40	32.00	66.00	60.00	24.00	33.0	M16	0	1.	1.84
BT40 SEM32X78X60C	40	32.00	78.00	60.00	24.00	33.0	M16	0	1.	2.20
BT40 SEM32X78X100C	40	32.00	78.00	100.00	24.00	73.0	M16	0	1.	3.36
BT50 SEM 16X75C	50	16.00	38.00	75.00	17.00	37.0	M24	0	1.	3.82
BT50 SEM 16X100C	50	16.00	38.00	100.00	17.00	62.0	M24	0	1.	4.00
BT50 SEM 22X75C	50	22.00	47.00	75.00	19.00	37.0	M24	0	1.	4.00
BT50 SEM 22X100C	50	22.00	47.00	100.00	19.00	62.0	M24	0	1.	4.30
BT50 SEM 22X48X220C (1)	50	22.00	48.00	220.00	19.00	182.0	M24	0	2.	5.98
BT50 SEM 22X61X320C (1)	50	22.00	61.00	320.00	19.00	282.0	M24	0	2.	9.91
BT50 SEM 27X60C	50	27.00	58.00	60.00	21.00	22.0	M24	0	1.	3.96
BT50 SEM 27X100C	50	27.00	58.00	100.00	21.00	62.0	M24	0	1.	4.72
BT50 SEM 27X61X320C (1)	50	27.00	61.00	320.00	21.00	282.0	M24	0	2.	9.78
BT50 SEM 32X75C	50	32.00	66.00	75.00	24.00	37.0	M24	0	1.	4.50
BT50 SEM 32X100C	50	32.00	66.00	100.00	24.00	62.0	M24	0	1.	5.04
BT50 SEM32X78X50C	50	32.00	78.00	50.00	24.00	12.0	M24	0	1.	4.16
BT50 SEM32X78X100C	50	32.00	78.00	100.00	24.00	62.0	M24	0	1.	5.99
BT50 SEM 32X78X390C (1)	50	32.00	78.00	390.00	24.00	352.0	M24	0	2.	16.66

- (a) For coolant through flange the plug screw must be removed from the flange cooling hole (use a 2 mm hex key)

(1) Symmetrical design. However, the family's balance values are not guaranteed for this tool

(2) 1 - Slot for data chip, 0 - Without slot for data chip

802-805

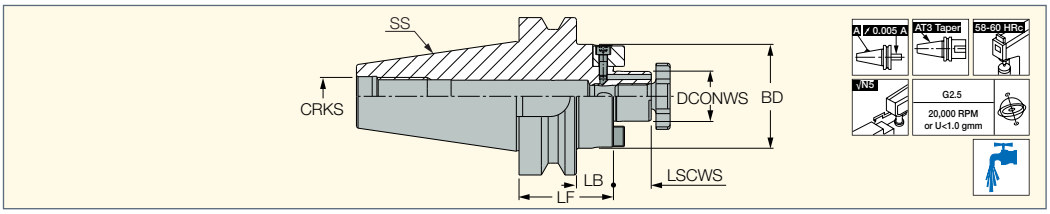
Spare Parts

Designation					
BT40 SEM 16X60C	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	DR.DOG 8S	SR M3X10DIN912	SR M4X4 DIN913
BT40 SEM 16X100C	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	DR.DOG 8S	SR M3X10DIN912	SR M4X4 DIN913
BT40 SEM 22X60C	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912	SR M4X4 DIN913
BT40 SEM 22X100C	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912	SR M4X4 DIN913
BT40 SEM 27X45C	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	DR.DOG 12S	SR M5X14DIN912	SR M4X4 DIN913
BT40 SEM 27X100C	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	DR.DOG 12S	SR M5X14DIN912	SR M4X4 DIN913
BT40 SEM 32X60C	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	DR.DOG 14X13S	SR M5X14DIN912	SR M4X4 DIN913
BT40 SEM32X78X60C	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	DR.DOG 14X13S	SR M5X14DIN912	SR M4X4 DIN913
BT40 SEM32X78X100C	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	DR.DOG 14X13S	SR M5X14DIN912	SR M4X4 DIN913
BT50 SEM 16X75C	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	DR.DOG 8S	SR M3X10DIN912	SR M4X4 DIN913
BT50 SEM 16X100C	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	DR.DOG 8S	SR M3X10DIN912	SR M4X4 DIN913
BT50 SEM 22X75C	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912	SR M4X4 DIN913
BT50 SEM 22X100C	M10 CLAMP SCREW SEM22	WRENCH M8 SEMC16*	DR.DOG 10S	SR M4X10DIN912	SR M4X4 DIN913
BT50 SEM 22X48X220C	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912	SR M4X4 DIN913
BT50 SEM 22X61X320C	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912	SR M4X4 DIN913
BT50 SEM 27X60C	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	DR.DOG 12S	SR M5X14DIN912	SR M4X4 DIN913
BT50 SEM 27X100C	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	DR.DOG 12S	SR M5X14DIN912	SR M4X4 DIN913
BT50 SEM 27X61X320C	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	DR.DOG 12S	SR M5X12 DIN912	SR M4X4 DIN913
BT50 SEM 32X75C	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	DR.DOG 14X13S	SR M5X14DIN912	SR M4X4 DIN913
BT50 SEM 32X100C	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	DR.DOG 14X13S	SR M5X14DIN912	SR M4X4 DIN913
BT50 SEM32X78X50C	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*		SR M5X14DIN912	SR M4X4 DIN913
BT50 SEM32X78X100C	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	DR.DOG 14X13S	SR M5X14DIN912	SR M4X4 DIN913
BT50 SEM 32X78X390C	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	DR.DOG 14X16S	SR M5X20DIN912	SR M4X4 DIN913

* Optional, to be ordered separately

BT MAS

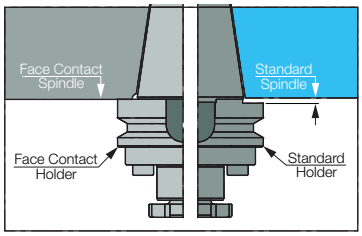
BT-FC-SEM-C
Shell Endmill Holders with Coolant Holes and BT MAS-403 Face Contact AD Tapered Shanks



Designation	SS	DCONWS	BD	LF	LB	LSCWS	CRKS	DCP(1)	kg
BT30 FC SEM16X50C	30	16.00	38.00	50.00	28.0	17.00	M12	0	0.62
BT30 FC SEM22X50C	30	22.00	47.00	50.00	28.0	19.00	M12	0	0.77
BT30 FC SEM27X50C	30	27.00	58.00	50.00	28.0	21.00	M12	0	0.88
BT40 FC SEM16X60C	40	16.00	38.00	60.00	34.0	17.00	M16	0	1.24
BT40 FC SEM22X60C	40	22.00	47.00	60.00	34.0	19.00	M16	0	1.42
BT40 FC SEM22X120C	40	22.00	47.00	120.00	94.0	19.00	M16	0	2.35
BT40 FC SEM27X45C	40	27.00	58.00	45.00	19.0	21.00	M16	0	1.45
BT40 FC SEM32X60C	40	32.00	66.00	60.00	34.0	24.00	M16	0	1.88
BT40 FC SEM32X78X60C	40	32.00	78.00	60.00	34.0	24.00	M16	0	2.25
BT50 FC SEM16X75C	50	16.00	38.00	75.00	38.5	17.00	M24	0	4.08
BT50 FC SEM16X120C	50	16.00	38.00	120.00	83.5	17.00	M24	0	4.42
BT50 FC SEM22X75C	50	22.00	47.00	75.00	38.5	19.00	M24	0	4.30
BT50 FC SEM22X120C	50	22.00	47.00	120.00	83.5	19.00	M24	0	4.87
BT50 FC SEM27X60C	50	27.00	58.00	60.00	23.5	21.00	M24	0	4.27
BT50 FC SEM27X105C	50	27.00	58.00	105.00	68.5	21.00	M24	0	5.21
BT50 FC SEM32X60 C	50	32.00	66.00	60.00	23.5	24.00	M24	0	4.51
BT50 FC SEM32X78X60C	50	32.00	78.00	60.00	23.5	24.00	M24	0	4.61
BT50 FC SEM40X60 C	50	40.00	82.00	60.00	11.5	27.00	M24	0	4.98

(1) 1 - Slot for data chip, 0 - Without slot for data chip

BT-FC Face Contact Taper



802-805

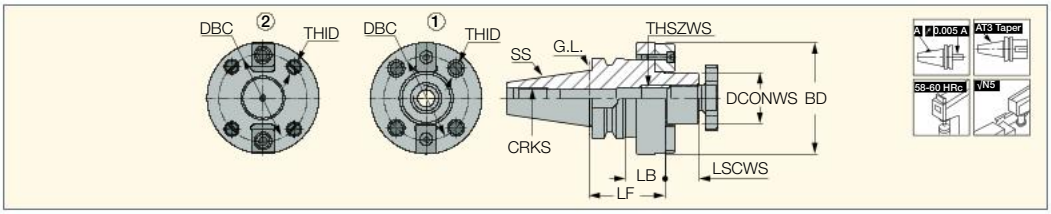
Spare Parts

Designation				
BT30 FC SEM16X50C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	WRENCH M8 SEMC16*
BT30 FC SEM22X50C	M10 CLAMP SCREW SEM22	DR.DOG 10S	SR M4X10DIN912	WRENCH M10 SEMC 22*
BT30 FC SEM27X50C	M12 CLAMP SCREW SEM27	DR.DOG 12S	SR M5X14DIN912	WRENCH M12 SEMC 27*
BT40 FC SEM16X60C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	WRENCH M8 SEMC16*
BT40 FC SEM22X60C	M10 CLAMP SCREW SEM22	DR.DOG 10S	SR M4X10DIN912	WRENCH M10 SEMC 22*
BT40 FC SEM22X120C	M10 CLAMP SCREW SEM22	DR.DOG 10S	SR M4X10DIN912	WRENCH M10 SEMC 22*
BT40 FC SEM27X45C	M12 CLAMP SCREW SEM27	DR.DOG 12S	SR M5X14DIN912	WRENCH M12 SEMC 27*
BT40 FC SEM32X60C	M16 CLAMP SCREW SEM32	DR.DOG 14X13S	SR M5X14DIN912	WRENCH M16 SEMC 32*
BT40 FC SEM32X78X60C	M16 CLAMP SCREW SEM32	DR.DOG 14X13S	SR M5X14DIN912	WRENCH M16 SEMC 32*
BT50 FC SEM16X75C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	WRENCH M8 SEMC16*
BT50 FC SEM16X120C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	WRENCH M8 SEMC16*
BT50 FC SEM22X75C	M10 CLAMP SCREW SEM22	DR.DOG 10S	SR M4X10DIN912	WRENCH M10 SEMC 22*
BT50 FC SEM22X120C	M10 CLAMP SCREW SEM22	DR.DOG 10S	SR M4X10DIN912	WRENCH M10 SEMC 22*
BT50 FC SEM27X60C	M12 CLAMP SCREW SEM27	DR.DOG 12S	SR M5X14DIN912	WRENCH M12 SEMC 27*
BT50 FC SEM27X105C	M12 CLAMP SCREW SEM27	DR.DOG 12S	SR M5X14DIN912	WRENCH M12 SEMC 27*
BT50 FC SEM32X60 C	M16 CLAMP SCREW SEM32	DR.DOG 14X13S	SR M5X14DIN912	WRENCH M16 SEMC 32*
BT50 FC SEM32X78X60C	M16 CLAMP SCREW SEM32	DR.DOG 14X13S	SR M5X14DIN912	WRENCH M16 SEMC 32*
BT50 FC SEM40X60 C	M20 CLAMP SCREW SEM40	DR.DOG 16X18S	SR M6X20 DIN912	WRENCH M20 SEMC 40*

* Optional, to be ordered separately

BT MAS

BT-FM
DIN 6357 Face Mill Holders
with BT MAS-403 A/AD
Tapered Shanks



Designation	SS	DCONWS	LSCWS	LF	LB	BD	DBC	THID	THSZWS	CRKS	Fig.	DCP(3)	kg
BT40 FM 40X60 (1)	40	40.00	27.00	60.00	33.0	88.00	66.70	M12	M20	M16	1.	0	2.33
BT50 FM 40X50 (1)	50	40.00	27.00	50.00	12.0	88.00	66.70	M12	M20	M24	1.	0	4.19
BT50 FM 60X88 (2)	50	60.00	38.00	88.00	40.0	128.00	101.60	M16	-	M24	2.	0	8.60

- Peripheral clamping screws are not supplied.

(1) Form AD
(2) Form A
(3) 1 - Slot for data chip, 0 - Without slot for data chip

802-805

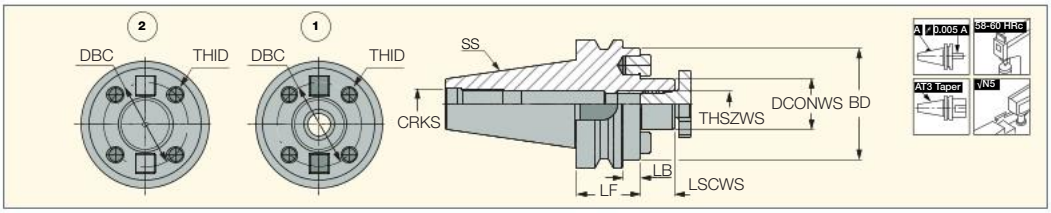
Spare Parts

Designation				
BT40 FM 40X60	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	DR. DOG 16 E	SR M5X16 DIN912
BT50 FM 40X50	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	DR. DOG 16 E	SR M5X16 DIN912
BT50 FM 60X88			DR. DOG 1E	SR M12X25 DIN 912

* Optional, to be ordered separately

BT MAS

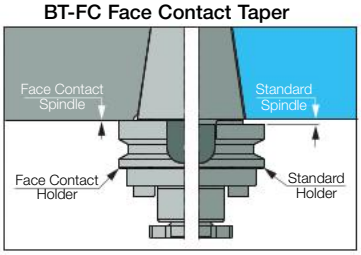
BT-FC-FM
Face Mill Holders with
BT MAS-403 Face Contact A/AD
Tapered Shanks



Designation	SS	BD	DCONWS	DBC	LF	LSCWS	LB	CRKS	THSZWS	THID	CSP(3)	Fig.	DCP(4)	kg
BT40 FC FM40 (1)	40	88.00	40.00	66.70	60.00	27.00	23.0	M16	M20	M12	1	1.	0	2.39
BT50 FC FM40 (1)	50	88.00	40.00	66.70	50.00	27.00	13.5	M24	M20	M12	1	1.	0	4.63
BT50 FC FM60 (2)	50	128.00	60.00	101.60	88.00	40.00	41.5	M24	-	M16	0	2.	0	9.45

(1) Form AD
(2) Form A
(3) 0 - Without coolant supply, 1 - With coolant supply
(4) 1 - Slot for data chip, 0 - Without slot for data chip

BT-FC Face Contact Taper



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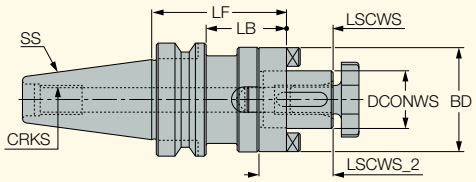
BT MAS

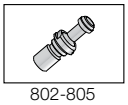
BT-SEMC
COMBI Shell Mill Holders with BT MAS-403 AD Tapered Shanks



Designation	SS	DCONWS	LSCWS	BD	LF	LB	LSCWS_2	CRKS	DCP(1)	kg
BT40 SEMC 16X100	40	16.00	17.00	32.00	100.00	73.0	27.00	M16	0	1.42
BT40 SEMC 16X50	40	16.00	17.00	32.00	50.00	23.0	27.00	M16	0	1.09
BT40 SEMC 22X100	40	22.00	19.00	40.00	100.00	73.0	31.00	M16	0	1.68
BT40 SEMC 22X53	40	22.00	19.00	40.00	53.00	26.0	31.00	M16	0	1.18
BT40 SEMC 27X100	40	27.00	21.00	48.00	98.00	71.0	33.00	M16	0	2.02
BT40 SEMC 27X55	40	27.00	21.00	48.00	55.00	28.0	33.00	M16	0	1.29
BT40 SEMC 32X100	40	32.00	24.00	58.00	100.00	73.0	38.00	M16	0	2.26
BT40 SEMC 32X60	40	32.00	24.00	58.00	60.00	33.0	38.00	M16	0	1.51
BT40 SEMC 40X80	40	40.00	27.00	70.00	80.00	53.0	41.00	M16	0	2.29
BT50 SEMC 16X100	50	16.00	17.00	32.00	100.00	62.0	27.00	M24	0	3.86
BT50 SEMC 16X150	50	16.00	17.00	32.00	150.00	112.0	27.00	M24	0	4.30
BT50 SEMC 22X100	50	22.00	19.00	40.00	100.00	62.0	31.00	M24	0	4.14
BT50 SEMC 22X150	50	22.00	19.00	40.00	150.00	112.0	31.00	M24	0	5.25
BT50 SEMC 22X68	50	22.00	19.00	40.00	68.00	30.0	31.00	M24	0	2.80
BT50 SEMC 27X100	50	27.00	21.00	48.00	100.00	62.0	33.00	M24	0	4.32
BT50 SEMC 27X150	50	27.00	21.00	48.00	150.00	112.0	33.00	M24	0	5.48
BT50 SEMC 27X78	50	27.00	21.00	48.00	78.00	40.0	33.00	M24	0	3.97
BT50 SEMC 32X100	50	32.00	24.00	58.00	100.00	62.0	38.00	M24	0	4.60
BT50 SEMC 32X150	50	32.00	24.00	58.00	150.00	112.0	38.00	M24	0	5.82
BT50 SEMC 32X78	50	32.00	24.00	58.00	78.00	40.0	38.00	M24	0	4.50
BT50 SEMC 40X78	50	40.00	27.00	70.00	78.00	40.0	41.00	M24	0	4.62
BT50 SEMC 40X100	50	40.00	27.00	70.00	100.00	62.0	41.00	M24	0	5.06
BT50 SEMC 40X150	50	40.00	27.00	70.00	150.00	112.0	41.00	M24	0	6.46
BT50 SEMC 50X79	50	50.00	30.00	90.00	79.00	41.0	46.00	M24	0	6.40
BT50 SEMC 50X150	50	50.00	30.00	90.00	150.00	112.0	46.00	M24	0	8.41

- For internal coolant through the holder, the related COOLANT SET should be ordered via Accessories (applicable to certain tools only)

(1) 1 - Slot for data chip, 0 - Without slot for data chip


802-805

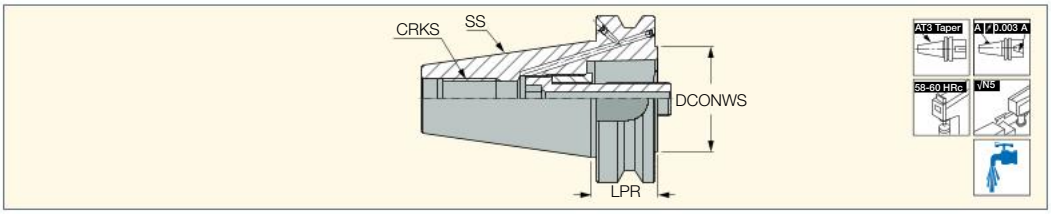
Spare Parts

Designation				
BT40 SEMC 16X100	KEY SEMC 16 4X4X20	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	16 D.RING SEMC
BT40 SEMC 16X50	KEY SEMC 16 4X4X20	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	16 D.RING SEMC
BT40 SEMC 22X100	KEY SEMC 22 6X6X25	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	22 D.RING SEMC
BT40 SEMC 22X53	KEY SEMC 22 6X6X25	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	22 D.RING SEMC
BT40 SEMC 27X100	KEY SEMC 27 7X7X25	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	27 D.RING SEMC
BT40 SEMC 27X55	KEY SEMC 27 7X7X25	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	27 D.RING SEMC
BT40 SEMC 32X100	KEY SEMC 32 8X7X28	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	32 D.RING SEMC
BT40 SEMC 32X60	KEY SEMC 32 8X7X28	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	32 D.RING SEMC
BT40 SEMC 40X80	KEY SEMC 40 10X8X32	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	40 D.RING SEMC
BT50 SEMC 16X100	KEY SEMC 16 4X4X20	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	16 D.RING SEMC
BT50 SEMC 16X150	KEY SEMC 16 4X4X20	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	16 D.RING SEMC
BT50 SEMC 22X100	KEY SEMC 22 6X6X25	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	22 D.RING SEMC
BT50 SEMC 22X150	KEY SEMC 22 6X6X25	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	22 D.RING SEMC
BT50 SEMC 22X68	KEY SEMC 22 6X6X25	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	22 D.RING SEMC
BT50 SEMC 27X100	KEY SEMC 27 7X7X25	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	27 D.RING SEMC
BT50 SEMC 27X150	KEY SEMC 27 7X7X25	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	27 D.RING SEMC
BT50 SEMC 27X78	KEY SEMC 27 7X7X25	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	27 D.RING SEMC
BT50 SEMC 32X100	KEY SEMC 32 8X7X28	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	32 D.RING SEMC
BT50 SEMC 32X150	KEY SEMC 32 8X7X28	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	32 D.RING SEMC
BT50 SEMC 32X78	KEY SEMC 32 8X7X28	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	32 D.RING SEMC
BT50 SEMC 40X78	KEY SEMC 40 10X8X32	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	40 D.RING SEMC
BT50 SEMC 40X100	KEY SEMC 40 10X8X32	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	40 D.RING SEMC
BT50 SEMC 40X150	KEY SEMC 40 10X8X32	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	40 D.RING SEMC
BT50 SEMC 50X79	KEY SEMC 50 12X8X36	M24 CLAMP SCREW SEM50	WRENCH M24 SEMC 50*	50 D.RING SEMC
BT50 SEMC 50X150	KEY SEMC 50 12X8X36	M24 CLAMP SCREW SEM50	WRENCH M24 SEMC 50*	50 D.RING SEMC

* Optional, to be ordered separately

BT MAS CAMFIX

BT-C#
CAMFIX (ISO 26623-1)
Holders with BT MAS-403
AD Tapered Shanks



Designation	SS	DCONWS	LPR	CRKS	DCP(1)	kg
C5 AD BT40X50	40	50.00	50.00	M16	0	1.05
C5 AD BT50X40	50	50.00	40.00	M24	0	3.46
C6 AD BT50X50	50	63.00	50.00	M24	0	3.55
C8 AD BT50X70	50	80.00	70.00	M24	0	4.05

(1) 1 - Slot for data chip, 0 - Without slot for data chip

802-805

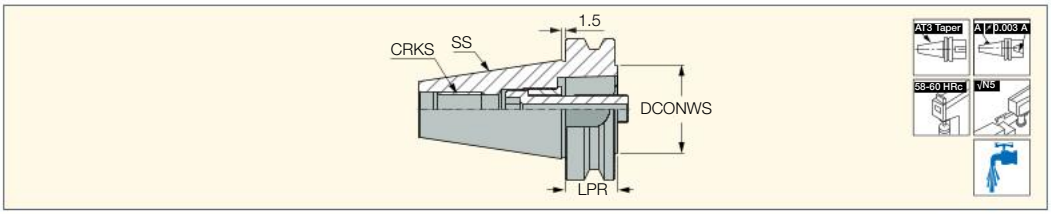
Spare Parts

Designation				
C5 AD BT40X50	SR M16X70 C5	HW 10.0	MT RING M25X20XC5	WRENCH C5 DRW NUT
C5 AD BT50X40	SR M16X70 C5	HW 10.0*	MT RING M25X20XC5	WRENCH C5 DRW NUT
C6 AD BT50X50	SR M20X87 C6/8	HW 14.0	MT RING M30X24XC6/8	WRENCH C6-8 DRW NUT
C8 AD BT50X70	SR M20X87 C6/8	HW 14.0*	MT RING M30X24XC6/8	WRENCH C6-8 DRW NUT

* Optional, to be ordered separately

BT MAS CAMFIX

BT-C#-FC
CAMFIX (ISO 26623-1) Holders
with BT MAS-403 Face
Contact AD Tapered Shanks



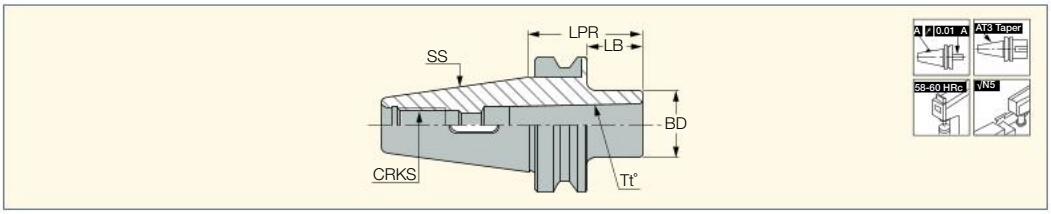
Designation	SS	DCONWS	LPR	CRKS	DCP(1)	kg
C5 AD BT50FC X40	50	50.00	38.50	M24	0	3.46
C6 AD BT50FC X50	50	63.00	48.50	M24	0	3.55

New

(1) 1 - Slot for data chip, 0 - Without slot for data chip

BT MAS

BT-MT
DIN 6383 / DIN 228-2 Form D Tang Morse Tapered Adapters with BT MAS-403 A Tapered Shanks



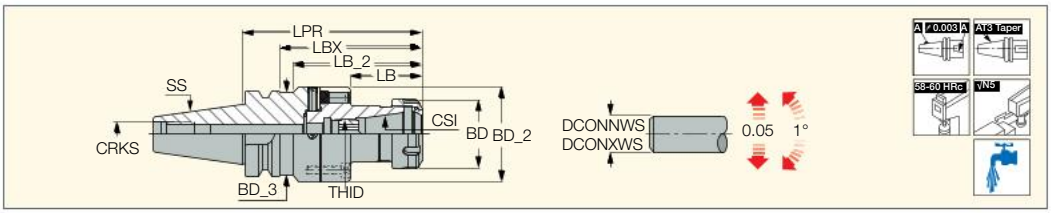
Designation	SS	Tt°	LPR	LB	BD	CRKS	DCP(1)	kg
BT30 MT1X 45	30	MT1	45.00	23.0	25.00	M12	0	0.43
BT30 MT2X 60	30	MT2	60.00	38.0	32.00	M12	0	0.51
BT40 MT1X 45	40	MT1	45.00	18.0	25.00	M16	0	1.00
BT40 MT1X120	40	MT1	120.00	93.0	25.00	M16	0	1.28
BT40 MT2X 60	40	MT2	60.00	33.0	32.00	M16	0	0.50
BT40 MT2X120	40	MT2	120.00	93.0	32.00	M16	0	1.43
BT40 MT3X 75	40	MT3	75.00	48.0	40.00	M16	0	1.15
BT40 MT3X139	40	MT3	139.00	112.0	40.00	M16	0	1.78
BT40 MT4X 95	40	MT4	95.00	68.0	50.00	M16	0	1.44
BT50 MT1X 45	50	MT1	45.00	7.0	25.00	M24	0	3.59
BT50 MT1X120	50	MT1	120.00	82.0	25.00	M24	0	3.94
BT50 MT1X180	50	MT1	180.00	142.0	25.00	M24	0	4.18
BT50 MT2X 45	50	MT2	45.00	7.0	32.00	M24	0	3.50
BT50 MT2X135	50	MT2	135.00	97.0	32.00	M24	0	4.14
BT50 MT2X180	50	MT2	180.00	142.0	32.00	M24	0	4.40
BT50 MT3X 45	50	MT3	45.00	7.0	40.00	M24	0	3.49
BT50 MT3X150	50	MT3	150.00	112.0	40.00	M24	0	4.46
BT50 MT3X180	50	MT3	180.00	142.0	40.00	M24	0	4.79
BT50 MT4X 75	50	MT4	75.00	37.0	50.00	M24	0	3.64
BT50 MT4X180	50	MT4	180.00	142.0	50.00	M24	0	5.20
BT50 MT5X105	50	MT5	105.00	67.0	70.00	M24	0	4.17

(1) 1 - Slot for data chip, 0 - Without slot for data chip

802-805

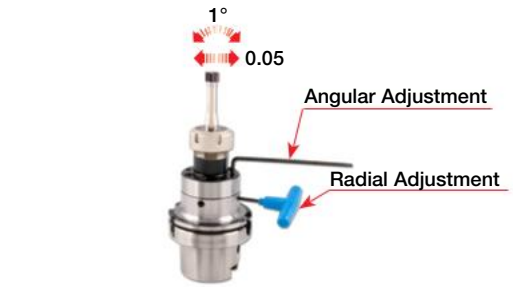
BT MAS FINEFIT

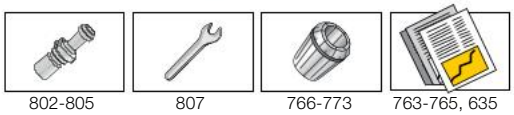
ADJ BT-ER
DIN 6499 ER Collet Chucks with Center Alignment and BT MAS-403 ADB Tapered Shanks



Designation	SS	CSI	DCONNWS(1)	DCONXWS(2)	LPR	LBX	LB_2	LB	BD	BD_2	BD_3	THID	CRKS	kg
ADJ BT40 D70 ER32	40	ER32	2.0	20.0	129.50	102.5	92.50	52.50	50.00	70.00	62.50	M22X1.5	M16	2.56
ADJ BT50 D70 ER32	50	ER32	2.0	20.0	144.50	106.5	106.50	52.50	50.00	70.00	70.00	M22X1.5	M24	5.90

• Radial adjustment 0.05 mm, Angular adjustment 1° • Add B to the designation for coolant through flange option.
(1) Minimum diameter
(2) Maximum diameter



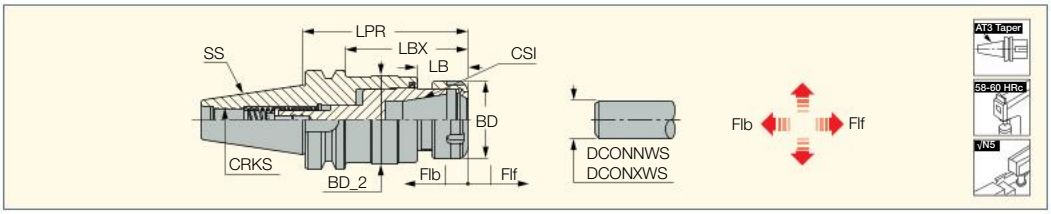

802-805 807 766-773 763-765, 635

Spare Parts

Designation	
ADJ BT-ER	ADJ ER32 NOSE

BT MAS GTI

GTI BT-ER (tapping)
DIN 6499 ER Tapping
Attachments with BT MAS-403 A
Tapered Shanks



Designation	SS	CSI	Tap min	Tap max	DCONNWS(1)	DCONXWS(2)	LPR	LBX	LB	BD	BD_2	Flf	Flb	CRKS	DCP(3)	kg
GTI BT40 ER16	40	ER16	M3	M10	0.5	10.0	84.20	52.7	24.60	28.00	29.50	8.0	3.0	M16	0	1.17
GTI BT40 ER32	40	ER32	M6	M20	2.0	20.0	106.80	79.8	33.00	50.00	56.50	9.0	4.0	M16	0	2.52
GTI BT40 ER40	40	ER40	M6	M28	3.0	26.0	124.80	97.8	51.00	63.00	56.50	9.0	4.0	M16	0	2.24
GTI BT50 ER16	50	ER16	M3	M10	0.5	10.0	106.80	68.8	24.60	28.00	29.50	8.0	3.0	M24	0	3.85
GTI BT50 ER32	50	ER32	M6	M20	2.0	20.0	114.20	77.2	33.00	50.00	56.50	9.0	4.0	M24	0	2.28
GTI BT50 ER40	50	ER40	M6	M28	3.0	26.0	133.20	95.2	51.00	63.00	56.50	9.0	4.0	M24	0	2.28

(1) Minimum diameter
(2) Maximum diameter
(3) 1 - Slot for data chip, 0 - Without slot for data chip

802-805 766-773 763-765, 635

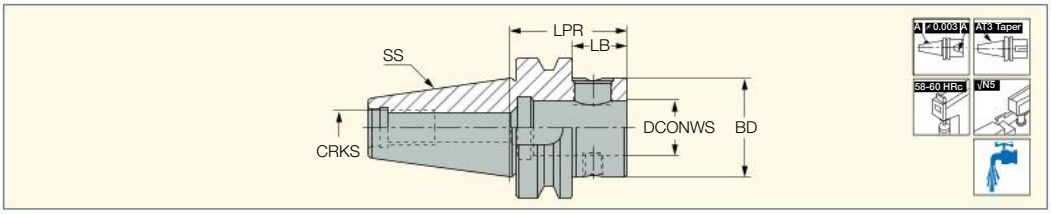
Spare Parts

Designation		
GTI BT40 ER16	NUT ER16 TOP	WRENCH ER16*
GTI BT40 ER32	NUT ER32 TOP	WRENCH ER32*
GTI BT40 ER40	NUT ER40 TOP	WRENCH ER40*
GTI BT50 ER16	NUT ER16 TOP	WRENCH ER16*
GTI BT50 ER32	NUT ER32 TOP	WRENCH ER32*
GTI BT50 ER40	NUT ER40 TOP	WRENCH ER40*

* Optional, to be ordered separately

BT MAS CLICKFIT

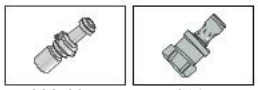
BT-CF (CLICK-FIT)
Modular System Connections
with BT MAS-403 AD
Tapered Shanks



Designation	SS	DCONWS	LPR	LB	BD	CRKS	DCP(1)	kg
BT40 CF4-L	40	25.00	110.00	83.0	44.50	M16	0	1.74
BT40 CF4-S	40	25.00	52.00	25.0	44.50	M16	0	1.08
BT50 CF4-L	50	25.00	115.00	77.0	44.50	M24	0	1.20
BT50 CF4-S	50	25.00	63.00	25.0	44.50	M24	0	3.71

- Tightening torque: 6 Kgxm

(1) 1 - Slot for data chip, 0 - Without slot for data chip

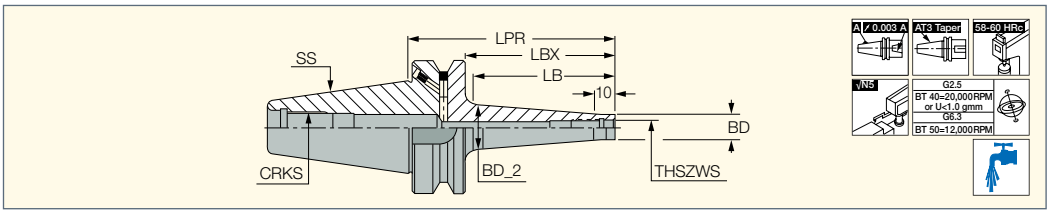

802-805 811

Spare Parts

Designation		
BT-CF (CLICK-FIT)	SCREW M16X1.5 FOR CF4	WRENCH HW 8 200X36 DIN911

BT MAS FLEXFIT

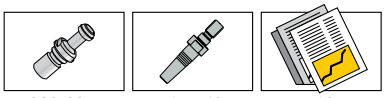
BT-ODP (FLEX-FIT)
FLEX-FIT Threaded Adaptation with Integral BT MAS-403 Tapered Shanks (ADB type)



Designation	SS	THSZWS	BD	BD_2	LPR	LBX	LB	CRKS	DCP(1)	kg
BT40 ODP 6X 66	40	M06	9.80	13.00	66.00	39.0	30.00	M16	0	0.98
BT40 ODP 6X106	40	M06	9.80	23.00	106.00	79.0	70.00	M16	0	0.14
BT40 ODP 8X 66	40	M08	13.00	15.00	66.00	30.0	30.00	M16	0	0.99
BT40 ODP10X 66	40	M10	18.00	20.00	66.00	30.0	30.00	M16	0	1.03
BT40 ODP10X106	40	M10	18.00	28.00	106.00	79.0	70.00	M16	0	1.24
BT40 ODP12X 66	40	M12	21.00	24.00	66.00	39.0	30.00	M16	0	1.05
BT40 ODP12X106	40	M12	21.00	31.00	106.00	79.0	70.00	M16	0	1.23
BT40 ODP16X 66	40	M16	29.00	28.60	66.00	39.0	35.00	M16	0	1.06
BT40 ODP16X106	40	M16	29.00	34.00	106.00	79.0	70.00	M16	0	1.32
BT50 ODP 12X 94	50	M12	23.00	30.00	94.00	56.0	50.00	M24	0	3.85
BT50 ODP 12X144	50	M12	23.00	40.00	144.00	106.0	100.00	M24	0	4.27
BT50 ODP 12X194	50	M12	23.00	40.00	194.00	156.0	150.00	M24	0	4.61
BT50 ODP 16X 94	50	M16	29.00	34.00	94.00	56.0	50.00	M24	0	3.75
BT50 ODP 16X144	50	M16	29.00	40.00	144.00	106.0	100.00	M24	0	4.19
BT50 ODP 16X194	50	M16	29.00	55.00	194.00	156.0	150.00	M24	0	5.27
BT50 ODP 16X244	50	M16	29.00	60.00	244.00	206.0	200.00	M24	0	5.60

- The coolant passages in the B-type flange are blocked with screws which can be removed when required.

(1) 1 - Slot for data chip, 0 - Without slot for data chip

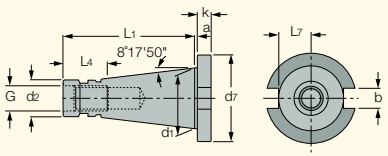


802-805 747-749 746

DIN2080

DIN2080

DIN2080-ER



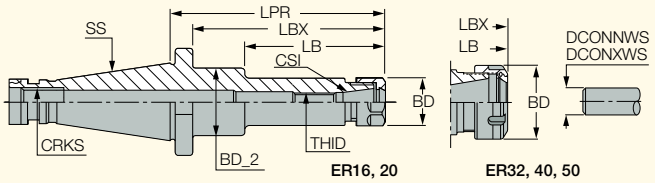
Shank	$a^{\pm 0.2}$	b (H12)	d1	d2	G	d7	$K^{\pm 0.15}$
SK 30	1.6	16.1	31.75	17.4	M12	50	8
SK 40	1.6	16.1	44.45	25.3	M16	63	10
SK 50	3.2	25.7	69.85	39.6	M24	97.5	12

Shank	L1	L4	L7 MAX	Taper AT3
SK 30	68.4	24	16.2	0.002
SK 40	93.4	32	22.5	0.003
SK 50	126.8	47	35.3	0.004

DIN2080

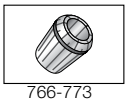
DIN2080-ER

DIN 6499 ER Collet Chucks with
DIN 2080 AD Tapered Shanks



Designation	SS	CSI	DCONNWS(1)	DCONXWS(2)	LPR	LBX	LB	BD	BD_2	THID	CRKS	DCP(3)	kg
DIN2080 30 ER16X 75	30	ER16	0.5	10.0	75.00	65.4	-	28.00	-	M10	M12	0	0.48
DIN2080 30 ER32X 55	30	ER32	2.0	20.0	55.00	45.4	-	50.00	-	M18X1.5	M12	0	0.36
DIN2080 30 ER40X 83	30	ER40	3.0	26.0	83.00	69.4	-	63.00	-	M22X1.5	M12	0	0.79
DIN2080 40 ER16X100	40	ER16	0.5	10.0	100.00	88.4	-	28.00	-	M12	M16	0	0.99
DIN2080 40 ER16X63	40	ER16	0.5	10.0	63.00	51.4	-	28.00	-	M12	M16	0	0.85
DIN2080 40 ER20X100	40	ER20	1.0	13.0	100.00	88.4	-	34.00	-	M12	M16	0	1.12
DIN2080 40 ER25X 50	40	ER25	1.0	16.0	50.00	38.4	-	42.00	-	M16X1.5	M16	0	0.82
DIN2080 40 ER25X 90	40	ER25	1.0	16.0	90.00	78.4	-	42.00	-	M16X1.5	M16	0	1.21
DIN2080 40 ER32X 50	40	ER32	2.0	20.0	50.00	38.4	-	50.00	-	M22X1.5	M16	0	0.73
DIN2080 40 ER40X 55	40	ER40	3.0	26.0	55.00	43.4	-	63.00	-	M22X1.5	M16	0	0.80
DIN2080 50 ER20X100	50	ER20	1.0	13.0	100.00	84.8	-	34.00	-	M16	M24	0	2.89
DIN2080 50 ER20X160	50	ER20	1.0	13.0	160.00	144.8	-	34.00	-	M12	M24	0	3.30
DIN2080 50 ER40X 58	50	ER40	3.0	26.0	58.00	42.8	-	63.00	-	M28X1.5	M24	0	2.51
DIN2080 50 ER50X 63	50	ER50	10.0	34.0	63.00	47.8	-	78.00	-	M36X1.5	M24	0	2.40

(1) Minimum diameter
(2) Maximum diameter
(3) 1 - Slot for data chip, 0 - Without slot for data chip


766-773

Spare Parts

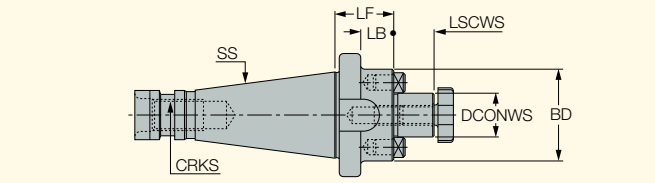
Designation				
DIN2080 30 ER16X 75	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	
DIN2080 30 ER32X 55	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 18X1.5*	PRESET ER-JET 18X1.5L*
DIN2080 30 ER40X 83	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*
DIN2080 40 ER16X100	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
DIN2080 40 ER16X63	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
DIN2080 40 ER20X100	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
DIN2080 40 ER25X 50		WRENCH ER25*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
DIN2080 40 ER32X 50	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*
DIN2080 40 ER40X 55	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*
DIN2080 50 ER20X100	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
DIN2080 50 ER20X160	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
DIN2080 50 ER40X 58	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 28X1.5*	
DIN2080 50 ER50X 63	NUT ER50 UM	WRENCH ER50*		

* Optional, to be ordered separately

DIN2080

DIN2080-SEM

DIN 3937 Shell Mill Holders with
DIN 2080 A Tapered Shanks



Designation	SS	DCONWS	LSCWS	LF	LB	BD	CRKS	DCP(1)	kg		
DIN2080 30 SEM 22X 28	30	22.00	19.00	28.00	18.4	47.00	M12	0	0.57	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*
DIN2080 40 SEM 16X 28	40	16.00	17.00	28.00	16.4	38.00	M16	0	0.87	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*
DIN2080 40 SEM 22X 27	40	22.00	19.00	27.00	15.4	47.00	M16	0	0.94	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*
DIN2080 40 SEM 27X 26	40	27.00	21.00	26.00	14.4	58.00	M16	0	1.08	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*
DIN2080 40 SEM 32X 23	40	32.00	24.00	23.00	11.4	66.00	M16	0	1.05	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*
DIN2080 40 SEM 40X 34	40	40.00	27.00	34.00	22.4	82.00	M16	0	1.65	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*
DIN2080 50 SEM 16X 38	50	16.00	17.00	38.00	22.8	38.00	M24	0	2.92	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*
DIN2080 50 SEM 22X 38	50	22.00	19.00	38.00	22.8	47.00	M24	0	2.90	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*
DIN2080 50 SEM 27X 38	50	27.00	21.00	38.00	22.8	58.00	M24	0	3.00	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*
DIN2080 50 SEM 32X 36	50	32.00	24.00	36.00	20.8	66.00	M24	0	3.28	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*
DIN2080 50 SEM 40X 40	50	40.00	27.00	40.00	24.8	82.00	M24	0	3.76	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*

• For internal coolant through the holder, the related COOLANT SET should be ordered via Accessories (applicable to certain tools only)
(1) 1 - Slot for data chip, 0 - Without slot for data chip
* Optional, to be ordered separately

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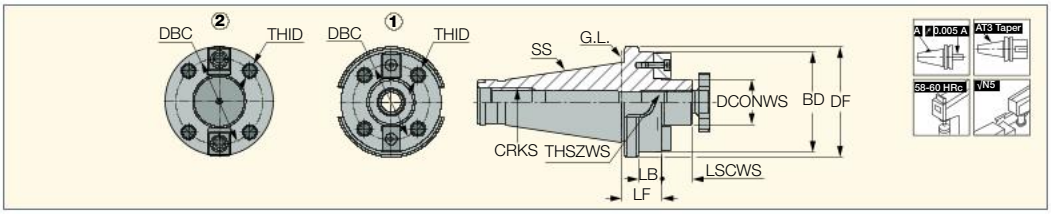
DIN2080

DIN2080-FM
DIN6357 Face Mill Holders with DIN2080 A Tapered Shanks



Designation	SS	DCONWS	LSCWS	LF	LB	DF	DBC	BD	THSZWS	THID	CRKS	Fig.	DCP(1)	kg
DIN2080 50 FM 40	50	40.00	27.00	36.00	20.8	97.30	66.70	88.00	M20	M12	M24	1.	0	3.61
DIN2080 50 FM 60	50	60.00	40.00	36.00	-	128.00	101.60	-	-	M16	M24	2.	0	5.60

- Peripheral clamping screws are not supplied.

(1) 1 - Slot for data chip, 0 - Without slot for data chip

808-809

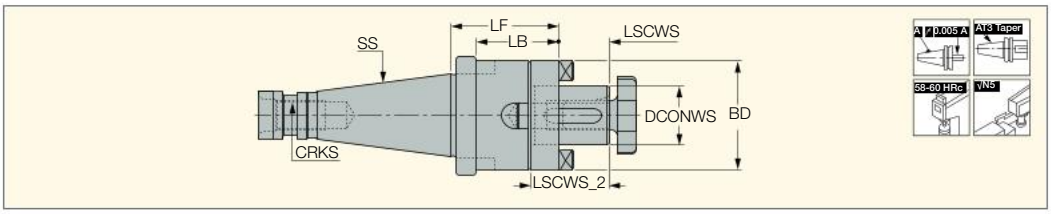
Spare Parts

Designation			
DIN2080 50 FM 40	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	DR. DOG 16 E
DIN2080 50 FM 60			DR. DOG 1E

* Optional, to be ordered separately

DIN2080

DIN2080-SEMC
DIN6358 COMBI Shell Mill Holders with DIN2080 A Tapered Shanks



Designation	SS	DCONWS	LSCWS	LF	LB	LSCWS_2	BD	CRKS	DCP(1)	kg
DIN2080 40 SEMC 22X 52	40	22.00	19.00	52.00	40.4	31.00	40.00	M16	0	1.01
DIN2080 40 SEMC 27X 52	40	27.00	21.00	52.00	40.4	33.00	48.00	M16	0	1.26
DIN2080 40 SEMC 32X 52	40	32.00	24.00	52.00	40.4	38.00	58.00	M16	0	1.42
DIN2080 40 SEMC 40X 52	40	40.00	27.00	52.00	40.4	41.00	70.00	M16	0	1.76
DIN2080 50 SEMC 16X 55	50	16.00	17.00	55.00	39.8	27.00	32.00	M24	0	2.89
DIN2080 50 SEMC 22X 55	50	22.00	19.00	55.00	39.8	31.00	40.00	M24	0	3.12
DIN2080 50 SEMC 27X 55	50	27.00	21.00	55.00	39.8	33.00	48.00	M24	0	3.13
DIN2080 50 SEMC 32X 55	50	32.00	24.00	55.00	39.8	38.00	58.00	M24	0	3.35
DIN2080 50 SEMC 50X 55	50	50.00	30.00	55.00	39.8	46.00	90.00	M24	0	4.18

- For internal coolant through the holder, the related COOLANT SET should be ordered via Accessories (applicable to certain tools only)

(1) 1 - Slot for data chip, 0 - Without slot for data chip

808-809

Spare Parts

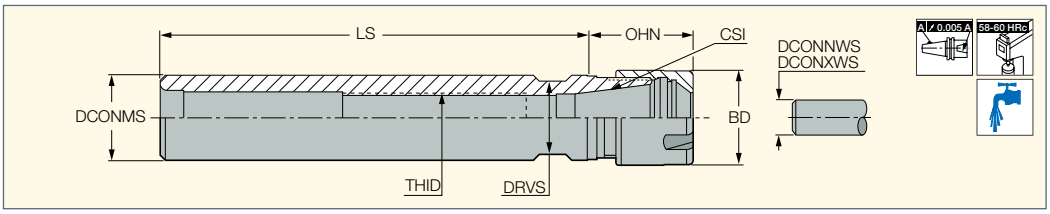
Designation				
DIN2080 40 SEMC 22X 52	22 D.RING SEMC	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	KEY SEMC 22 6X6X25
DIN2080 40 SEMC 27X 52	27 D.RING SEMC	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	KEY SEMC 27 7X7X25
DIN2080 40 SEMC 32X 52	32 D.RING SEMC	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	KEY SEMC 32 8X7X28
DIN2080 40 SEMC 40X 52	40 D.RING SEMC	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	KEY SEMC 40 10X8X32
DIN2080 50 SEMC 16X 55	16 D.RING SEMC	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	KEY SEMC 16 4X4X20
DIN2080 50 SEMC 22X 55	22 D.RING SEMC	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	KEY SEMC 22 6X6X25
DIN2080 50 SEMC 27X 55	27 D.RING SEMC	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	KEY SEMC 27 7X7X25
DIN2080 50 SEMC 32X 55	32 D.RING SEMC	M16 CLAMP SCREW SEM32	WRENCH M16 SEMC 32*	KEY SEMC 32 8X7X28
DIN2080 50 SEMC 50X 55	50 D.RING SEMC	M24 CLAMP SCREW SEM50	WRENCH M24 SEMC 50*	KEY SEMC 50 12X8X36

* Optional, to be ordered separately

STRAIGHT SHANKS

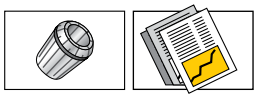
Straight Shank

ST-ER-M (mini)
DIN 6499 ER Mini Collet Chucks with Cylindrical Shanks



Designation	DCONMS	CSI	DCONNWS[1]	DCONXWS[2]	LS	OHN[3]	THID	BD	DRVS[4]	kg
ST 12X 80 ER11 M	12.00	ER11	0.5	7.0	80.00	26.50	-	16.00	11.0	0.06
ST 16X100 ER11 M	16.00	ER11	0.5	7.0	100.00	18.50	M8	16.00	13.0	0.10
ST 16X150 ER11 M	16.00	ER11	0.5	7.0	150.00	18.50	M8	16.00	13.0	0.19
ST 12X 80 ER16 M	12.00	ER16	0.5	10.0	80.00	36.50	-	22.00	17.0	0.13
ST 20X100 ER16 M	20.00	ER16	0.5	10.0	100.00	25.00	M12	22.00	17.0	0.21
ST 20X150 ER16 M	20.00	ER16	0.5	10.0	150.00	25.00	M12	22.00	17.0	0.29
ST 20X100 ER20 M	20.00	ER20	1.0	13.0	100.00	40.00	M12	28.00	21.0	0.27
ST 20X150 ER20 M	20.00	ER20	1.0	13.0	150.00	40.00	M12	28.00	21.0	0.31

(1) Minimum diameter
(2) Maximum diameter
(3) Minimum overhang
(4) Torque key size



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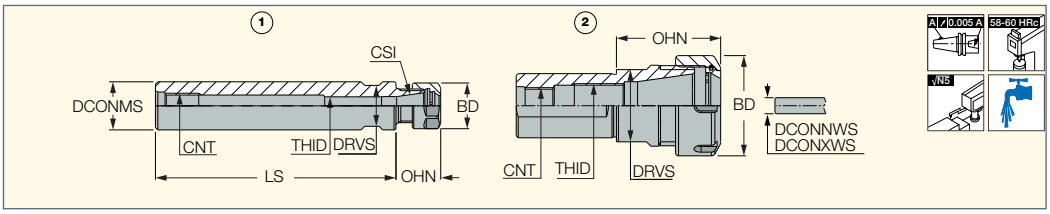
Spare Parts

Designation				
ST 12X 80 ER11 M	NUT ER11 MINI	WRENCH ER11 MINI		
ST 16X100 ER11 M	NUT ER11 MINI	WRENCH ER11 MINI*	PRESET ER-JET 8X1.25*	
ST 16X150 ER11 M	NUT ER11 MINI	WRENCH ER11 MINI*	PRESET ER-JET 8X1.25*	
ST 12X 80 ER16 M	NUT ER16 MINI	WRENCH ER16 MINI*		
ST 20X100 ER16 M	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 20X150 ER16 M	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 20X100 ER20 M	NUT ER20 MINI	WRENCH ER20 MINI*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 20X150 ER20 M	NUT ER20 MINI	WRENCH ER20 MINI*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*

* Optional, should be ordered separately

Straight Shank

ST-ER
DIN 6499 ER Collet Chucks
with Straight Shanks



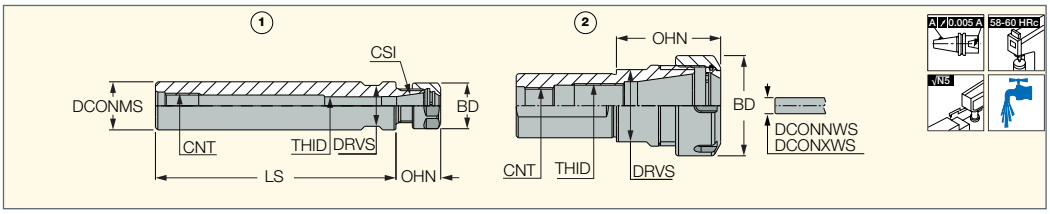
Designation	DCONMS	CSI	DCONNWS(1)	DCONXWS(2)	LS	OHN(3)	CNT	THID	BD	DRVS(4)	Fig.	kg
ST 16X 50 ER11 F	16.00	ER11	0.50	7.00	50.0	18.5	G1/8	M7.5X0.5	19.00	13.0	1.	0.06
ST 20X 50 ER11 F	20.00	ER11	0.50	7.00	50.0	18.5	G1/8	M7.5X0.5	19.00	17.0	1.	0.10
ST 20X100 ER11	20.00	ER11	0.50	7.00	100.0	18.5	G1/8	M7.5X0.5	19.00	17.0	1.	0.20
ST 20X150 ER11	20.00	ER11	0.50	7.00	150.0	18.5	-	M10	19.00	17.0	1.	0.25
ST 20X 50 ER16 F	20.00	ER16	0.50	10.00	50.0	32.3	-	M12	28.00	19.0	1.	0.07
ST 20X100 ER16	20.00	ER16	0.50	10.00	100.0	30.0	-	M12	28.00	19.0	1.	0.20
ST 20X100 ER16 F	20.00	ER16	0.50	10.00	100.0	30.0	-	M12	28.00	19.0	1.	0.20
ST 20X150 ER16	20.00	ER16	0.50	10.00	150.0	30.0	-	M12	28.00	19.0	1.	0.28
ST 20X 50 ER20 F	20.00	ER20	1.00	13.00	50.0	42.5	-	M12	34.00	22.0	1.	0.15
ST 25X100 ER20	25.00	ER20	1.00	13.00	100.0	36.0	G1/4	M14X1	34.00	22.0	1.	0.30
ST 25X150 ER20	25.00	ER20	1.00	13.00	150.0	36.0	-	M16	34.00	22.0	1.	0.39
ST 20X 50 ER25 F	20.00	ER25	1.00	16.00	50.0	46.0	G1/8	M14X1	42.00	28.0	2.	0.21
ST 20X100 ER25	20.00	ER25	1.00	16.00	100.0	46.0	-	M12	42.00	28.0	2.	0.29
ST 20X100 ER25 F	20.00	ER25	1.00	16.00	100.0	46.0	-	M12	42.00	28.0	2.	0.09
ST 25X 50 ER25 F	25.00	ER25	1.00	16.00	50.0	46.0	G1/4	M18X1	42.00	28.0	2.	0.22
ST 25X100 ER25	25.00	ER25	1.00	16.00	100.0	46.0	-	M16	42.00	28.0	2.	0.36
ST 20X 50 ER32 F	20.00	ER32	2.00	20.00	50.0	54.0	G1/8	M14X1	50.00	36.0	2.	0.30
ST 20X100 ER32	20.00	ER32	2.00	20.00	100.0	54.0	G1/8	M14X1	50.00	36.0	2.	0.40
ST 25X 50 ER32 F	25.00	ER32	2.00	20.00	50.0	52.0	G1/4	M18X1	50.00	36.0	2.	0.32
ST 30X 50 ER32 F	30.00	ER32	2.00	20.00	50.0	52.0	G1/4	M22X1.5	50.00	36.0	2.	0.39
ST 32X 50 ER32 F	32.00	ER32	2.00	20.00	50.0	52.0	G1/4	M22X1.5	50.00	36.0	2.	0.42
ST 32X150 ER32	32.00	ER32	2.00	20.00	150.0	52.0	G1/4	M22X1.5	50.00	36.0	2.	0.88
ST 40X 75 ER32 F	40.00	ER32	2.00	20.00	75.0	46.0	-	M22X1.5	50.00	44.0	2.	0.72
ST 25X 50 ER40 F	25.00	ER40	3.00	26.00	50.0	60.0	-	M16X2	63.00	45.0	2.	0.52
ST 30X 50 ER40 F	30.00	ER40	3.00	26.00	50.0	60.0	-	M18X1.5	63.00	45.0	2.	0.57
ST 32X 50 ER40 F	32.00	ER40	3.00	26.00	50.0	60.0	-	M18X1.5	63.00	45.0	2.	0.60
ST 40X 75 ER40 F	40.00	ER40	3.00	26.00	75.0	55.0	-	M22X1.5	63.00	45.0	2.	0.84
ST 50X 80 ER40 F	50.00	ER40	3.00	26.00	80.0	60.0	-	M28X1.5	63.00	54.0	2.	1.30
ST 50X 80 ER50 F	50.00	ER50	10.00	34.00	80.0	77.0	-	M36X1.5	78.00	58.0	2.	1.32

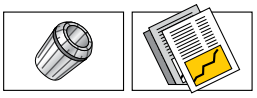
(1) Minimum diameter
(2) Maximum diameter
(3) Minimum overhang
(4) Torque key size

Continued

Straight Shank

ST-ER
DIN 6499 ER Collet Chucks
with Straight Shanks





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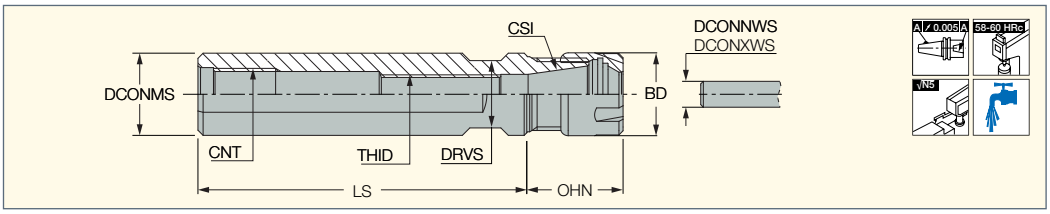
Spare Parts

Designation				
ST 16X 50 ER11 F	NUT ER11 UM	WRENCH ER11*	PRESET ER-JET 8X1.25*	
ST 20X 50 ER11 F	NUT ER11 UM	WRENCH ER11*	PRESET ER-JET 10X1.5*	
ST 20X100 ER11	NUT ER11 UM	WRENCH ER11*	PRESET ER-JET 10X1.5*	
ST 20X150 ER11	NUT ER11 UM	WRENCH ER11*	PRESET ER-JET 10X1.5*	
ST 20X 50 ER16 F	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 20X100 ER16	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 20X100 ER16 F	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 20X150 ER16	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 20X 50 ER20 F	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 25X100 ER20	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
ST 25X150 ER20	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
ST 20X 50 ER25 F	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 20X100 ER25	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 20X100 ER25 F	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 25X 50 ER25 F	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
ST 25X100 ER25	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
ST 20X 50 ER32 F	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 20X100 ER32	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
ST 25X 50 ER32 F	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
ST 30X 50 ER32 F	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 18X1.5*	PRESET ER-JET 18X1.5L*
ST 32X 50 ER32 F	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 18X1.5*	PRESET ER-JET 18X1.5L*
ST 32X150 ER32	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 18X1.5*	PRESET ER-JET 18X1.5L*
ST 40X 75 ER32 F	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*
ST 25X 50 ER40 F	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
ST 30X 50 ER40 F	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 18X1.5*	PRESET ER-JET 18X1.5L*
ST 32X 50 ER40 F	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 18X1.5*	PRESET ER-JET 18X1.5L*
ST 40X 75 ER40 F	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*
ST 50X 80 ER40 F	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 28X1.5*	
ST 50X 80 ER50 F	NUT ER50 UM	WRENCH ER50*		

* Optional, to be ordered separately

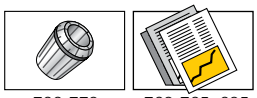
Straight Shank

ST-ER-MF (mini flat)
DIN 6499 ER Mini Collet Chucks with Cylindrical Shanks and a Clamping Flat for Swiss-Type CNC Lathes



Designation	DCONMS	CSI	LS	DCONNWS(6)	DCONXWS(7)	OHN(8)	CNT	THID	BD	DRVS(9)	kg
ST 16X 38 ER11 MF (1)	16.00	ER11	38.00	0.5	7.0	18.50	-	M8X1	16.00	14.0	0.05
ST 16X 50 ER11 MF	16.00	ER11	50.00	0.5	7.0	18.50	G1/8	M7.5X0.5	16.00	13.0	0.07
ST 16X140 ER11 MF	16.00	ER11	140.00	0.5	7.0	18.50	G1/8	M7.5X0.5	16.00	14.0	0.18
ST 16X 35 ER16 MF (1)	16.00	ER16	35.00	0.5	10.0	36.00	-	M8X1	22.00	17.0	0.08
ST 20X 50 ER16 MF (2)	20.00	ER16	50.00	0.5	10.0	26.00	G1/8	M11X1	22.00	17.0	0.10
ST 20X 70 ER16 MF (2)	20.00	ER16	70.00	0.5	10.0	26.00	G1/8	M11X1	22.00	17.0	0.17
ST 20X120 ER16 MF (2)	20.00	ER16	120.00	0.5	10.0	26.00	G1/8	M11X1	22.00	17.0	0.19
ST 20X140 ER16 MF (2)	20.00	ER16	140.00	0.5	10.0	26.00	G1/8	M11X1	22.00	17.0	0.40
ST 22X 38 ER16 MF (1)	22.00	ER16	38.00	0.5	10.0	26.00	-	M12X1	22.00	19.0	0.10
ST 22X 70 ER16 MF (1)	22.00	ER16	70.00	0.5	10.0	26.00	G1/4	M11X1	22.00	19.0	0.16
ST 22X100 ER16 MF (1)	22.00	ER16	100.00	0.5	10.0	28.00	-	M12X1	22.00	19.0	0.23
ST 22X 80 ER20 MF (1)	22.00	ER20	80.00	1.0	13.0	39.00	-	M12X1	28.00	21.0	0.21
ST 22X 70 ER25 MF (1)	22.00	ER25	70.00	1.0	16.0	47.00	-	M12X1	35.00	27.0	0.25
ST 25X 65 ER16 MF	25.00	ER16	65.00	0.5	10.0	28.00	-	M12X1	22.00	22.0	0.22
ST 25X100 ER20 MF (3)	25.00	ER20	100.00	1.0	13.0	28.00	-	M14X1	28.00	22.0	0.15
ST 25X154 ER20 MF (3)	25.00	ER20	154.00	1.0	13.0	28.00	-	M14X1	28.00	22.0	0.40
ST 25X 75 ER25 MF (4)	25.00	ER25	75.00	1.0	16.0	48.00	-	M14X1	35.00	27.0	0.30
ST 25X145 ER25 MF (3)	25.00	ER25	145.00	1.0	16.0	36.00	-	M14X1	35.00	27.0	0.08
ST 32X 70 ER25 MF (5)	32.00	ER25	70.00	1.0	16.0	30.00	G1/4	M18X1	35.00	27.0	0.35

(1) For Star machines
(2) For Citizen machines
(3) For Tornos-Bechler machines
(4) For Manurhin machines
(5) For Schutte machines
(6) Minimum diameter
(7) Maximum diameter
(8) Minimum overhang
(9) Torque key size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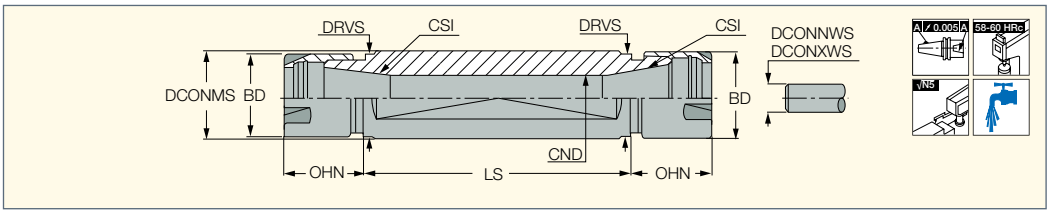
Spare Parts

Designation			
ST 16X 38 ER11 MF	NUT ER11 MINI	WRENCH ER11 MINI*	PRESET ER-JET 8X1*
ST 16X 50 ER11 MF	NUT ER11 MINI	WRENCH ER11 MINI*	PRESET ER-JET 8X1*
ST 16X140 ER11 MF	NUT ER11 MINI	WRENCH ER11 MINI*	PRESET ER-JET 8X1*
ST 16X 35 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 8X1*
ST 20X 50 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*
ST 20X 70 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*
ST 20X120 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*
ST 20X140 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*
ST 22X 38 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*
ST 22X 70 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*
ST 22X100 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*
ST 22X 80 ER20 MF	NUT ER20 MINI	WRENCH ER20 MINI*	PRESET ER-JET 12X1*
ST 22X 70 ER25 MF	NUT ER25 MINI	WRENCH ER25 MINI*	PRESET ER-JET 12X1*
ST 25X 65 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 12X1*
ST 25X100 ER20 MF	NUT ER20 MINI	WRENCH ER20 MINI*	PRESET ER-JET 14X1*
ST 25X154 ER20 MF	NUT ER20 MINI	WRENCH ER20 MINI*	PRESET ER-JET 14X1*
ST 25X 75 ER25 MF	NUT ER25 MINI	WRENCH ER25 MINI*	PRESET ER-JET 14X1*
ST 25X145 ER25 MF	NUT ER25 MINI	WRENCH ER25 MINI*	PRESET ER-JET 14X1*
ST 32X 70 ER25 MF	NUT ER25 MINI	WRENCH ER25 MINI*	PRESET ER-JET 18X1*

* Optional, to be ordered separately

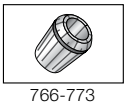
Straight Shank

ST-ER-MF-D (double-ended)
Double-Ended Mini Collets
with Cylindrical Shanks
and a Clamping Flat



Designation	DCONMS	LS	CSI	DCONNWS(3)	DCONXWS(4)	BD	CND(5)	OHN(6)	DRVS(7)	kg
ST 16X 50 ER11 MF D	16.00	50.00	ER11	0.5	7.0	16.00	7.5	18.50	14.0	0.07
ST 20X 30 ER11 MF D (1)	20.00	30.00	ER11	0.5	7.0	16.00	7.5	18.50	17.0	0.09
ST 20X 50 ER11 MF D (1)	20.00	50.00	ER11	0.5	7.0	16.00	7.5	18.50	17.0	0.13
ST 20X 55 ER16 MF D (1)	20.00	55.00	ER16	0.5	10.0	22.00	10.5	25.00	17.0	0.12
ST 22X 55 ER16 MF D (2)	22.00	55.00	ER16	0.5	10.0	22.00	10.5	28.00	19.0	0.17
ST 22X 75 ER16 MF D (2)	22.00	75.00	ER16	0.5	10.0	22.00	10.5	28.00	19.0	0.21
ST 25X 62 ER16 MF D	25.00	62.00	ER16	0.5	10.0	22.00	10.5	28.00	22.0	0.23
ST 32X 55 ER20 MF D (2)	32.00	55.00	ER20	1.0	13.0	28.00	13.5	28.00	27.0	0.34
ST 32X 75 ER20 MF D (2)	32.00	75.00	ER20	1.0	13.0	28.00	13.5	28.00	27.0	0.44

(1) For Citizen machines
(2) For Star machines
(3) Minimum diameter
(4) Maximum diameter
(5) Coolant entry diameter
(6) Minimum overhang
(7) Torque key size


766-773

763-765, 635

Spare Parts

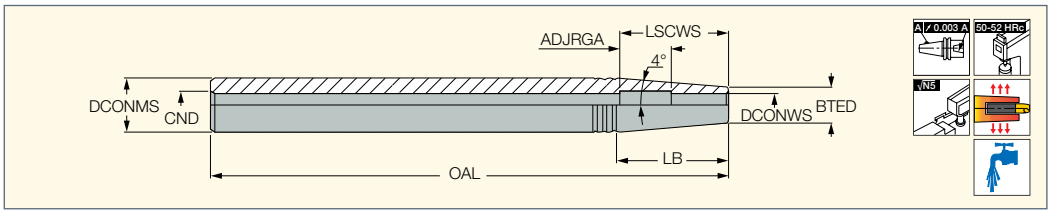
Designation		
ST 16X 50 ER11 MF D	NUT ER11 MINI	WRENCH ER11 MINI*
ST 20X 30 ER11 MF D	NUT ER11 MINI	WRENCH ER11 MINI*
ST 20X 50 ER11 MF D	NUT ER11 MINI	WRENCH ER11 MINI*
ST 20X 55 ER16 MF D	NUT ER16 MINI	WRENCH ER16 MINI*
ST 22X 55 ER16 MF D	NUT ER16 MINI	WRENCH ER16 MINI*
ST 22X 75 ER16 MF D	NUT ER16 MINI	WRENCH ER16 MINI*
ST 25X 62 ER16 MF D	NUT ER16 MINI	WRENCH ER16 MINI*
ST 32X 55 ER20 MF D	NUT ER20 MINI	WRENCH ER20 MINI*
ST 32X 75 ER20 MF D	NUT ER20 MINI	WRENCH ER20 MINI*

* Optional, to be ordered separately

Straight Shank

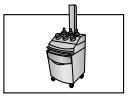
SHRINKIN

ST-SRK
Thermal Chuck Collets
with Cylindrical Shanks



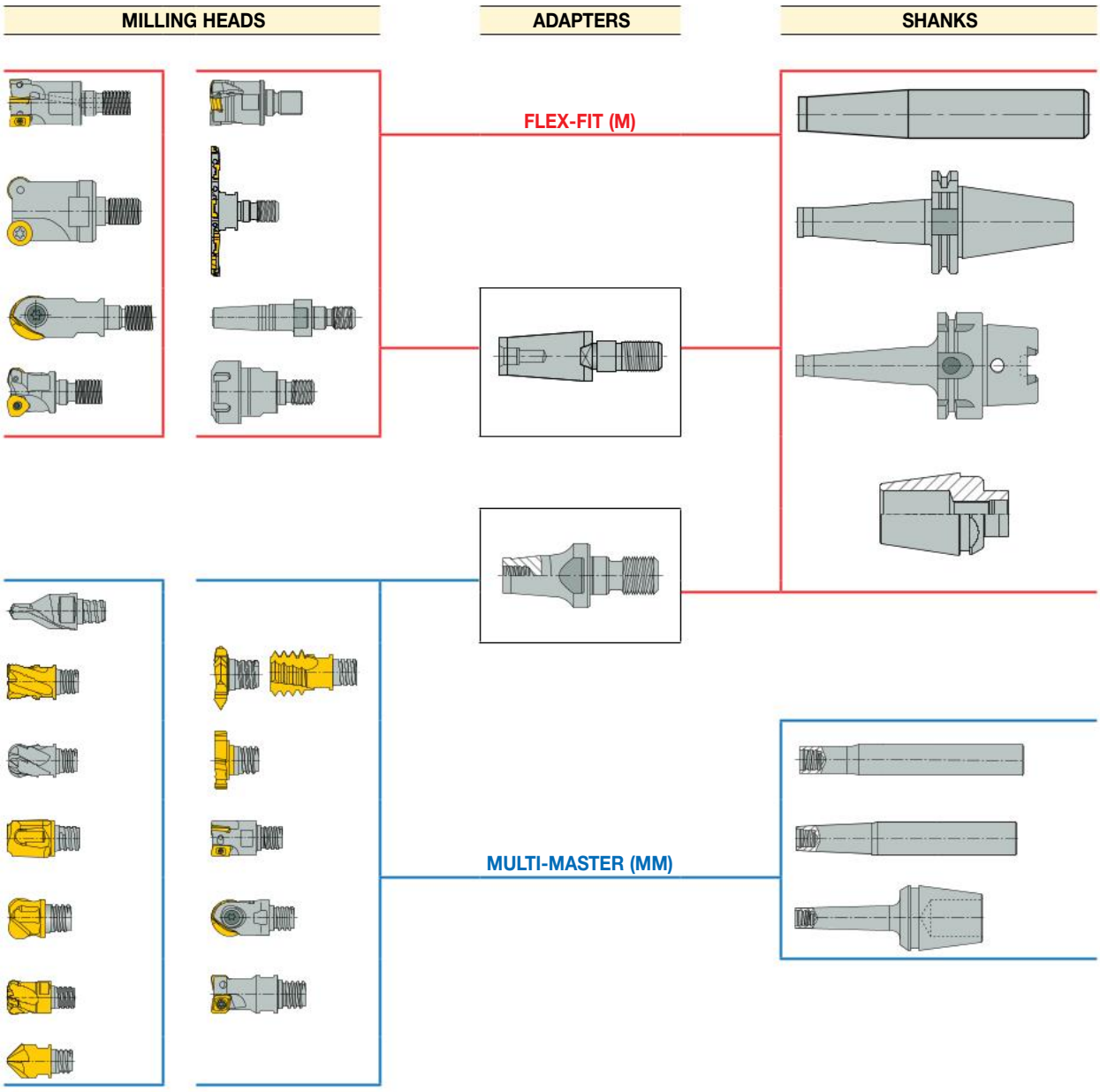
Designation	DCONWS	DCONMS	BTED	CND(1)	OAL	LB	ADJRGA	LSCWS	kg
ST 12X160 SRK 3	3.00	12.00	10.00	4.0	160.00	14.8	-	10.0	0.10
ST 16X160 SRK 3	3.00	16.00	10.00	6.0	160.00	43.4	-	10.0	0.20
ST 12X160 SRK 4	4.00	12.00	10.00	4.5	160.00	14.8	-	12.0	0.12
ST 16X160 SRK 4	4.00	16.00	10.00	6.0	160.00	43.4	-	12.0	0.20
ST 16X160 SRK 5	5.00	16.00	10.00	6.0	160.00	43.4	-	15.0	0.20
ST 20X200 SRK 5	5.00	20.00	10.00	6.0	200.00	72.0	-	15.0	0.38
ST 16X160 SRK 6	6.00	16.00	11.00	6.0	160.00	36.6	17.00	35.0	0.19
ST 20X200 SRK 6	6.00	20.00	11.00	6.0	200.00	65.2	22.00	40.0	0.30
ST 25X200 SRK 6	6.00	25.00	11.00	8.0	200.00	100.9	17.00	35.0	0.51
ST 20X200 SRK 8	8.00	20.00	14.00	6.0	200.00	43.3	15.00	40.0	0.43
ST 25X200 SRK 8	8.00	25.00	14.00	8.0	200.00	79.0	15.00	40.0	0.58
ST 25X200 SRK10	10.00	25.00	16.00	8.0	200.00	64.3	20.00	50.0	0.61
ST 25X200 SRK12	12.00	25.00	20.00	8.0	200.00	35.5	20.00	52.0	0.19

• To be used for carbide tools only.
(1) Coolant entry diameter


784-786

FLEX-FIT

MULTI-MASTER and FLEX-FIT Connection Options



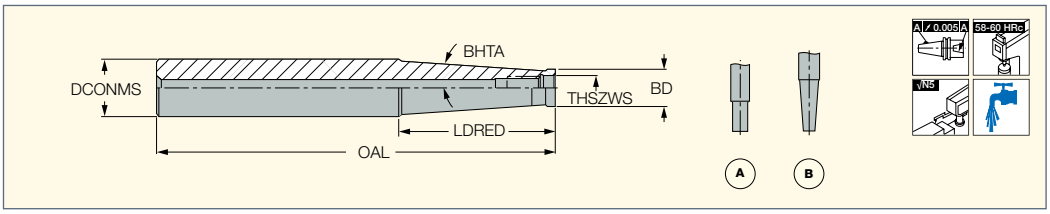
Features

Modular system reduces stock cost by using the same head with different shank options Enables machining with larger overhang. Same head can be mounted on metric and inch combinations.

Straight Shank

FLEXFIT

S M
Shanks for Tools with
FLEX-FIT Threaded Connection



Designation	OAL	LDRED	DCONMS	Shank	BD	BHTA	THSZWS	Type	kg
S M06-L60 C10	60.00	20.0	10.00	C	9.70	-	M06	A	0.03
S M06-L105-C12	105.00	60.0	12.00	C	9.70	1.2	M06	B	0.06
S M06-L125-C16	125.00	60.0	16.00	C	9.70	3.3	M06	B	0.13
S M08-L73 C16	73.00	25.0	16.00	C	13.00	-	M08	A	0.09
S M08-L128-C16	128.00	80.0	16.00	C	13.00	0.9	M08	B	0.15
S M08-L170-C20	170.00	66.8	20.00	C	13.00	3.3	M08	B	0.33
S M10-L80 C20	80.00	30.0	20.00	C	18.00	-	M10	A	0.16
S M10-L130-C20	130.00	80.0	20.00	C	18.00	0.6	M10	B	0.25
S M10-L200-C25	200.00	57.2	25.00	C	19.00	3.3	M10	B	0.65
S M12-L86-C25	86.00	30.0	25.00	C	21.00	5.1	M12	A	0.27
S M12-L200-C32	200.00	78.0	32.00	C	21.00	4.4	M12	B	1.02
S M16-L95-C32	95.00	35.0	32.00	C	29.00	1.7	M16	A	0.50
S M16-L230-C32	230.00	50.0	32.00	C	29.00	1.8	M16	B	1.27

• For adaptation options, see page 746

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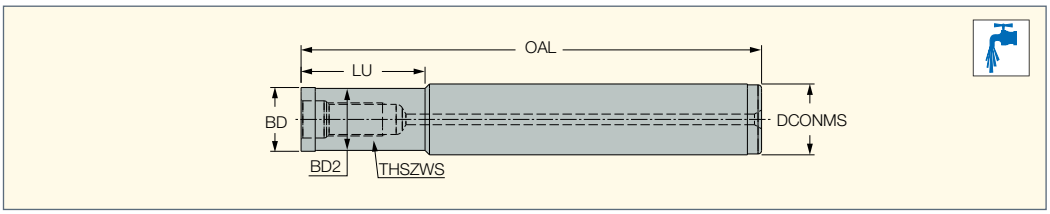
Straight Shank

FLEXFIT

S M-C-H
Carbide Shanks with Coolant
Channels for Tools with
FLEX-FIT Threaded Connection

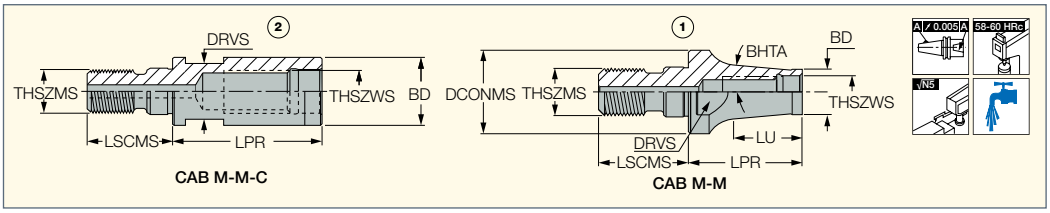


Designation	DCONMS	THSZWS	OAL	LU	BD	BD_2	kg
S M08-L150-C16-C-H	16.00	M08	150.00	80.0	15.30	15.30	0.39
S M08-L200-C16-C-H	16.00	M08	200.00	140.0	15.30	15.30	0.59
S M08-L250-C16-C-H	16.00	M08	250.00	180.0	15.30	15.30	0.84
S M10-L150-C20-C-H	20.00	M10	150.00	80.0	18.50	18.50	0.73
S M10-L200-C20-C-H	20.00	M10	200.00	140.0	18.00	17.50	0.91
S M10-L250-C20-C-H	20.00	M10	250.00	180.0	18.00	17.50	1.04
S M12-L200-C25-C-H	25.00	M12	200.00	100.0	21.00	20.50	1.41
S M12-L250-C25-C-H	25.00	M12	250.00	180.0	24.00	24.00	1.78
S M12-L300-C25-C-H	25.00	M12	300.00	180.0	21.00	20.50	2.04
S M16-L200-C32-C-H	32.00	M16	200.00	100.0	29.00	29.00	2.11
S M16-L250-C32-C-H	32.00	M16	250.00	180.0	29.00	29.00	2.36
S M16-L300-C32-C-H	32.00	M16	300.00	180.0	29.00	29.00	2.81

• For adaptation options, see page 746

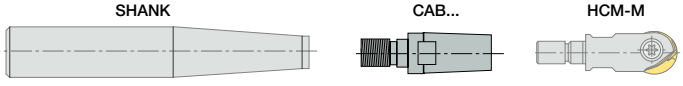
FLEXFIT

CAB M-M (FLEX-FIT)
Reducers and Extensions
with Coolant Holes for the
Modular FLEX-FIT System



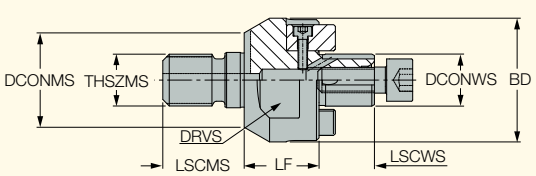
Designation	THSZWS	THSZMS	BD	LPR	LU	DCONMS	LSCMS	DRVS[1]	Fig.	BHTA	kg
CAB M06M08	M06	M08	9.70	30.00	24.80	13.00	17.50	9.5	1.	5.7	0.02
CAB M08M08-C	M08	M08	13.00	30.00	-	-	17.50	9.6	2.	-	0.02
CAB M08M10	M08	M10	13.00	40.00	33.40	18.00	20.20	15.0	1.	5.2	0.07
CAB M10M10-C	M10	M10	18.00	35.00	-	-	20.00	15.0	2.	-	0.06
CAB M10M12	M10	M12	18.00	45.00	36.40	21.00	22.00	17.0	1.	2.5	0.09
CAB M12M12-C	M12	M12	21.00	40.00	-	-	22.00	17.0	2.	-	0.08
CAB M12M16	M12	M16	21.00	50.00	42.50	29.00	25.00	25.0	1.	6.3	0.18
CAB M16M16-C	M16	M16	29.00	40.00	-	-	25.00	25.0	2.	-	0.16

(1) Clamping wrench size



FLEXFIT

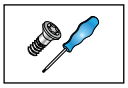
CAB M-SEM
FLEX-FIT Shell Mill Holder
Adaptation with Coolant Holes



Designation	THSZMS	DCONWS	LF	BD	LSCWS	DCONMS	LSCMS	DRVS(1)	TQ_3(2)
CAB M16 SEM 16 C	M16 (3)	16.00	23.00	38.00	17.0	29.00	25.00	32.0	40

- For internal coolant through the holder, the related COOLANT SET should be ordered via Accessories (applicable to certain tools only)
- When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Clamping wrench size
(2) Tool tightening torque Nxm (lbfxin)
(3) Tightening torque: 30 Nm Max

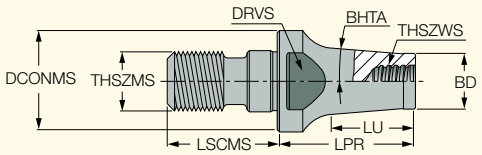

808-810

Spare Parts

Designation		
CAB M16 SEM 16 C	SR M3X10DIN912	SR M8X25DIN912

MULTI-MASTER

MM CAB
Adapters for Connecting
FLEX-FIT Shanks and
MULTI-MASTER Milling Heads



Designation	THSZWS	THSZMS	LPR	LU	BD	DCONMS	LSCMS	DRVS(1)	BHTA	TQ_3(2)	kg
MM CAB T06M06-16/.63	T06	M06	16.00	11.60	9.30	9.70	14.50	8.0	1.5	15	0.01
MM CAB T06M08-16/.63	T06	M08	16.00	13.70	9.60	13.00	17.50	11.0	6.0	20	0.02
MM CAB T06M08-25/1.0	T06	M08	25.00	11.30	9.30	13.00	17.50	11.0	1.5	20	0.02
MM CAB T06M10-25/1.0	T06	M10	25.00	16.60	9.60	18.00	20.00	11.0	5.0	29	0.04
MM CAB T08M08-16/.63	T08	M08	16.00	5.40	11.70	13.00	17.50	11.0	11.4	20	0.02
MM CAB T08M08-25/1.0	T08	M08	25.00	19.50	11.70	13.00	17.50	11.0	1.5	20	0.02
MM CAB T08M10-20/.75	T08	M10	20.00	11.30	11.70	18.00	20.00	13.0	7.0	29	0.04
MM CAB T08M10-25/1.0	T08	M10	25.00	14.20	11.70	18.00	20.00	11.0	1.5	29	0.03
MM CAB T08M12-20/.75	T08	M12	20.00	9.30	11.70	21.00	22.00	13.0	7.0	33	0.05
MM CAB T08M12-25/1.0	T08	M12	25.00	12.50	11.70	21.00	22.00	13.0	1.5	33	0.04

- Do not apply lubricant to the threaded connection
- When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

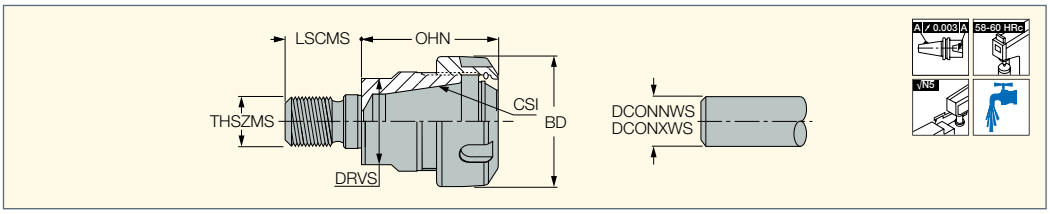
(1) Clamping wrench size
(2) Tool tightening torque Nxm (lbfxin)

746

FLEXFIT

CDP ER-M

DIN 6499 ER Collet Chucks with Threaded FLEX-FIT Adaptations



Designation	CSI	THSZMS	DCONNWS(1)	DCONXWS(2)	OHN(3)	LSCMS	BD	DRVS(4)	TQ_3(5)	kg
CDP ER11 M10 M	ER11	M10	0.5	7.0	27.0	20.00	16.00	15.0	40	0.03
CDP ER11 M12 M	ER11	M12	0.5	7.0	27.0	22.00	16.00	17.0	40	0.04
CDP ER16 M10 M	ER16	M10	0.5	10.0	38.1	20.00	22.00	17.0	40	0.05
CDP ER16 M12 M	ER16	M12	0.5	10.0	37.1	22.00	22.00	17.0	40	0.06
CDP ER16 M16	ER16	M16	0.5	10.0	36.6	25.00	28.00	25.0	40	0.10
CDP ER20 M16	ER20	M16	1.0	13.0	45.5	25.00	34.00	25.0	40	0.19
CDP ER25 M16	ER25	M16	1.0	16.0	44.5	25.00	42.00	28.0	40	0.15

• When mounting items with FLEX-FIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter

(1) Minimum diameter

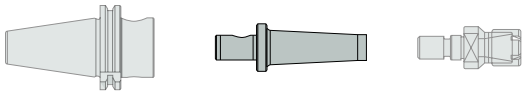
(2) Maximum diameter

(3) Minimum overhang

(4) Torque key size

(5) Tool tightening torque Nxm (lbfxin)

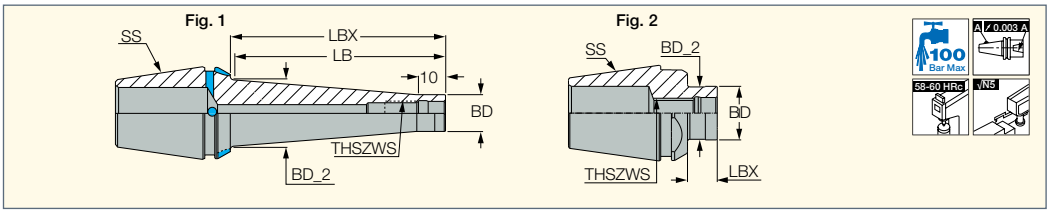
SHANK **SM...CF4** **CDP...**



FLEXFIT

ER-ODP

FLEX-FIT Threaded Adaptation with Integral ER Collet for ER Collet Chucks



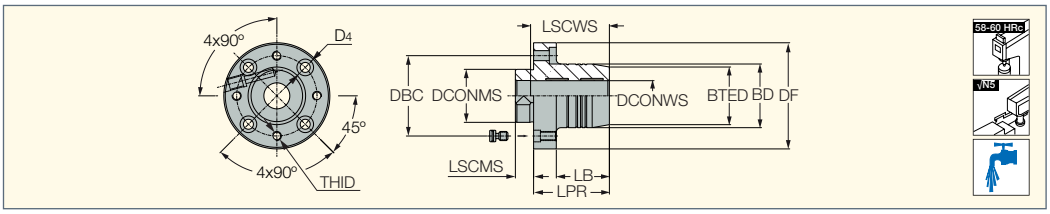
Designation	SS	THSZWS	LB	LBX	BD	BD_2	Fig.	kg
ER16 ODP M08X02	ER16	M08	2.50	2.50	12.00	12.00	2	0.04
ER16 ODP M08X10	ER16	M08	10.50	10.50	12.00	12.00	2	0.04
ER20 ODP M08X02	ER20	M08	2.00	2.00	13.00	13.00	2	0.05
ER20 ODP M08X10	ER20	M08	10.00	10.00	13.00	12.60	2	0.05
ER25 ODP M08X02	ER25	M08	2.00	2.00	13.00	13.00	2	0.05
ER25 ODP M08X10	ER25	M08	10.00	10.00	13.00	12.60	2	0.09
ER25 ODP M10X02	ER25	M10	2.00	2.00	18.00	18.00	2	0.05
ER25 ODP M10X25	ER25	M10	23.00	25.00	18.00	17.60	1	0.11
ER25 ODP M12X02	ER25	M12	2.70	2.70	20.60	19.20	2	0.08
ER25 ODP M12X10	ER25	M12	10.00	10.00	20.00	20.00	2	0.10
ER32 ODP M08X25	ER32	M08	22.00	25.00	13.10	15.00	1	0.15
ER32 ODP M08X50	ER32	M08	49.00	50.00	13.10	23.00	1	0.21
ER32 ODP M08X75	ER32	M08	74.00	75.00	13.10	23.00	1	0.26
ER32 ODP M08X02	ER32	M08	2.00	2.00	13.00	13.00	2	0.15
ER32 ODP M08X10	ER32	M08	10.00	10.00	13.00	12.60	2	0.14
ER32 ODP M10X02	ER32	M10	2.00	2.00	18.00	18.00	2	0.15
ER32 ODP M10X10	ER32	M10	10.00	10.00	18.00	17.60	2	0.15
ER32 ODP M10X25	ER32	M10	23.00	25.00	18.00	20.00	1	0.17
ER32 ODP M10X50	ER32	M10	49.00	50.00	18.00	24.00	1	0.24
ER32 ODP M12X02	ER32	M12	2.00	2.00	21.00	21.00	2	0.15
ER32 ODP M12X10	ER32	M12	10.00	10.00	21.00	20.60	2	0.17
ER32 ODP M12X25	ER32	M12	24.00	25.00	21.00	24.00	1	0.18
ER32 ODP M12X50	ER32	M12	49.00	50.00	21.00	24.00	1	0.26
ER32 ODP M16X02	ER32	M16	2.50	2.50	27.00	27.00	2	0.15
ER32 ODP M16X10	ER32	M16	10.50	10.50	27.00	27.00	2	0.18
ER32 ODP M16X25	ER32	M16	25.50	25.50	27.00	27.00	2	0.20

CENTER ALIGNMENT DEVICES

HYDROFIT HOLDING LINE

ADJ HYDRO

Radial and Angular Adjustable Hydraulic Flanges,for Semi-Finish and Finish Applications

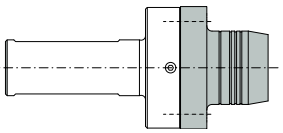


Designation	DCONMS	DCONWS	BTED	BD	DF	LPR	LB	LSCWS	LSCMS	DBC	D4	THID
ADJ HYDRO 20 D70	35.00	20.00	38.00	42.00	70.00	50.00	35.0	52.0	10.00	53.00	11.00	M6

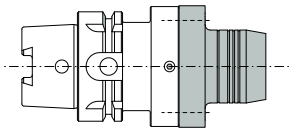
- Chucking forces will be reduced by 25% if reduction sleeves are used.
- Reduction sleeves are available for 3 to 16 mm bore diameters (order separately).

Designation

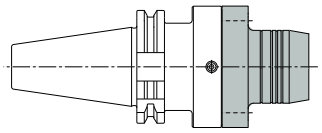
ADJ ST1 D2.756
ADJ ST25 D70
ADJ ST32 D70

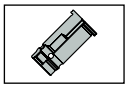


ADJ **HSK** A 63 D70
ADJ **HSK** A 100 D70



ADJ CAT40 D2.756
ADJ CAT50 D2.756
ADJ BT40 D70
ADJ BT50 D70




776

637

Spare Parts

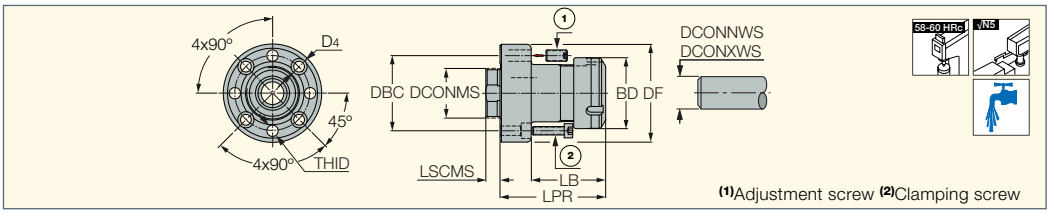
Designation		
ADJ HYDRO	WRENCH HYDRO HEX 4*	HYDRO CLAMP SCREW M8X14

* Optional, to be ordered separately

FINEFIT

ADJ ER NOSE

Radial and Angular Adjustable Collet Chuck Flanges



Designation	DCONNWS(1)	DCONXWS(2)	LPR	LB	LSCMS	BD	DF	DBC	DCONMS	D4	THID
ADJ ER32 NOSE	2.0	20.0	75.00	53.0	10.00	50.00	70.00	53.00	35.00	6.60	M8x1

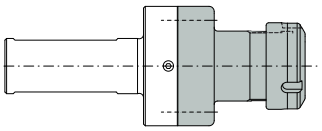
(1) Minimum diameter
(2) Maximum diameter

Spare Parts

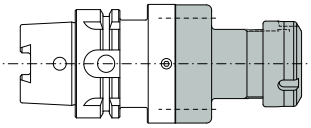
1 - Adjustment screw
2 - Clamping screw

Designation

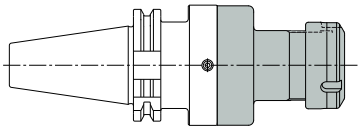
ADJ ST1 D2.756
ADJ ST25 D70
ADJ ST32 D70

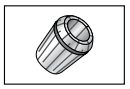


ADJ **HSK** A 63 D70
ADJ **HSK** A 100 D70



ADJ CAT40 D2.756
ADJ CAT50 D2.756
ADJ BT40 D70
ADJ BT50 D70




766-773

633, 755

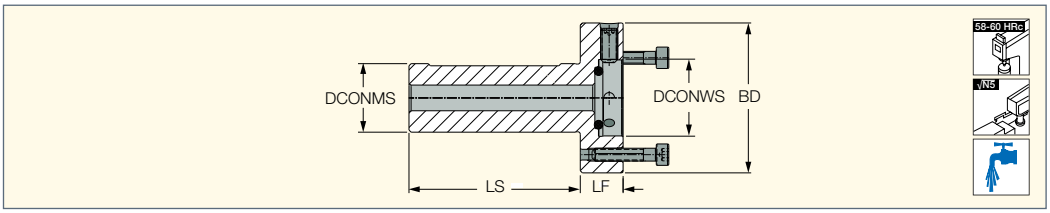
Spare Parts

Designation				
ADJ ER NOSE	NUT ER32 TOP	ADJUST SPACER 9.5X5	PRESET ER-JET 22X1.5	SR M8X1X16 DIN916

Straight Shank

ADJ ST

FINE-FIT Center Alignment Shank and Base with Cylindrical Shanks with a Clamping Flat



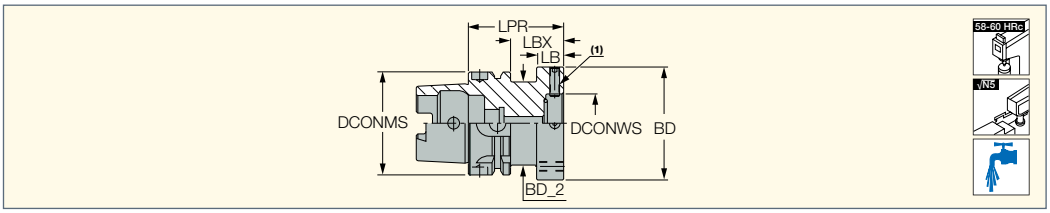
Designation	DCONMS	LF	LS	BD	DCONWS						
ADJ ST25 D70	25.00	20.00	80.00	70.00	35.00	SR M8X1X16 DIN916	SR M6X30 DIN912	OR 21X4N	HW 4.0*	ADJUST SPACER 9.5X5*	HW 5.0*
ADJ ST32 D70	32.00	20.00	80.00	70.00	35.00	SR M8X1X16 DIN916	SR M6X30 DIN912	OR 21X4N	HW 4.0*	ADJUST SPACER 9.5X5*	HW 5.0*

* Optional, to be ordered separately

HSK FINEFIT

ADJ HSK A

FINE-FIT Center Alignment Shank and Base with a DIN69893 HSK Tapered Shank for Specially Tailored Toolholders



Designation	DCONMS	LPR	LBX	LB	DCONWS	BD	BD_2	DCP(1)	kg
ADJ HSK A63 D70	63.00	60.00	34.0	18.00	35.00	70.00	46.00	1	1.24
ADJ HSK A100 D70	100.00	55.00	26.0	-	35.00	70.00	-	1	2.63

• (1) Use 4 mm hex key for screw adjustment. • A cooling tube must be used with all coolant through HSK spindles (to be ordered separately)
(1) 1 - Slot for data chip, 0 - Without slot for data chip

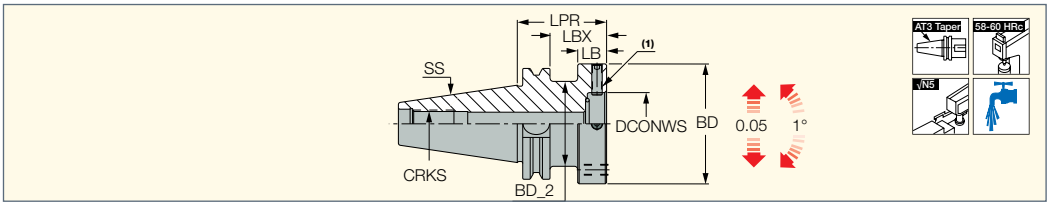
Spare Parts

Designation								
ADJ HSK A63 D70	SR M8X1X16 DIN916	SR M6X30 DIN912	OR 21X4N	ADJUST SPACER 9.5X5*	HW 4.0*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	HW 5.0*
ADJ HSK A100 D70	SR M8X1X16 DIN916	SR M6X30 DIN912	OR 21X4N	ADJUST SPACER 9.5X5*	HW 4.0*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*	HW 5.0*

* Optional, to be ordered separately

DIN69871

ADJ DIN69871
FINE-FIT Center Alignment Shank and Base with a DIN 69871 Form AD Taper Shank for Specially Tailored Toolholders



Designation	SS	DCONWS	LPR	LBX	LB	BD	BD_2	CRKS	kg
ADJ DIN69871 40 D70	40	35.00	50.00	30.9	15.00	70.00	46.00	M16	1.28
ADJ DIN69871 50 D70	50	35.00	50.00	30.9	-	70.00	-	M24	3.32

• (1) Use 4 mm hex key for screw adjustment.

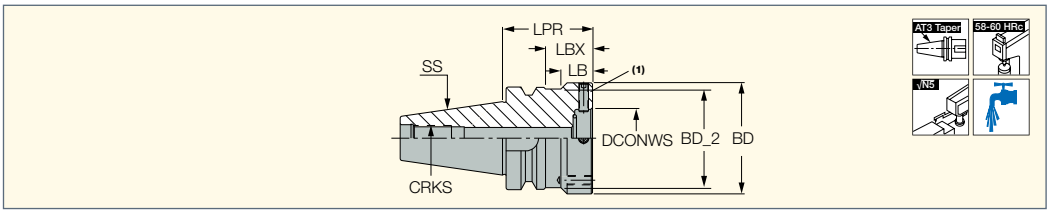
Spare Parts

Designation						
ADJ DIN69871	SR M8X1X16 DIN916	SR M6X30 DIN912	OR 21X4N	HW 4.0*	ADJUST SPACER 9.5X5*	HW 5.0*

* Optional, to be ordered separately

BT MAS

ADJ BT
Center Alignment Shanks and Bases with BT MAS-403 ADB Tapered Shanks for Specially Tailored Toolholders



Designation	SS	LPR	LBX	LB	BD	BD_2	DCONWS	CRKS	kg
ADJ BT40 D70	40	55.00	28.0	18.00	70.00	62.50	35.00	M16	1.56
ADJ BT50 D70	50	70.00	32.0	-	70.00	-	35.00	M24	4.34

• (1) Use 4 mm hex key for screw adjustment • Add B to the designation for coolant through flange option.

Spare Parts

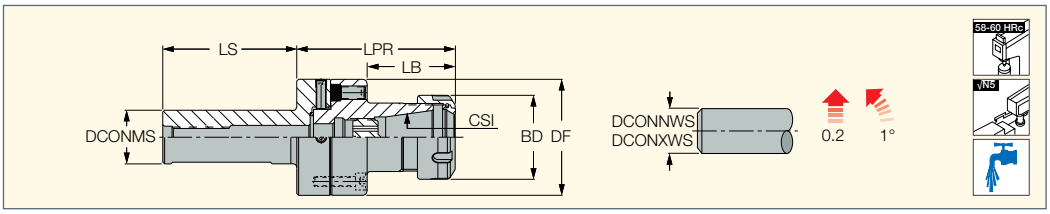
Designation						
ADJ BT	SR M8X1X16 DIN916	SR M6X30 DIN912	OR 21X4N	HW 4.0*	ADJUST SPACER 9.5X5*	HW 5.0*

* Optional, to be ordered separately

Straight Shank

FINEFIT

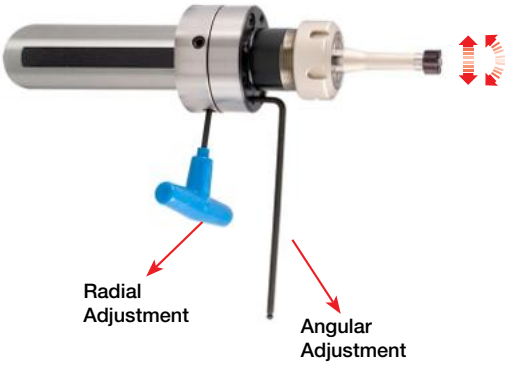
ADJ ST-ER
FINE-FIT DIN 6499 ER Collet Chucks with Center Alignment and Cylindrical Shanks with a Clamping Flat

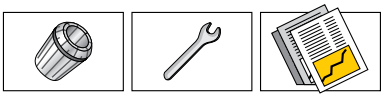


Designation	DCONMS	CSI	DCONNWS(1)	DCONXWS(2)	LPR	LB	LS	BD	DF	kg
ADJ ST25 D70 ER32	25.00	ER32	2.0	20.0	94.50	52.5	80.00	50.00	70.00	1.74
ADJ ST32 D70 ER32	32.00	ER32	2.0	20.0	94.50	52.5	80.00	50.00	70.00	1.91

- Radial adjustment 0.2 mm Angular adjustment 1°

(1) Minimum diameter
(2) Maximum diameter





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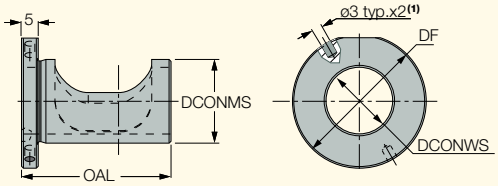
Spare Parts

Designation	
ADJ ST-ER	ADJ ER32 NOSE

Accessories

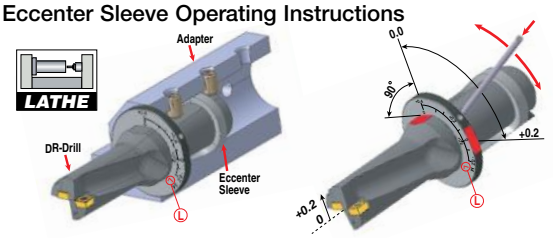
Drilling Eccenter Sleeves
Bushings for Enlarging or Reducing DR Nominal Drilling Diameters by Shifting the Drill Off-Center



Designation	DCONWS	DCONMS	DF	OAL
ECCENTER SLEEVE 20X25	20.00	25.00	40.00	44.00
ECCENTER SLEEVE 25X32	25.00	32.00	50.00	46.00
ECCENTER SLEEVE 32X40	32.00	40.00	65.00	55.00
ECCENTER SLEEVE 40X50	40.00	50.00	75.00	62.00

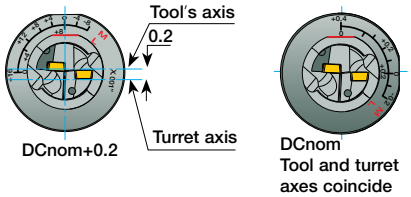
- (1) Holes for inserting a pin, used to facilitate radial adjustment of the sleeve (pin not supplied)

Eccenter Sleeve Operating Instructions



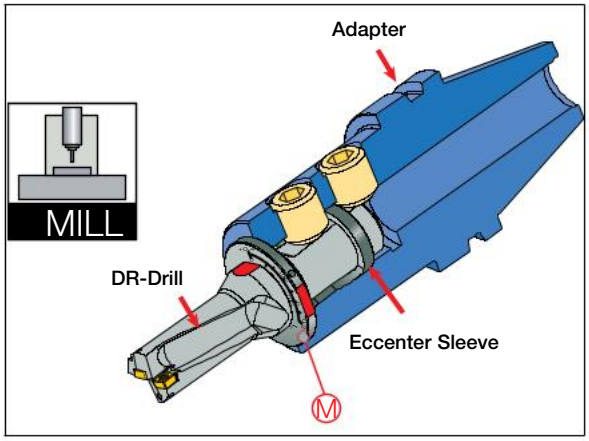
On a lathe, the eccenter sleeve can shift the drill's axis to coincide with the spindle axis. The eccentric sleeve enables alignment of the drill's axis with the spindle axis within a 0.2 mm range (turn the sleeve counterclockwise to raise it).

Operation on a Lathe

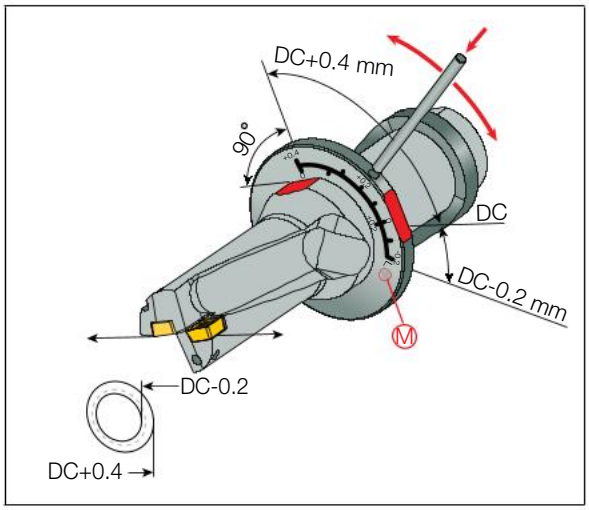


Operation on a Milling Machine

On a milling machine, the drill's nominal diameter can be changed by shifting the drill's axis out of the tool spindle.

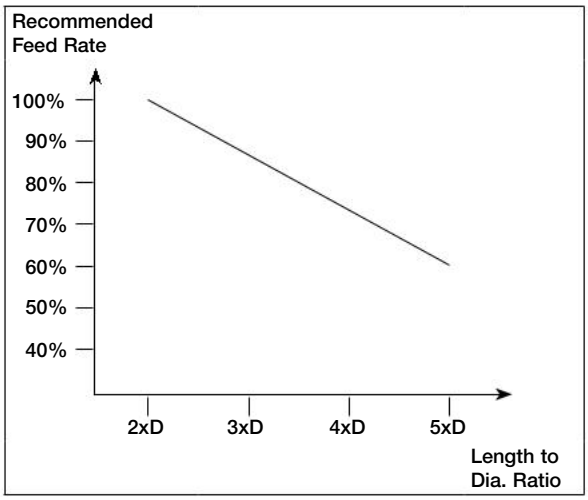


Radial adjustment pin (not supplied)



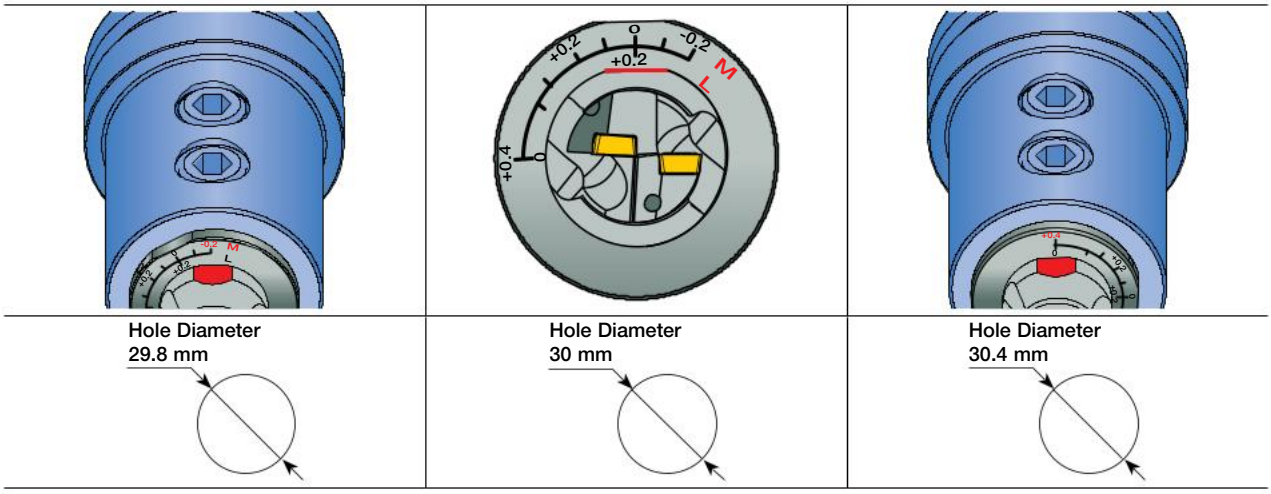
To enlarge the diameter, turn the sleeve clockwise.

Recommended Feed When Using Eccenter Sleeves



The adjustment markings should be located perpendicular to the flat on the circumference of the **DR** flange. To facilitate the rotation of the sleeve, a metal rod or a screw key may be inserted into a hole on the eccentric sleeve flange. Unlock adapter screw before adjusting sleeve.

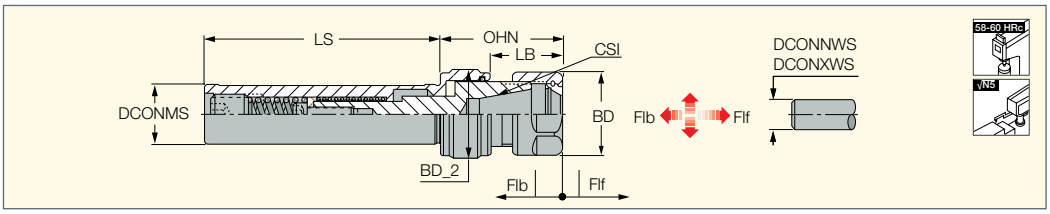
Operation on a Milling Machine



TAPPING & REAMING DEVICES

Straight Shank GTI

GTI ER-ST (tapping)
DIN 6499 ER Tapping Attachments with Straight Shanks



Designation	DCONMS	CSI	Tap min	Tap max	DCONNWS(2)	DCONXWS(3)	BD	BD_2	LB	OHN(4)	LS	Flf	Flb	DCP(5)	kg
GTI ER11 ST16X150 M (1)	16.00	ER11	M2	M7	0.5	7.0	16.00	-	19.0	-	150.00	6.0	3.0	0	0.00
GTI ER16 ST20X80	20.00	ER16	M3	M10	0.5	10.0	28.00	29.50	24.6	41.60	80.00	8.0	3.0	0	0.00
GTI ER20 ST20X80	20.00	ER20	M4	M14	1.0	13.0	34.00	33.50	28.0	49.00	80.00	8.0	3.0	0	0.35
GTI ER25 ST25X80	25.00	ER25	M5	M16	1.0	16.0	42.00	40.50	32.0	53.00	80.00	9.0	4.0	0	0.55
GTI ER32 ST25X80	25.00	ER32	M6	M20	1.0	16.0	50.00	56.50	32.0	77.20	80.00	9.0	4.0	0	1.16
GTI ER40 ST32X80	32.00	ER40	M6	M27	2.0	20.0	63.00	56.50	51.0	95.20	80.00	9.0	4.0	0	1.66

(1) Without a clamping flat
(2) Minimum diameter
(3) Maximum diameter
(4) Minimum overhang
(5) 1 - Slot for data chip, 0 - Without slot for data chip

766-773 807 763-765, 635

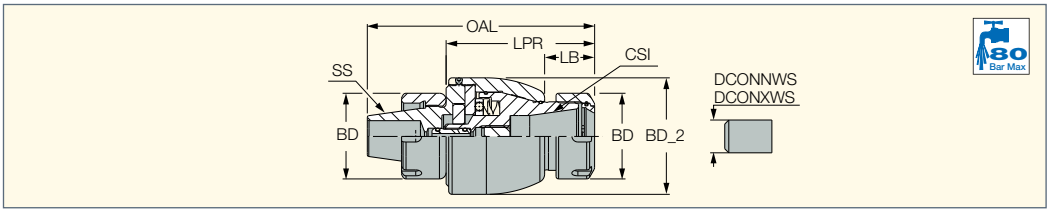
Spare Parts

Designation		
GTI ER11 ST16X150 M	NUT ER11 MINI	
GTI ER16 ST20X80	NUT ER16 TOP	WRENCH ER16*
GTI ER20 ST20X80	NUT ER20 TOP	WRENCH ER20*
GTI ER25 ST25X80	NUT ER25 TOP	WRENCH ER25*
GTI ER32 ST25X80	NUT ER32 TOP	WRENCH ER32*
GTI ER40 ST32X80	NUT ER40 TOP	WRENCH ER40*

* Optional, to be ordered separately

GFI

GFIS ER-ER
Floating Reamer ER Collet Chuck with ER Shank for High Speed Cutting Reamers



Designation	CSI	DCONNWS(1)	DCONXWS(2)	OAL	LPR	LB	BD	BD_2	SS	RFI(3)	kg
GFIS ER32X70-ER32	ER32	12.00	20.00	133.00	87.00	29.50	50.00	68.00	ER32	0.22	1.69

• Maximum 10K RPM • Angular floating range 1.0° • For Reaming 12-20 mm shank diameter range only
(1) Minimum diameter
(2) Maximum diameter
(3) Radial floating range

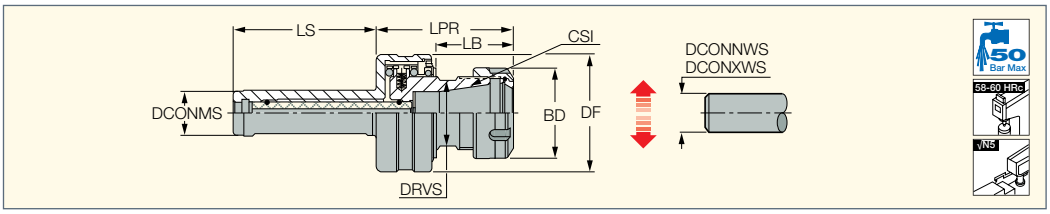
766-773 805-806 807

Spare Parts

Designation			
GFIS ER-ER	NUT ER32 TOP	PRESET ER-JET 12X1.75	SR M4X4 DIN913

Straight Shank GFI

GFI ST-ER
Floating Reamer DIN 6499
Collet Chucks and Cylindrical Shanks with a Clamping Flat



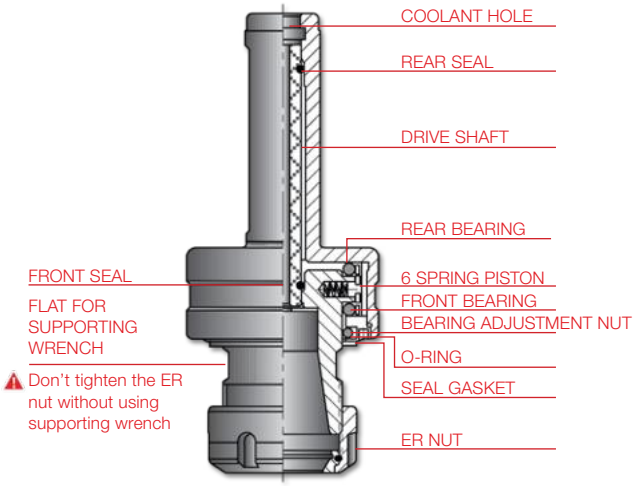
Designation	DCONMS	CSI	DCONNWS(2)	DCONXWS(3)	LS	LPR	LB	BD	DF	RFI	DRVS(4)	kg
GFI ST20 ER20 (1)	20.00	ER20	1.0	13.0	65.00	55.50	31.0	34.00	50.00	0.50	22.0	0.56
GFI ST25 ER32 (1)	25.00	ER32	2.0	20.0	80.00	76.90	45.9	50.00	65.00	0.80	36.0	1.20

- Maximum 2000 RPM!

(1) Radial float from center
(2) Minimum diameter
(3) Maximum diameter
(4) Torque key size

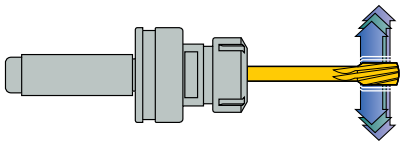
GFI ER - Floating Reamer Collet Chuck

Floating chuck - adjusts the misalignment between the reamer and workpiece hole to ensure the same accuracy as the reamer itself.



Application:

The **GFI** floating chuck is a unique holder that compensates for the radial misalignment existing in reaming operations carried out on vertical and horizontal machine tools.



Features:

Radial self-floating mechanism compensates for misalignment between the reamer and workpiece to ensure the same tolerance as the reamer itself. The special self-centering mechanism eliminates tapered and oversized bores.

Advantages:

Unique ball bearing and axle drive shaft structure enables vertical and horizontal machining.
Precise and efficient clamping with ER spring collets or ER Coolit collets.

Spare Parts

Designation		
GFI ST20 ER20	NUT ER20 TOP	WRENCH ER20*
GFI ST25 ER32	NUT ER32 TOP	WRENCH ER32*

* Optional, to be ordered separately

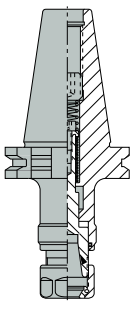
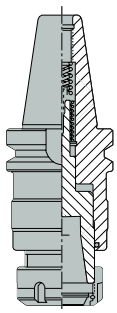
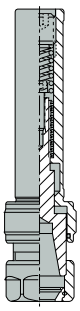
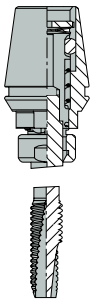
GTI / GTIN - Tapping Attachment

GTIN ER32 – Tapping Collet

Compact tapping collet with tension and compression floating mechanism for **ER32** collet chucks.
A tapping collet for standard and rigid tapping operations. **GTIN ER32** collet make tap removal and replacement easy, quick and reliable. Designed for stationary and rotating applications. **GTIN ER32** collets are economical and efficient due to the ability to use existing **ER32** collet chucks (with various shank sizes and types).

Applications
The **GTIN ER32** tapping collet is designed especially for CNC mill/turn centers using regular and rigid tapping.

Advantages
- Quick tap change by a front clamping nut
- Compact design for minimal clearance between the turret and chuck
- Fits every type of stationary and rotating **ER32** collet chuck
- Positive tap drive with internal square driver
- Compensates for machine feed and tap pitch variance, resulting in greater thread accuracy
- Floating mechanism compensates for misalignment between tap and workpiece
- High accuracy due to tension and compression mechanism
- Available for all tap shank standards (DIN, ISO, ANSI, JIS)
- Tapping range M1-M16 (#0 to 5/8")
- Saves setup time by quick tap changing without removing **GTIN** from the machine
- Optimal for machines that have limited space between the turret and workpiece

GTI DIN69871	BT MAS-403	Straight Shank	GTIN
			
Page 656	Page 733	Page 757	Page 757

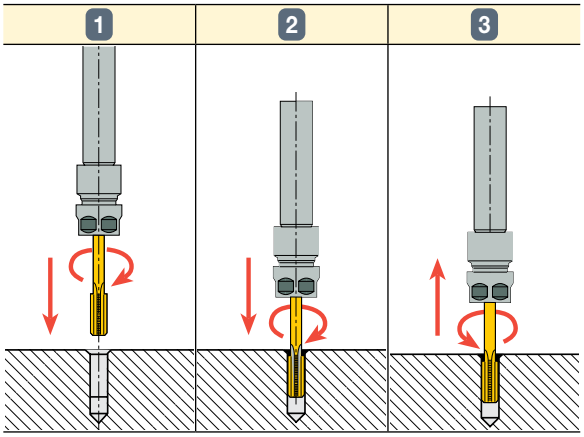
Description
Short tap chucks for **ER** collets.

Applications
Axial float/tension/compression type for CNC milling machines and lathes with reversing motors and rigid tapping.

Features
- Compensates for machine feed and tap pitch variance
- Floating mechanism compensates for misalignment between tap and workpiece
- Right- and left-hand tapping

Advantages
- Practical and efficient tap holding by the **ER** spring collet without using jaw drive
- Compact design for minimal clearance applications
- Heavy duty design for high torque drive ensures the same accuracy as the tap itself

Operation
For through- and blind-hole tapping:



1 Enter feed rate according to thread pitch (or 1-2 % lower). Set spindle to starting point with 0.08 clearance.

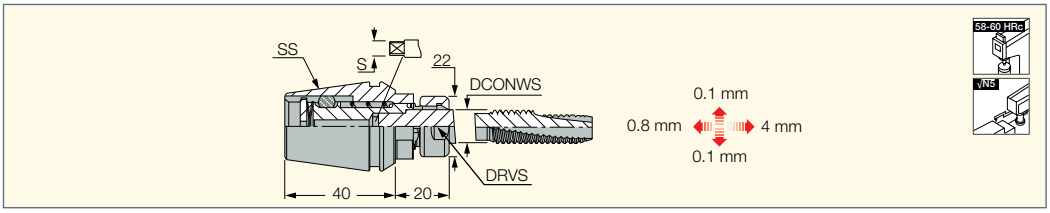
2 Start spindle forward with right hand rotation until reaching desired depth.

3 Stop feed and rotation and reverse to starting point.

GTIN

GTIN ER-ISO (tapping)

ER Collet Tapping Attachments, Tension and Compression ISO Type for CNC Milling and Turret Lathe Machines



Designation	SS	DCONWS	S	Tap min	Tap max	DRVS(1)	DCP(2)	kg
GTIN ER32 ISO 2.24X1.80	ER32	2.24	1.80	M3	M3	20.0	0	0.22
GTIN ER32 ISO 2.50X2.00	ER32	2.50	2.00	M3.5	M3.5	20.0	0	0.26
GTIN ER32 ISO 2.80X2.24	ER32	2.80	2.24	M2.2	M2.5	20.0	0	0.22
GTIN ER32 ISO 3.15X2.50	ER32	3.15	2.50	M3	M4	20.0	0	0.23
GTIN ER32 ISO 3.55X2.80	ER32	3.55	2.80	M3.5	M4.5	20.0	0	0.22
GTIN ER32 ISO 4.00X3.15	ER32	4.00	3.15	M4	M5	20.0	0	0.22
GTIN ER32 ISO 4.50X3.55	ER32	4.50	3.55	M6	M6	20.0	0	0.22
GTIN ER32 ISO 5.00X4.00	ER32	5.00	4.00	M5	M5	20.0	0	0.22
GTIN ER32 ISO 5.60X4.50	ER32	5.60	4.50	UNC#12-24	UNC (ONLY)	20.0	0	0.21
GTIN ER32 ISO 6.30X5.00	ER32	6.30	5.00	M6	M8	20.0	0	0.22
GTIN ER32 ISO 7.10X5.60	ER32	7.10	5.60	UNC#3/8-16	UNC (ONLY)	20.0	0	0.20
GTIN ER32 ISO 8.00X6.30	ER32	8.00	6.30	M8	M10	20.0	0	0.21
GTIN ER32 ISO 9.00X7.10	ER32	9.00	7.10	M12	M12	20.0	0	0.21
GTIN ER32 ISO 10.00X8.00	ER32	10.00	8.00	M10	M10	20.0	0	0.20
GTIN ER32 ISO 11.20X9.00	ER32	11.20	9.00	M14	M14	20.0	0	0.21
GTIN ER32 ISO 12.50X10.00	ER32	12.50	10.00	M16	M16	20.0	0	0.20

- No coolant should be induced through the tapping collet as it will cause malfunction of the mechanism
- Compensates for machine feed and tap pitch variance
- Floating mechanism compensates for misalignment between tap and workpiece
- Hard start for rigid tapping
- When a rigid ER collet is assembled in an ER holder, the actual protruding length of the holder becomes shorter by 2.0 mm for ER20 and by 3.0 mm for ER25/ER32

(1) Torque key size

(2) 1 - Slot for data chip, 0 - Without slot for data chip

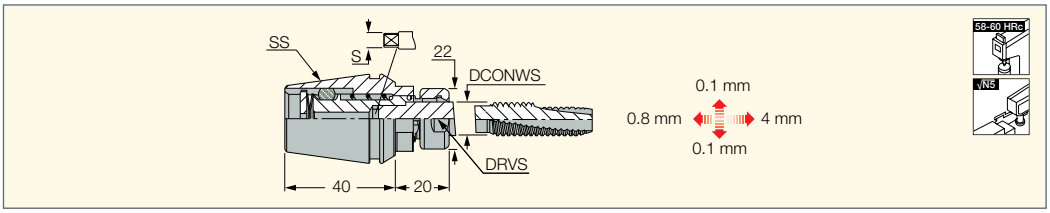
Spare Parts

Designation	
GTIN ER-ISO (tapping)	GTIN ER32 NUT

GTIN

GTIN ER-DIN (tapping)

ER Collet Tapping Attachments, Tension and Compression DIN Type for CNC Milling and Turret Lathe Machines



Designation	SS	DCONWS	S	Tap min	Tap max	DRVS(1)	DCP(2)	kg
GTIN ER32 DIN 2.50X2.10	ER32	2.50	2.10	M1	M1.8	20.0	0	0.20
GTIN ER32 DIN 2.80X2.10	ER32	2.80	2.10	M2	M4	20.0	0	0.22
GTIN ER32 DIN 3.50X2.70	ER32	3.50	2.70	M3	M5	20.0	0	0.22
GTIN ER32 DIN 4.00X3.00	ER32	4.00	3.00	M3.5	M3.5	20.0	0	0.21
GTIN ER32 DIN 4.50X3.40	ER32	4.50	3.40	M4	M6	20.0	0	0.20
GTIN ER32 DIN 6.00X4.90	ER32	6.00	4.90	M5	M8	20.0	0	0.20
GTIN ER32 DIN 7.00X5.50	ER32	7.00	5.50	M7	M10	20.0	0	0.20
GTIN ER32 DIN 8.00X6.20	ER32	8.00	6.20	M8	M8	20.0	0	0.20
GTIN ER32 DIN 9.00X7.00	ER32	9.00	7.00	M12	M12	20.0	0	0.22
GTIN ER32 DIN 10.00X8.00	ER32	10.00	8.00	M10	M10	20.0	0	0.22
GTIN ER32 DIN 11.00X9.00	ER32	11.00	9.00	M14	M14	20.0	0	0.21
GTIN ER32 DIN 12.00X9.00	ER32	12.00	9.00	M16	M16	20.0	0	0.20

- No coolant should be induced through the tapping collet as it will cause malfunction of the mechanism
- Compensates for machine feed and tap pitch variance
- Floating mechanism compensates for misalignment between tap and workpiece
- Hard start for rigid tapping
- When a rigid ER collet is assembled in an ER holder, the actual protruding length of the holder becomes shorter by 2.0 mm for ER20 and by 3.0 mm for ER25/ER32

(1) Torque key size

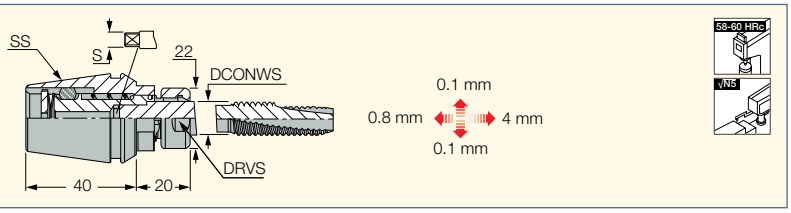
(2) 1 - Slot for data chip, 0 - Without slot for data chip

Spare Parts

Designation	
GTIN ER-DIN (tapping)	GTIN ER32 NUT

GTIN

GTIN ER-JIS (tapping)
ER Collet Tapping Attachments, Tension and Compression JIS Type for CNC Milling and Turret Lathe Machines



Designation	SS	DCONWS	S	Tap min	Tap max	DRVS(1)	DCP(2)	kg
GTIN ER32 JIS 3.00X2.50	ER32	3.00	2.50	M1	M2.6	20.0	0	0.21
GTIN ER32 JIS 4.00X3.20	ER32	4.00	3.20	M3	M3.5	20.0	0	0.21
GTIN ER32 JIS 5.00X4.00	ER32	5.00	4.00	M4	M4	20.0	0	0.21
GTIN ER32 JIS 5.50X4.50	ER32	5.50	4.50	M5	M5	20.0	0	0.12
GTIN ER32 JIS 6.00X4.50	ER32	6.00	4.50	M6	M6	20.0	0	0.22
GTIN ER32 JIS 6.20X5.00	ER32	6.20	5.00	M8	M8	20.0	0	0.22
GTIN ER32 JIS 7.00X5.50	ER32	7.00	5.50	M10	M10	20.0	0	0.21
GTIN ER32 JIS 8.50X6.50	ER32	8.50	6.50	M12	M12	20.0	0	0.20
GTIN ER32 JIS 10.50X8.00	ER32	10.50	8.00	M14	M14	20.0	0	0.20
GTIN ER32 JIS 12.50X10.00	ER32	12.50	10.00	M16	M16	20.0	0	0.20

- No coolant should be induced through the tapping collet as it will cause malfunction of the mechanism
- Compensates for machine feed and tap pitch variance
- Floating mechanism compensates for misalignment between tap and workpiece
- Hard start for rigid tapping
- When a rigid ER collet is assembled in an ER holder, the actual protruding length of the holder becomes shorter by 2.0 mm for ER20 and by 3.0 mm for ER25/ER32

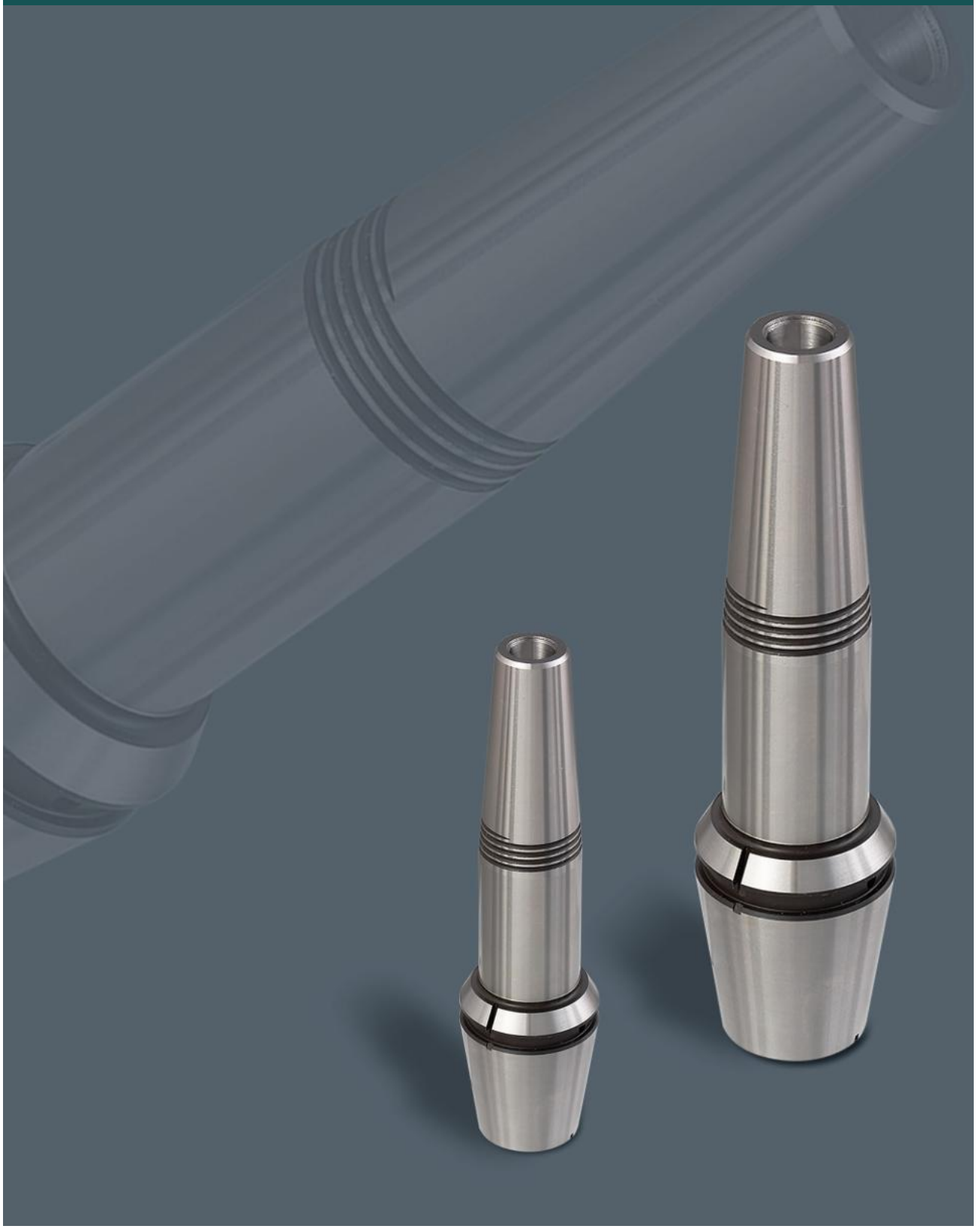
(1) Torque key size

(2) 1 - Slot for data chip, 0 - Without slot for data chip

Spare Parts

Designation	
GTIN ER-JIS (tapping)	GTIN ER32 NUT

ER, SC & SHRINK COLLETS



Shanks

HSK DIN 69893 Form A/E

CAMFIX DIN 26623-1

BT MAS-403

DIN 69871

ISO A.N.S.I B5.18-DIN 2080

ST Straight Shank

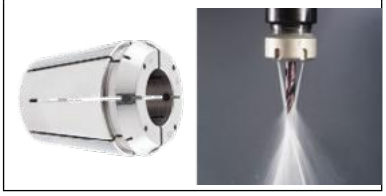
MT Morse Taper

Collet Options

ER-SPR

ER-SEAL

ER-SEAL JET2



ER-SRK

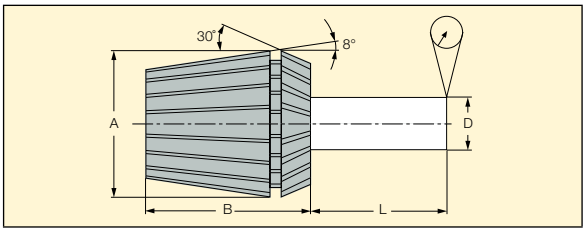
GTIN ER32

ER-ODP

ERCOLLET

Standard ER Collet Type DIN 6499

Standard ER Collet



Basic Dimensions

Type	A	B
ER-11	11.5	18
ER-16	17	27
ER-20	21	31
ER-25	26	35
ER-32	33	40
ER-40	41	46
ER-50	52	60

Concentricity Tolerances

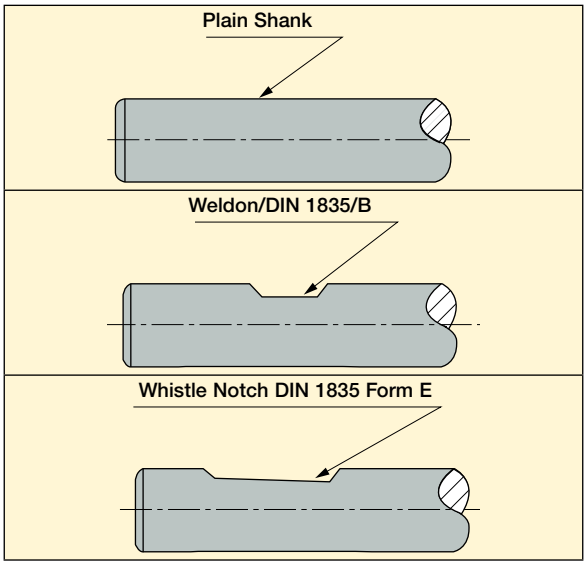
L mm	D mm	Standard Precision	AA Ultra Precision	DIN 6499
6	1.0-1.6	0.01	0.005	
10	1.6-3.0	0.01	0.005	0.015
16	3.0-6.0	0.01	0.005	0.015
25	6.0-10.0	0.01	0.005	0.015
40	10.0-18.0	0.01	0.005	0.020
50	18.0-26.0	0.01	0.005	0.020
60	26.0-34.0			0.025

ER - Coolit Sealed Collet

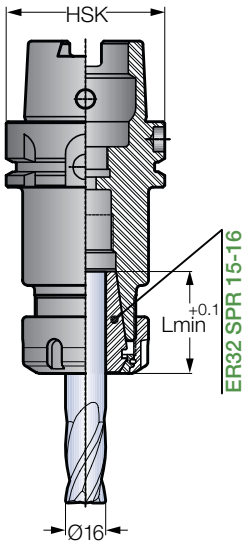
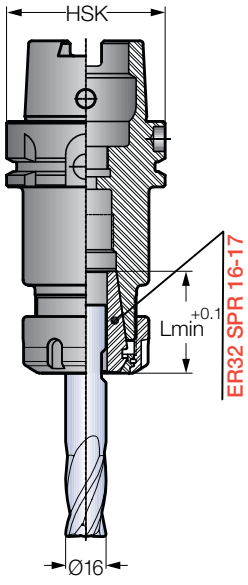
Two Types

Sealed Collet	Sealed Collet Jet
For straight shank cutting tools with internal coolant supply	With angular double nozzles. Coolant flow is direct to the cutting edge - for use with standard straight shank cutting tools (without coolant hole)

Standard Shank for Use in Sealed Collets



Note: The front end of the sealed collet should be located beyond the Weldon or the whistle notch.

Correct	Wrong
✔	✗
	

ER - Top Clamping Nut for DIN 6499 Collets

Description

Friction bearing **ER** nut is a nut with a unique two-piece exclusive friction mechanism, combining radial and angular self-centering movements.

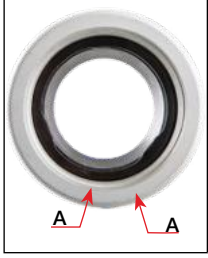
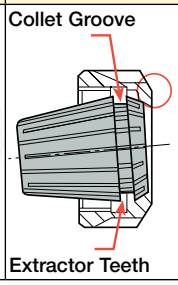
Features

- Unique two-piece friction bearing
- Radial and angular float for better concentricity
- Powerful gripping force, 50-100% higher than the standard **ER** nut due to the friction bearing mechanism
- Balanced for higher spindle spin due to unique extractor teeth design
- Compact design - general dimensions and size range are the same as the standard nut
- Designed for use with sealed collets

  Always assemble the collet into the nut before mounting onto the collet chuck.

Insertion Procedure

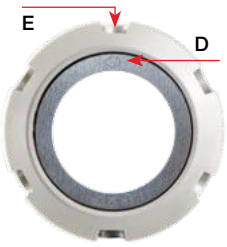
1 Insert the collet at an angle, fitting the two extractor teeth which protrude **(A)** into the collet's groove **(B)**.
2 Place the two parts on a clean and horizontal work surface.
3 Press down with your thumb on the back end of the collet until it clicks into place **(C)**.

A	B	C
		

Important: Never insert the collet parallel to the extractor ring. Doing this will chip or break the extractor's teeth. When unclamping the nut, the collet will self-release from the chuck by means of extractor teeth.

Extraction Procedure

1 Align the engraved diamond shape which is on the silver ring **(D)**, with any of the key slots **(E)** of the nut.
2 Place the nut with the collet facing down on a clean and horizontal work surface.
3 Insert a screwdriver vertically between the nut slots and the collet on the reverse side of the engraved diamond shape **(D)**.
4 Tilt the screwdriver outwards, while helping the extraction by pushing the collet's back end in the opposite direction **(F)**.

E, D	F
	

Nut Type	Kgxm
ER-11	5
ER-11M	3
ER-16	7
ER-16M	4
ER-20	12
ER-20M	8
ER-25	20
ER-32	22
ER-40	25
ER-50	35

Note: For maximum performance, the clamping nut thread and collet taper must be cleaned and oiled before use.

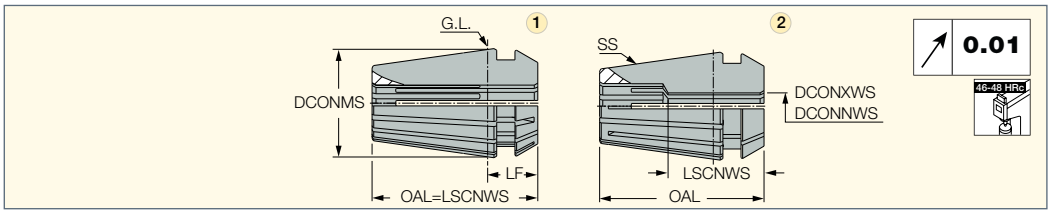
⚠ Recommended Clamping Torque for Standard ER & ER-Top Clamping Nut

Important: This torque is calculated with the maximum diameter capacity per collet which should be gradually reduced when used with a smaller shank size.

ERCOLLET

ER-SPR

DIN 6499/ ISO 15488-B
ER Spring Collet with Super Finish Surface and Special Anti-Corrosion Protection



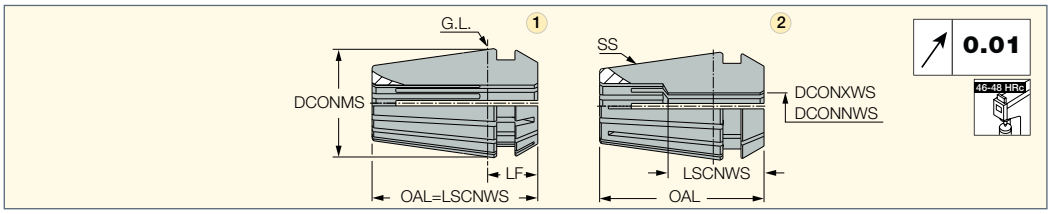
Designation	SS	DCONNWS(3)	DCONXWS(4)	DCONMS	LF	OAL	LSCNWS	Fig.	Kg
ER11 SPR 0.5-1.0 (1)	ER11	0.50	1.00	11.00	6.30	18.00	8.50	2	0.01
ER11 SPR 1.0-1.5	ER11	1.00	1.50	11.00	6.30	18.00	8.50	2	0.01
ER11 SPR 1.5-2.0	ER11	1.50	2.00	11.00	6.30	18.00	9.50	2	0.01
ER11 SPR 2.0-2.5	ER11	2.00	2.50	11.00	6.30	18.00	9.50	2	0.01
ER11 SPR 2.5-3.0	ER11	2.50	3.00	11.00	6.30	18.00	18.00	1	0.01
ER11 SPR 3.0-3.5	ER11	3.00	3.50	11.00	6.30	18.00	18.00	1	0.01
ER11 SPR 3.5-4.0	ER11	3.50	4.00	11.00	6.30	18.00	18.00	1	0.01
ER11 SPR 4.0-4.5	ER11	4.00	4.50	11.00	6.30	18.00	18.00	1	0.01
ER11 SPR 4.5-5.0	ER11	4.50	5.00	11.00	6.30	18.00	18.00	1	0.01
ER11 SPR 5.0-5.5	ER11	5.00	5.50	11.00	6.30	18.00	18.00	1	0.01
ER11 SPR 5.5-6.0	ER11	5.50	6.00	11.00	6.30	18.00	18.00	1	0.01
ER11 SPR 6.0-6.5	ER11	6.00	6.50	11.00	6.30	18.00	18.00	1	0.01
ER11 SPR 6.5-7.0	ER11	6.50	7.00	11.00	6.30	18.00	18.00	1	0.01
ER16 SPR 0.5-1	ER16	0.50	1.00	16.00	10.26	27.50	10.50	2	0.02
ER16 SPR 1-1.5	ER16	1.00	1.50	16.00	10.26	27.50	10.50	2	0.02
ER16 SPR 1.5-2	ER16	1.50	2.00	16.00	10.26	27.50	14.20	2	0.02
ER16 SPR 2-3	ER16	2.00	3.00	16.00	10.26	27.50	15.50	2	0.02
ER16 SPR 3-3.5	ER16	3.00	3.50	16.00	10.26	27.50	18.50	2	0.02
ER16 SPR 3.2-4 (2)	ER16	3.20	4.00	16.00	10.26	27.50	18.50	2	0.02
ER16 SPR 4-5	ER16	4.00	5.00	16.00	10.26	27.50	27.50	1	0.02
ER16 SPR 5-6	ER16	5.00	6.00	16.00	10.26	27.50	27.50	1	0.02
ER16 SPR 6-7	ER16	6.00	7.00	16.00	10.26	27.50	27.50	1	0.02
ER16 SPR 7-8	ER16	7.00	8.00	16.00	10.26	27.50	27.50	1	0.02
ER16 SPR 8-9	ER16	8.00	9.00	16.00	10.26	27.50	27.50	1	0.02
ER16 SPR 9-10	ER16	9.00	10.00	16.00	10.26	27.50	27.50	1	0.02
ER20 SPR 1-1.5	ER20	1.00	1.50	20.00	11.16	31.50	11.70	2	0.04
ER20 SPR 1.5-2	ER20	1.50	2.00	20.00	11.16	31.50	11.70	2	0.04
ER20 SPR 2-3	ER20	2.00	3.00	20.00	11.16	31.50	17.70	2	0.04
ER20 SPR 3-4	ER20	3.00	4.00	20.00	11.16	31.50	19.30	2	0.04
ER20 SPR 4-5	ER20	4.00	5.00	20.00	11.16	31.50	19.30	2	0.04
ER20 SPR 5-6	ER20	5.00	6.00	20.00	11.16	31.50	31.50	1	0.04
ER20 SPR 6-7	ER20	6.00	7.00	20.00	11.16	31.50	31.50	1	0.04
ER20 SPR 7-8	ER20	7.00	8.00	20.00	11.16	31.50	31.50	1	0.04
ER20 SPR 8-9	ER20	8.00	9.00	20.00	11.16	31.50	31.50	1	0.04
ER20 SPR 9-10	ER20	9.00	10.00	20.00	11.16	31.50	31.50	1	0.03
ER20 SPR 10-11	ER20	10.00	11.00	20.00	11.16	31.50	31.50	1	0.03
ER20 SPR 11-12	ER20	11.00	12.00	20.00	11.16	31.50	31.50	1	0.03
ER20 SPR 12-13	ER20	12.00	13.00	20.00	11.16	31.50	31.50	1	0.02
ER25 SPR 1-1.5	ER25	1.00	1.50	25.00	11.66	34.00	15.00	2	0.08
ER25 SPR 1.5-2	ER25	1.50	2.00	25.00	11.66	34.00	15.00	2	0.08
ER25 SPR 2-3	ER25	2.00	3.00	25.00	11.66	34.00	18.70	2	0.08
ER25 SPR 3-4	ER25	3.00	4.00	25.00	11.66	34.00	20.00	2	0.07
ER25 SPR 4-5	ER25	4.00	5.00	25.00	11.66	34.00	20.00	2	0.07
ER25 SPR 5-6	ER25	5.00	6.00	25.00	11.66	34.00	20.00	2	0.07
ER25 SPR 6-7	ER25	6.00	7.00	25.00	11.66	34.00	34.00	1	0.08
ER25 SPR 7-8	ER25	7.00	8.00	25.00	11.66	34.00	34.00	1	0.08
ER25 SPR 8-9	ER25	8.00	9.00	25.00	11.66	34.00	34.00	1	0.07
ER25 SPR 9-10	ER25	9.00	10.00	25.00	11.66	34.00	34.00	1	0.07
ER25 SPR 10-11	ER25	10.00	11.00	25.00	11.66	34.00	34.00	1	0.07
ER25 SPR 11-12	ER25	11.00	12.00	25.00	11.66	34.00	34.00	1	0.06
ER25 SPR 12-13	ER25	12.00	13.00	25.00	11.66	34.00	34.00	1	0.06
ER25 SPR 13-14	ER25	13.00	14.00	25.00	11.66	34.00	34.00	1	0.06
ER25 SPR 14-15	ER25	14.00	15.00	25.00	11.66	34.00	34.00	1	0.06
ER25 SPR 15-16	ER25	15.00	16.00	25.00	11.66	34.00	34.00	1	0.05
ER32 SPR 2-3	ER32	2.00	3.00	32.00	12.66	40.00	18.80	2	0.15
ER32 SPR 3-4	ER32	3.00	4.00	32.00	12.66	40.00	20.00	2	0.14
ER32 SPR 4-5	ER32	4.00	5.00	32.00	12.66	40.00	25.80	2	0.14
ER32 SPR 5-6	ER32	5.00	6.00	32.00	12.66	40.00	25.80	2	0.14
ER32 SPR 6-7	ER32	6.00	7.00	32.00	12.66	40.00	40.00	1	0.14
ER32 SPR 7-8	ER32	7.00	8.00	32.00	12.66	40.00	40.00	1	0.15
ER32 SPR 8-9	ER32	8.00	9.00	32.00	12.66	40.00	40.00	1	0.15
ER32 SPR 9-10	ER32	9.00	10.00	32.00	12.66	40.00	40.00	1	0.15

(1) The existing ER11 Collets with 1 mm clamping range will be phased out.
(2) For shank diameter 3-3.5 it is recommended to use collet type ER SPR 3-3.5
(3) Minimum diameter
(4) Maximum diameter

ERCOLLET

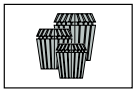
ER-SPR

DIN 6499/ ISO 15488-B
ER Spring Collet with Super Finish Surface and Special Anti-Corrosion Protection



Designation	SS	DCONNWS(3)	DCONXWS(4)	DCONMS	LF	OAL	LSCNWS	Fig.	Kg
ER32 SPR 10-11	ER32	10.00	11.00	32.00	12.66	40.00	40.00	1	0.14
ER32 SPR 11-12	ER32	11.00	12.00	32.00	12.66	40.00	40.00	1	0.14
ER32 SPR 12-13	ER32	12.00	13.00	32.00	12.66	40.00	40.00	1	0.13
ER32 SPR 13-14	ER32	13.00	14.00	32.00	12.66	40.00	40.00	1	0.13
ER32 SPR 14-15	ER32	14.00	15.00	32.00	12.66	40.00	40.00	1	0.12
ER32 SPR 15-16	ER32	15.00	16.00	32.00	12.66	40.00	40.00	1	0.12
ER32 SPR 16-17	ER32	16.00	17.00	32.00	12.66	40.00	40.00	1	0.11
ER32 SPR 17-18	ER32	17.00	18.00	32.00	12.66	40.00	40.00	1	0.11
ER32 SPR 18-19	ER32	18.00	19.00	32.00	12.66	40.00	40.00	1	0.10
ER32 SPR 19-20	ER32	19.00	20.00	32.00	12.66	40.00	40.00	1	0.09
ER40 SPR 3-4	ER40	3.00	4.00	40.00	14.66	46.00	27.00	2	0.27
ER40 SPR 4-5	ER40	4.00	5.00	40.00	14.66	46.00	31.00	2	0.27
ER40 SPR 5-6	ER40	5.00	6.00	40.00	14.66	46.00	31.00	2	0.27
ER40 SPR 6-7	ER40	6.00	7.00	40.00	14.66	46.00	31.00	2	0.28
ER40 SPR 7-8	ER40	7.00	8.00	40.00	14.66	46.00	46.00	1	0.27
ER40 SPR 8-9	ER40	8.00	9.00	40.00	14.66	46.00	46.00	1	0.27
ER40 SPR 9-10	ER40	9.00	10.00	40.00	14.66	46.00	46.00	1	0.28
ER40 SPR 10-11	ER40	10.00	11.00	40.00	14.66	46.00	46.00	1	0.27
ER40 SPR 11-12	ER40	11.00	12.00	40.00	14.66	46.00	46.00	1	0.03
ER40 SPR 12-13	ER40	12.00	13.00	40.00	14.66	46.00	46.00	1	0.27
ER40 SPR 13-14	ER40	13.00	14.00	40.00	14.66	46.00	46.00	1	0.26
ER40 SPR 14-15	ER40	14.00	15.00	40.00	14.66	46.00	46.00	1	0.26
ER40 SPR 15-16	ER40	15.00	16.00	40.00	14.66	46.00	46.00	1	0.26
ER40 SPR 16-17	ER40	16.00	17.00	40.00	14.66	46.00	46.00	1	0.24
ER40 SPR 17-18	ER40	17.00	18.00	40.00	14.66	46.00	46.00	1	0.24
ER40 SPR 18-19	ER40	18.00	19.00	40.00	14.66	46.00	46.00	1	0.23
ER40 SPR 19-20	ER40	19.00	20.00	40.00	14.66	46.00	46.00	1	0.22
ER40 SPR 20-21	ER40	20.00	21.00	40.00	14.66	46.00	46.00	1	0.21
ER40 SPR 21-22	ER40	21.00	22.00	40.00	14.66	46.00	46.00	1	0.20
ER40 SPR 22-23	ER40	22.00	23.00	40.00	14.66	46.00	46.00	1	0.19
ER40 SPR 23-24	ER40	23.00	24.00	40.00	14.66	46.00	46.00	1	0.18
ER40 SPR 24-25	ER40	24.00	25.00	40.00	14.66	46.00	46.00	1	0.17
ER40 SPR 25-26	ER40	25.00	26.00	40.00	14.66	46.00	46.00	1	0.15
ER50 SPR 10-12	ER50	10.00	12.00	50.00	21.00	60.00	60.00	1	0.56
ER50 SPR 12-14	ER50	12.00	14.00	50.00	21.00	60.00	60.00	1	0.47
ER50 SPR 14-16	ER50	14.00	16.00	50.00	21.00	60.00	60.00	1	0.50
ER50 SPR 16-18	ER50	16.00	18.00	50.00	21.00	60.00	60.00	1	0.67
ER50 SPR 18-20	ER50	18.00	20.00	50.00	21.00	60.00	60.00	1	0.33
ER50 SPR 20-22	ER50	20.00	22.00	50.00	21.00	60.00	60.00	1	0.49
ER50 SPR 22-24	ER50	22.00	24.00	50.00	21.00	60.00	60.00	1	0.47
ER50 SPR 24-26	ER50	24.00	26.00	50.00	21.00	60.00	60.00	1	0.44
ER50 SPR 26-28	ER50	26.00	28.00	50.00	21.00	60.00	60.00	1	0.42
ER50 SPR 28-30	ER50	28.00	30.00	50.00	21.00	60.00	60.00	1	0.38
ER50 SPR 30-32	ER50	30.00	32.00	50.00	21.00	60.00	60.00	1	0.35
ER50 SPR 32-34	ER50	32.00	34.00	50.00	21.00	60.00	60.00	1	0.29

(1) The existing ER11 Collets with 1 mm clamping range will be phased out.
(2) For shank diameter 3-3.5 it is recommended to use collet type ER SPR 3-3.5
(3) Minimum diameter
(4) Maximum diameter

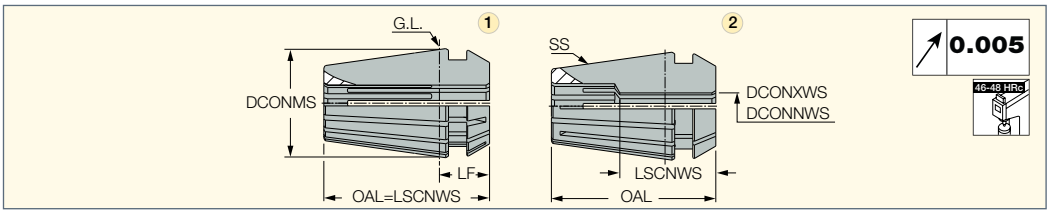


770

ERCOLLET

ER-SPR-AA

DIN 6499 'AA' Ultra Precise ER Spring Collets with Super Finish Surface and Special Anti-Corrosion Protection



Designation	SS	DCONNWS(2)	DCONXWS(3)	DCONMS	LF	OAL	LSCNWS	Fig.	Kg
ER11 SPR 0.5-1.0 AA	ER11	0.50	1.00	11.00	6.30	18.00	8.50	2	0.01
ER11 SPR 1.0-1.5 AA	ER11	1.00	1.50	11.00	6.30	18.00	8.50	2	0.01
ER11 SPR 1.5-2.0 AA	ER11	1.50	2.00	11.00	6.30	18.00	9.50	2	0.01
ER11 SPR 2.0-2.5 AA	ER11	2.00	2.50	11.00	6.30	18.00	9.50	2	0.01
ER11 SPR 2.5-3.0 AA	ER11	2.50	3.00	11.00	6.30	18.00	18.00	1	0.01
ER11 SPR 3.0-3.5 AA	ER11	3.00	3.50	11.00	6.30	18.00	18.00	1	0.01
ER11 SPR 3.5-4.0 AA	ER11	3.50	4.00	11.00	6.30	18.00	18.00	1	0.01
ER11 SPR 4.0-4.5 AA	ER11	4.00	4.50	11.00	6.30	18.00	18.00	1	0.01
ER11 SPR 4.5-5.0 AA	ER11	4.50	5.00	11.00	6.30	18.00	18.00	1	0.01
ER11 SPR 5.0-5.5 AA	ER11	5.00	5.50	11.00	6.30	18.00	18.00	1	0.01
ER11 SPR 5.5-6.0 AA	ER11	5.50	6.00	11.00	6.30	18.00	18.00	1	0.01
ER11 SPR 6.0-6.5 AA	ER11	6.00	6.50	11.00	6.30	18.00	18.00	1	0.01
ER11 SPR 6.5-7.0 AA	ER11	6.50	7.00	11.00	6.30	18.00	18.00	1	0.01
ER16 SPR 0.5-1 AA	ER16	0.50	1.00	16.00	10.26	27.50	10.50	2	0.02
ER16 SPR 1.5-2 AA	ER16	1.50	2.00	16.00	10.26	27.50	14.20	2	0.02
ER16 SPR 2-3 AA	ER16	2.00	3.00	16.00	10.26	27.50	15.50	2	0.02
ER16 SPR 3.2-4 AA (1)	ER16	3.20	4.00	16.00	10.26	27.50	18.50	2	0.03
ER16 SPR 4-5 AA	ER16	4.00	5.00	16.00	10.26	27.50	27.50	1	0.02
ER16 SPR 5-6 AA	ER16	5.00	6.00	16.00	10.26	27.50	27.50	1	0.02
ER16 SPR 6-7 AA	ER16	6.00	7.00	16.00	10.26	27.50	27.50	1	0.02
ER16 SPR 7-8 AA	ER16	7.00	8.00	16.00	10.26	27.50	27.50	1	0.02
ER16 SPR 8-9 AA	ER16	8.00	9.00	16.00	10.26	27.50	27.50	1	0.02
ER16 SPR 9-10 AA	ER16	9.00	10.00	16.00	10.26	27.50	27.50	1	0.01
ER20 SPR 1.5-2 AA	ER20	1.50	2.00	20.00	11.16	31.50	11.70	2	0.04
ER20 SPR 2-3 AA	ER20	2.00	3.00	20.00	11.16	31.50	17.70	2	0.04
ER20 SPR 3-4 AA	ER20	3.00	4.00	20.00	11.16	31.50	19.30	2	0.04
ER20 SPR 4-5 AA	ER20	4.00	5.00	20.00	11.16	31.50	19.30	2	0.04
ER20 SPR 5-6 AA	ER20	5.00	6.00	20.00	11.16	31.50	31.50	1	0.04
ER20 SPR 6-7 AA	ER20	6.00	7.00	20.00	11.16	31.50	31.50	1	0.04
ER20 SPR 7-8 AA	ER20	7.00	8.00	20.00	11.16	31.50	31.50	1	0.04
ER20 SPR 8-9 AA	ER20	8.00	9.00	20.00	11.16	31.50	31.50	1	0.04
ER20 SPR 9-10 AA	ER20	9.00	10.00	20.00	11.16	31.50	31.50	1	0.03
ER20 SPR 10-11 AA	ER20	10.00	11.00	20.00	11.16	31.50	31.50	1	0.03
ER20 SPR 11-12 AA	ER20	11.00	12.00	20.00	11.16	31.50	31.50	1	0.03
ER20 SPR 12-13 AA	ER20	12.00	13.00	20.00	11.16	31.50	31.50	1	0.02
ER25 SPR 1.5-2 AA	ER25	1.50	2.00	25.00	11.66	34.00	15.00	2	0.08
ER25 SPR 2-3 AA	ER25	2.00	3.00	25.00	11.66	34.00	18.70	2	0.08
ER25 SPR 3-4 AA	ER25	3.00	4.00	25.00	11.66	34.00	20.00	2	0.08
ER25 SPR 4-5 AA	ER25	4.00	5.00	25.00	11.66	34.00	20.00	2	0.07
ER25 SPR 5-6 AA	ER25	5.00	6.00	25.00	11.66	34.00	20.00	2	0.07
ER25 SPR 6-7 AA	ER25	6.00	7.00	25.00	11.66	34.00	34.00	1	0.07
ER25 SPR 7-8 AA	ER25	7.00	8.00	25.00	11.66	34.00	34.00	1	0.07
ER25 SPR 8-9 AA	ER25	8.00	9.00	25.00	11.66	34.00	34.00	1	0.07
ER25 SPR 9-10 AA	ER25	9.00	10.00	25.00	11.66	34.00	34.00	1	0.07
ER25 SPR 10-11 AA	ER25	10.00	11.00	25.00	11.66	34.00	34.00	1	0.07
ER25 SPR 11-12 AA	ER25	11.00	12.00	25.00	11.66	34.00	34.00	1	0.06
ER25 SPR 12-13 AA	ER25	12.00	13.00	25.00	11.66	34.00	34.00	1	0.06
ER25 SPR 13-14 AA	ER25	13.00	14.00	25.00	11.66	34.00	34.00	1	0.06
ER25 SPR 14-15 AA	ER25	14.00	15.00	25.00	11.66	34.00	34.00	1	0.05
ER25 SPR 15-16 AA	ER25	15.00	16.00	25.00	11.66	34.00	34.00	1	0.05
ER32 SPR 2-3 AA	ER32	2.00	3.00	32.00	12.66	40.00	18.80	2	0.14
ER32 SPR 3-4 AA	ER32	3.00	4.00	32.00	12.66	40.00	20.00	2	0.14
ER32 SPR 4-5 AA	ER32	4.00	5.00	32.00	12.66	40.00	25.80	2	0.14
ER32 SPR 5-6 AA	ER32	5.00	6.00	32.00	12.66	40.00	25.80	2	0.14
ER32 SPR 6-7 AA	ER32	6.00	7.00	32.00	12.66	40.00	40.00	1	0.14
ER32 SPR 7-8 AA	ER32	7.00	8.00	32.00	12.66	40.00	40.00	1	0.15
ER32 SPR 8-9 AA	ER32	8.00	9.00	32.00	12.66	40.00	40.00	1	0.15
ER32 SPR 9-10 AA	ER32	9.00	10.00	32.00	12.66	40.00	40.00	1	0.15
ER32 SPR 10-11 AA	ER32	10.00	11.00	32.00	12.66	40.00	40.00	1	0.14
ER32 SPR 11-12 AA	ER32	11.00	12.00	32.00	12.66	40.00	40.00	1	0.14
ER32 SPR 12-13 AA	ER32	12.00	13.00	32.00	12.66	40.00	40.00	1	0.14
ER32 SPR 13-14 AA	ER32	13.00	14.00	32.00	12.66	40.00	40.00	1	0.13

(1) For shank diameter 3-3.1 use ER16 SPR 2-3

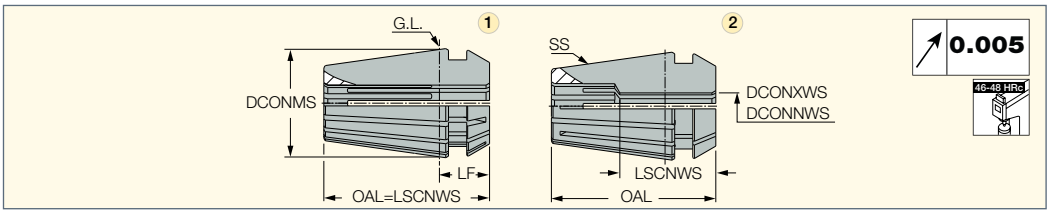
(2) Minimum diameter

(3) Maximum diameter

ERCOLLET

ER-SPR-AA

DIN 6499 'AA' Ultra Precise ER Spring Collets with Super Finish Surface and Special Anti-Corrosion Protection

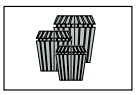


Designation	SS	DCONNWS(2)	DCONXWS(3)	DCONMS	LF	OAL	LSCNWS	Fig.	Kg
ER32 SPR 14-15 AA	ER32	14.00	15.00	32.00	12.66	40.00	40.00	1	0.13
ER32 SPR 15-16 AA	ER32	15.00	16.00	32.00	12.66	40.00	40.00	1	0.12
ER32 SPR 16-17 AA	ER32	16.00	17.00	32.00	12.66	40.00	40.00	1	0.12
ER32 SPR 17-18 AA	ER32	17.00	18.00	32.00	12.66	40.00	40.00	1	0.10
ER32 SPR 18-19 AA	ER32	18.00	19.00	32.00	12.66	40.00	40.00	1	0.10
ER32 SPR 19-20 AA	ER32	19.00	20.00	32.00	12.66	40.00	40.00	1	0.10
ER40 SPR 3-4 AA	ER40	3.00	4.00	40.00	14.66	46.00	27.00	2	0.27
ER40 SPR 4-5 AA	ER40	4.00	5.00	40.00	14.66	46.00	31.00	2	0.27
ER40 SPR 5-6 AA	ER40	5.00	6.00	40.00	14.66	46.00	31.00	2	0.28
ER40 SPR 6-7 AA	ER40	6.00	7.00	40.00	14.66	46.00	31.00	2	0.28
ER40 SPR 7-8 AA	ER40	7.00	8.00	40.00	14.66	46.00	46.00	1	0.27
ER40 SPR 8-9 AA	ER40	8.00	9.00	40.00	14.66	46.00	46.00	1	0.28
ER40 SPR 9-10 AA	ER40	9.00	10.00	40.00	14.66	46.00	46.00	1	0.23
ER40 SPR 10-11 AA	ER40	10.00	11.00	40.00	14.66	46.00	46.00	1	0.01
ER40 SPR 11-12 AA	ER40	11.00	12.00	40.00	14.66	46.00	46.00	1	0.28
ER40 SPR 12-13 AA	ER40	12.00	13.00	40.00	14.66	46.00	46.00	1	0.28
ER40 SPR 13-14 AA	ER40	13.00	14.00	40.00	14.66	46.00	46.00	1	0.27
ER40 SPR 14-15 AA	ER40	14.00	15.00	40.00	14.66	46.00	46.00	1	0.27
ER40 SPR 15-16 AA	ER40	15.00	16.00	40.00	14.66	46.00	46.00	1	0.18
ER40 SPR 16-17 AA	ER40	16.00	17.00	40.00	14.66	46.00	46.00	1	0.25
ER40 SPR 17-18 AA	ER40	17.00	18.00	40.00	14.66	46.00	46.00	1	0.25
ER40 SPR 18-19 AA	ER40	18.00	19.00	40.00	14.66	46.00	46.00	1	0.07
ER40 SPR 19-20 AA	ER40	19.00	20.00	40.00	14.66	46.00	46.00	1	0.18
ER40 SPR 20-21 AA	ER40	20.00	21.00	40.00	14.66	46.00	46.00	1	0.19
ER40 SPR 21-22 AA	ER40	21.00	22.00	40.00	14.66	46.00	46.00	1	0.21
ER40 SPR 22-23 AA	ER40	22.00	23.00	40.00	14.66	46.00	46.00	1	0.20
ER40 SPR 23-24 AA	ER40	23.00	24.00	40.00	14.66	46.00	46.00	1	0.14
ER40 SPR 24-25 AA	ER40	24.00	25.00	40.00	14.66	46.00	46.00	1	0.17
ER40 SPR 25-26 AA	ER40	25.00	26.00	40.00	14.66	46.00	46.00	1	0.14

(1) For shank diameter 3-3.1 use ER16 SPR 2-3

(2) Minimum diameter

(3) Maximum diameter



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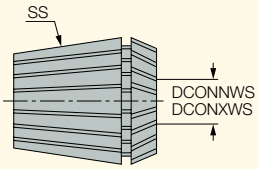
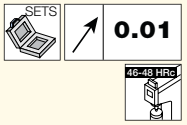
ERCOLLET

SET ER-SPR

DIN 6499 ER Spring Collet Set with Super Finish Surface and Special Anti-Corrosion Protection





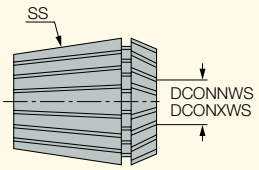
Designation	SS	Qty	DCONNWS[2]	DCONXWS[3]
SET ER11 SPR 13 [1]	ER11	13	0.5	7.0
SET ER16 SPR 10	ER16	10	0.5	10.0
SET ER20 SPR 12	ER20	12	1.0	13.0
SET ER25 SPR 15	ER25	15	1.0	16.0
SET ER32 SPR 18	ER32	18	2.0	20.0
SET ER40 SPR 23	ER40	23	3.0	26.0
SET ER50 SPR 12	ER50	12	10.0	34.0

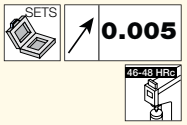
[1] Clamping range 0.5 mm
[2] Minimum diameter
[3] Maximum diameter

ERCOLLET

SET ER-SPR-AA

Sets of DIN 6499 'AA' Ultra Precise ER Spring Collets with Super Finish Surface and Special Anti-Corrosion Protection





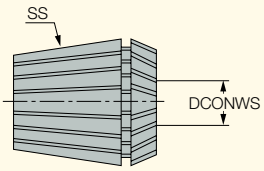
Designation	SS	Qty	DCONNWS[2]	DCONXWS[3]
SET ER11 SPR 13 AA [1]	ER11	13	0.5	7.0
SET ER16 SPR 10 AA	ER16	10	0.5	10.0
SET ER20 SPR 12 AA	ER20	12	1.0	13.0
SET ER25 SPR 15 AA	ER25	15	1.0	16.0
SET ER32 SPR 18 AA	ER32	18	2.0	20.0
SET ER40 SPR 23 AA	ER40	23	3.0	26.0

[1] Clamping range 0.5 mm
[2] Minimum diameter
[3] Maximum diameter

ERCOLLET

ER-AAA

DIN 6499 'AAA' Ultra Precise ER Spring Collets with Super Finish Surface and Special Anti-Corrosion Protection



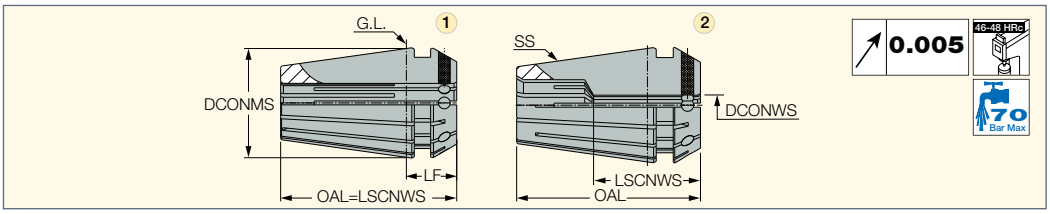
Designation	SS	DCONWS
ER11 SPR EX3.0AAA [1]	ER11	3.00
ER11 SPR EX4.0AAA [1]	ER11	4.00
ER11 SPR EX6.0AAA [1]	ER11	6.00

New

[1] 0.002 mm runout accuracy

ERCOLLET

ER-SEAL-AA-METRIC
DIN 6499/ ISO 15488-B ER
Sealed Single Diameter Collet
with Super Finish Surface and
Special Anti-Corrosion Protection

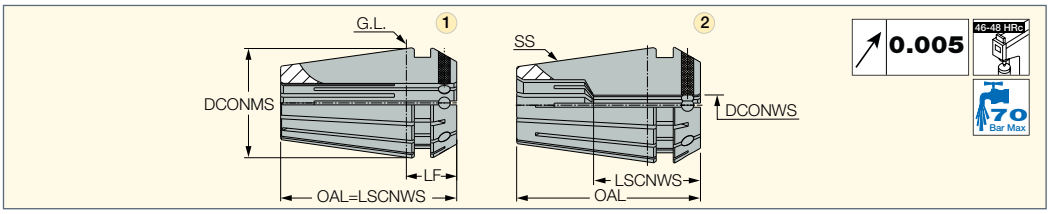


Designation	SS	DCONWS	DCONMS	LF	OAL	LSCNWS	Fig.	Kg
ER11 SEAL 3 AA	ER11	3.00	11.00	4.50	18.00	18.00	1	0.01
ER11 SEAL 4 AA	ER11	4.00	11.00	4.50	18.00	18.00	1	0.01
ER11 SEAL 5 AA	ER11	5.00	11.00	4.50	18.00	18.00	1	0.01
ER11 SEAL 6 AA	ER11	6.00	11.00	4.50	18.00	18.00	1	0.01
ER16 SEAL 3 AA	ER16	3.00	16.00	6.30	27.50	15.50	2	0.02
ER16 SEAL 4 AA	ER16	4.00	16.00	6.30	27.50	18.50	2	0.02
ER16 SEAL 5 AA	ER16	5.00	16.00	6.30	27.50	27.50	1	0.02
ER16 SEAL 6 AA	ER16	6.00	16.00	6.30	27.50	27.50	1	0.02
ER16 SEAL 7 AA	ER16	7.00	16.00	6.30	27.50	27.50	1	0.02
ER16 SEAL 8 AA	ER16	8.00	16.00	6.30	27.50	27.50	1	0.02
ER16 SEAL 9 AA	ER16	9.00	16.00	6.30	27.50	27.50	1	0.02
ER16 SEAL 10 AA	ER16	10.00	16.00	6.30	27.50	27.50	1	0.01
ER20 SEAL 3 AA	ER20	3.00	20.00	7.20	31.50	17.70	2	0.04
ER20 SEAL 4 AA	ER20	4.00	20.00	7.20	31.50	17.70	2	0.04
ER20 SEAL 5 AA	ER20	5.00	20.00	7.20	31.50	19.30	2	0.04
ER20 SEAL 6 AA	ER20	6.00	20.00	7.20	31.50	19.30	2	0.04
ER20 SEAL 7 AA	ER20	7.00	20.00	7.20	31.50	31.50	1	0.04
ER20 SEAL 8 AA	ER20	8.00	20.00	7.20	31.50	31.50	1	0.04
ER20 SEAL 9 AA	ER20	9.00	20.00	7.20	31.50	31.50	1	0.04
ER20 SEAL 10 AA	ER20	10.00	20.00	7.20	31.50	31.50	1	0.03
ER20 SEAL 11 AA	ER20	11.00	20.00	7.20	31.50	31.50	1	0.03
ER20 SEAL 12 AA	ER20	12.00	20.00	7.20	31.50	31.50	1	0.03
ER25 SEAL 3 AA	ER25	3.00	25.00	7.50	34.00	18.70	2	0.08
ER25 SEAL 4 AA	ER25	4.00	25.00	7.50	34.00	20.00	2	0.08
ER25 SEAL 5 AA	ER25	5.00	25.00	7.50	34.00	20.00	2	0.08
ER25 SEAL 6 AA	ER25	6.00	25.00	7.50	34.00	20.00	2	0.08
ER25 SEAL 7 AA	ER25	7.00	25.00	7.50	34.00	34.00	1	0.08
ER25 SEAL 8 AA	ER25	8.00	25.00	7.50	34.00	34.00	1	0.08
ER25 SEAL 9 AA	ER25	9.00	25.00	7.50	34.00	34.00	1	0.08
ER25 SEAL 10 AA	ER25	10.00	25.00	7.50	34.00	34.00	1	0.07
ER25 SEAL 11 AA	ER25	11.00	25.00	7.50	34.00	34.00	1	0.07
ER25 SEAL 12 AA	ER25	12.00	25.00	7.50	34.00	34.00	1	0.07
ER25 SEAL 13 AA	ER25	13.00	25.00	7.50	34.00	34.00	1	0.06
ER25 SEAL 14 AA	ER25	14.00	25.00	7.50	34.00	34.00	1	0.06
ER25 SEAL 15 AA	ER25	15.00	25.00	7.50	34.00	34.00	1	0.05
ER25 SEAL 16 AA	ER25	16.00	25.00	7.50	34.00	34.00	1	0.05
ER32 SEAL 3 AA	ER32	3.00	32.00	8.20	40.00	18.80	2	0.17
ER32 SEAL 4 AA	ER32	4.00	32.00	8.20	40.00	20.00	2	0.17
ER32 SEAL 5 AA	ER32	5.00	32.00	8.20	40.00	22.00	2	0.17
ER32 SEAL 6 AA	ER32	6.00	32.00	8.20	40.00	25.80	2	0.17
ER32 SEAL 7 AA	ER32	7.00	32.00	8.20	40.00	40.00	1	0.17
ER32 SEAL 8 AA	ER32	8.00	32.00	8.20	40.00	40.00	1	0.17
ER32 SEAL 9 AA	ER32	9.00	32.00	8.20	40.00	40.00	1	0.17
ER32 SEAL 10 AA	ER32	10.00	32.00	8.20	40.00	40.00	1	0.16
ER32 SEAL 11 AA	ER32	11.00	32.00	8.20	40.00	40.00	1	0.16
ER32 SEAL 12 AA	ER32	12.00	32.00	8.20	40.00	40.00	1	0.15
ER32 SEAL 13 AA	ER32	13.00	32.00	8.20	40.00	40.00	1	0.14
ER32 SEAL 14 AA	ER32	14.00	32.00	8.20	40.00	40.00	1	0.14
ER32 SEAL 15 AA	ER32	15.00	32.00	8.20	40.00	40.00	1	0.14
ER32 SEAL 16 AA	ER32	16.00	32.00	8.20	40.00	40.00	1	0.14
ER32 SEAL 17 AA	ER32	17.00	32.00	8.20	40.00	40.00	1	0.12
ER32 SEAL 18 AA	ER32	18.00	32.00	8.20	40.00	40.00	1	0.13
ER32 SEAL 19 AA	ER32	19.00	32.00	8.20	40.00	40.00	1	0.11
ER32 SEAL 20 AA	ER32	20.00	32.00	8.20	40.00	40.00	1	0.10
ER40 SEAL 6 AA	ER40	6.00	40.00	10.50	46.00	31.00	2	0.31
ER40 SEAL 8 AA	ER40	8.00	40.00	10.50	46.00	46.00	1	0.32
ER40 SEAL 10 AA	ER40	10.00	40.00	10.50	46.00	46.00	1	0.31
ER40 SEAL 12 AA	ER40	12.00	40.00	10.50	46.00	46.00	1	0.30
ER40 SEAL 14 AA	ER40	14.00	40.00	10.50	46.00	46.00	1	0.29
ER40 SEAL 16 AA	ER40	16.00	40.00	10.50	46.00	46.00	1	0.27
ER40 SEAL 18 AA	ER40	18.00	40.00	10.50	46.00	46.00	1	0.26
ER40 SEAL 20 AA	ER40	20.00	40.00	10.50	46.00	46.00	1	0.24
ER40 SEAL 22 AA	ER40	22.00	40.00	10.50	46.00	46.00	1	0.22
ER40 SEAL 25 AA	ER40	25.00	40.00	10.50	46.00	46.00	1	0.18

- Recommended for improved runout and clamping torque.

ERCOLLET

ER-SEAL-AA-JET
DIN 6499/ ISO 15488-B
ER Sealed Single Diameter Collet with Special Anti-Corrosion Protection Featuring 4 Coolant Jets

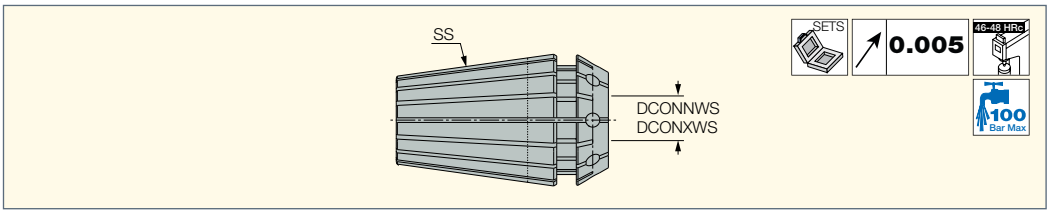


Designation	SS	DCONWS	DCONMS	LF	OAL	LSCNWS	Fig.	kg
ER16 SEAL 3 AA JET	ER16	3.00	16.00	6.30	27.50	15.50	2	0.02
ER16 SEAL 4 AA JET	ER16	4.00	16.00	6.30	27.50	18.50	2	0.02
ER16 SEAL 5 AA JET	ER16	5.00	16.00	6.30	27.50	27.50	1	0.02
ER16 SEAL 6 AA JET	ER16	6.00	16.00	6.30	27.50	27.50	1	0.02
ER16 SEAL 7 AA JET	ER16	7.00	16.00	6.30	27.50	27.50	1	0.02
ER16 SEAL 8 AA JET	ER16	8.00	16.00	6.30	27.50	27.50	1	0.02
ER16 SEAL 9 AA JET	ER16	9.00	16.00	6.30	27.50	27.50	1	0.02
ER16 SEAL 10 AA JET	ER16	10.00	16.00	6.30	27.50	27.50	1	0.01
ER20 SEAL 3 AA JET	ER20	3.00	20.00	7.20	31.50	17.70	2	0.04
ER20 SEAL 4 AA JET	ER20	4.00	20.00	7.20	31.50	17.70	2	0.04
ER20 SEAL 5 AA JET	ER20	5.00	20.00	7.20	31.50	19.30	2	0.04
ER20 SEAL 6 AA JET	ER20	6.00	20.00	7.20	31.50	19.30	2	0.04
ER20 SEAL 7 AA JET	ER20	7.00	20.00	7.20	31.50	31.50	1	0.04
ER20 SEAL 8 AA JET	ER20	8.00	20.00	7.20	31.50	31.50	1	0.04
ER20 SEAL 9 AA JET	ER20	9.00	20.00	7.20	31.50	31.50	1	0.04
ER20 SEAL 10 AA JET	ER20	10.00	20.00	7.20	31.50	31.50	1	0.03
ER20 SEAL 11 AA JET	ER20	11.00	20.00	7.20	31.50	31.50	1	0.03
ER20 SEAL 12 AA JET	ER20	12.00	20.00	7.20	31.50	31.50	1	0.03
ER25 SEAL 4 AA JET	ER25	4.00	25.00	7.50	34.00	20.00	2	0.08
ER25 SEAL 5 AA JET	ER25	5.00	25.00	7.50	34.00	20.00	2	0.08
ER25 SEAL 6 AA JET	ER25	6.00	25.00	7.50	34.00	20.00	2	0.08
ER25 SEAL 7 AA JET	ER25	7.00	25.00	7.50	34.00	34.00	1	0.08
ER25 SEAL 8 AA JET	ER25	8.00	25.00	7.50	34.00	34.00	1	0.08
ER25 SEAL 9 AA JET	ER25	9.00	25.00	7.50	34.00	34.00	1	0.08
ER25 SEAL 10 AA JET	ER25	10.00	25.00	7.50	34.00	34.00	1	0.07
ER25 SEAL 11 AA JET	ER25	11.00	25.00	7.50	34.00	34.00	1	0.07
ER25 SEAL 12 AA JET	ER25	12.00	25.00	7.50	34.00	34.00	1	0.07
ER25 SEAL 13 AA JET	ER25	13.00	25.00	7.50	34.00	34.00	1	0.06
ER25 SEAL 14 AA JET	ER25	14.00	25.00	7.50	34.00	34.00	1	0.06
ER25 SEAL 15 AA JET	ER25	15.00	25.00	7.50	34.00	34.00	1	0.05
ER25 SEAL 16 AA JET	ER25	16.00	25.00	7.50	34.00	34.00	1	0.05
ER32 SEAL 4 AA JET	ER32	4.00	32.00	8.20	40.00	20.00	2	0.17
ER32 SEAL 5 AA JET	ER32	5.00	32.00	8.20	40.00	22.00	2	0.17
ER32 SEAL 6 AA JET	ER32	6.00	32.00	8.20	40.00	25.80	2	0.17
ER32 SEAL 7 AA JET	ER32	7.00	32.00	8.20	40.00	40.00	1	0.17
ER32 SEAL 8 AA JET	ER32	8.00	32.00	8.20	40.00	40.00	1	0.17
ER32 SEAL 9 AA JET	ER32	9.00	32.00	8.20	40.00	40.00	1	0.17
ER32 SEAL 10 AA JET	ER32	10.00	32.00	8.20	40.00	40.00	1	0.16
ER32 SEAL 11 AA JET	ER32	11.00	32.00	8.20	40.00	40.00	1	0.16
ER32 SEAL 12 AA JET	ER32	12.00	32.00	8.20	40.00	40.00	1	0.15
ER32 SEAL 13 AA JET	ER32	13.00	32.00	8.20	40.00	40.00	1	0.13
ER32 SEAL 14 AA JET	ER32	14.00	32.00	8.20	40.00	40.00	1	0.14
ER32 SEAL 15 AA JET	ER32	15.00	32.00	8.20	40.00	40.00	1	0.14
ER32 SEAL 16 AA JET	ER32	16.00	32.00	8.20	40.00	40.00	1	0.13
ER32 SEAL 17 AA JET	ER32	17.00	32.00	8.20	40.00	40.00	1	0.12
ER32 SEAL 18 AA JET	ER32	18.00	32.00	8.20	40.00	40.00	1	0.13
ER32 SEAL 19 AA JET	ER32	19.00	32.00	8.20	40.00	40.00	1	0.11
ER32 SEAL 20 AA JET	ER32	20.00	32.00	8.20	40.00	40.00	1	0.10
ER40 SEAL 6 AA JET	ER40	6.00	40.00	10.50	46.00	31.00	2	0.31
ER40 SEAL 8 AA JET	ER40	8.00	40.00	10.50	46.00	46.00	1	0.32
ER40 SEAL 10 AA JET	ER40	10.00	40.00	10.50	46.00	46.00	1	0.31
ER40 SEAL 12 AA JET	ER40	12.00	40.00	10.50	46.00	46.00	1	0.30
ER40 SEAL 14 AA JET	ER40	14.00	40.00	10.50	46.00	46.00	1	0.29
ER40 SEAL 16 AA JET	ER40	16.00	40.00	10.50	46.00	46.00	1	0.37
ER40 SEAL 18 AA JET	ER40	18.00	40.00	10.50	46.00	46.00	1	0.26
ER40 SEAL 20 AA JET	ER40	20.00	40.00	10.50	46.00	46.00	1	0.24
ER40 SEAL 22 AA JET	ER40	22.00	40.00	10.50	46.00	46.00	1	0.22
ER40 SEAL 25 AA JET	ER40	25.00	40.00	10.50	46.00	46.00	1	0.18

- Recommended for improved runout and clamping torque.

ERCOLLET

SET ER-SEAL-AA
DIN 6499/ ISO 15488-B ER Sealed Single Diameter Collet with Super Finish Surface and Special Anti-Corrosion Protection

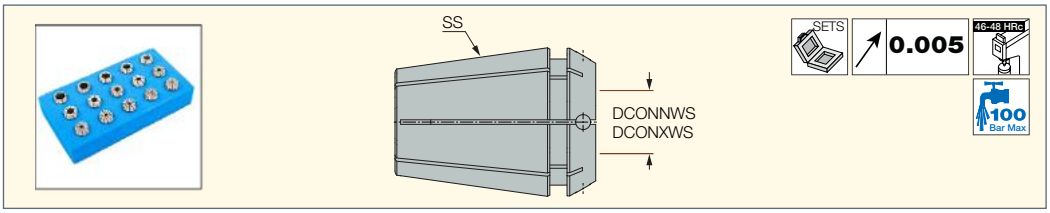


Designation	SS	Qty	DCONNWS(1)	DCONXWS(2)
SET ER16 SEAL 7 AA	ER16	7	4.00	10.00
SET ER20 SEAL 9 AA	ER20	9	4.00	12.00
SET ER25 SEAL 13 AA	ER25	13	4.00	16.00
SET ER32 SEAL 17 AA	ER32	17	4.00	20.00
SET ER40 SEAL 10 AA	ER40	10	6.00	25.00

(1) Minimum diameter
(2) Maximum diameter

ERCOLLET

SET ER-SEAL-AA-JET
DIN 6499/ ISO 15488-B ER Sealed Single Diameter Collet with Special Anti-Corrosion Protection Featuring 4 Coolant Jets

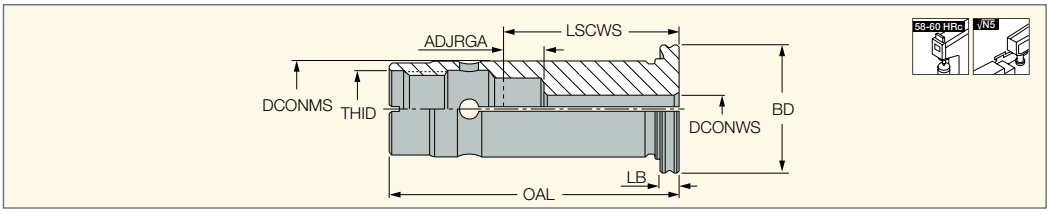


Designation	SS	Qty	DCONNWS(1)	DCONXWS(2)
SET ER16 SEAL 7 AA JET	ER16	7	4.00	10.00
SET ER20 SEAL 9 AA JET	ER20	9	4.00	12.00
SET ER25 SEAL 13 AA JET	ER25	13	4.00	16.00
SET ER32 SEAL 17 AA JET	ER32	17	4.00	20.00
SET ER40 SEAL 10 AA JET	ER40	10	6.00	25.00

(1) Minimum diameter
(2) Maximum diameter

MAXIN

SC-SPR
SC Straight Collets for MAXIN Power Chucks

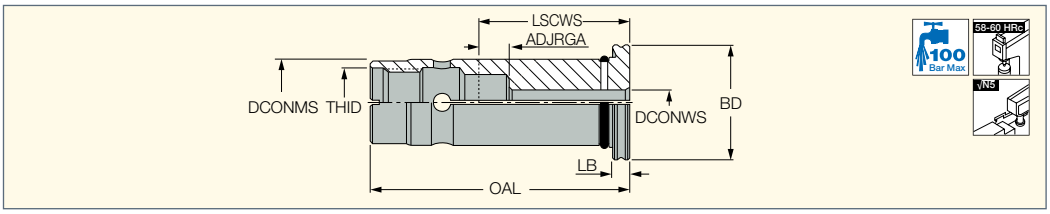


Designation	DCONMS	DCONWS	BD	LB	OAL	LSCWS	ADJRGA(1)	THID
SC 20 SPR 6	20.00	6.00	27.00	4.00	60.00	35.00	7.00	M16
SC 20 SPR 8	20.00	8.00	27.00	4.00	60.00	35.00	7.00	M16
SC 20 SPR 10	20.00	10.00	27.00	4.00	60.00	48.00	13.00	M16
SC 20 SPR 12	20.00	12.00	27.00	4.00	60.00	48.00	8.00	M16
SC 20 SPR 14	20.00	14.00	27.00	4.00	60.00	48.00	8.00	M16
SC 20 SPR 15	20.00	15.00	27.00	4.00	60.00	48.00	8.00	M16
SC 20 SPR 16	20.00	16.00	27.00	4.00	60.00	48.00	9.00	M16
SC 32 SPR 6	32.00	6.00	38.00	4.00	72.00	45.00	17.00	M24X1.5
SC 32 SPR 8	32.00	8.00	38.00	4.00	72.00	45.00	17.00	M24X1.5
SC 32 SPR 10	32.00	10.00	38.00	4.00	72.00	48.00	13.00	M24X1.5
SC 32 SPR 12	32.00	12.00	38.00	4.00	72.00	45.00	5.00	M24X1.5
SC 32 SPR 14	32.00	14.00	38.00	4.00	72.00	45.00	5.00	M24X1.5
SC 32 SPR 15	32.00	15.00	38.00	4.00	72.00	59.50	19.50	M24X1.5
SC 32 SPR 16	32.00	16.00	38.00	4.00	72.00	61.50	17.50	M24X1.5
SC 32 SPR 18	32.00	18.00	38.00	4.00	72.00	61.50	17.50	M24X1.5
SC 32 SPR 19	32.00	19.00	38.00	4.00	72.00	61.50	17.50	M24X1.5
SC 32 SPR 20	32.00	20.00	38.00	4.00	72.00	61.50	15.50	M24X1.5
SC 32 SPR 24	32.00	24.00	38.00	4.00	72.00	55.50	10.50	M24X1.5
SC 32 SPR 25	32.00	25.00	38.00	4.00	72.00	61.50	10.50	M24X1.5

(1) Preset range

MAXIN

SC-SEAL
Sealed Collets for MAXIN Power Chucks



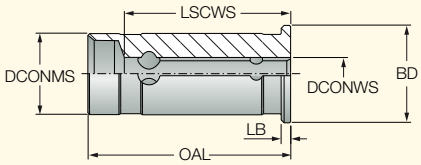
Designation	DCONMS	DCONWS	LB	BD	OAL	LSCWS	ADJRGA	THID
SC 20 SEAL 6	20.00	6.00	4.00	27.00	60.00	35.00	7.00	M16
SC 20 SEAL 8	20.00	8.00	4.00	27.00	60.00	35.00	7.00	M16
SC 20 SEAL 10	20.00	10.00	4.00	27.00	60.00	48.00	13.00	M16
SC 20 SEAL 12	20.00	12.00	4.00	27.00	60.00	48.00	8.00	M16
SC 20 SEAL 14	20.00	14.00	4.00	27.00	60.00	48.00	8.00	M16
SC 20 SEAL 15	20.00	15.00	4.00	27.00	60.00	48.00	8.00	M16
SC 20 SEAL 16	20.00	16.00	4.00	27.00	60.00	48.00	9.00	M16
SC 32 SEAL 6	32.00	6.00	4.00	38.00	72.00	45.00	17.00	M24X1.5
SC 32 SEAL 8	32.00	8.00	4.00	38.00	72.00	45.00	17.00	M24X1.5
SC 32 SEAL 10	32.00	10.00	4.00	38.00	72.00	48.00	13.00	M24X1.5
SC 32 SEAL 12	32.00	12.00	4.00	38.00	72.00	45.00	5.00	M24X1.5
SC 32 SEAL 14	32.00	14.00	4.00	38.00	72.00	45.00	5.00	M24X1.5
SC 32 SEAL 15	32.00	15.00	4.00	38.00	72.00	45.00	5.00	M24X1.5
SC 32 SEAL 16	32.00	16.00	4.00	38.00	72.00	61.50	17.50	M24X1.5
SC 32 SEAL 18	32.00	18.00	4.00	38.00	72.00	61.50	17.50	M24X1.5
SC 32 SEAL 19	32.00	19.00	4.00	38.00	72.00	61.50	17.50	M24X1.5
SC 32 SEAL 20	32.00	20.00	4.00	38.00	72.00	61.50	15.50	M24X1.5
SC 32 SEAL 24	32.00	24.00	4.00	38.00	72.00	61.50	15.50	M24X1.5
SC 32 SEAL 25	32.00	25.00	4.00	38.00	72.00	61.50	10.50	M24X1.5

HYDRO-FIT KITS & ACCESSORIES

HYDROFIT HOLDING LINE

SC-HYDRO

Sealed Reduction Sleeves
for Hydraulic Chucks



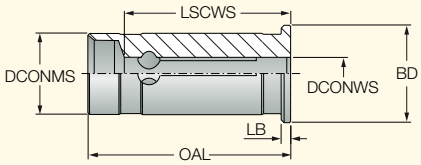
Designation	DCONMS	DCONWS	LSCWS	OAL	BD	LB
SC 25 S HYDRO 6	25.00	6.00	25.5	57.00	29.00	2.5
SC 25 S HYDRO 8	25.00	8.00	26.1	57.00	29.00	2.5
SC 25 S HYDRO 10	25.00	10.00	32.7	57.00	29.00	2.5
SC 25 S HYDRO 12	25.00	12.00	37.3	57.00	29.00	2.5
SC 25 S HYDRO 14	25.00	14.00	32.9	57.00	29.00	2.5
SC 25 S HYDRO 16	25.00	16.00	38.5	57.00	29.00	2.5
SC 25 S HYDRO 18	25.00	18.00	39.1	57.00	29.00	2.5
SC 25 S HYDRO 20	25.00	20.00	40.7	57.00	29.00	2.5

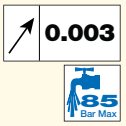
- Any cylindrical, Weldon shanks only 6-20 mm may be clamped to the sleeves

HYDROFIT HOLDING LINE

SC-HYDRO-HP

Sealed Reduction Sleeves
for Hydraulic Chucks





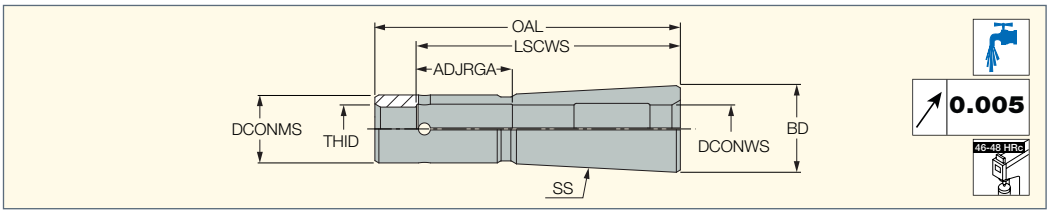
Designation	DCONMS	DCONWS	LSCWS	OAL	BD	LB
SC 12 HYDRO 3 HP	12.00	3.00	22.0	47.00	16.50	2.0
SC 12 HYDRO 4 HP	12.00	4.00	22.0	47.00	16.50	2.0
SC 12 HYDRO 5 HP	12.00	5.00	22.0	47.00	16.50	2.0
SC 12 HYDRO 6 HP	12.00	6.00	25.5	47.00	16.50	2.0
SC 12 HYDRO 8 HP	12.00	8.00	25.5	47.00	16.50	2.0
SC 20 HYDRO 3 HP	20.00	3.00	22.0	52.50	24.00	2.0
SC 20 HYDRO 4 HP	20.00	4.00	22.0	52.50	24.00	2.0
SC 20 HYDRO 5 HP	20.00	5.00	22.0	52.50	24.00	2.0
SC 20 HYDRO 6 HP	20.00	6.00	27.0	52.50	24.00	2.0
SC 20 HYDRO 8 HP	20.00	8.00	27.0	52.50	24.00	2.0
SC 20 HYDRO 10 HP	20.00	10.00	31.0	52.50	24.00	2.0
SC 20 HYDRO 12 HP	20.00	12.00	35.0	52.50	24.00	2.0
SC 20 HYDRO 14 HP	20.00	14.00	35.0	52.50	24.00	2.0
SC 20 HYDRO 16 HP	20.00	16.00	35.0	52.50	24.00	2.0
SC 32 HYDRO 6 HP	32.00	6.00	26.0	62.50	35.50	2.0
SC 32 HYDRO 8 HP	32.00	8.00	26.0	62.50	35.50	2.0
SC 32 HYDRO 10 HP	32.00	10.00	26.5	62.50	35.50	2.0
SC 32 HYDRO 12 HP	32.00	12.00	26.5	62.50	35.50	2.0
SC 32 HYDRO 14 HP	32.00	14.00	26.5	62.50	35.50	2.0
SC 32 HYDRO 16 HP	32.00	16.00	36.5	62.50	35.50	2.0
SC 32 HYDRO 18 HP	32.00	18.00	36.5	62.50	35.50	2.0
SC 32 HYDRO 20 HP	32.00	20.00	36.5	62.50	35.50	2.0
SC 32 HYDRO 25 HP	32.00	25.00	47.0	62.50	35.50	2.0

New

- Any cylindrical, Weldon shanks only 6-20 mm may be clamped to the sleeves

QUICKCLAMP

MS-COLLET
Collet for QUICK-CLAMP System

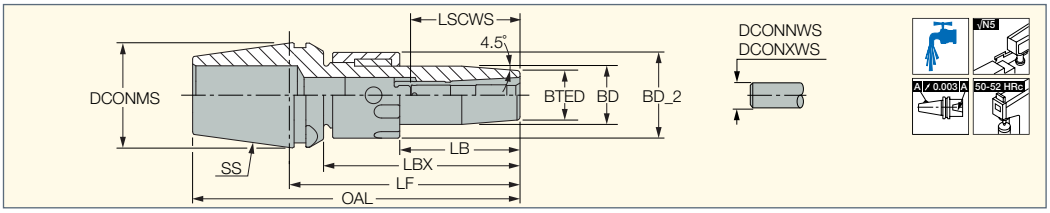


Designation	DCONWS	DCONMS	THID	ADJRGA	LSCWS	SS	BD	OAL
MS6-3 COLLET	3.00	8.50	M6	12.00	33.00	MS6	10.90	38.00
MS6-4 COLLET	4.00	8.50	M6	12.00	33.00	MS6	10.90	38.00
MS6-5 COLLET	5.00	8.50	M6	12.00	33.00	MS6	10.90	38.00
MS6-6 COLLET	6.00	8.50	M6	12.00	33.00	MS6	10.90	38.00

New

QUICKCLAMP

ER-MS
QUICK-CLAMP System for Small Cutting Tools with Integral Solid ER Shank

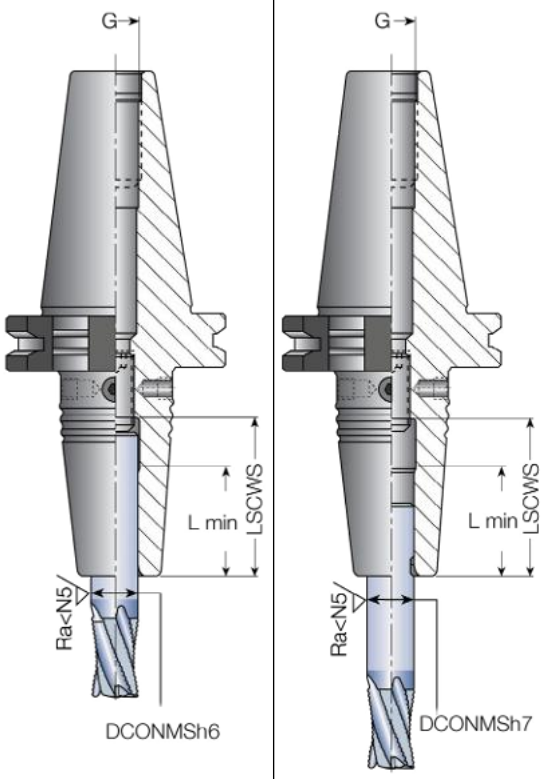


Designation	DCONNWS(1)	DCONXWS(2)	SS	BD	BD_2	LB	LBX	LF	OAL	DCONMS
ER32 MS6X60	3.00	6.00	ER32	17.80	26.20	36.00	60.00	70.00	100.00	32.00

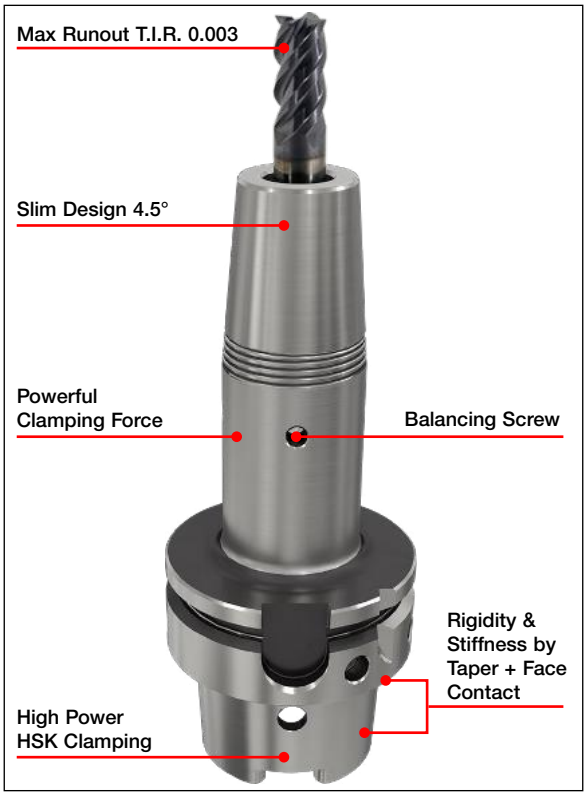
New

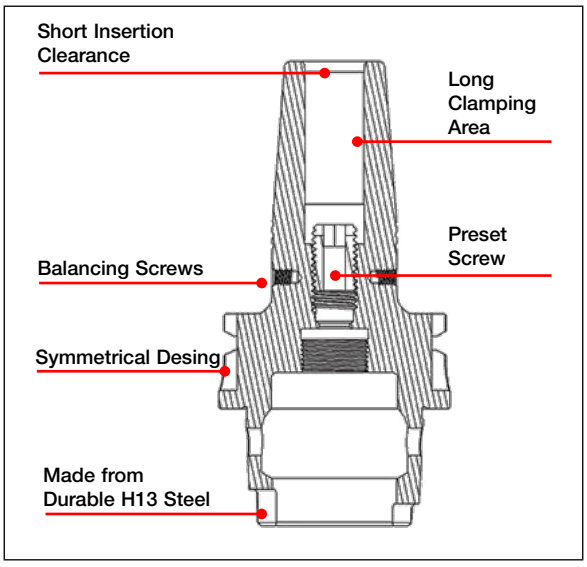
(1) Minimum diameter
(2) Maximum diameter

Correct	Wrong
✔	✗



5 Do not use Weldon type shanks.
6 Insert shank at least Lmin into the chuck.
7 In order to maintain a firm grip, shank's surface finish should have a roughness of at least N5.





Thermal Shrink ER... SRK Chucking System

Standard ER Collet Chuck

DIN 69871 30, 40, 50

HSK 40, 50, 63, 100

BT 30, 40, 50

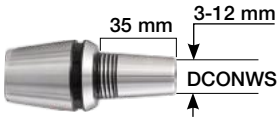
CAMFIX C4-C8

DIN 2080 30, 40, 50

SHORT-IN DIN69871 40, 50
BT 40, 50 HSK 63, 100

SHRINKIN ER SRK Collet Compatible With Standard ER Collets DIN 6499

ER20



ER25

ER32

HSK E SRK 32-40-50-63

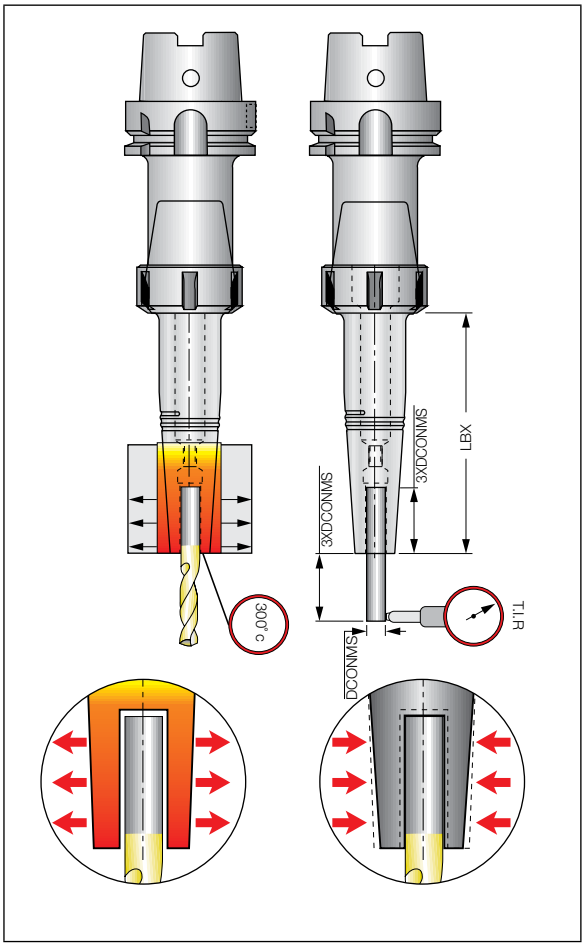
BT40-SRK DIN69871-40 SRK

SHRINKIN

Thermal Shrink Chucking Systems

SHRINKIN thermal shrinking collets are an enhancement to the existing popular collet system. The SHRINKIN collets utilize the thermal expansion and shrink phenomenon for rigid clamping of steel, HSS and solid carbide tools. SHRINKIN collets provide high torque, precision runout and excellent repeatability.
The SHRINKIN collets with their slim design and various projection lengths allow the user to reach deep cavities and perform narrow milling applications.
ISCAR offers a complete system for the SHRINKIN collets with integral ER or other standard, integral tapered shanks.

The conventional, thermal shrink chucking unit can be used only for solid carbide tools, clamped into SRK ER collets. The induction thermal unit can be used for steel, HSS and solid carbide tools. It can be used for both SRK and SRKIN collets with ER or other integral tapered shanks.



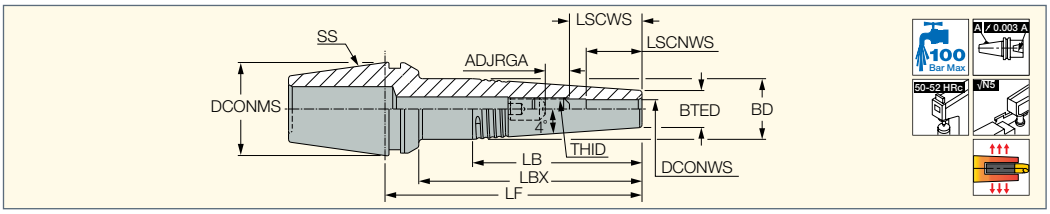
Features

- Slim design with various projections
- Flexible - fits into standard ER chucks
- High torque transfer
- Rigid clamping of carbide tools
- Low runout
- Perfect repeatability
- Vibration damping
- Internal coolant
- Coolant Jet2 available
- Symmetrical design for high speed machining
- Quick and easy tool change

LBX (mm)	Max T.I.R.
35	7µm
60	9µm
85	10µm

SHRINKIN

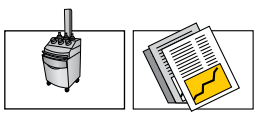
ER-SRK
Thermal Shrink Chucks with an Integral ER Collet



Designation	SS	DCONWS	DCONMS	LB	LBX	LF	LSCNWS	LSCWS	ADJRGA	BD	BTED	THID	Key(1)	kg	
ER16 SRK 3X35	ER16	3.00	16.00	14.30	36.00	43.10	10.00	16.00	6.00	12.00	10.00	M6	3.00	0.05	SR M6X10 DIN916
ER16 SRK 4X35	ER16	4.00	16.00	14.30	36.00	43.10	12.00	18.00	6.00	12.00	10.00	M6	3.00	0.05	SR M6X10 DIN916
ER16 SRK 5X35	ER16	5.00	16.00	14.30	36.00	43.10	15.00	21.00	6.00	12.00	10.00	M6	3.00	0.06	SR M6X10 DIN916
ER16 SRK 6X35	ER16	6.00	16.00	7.20	36.00	43.10	18.00	22.00	6.00	12.00	11.00	M6	3.00	0.06	SR M6X10 DIN916
ER20 SRK 3X35	ER20	3.00	20.00	24.50	35.00	43.50	10.00	16.00	6.00	13.50	10.00	M6	3.00	0.07	SR M6X10 DIN916
ER20 SRK 3X60	ER20	3.00	20.00	24.50	60.00	68.50	10.00	16.00	6.00	13.50	10.00	M6	3.00	0.09	SR M6X10 DIN916
ER20 SRK 4X35	ER20	4.00	20.00	24.50	35.00	43.50	12.00	18.00	6.00	13.50	10.00	M6	3.00	0.07	SR M6X10 DIN916
ER20 SRK 4X60	ER20	4.00	20.00	24.50	60.00	68.50	12.00	18.00	6.00	13.50	10.00	M6	3.00	0.10	SR M6X10 DIN916
ER20 SRK 5X35	ER20	5.00	20.00	24.50	35.00	43.50	15.00	21.00	6.00	13.50	10.00	M6	3.00	0.07	SR M6X10 DIN916
ER20 SRK 5X60	ER20	5.00	20.00	24.50	60.00	68.50	15.00	21.00	6.00	13.50	10.00	M6	3.00	0.10	SR M6X10 DIN916
ER20 SRK 6X35	ER20	6.00	20.00	25.50	35.00	43.50	18.00	24.00	6.00	13.50	11.00	M8	4.00	0.07	SR M8X12 DIN916
ER20 SRK 6X60	ER20	6.00	20.00	29.50	60.00	68.50	18.00	24.00	6.00	13.50	11.00	M8	4.00	0.09	SR M8X12 DIN916
ER25 SRK 3X35	ER25	3.00	25.00	24.50	35.00	44.00	10.00	16.00	6.00	13.50	10.00	M6	3.00	0.10	SR M6X10 DIN916
ER25 SRK 3X60	ER25	3.00	25.00	44.50	60.00	69.00	10.00	16.00	6.00	16.30	10.00	M6	3.00	0.13	SR M6X10 DIN916
ER25 SRK 4X35	ER25	4.00	25.00	24.50	35.00	44.00	12.00	18.00	6.00	13.50	10.00	M6	3.00	0.10	SR M6X10 DIN916
ER25 SRK 4X60	ER25	4.00	25.00	44.50	60.00	69.00	12.00	18.00	6.00	16.30	10.00	M6	3.00	0.14	SR M6X10 DIN916
ER25 SRK 5X35	ER25	5.00	25.00	24.50	35.00	44.00	15.00	21.00	6.00	13.50	10.00	M6	3.00	0.10	SR M6X10 DIN916
ER25 SRK 5X60	ER25	5.00	25.00	44.50	60.00	69.00	15.00	21.00	6.00	16.30	10.00	M6	3.00	0.14	SR M6X10 DIN916
ER25 SRK 6X35	ER25	6.00	25.00	26.00	35.00	44.00	18.00	24.00	6.00	14.70	11.00	M8	4.00	0.10	SR M8X12 DIN916
ER25 SRK 6X60	ER25	6.00	25.00	44.50	60.00	69.00	18.00	24.00	6.00	17.30	11.00	M8	4.00	0.14	SR M8X12 DIN916
ER25 SRK 8X35	ER25	8.00	25.00	26.50	35.00	44.00	25.00	30.00	5.00	17.80	14.00	M10	5.00	0.12	SR M10X10 DIN913
ER25 SRK 8X60	ER25	8.00	25.00	39.50	60.00	69.00	25.00	31.00	6.00	17.90	14.00	M10	5.00	0.15	SR M10X10 DIN913
ER32 SRK 3X35	ER32	3.00	32.00	22.50	35.00	45.00	10.00	16.00	6.00	13.50	10.00	M6	3.00	0.16	SR M6X10 DIN916
ER32 SRK 3X60	ER32	3.00	32.00	44.50	60.00	70.00	10.00	16.00	6.00	16.30	10.00	M6	3.00	0.20	SR M6X10 DIN916
ER32 SRK 3X85	ER32	3.00	32.00	70.00	85.00	95.00	10.00	16.00	6.00	19.80	10.00	M6	3.00	0.25	SR M6X10 DIN916
ER32 SRK 4X35	ER32	4.00	32.00	23.50	35.00	45.00	12.00	18.00	6.00	13.50	10.00	M6	3.00	0.17	SR M6X10 DIN916
ER32 SRK 4X60	ER32	4.00	32.00	44.50	60.00	70.00	12.00	18.00	6.00	16.30	10.00	M6	3.00	0.19	SR M6X10 DIN916
ER32 SRK 4X85	ER32	4.00	32.00	70.00	85.00	95.00	12.00	18.00	6.00	19.80	10.00	M6	3.00	0.24	SR M6X10 DIN916
ER32 SRK 5X35	ER32	5.00	32.00	24.50	35.00	45.00	15.00	21.00	6.00	13.50	10.00	M6	3.00	0.16	SR M6X10 DIN916
ER32 SRK 5X60	ER32	5.00	32.00	44.50	60.00	70.00	15.00	21.00	6.00	16.30	10.00	M6	3.00	0.20	SR M6X10 DIN916
ER32 SRK 5X85	ER32	5.00	32.00	70.00	85.00	95.00	15.00	21.00	6.00	19.80	10.00	M6	3.00	0.24	SR M6X10 DIN916
ER32 SRK 6X35	ER32	6.00	32.00	25.50	35.00	45.00	18.00	24.00	6.00	14.70	11.00	M8	4.00	0.16	SR M8X12 DIN916
ER32 SRK 6X60	ER32	6.00	32.00	45.00	60.00	70.00	18.00	24.00	6.00	17.30	11.00	M8	4.00	0.19	SR M8X12 DIN916
ER32 SRK 6X85	ER32	6.00	32.00	69.50	85.00	95.00	18.00	26.00	8.00	20.80	11.00	M8	4.00	0.26	SR M8X12 DIN916
ER32 SRK 8X35	ER32	8.00	32.00	33.00	35.00	45.00	25.00	31.00	6.00	18.95	14.00	M10	5.00	0.18	SR M10X10 DIN913
ER32 SRK 8X60	ER32	8.00	32.00	45.00	60.00	70.00	25.00	31.00	6.00	20.40	14.00	M10	5.00	0.21	SR M10X10 DIN913
ER32 SRK 8X85	ER32	8.00	32.00	65.00	85.00	95.00	25.00	31.00	6.00	23.20	14.00	M10	5.00	0.28	SR M10X10 DIN913
ER32 SRK 10X35	ER32	10.00	32.00	34.00	35.00	45.00	30.00	35.00	5.00	20.80	16.00	M12	6.00	0.18	SR M12X10 DIN913
ER32 SRK 10X60	ER32	10.00	32.00	44.50	60.00	70.00	30.00	36.00	6.00	22.40	16.00	M12	6.00	0.24	SR M12X10 DIN913
ER32 SRK 10X85	ER32	10.00	32.00	49.50	85.00	95.00	30.00	36.00	6.00	23.00	16.00	M12	6.00	0.29	SR M12X10 DIN913
ER32 SRK 12X35	ER32	12.00	32.00	28.00	35.00	45.00	32.00	32.00	-	24.00	20.00	-	-	0.21	
ER32 SRK 12X60	ER32	12.00	32.00	28.00	60.00	70.00	32.00	38.00	6.00	24.00	20.00	M14	6.00	0.27	SR M14X12 DIN913
ER32 SRK 12X85	ER32	12.00	32.00	28.00	85.00	95.00	32.00	38.00	6.00	24.00	20.00	M14	6.00	0.33	SR M14X12 DIN913

• For carbide tools only • For through tool coolant, preset screw must be removed

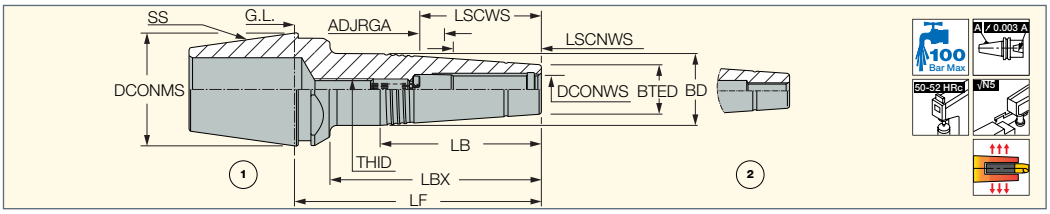
(1) Hex key size for the rear stopper screw



X-STREAM JET TOOLHOLDING

ER-SRK-CX

Thermal Shrink Chucks with an Integral ER Collet and Jet Coolant Grooves for Solid Carbide Tools Only



Designation	SS	DCONWS	DCONMS	LB	LBX	LF	LSCNWS	LSCWS	ADJRGA	BD	BTED	THID	Key	Fig.	kg
ER32 SRK 3X35 CX (1)	ER32	3.00	32.00	25.00	35.00	45.00	10.00	-	-	13.50	10.00	-	-	2	0.17
ER32 SRK 3X60 CX (1)	ER32	3.00	32.00	45.00	60.00	70.00	10.00	-	-	16.30	10.00	-	-	2	0.22
ER32 SRK 4X35 CX (1)	ER32	4.00	32.00	25.00	35.00	45.00	12.00	-	-	13.50	10.00	-	-	2	0.17
ER32 SRK 4X60 CX (1)	ER32	4.00	32.00	45.00	60.00	70.00	12.00	-	-	16.30	10.00	-	-	2	0.20
ER32 SRK 5X35 CX (1)	ER32	5.00	32.00	25.00	35.00	45.00	15.00	-	-	13.50	10.00	-	-	2	0.17
ER32 SRK 5X60 CX (1)	ER32	5.00	32.00	45.00	60.00	70.00	15.00	-	-	16.30	10.00	-	-	2	0.20
ER32 SRK 6X35 CX	ER32	6.00	32.00	26.50	35.00	45.00	18.00	27.40	7.00	14.70	11.00	M5	2.50	1	0.17
ER32 SRK 6X60 CX	ER32	6.00	32.00	45.00	60.00	70.00	18.00	27.40	7.00	17.30	11.00	M5	2.50	1	0.22
ER32 SRK 8X35 CX	ER32	8.00	32.00	-	35.00	45.00	25.00	34.50	7.00	18.90	14.00	M6	3.00	1	0.20
ER32 SRK 8X60 CX	ER32	8.00	32.00	45.80	60.00	70.00	25.00	34.50	7.00	20.40	14.00	M6	3.00	1	0.25
ER32 SRK 10X35 CX	ER32	10.00	32.00	-	35.00	45.00	30.00	39.30	7.00	20.90	16.00	M8	4.00	1	0.22
ER32 SRK 10X60 CX	ER32	10.00	32.00	45.80	60.00	70.00	30.00	39.30	7.00	22.40	16.00	M8	4.00	1	0.26
ER32 SRK 12X35 CX	ER32	12.00	32.00	28.60	35.00	45.00	32.00	41.30	7.00	24.00	20.00	M10	5.00	1	0.24
ER32 SRK 12X60 CX	ER32	12.00	32.00	28.60	60.00	70.00	32.00	41.30	7.00	24.00	20.00	M10	5.00	1	0.29

New

- For carbide tools only
- For through tool coolant, preset screw must be removed

(1) Without preset screw

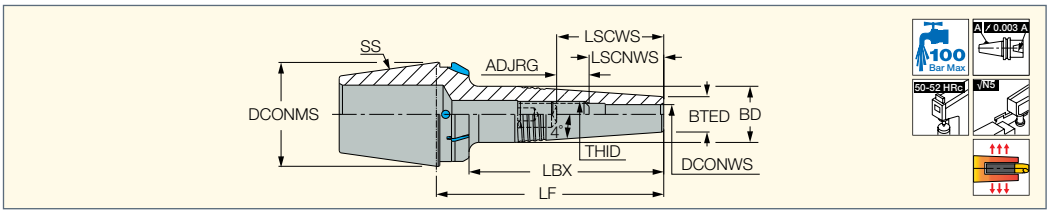
Spare Parts

Designation	
ER32 SRK 6X35 CX	PRESET CX M5X13
ER32 SRK 6X60 CX	PRESET CX M5X13
ER32 SRK 8X35 CX	PRESET CX M6X12
ER32 SRK 8X60 CX	PRESET CX M6X12
ER32 SRK 10X35 CX	PRESET CX M8X16
ER32 SRK 10X60 CX	PRESET CX M8X16
ER32 SRK 12X35 CX	PRESET CX M10X16
ER32 SRK 12X60 CX	PRESET CX M10X16

SHRINKIN

ER-SRK-JET2

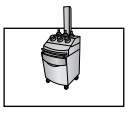
Thermal Shrink Chuck with Three Internal Cooling Jets and an Integral ER Collet



Designation	SS	DCONWS	LB	LBX	LF	LSCNWS	LSCWS	ADJRGA	BD	BTED	THID	Key(1)	kg	
ER20 SRK 3X35 JET2	ER20	3.00	24.50	35.00	43.50	10.00	16.00	6.00	13.50	10.00	M6	3.00	0.07	SR M6X10 DIN916
ER20 SRK 4X35 JET2	ER20	4.00	24.50	35.00	43.50	12.00	18.00	6.00	13.50	10.00	M6	3.00	0.07	
ER20 SRK 5X35 JET2	ER20	5.00	24.50	35.00	43.50	15.00	21.00	6.00	13.50	10.00	M6	3.00	0.09	
ER20 SRK 6X35 JET2	ER20	6.00	25.50	35.00	43.50	18.00	24.00	6.00	13.50	11.00	M8	4.00	0.07	SR M8X12 DIN916
ER25 SRK 3X35 JET2	ER25	3.00	24.50	35.00	44.00	10.00	16.00	6.00	13.50	10.00	M6	3.00	0.55	SR M6X10 DIN916
ER25 SRK 3X60 JET2	ER25	3.00	44.50	60.00	69.00	10.00	16.00	6.00	16.30	10.00	M6	3.00	0.16	SR M6X10 DIN916
ER25 SRK 4X35 JET2	ER25	4.00	24.50	35.00	44.00	12.00	18.00	6.00	13.50	10.00	M6	3.00	0.58	SR M6X10 DIN916
ER25 SRK 4X60 JET2	ER25	4.00	44.50	60.00	69.00	12.00	18.00	6.00	16.30	10.00	M6	3.00	0.16	SR M6X10 DIN916
ER25 SRK 5X35 JET2	ER25	5.00	24.50	35.00	44.00	15.00	21.00	6.00	13.50	10.00	M6	3.00	0.10	
ER25 SRK 5X60 JET2	ER25	5.00	44.50	60.00	69.00	15.00	21.00	6.00	16.30	10.00	M6	3.00	0.15	SR M6X10 DIN916
ER25 SRK 6X35 JET2	ER25	6.00	26.00	35.00	44.00	18.00	24.00	6.00	14.70	11.00	M8	4.00	0.11	SR M8X12 DIN916
ER25 SRK 6X60 JET2	ER25	6.00	44.50	60.00	69.00	18.00	24.00	6.00	17.30	11.00	M8	4.00	0.16	SR M8X12 DIN916
ER25 SRK 8X35 JET2	ER25	8.00	26.50	35.00	44.00	25.00	30.00	5.00	17.80	14.00	M10	5.00	0.12	SR M10X10 DIN913
ER25 SRK 8X60 JET2	ER25	8.00	39.50	60.00	69.00	25.00	31.00	6.00	17.90	14.00	M10	5.00	0.15	SR M10X10 DIN913
ER32 SRK 3X35 JET2	ER32	3.00	22.50	35.00	45.00	10.00	16.00	6.00	13.50	10.00	M6	3.00	0.16	SR M6X10 DIN916
ER32 SRK 3X60 JET2	ER32	3.00	44.50	60.00	70.00	10.00	16.00	6.00	16.30	10.00	M6	3.00	0.19	SR M6X10 DIN916
ER32 SRK 3X85 JET2	ER32	3.00	70.00	85.00	95.00	10.00	16.00	6.00	19.80	10.00	M6	3.00	0.25	SR M6X10 DIN916
ER32 SRK 4X35 JET2	ER32	4.00	23.50	35.00	45.00	12.00	18.00	6.00	13.50	10.00	M6	3.00	0.16	SR M6X10 DIN916
ER32 SRK 4X60 JET2	ER32	4.00	44.50	60.00	70.00	12.00	18.00	6.00	16.30	10.00	M6	3.00	0.19	SR M6X10 DIN916
ER32 SRK 4X85 JET2	ER32	4.00	70.00	85.00	95.00	12.00	18.00	6.00	19.80	10.00	M6	3.00	0.22	SR M6X10 DIN916
ER32 SRK 5X35 JET2	ER32	5.00	24.50	35.00	45.00	15.00	21.00	6.00	13.50	10.00	M6	3.00	0.16	SR M6X10 DIN916
ER32 SRK 5X60 JET2	ER32	5.00	44.50	60.00	70.00	15.00	21.00	6.00	16.30	10.00	M6	3.00	0.19	SR M6X10 DIN916
ER32 SRK 5X85 JET2	ER32	5.00	70.00	85.00	95.00	15.00	21.00	6.00	19.80	10.00	M6	3.00	0.25	SR M6X10 DIN916
ER32 SRK 6X35 JET2	ER32	6.00	25.50	35.00	45.00	18.00	24.00	6.00	14.70	11.00	M8	4.00	0.15	SR M8X12 DIN916
ER32 SRK 6X60 JET2	ER32	6.00	45.00	60.00	70.00	18.00	24.00	6.00	17.30	11.00	M8	4.00	0.19	SR M8X12 DIN916
ER32 SRK 6X85 JET2	ER32	6.00	69.50	85.00	95.00	18.00	26.00	8.00	20.80	11.00	M8	4.00	0.23	SR M8X12 DIN916
ER32 SRK 8X35 JET2	ER32	8.00	33.00	35.00	45.00	25.00	31.00	6.00	18.80	14.00	M10	5.00	0.17	SR M10X10 DIN913
ER32 SRK 8X60 JET2	ER32	8.00	45.00	60.00	70.00	25.00	31.00	6.00	20.40	14.00	M10	5.00	0.22	SR M10X10 DIN913
ER32 SRK 8X85 JET2	ER32	8.00	65.00	85.00	95.00	25.00	31.00	6.00	23.20	14.00	M10	5.00	0.21	SR M10X10 DIN913
ER32 SRK 10X35 JET2	ER32	10.00	34.00	35.00	45.00	30.00	35.00	5.00	20.80	16.00	M12	6.00	0.20	SR M12X10 DIN913
ER32 SRK 10X60 JET2	ER32	10.00	44.50	60.00	70.00	30.00	36.00	6.00	22.40	16.00	M12	6.00	0.25	SR M12X10 DIN913
ER32 SRK 10X85 JET2	ER32	10.00	49.50	85.00	95.00	30.00	36.00	6.00	23.00	16.00	M12	6.00	0.30	SR M12X10 DIN913
ER32 SRK 12X35 JET2	ER32	12.00	28.00	35.00	45.00	32.00	-	0.00	24.00	20.00	-	-	0.21	
ER32 SRK 12X60 JET2	ER32	12.00	28.00	60.00	70.00	32.00	38.00	6.00	24.00	20.00	M14	6.00	0.29	SR M14X12 DIN913
ER32 SRK 12X85 JET2	ER32	12.00	28.00	85.00	95.00	32.00	38.00	6.00	24.00	20.00	M14	6.00	0.32	SR M14X12 DIN913

• For carbide tools only • For through tool coolant, preset screw must be removed

(1) Hex key size for the rear stopper screw



784-786

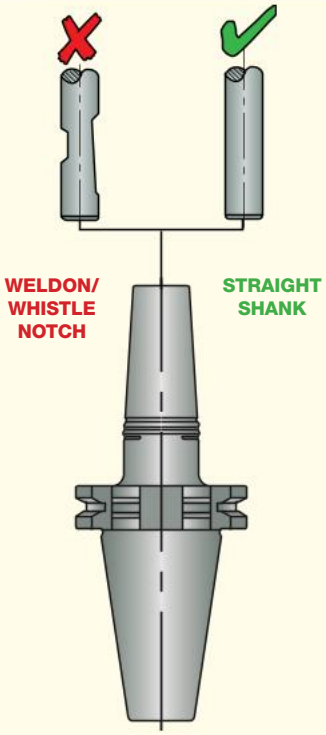
SHRINKIN

INDN AP UNIT EU
Induction Heating Unit for
Thermal Shrink Tool Chucking

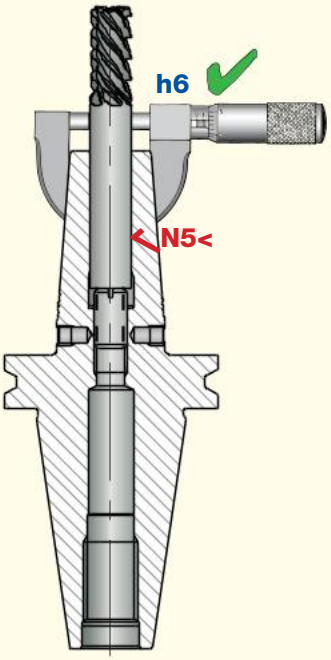
Designation	Machines
INDN AP UNIT EU	400V / 16A / 50Hz

New

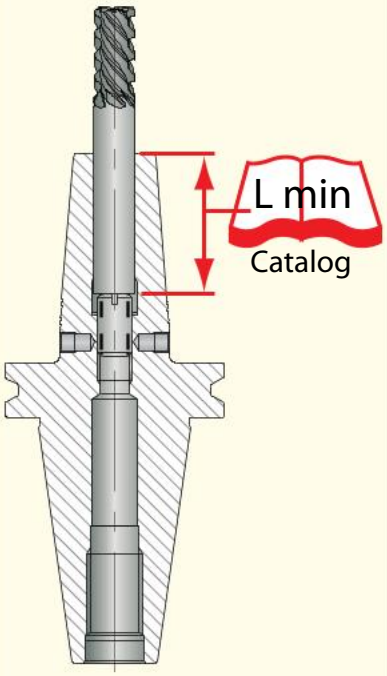
1 Shank Type



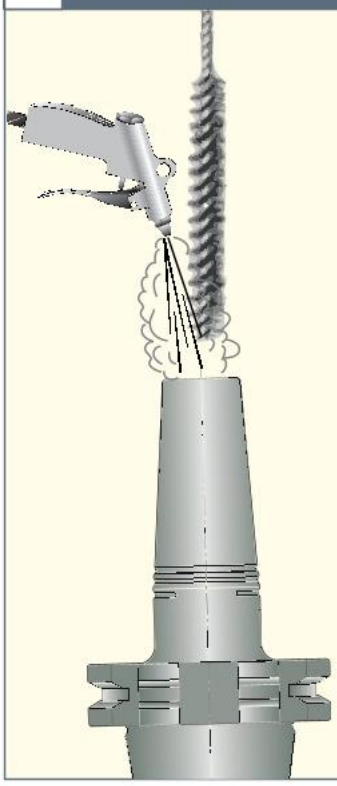
2 Shank Size



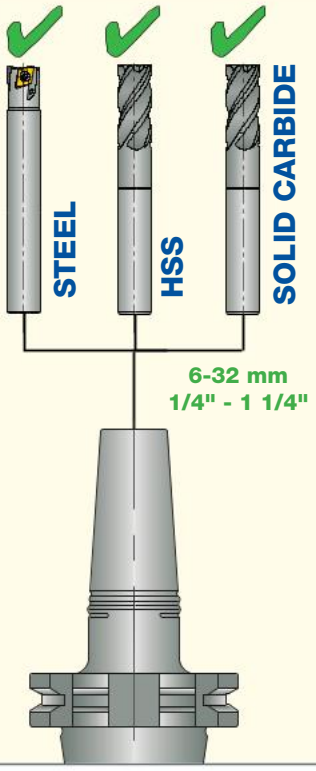
3 Shank Langth



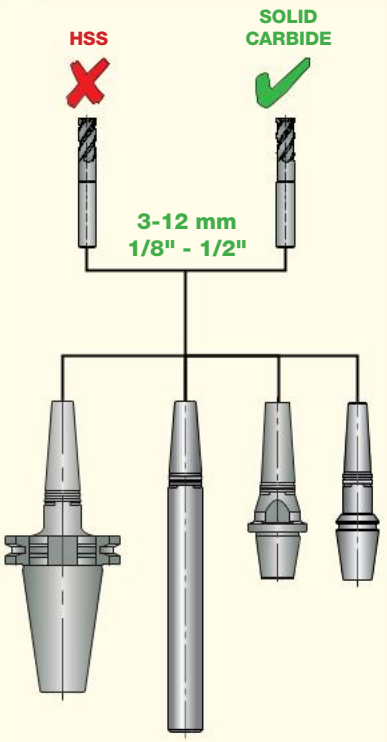
4 Bore Cleaning



5 SRKIN



6 SRK



What's in the Box

- AP Induction Unit
- Clamping ring
- 7 stop discs for whole range of shrinkable holders
- Protective gloves
- 1L of cooling and protection concentrate

Not included – suitable holder adaptor – should be ordered separately

3446176	INDN AP AD 32	Multi adapter HSK32
3446177	INDN AP AD 40	Multi adapter HSK40/C4
3446178	INDN AP AD 50	Multi adapter HSK50/C5/#30
3446179	INDN AP AD 63	Multi adapter HSK63/#40/C6/KM63
3446180	INDN AP AD 80	Multi adapter HSK80/C8/#45
3446181	INDN AP AD 100	Multi adapter HSK100/C10/#50

Technical Data

Machine Type	INDN AP INDUCTION UNIT
Clamping Range	Ø3-32mm (1/8"- 1 1/4") (Carbide), Ø6-32mm (1/4"- 1 1/4") (HSS)
Coil	Fixed
Max. Tool Length	400mm (15.748")
Max. Cooling Length	200mm (7.874")
Cooling Type	Liquid cooling with drying, geometry independent
Cooling Time / Liquid Tank	30s / 50L (13.2 GAL)
Max. Machine Interface	HSK A100 / #50 taper cone
Power	11kW
Electric Current Supply	400V / 16A / 50 Hz - EU (480V / 15A / 60Hz – US)
Air Pressure	4 Bar (58PSI)
Dimensions (W x D x H)	800 x 560 x 1720 mm (31.496"x 22.047" x 67.716")
Weight	120 Kg (265 lb)

Operation TIP

For easy and safe operation of shrink holders do not disassemble and use preset screw

Needed Infrastructures for INDN AP Unit:

16A 5pin industrial socket

G3/8 Connection to Air Hose (4 Bar) (58 PSI)

SHRINKIN

INDN BS UNIT EU
SHRINKIN Induction Heating Unit for Shrink Tool Chucking.

Designation	Machines
INDN BS UNIT EU	400V / 16A / 50Hz

New

What's in the Box
- BS Induction Unit
- Clamping ring
- 4 stop discs for SRKIN shrinkable holders.
- Protective gloves
- Barcode scanner
- 12 blank magnets
- Page with SRKIN parameter stickers

Not included – suitable holder adaptor – should be ordered separately

3449603	INDN BS AD HSK 32	HSK 32
3449604	INDN BS AD HSK 40	HSK 40 /HSK 50 F.B.D
3449605	INDN BS AD HSK 50	HSK 50 /HSK 63 F.B.D
3449606	INDN BS AD HSK 63	HSK 63 /HSK 80 F.B.D
3449607	INDN BS AD HSK 80	HSK 80 /HSK 100 F.B.D
3449608	INDN BS AD HSK 100	HSK 100
3449609	INDN BS AD TAPER #30	SK/BT/CAT #30
3449611	INDN BS AD TAPER #40	SK/BT/CAT #40
3449613	INDN BS AD TAPER #50	SK/BT/CAT #50W
3449614	INDN BS AD C3	C3
3449615	INDN BS AD C4	C4
3449616	INDN BS AD C5	C5
3449617	INDN BS AD C6	C6
3449618	INDN BS AD C8	C8

Not included – suitable stop disc – – to be ordered separately

3449266	INDN BS DISC SRK3 #6	SRK Ø 3
3449267	INDN BS DISC SRK4 #7	SRK Ø 4
3449268	INDN BS DISC SRK5 #8	SRK Ø 5
3449270	INDN BS DISC SRK6 #9	SRK Ø 6
3449271	NDN BS DISC SRK8 #10	SRK Ø 8
3449272	INDN BS DISC SRK10 #11	SRK Ø 10
3449273	INDN BS DISC SRK12 #12	SRK Ø 12

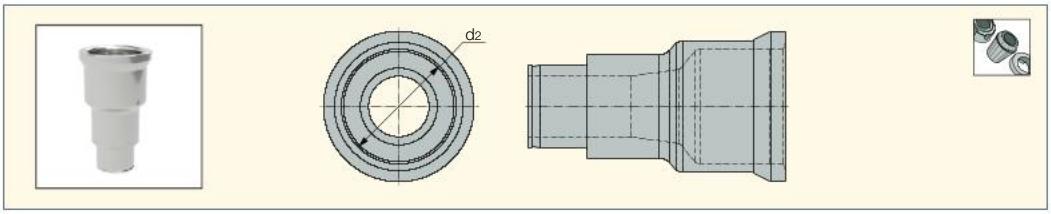
Technical Data

Machine Type	INDN BS INDUCTION UNIT
Clamping Range	Ø3-32mm (1/8″- 1 1/4″) (Carbide)
Coil	Fixed
Max. Tool Length	400mm (15.748″)
Max. Machine Interface	HSK A100 / #50 taper cone
Power	8kW
Electric Current Supply	400V / 16A / 50 Hz - EU (480V / 15A / 60Hz – US)
Dimensions (W x D x H)	320 x 400 x 840 mm (12.599″x 15.748″ x 33.071″)
Weight	20 Kg (44 lb)

Needed Infrastructures for INDN BS Unit:
16A 5pin industrial socket

Accessories

INDN AP AD
Tool Holder Adapter AP Unit



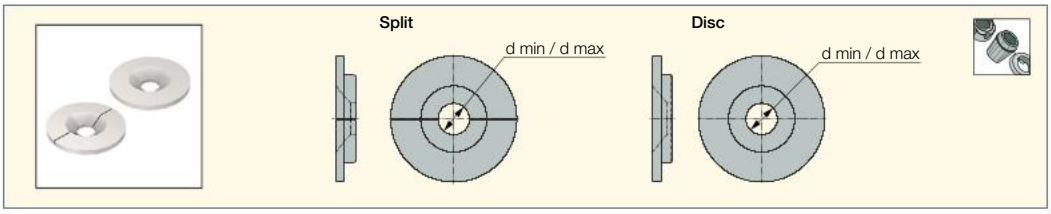
Designation	SFMT	S3(1)	d2
INDN AP AD 32	AP	HSK32	32.00
INDN AP AD 40	AP	HSK40/C4	40.00
INDN AP AD 50	AP	HSK50/C5/#30	50.00
INDN AP AD 63	AP	HSK63/C6/#40/KM63	63.00
INDN AP AD 80	AP	HSK80/C8/#45	80.00
INDN AP AD 100	AP	HSK100/C10/#50	100.00

New

(1) Suitable tool holder

Accessories

INDN AP DISC/SPLIT
Induction Coil Stop Disc AP Unit



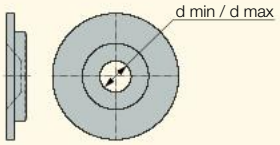
Designation	SFMT	d min	d max(1)	S3(2)
INDN AP DISC 3-5 #0	AP	3.0	5.0	3-5mm / SRK 6mm
INDN AP DISC 6-12 #1	AP	6.0	12.0	6-12mm
INDN AP DISC 14-20 #2	AP	14.0	22.0	14-22mm
INDN AP DISC 25-32 #3	AP	25.0	32.0	25-32mm
INDN AP DISC SRK3-5 #5	AP	3.0	5.0	SRK 3-5mm
INDN AP DISC SRK8 #8	AP	8.0	8.0	SRK 8mm
INDN AP DISC SRK12 #12	AP	10.0	12.0	SRK 10-12mm
INDN AP SPLIT #0	AP	3.0	5.0	"T shape" 3-5mm
INDN AP SPLIT #1	AP	6.0	12.0	"T shape" 6-12mm
INDN AP SPLIT #2	AP	14.0	22.0	"T shape" 14-22mm
INDN AP SPLIT #3	AP	25.0	32.0	"T shape" 25-32mm
INDN AP DISC SHORT 12-22	AP	12.0	22.0	Short 12-22mm

New

(1) Maximum workpiece diameter for grooving operation
(2) Clamping diameter

Accessories

INDN BS DISC
Induction Coil Stop Disc BS Unit



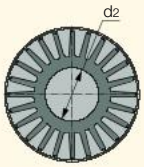
Designation	SFMT	d min	d max(1)	S3(2)
INDN BS DISC 6-8 #1	BS	6.0	8.0	6-8mm
INDN BS DISC 10-14 #2	BS	10.0	14.0	10-14mm
INDN BS DISC 16-18 #3	BS	16.0	18.0	16-18mm
INDN BS DISC 20 #4	BS	20.0	20.0	20mm
INDN BS DISC 25-32 #5	BS	25.0	32.0	25-32mm
INDN BS DISC SRK3 #6	BS	3.0	3.0	SRK 3mm
INDN BS DISC SRK4 #7	BS	4.0	4.0	SRK 4mm
INDN BS DISC SRK5 #8	BS	5.0	5.0	SRK 5mm
INDN BS DISC SRK6 #9	BS	6.0	6.0	SRK 6mm
INDN BS DISC SRK8 #10	BS	8.0	8.0	SRK 8mm
INDN BS DISC SRK10 #11	BS	10.0	10.0	SRK 10mm
INDN BS DISC SRK12 #12	BS	12.0	12.0	SRK 12mm

New

(1) Maximum workpiece diameter for grooving operation
(2) Clamping diameter

Accessories

INDN BS AD HSK
Tool Holder Adapter BS Unit



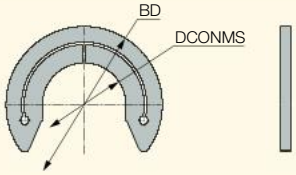
Designation	SFMT	S3(1)	d2
INDN BS AD HSK 25	BS	HSK25	25.00
INDN BS AD HSK 32	BS	HSK32	32.00
INDN BS AD HSK 40	BS	HSK40	40.00
INDN BS AD HSK 50	BS	HSK50	50.00
INDN BS AD HSK 63	BS	HSK63	63.00
INDN BS AD HSK 80	BS	HSK80	80.00
INDN BS AD HSK 100	BS	HSK100	100.00
INDN BS AD TAPER #30	BS	Taper #30	50.00
INDN BS AD TAPER #40	BS	Taper #40	63.00
INDN BS AD TAPER #50	BS	Taper #50	100.00
INDN BS AD C3	BS	C3	32.00
INDN BS AD C4	BS	C4	40.00
INDN BS AD C5	BS	C5	50.00
INDN BS AD C6	BS	C6	63.00
INDN BS AD C8	BS	C8	80.00

New

(1) Suitable tool holder

Accessories

INDN SETTING DISC
Height Setting Discs Metric



Designation	SFMT	BD	DCONMS	S3(1)
INDN SETTING DISC 3	AP+BS	16.00	3.00	3
INDN SETTING DISC 4	AP+BS	16.00	4.00	4
INDN SETTING DISC 5	AP+BS	16.00	5.00	5
INDN SETTING DISC 6	AP+BS	16.00	6.00	6
INDN SETTING DISC 8	AP+BS	20.00	8.00	8
INDN SETTING DISC 10	AP+BS	20.00	10.00	10
INDN SETTING DISC 12	AP+BS	25.00	12.00	12
INDN SETTING DISC 14	AP+BS	25.00	14.00	14
INDN SETTING DISC 16	AP+BS	30.00	16.00	16
INDN SETTING DISC 18	AP+BS	30.00	18.00	18
INDN SETTING DISC 20	AP+BS	34.00	20.00	20
INDN SETTING DISC 25	AP+BS	39.00	25.00	25
INDN SETTING DISC 32	AP+BS	48.00	32.00	32

New

(1) Tool diameter

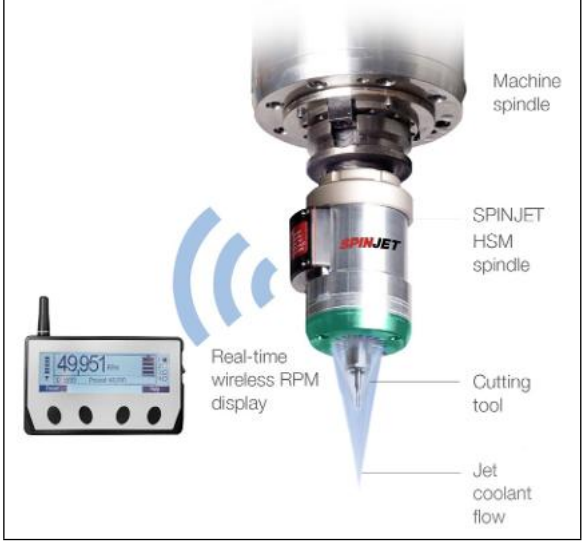
SPIN-JET COOLENT DRIVEN HSM SPINDLES

SPINJET

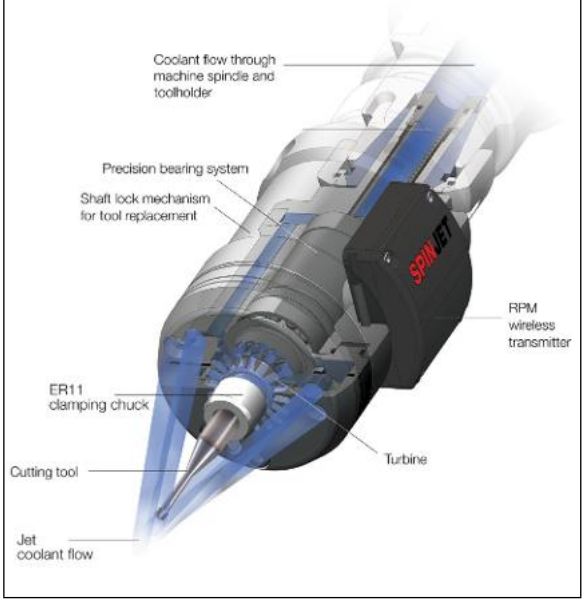
SPIN-JET – A unique, coolant-driven high speed compact spindle for small diameter tools.

The **SPIN-JET** spindles have been developed for use when high RPM is required for small diameter tools on limited RPM machines. The spindles are for semi-finish and finish machining applications such as milling, drilling, engraving, chamfering / deburring and fine radial grinding.

General View



Internal Structure



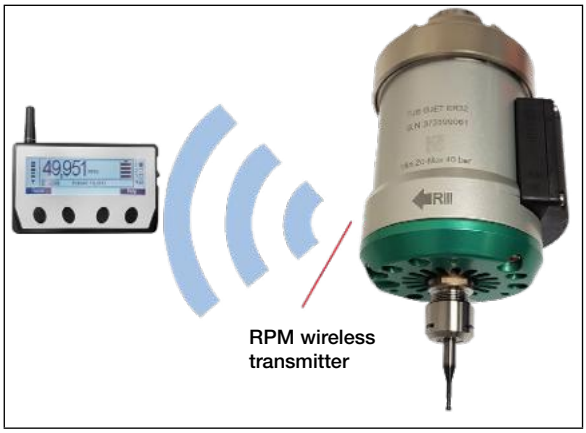
Advantages

- Reduced machining time - High table speed, thus faster machining due to high rotation speed
- High efficiency - Up to 65% increased productivity compared to machining with the original machine with low RPM spindle
- Energy saving - The machine spindle is idle while the **SPIN-JET** is in operation
- High precision - Excellent surface quality due to optimized machining conditions
- Plug & play – Easy installation on existing machines with no adaptation required
- Extended tool life – As a result of optimal cutting conditions and strong jet coolant flow

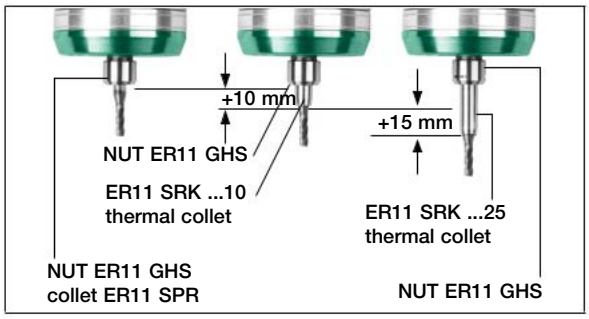
Features Direct Wireless Rotation Speed Display

SPIN-JET is equipped with an online speed display system, monitoring the actual cutting tool rotation speed during machining.

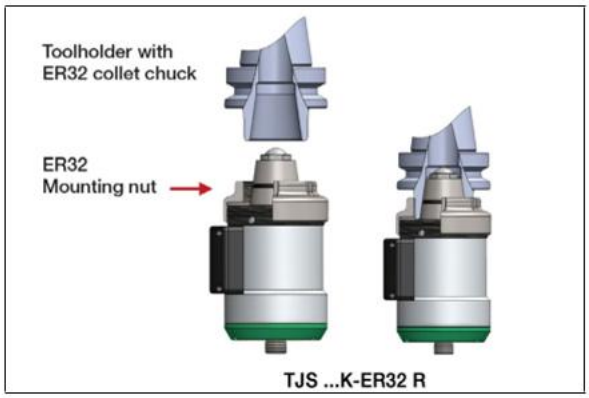
- 2.4 GHz radio frequency transmission
- Direct wireless rotational speed monitoring in a range of up to 10 meters
- Externally powered display enables reading all **SPIN-JET** systems being used on the machine



A New Solution for Cutting Tool Overhang



Built in ER32 Collet Chuck Featuring high precision and low runout, suitable for various standard toolholders with ER32 taper.



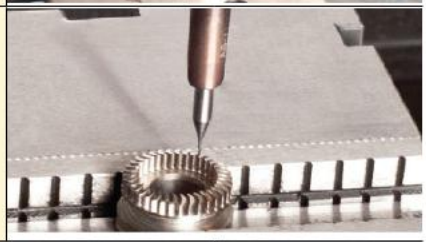
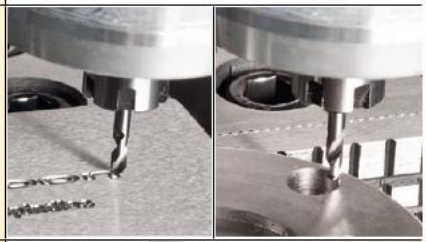
SPIN-JET-HPC ER32 LINE - Adaptation Options

Clamping type: ER11 collet size

Operating Data	Model: HPC	Model: SPIN-JET-GREEN LINE
Operating range of coolant pressure [bar]	15-70	20 - 40
Operating range of coolant flow rate [l/min]	10-22	10-20
Rotational spindle speed [rpm]*	20,000-45,000	35000- 55000
Optimum cutting tool diameter [mm]	Drilling: 0.5 - 3.0	Drilling: 0.5 - 4
	Milling: 1.0 - 4.0	Milling: 1 - 3.5
Maximum tool shank diameter [mm]	7	7

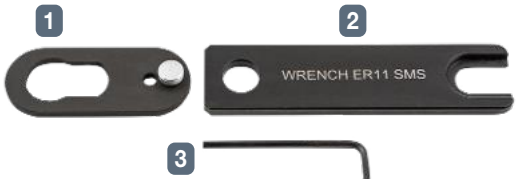
Table 1. – General operating parameters

SPIN-JET-HPC LINE Spindle Applications

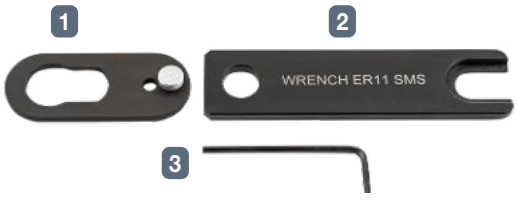
Drilling	
Thread Milling	
Milling	
Engraving & Chamfering	
Grinding	

SPINJET

HSM Jet Spindle with mounting adaptation options (for illustration purposes only)

Spindle Case Contents	Display Case Contents
1 TJS Shaft Lock Key HPC 2 Wrench ERSMS 3 HW2.Hex (Allen) key	**For Europe:** 1 TJS TSD display EUR - wireless RPM display 2 TJS DISP. power supply EUR - AC/DC 5V **For USA/Japan:** 1 TJS TSD display - USA 2 TJS DISP. power supply - USA - AC/DC 5V
	

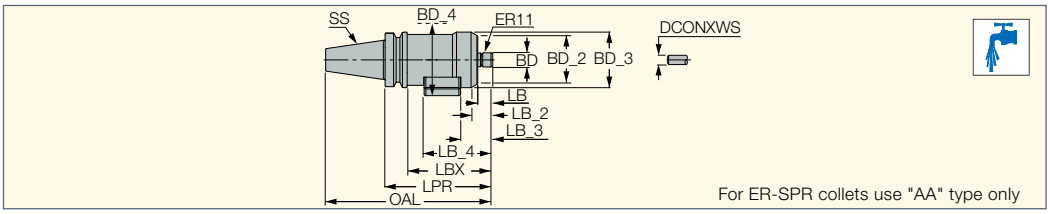
Shaft lock flat key and wrench

Spindle Case Contents	Display Case Contents
1 TJS Shaft Lock Key GJET 2 Wrench ERSMS 3 HW2.Hex (Allen) key	**For Europe:** 1 TJS TSD display EUR - wireless RPM display 2 TJS DISP. power supply EUR - AC/DC 5V **For USA/Japan:** 1 TJS TSD display - USA 2 TJS DISP. power supply - USA - AC/DC 5V
	

Shaft lock flat key and wrench

BT MAS SPINJET

TJS-GJET-BT
Coolant Driven High Speed Compact Spindles with BT Shanks



Designation	BD	BD_2	BD_3	BD_4	LB	LB_2	LB_3	LB_4	LBX	SS	LF	LPR	DCONXWS(1)	OAL	RPMN(2)	RPMX(3)	DCP(4)	kg
TJS GJET BT30	16.00	54.25	63.00	81.00	17.00	24.58	36.24	77.84	109.00	30	124.00	141.00	7.00	189.00	35000	55000	0	1.60
TJS GJET BT40	16.00	54.25	63.00	81.00	17.00	24.58	36.44	77.84	97.04	40	107.00	124.00	7.00	189.00	35000	55000	0	1.80

- Minimum coolant pressure 20 bar and flow rate 12 l/min
- The spindle provides only external strong coolant jet around the tool
- Battery not supplied
- For user guide, see pages 790-792

(1) Maximum tool shank diameter
(2) Minimum RPM
(3) Maximum RPM
(4) 1 - Slot for data chip, 0 - Without slot for data chip

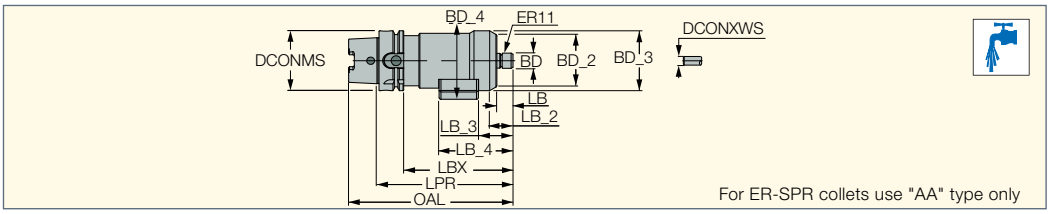
Spare Parts

Designation					
TJS-GJET-BT	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	TJS SHAFT LOCK KEY	TJS TSD DISPLAY*

* Optional, to be ordered separately

HSK SPINJET

TJS-GJET-HSK A63
Coolant Driven High Speed Compact Spindles with HSK Shanks



Designation	BD	BD_2	BD_3	BD_4	LB	LB_2	LB_3	LB_4	LBX	DCONMS	LPR	OAL	DCONXWS(1)	RPMN(2)	RPMX(3)	DCP(4)	kg
TJS GJET HSK A63	16.00	54.25	63.00	81.00	17.00	24.58	36.24	77.84	115.00	63.00	141.00	173.00	7.00	35000	55000	0	1.80

- Minimum coolant pressure 20 bar and flow rate 12 l/min
- The spindle provides only external strong coolant jet around the tool
- Battery not supplied
- For user guide, see pages 790-792

(1) Maximum tool shank diameter
(2) Minimum RPM
(3) Maximum RPM
(4) 1 - Slot for data chip, 0 - Without slot for data chip

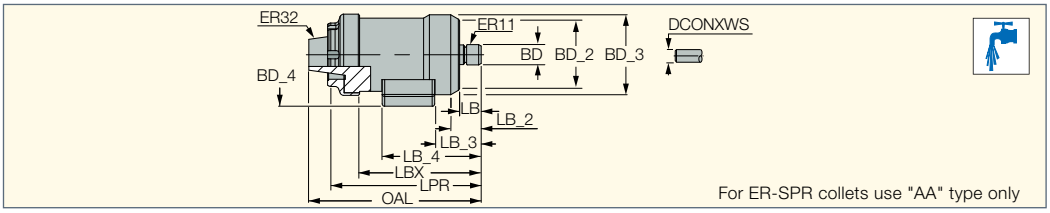
Spare Parts

Designation					
TJS-GJET-HSK A63	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	TJS SHAFT LOCK KEY	TJS TSD DISPLAY*

* Optional, to be ordered separately

SPINJET

TJS-GJET-ER32
Coolant Driven High Speed Compact Spindles with ER32 Shanks



Designation	BD	BD_2	BD_3	BD_4	LB	LB_2	LB_3	LB_4	LBX	LPR	OAL	DCONXWS(1)	RPMN(2)	RPMX(3)	DCP(4)	kg
TJS GJET ER32	16.00	54.92	63.00	81.00	17.00	24.00	36.44	78.00	95.84	109.00	138.00	7.00	35000	55000	0	1.30

- Minimum coolant pressure 20 bar and flow rate 12 l/min
- The spindle provides only external strong coolant jet around the tool
- Battery not supplied
- Recommended tightening torque for NUT ER GHS 10 NM
- For user guide, see pages 790-792

(1) Maximum tool shank diameter
(2) Minimum RPM
(3) Maximum RPM
(4) 1 - Slot for data chip, 0 - Without slot for data chip

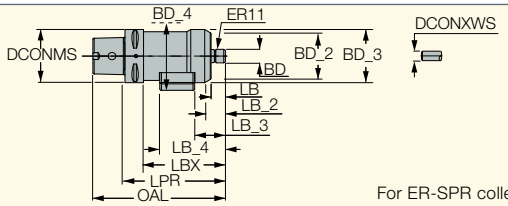
Spare Parts

Designation					
TJS-GJET-ER32	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	TJS SHAFT LOCK KEY	TJS TSD DISPLAY*

* Optional, to be ordered separately

CAMFIX SPINJET

TJS-GJET-C#
Coolant Driven High Speed Compact Spindles with CAMFIX (ISO 26623-1) Shanks



For ER-SPR collets use "AA" type only

Designation	BD	BD_2	BD_3	BD_4	LB	LB_2	LB_3	LB_4	LBX	LPR	OAL	DCONXWS(1)	DCONMS	LF	DCP(2)	RPMN(3)	RPMX(4)	kg
TJS GJET C5	16.00	54.25	63.00	81.00	17.00	24.58	36.24	77.84	109.00	129.00	159.00	7.00	50.00	112.00	0	35000	55000	1.50
TJS GJET C6	16.00	54.25	63.00	81.00	17.00	24.54	36.20	77.80	97.00	119.00	157.00	7.00	63.00	102.00	0	35000	55000	1.60

- Minimum coolant pressure 20 bar and flow rate 12 l/min
- The spindle provides only external strong coolant jet around the tool
- Battery not supplied
- For user guide, see pages 790-792

(1) Maximum tool shank diameter
(2) 1 - Slot for data chip, 0 - Without slot for data chip
(3) Minimum RPM
(4) Maximum RPM

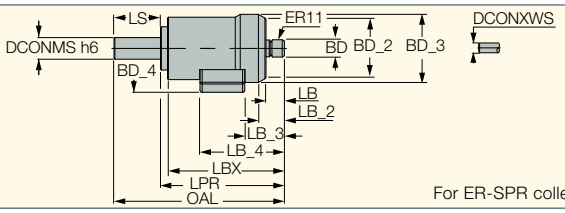
Spare Parts

Designation						
TJS GJET C5	TJS SHAFT LOCK KEY	TJS TSD DISPLAY*	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	COOLING TUBE C5*
TJS GJET C6	TJS SHAFT LOCK KEY	TJS TSD DISPLAY*	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	COOLING TUBE C6*

* Optional, to be ordered separately

Straight Shank SPINJET

TJS-GJET-ST
Coolant Driven High Speed Compact Spindles with Cylindrical Shanks



For ER-SPR collets use "AA" type only

Designation	BD	BD_2	BD_3	BD_4	LB	LB_2	LB_3	LB_4	LBX	LPR	OAL	DCONXWS(1)	LS	RPMN(2)	RPMX(3)	DCP(4)	kg
TJS GJET ST20	16.00	54.92	63.00	81.00	17.00	24.00	36.44	78.00	108.00	115.00	158.00	7.00	43.0	35000	55000	0	1.20

- Minimum coolant pressure 20 bar and flow rate 12 l/min
- The spindle provides only external strong coolant jet around the tool
- Battery not supplied
- For user guide, see pages 790-792

(1) Maximum tool shank diameter
(2) Minimum RPM
(3) Maximum RPM
(4) 1 - Slot for data chip, 0 - Without slot for data chip

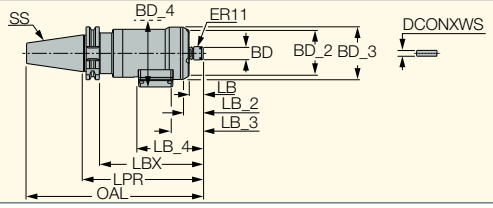
Spare Parts

Designation					
TJS-GJET-ST	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	TJS SHAFT LOCK KEY	TJS TSD DISPLAY*

* Optional, to be ordered separately

DIN69871 SPINJET

TJS-GJET-DIN69871
Coolant Driven High Speed Compact Spindles with DIN69871 Shank



Designation	SS	BD	BD_2	BD_3	BD_4	LB	LB_2	LB_3	LB_4	LBX	LPR	OAL	DCONXWS(1)	RPMN(2)	RPMX(3)
TJS GJET DIN69871 30	30	16.00	54.69	63.00	81.00	17.00	24.20	36.24	77.84	125.00	144.00	192.00	7.00	35000	55000
TJS GJET DIN69871 40	40	16.00	54.69	63.00	81.00	17.00	24.20	36.24	77.84	125.00	144.00	212.54	7.00	35000	55000

- Minimum coolant pressure 20 bar and flow rate 12 l/min
- The spindle provides only external strong coolant jet around the tool
- Battery not supplied
- For user guide, see pages 790-792

(1) Maximum diameter
(2) Minimum RPM
(3) Maximum RPM

Spare Parts

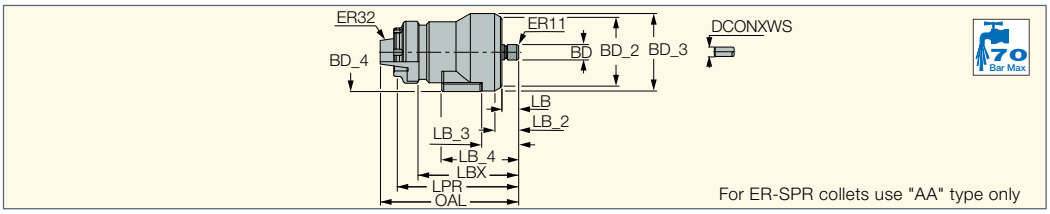
Designation					
TJS-GJET-DIN69871	TJS SHAFT LOCK KEY	NUT ER11 GHS	WRENCH ER11 SMS	TJS TSD DISPLAY*	HW 2.0

* Optional, to be ordered separately

SPINJET

TJS HPC ER

High-Pressure Coolant Driven HSM Spindle with ER32 Shank for Small Diameter Cutting Tools



Designation	BD	BD_2	BD_3	BD_4	LB	LB_2	LB_3	LB_4	LBX	LPR	OAL	SS	DCONXWS(1)	RPMN(2)	RPMX(3)	DCP(4)	kg
TJS HPC ER32	16.00	71.25	80.00	81.00	17.31	24.89	37.81	79.41	103.00	114.21	143.00	ER32	7.00	25000	45000	0	1.70

- Coolant pressure 15-70 bar and flow rate 10-22 l/min • RPM range 20,000-45,000 RPM • The spindle provides only external strong coolant jet around the tool
- Battery not supplied • For user guide, see pages 790-792

(1) Maximum diameter
(2) Minimum RPM
(3) Maximum RPM
(4) 1 - Slot for data chip, 0 - Without slot for data chip

Spare Parts

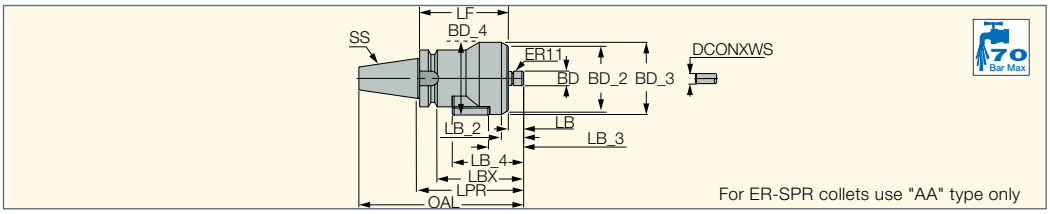
Designation					
TJS HPC ER	TJS TSD DISPLAY*	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	TJS SHAFT LOCK KEY

* Optional, to be ordered separately

BT MAS SPINJET

TJS HPC BT

High-Pressure Coolant Driven HSM Spindle with BT Shank for Small Diameter Cutting Tools



Designation	BD	BD_2	BD_3	BD_4	LB	LB_2	LB_3	LB_4	LBX	SS	LF	LPR	DCONXWS(1)	OAL	RPMN(2)	RPMX(3)	DCP(4)	kg
TJS HPC BT30	16.00	71.25	80.00	81.00	17.00	24.58	37.50	79.10	90.30	BT30	119.00	136.00	7.00	185.00	25000	45000	0	0.00
TJS HPC BT40	16.00	71.25	80.00	81.00	17.00	24.58	37.50	79.10	90.30	BT40	100.00	117.00	7.00	183.00	25000	45000	0	1.90

- Coolant pressure 15-70 bar and flow rate 10-22 l/min • RPM range 20,000-45,000 RPM • The spindle provides only external strong coolant jet around the tool
- Battery not supplied • For user guide, see pages 790-792

(1) Maximum diameter
(2) Minimum RPM
(3) Maximum RPM
(4) 1 - Slot for data chip, 0 - Without slot for data chip

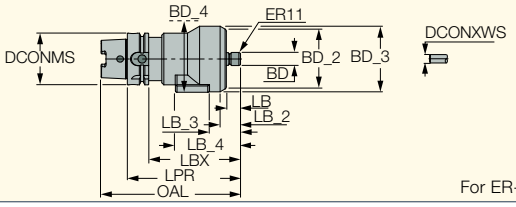
Spare Parts

Designation					
TJS HPC BT	TJS TSD DISPLAY*	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	TJS SHAFT LOCK KEY

* Optional, to be ordered separately

HSK SPINJET

TJS HPC HSK
High-Pressure Coolant Driven HSM Spindle with HSK Shank for Small Diameter Cutting Tools



Designation	BD	BD_2	BD_3	BD_4	LB	LB_2	LB_3	LB_4	LBX	DCONMS	DCONXWS(1)	LF	LPR	OAL	RPMN(2)	RPMX(3)	DCP(4)	kg
TJS HPC HSK A63	16.00	71.30	80.00	81.00	17.30	24.90	37.80	79.40	112.00	63.00	7.00	121.00	138.00	170.00	25000	45000	0	2.00

- Coolant pressure 15-70 bar and flow rate 10-22 l/min • RPM range 20,000-45,000 RPM • The spindle provides only external strong coolant jet around the tool
- Battery not supplied • For user guide, see pages 790-792

(1) Maximum diameter
(2) Minimum RPM
(3) Maximum RPM
(4) 1 - Slot for data chip, 0 - Without slot for data chip

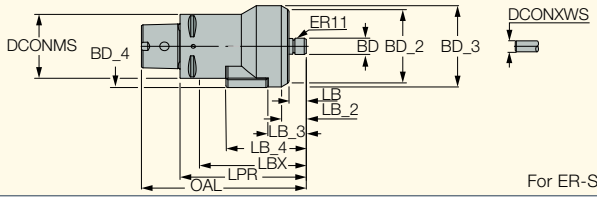
Spare Parts

Designation					
TJS HPC HSK	TJS TSD DISPLAY*	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	TJS SHAFT LOCK KEY

* Optional, to be ordered separately

CAMFIX SPINJET

TJS HPC C#
High-Pressure Coolant Driven HSM Spindle with CAMFIX Shank for Small Diameter Cutting Tools



Designation	BD	BD_2	BD_3	BD_4	LB	LB_2	LB_3	LB_4	LBX	LPR	OAL	DCONMS	DCONXWS(1)	RPMN(2)	RPMX(3)	DCP(4)	kg
TJS HPC C6	16.00	71.25	80.00	81.00	17.00	24.58	37.50	79.10	114.30	124.30	159.00	63.00	7.00	25000	45000	0	2.00

- Coolant pressure 15-70 bar and flow rate 10-22 l/min • RPM range 20,000-45,000 RPM • The spindle provides only external strong coolant jet around the tool
- Battery not supplied • For user guide, see pages 790-792

(1) Maximum diameter
(2) Minimum RPM
(3) Maximum RPM
(4) 1 - Slot for data chip, 0 - Without slot for data chip

Spare Parts

Designation						
TJS HPC C#	NUT ER11 GHS	WRENCH ER11 SMS	TJS TSD DISPLAY*	HW 2.0	TJS SHAFT LOCK KEY	COOLING TUBE C6*

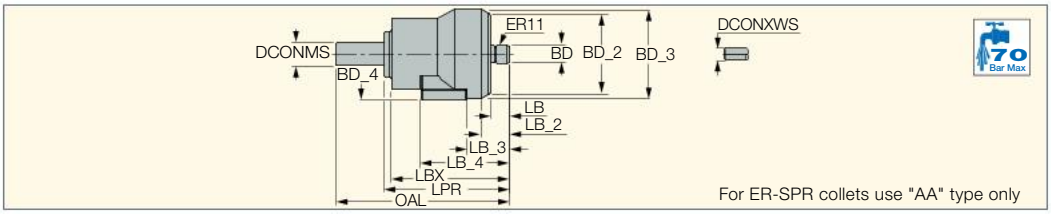
* Optional, to be ordered separately

Straight Shank

SPINJET

TJS HPC ST

High-Pressure Coolant Driven HSM Spindle with Straight Shank for Small Diameter Cutting Tools



Designation	BD	BD_2	BD_3	BD_4	LB	LB_2	LB_3	LB_4	LBX	LPR	OAL	DCONMS	DCONXWS(1)	RPMN(2)	RPMX(3)	DCP(4)	kg
TJS HPC ST20	16.00	71.25	80.00	81.00	17.00	24.58	37.50	79.10	105.30	111.84	155.00	20.00	7.00	25000	45000	0	1.50

- Coolant pressure 15-70 bar and flow rate 10-22 l/min • RPM range 20,000-45,000 RPM • The spindle provides only external strong coolant jet around the tool
- Battery not supplied • For user guide, see pages 790-792

(1) Maximum diameter
(2) Minimum RPM
(3) Maximum RPM
(4) 1 - Slot for data chip, 0 - Without slot for data chip

Spare Parts

Designation					
TJS HPC ST	NUT ER11 GHS	WRENCH ER11 SMS	TJS TSD DISPLAY*	HW 2.0	TJS SHAFT LOCK KEY

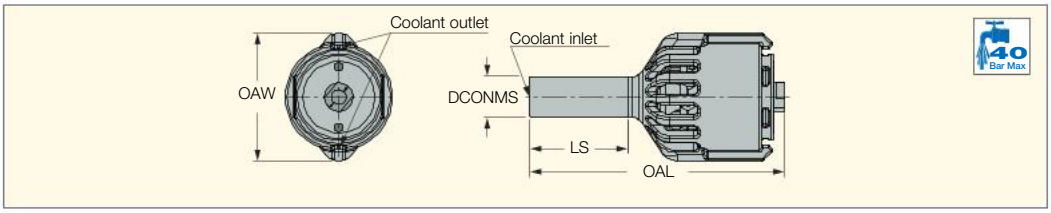
* Optional, to be ordered separately

Straight Shank

SPINJET

TJS M00 ST

High-Pressure Coolant Driven HSM Spindle with a Straight Shank for Small Diameter Cutting Tools



Designation	LS	OAL	OAW	DCONMS
TJS M00-3.0	23.8	61.80	31.00	10.00

New

Spare Parts

Designation							
TJS M00-3.0	TJS-COLLET 1.6*	TJS-COLLET 2.0*	TJS-COLLET 3.0	TJS-COLLET 1/8*	TJS MJ-WRENCH-COLLET	TJS MJ-SHAFT-LOCK	TJS MJ-PLUG COOLANT

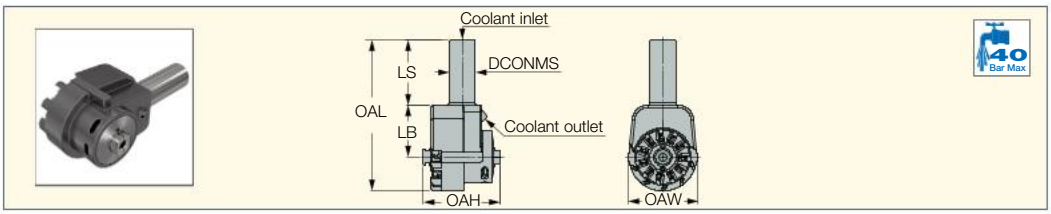
* Optional, to be ordered separately

Straight Shank

SPINJET

TJS M90 ST

High-Pressure Coolant Driven HSM Spindle with a Straight Shank for Small Diameter Cutting Tools



Designation	LS	LB	OAL	OAH	OAW	DCONMS
TJS M90-3.0	25.0	20.00	58.00	29.00	27.00	10.00

New

Spare Parts

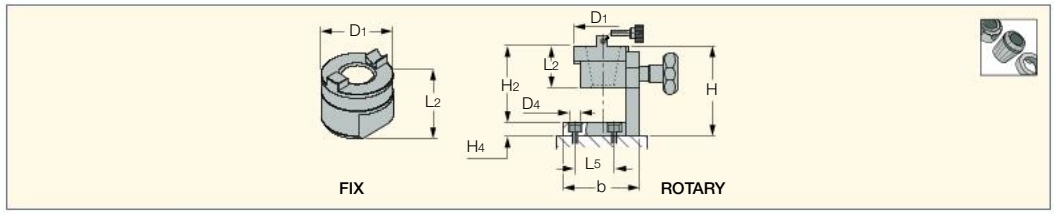
Designation					
TJS M90-3.0	TJS-COLLET 3.0	TJS-COLLET 1.6*	TJS-COLLET 2.0*	TJS-COLLET 1/8*	TJS MJ90 WRENCH-2430

* Optional, to be ordered separately

AUXILIARY DEVICES

Accessories

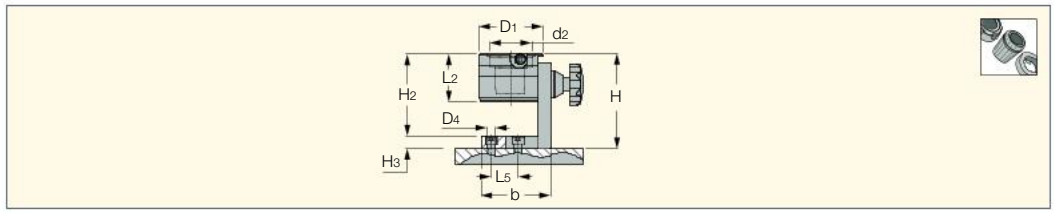
TOOL CLAMP
Tool Clamp Fixture for
ISO, DIN 69871 and BT
MAS-403 Tool Shanks



Designation	CSI	D1	L2	H	H2	H4	b	L5	D4
TOOL CLAMP 30 ROTARY	ROTARY	70.00	56.00	128.0	109.0	19.0	104.0	40.00	12.50
TOOL CLAMP 40 ROTARY	ROTARY	82.00	56.00	128.0	109.0	19.0	104.0	40.00	12.50
TOOL CLAMP 50 ROTARY	ROTARY	103.00	71.00	170.0	151.0	19.0	144.0	85.00	12.50
TOOL CLAMP 30 FIX	FIX	82.00	58.00	-	-	-	-	-	-
TOOL CLAMP 40 FIX	FIX	82.00	58.00	-	-	-	-	-	-
TOOL CLAMP 50 FIX	FIX	103.00	71.00	-	-	-	-	-	-

Accessories

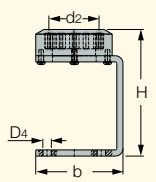
MULTI-CLAMP C#
Rotary Clamping Fixtures
for CAMFIX (ISO 26623-1)
Tapered Shank Toolholders



Designation	S. Std.	SS	d2	D1	L2	H	H2	H3	b	L5	D4
MULTI CLAMP C3	C3	32	32.00	70.00	64.00	128.0	109.0	19.0	104.0	40.00	12.50
MULTI CLAMP C4	C4	40	40.00	78.00	67.00	137.0	118.0	19.0	104.0	40.00	12.50
MULTI CLAMP C5	C5	50	50.00	82.00	72.00	142.0	123.0	19.0	104.0	40.00	12.50
MULTI CLAMP C6	C6	63	63.00	95.00	72.00	142.0	123.0	19.0	104.0	40.00	12.50
MULTI CLAMP C8	C8	80	80.00	130.00	90.00	178.0	159.0	19.0	104.0	85.00	12.50

Accessories

MULTI-CLAMP UNIVERSAL
Universal Rotary Clamping Fixtures for a Variety of Taper Shank Toolholders



Designation	CSI	d2	H	b	D4
MULTI CLAMP 40 UNIVERSAL	40	40.00	161.0	112.0	11.00
MULTI CLAMP 50 UNIVERSAL	50	50.00	161.0	112.0	11.00
MULTI CLAMP 63 UNIVERSAL	63	63.00	164.0	113.0	11.00
MULTI CLAMP 80 UNIVERSAL	80	80.00	240.0	150.0	11.00
MULTI CLAMP 100 UNIVERSAL	100	100.00	240.0	150.0	11.00

Mounting table for standard tool holder taper types

Designation	HSK A/C/E/F	CAMFIX	BT	DIN69871	CAT	IM	DIN2080
MULTI CLAMP 40 UNIVERSA	HSK 40	C4				IM 40	
MULTI CLAMP 50 UNIVERSAL	HSK 50	C5		SK 30		IM 50	DIN2080 30
MULTI CLAMP 63 UNIVERSAL	HSK 63	C6	BT 40	SK 40	CAT 40	IM 63	DIN2080 40
MULTI CLAMP 80 UNIVERSAL	HSK 80	C8				IM 80	
MULTI CLAMP100 UNIVERSAL	HSK 100	C10	BT 50	SK 50	CAT 50		

Electrical Nut-Clamp Torque Control Device

- Ensures controlled (proper) clamping of cutting tools
- Maintains collet chuck accuracy
- Easy clamping and unclamping of cutting tools
- Handy set for various collet chuck sizes
- Main spindle taper #50
- Suitable for main shank standards #40, #50, HSK 63, HSK 100

Table Model

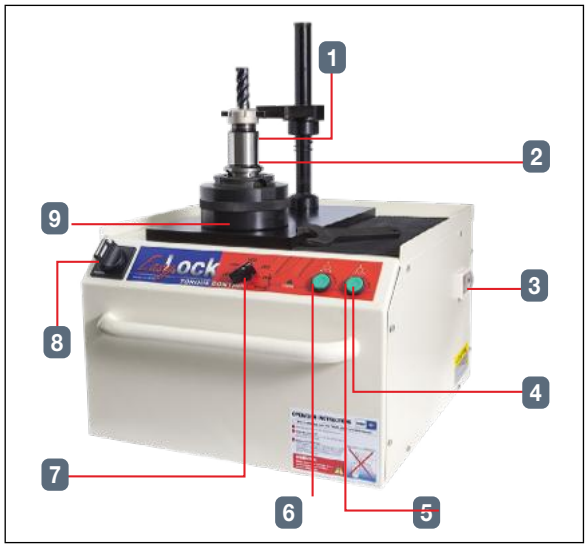
Specifications	
Euro Motor	1 phase 200/240V 50/60 HZ 1 HP
Weight	Table model - 85 kg. Trolley (optional) - 15 kg.

EASYLOCK Unit

Designation	Accessories	
	Standard	Optional
EASY LOCK T.C. EU	TP50 AD 40 EASY	EASY LOCK TROLLEY
	WRENCH ER16 EASY LOCK	TP40 AD 30 EASY
	WRENCH ER20 EASY LOCK	TP50 AD HSK 63 EASY
	WRENCH ER25 EASY LOCK	TP50 AD HSK 100 EASY
	WRENCH ER32 EASY LOCK	
	WRENCH ER40 EASY LOCK	WRENCH ER50 EASY LOCK
		WRENCH TG100 OPEN EASY
		WRENCH ROLLER 20/32

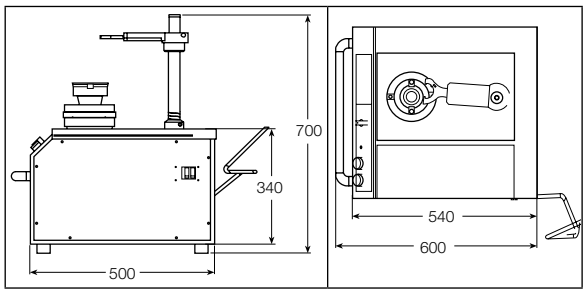
Power Clamping Unit for Collet Chucks

Safety precautions: never hold or touch the cutting tool, chuck or machine spindle during operation.

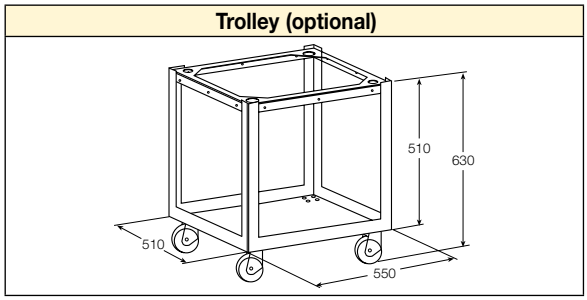


Note: Assemble the collet and cutting tool. By hand, place the nut onto the collet chuck.

1. Choose the correct wrench size. Mount it on the wrench holder.
2. Place the wrench on the collet chuck nut.
3. Ensure that main power switch is on and that the power supply cable is connected.
4. To clamp - Push and hold the "clamp" button until the bottom light goes off.
5. To unclamp - Push and hold the "unclamp" button until the collet chuck is totally open.
6. Power Lamp
7. Torque Selector NEW
8. Main switch
9. Mount the collet chuck into the unit spindle.



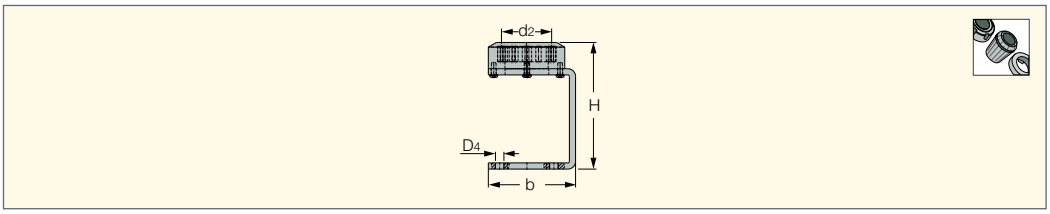
Trolley (optional)



ACCESSORIES & SPARE PARTS

Accessories

MULTI-CLAMP UNIVERSAL
Universal Clamping Fixtures
for a Variety of Taper
Shank Toolholders



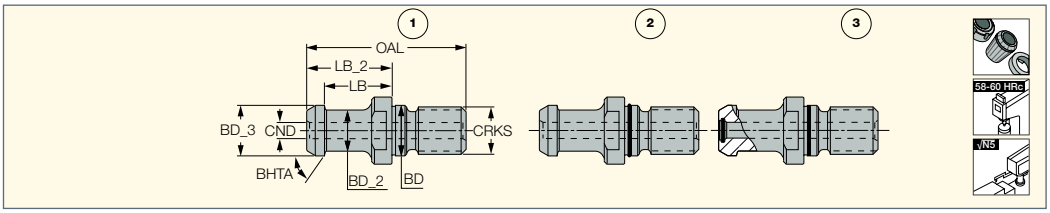
Designation	CSI	d2	H	b	D4
MULTI CLAMP 40 UNIVERSAL	40	40.00	161.0	112.0	11.00
MULTI CLAMP 50 UNIVERSAL	50	50.00	161.0	112.0	11.00
MULTI CLAMP 63 UNIVERSAL	63	63.00	164.0	113.0	11.00
MULTI CLAMP 80 UNIVERSAL	80	80.00	240.0	150.0	11.00
MULTI CLAMP 100 UNIVERSAL	100	100.00	240.0	150.0	11.00

Mounting table for standard tool holder taper types

Designation	HSK A/C/E/F	CAMFIX	BT	DIN69871	CAT	IM	DIN2080
MULTI CLAMP 40 UNIVERSA	HSK 40	C4				IM 40	
MULTI CLAMP 50 UNIVERSAL	HSK 50	C5		SK 30		IM 50	DIN2080 30
MULTI CLAMP 63 UNIVERSAL	HSK 63	C6	BT 40	SK 40	CAT 40	IM 63	DIN2080 40
MULTI CLAMP 80 UNIVERSAL	HSK 80	C8				IM 80	
MULTI CLAMP100 UNIVERSAL	HSK 100	C10	BT 50	SK 50	CAT 50		

Accessories

PS BT-JIS (Pull Stud)
BT Pull Stud with JIS 6339
Retention Knob

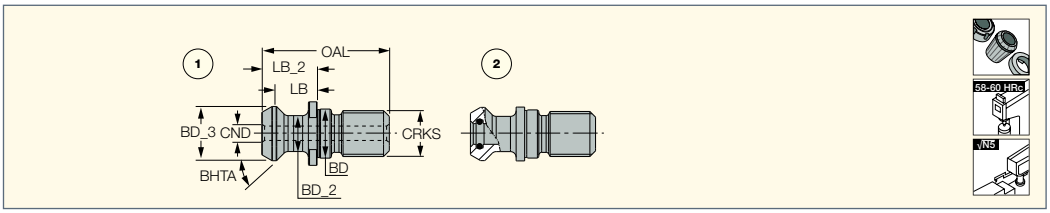


Designation	SS	CRKS	BD_3	BD_2	BD	CND[3]	LB	OAL	LB_2	BHTA	Fig.	CSP[4]
PS BT30 15 M12 JISB	30	M12	12.00	8.00	12.50	4.0	18.40	43.0	23.40	75.0	1.	1
PS BT40 15 M16 JIS 4OB [1]	40	M16	19.00	14.00	17.00	4.0	23.00	54.0	29.00	75.0	2.	1
PS BT40 15 M16 JISB	40	M16	19.00	14.00	17.00	5.5	23.00	54.0	29.00	75.0	1.	1
PS BT40 15 M16 JISOB	40	M16	19.00	14.00	17.00	5.5	23.00	54.0	29.00	75.0	2.	1
PS BT40 15 M16 JISOBO [2]	40	M16	19.00	14.00	17.00	6.0	23.00	54.0	29.00	75.0	3.	1
PS BT50 15 M24 JIS B	50	M24	28.00	21.00	25.00	8.0	25.00	74.0	34.00	75.0	1.	1
PS BT50 15 M24 JIS OB	50	M24	28.00	21.00	25.00	8.0	25.00	74.0	34.00	75.0	2.	1

• Fig 1: With coolant holes only • Fig 2: With coolant holes and external O-ring • Fig 3: With coolant holes, external and internal O-rings
[1] 4 mm through hole for OKUMA machines
[2] For DMG MORI machines
[3] Coolant entry diameter
[4] 0 - Without coolant supply, 1 - With coolant supply

Accessories

PS BT-MAZAK (Pull Stud)
BT Pull Stud with ANSI Retention
Knob for MAZAK Machines

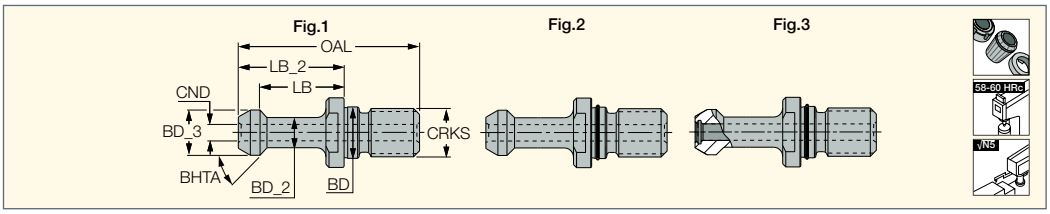


Designation	SS	CRKS	BD_3	BD_2	BD	CND[1]	LB	OAL	LB_2	BHTA	Fig.	CSP[2]
PS BT40 45 M16 MAZAKB	40	M16	18.80	12.40	17.00	7.0	14.03	44.1	19.10	45.0	1	1
PS BT40 45 M16 MAZAKBO	40	M16	18.80	12.40	17.00	7.0	14.03	44.1	19.10	45.0	2	1
PS BT40 90 M16 MAZAK B	40	M16	15.00	10.00	17.00	-	22.60	54.6	29.60	90.0	1	0
PS BT50 45 M24 MAZAKB	50	M24	29.00	20.80	25.00	8.0	17.58	65.2	25.20	45.0	1	1

• Fig 1: With coolant hole only • Fig 2: With coolant hole and internal O-ring
[1] Coolant entry diameter
[2] 0 - Without coolant supply, 1 - With coolant supply

Accessories

PS BT-MAS (Pull Stud)
BT Pull Stud with MAS
Retention Knob



Designation	SS	CRKS	BD_3	BD_2	BD	CND(1)	LB	OAL	LB_2	BHTA	Fig.	CSP(2)
PS BT30 45 M12 MAS1	30	M12	11.00	7.00	12.50	-	18.00	43.0	23.00	45.0	1.	0
PS BT30 45 M12 MAS1B	30	M12	11.00	7.00	12.50	3.0	18.00	43.0	23.00	45.0	1.	1
PS BT30 60 M12 MAS2	30	M12	11.00	7.00	12.50	-	18.00	43.0	23.00	60.0	1.	0
PS BT40 45 M16 MAS1	40	M16	15.00	10.00	17.00	-	28.00	60.0	35.00	45.0	1.	0
PS BT40 45 M16 MAS1B	40	M16	15.00	10.00	17.00	4.0	28.00	60.0	35.00	45.0	1.	1
PS BT40 60 M16 MAS2	40	M16	15.00	10.00	17.00	-	28.00	60.0	35.00	60.0	1.	0
PS BT40 60 M16 MAS2 B	40	M16	15.00	10.00	17.00	5.5	28.00	60.0	35.00	60.0	1.	1
PS BT40 90 M16 MAS3	40	M16	15.00	10.00	17.00	-	28.00	60.0	35.00	90.0	1.	0
PS BT40 90 M16 MAS3 B	40	M16	15.00	10.00	17.00	5.5	28.00	60.0	35.00	90.0	1.	1
PS BT50 45 M24 MAS1	50	M24	23.00	17.00	25.00	-	35.00	85.0	45.00	45.0	1.	0
PS BT50 45 M24 MAS1 B	50	M24	23.00	17.00	25.00	6.0	35.00	85.0	45.00	45.0	1.	1
PS BT50 45 M24 MAS1 OB	50	M24	23.00	17.00	25.00	6.0	35.00	85.0	45.00	45.0	2.	1
PS BT50 45 M24 MAS1 OBO	50	M24	23.00	17.00	25.00	6.0	35.00	85.0	45.00	45.0	3.	1
PS BT50 60 M24 MAS2	50	M24	23.00	17.00	25.00	-	35.00	85.0	45.00	60.0	1.	0
PS BT50 60 M24 MAS2 OB	50	M24	23.00	17.00	25.00	6.0	35.00	85.0	45.00	60.0	2.	1
PS BT50 60 M24 MAS2B	50	M24	23.00	17.00	25.00	6.0	35.00	85.0	45.00	60.0	1.	1
PS BT50 90 M24 MAS3	50	M24	23.00	17.00	25.00	-	35.00	85.0	45.00	90.0	1.	0
PS BT50 90 M24 MAS3 B	50	M24	23.00	17.00	25.00	6.0	35.00	85.0	45.00	90.0	1.	1
PS BT50 90 M24 MAS3 OB	50	M24	23.00	17.00	25.00	6.0	35.00	85.0	45.00	90.0	2.	1
PS BT50 90 M24 MAS3 OBO*	50	M24	23.00	17.00	25.00	8.0	35.00	85.0	45.00	90.0	3.	1

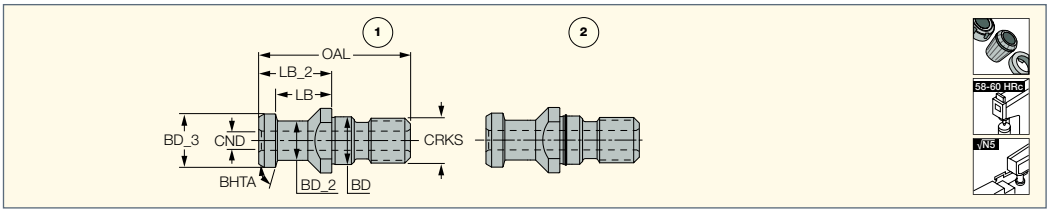
- Fig 1: With or without coolant holes (coolant holes only in items with a B suffix) • Fig 2: With coolant holes and external O-ring
- Fig 3: With coolant holes, external and internal O-rings

(1) Coolant entry diameter

(2) 0 - Without coolant supply, 1 - With coolant supply

Accessories

PS SK-DIN (Pull Stud)
SK Pull Stud with DIN 69872
Retention Knob



Designation	SS	CRKS	BD_3	BD_2	BD	CND(1)	LB	OAL	LB_2	BHTA	Fig.	CSP(2)
PS SK30 15 M12 DIN	30	M12	13.00	9.00	13.00	-	19.00	44.0	24.00	75.0	1.	0
PS SK40 15 M16 DIN	40	M16	19.00	14.00	17.00	-	20.00	54.0	26.00	75.0	1.	0
PS SK40 15 M16 DIN O	40	M16	19.00	14.00	17.00	-	20.00	54.0	26.00	75.0	2.	0
PS SK40 15 M16 DIN OB	40	M16	19.00	14.00	17.00	7.0	20.00	54.0	26.00	75.0	2.	1
PS SK40 15 M16 DINB	40	M16	19.00	14.00	17.00	7.0	20.00	54.0	26.00	75.0	1.	1
PS SK50 15 M24 DIN	50	M24	28.00	21.00	25.00	-	25.00	74.0	34.00	75.0	1.	0
PS SK50 15 M24 DIN O	50	M24	28.00	21.00	25.00	-	25.00	74.0	34.00	75.0	2.	0
PS SK50 15 M24 DINB	50	M24	28.00	21.00	25.00	11.5	25.00	74.0	34.00	75.0	1.	1

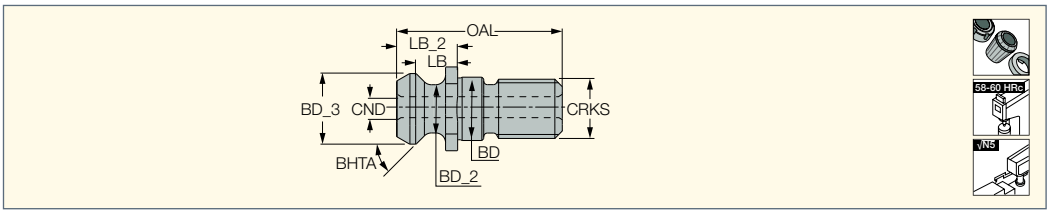
- Coolant holes only in items with a B suffix • Fig 1: Without or with coolant holes • Fig 2: Without or with coolant holes and external O-ring

(1) Coolant entry diameter

(2) 0 - Without coolant supply, 1 - With coolant supply

Accessories

PS CAT-ISO (Pull Stud)
CAT Pull Studs with ISO Retention Knob

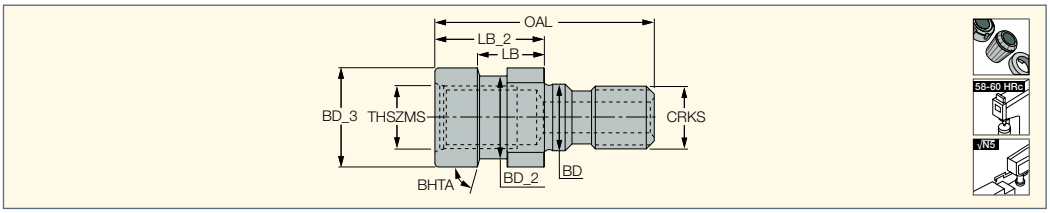


Designation	SS	CRKS	BD_3	BD_2	BD	CND(1)	LB	OAL	LB_2	BHTA	CSP(2)
PS CAT40 45 M16ISOB	40	M16	18.95	12.95	17.00	7.4	11.15	44.5	16.40	45.0	1
PS CAT50 45 M24ISOB	50	M24	29.10	19.60	25.00	8.0	17.95	65.5	25.55	45.0	1

(1) Coolant entry diameter
(2) 0 - Without coolant supply, 1 - With coolant supply

Accessories

PS OTT-BT (Pull Stud)
BT/SK Pull Stud with OTT System Retention Knob

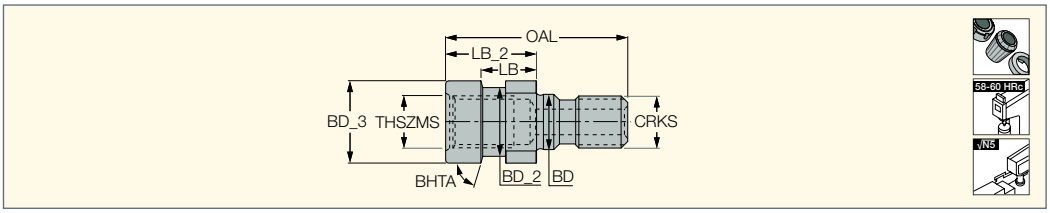


Designation	SS	CRKS	THSZMS	BD_3	BD_2	BD	LB	OAL	LB_2	BHTA	CSP(1)
PS OTT BT40 M16	40	M16	M16	25.00	21.10	17.00	16.60	56.0	28.00	75.0	0
PS OTT BT50 M24	50	M24	M24	39.30	32.00	25.00	13.35	65.0	25.00	75.0	0

(1) 0 - Without coolant supply, 1 - With coolant supply

Accessories

PS OTT-SK (Pull Stud)
SK Pull Stud with OTT System Retention Knob

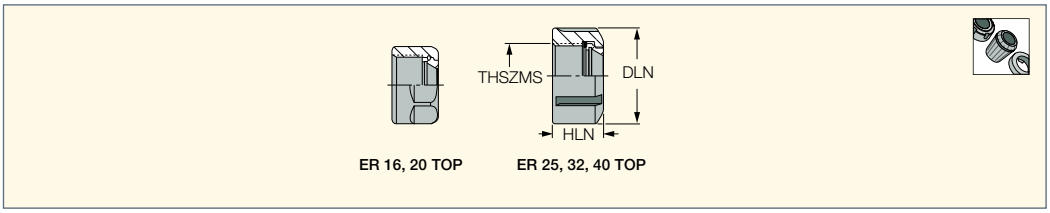


Designation	SS	CRKS	THSZMS	BD_3	BD_2	BD	LB	OAL	LB_2	BHTA	CSP(1)
PS OTT SK40 M16	40	M16	M16	25.00	21.10	17.00	13.00	53.0	25.00	75.0	0

(1) 0 - Without coolant supply, 1 - With coolant supply

Accessories

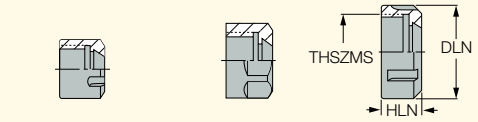
NUT ER-TOP
ER-TOP Clamping Nuts for DIN 6499 Collet Chucks



Designation	DLN	HLN	THSZMS	TQ
NUT ER16 TOP	28.00	17.80	M22X1.5	68.7
NUT ER20 TOP	34.00	19.00	M25X1.5	117.7
NUT ER25 TOP	42.00	20.00	M32X1.5	196.2
NUT ER32 TOP	50.00	22.50	M40X1.5	215.8
NUT ER40 TOP	63.00	25.00	M50X1.5	245.3

Accessories

NUT ER-MINI/UM
Clamping Nuts for DIN 6499
ER Collet Chucks

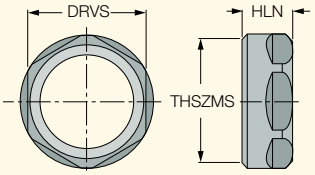


ER 11, 16, 20, 25 Mini | UM ER 16, 20 | UM ER 25, 32, 40, 50

Designation	DLN	HLN	THSZMS	TQ
NUT ER11 MINI	16.00	10.80	M13X0.75	29.4
NUT ER11 UM	19.00	11.30	M14X0.75	49.1
NUT ER16 MINI	22.00	18.00	M19X1.0	39.2
NUT ER16 UM	28.00	17.00	M22X1.5	68.7
NUT ER20 MINI	28.00	19.00	M24X1.0	78.5
NUT ER20 UM	34.00	19.50	M25X1.5	117.7
NUT ER25 MINI	35.00	20.00	M30X1.0	98.1
NUT ER25 UM	42.00	20.00	M32X1.5	196.2
NUT ER32 UM	50.00	22.00	M40X1.5	215.8
NUT ER40 UM	63.00	25.00	M50X1.5	245.3
NUT ER50 UM	78.00	35.00	M64X2.0	343.4

Accessories

NUT ER-SHORT
Nuts for SHORT-IN Short
ER Collet Chucks

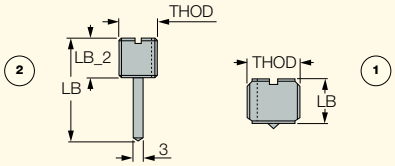


Designation	DRVS[1]	HLN	THSZMS	TQ
NUT ER20 SHORT	22.0	10.70	M25X1.5	117.7
NUT ER32 SHORT	36.0	15.00	M40X1.5	215.8
NUT ER40 SHORT	46.0	16.00	M50X1.5	245.3

[1] Torque key size

Accessories

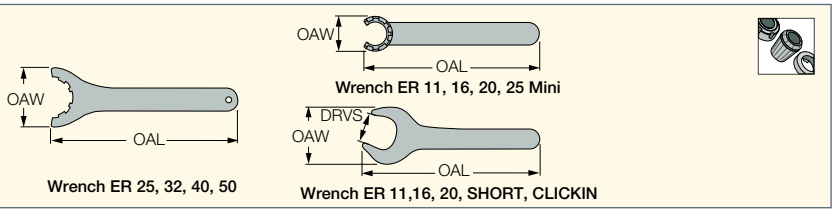
PRESET ER-JET
Preset Screws with Oil Holes
for ER Sealed Collets (optional)



Designation	THOD	LB	LB_2	Fig.
PRESET ER-JET 8X1	M8X1	15.00	-	1.
PRESET ER-JET 8X1.25	M8X1.25	15.00	-	1.
PRESET ER-JET 10X1.5	M10X1.5	15.00	-	1.
PRESET ER-JET 12X1	M12X1	15.00	-	1.
PRESET ER-JET 12X1.75	M12X1.75	15.00	-	1.
PRESET ER-JET 12X1.75L	M12X1.75	40.00	15.0	2.
PRESET ER-JET 14X1	M14X1	15.00	-	1.
PRESET ER-JET 16X2	M16X2	15.00	-	1.
PRESET ER-JET 16X2L	M16X2	40.00	15.0	2.
PRESET ER-JET 18X1	M18X1	15.00	-	1.
PRESET ER-JET 18X1.5	M18X1.5	15.00	-	1.
PRESET ER-JET 18X1.5L	M18X1.5	40.00	15.0	2.
PRESET ER-JET 22X1.5	M22X1.5	15.00	-	1.
PRESET ER-JET 22X1.5L	M22X1.5	40.00	15.0	2.
PRESET ER-JET 28X1.5	M28X1.5	15.00	-	1.

Accessories

WRENCH ER
Wrench for ER DIN 6499
Clamping Nut

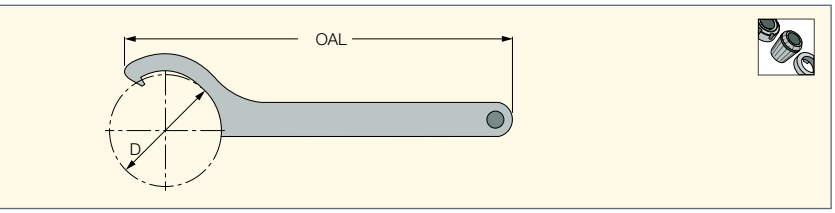


Designation	OAW	DRVS[1]	OAL
WRENCH ER11 MINI	16.80	-	95.00
WRENCH ER11	32.00	17.0	95.00
WRENCH ER16 MINI	22.50	-	117.00
WRENCH ER16	42.80	25.0	143.00
WRENCH ER20 MINI	28.00	-	128.00
WRENCH ER20	53.50	30.0	172.00
WRENCH ER25 MINI	36.00	-	140.00
WRENCH ER25	70.00	-	207.00
WRENCH ER32	78.00	-	255.00
WRENCH ER40	95.00	-	285.00
WRENCH ER50	110.00	-	350.00
WRENCH ER32 SHORT	75.00	36.0	303.00
WRENCH ER40 SHORT	94.00	46.0	378.00
WRENCH ER32 CLICKIN 27	57.00	27.0	239.00
WRENCH ER32 CLICKIN 32	67.00	32.0	273.00

(1) Torque key size

Accessories

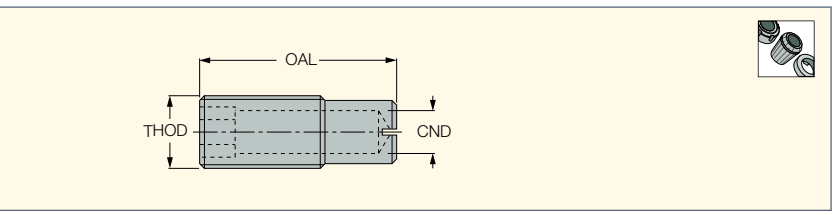
WRENCH MAXIN
Wrench for MAXIN Collets



Designation	D	OAL
WRENCH MAXIN 20 HOOK	52.00	205.00
WRENCH MAXIN 32 HOOK	68.00	240.00

MAXIN

PRESET MAXIN
Tool Stopper Preset Screws
for MAXIN Collet Chucks

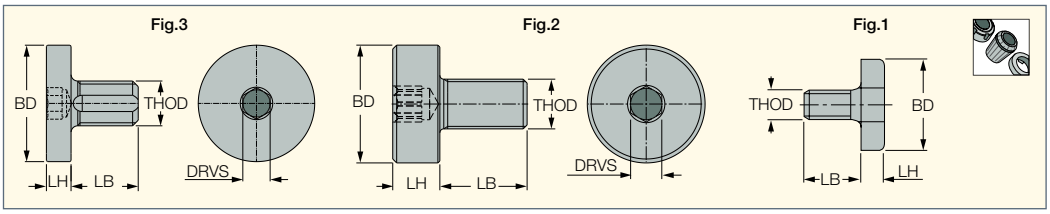


Designation	THOD	OAL	CND[1]	Key
PRESET MAXIN 16X30	M16	30.00	8.0	8.00
PRESET MAXIN 16X44	M16	44.00	8.0	8.00
PRESET MAXIN 20X55	M20	55.00	12.0	12.00

(1) Coolant entry diameter

Accessories

SEM Clamping Screws
Lock Screws DIN 6367 for COMBI Shell Mill Holders



Designation	THOD	BD	LH	LB	DRVS(2)	Fig.
M8 CLAMP SCREW SEM16	M08	20.00	6.0	16.00	-	1
M10 CLAMP SCREW SEM22	M10	28.00	7.0	18.00	-	1
CLAMP SCREW 6368-27-M12 (1)	M12	35.00	9.0	22.00	6.0	2
M12 CLAMP SCREW SEM27	M12	35.00	8.0	22.00	-	1
CLAMP SCREW 6368-32-M16-C	M16	42.00	10.0	26.00	10.0	3
CLAMP SCREW 6368-32-M16 (1)	M16	42.00	10.0	26.00	10.0	2
M16 CLAMP SCREW SEM32	M16	42.00	9.0	26.00	-	1
CLAMP SCREW 6368-40-M20-C	M20	52.00	11.0	30.00	12.0	3
CLAMP SCREW 6368-40-M20 (1)	M20	52.00	11.0	30.00	12.0	2
M20 CLAMP SCREW SEM40	M20	52.00	10.0	30.00	-	1
M24 CLAMP SCREW SEM50	M24	63.00	12.0	36.00	-	1

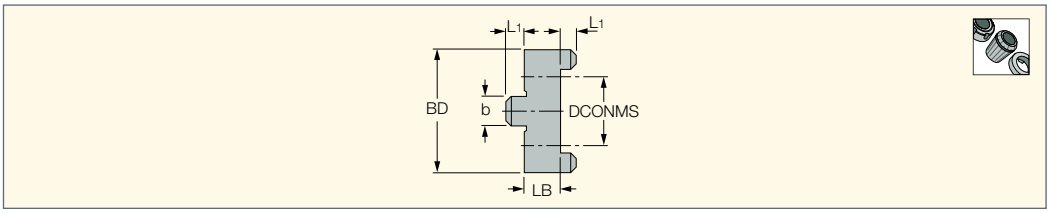
(1) Round head
(2) Torque key size

Spare Parts

Designation	
CLAMP SCREW 6368-32-M16-C	CLAMP SCREW 6368-32-M16
CLAMP SCREW 6368-40-M20-C	CLAMP SCREW 6368-40-M20

Accessories

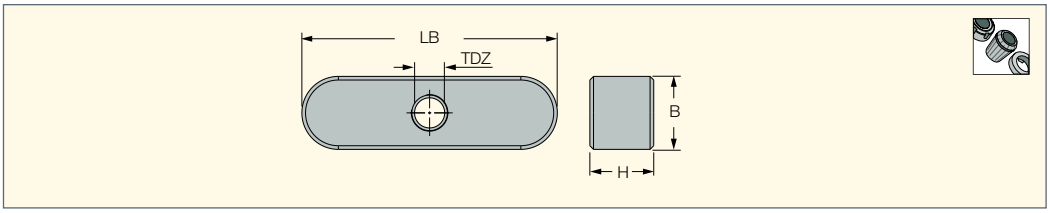
Driving Ring-SEMC
Driving Rings DIN 6366/1 for COMBI Shell Mill Holders



Designation	DCONMS	BD	LB	b	L1
16 D.RING SEMC	16.00	32.00	10.00	8.0	5.0
22 D.RING SEMC	22.00	40.00	12.00	10.0	6.0
27 D.RING SEMC	27.00	48.00	12.00	12.0	6.3
32 D.RING SEMC	32.00	58.00	14.00	14.0	7.0
40 D.RING SEMC	40.00	70.00	14.00	16.0	8.0
50 D.RING SEMC	50.00	90.00	16.00	18.0	9.0

Accessories

KEY-SEMC
Driven Key for COMBI Shell Mill Holders for Assembling Disk Cutters

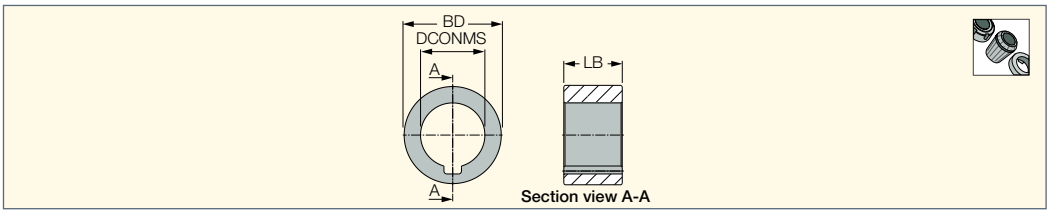


Designation	LB	B	H	TDZ
KEY SEMC 16 4X4X20 (1)	20.00	4.0	4.0	M2
KEY SEMC 22 6X6X25 (2)	25.00	6.0	6.0	M4
KEY SEMC 27 7X7X25 (3)	25.00	7.0	7.0	M4
KEY SEMC 32 8X7X28 (3)	28.00	8.0	7.0	M4
KEY SEMC 40 10X8X32 (3)	32.00	10.0	8.0	M4
KEY SEMC 50 12X8X36 (3)	36.00	12.0	8.0	M4

New
(1) M2x7 connecting screw
(2) M4x4 connecting screw
(3) M4x6 connecting screw

Accessories

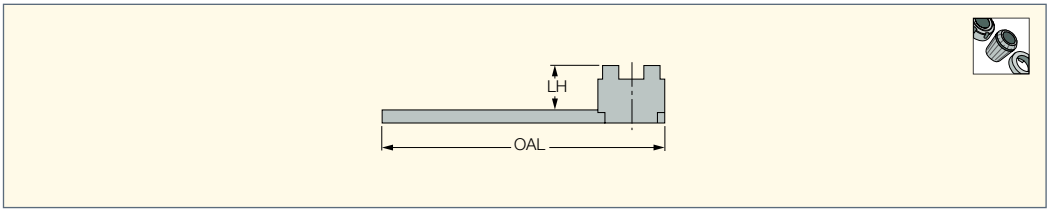
SPACER STUB
Stub Spacer Rings In Accordance with DIN 2084-B Standard



Designation	DCONMS	LB	BD
SPACER STUB 22X2	22.00	2.00	34.00
SPACER STUB 22X5	22.00	5.00	34.00
SPACER STUB 22X6	22.00	6.00	34.00
SPACER STUB 22X20	22.00	20.00	34.00
SPACER STUB 27X2	27.00	2.00	41.00
SPACER STUB 27X4	27.00	4.00	41.00
SPACER STUB 27X6	27.00	6.00	41.00
SPACER STUB 27X8	27.00	8.00	41.00
SPACER STUB 27X10	27.00	10.00	41.00
SPACER STUB 27X20	27.00	20.00	41.00
SPACER STUB 32X1	32.00	1.00	47.00
SPACER STUB 32X2	32.00	2.00	47.00
SPACER STUB 32X4	32.00	4.00	47.00
SPACER STUB 32X5	32.00	5.00	47.00
SPACER STUB 32X20	32.00	20.00	47.00
SPACER STUB 32X30	32.00	30.00	47.00
SPACER STUB 40X2	40.00	2.00	55.00
SPACER STUB 40X4	40.00	4.00	55.00
SPACER STUB 40X5	40.00	5.00	55.00
SPACER STUB 40X6	40.00	6.00	55.00
SPACER STUB 40X10	40.00	10.00	55.00
SPACER STUB 40X20	40.00	20.00	55.00
SPACER STUB 40X30	40.00	30.00	55.00
SPACER STUB 50X1	50.00	1.00	69.00
SPACER STUB 50X3	50.00	3.00	69.00
SPACER STUB 50X5	50.00	5.00	69.00
SPACER STUB 50X20	50.00	20.00	69.00
SPACER STUB 50X30	50.00	30.00	69.00

Accessories

WRENCH SEMC
Wrench DIN 6368 for Face and COMBI Shell Endmill Holders

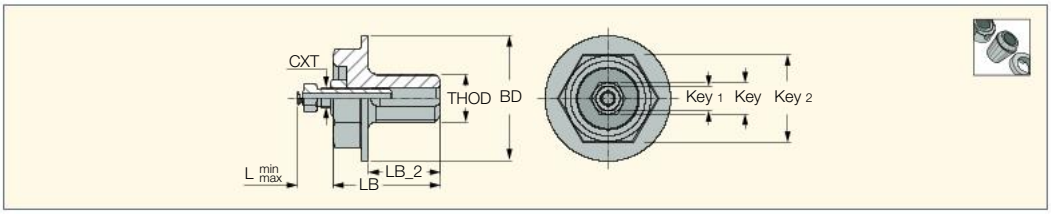


Designation	DRVS[1]	FTDZ	OAL	LH
WRENCH M8 SEMC16	16.0	M8	180.00	20.0
WRENCH M10 SEMC 22	22.0	M10	200.00	25.0
WRENCH M12 SEMC 27	27.0	M12	225.00	32.0
WRENCH M16 SEMC 32	32.0	M16	250.00	36.0
WRENCH M20 SEMC 40	40.0	M20	280.00	40.0
WRENCH M24 SEMC 50	50.0	M24	315.00	50.0

(1) Torque key size

Accessories

COOLANT SET
Clamping Screws with Adjustable Protruding Nozzles for Shell-Type Face Mills



Designation	BD	THOD	CXT	LB	LB_2	L min	L max	Key(1)	Key 1(2)	DRVS(3)
COOLANT SET SR M10X1.5-22	28.00	M10	M4	25.00	18.00	2.0	17.0	7.00	6.00	21.00
COOLANT SET SRM12X1.75-27	35.00	M12	M4	31.00	22.00	2.0	17.0	7.00	6.00	27.00
COOLANT SET SR M16X2-32	42.00	M16	M8	37.00	26.00	3.0	25.0	13.00	10.00	30.00
COOLANT SET SR M20X2.5-40	52.00	M20	M8	45.00	30.00	3.0	25.0	13.00	10.00	36.00

(1) For the nut
(2) For the nozzle
(3) For the screw

Clamping Screws with Adjustable Protrusion Nozzles for Shell-Type Face Mills

The protrusion of the nozzle screw can be easily adjusted according to countersink depth, insert size or any other application requirement. The nozzle screw position can be secured by a locking nut.

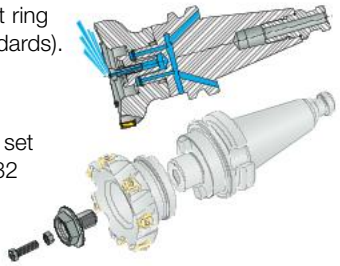
Tests show that cutting fluid supplied through the axis of a tool and directed radially at the bottom of the tool dramatically improves both the cooling effect and chip evacuation.

The screws are offered as sets, comprising a nozzle screw, locking screw, a locking nut and washers.

The locking nut can be tightened by a standard open-ended wrench, or preferably by an offset ring wrench (ISO 10104, DIN 838 or DIN 897 standards).

If desired, the following ring wrenches can also be ordered from **ISCAR**:

- 7000783 Ring Wrench 10X13 mm for coolant set SR M20X2.5-40 and Coolant set SR M16X2-32
- 7000788 Ring Wrench 6X7 mm for coolant set SRM12X1.75-27 and coolant set SR M10X1.5-22.



Assembly with a Lock Nut

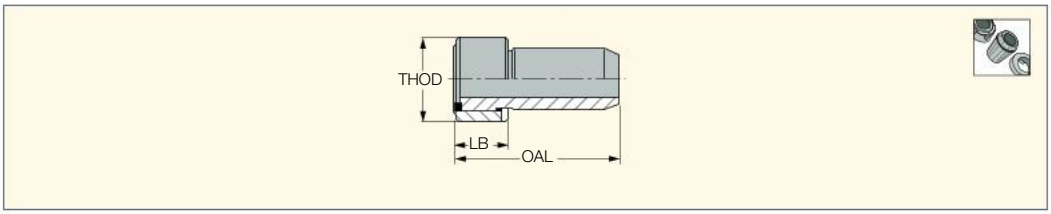
Assembly without a Lock Nut

Spare Parts

Designation			
COOLANT SET SR M10X1.5-22	WASHER FLAT M4 DIN 433	SPRING PLUNGER	
COOLANT SET SRM12X1.75-27	WASHER FLAT M4 DIN 433	SPRING PLUNGER	
COOLANT SET SR M16X2-32	WASHER M8 DIN 433 A2	NOZZLE M8	NUT M8 DIN 934 A2
COOLANT SET SR M20X2.5-40	WASHER M8 DIN 433 A2	NOZZLE M8	NUT M8 DIN 934 A2

Accessories

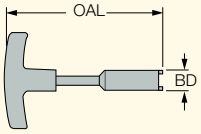
COOLING TUBE HSK-A
Cooling Tubes for HSK-A Shanks



Designation	OAL	LB	THOD
COOLING TUBE HSK A32	26.00	5.5	M10X1
COOLING TUBE HSK A40	29.50	7.5	M12X1
COOLING TUBE HSK A50	33.00	9.5	M16X1
COOLING TUBE HSK A63	36.50	11.5	M18X1
COOLING TUBE HSK A80	40.00	13.5	M20X1.5
COOLING TUBE HSK A100	44.00	15.5	M24X1.5
COOLING TUBE HSK A125	48.00	17.5	M30X1.5

Accessories

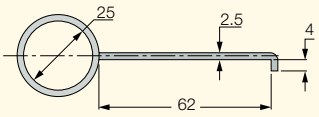
WRENCH HSK
HSK-A Cooling Tube Wrench



Designation	OAL	BD
WRENCH COOL TUBE HSK32	115.00	8.50
WRENCH COOL TUBE HSK40	115.00	10.50
WRENCH COOL TUBE HSK50	115.00	14.50
WRENCH COOL TUBE HSK63	136.00	16.50
WRENCH COOL TUBE HSK80	136.00	18.50
WRENCH COOL TUBE HSK100	136.00	22.00
WRENCH COOL TUBE HSK125	175.00	24.50

Accessories

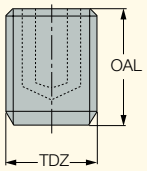
EXTRACTOR SC COLLETS
SC Collet Extraction Hook



Designation	Key
EXTRACTOR SC COLLETS	25

Accessories

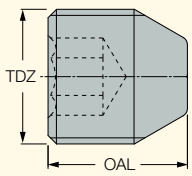
SCREW EM
Lock Screw for Endmill Holder



Designation	TDZ	OAL	SS
SR M6X10 DIN1835B	M6	10.00	6
SR M8X10 DIN1835-B	M8	10.00	8
SR M10X12 DIN1835-B	M10	12.00	10
SR M12X16 DIN1835-B	M12	16.00	12,14
SR M14X16 DIN1835-B	M14	16.00	16,18
SR M16X16 DIN1835-B	M16	16.00	20
SR M18X2X20 DIN1835-B	M18X2	20.00	25
SR M20X2X20 DIN1835-B	M20X2	20.00	32,40
SR M24X2X25 DIN1835-B	M24X2	25.00	50
SR M16X10.3 EM SHORT	M16	10.30	20
SR M18X2X10 EM SHORT	M18X2	10.00	25

Accessories

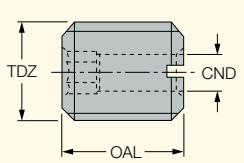
CLICK-FIT LOCKING SCREW
Locking Screw for
CLICK-FIT Holders



Designation	TDZ	OAL	Key
SCREW M16X1.5 FOR CF4	M16X1.5	16.50	8.00
SCREW M18X1.5 FOR CF5	M18X1.5	18.00	10.00

Accessories

SRKIN PRESET SCREW
Preset Screw for SRKIN Thermal Shrink Collets with Coolant Holes



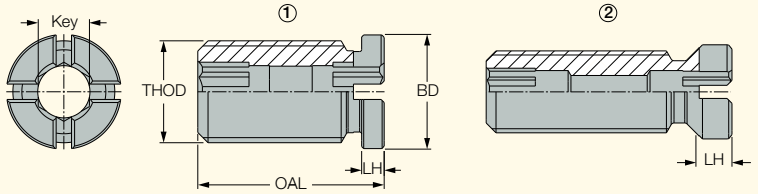
Designation	TDZ	OAL	CND(1)	Key	SS
PRESET M5X18B	M5X0.8	18.00	2.10	2.50	EM E/SRKIN
PRESET M6X20B	M6X1	20.00	2.50	3.00	EM E/SRKIN
PRESET M8X20B	M8X1.25	20.00	3.50	4.00	EM E/SRKIN
PRESET M10X18B	M10X1.5	18.00	4.50	5.00	EM E/SRKIN
PRESET M12X18B	M12X1.75	18.00	5.50	6.00	EM E/SRKIN
PRESET M16X20B	M16X2	20.00	7.50	6.00	EM E/SRKIN
PRESET M16X25B	M16X2	25.00	7.50	6.00	SRKIN

(1) Coolant entry diameter

SHRINKIN

Accessories

PRESET CX
Preset Screws for SRKIN Thermal Shrink Chucks

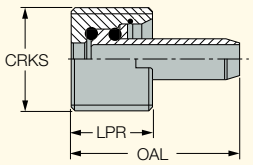


Designation	THOD	OAL	BD	LH	Key	Fig.
PRESET CX M10X16	M10	18.20	11.20	2.2	5.00	1.
PRESET CX M12X16	M12	18.20	15.00	2.2	6.00	1.
PRESET CX M16X14	M16	17.00	18.80	3.0	8.00	1.
PRESET CX M5X5	M5	7.00	6.50	2.5	2.50	2.
PRESET CX M5X13	M5	15.00	5.80	2.2	2.50	2.
PRESET CX M6X12	M6	14.00	8.00	2.0	3.00	1.
PRESET CX M8X16	M8	18.20	9.30	2.2	4.00	1.

New

Accessories

COOLING TUBE C#
Cooling Tubes for CAMFIX (ISO 26623-1) Shanks

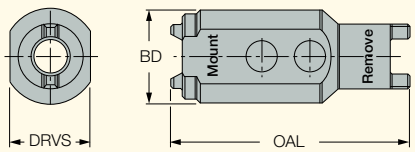


Designation	LPR	CRKS	OAL
COOLING TUBE C4	12.00	M14x1.5	25.40
COOLING TUBE C5	14.00	M16x1.5	28.50
COOLING TUBE C6	15.00	M20x2	31.00
COOLING TUBE C8	15.00	M20x2	31.50

- Refer to machine manual before mounting CAMFIX Cooling Tube
- Check that clamping drawbar has O-ring inside
- Apply Loctite 542 (or equivalent) on coolant tube thread to secure/seal the thread
- Mount cooling tube (ONLY) by using Cooling Tube C# wrench with “mount” side

Accessories

WRENCH COOL TUBE C#
Clamping and Removing Wrenches for CAMFIX (ISO 26623-1) Cooling Tubes



Designation	OAL	BD	DRVS(1)
WRENCH COOL TUBE C4	45.00	17.80	15.0
WRENCH COOL TUBE C5	50.00	20.80	16.9
WRENCH COOL TUBE C6	60.00	27.80	19.0
WRENCH COOL TUBE C8	60.00	31.80	22.0
WRENCH COOL TUBE C10	75.00	42.80	25.9

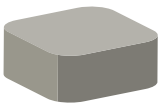
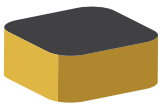
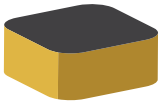
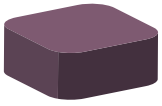
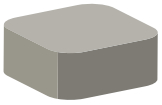
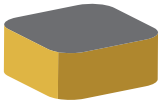
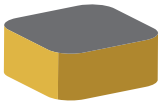
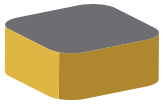
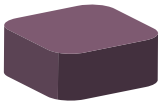
(1) Torque key size

MATERIALS AND GRADES

YOU MACHINING INTELLIGENTLY?

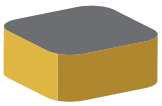
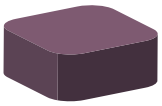
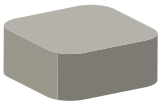
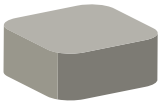
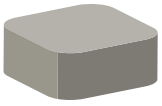
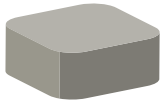
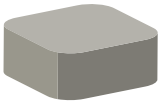
Member IMC Group

Milling Materials Grades Chart

	Grade	ISO	Grade Description	Coating Layers	Coating Color*
PVD COATED	IC328	P25-P40 M30-M40 S20-S30 	A tough substrate with PVD coating, suitable for a wide range of applications on steel and stainless steel at low to medium speeds and medium to high feeds. The grade is recommended for interrupted cuts and machining under unstable conditions.	TiCN Base	
	IC330	P25-P40 M30-M40 S20-S30 	A tough PVD coated grade with SUMOTEC surface treatment. Used for milling a wide range of workpiece materials, at low to medium cutting speeds and for unstable machining conditions.	TiCN Base	
	IC380	 S15-S20 H15-H25	A tough submicron grain size substrate with SUMOTEC PVD coated grade. Used for machining Titanium and heat resistant alloys at medium to high cutting speeds. Excellent resistance to built-up edge, mechanical and thermal shock resistance.	TiCN Base	
	IC608	 M10-M20 K10-K25 S10-S25 H15-H25	A hard submicron grain size substrate with PVD coated. Long tool life and high deformation, oxidation, chipping and wear resistance on a wide range of materials.	TiSiN TiAlSiN AlTiN Base	
	IC716	 S20-S25 	A tough PVD coated grade that provides high wear and chipping resistance. Recommended for Ti alloys machining in variable cutting condition.	TiB_2 Base	
	IC808	P15-P30 M20-M30 K20-K30 S10-S25 H20-H30	A tough hard, submicron grain size substrate with excellent chipping resistance, combined with a SUMOTEC PVD coating. Provides high wear resistance. Recommended for a very wide range of materials.	TiN TiAlN Base	
	IC810	P15-P30 K15-K35 	A SUMOTEC PVD coated grade. Optimal choice for milling nodular cast iron at medium to high cutting speeds.	TiN AlTiCrN Base	
	IC830	P20-P40 M25-M35 S15-S30 	A tough substrate with PVD coating and a special SUMOTEC surface treatment. Suitable for machining steel and stainless steel at low to medium cutting speeds and moderate to high feeds. The grade features high toughness and recommended for interrupted cuts and machining under unstable conditions. May be used on high temperature alloys at low cutting speeds.	TiN TiAlN Base	
	IC840	 M20-M35 S15-S25 	A PVD coated tough grade followed by a special surface treatment. Suitable for milling austenitic stainless steel and high temperature alloys. Recommended for interrupted cuts and heavy operations.	TiSiN TiAlSiN AlTiN Base	

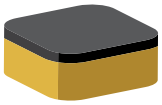
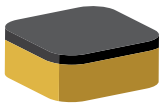
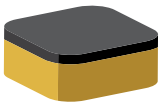
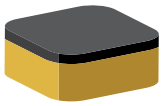
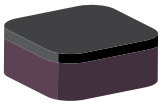
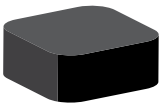
* For coated grades

Milling Materials Grades Chart

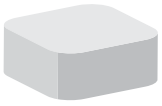
	Grade	ISO	Grade Description	Coating Layers	Coating Color*
PVD COATED	IC845	P25-P45 M25-M40 S20-S30	A PVD coated tough grade followed by a special SUMOTEC surface treatment. Designed for milling alloyed steel, especially when used for interrupted cuts and heavy operations.	TiN AlTiN Base	
	IC882	M25-M40 S20-S30	A grade with a tough substrate, a with PVD coating and a special surface treatment. Designed for machining austenitic stainless steel, Titanium and high temperature alloys, particularly under hard cutting conditions.	TiSiN TiAlSiN AlTiN Base	
	IC900	P15-P30 M20-M30 K20-K30 S10-S25 H20-H30	A tough submicron grain size with a PVD coating coated grade. Suitable for medium to high cutting speeds. Designed for machining various materials like steel, stainless steel, Titanium, and heat resistant alloys.	AlTiN Base	
	IC902	P05-P15 M10-M15 K05-K15 S05-S10 H05-H15	Ultra-fine carbide grain, PVD coated with high resistance to abrasive wear, suitable for machining various materials including hard steel and cast iron, at high cutting speeds.	AlTiN Base	
	IC903	P10-P20 M15-M25 K10-K20 S10-S20 H10-H20	Ultra-fine carbide grain, PVD coated with high wear resistance and toughness. High speed, medium feed. Used for up to 62 HRC hardened steel, Titanium, nickel-based alloys and stainless steel.	AlTiN Base	
	IC908	P15-P30 M20-M30 K20-K30 S10-S25 H20-H30	A tough submicron grain size substrate with PVD coating, recommended for general use in a large variety of operations and materials such as steels, alloy steels, austenitic stainless steel and high temperature alloys at moderate cutting speeds. Features high wear resistance and chipping durability.	TiAlN Base	
	IC910	P15-P30 K15-K35	A PVD coated grade. First choice for milling gray and nodular cast iron at medium to high cutting speeds.	AlTiN Base	
	IC928	P20-P40 M25-M35 S15-S30	A tough substrate with PVD coating, suitable for machining steel and stainless steel at low to medium cutting speeds and moderate to high feeds. The grade is recommended for interrupted cuts and machining under unstable conditions.	AlTiN Base	

* For coated grades

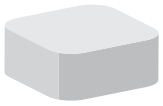
Milling Materials Grades Chart

	Grade	ISO	Grade Description	Coating Layers	Coating Color*
CVD COATED	IC5100	K10-K25	A CVD multi-layer coating with SUMOTEC post coating surface treatment. Recommended for milling grey cast iron at high cutting speeds, and provides extended tool life.	TiN Al_2O_3 TiCN Base	
	IC5400	P10-P20 M10-M25	A tough substrate with MTCVD coating. Recommended for milling steel at high cutting speed and for parting stainless steel.	TiN Al_2O_3 TiCN Base	
	IC5500	P20-P35	A tough substrate with CVD coating. Recommended for machining martensitic stainless steel at high cutting speed. Provides excellent tool life.	TiN Al_2O_3 TiCN Base	
	IC5600	P10-P15	A CVD coated carbide grade with a submicron substrate. Intended for machining steel at high cutting speeds.	TiN Al_2O_3 TiCN Base	
	IC5820	M20-M35 S15-S25	A tough substrate, with a MTCVD coating and special SUMOTEC post coating surface treatment. Designed for machining austenitic stainless steel, Titanium and high temperature alloys.	TiCN Al_2O_3 TiCN Base	
DLC	IC1508	N10-N20	A submicron DLC coated grade for machining mainly aluminum and non-ferrous materials.	DLC Base	

* For coated grades

	Grade	ISO	Grade Description	Uncoated Layers	Uncoated
UNCOATED	IC4	N05-N15 S05-S15	A very hard-uncoated carbide grade, suitable for machining aluminum alloys, aluminum alloys with high silicon content and other non-ferrous materials at high cutting speeds.	Base	
	IC07	M10-M20 N05-N20 S10-S30	A hard-uncoated submicron grain size carbide grade, suitable for machining aluminum alloys and other non-ferrous materials at high cutting speeds.	Base	
	IC08	M10-M30 N10-N25 S10-S30	A tough uncoated submicron grain size carbide grade, suitable for steels, stainless steel and high temperature alloys at low cutting speeds. Good choice for non-ferrous materials.	Base	

Milling Materials Grades Chart

	Grade	ISO	Grade Description	Uncoated Layers	Uncoated
CERMET	IC30N	P10-P30 M10-M20 H10-H25	A tough cermet grade, suitable for machining steels and stainless steel at medium to high cutting speeds and low feeds. Features excellent surface finish, very good wear resistance and prevents built-up edge.	Base	
CBN	IB55	 K05-K15 H10-H25	A PCBN grade, suitable for finishing operations on hardened steels (45-65 HRC) and cast iron in continuous cutting and light interrupted cuts.	Base	
	IB85	 K01-K15 S05-S10 H05-H10	A PCBN grade, used for high speed machining of cast iron, cemented tungsten carbide, sintered metals, and heavy alloys. Excellent for interrupted cutting of hardened steel.	Base	
PCD	ID5	 N01-N10 	A PCD brazed tip, suitable for machining aluminum alloys (Si < 12%) and other non-ferrous materials. Features very high wear resistance with high toughness. Suitable for finishing operations and can be used for semi roughing operations and interrupted cuts.	Base	
CERAMICS	IS35	 S15-S25 	A ceramic SiAlON grade for machining high temperature alloys such as Inconel, Waspaloy and Rene. Provides high hardness with excellent toughness.	Base	
	IS8	 K01-K15 	A silicon nitride (Si_3N_4) grade, suitable for turning and milling applications. Can be used for interrupted cuts on cast iron and nickel-based alloys.	Base	
	IW7	 S10-S20 H05-H25	A whisker-reinforced ceramic grade for machining high temperature alloys and hardened steel at high cutting speeds.	Base	

For complete information regarding ISCAR's ceramic, CBN, and PCD grades, please refer to ISCAR's catalog on the subject.

MATERIAL GROUPS

Based on ISO 513 and VDI 3323 standards

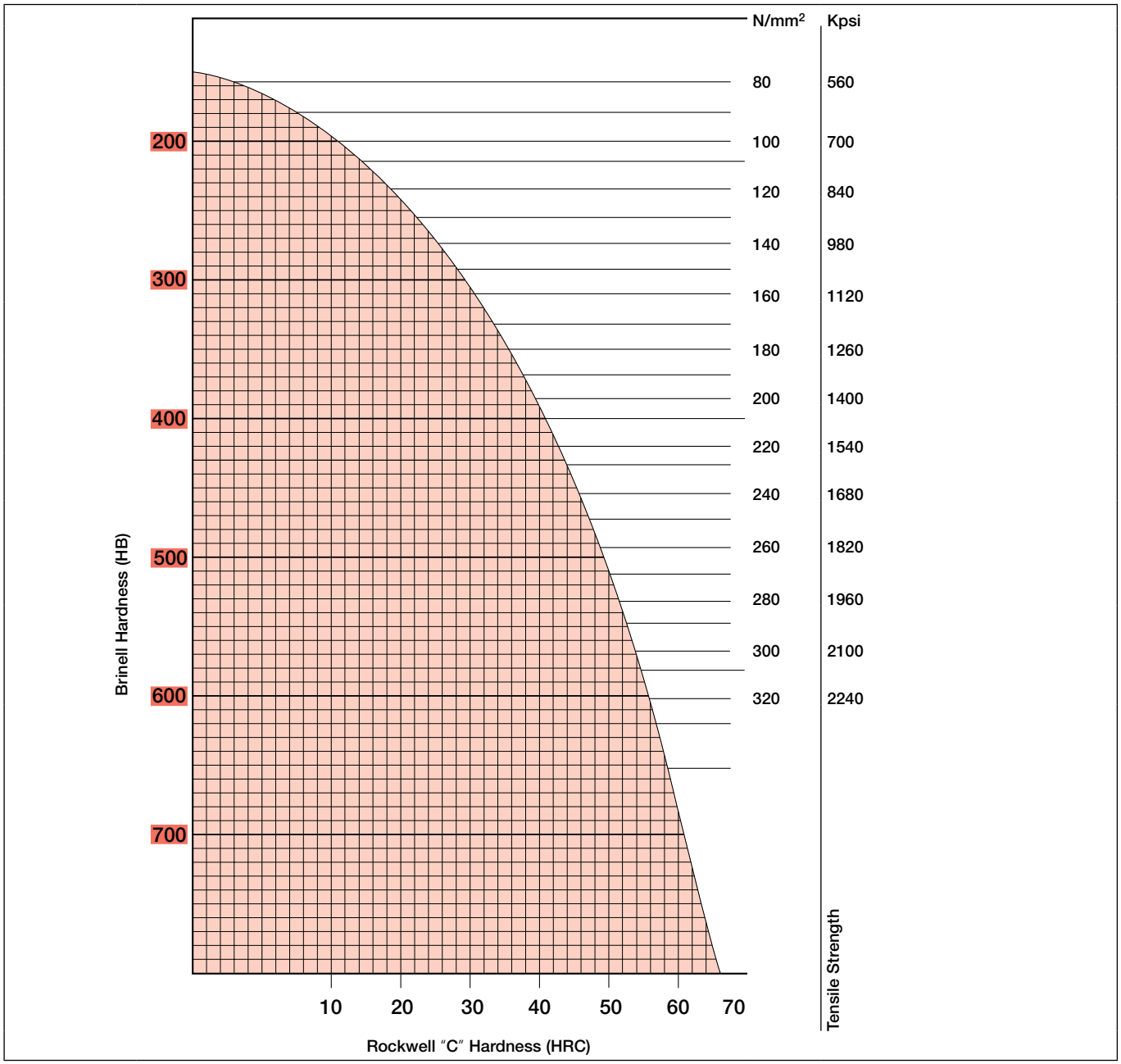
ISO	Material		Condition	Tensile Strength [N/mm²]	Kc1[1] [N/mm²]	mc[2]	Hardness HB	Material Group No.
P	non-alloy steel and cast steel, free cutting steel	<0.25% C	annealed	420	1350	0.21	125	1
		≥0.25% C	annealed	650	1500	0.22	190	2
		<0.55% C	quenched and tempered	850	1675	0.24	250	3
		≥0.55% C	annealed	750	1700	0.24	220	4
			quenched and tempered	1000	1900	0.24	300	5
	low alloy and cast steel (less than 5% of alloying elements)		annealed	600	1775	0.24	200	6
			quenched and tempered	930	1675	0.24	275	7
				1000	1725	0.24	300	8
				1200	1800	0.24	350	9
	high alloyed steel, cast steel and tool steel		annealed	680	2450	0.23	200	10
			quenched and tempered	1100	2500	0.23	325	11
	stainless steel and cast steel		ferritic/martensitic	680	1875	0.21	200	12
			martensitic	820	1875	0.21	240	13
M	stainless steel and cast steel		austenitic, duplex	600	2150	0.20	180	14
K	gray cast iron (GG)		ferritic / pearlitic		1150	0.20	180	15
			pearlitic / martensitic		1350	0.28	260	16
	nodular cast iron (GGG)		ferritic		1225	0.25	160	17
			pearlitic		1350	0.28	250	18
	malleable cast iron		ferritic		1225	0.25	130	19
			pearlitic		1420	0.3	230	20
N	aluminum-wrought alloys		not hardenable		700	0.25	60	21
			hardenable		800	0.25	100	22
	aluminum-cast alloys	≤12% Si	not hardenable		700	0.25	75	23
			hardenable		700	0.25	90	24
		>12% Si	high temperature		750	0.25	130	25
	copper alloys	>1% Pb	free cutting		700	0.27	110	26
			brass		700	0.27	90	27
			electrolytic copper		700	0.27	100	28
	non metallic		duroplastics, fiber plastics					29
			hard rubber					30
S	high temperature alloys	Fe based	annealed		2600	0.24	200	31
			hardened		3100	0.24	280	32
		Ni or Co based	annealed		3300	0.24	250	33
			hardened		3300	0.24	350	34
			cast		3300	0.24	320	35
	titanium alloys		pure	400	1160	0.24		36
			alpha+beta alloys, hardened	1050	1245	0.24		37
H	hardened steel		hardened		4600		55 HRC	38
			hardened		4700		60 HRC	39
	chilled cast iron		cast		4600		400	40
	cast iron		hardened		4500		55 HRC	41

Steel
Stainless Steel
Cast Iron
Non-Ferrous Metals
Superalloys and Titaniu
Hard Materials

(1) Specific cutting force for 1 mm² chip section.
(2) Chip thickness factor.

MATERIAL GROUPS

Hardness Conversion Table



Material Designation in Accordance with Selected Standards

Standards		Material Group No									
		1	1	1	1	1	1	1	1	1	1
	NF/AFNOR (FRANCE)	E 28-2	A 50-2	E 36-2	E 28-3	SPH 265; A 42 AP	E	E 28-3; E 28-4	C; TC	E 24-2	A 33
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	1020; G10200; K02301; K02595; K02596; K02597; K02598; K02599; K02702; K0300		K02404; K02702	K02702		A 619	K02601; K03000; A 573 Gr. 70; A 611 Gr.D	1008; G10080; A 621	1015; G10150; K02401	
	BS (UK)	En 43 B; Fe 430 B FN; 43/25 HR; 43/25HS; 43 B; HFW4; HFS4; ERW 3	Fe 490-2 FN; 50 B	50 B; 4360-50 B	43C; 4360-43C	164-400B LT 20	2 CR; 3 CR	Fe 430 D1 FF; 4360-43 C; 4360-43 D	CR 4; CS 4	Fe 360 B; 4360-40 B; ERW 3; CEW 3; 37/23 HR; 37/23 HS; 37/23 CR; 37/23 CS	Fe 310-0; 15 HR; 15 HS; 1449 15 HR; 1449 15 HS
	DIN (GERMANY)	S275JR; St 44-2; Fe 430 B; S275J2G3	E295; St 50-2; Fe 490-2; ST 50-2 G (E295+CR)	S355JR; Fe 510 B	S275J0; St 44-3 U; Fe 430 C	P265S; SPH 265	DC03G1; USt 3; USt 13	S275J2G3 (S275J2); St 44-3 (Fe 430 D 1)	DC01; DC 01; St 2; St 12	S235JR (Fe 360 B); St 37-2	S185 (Fe 310-0); St 33
	Werkstoff (GERMANY)	1.0044	1.0050	1.0045	1.0143	1.0130	1.0333	1.0144	1.0330	1.0037	1.0035
	EN (EUROPE)	S275JR		S355JR	S275J0	P265S	DC03G1		DC01 (FeP 05)		S185
	GOST (RUSSIA)	St4ps; St4sp	St5ps; St5sp					St4kp; St4ps; St4sp			St0
	JIS (JAPAN)	SN 400 B; SN 400 C; SN 490 B; SN 490 C; SS 400; STK 400; STKM 19 C; STKR 400; 19 C; SS 41; STK 41	SS 490; SS 50	SN 400 B; SN 400 C; SN 490 B; SN 490 C; SS 490; SS 50			SPCD	SM 400 A; SM 400 B; SM 400 C; SS 400; STK 400; STKR 400; SM 41 A; SM 41 B; SM 41 C	SPCC; CR 1	STKM 12 A; STKM 12 AC	SGP; SS 330; SS 34
	SS (SWEDEN)	1411; 1412	1550; 2172		1414-01			1411; 1412; 1414	1142	1311	1300
	UNE (SPAIN)	AE 275 B; Fe 430 B FN	A 490-2; Fe 490-2 FN	AE 355 B	AE 275 D	SPH 265	AP 02	AE 275 D; Fe 430 D1 FF	AP 11; FeP 01; AP 00	AE 235 B; Fe 360 B	Fe 310-0; A 310-0
	UNI (ITALY)	Fe 430 B FN; Fe 430 B	Fe 490	Fe 510 B FN	Fe 430 C FN		FeP 02	Fe 430 B; Fe 430 C (FN); Fe 430 D (FF)	FeP 01; FeP 00	Fe 360 B; 1449 37/23 HR	Fe 320
	IS (INDIA)		Fe 490	IS 961	Fe410WA			Fe410WC	IS 513/94 O		
	KS REP. OF) (KOREA	SB 41	SS 490	SS 490			SPCD	SWS 41C; SWS 4 B; SWS 41A; SM 400A; SM 400B; SM 400C		STKM 12A; STKM 12C	SS 330
	GB/YB/JB/ SY/NB (PRC)	Q255A; Q255D	Q295A	Q345B	Q275	20	10F	Q275	8	15	Q195

Material Designation in Accordance with Selected Standards

Standards		Material Group No									
		1	1	1	1	1	1	1	1	1	1
	NF/AFNOR (FRANCE)	A 34-2 NE	2 C	3 C	ES	A 37 CP	C10RR; XC 10; C 10; AF 34 C 10	E 28-3	GC	E 24-3	
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	K02502		1006; G10060	A 620	K01700; K02001; K02200; K02201; K02203; K02503; K02601; K02801	1010; G10100			A 1011 (SS Grade 36 (230) Type 2); A1011 (SS Grade 36 (250) Type 1)	A572-60
	BS (UK)	CEW 2; 34/20 HR; 34/20 HS; 34/20 CR; 1449 34/20CS		1 CR; 1 CS; 1 HR; 2 HR; 2 HS; 2 CR; 2 CS	CR 1; CR 2	141-360; 151-360; 154-360; 161-360; 164-360	040 A 10; 045 M 10; En 2 A; En 2 A/1; En 2 B; En 32 A; 10 CS	43 C; 4360-43C	Z2	40 C; 4360-40C	4360 55 E
	DIN (GERMANY)	E195; RSt 34-2	DD12G1; UStW 23	DD13; StW 24	DC04; St 4; St 14	P235GH; HI; H I	C10; C 10	S275JOH; St 44-3 U; RoSt 44-2	DX51D; St 02 Z	S235JO; St 37-3 U; Fe 360 C	S380N; StE 380
	Werkstoff (GERMANY)	1.0034	1.0334	1.0335	1.0338	1.0345	1.0301	1.0149	1.0226		1.8900
	EN (EUROPE)	E195		DD13	DC04 (FeP 04)	P235GH	C10	S275JOH		S235JO	S380N
	GOST (RUSSIA)	St2ps; St2sp	10kp	08kp	08JuA		10				
	JIS (JAPAN)		SPHD	SPHE	SPCE; HR 4	SGV 410; SGV 450; SGV 480; SPV 235; SPV 450; SPV 490; SGV 42; SGV 46; SGV 49; SPV 24; SPV 46; SPV 50	S 10C		SGC C	SS 330; SS 34	S 25 C
	SS (SWEDEN)				1147	1330; 1331		1412-04	1151 10		2145
	UNE (SPAIN)		AP 12	AP13	AP 04; FeP 04	A 37 Grado RA II; A 37 Grado RC I	F.151; F.151.A	Fe 430 C; AE 275 C	FeP 02 G	AE 235 C	
	UNI (ITALY)	Fe 330 BFN	FeP 12	FeP 13	FeP 04	FeE 235; Fe 360 1 KW; Fe 360 1 KG; Fe 360 2 KW; Fe 360 2 KG	1 C 10; C 10	Fe 430 C	FeP 02 G	Fe 360 C FN	FeE 390 KG
	IS (INDIA)					IS 2002 Grade 1	5C4			Fe410-S	
	KS REP. OF) (KOREA		SPHD	SPHE	SPCE	SPV 24; SGV 49; SGV 46; SGV 42; SGV 410; SGV 450; SGV 480	SM 10C			SS 330	SM 25C
	GB/YB/JB/ SY/NB (PRC)	Q215B	Q195	08F		A3R	10			Q195	

Material Designation in Accordance with Selected Standards

Standards		Material Group No								
		1	1	1	1	1	1	1	1	1
	NF/AFNOR (FRANCE)	A 60-2	A 34-2	A 37 AP; SPH 235	10 PbF 2	10 F 2	S 250 Pb	S 250	XC 25; XC 18; 2 C 22	E 560 D; S 560 MC
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	A 572 Gr. 65		K01700; K02200; K02801		1108; 1109; 1111; B1111; B 1111; G11080; G11090	12L13; 12L14; 12 L 13; 12 L 14; G12134; G12144	1213; 1215; G12130; G12150	1020; 1023; G10200; G10230	A 1008 (HSLAS-F Grade 80 [550]); A 1011 (HLAS-F Grade 80 [550])
	BS (UK)	En 55 C; Fe 590-2-FN; 55 E; 4360-55 E		164-360B LT20; 1501-164-360B LT20			230 M 07 Pb; En 1A Pb	230 M 07; En 1 A	055 M 15; 070 M 20; En 3 A; En 3 C; En 2	60F55 HR; 60F55 HS; 60F55 CS
	DIN (GERMANY)	E335; St 60-2 (Fe 590-2 B)	S250G1T; USt 34-2	P235S; SPH 235	10SPb20; 10 SPb 20	10S20; 10 S 20	11SMnPb30; 9 SMnPb 28	11SMn30; 9 SMn 28	C22E; Ck 22	S500MC; QStE 500 TM
	Werkstoff (GERMANY)	1.0060	1.0028	1.0112	1.0722	1.0721	1.0718	1.0715	1.1151	1.0986
	EN (EUROPE)	E335		P235S	10SPb20	10S20	11SMnPb30	11SMn30	C22E	S500MC
	GOST (RUSSIA)	St6ps; St6sp							20	
	JIS (JAPAN)	SM 570; SM 58	SS 330; SS 34				SUM 22 L; SUM 23 L; SUM 24 L	SUM 22	S 20 C; S 20 CK; S 22 C	
	SS (SWEDEN)	1650					1914	1912	1450	
	UNE (SPAIN)	A 590; Fe 590-2 FN		AE 235 C	10 SPb 20; F.2122	10 S 20; F. 2121	F.210.C; F.210.M; 11 SMnPb 28; F.2112	F.210.A; F.210.L; 11 SMn 28; F.2111	F.1120; C 25 K	
	UNI (ITALY)	Fe 590; Fe 60-2	Fe 330; Fe 330 B FU	Fe 360 C	CF 10 SPb 20	CF 10 S 20	CF 9 SMnPb 28	CF 9 S 22	C 20; C 25	FeE 560 TM
	IS (INDIA)	St 58						10C14S14	20C8	
	KS REP. OF) (KOREA	SM 570	SS 330				SUM 23 L; SUM 24 L	SUM 22; SUM 24L	S 20C; S 22C; S 20CK	
	GB/YB/JB/ SY/NB (PRC)	Q235C	Q215A			Y12		Y15	20	

Material Designation in Accordance with Selected Standards

Standards		Material Group No			
		1	1	1	1
	NF/AFNOR (FRANCE)	E 490 D; S 490 MC		E 355 D	E 315 D
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	A 1008 (HSLAS-F Grade 70 [480]); A 1008 (HSLAS Grade 70 [480] Class 1)	A 1008 (HSLAS Grade 65 [450] Class 1); A 1008 (HSLAS Grade 65 [450] Class 2)	A 1008 (HSLAS Grade 50 [340] Class 1); A 1008 (HSLAS Grade 50 [340] Class 2)	A 1008 (HSLAS Grade 50 [340]); A 1008 (HSLAS Grade45 [310] Class 2); A 1011 (HSLAS-F Grade 50 [340])
	BS (UK)		1501-50F45; 50F45 HR; 50F45 HS; 50F45 CS	46F40 HR; 46F40 HS; 46F40 CS	1501-40F30; 43F35 HR; 43F35 HS; 43F35 CS
	DIN (GERMANY)	S500MC; QStE 500 TM	S460MC; QStE 460 TM	S355MC; QStE 360 TM	S315MC; QStE 300 TM
	Werkstoff (GERMANY)	1.0984	1.0982	1.0976	1.0972
	EN (EUROPE)	S500MC	S460MC	S355MC	
	GOST (RUSSIA)				
	JIS (JAPAN)				
	SS (SWEDEN)	2662		2642	
	UNE (SPAIN)				
	UNI (ITALY)	FeE 490 TM		FeE 355 TM	
	IS (INDIA)				
	KS REP. OF) (KOREA				
	GB/YB/JB/ SY/NB (PRC)				

Material Designation in Accordance with Selected Standards

Standards		Material Group No								
		1	1	1	1	1	1	1	1	1
	NF/AFNOR (FRANCE)	FeE 355 KG N; E 355 R/FP; A 510 AP		A 510 FP	A 510 AP		E 36-3	TSE 355-3; E 36-3		AF 42 C 20; XC 25; 1 C 22
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	K01600; K02007; K02700; K02701; K02803; K02900; K03009; K03300; K11803; K12000; K12001; K12037	1024; K03011; K03014; K12037; K12709	K01600; K02302; K02700; K02701; K02803; K03301; K11803; K12037; K12609; A 299 (A); A 299 (B)	K01600; K02007; K02701; K02803; K117803; K12001; K12037; K12609	K12037	K12000	A 252 (1); A 252 (2); A 252 (3)	K02502	1020; 1022; 1023; G10200; G10220; G10230
	BS (UK)	225-490A		225-490 A	225/490; 225-490 A; 500 Nb	50 EE	50 C; 4360-50C	50 C; 4360-50C	Fe 360 B FU; Fe 360 B FN	055 M 15; 070 M 20; En 3 A; En 3 B; En 3 C; En 2; 22 HS; 22 CS
	DIN (GERMANY)	P355N; StE 355	S355J2G3 (S355J2); St 52-3 N (Fe 510 D1)	P355NL1; TStE 355	P355NH; WStE 355	S355 NLH; TStE 355	S355JO; St 52-3 U; Fe 510 C	S355JOH; St 52-3 U	S235JRG1; S235JR; Fe 360 B; USt 37-2	C22
	Werkstoff (GERMANY)	1.0562	1.0570	1.0566	1.0565	1.0549	1.0553	1.0547	1.0036	1.0402
	EN (EUROPE)	P355N	S355J2G3	P355NL1	P355NH	S355 NLH	S355JO	S355JOH		C22; 2C/2D
	GOST (RUSSIA)	15GF	17GS; 17G1S						16D; St3Kp	20
	JIS (JAPAN)	SM 490 A; SM 490 B; SM 490 C; SM 490 YA; SM 490YB STK 490 YB; STK 490; STK 500; SM 50 A; SM 50 B	SM 490 A; SM 490 B; SM 490 C; SM 490 YA; SM 490 YB; SM 520 B; SM 520 C; STK 490; STK 500; STKM 16 C	SLA 365; STK 490; STK 500; SLA 37; STK 50; STK 51			SCC 3			S 20 C; S 22 C
	SS (SWEDEN)	2106	2132; 2134	2107	2106	2135			1311; 1312	1450
	UNE (SPAIN)	AE 355 KG; AE 355 DD	AE 355 D; Fe 510 D1 FF			FeE 355 KTM	AE 355 C	AE 355 C; Fe 510 C	AE 235 B; Fe 360 B	F.112; 1 C 22
	UNI (ITALY)	FeE 355; FeE 355 KG; FeE 355 KW	fE 510	Fe E 355 KT	FeE 355-2; FeE 355 KW	Fe 510 D	Fe 510 C FN	Fe 510 C	Fe 360 B; Fe 360 C; Fe 360 D	C 20; C 21
	IS (INDIA)		Fe540WHT						IS226	
	KS REP. OF) (KOREA	SM 490A; SM 490 ; SM 490C; YA; YB	SM 490A; SM 490B; SM 490C; YA; YB							SM 20C; SM 20CK
	GB/YB/JB/ SY/NB (PRC)		20Mn2				Q345C		Q235B	20Mn

Material Designation in Accordance with Selected Standards

Standards		Material Group No									
		1	1	1	1	1	1	1	1	1	1
	NF/AFNOR (FRANCE)	A 42 CP; A 42 AP	E 23-45 M	E 355 FP	E 355 R	S355NH; TSE 355-4	S 250	10 PbF 2	S 300	S 300 Pb	C10RR; XC 10
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	K01701; K02505; K02704; K02801	A27 65-35	K12000; K12037	K12709	K02705; K02305; K12709	1213; 1215; G12130; G12150		1215; G12150; A 29 (1215); A 108 (1215); A 510 (1215); A 510 (1215); A 519 (1215); A 521 (1215)	12L14; 12 L 14; G12144	1010; G10100
	BS (UK)	151-400; 154-400; 161-400; 164-400		50 EE; 4360-50EE	50 E; 4360-50E	S355NH	230 M 07; 220 M 07				040 A 10; 045 M 10; En 2 A; En 2 A/1; En 2 B; En 32 A
	DIN (GERMANY)	P265GH; H II	HX300PD; H300PD; H 300 PD	S355NL; TStE 355	S355N; StE 355	S355NH; StE 335 N	11SMn30; 9 SMn 28	10SPb20; 10 SPb 20	11SMn37; 9 SMn 36	11SMnPb37; 9 SMnPb 36	C10E; Ck 10
	Werkstoff (GERMANY)	1.0425	1.0443	1.0546	1.0545	1.0539	1.0715	1.0722	1.0736	1.0737	1.1121
	EN (EUROPE)	P265GH	HX300PD		S355N	S355NH	11SMn30	10SPb20	11SMn37	11SMnPb37	C10E
	GOST (RUSSIA)	16K; 20K									08; 10
	JIS (JAPAN)	SG 295; SGV 410; SGV 450; SGV 480; SPV 315; SPV 355; SG 30; SGV 42; SGV 46; SGV 49; SPV 32; SPV 36			SM 490 A; SM 490 B; SM 490 C; SM 490 YA; SM 490 YB; SM 50 A; SM 50 B; SM 50 C; SM 50 YA; SM 50 YB		SUM 22		SUM 25		S 09 CK; S 10 C
	SS (SWEDEN)	1431; 1430; 1432	1305	2135; 2135-01	2134	2134-04	1912			1926	1265
	UNE (SPAIN)	A 42 Grado RC I; A 42 Grado RC II; F.6306; F.6307		AE 355 Grado KT	AE 355 Grado KG	Fe 355 KGN	F.210.A; F.210.L; 11 SMn 28; F.2111	10 SPb 20; F.2122	12 SMn 35; F.2113	12 SMnPb 35; F.2114	C 10 k; F.1510
	UNI (ITALY)	Fe 410 1 KW; Fe 410 1 KG; Fe 410 1 KT; Fe 410 2 KW; Fe 410 2 KG		FeE 355 KT	FeE 355 KG	Fe 510 B	CF 9 S 22	CF 10 SPb 20	CF 9 Mn 36	CF 9 SMnPb 36	2 C 10; 2 C 15; 1 C 10; C 10
	IS (INDIA)	IS 2002 Grade 2B					11C10S25				10C4
	KS REP. OF) (KOREA	SPPV 32; SGV 49; SGV 46; SGV 42; SGV 410; SGV 450; SGV 48; SPV 450; SPV 480					SUM 22		SUM 25		S 10 C
	GB/YB/JB/ SY/NB (PRC)	16Mn					Y15		Y13		08

Material Designation in Accordance with Selected Standards

Standards		Material Group No										
		1	1	1	1	1	1	1	1	1	1	
	NF/AFNOR (FRANCE)	XC 12; XC 15; XC 18	E 28 A; NFA 35-501 E 28	S 320 GD		ES	E 24-3; E 24-4; E 24-U	C18RR; XC 18; C 18; AF 37 C 12	E	E 24-2 NE		
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	1015; 1017; G10150; G10170	1020; G10200; K02301; K02595; K02596; K02597; K02598; K02599; K02702; K03000				K02001; K02601; K02701	1015; 1017; G10150; G10170		K01500; K01702; K02401; K02502; K03000; A570.36	J03001	1117; C1117; G11170
	BS (UK)	080 A 15; 080 M 15; En 32 C	En 43 B; Fe 430 B; 43/25 HR; 43/25 HS; 43 B; HFW 4; HFS 4; ERW 3; CEW 4; SAW 4			CR 1; CS 2	Fe 360 D1 FF; 37/23 CR; 37/23 CS; 37/23 HR; 37/23 HS; 40 D; HFW 4; HFS 4	080 A 15; 080 M 15; En32 C; 17 CS; 17 HS	CR2; CR3; CS3; 1449 3 CR; 1449 2 CR	Fe 360 B FU; 37/23 CR; 37/23 CS; 37/23 HR; 37/23 HS; HFW 3; HFS 3; 40 B	A 1	
	DIN (GERMANY)	C15E; Ck 15	S275JR; St 44-2; Fe 430 B	S320GD; StE 320-3 Z	P265NL; P 265 NL	DC04; St 4; St 14	S235J2G3 (S235J2); St 37-3 N; Fe 360 D 1	C15; C 15	DC03; RRSt; RRSt 13	S235JR; S235JRG2; RSt 37-2; Fe 360 B	GE240; GS-45	18S10; 15SMn13
	Werkstoff (GERMANY)	1.1141	1.0044	1.0250	1.0453	1.0338	1.0116	1.0401	1.0347	1.0038	1.0446	1.0712; 1.0725
	EN (EUROPE)	C15E	S275JR	S320GD	P265NL	DC04	S235J2G3	C15	DC03	S235JR	GE240	18S10; 15SMn13
	GOST (RUSSIA)	15	St4ps; St4sp			08JuA	16D; St3sp		08Ju	St3ps; St3sp	25L-3	
	JIS (JAPAN)	S 15 C; S 15 CK	SN 400 B; SN 400 C; SN 490 B; SN 490 C; SS 400; STK 400; STKM 19 C; STKR 400; 19 C; SS 41; STK 41	SGC 440; SZAC 440; SZAH 440; SGLH 440		SPCE; HR 4	SS 330; SS 34	S 15 C	SPCD; CR 3	SS 330; SS 34	230-450; 230-450 W	
	SS (SWEDEN)	1370	1411; 1412			1147	1312; 1313	1350	1146	1312		
	UNE (SPAIN)	C 16 k; F.1511; F.1110; C 15 k	AE 275 B; Fe 430 B FN			AP 04; FeP 04		F.111	AP 02; AP02; FeP03	AE 235 B FN; AE 235 B FU; Fe 360 B FN; Fe 360 B FU		
	UNI (ITALY)	1 C 15; C 15	Fe 430 B FN			FeP 04	Fe 360 C; D; Fe 360 C FN; Fe 360 D FF; Fe 37-2	1 C 15; C15; C16	FeP 02; FeP 03	Fe 360 B FN		
	IS (INDIA)	15C4						15C4				
	KS REP. OF) (KOREA	SM 15C; SM 15CK	SB 41			SPCE	SS 330	SM 15C	SPCD	SS 330		SS 330
	GB/YB/JB/ SY/NB (PRC)	15	Q255A ; Q255D				Q195	15		Q235C	ZG230-450	Q215A

Material Designation in Accordance with Selected Standards

Standards		Material Group No												
		1	1	1	2	2	2	2	2	2	2	2	2	2
	NF/AFNOR (FRANCE)	E24-4	14-13-12E		C 35; AF 55; 1 C 35; XC 38	XC 38 TS	35 M 5	AF 60; C 40; 1 C 40	C45RR; XC 45; XC 48 H-1	2 C 25; XC 25	C 45; AF 65; C 45; 1 C 45	XC 48 TS	35 MF 4	45 MF 4
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	A 36	1018; G10180; 5069D		1035; G10350	1035; G10350	1039; G10390	1040; G10400	1045; 1045 H; 1042; G10450; H10450; G10420	1025; G10250	1043; 1045; G10430; G10450	1050; 1055; G10500; G10550	1140; G11400	1139; 1146; G11390; G11460
	BS (UK)	En 40 D	43A		080 M 30; En 5; 080 M 36	080 A 35		En 8; 080 M 40	080 H 46; 080 M 46	070 M 26	080 M 46		212 M 36	
	DIN (GERMANY)	S235J2; S235J2G4	L355; RSt 44-2	C15R; C15RPb; Cm 15	C35G; C 35 G	C35G; C 35 G; Cf 35	40Mn4; 40 Mn 4	C40; C 40	C45E; Ck 45	C25E; Ck 25	C45; C 45	C53G; C53E; Cf 53	35S20; 35 S 20	46S20; 45 S 20
	Werkstoff (GERMANY)	1.0117	1.0419	1.1140	1.0501	1.1183	1.1157	1.0511	1.1191	1.1158	1.0503	1.1213	1.0726	1.0727
	EN (EUROPE)	S235J2	L355	C15R; C15RPb	C35G	C35G		C40	C45E	C25E	C45		35S20; 8M	46S20
	GOST (RUSSIA)		St3sp			35	40G		45	25	45	50		
	JIS (JAPAN)	SS 330; SS 34	SWRCH 18 A; SWRCH 18 K; SWRCH 19 A		S 35 C; S 35 CM	S 35 C; S 35 CM			S 45 C; S 45 CM; S 48 C	S 25 C; S 28 C	S 45 C; S 45 CM	S 50 C; S 50 CM		
	SS (SWEDEN)	1313			1572; 1550	1572			1672		1650		1957	
	UNE (SPAIN)				F.113	F.1130; C 35 k		F.114.A	F.1140; F.1142; C 45 k; C48 k	F.1120; C 25 k	F.114		F.210.G; 35 MnS 6; F.2131	
	UNI (ITALY)	Fe 360 D			C 35; 1 C 35	C 36; C 38		C 40; 1 C 40	C 45	C 25	C 45; 1 C 45	C 53		
	IS (INDIA)		15C8		35C8		40C8		45C8				40C10S18	40C15S12
	KS REP. OF) (KOREA				SM 35C	SM 35C			SM 45C; S 48C	SM 25C	SM 45C	SM 50C; SB 450M		
	GB/YB/JB/ SY/NB (PRC)				35	35Mn	40Mn	40Mn	45	25	45	50Mn		Y40Mn

Material Designation in Accordance with Selected Standards

Standards		Material Group No													
		2	2	2	2	2	2	2	2	2	2	2	2	2	2
	NF/AFNOR (FRANCE)	E 36-3		A 52 CP	20-400 M	A 52 FP	XC 50; 2 C 50	20 M 5	XC35RR; XC32; XC 35; XC 38 H 2; XC 38 H 1; 2 C 35	XC 38 H 1 u; Cm 35	XC 32	C50		1 C 25	
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	K12000		K02700; K02803; K03103; K03300; K12437		K12447	1049; 1050; G10490; G10500	1330; 1527; G13300; G15270	1034; 1035; 1038; G10340; G10350; G10380; C 1034		1030; G10300	1049; 1050; G10490; G10500	1536; G15360	1025; G10250	
	BS (UK)	50 C					080 M 50	150 M 19; En 14 A; En 14 B	080 M 30; En 5; 080 M 36	080 A 35	080 M 30; En 5	En 43 A; 080 M 50		070 M 26	210 A 15; 210 M 15
	DIN (GERMANY)	S355J0; St 52-3 U; Fe 510-C	S355JRC	P355GH; 19 Mn 6	C18D; GS-38	S355J2; S355J2G4; Fe 510 D2	C50E; Ck 50	28Mn6	C35E; Ck 35	C35R; Cm 35	C30E; Ck 30	C50	34Mn5	C25	15S22; 15 S 20
	Werkstoff (GERMANY)	1.0553	1.0551	1.0473	1.0416	1.0577	1.1206	1.1170	1.1181	1.1180	1.1178	1.0540	1.1166	1.0406	1.0723
	EN (EUROPE)	S355J0	S355JRC	P355GH	C18D		C50E	28Mn6	C35E	C35R	C30E	C50			
	GOST (RUSSIA)						50	30G	35						
	JIS (JAPAN)	SCC 3		SGV 410; SGV 450; SGV 480				SCMn 1	S 35 C; S 35 CM; S 38 C		S 30 C; S 30 CM	S 50 C	SMn 433 H; SMn 433 HRCH; SMn 433 RCH; SMn 1 H		SUM 32
	SS (SWEDEN)			2101; 2102	1306	2107	1674		1572			1674			1922
	UNE (SPAIN)	AE 355 C		A 52 RC I, RA II		A 52 RB II; AE 355 D			F.1130; C 35 k	F.1135; C 35 k-1	2 C 30	1 C 50	TO.B		F.210F; F.210.F
	UNI (ITALY)	Fe 510 C FN		Fe E 355-2			C 50	C 28 Mn	C 35	C 35	C 30	C 50		C 25; 1 C 25	
	IS (INDIA)	Fe570HT						27C15	35C8		30C8	50C4	37C15	25C4	
	KS REP. OF) (KOREA			SGV 410; SGV 450; SGV 480				SCMn 1	SM 35C; SGV 480			SM 50C	SMn 433H		SUM 32
	GB/YB/JB/ SY/NB (PRC)	Q345C			ZG15	Q345D	50Mn	30Mn2	35		30Mn	50Mn	30Mn2	25	Y20

Material Designation in Accordance with Selected Standards

Standards		Material Group No												
		2	2	2	3	3	3	3	3	3	3	3	3	3
	NF/AFNOR (FRANCE)				3 C 45; XC 42 H 1; XC 48 H 1 u	2 C 40; XC 42 H 1	XC 75	XC 90	XC 80		A 48 CP; A 48 AP	C 45; AF 65; C 45; 1 C 45	40 M 5; 35 Mn 5	C45RR; XC 45; XC 48 H 1
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)		K03504; A105; SA-105		1045; 1049; G10450; G10490	1040; G10400	1074; 1075; G10740; G10750	1095; G10950	1086; G10860		K01700; K02001; K02200; K02201; A 516 Gr.70; A 515 Gr. 70; A 414 Gr.F; A 414 Gr.G	1043; 1045; G10430; G10450	1335; 1335 H; 1541; 1541 H; G13350; G15410; H13350; H15410	1045; 1045 H; 1042; G10450; H10450; G10420
	BS (UK)				080 M 46	080 M 40; En 8		95 HS; 95 CS	80 HS; 80 CS	A 5; A 6	224-469 B	080 M 46	150 M 36	089 H 46; 080 M 46
	DIN (GERMANY)	C45U; C45W; C 45 U; C 45 U	A105; C21; P250GH; C22.8; C22 G2	C53E; C 53 E; Ck 53	C45R; Cm 45	C40E; Ck 40	C76D; C 76 D; D 75-2	C92D; C 92 D; D 95-2	C86D; C 86 D; D 85-2	G28Mn6; GS-30 Mn 5	P295GH; 17Mn4; 17 Mn 4	C45; C 45	36Mn5; 36 Mn 5	C45E; Ck 45
	Werkstoff (GERMANY)	1.1730	1.9443; 1.0432; 1.0460	1.1210	1.1201	1.1186	1.0614	1.0618	1.0616	1.1165	1.0481	1.0503	1.1167	1.1191
	EN (EUROPE)	C45U	P250GH		C45R	C40E	C76D	C92D	C86D	G28Mn6	P295GH	C45	36Mn5	C45E
	GOST (RUSSIA)				45	40	75			27ChGSNMDTL; 30GSL	14G2		35G2; 35GL	45
	JIS (JAPAN)			S 53 C	S 45 C; S 45 CM	S 40 C				SCMn 2	SG 365; SGV 410; SGV 450; SGV 480; SPV 315; SG 37; SGV 42; SGV 46; SGV 49; SPV 32	S 45 C; S 45 CM	SMn 438; SMn 438H; SCMn 3	S 45 C; S 45 CM; S 48 C
	SS (SWEDEN)				1660						2102	1650	2120	1672
	UNE (SPAIN)				F.1145; F.1147; C 45 k-1; C 48 k-1					30 Mn 5; AM 30 Mn 5; F.120.D; F.8211; F.8311	A 47 RC I; RA II	F.114	F. 1203-36 Mn 6; F. 8212-36 Mn 5	F.1140; F.1142; C 45 k; C 48 k
	UNI (ITALY)				C 45	C 40	3 CD 75	3 CD 95	C 85; 3 CD 85		Fe 295	C 45; 1 C 45		C 45
	IS (INDIA)			55C4; C55	45C8								37C15	45C8
	KS REP. OF) (KOREA				SM 45C	SM 40C				SCMn 2	SPPV 32; SGV 49; SGV 46; SGV 42; SGV 410; SGV 450; SGV 48; SPV 450; SPV 480	SM 45C	SMn 438H; SCMn 3	SM 45C; S 48C
	GB/YB/JB/ SY/NB (PRC)				45	40Mn	75	1A95		20Mn2	16Mn	45	35Mn2	45

Material Designation in Accordance with Selected Standards

Standards		Material Group No												
		3	3		4	4	4	4	4	4	4	4	4	4
	NF/AFNOR (FRANCE)		44SMn28; 45 MF 6.3	P355GH	C54; 1 C 55; AF 70; C 55	C50RR; XC 54; XC 50; 2 C 55; XC 55 H 1	C60; 1 C 60	C68RR; XC 68	C75RR; XC 75	C100RR; XC 100	Y2 120; C120E3U	C90RR; XC 90	3 C 55; XC 55 H 1	C 75
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)		1144; G11440	K11852; K12437; AH36; DH36; EH36	1055; G10550	1055; G10550	1060; G10600	1070; G10700	1074; 1075; 1078; G10700; G10750; G10780	1095; G10950	W112; W1; T72301	1086; G10860	1055; G10550	1074; 1075; G10740; G10750
	BS (UK)		44SMn28; 226 M 44		070 M 55; En 9	070 M 55; En 9	060 A 62; En 43 D	060 A 67; 080 A 67; En 43 E	060 A 78; 80	95			070 M 55; En 9	060 A 78
	DIN (GERMANY)	38MnVS6; 38 MnVS 6	44SMn28	GL-A 36; GL-AH 36; S 355 G 1 S	C55	C55E; Ck 55	C60	C67S; Ck 67	C75S; Ck 75	C100S; Ck 101	C125U; C 125 W	C80S; Ck 85; C 85 E	C55R; Cm 55	C75
	Werkstoff (GERMANY)	1.1303	1.0762	1.0583	1.0535	1.1203	1.0601	1.1231	1.1248	1.1274	1.1563	1.1269	1.1209	1.0605
	EN (EUROPE)	38MnVS6	44SMn28		C55	C55E	C60; 43D	C67S	C75S	C100S	C125U	C80S	C55R	
	GOST (RUSSIA)		A40G	A36	55	55	60; 60G	65GA; 68GA	75A		U12-1	85A		75
	JIS (JAPAN)		SUM 43	SPV 36	S 55 C; S 55 C-CSP; S 55 CM	S 55 C; S 55 C-CSP; S 55 CM	S 58 C; S 60-C-CSP; S 60 CM; S 65 C-CSP; S 65 CM	S 70 C-CSP; S 70 CM	S 75 CM	SK 95 -CSP	SK 120; SK 120 M; SK 2; SK 2 M; TC 120	SK 85-CP		
	SS (SWEDEN)				1655	1655		1770	1774	1870				
	UNE (SPAIN)				F.115	F.1150; C 55 K					F.5123; C 120		F.1155; C 55 k-1	
	UNI (ITALY)		CF 44 SMn 28		C 55; 1 C 55	C 55	C 60; 1 C 60	C 67	C 75	C 100	C 120 KU	C 85	C 55	C 75
	IS (INDIA)				55C4		60C4		80C6			85C6		75C6
	KS REP. OF) (KOREA		SUM 43		SM 55C	SM 55C	SM 58C							
	GB/YB/JB/ SY/NB (PRC)		Y40Mn		55	55	60	65	75	1A95	T12	T8A	55	75

Material Designation in Accordance with Selected Standards

Standards		Material Group No												
		4	4	5	5	5	5	6	6	6	6	6	6	6
	NF/AFNOR (FRANCE)	C68; XC 65		C 56 D 2	C90RR; XC 90; XC90; C90E2U	C60RR; XC 60; X 65; 2 C 60	C50RR; XC 54; XC 50; XC 55 H 1; 2 C 55	60 S 7	60 S 7	55 S 7	50S7; 51 Si 7	45 S 7; Y 46 S 7; 46 SI 7	100C2	12 CD 9-10; 10 CD 9.10
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	1070; G10700		1055; G10550		1060; 1064; G10600; G10640	1055; G10550	9260; G92600	9260 H; H92600; 9260; G92600	9255; G92550	9255; G22550		G50986; ASTM Grade E50100; ASTM Grade G15116; SAE E50100	K21390; K21590; ASTM A182 F22; ASTM A387 Grade 22; A387-22-2
	BS (UK)	060 A 67; 080 A 67; En 43 E; 1449 70 HS			CS95	060 A 62; 070 M 60; En 43 D	070 M 55; En 9		251 A 60; 251 H 60	251 A 58; En 45 A			GCr6; B00040; GCr4	622; 622-490; 622/515; 622/690
	DIN (GERMANY)	C67	C56E2; Cf 54	C56D2; C 56 D 2	C90S; C 90 S	C60E; Ck 60	C55E; Ck 55	65Si7; 65 Si 7	60Si7	56Si7; 56 Si 7; 55Si7; 55 Si 7	51Si7; 51 S 7	46Si7	100Cr2; 100 Cr 2	10CrMo9-10; 10 CrMo 9 10
	Werkstoff (GERMANY)	1.0603	1.1219	1.1220	1.1217	1.1221	1.1203	1.5028	1.5027	1.5026	1.5025	1.5024	1.3501	1.7380
	EN (EUROPE)	C67	C56E2	C56D2	C90S	C60E	C55E			565Si7; 55Si7	51Si7	46Si7		10CrMo9-10
	GOST (RUSSIA)					60GA	55	60S2G	60S2	55S2; 60S2			SchCh4	12Ch8
	JIS (JAPAN)	S 70 C-CSP; S 70 CM	C56E2; S55C		SK 95	S 58 C; S 60 C-CSP; S 60 CM; C 65 C-CSP; C 60 CM	S 55 C; S 55 C-CSP; S 55 CM	50 P 7; SUP 6; SUP 6 M; SUP 7; SWOSM						SCMQ4E; SCMV 4; SFVA F 22.A; SFVA F 22.B; SFVCM F22B; STBA 24; STFA 24; STPA 24
	SS (SWEDEN)					1678	1655			2085; 2090				2218
	UNE (SPAIN)						F.1150; C 55 k		F.144.B; F.1441	F.144; F.144.A; 56 Si 7; F.1440	F.145.B	F.1451		TU.H
	UNI (ITALY)	C 67				C 60	C 55		60 Si 7	55 Si 7	48 Si 7; 50 Si 7			12 CrMo 9 10
	IS (INDIA)	65C6					55C4	65Si7	60Si7	55Si7				
	KS REP. OF) (KOREA		S 55C			SM 58C	SM 55C	SPS 6						SPA 24
	GB/YB/JB/ SY/NB (PRC)	70		55		60Mn	55	60Si2Mn	60Si2Mn	55Si2Mn	55Si2Mn		GCr6	12Cr2Mo1

Material Designation in Accordance with Selected Standards

Standards		Material Group No											
		6	6	6	6	6	6	6	6	6	6	6	6
	NF/AFNOR (FRANCE)	90 MnV 8; 90 MV 8	55 WC 20		100 C 3	105 WCr 5; 105 WC 13	20 MC 5	55 S 7	55 S 7	60 SC 6	34 CD 4; 34CrMo4RR; 35 CD 4;		100Cr6RR; 100 C 6; 100Cr6; Y 100 C 6
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	O2; T31502			L2; T61202		4820; 5120; 5120H; G48200; G51200; H51200	9255; G92550	9254; G92550	9262; G95620	4135; 4137; 4135H; 4137H; G41350; G41370; H41350; H41370		L3; T61203
	BS (UK)	BO 2; BO2	BS1; BS 1			105WC 13	150 M 19	250A53	250 A 53		708 A 30		BL 3; BL3
	DIN (GERMANY)	90MnCrV8; 90 MnCrV 8	60WCrV7; 60 WCrV 7	51CrMnV4; 51 CrV 4; 50 CrV 4	115CrV3; 115 CrV 3	105WCr6; 105 WCr 6	20MnCr5; 20 MnCr 5	55Si7; 55 Si 7	55Si7; 55 Si 7	HDT 450 F; S340 MGC	34CrMo4; GS34 CrMo 4; G34 CrMo 4	38MnSi4; 38 MnSi 4	102Cr6; 102 Cr 6; 100Cr6
	Werkstoff (GERMANY)	1.2842	1.2550	1.2241	1.2210	1.2419	1.7147	1.0904	1.0904	1.0961	1.7220	1.5120	1.2067
	EN (EUROPE)	90MnCrV8	60WCrV7		115CrV3	105WCr6	20MnCr5				34CrMo4		102Cr6
	GOST (RUSSIA)					ChW1G; ChWG	18ChG			60S2; 55S2; 50ChFA	35ChM; AS38ChGM		Ch
	JIS (JAPAN)					SKS 2; SKS 2 M; SKS 3; SKS 31	SMnC 420 H; SMnC 420 RCH; SMnC 21 H				SCM 435 H; SCM 435 HRCH; SCM 435 M; SCM 435 RCH; SCM 435TK; SCM 3 H; STKS 3		SUJ 2
	SS (SWEDEN)		2710			2140	2172	2085	2090		2234		
	UNE (SPAIN)	90 MnCrV 8; F.5229	60 WCrSiV 8; F.5242		F.520.L; F.5125	F.5233; 105 WCr 5	F.150.D	56 Si 7		60 SiCr 8; F.1442	35 CrMo 4 DF; F.125.A; F.125.B; F.1254; F.1250		F.5230; 100 Cr 6
	UNI (ITALY)	90 MnVCr 8 KU	55 WCrV 8 KU; 58 WCr 9 KU		107 CrV 3 KU	107 WCr 5 KU	20 MnCr 5; Fe52	55 Si 8		60 SiCr 8	34 CrMo 4 KB; 35 CrMo 4		102 Cr 6 KU
	IS (INDIA)					T110W2Cr1	20MnCr1	55Si2Mn90					
	KS REP. OF) (KOREA					STS 31					SCM 435 TK		STB 2
	GB/YB/JB/ SY/NB (PRC)	9Mn2V				9CrWMo	15CrMn	55Si2Mn	55Si2Mn		35CrMo	42SiMn	Cr2

Material Designation in Accordance with Selected Standards

Standards		Material Group No											
		6	6	6	6	6	6	6	6	6	6	6	6
	NF/AFNOR (FRANCE)		34 CD 4	90MnWCrV5; 90 MWCV 5; 8 MO 8	45 WCrV 8; 45 WCrV 20	55 NCDV 7	55 NCV 6	100Cr6RR; 100 C 6; 100Cr6	15 D 3		16 N 6	14 NC 11	10 NC 12; 12 NC 15; 14 NC 12; 16 NC 12; 16 NCD 13
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	L1	P20; T51620	O1; T31501	S1; T41901	L6; T61206		E52100; G52986	K11820; K12020; K12320; A204 Grade A; A182 Grade F1	4422; G44220; J12522	A 350-LF 5; K13050; K21703; K22103	3415	3310; 3310 RH; 3312; 3316; 9315; E 3310; E 3316; E9315; G33106
	BS (UK)		708 A 37	BO1; BO0; BO 1; BO 0	BS1; BS 1	BH 224; BH 225		2 S.135; 535 A 99	1503-243 B	245; B 1; B1			655 M 13; 655 H 13; En 36 A
	DIN (GERMANY)	90CrSi5; 90 CrSi 5	35CrMo4; 35 CrMo 4	100MnCrW4; 100 MnCrW 4	45WCrV7; 45 WCrV 7	55NiCrMoV6; 56NiCrMoV6; 55 NiCrMoV 6; 56 NiCrMoV 6	50NiCr13	100Cr6; 100 Cr 6	16Mo3; 15 Mo 3	G20Mo5; 20Mo4; GS-22 Mo 4	14Ni6; 14 Ni 6	14NiCr10; 14 NiCr 10	15NiCr13; 14NiCr14; 15 NiCr 13; 14NiCr14
	Werkstoff (GERMANY)	1.2108	1.2330	1.2510	1.2542	1.2713	1.2721	1.3505	1.5415	1.5419	1.5622	1.5732	1.5752
	EN (EUROPE)	90CrSi5	35CrMo4	100MnCrW4	45WCrV7	55NiCrMoV6		100Cr6		G20Mo5	14Ni6	14NiCr10	15NiCr13
	GOST (RUSSIA)				5ChW25F	5ChNM		SchCh 15				12ChN3A	
	JIS (JAPAN)			SKS 31		SKT 4		SUJ 2; SUJ 4	STBA 12; STFA 12; STPA 12	SCPH 11		SNC 415; SNC 415 H; SNC 415 M	SNC 815 H; SNC 815 HRCH; SNC 815 RCH; SNC 22 H
	SS (SWEDEN)	2092	2234	2140	2710		2550	2258	2912; 16Mo3				
	UNE (SPAIN)			F.522.A; F.5220; 95 MnCrW5; 105 WCr 5	F.524; F.5241; 45 WCrSi 8	F.520.S	F.528	F.131; 100 Cr 6; F.1310	F. 2601; 16 Mo 3		F.2641; 15 Ni 6	15 NiCr 11	15 NiCr 11; F.1540
	UNI (ITALY)	105 WCr 5	35 CrMo 4	95 MnWCr 5 KU; 10 WCr 6	45 WCrV 8 KU			100 Cr 6	16 Mo 3 KG; 16 Mo 3 KW; 16 Mo 5 KG; 16 Mo 5 KW		14 Ni 6 KG; 14 Ni 6 KT	16 NiCr 11	
	IS (INDIA)							105Cr1Mn60					13Ni3Cr80
	KS REP. OF) (KOREA		SCM 435 TK	STS 31		STF 4		STB 2	SPA 10	SCPH 11			
	GB/YB/JB/ SY/NB (PRC)	9SiCr	3CrMo	CrWMn	5CrW2Si	5CrNiMo		Gr15; 45G	16Mo			12CrNi2	12CrNi3A

Material Designation in Accordance with Selected Standards

Standards		Material Group No										
		6	6	6	6	6	6	6	6	6	6	6
	NF/AFNOR (FRANCE)	12 CD 4	18 NCD 6	16 NCD 13	12 C 3; 15Cr2RR; 15 C 2	32 C 4	42 C 4	42 C 4 TS	16MnCr5RR; 16 MC 5	16MnCrS5	55 C 3; 55Cr3	MOC 2; V320
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)			9310; 9310H; 9310 RH; E 9310 H; G93106; H93100; H93106; AMS 6265	5015; G50150	5132; 5132 H; G51320; H51320	5140; 5140 H; 5140 RH; G51400; H51400	5140; G51400	5115; 5117; G51150; G51170		5155; 5155 H; 5150; G51550; H51550; G51600	4142; G41420
	BS (UK)		820A16	832 H 13; 832 M 13; S.157; En 36 C	523 M 15	530 A 32; 530 H 32; 530 M 32	530 A 40; 530 M 40; 530 H 40; En 18	530 A 40	527 M 17; 590 H 17; 590 M 17		525 A 58; 525 A 60; En 48	
	DIN (GERMANY)	15CrMo5; 15 CrMo 5	17CrNiMo6; 17 CrNiMo 6	14NiCrMo13-4; 14 NiCrMo 13 4	15Cr3; 15 Cr 3	34Cr4; 34 Cr 4	41Cr4; 41 Cr 4	42Cr4; 42 Cr 4	16MnCr5; 16 MnCr 5	16MnCrS5; 16 MnCrS 5	55Cr3; 55 Cr 3	41CrMo4; 41 CrMo 4
	Werkstoff (GERMANY)	1.7262	1.6587	1.6657	1.7015	1.7033	1.7035	1.7045	1.7131	1.7139	1.7176	1.7223
	EN (EUROPE)	15CrMo5			15Cr3	34Cr4	41Cr4		16MnCrS5	16MnCrS5	55Cr3	
	GOST (RUSSIA)				15Ch	35Ch	40Ch		18ChG		50ChGA	40ChFA
	JIS (JAPAN)	SCM 415 H; SCM 415 HRCH; SCM 415 M; SCM 415 RCH; SCM 415 TK; SCM 21 H			SCr 415; SCr 415 H; SCr 415 HRCH; SCr 415 RCH; SCr 21 H	SCr 430; SCr 430 H; SCr 430 HRCH; SCr 430 RCH; SCr 2 H	SCr 440; SCr 440 H	SCr 440			SUP 9; SUP 9 A; SUP 9 M	SNB 22-1
	SS (SWEDEN)							2245	2173	2127	2253	
	UNE (SPAIN)	12 CrMo 4; F.150.J; F155; F.1551	14 NiCrMo 13	14 NiCrMo 13; 14 NiCrMo 13-1; F.1560; F.1569		35 Cr 4; F.8221	41 Cr 4 DF; F.1211; F.1202	42 Cr 4	F.1516		F.1431	42 CrMo 4
	UNI (ITALY)			15 NiCrMo 13; 16 NiCrMo 12		34 Cr 4; 34 Cr KB	41 Cr 4; 41 Cr 4 KB	41 Cr 4	16 MnCr 5		55 Cr 3	41 CrMo 4
	IS (INDIA)		15Ni2Cr1Mo15		15Cr3		40Cr1		17Mn1Cr95		55Cr3	
	KS REP. OF) (KOREA					SCr 430; SCr 430H	SCr 440	SCr 440			SPS 9A	SNB 22-1
	GB/YB/JB/ SY/NB (PRC)	15CrMnMo			15Cr	35Cr	40Cr	40Cr	15Cr		50CrMn	40CrMoA

Material Designation in Accordance with Selected Standards

Standards		Material Group No									
		6	6	6	6	6	6	6	6	6	6
	NF/AFNOR (FRANCE)	42 CD 4; 40 CD 4; 42CrMo4RR			15 CD 4-05	12 CD 9-10; 10 CD 9.10		40 CAD 6.12		40 CMD 8 S	
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	4140; 4140 H; 4140 RH; 4142; 4142 H; 4145; G41400; H41400; G41420; H41420; K14248; K14047	4147; 4147 H; 4150; 4150 H; 8650; 8650 H; G41470; G41500; G86500; H41470; H41500; H86500	4118; 4118H; G41180; H41180	K11547; K11562; K11564; K11757; K11789; K12052; ASTM A182 F12	K21390; K21590; ASTM A182 F22		E71400; K24065; K24728; A355 Class A		P20+S	
	BS (UK)	708 M 40; 709 M 40; En 19; En 19 A	708 M 40; 708 A 47		620; 620-440; 620-470; 620-540; 621	622; 622-490; 622/515; 622/690; 1502-622	1503-660-440	905 M 39; En 41 B			
	DIN (GERMANY)	42CrMo4; 42CrMo4V; 42 CrMo 4; 42 CrMo 4 V	50CrMo4; 50 CrMo 4	20MoCr4; 20 MoCr 4	13CrMo4-5; 13 CrMo4 4	10CrMo9-10; 10 CrMo 9 10; GS-12CrMo9-10; GS-12 CrMo 9 10; G 12 CrMo9-12	14MoV6-3; 14 MoV 6 3	41CrAlMo7-10; 41CrAlMo7; 41 CrAlMo 7	17NiCrMo6-4	40CrMnMoS8-6	20MnCrS5; 20 MnCrS 5
	Werkstoff (GERMANY)	1.7225; 1.7227	1.7228	1.7321	1.7335	1.7380	1.7715	1.8509	1.6566	1.2312	1.7149
	EN (EUROPE)	42CrMo4	50CrMo4	20MoCr4	13CrMo4-5	10CrMo9-10		41B	17NiCrMo6-4		20MnCrS5
	GOST (RUSSIA)	40ChFA		BGH 7321; E320; SIQUAL 7321	12ChM; 15ChM	12Ch8		38Ch2MJuA			
	JIS (JAPAN)	SCM 440 H; SCM 440 HRCH; SCM 440 M; SCM 440 RCH; SCM 440 TK; SNB 7 Class 2; SCM 4 H; SNB 22-1	SCM 445 H; SCM 445 HRCH; SCM 445 RCH; SCM 5 H		SCMV 2; SFVA 12; STBA 22; STFA 22; STPA 20; STPA 22	SCMQ 4 E; SCMV 4; SFVA F 22 A; SFVA F 22 B; SFVCM F 22 B; STBA 24; STFA 24; STPA 24		SACM 645; SACM 1			
	SS (SWEDEN)	2244; 42CrMo4	2512	2625	2216	2218		2940			
	UNE (SPAIN)	TO.D; TU.L			TU.E; TU.F; F.2631; 14 CrMo 4 5	TU.H	13 MoCrV 6	F.174; 41 CrAlMo 7; F1740			
	UNI (ITALY)	42 CrMo 4; 38 CrMo 4 KB; 41 CrMo 4	653 M 31		14 CrMo 3; 14CrMo4 5	12 CrMo 9; 12 CrMo 10		41 CrAlMo 7			
	IS (INDIA)	40Cr4Mo3						40Cr2Al1Mo18			
	KS REP. OF) (KOREA	SNB 22-1			SPA 22	SPA 24					
	GB/YB/JB/ SY/NB (PRC)	42CrMo; 42CrMnMo		20CrMo	12CrMo	12Cr2Mo1		38CrMoAl			

Material Designation in Accordance with Selected Standards

Standards		Material Group No									
		6	6	6	6	6	6	6	6	6	6
	NF/AFNOR (FRANCE)	40 CMND 8	40 CMD 8		51 CDV 4; 51CrMoV4		15 CD 3.5				
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	P20+Ni			4150; G41500			4419; 4419 H; 4520; G44190; H44190; G45200; K11522; K11820; K12020; K12023; K12320; K12821		HY-80; HY 80; HY80; K31820; MIL-S-21952	
	BS (UK)										605 M 36; En 16; En 16T
	DIN (GERMANY)	40CrMnNiMo8-6-4; 40 CrMnNiMo 8 6 4	40CrMnMo7; 40 CrMnMo 7	49CrMo4; 49 CrMo 4	52CrMoV4; 51CrMoV4; 51 CrMoV 4	16CrMo4-4; 16 CrMo 4 4	16CrMo4; 16 CrMo 4	16Mo5			
	Werkstoff (GERMANY)	1.2738	1.2311	1.7238	1.7701	1.7337	1.7242	1.5423			
	EN (EUROPE)	40CrMnNiMo8-6-4	40CrMnMo7		51CrMoV4		16CrMo4				
	GOST (RUSSIA)	40Ch2GNM							30ChGSA		
	JIS (JAPAN)					SCM 415 M; SCM 415; STBA 22; SFVA F12	SCM 418 H; SCM 418 HRCH; SCM 418 RCH; SCM 418 TK	SB 450 M; SB 480 M; SB 46 M SB 49 M			
	SS (SWEDEN)										
	UNE (SPAIN)		F.5302				F.1550; 18 CrMo 4	TU.D; F.2602			
	UNI (ITALY)		35 CrMo 8 KU		51 CrMoV 4	A 18 CrMo 45 KW	18 CrMo 4	16 Mo 5 KG; 16 Mo 5 KW			
	IS (INDIA)										
	KS REP. OF) (KOREA							SB 450M			
	GB/YB/JB/ SY/NB (PRC)		5CrMnMo			15CrMo		15Mn			

Material Designation in Accordance with Selected Standards

Standards		Material Group No												
		6	6	6	6	6	6	6	6	6	6	6	6	6
	NF/AFNOR (FRANCE)		16 NC 6		35 C 2; 38 C 2						E 690 D		38 B 3; 38B3	
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	K52440	4320; 4320H; G43200; H43200		5140; G51400	E51100; E52100; G51986; G52986		P6; T51606			A514 Grade B; K11630	A709-100; A709 Grade 100		
	BS (UK)		815 M 17		120 M 36						75 F 70			
	DIN (GERMANY)	34CrAlNi7-10; 34CrAlNi7; 34 CrAlNi 7	15 CrNi 6	17CrNi6-6	38Cr2; 38 Cr 2	105Cr4; 105 Cr 4	140Cr2; 140 Cr 3	15NiCr14; 15 NiCr 14	S690QL1; EStE 690V	26CrMo4-2; 26 CrMo 4	S700MC; QStE 690 TM	S690QL; TStE 690 V		20MnB4; 20 MnB 4
	Werkstoff (GERMANY)	1.8550; 1.2891	1.5919	1.5918	1.7003	1.2057	1.2008	1.2735	1.8988	1.7219	1.8974	1.8928		1.5525
	EN (EUROPE)	34CrAlNi7-10		17CrNi6-6	38Cr2				S690QL1	26CrMo4-2	S700MC	S690QL		20MnB4
	GOST (RUSSIA)		12ChN2				13Ch							
	JIS (JAPAN)		SNCM 415			SUJ 1								
	SS (SWEDEN)		2511; 2512									2625		
	UNE (SPAIN)				F.1200	F.120.J								
	UNI (ITALY)	34 CrAlNi 7			41 Cr 2 KB									
	IS (INDIA)		15NiCr1Mo12		40Cr1	105Cr1								
	KS REP. OF) (KOREA													
	GB/YB/JB/ SY/NB (PRC)				40Cr	GCr9	Cr06							

Material Designation in Accordance with Selected Standards

Standards		Material Group No								
		6	6	6	6	6	7	7	7	7
	NF/AFNOR (FRANCE)	P460NL1; A 590 FP			18 NCD 6		25 CD 4			20 CDV 6
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	K12202	A217 WC6; A372 Grade J; J12072; J12073; K11598	ASTM A387 Grade 11 Ckass 2; A 387 Grade 11 Class 2; SA387 GR 11 CLASS 2; SA387 Gr.11 CL2; SA387-11-2; K11789		5120; G51200	4130; 4130 H; 4130 RH; G41300; H41300			
	BS (UK)			621 A; 621 B			708 A 25			
	DIN (GERMANY)	P460NL1; P460 NL1; TStE 460	G17CrMo5-5; GS-17 CrMo 5 5	13CrMoSi5-5	18CrNiMo7-6; 17CrNiMo6; 17 CrNiMo 6	20Cr4; 20 Cr 4	25CrMo4; 25 CrMo 4; GS-25 CrMo 4; G 25 CrMo 4	21CrMoV5-11; 21 CrMoV 5 11	GS-35 CrMoV 10 4; G35 CrMoV 10-4	24CrMoV5-5
	Werkstoff (GERMANY)	1.8915	1.7357	1.7336	1.6587	1.7027	1.7218	1.8070	1.7755	1.7733
	EN (EUROPE)	P460NL1; P460 NL1	G17CrMo5-5	13CrMoSi5-5	18CrNiMo7-6	20Cr4	25CrMo4			
	GOST (RUSSIA)					20Ch	20ChM; 30ChM			
	JIS (JAPAN)	SHY 685 N; SHY 685 NS	SCPH 21			SCr 420	SCM 420 TK; SCM 430 M; SCM 430 RCH; SCM 430 TK; STKS 1			
	SS (SWEDEN)						2225			
	UNE (SPAIN)	P460NL1			F.1560; 14 NiCrMo 13		F.222; F.1256			
	UNI (ITALY)				18 NiCrMo 7		25 CrMo 4; 25 CrMo KB	35 NiCr 9		21 CrMoV 5 11
	IS (INDIA)									
	KS REP. OF) (KOREA					SCr 420	SCM 420; SCM 430			
	GB/YB/JB/ SY/NB (PRC)					20Cr; A20202	30CrMo			12Cr1MoV

Material Designation in Accordance with Selected Standards

Standards		Material Group No										
		7	7	7	7	7	7	7	7	7	7	7
	NF/AFNOR (FRANCE)		40 NCD 2; 40 NCD TS	20 NCD 2	18 NC 13	35 NC 6	34 CrNiMo 8; 35 NCD 6		30 NCD 2	30 CND 8; 30 NCD 8	20MV6; TS E 455 4; TU E 455 4	
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	4340; 4340 H; 9850; G43400; G98500; H43400; K23028	8640; 8640 H; 8740; 8740 H; 8742; G86400; G87400; G87420; H86400; H87400; K11640	8617; 8617 H; 8620; 8620 H; 8620 RH; 8617; G86170; G86200; H86170; H86200; K12147		3135	4340; G43400; 4337; G43370		8630	4340; G43400	K01907	300M; 4340M; K44220
	BS (UK)	817 M 40; En 24		805 H 20; 805 M 20; 806 M 20; En 362	653 M 31	640 A 35	816 M 6; 817 M 40			823 M 30	55 C; GR 55; Grade 55	S 155
	DIN (GERMANY)	40NiCrMo6; 40 NiCrMo 6	40NiCrMo2-2; 40 NiCrMo 2 2	20NiCrMo2-2; 21NiCrMo2; 21 NiCrMo 2	31NiCr14; 31 NiCr 14	36NiCr6; 36 NiCr 6	34CrNiMo6; 34 CrNiMo 6	31CrMoV9; 31 CrMoV 9	30NiCrMo2-2; 30 NiCrMo 2 2	30CrNiMo8	20MnV6; 20MnVS6; 20 MnV 6 N	41SiNiCrMoV7-6
	Werkstoff (GERMANY)	1.6565		1.6523	1.5755	1.5710	1.6582	1.8519	1.6545	1.6580	1.5217	1.6928
	EN (EUROPE)	40NiCrMo6		20NiCrMo2-2		36NiCr6	34CrNiMo6	31CrMoV9			20MnV6; S460	
	GOST (RUSSIA)	40Ch2N2MA	38ChGNM	20ChGNM			38Ch2N2MA	30Ch3MF				
	JIS (JAPAN)	SNB 24-1; SNB 24-2; SNB 24-3; SNB 24-4; SNB 24-5; SNCM 439 RCH	SNCM 240; SNCM 240 RCH	SNCM 220; SNCM 220 H; SNCM 220 HRCH; SNCM 220 M; SNCM 220 RCH; SNCM 21 H		SNC 236				SNCM 431		
	SS (SWEDEN)			2506			2541					
	UNE (SPAIN)	F.1275; 40 NiCrMo 7	40 NiCrMo 2 DF; F.1205; F.1204; TO.E	20 NiCrMo 2; 20 NiCrMo 3-1; F.1522; F.1534			F.1272			30 CrNi Mo 8		
	UNI (ITALY)		40 NiCrMo 2; 40 NiCrMo 2 KB	20 NiCrMo 2			35 NiCrMo 6 KB		30 NiCrMo 2 KB			
	IS (INDIA)	40Ni2Cr1Mo28		20NiCrMo2								
	KS REP. OF) (KOREA	SNB 24-1; SNB 24-2; SNB 24-3; SNB 24-4; SNB 24-5	SNCM 240	SNCM 220; SNCM 220H		SNC 236						
	GB/YB/JB/ SY/NB (PRC)	40CrNiMoA		21NiCrMo2	30CrNi3A	40CrNi	40CrNiMoA				20MnV	

Material Designation in Accordance with Selected Standards

Standards		Material Group No										
		7	7	7	7	7	7	7	7	7	7	7
	NF/AFNOR (FRANCE)	E690D	20 NCD 2; 20NiCrMo2				15 CDV 6; 9160/C 33; 9160 C 073					
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	A514; A514/T-1; K11630							WC5; A217 grade WC5			E4340; G43406
	BS (UK)	75 F 70									S 153; S 154	
	DIN (GERMANY)	S700MC; QStE 690 TM	20NiCrMo2	47CrMo4; 47 CrMo 4	38MnSiVS5; 38 MnSiVS 5	20NiCrMoS2-2; 21NiCrMoS2	12CrMoV6-9; 12 CrMoV 6 9		G22NiMoCr5-6	St 145/160	32NiCrMo10-4; 32 NiCrMo 10 4	30CrMoV9; 30 CrMoV 9
	Werkstoff (GERMANY)	1.8974; 1.0966	1.6522	1.2332	1.5231	1.6526	1.7734; 1.7736		1.6760	1.8863	1.6743	1.7707
	EN (EUROPE)	S700MC	20NiCrMo2			20NiCrMoS2-2	15CrMnMoV5-4-9-3; 4334; FE-WL 1806; FE-PL 52 S	19MnV6; E470		St 145/160		30CrMoV9
	GOST (RUSSIA)										38ChN3MA	
	JIS (JAPAN)		SNCM 220 H; SNCM 21 H									
	SS (SWEDEN)					92506		2142				
	UNE (SPAIN)		20 NiCrMo 2; F.1527								F.127	
	UNI (ITALY)						15CrMoV6					
	IS (INDIA)											
	KS REP. OF) (KOREA											
	GB/YB/JB/ SY/NB (PRC)			42CrMo ; 42CrMnMo								

Material Designation in Accordance with Selected Standards

Standards		Material Group No										
		8	8	8	8	8	8	8	8	8	8	8
	NF/AFNOR (FRANCE)		30 CD 12		30 CD 12	40 NCD 3; 35 NCD 5	50CrV4RR; 50 CV 4; 51 CV 4	30 NC 11	Z 120 M 12	42 CD 4		
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)					9840; G98400	6145; 6150; 6150 H; G61500; H61500	3435	A128 Grade A; J91109; J91129; J91139; J91149	4142; G41420	4140 H; 4140 RH; 4140 HT	
	BS (UK)	897 M 39	722 M 24		722 M 24	817 M 37; 816 M 40	735 A 50; 735 A 51; 735 H 51; 735 M 50; En 47		BW 10	708 M 40		
	DIN (GERMANY)	40CrMoV13-9; 39CrMoV13-9; 39 CrMoV 13 9	31CrMo12; 31 CrMo 12	58CrV4; 58 CrV 4	32CrMo12; 32 CrMo 12	36CrNiMo4; 36 CrNiMo 4	51CrV4; 50CrV4; 50 CrV 4	36NiCr10; 36 NiCr 10	X120Mn12; X 120 Mn 12; G-X120 Mn 12	47CrMo4	42CrMo4+QT	21MnCr6-5
	Werkstoff (GERMANY)	1.8523	1.8515	1.8161	1.7361	1.6511	1.8159	1.5736	1.3401; 1.3403	1.2332		1.8705
	EN (EUROPE)	40CrMoV13-9	31CrMo12; 40B		32CrMo12	36CrNiMo4	51CrV4			47CrMo4		
	GOST (RUSSIA)					40ChGNM; 40ChN2MA	50ChFA; 50ChGFA		110G13L			
	JIS (JAPAN)					SUP 10	SUP 10; SUP 10-CSP; SUP 10 M	SNC 631; SNC 631 H; SNC 631 M	SCMnH 1; SCMnH 11	SCM; SCM 440		
	SS (SWEDEN)		2240		2240		2230		2183	2244		
	UNE (SPAIN)		F.1712; F.124.A		F.124.A	F.128; F.1280; 35 NiCrMo 4	F.143; F.143.A; 51 CrV 4; F.1430		F.240.A; F.240.A1; AM-X 120 Mn 12; F.8251	42 CrMo 4		
	UNI (ITALY)	36 CrMoV 12	32 CrMo 12		30 CrMo 12	39 NiCrMo 4; 39 NiCrMo 4 KB	50 CrV 4		GX 120 Mn 12	42 CrMo 4		
	IS (INDIA)						T50Cr1V23					
	KS REP. OF) (KOREA					SPS 10	SPS 10		SCMnH 1, SCMn H 11			
	GB/YB/JB/ SY/NB (PRC)					40CrNiMo	50CrVA	20CrNi3A	ZGMn13	42CrMo; 42CrMnMo	42CrMo; 42CrMnMo	

Material Designation in Accordance with Selected Standards

Standards		Material Group No											
		8	8	8	9	9	9	9	9	9	9	9	9
	NF/AFNOR (FRANCE)	45 SCV 6						42 C 2; 45 C 2					16 NCD 17
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)							5045; 5046; 5150; 5150 H; G50460; G51500; H51500					
	BS (UK)				830 M 31								5 S.82; 835 H 15; 835 N 15; En 39 B
	DIN (GERMANY)	45SiCrV6; 45 SiCrV 6	S890Q	45B2	31NiCrMo13-4	35NiCr18	17MnCr5-3	46Cr2; 46 Cr 2; 45 Cr 2	62SiMnCr4; 62 SiMnCr 4	48CrMoV6-7; 48 CrMoV 6 7	65MnCrMo4; 65 MnCrMo 4	80CrV2; 80 CrV 2; 80 CrV 2 3	15NiCrMo16-5; 15 NiCrMo 16 5
	Werkstoff (GERMANY)	1.2249	1.8940	1.5513	1.6659	1.5864	1.8715	1.7006; 1.7005	1.2101	1.2323	1.2309	1.2235; 1.2236	1.6723
	EN (EUROPE)		S890Q				17MnCr5-3	46Cr2				80CrV2	
	GOST (RUSSIA)											8ChF; 9ChF	
	JIS (JAPAN)												
	SS (SWEDEN)				2534								
	UNE (SPAIN)				F.270							F.520.J	F.156
	UNI (ITALY)							45 Cr 2					
	IS (INDIA)					30Ni4Cr1							
	KS REP. OF) (KOREA												
	GB/YB/JB/ SY/NB (PRC)	4SiCrV						50Cr					

Material Designation in Accordance with Selected Standards

Standards		Material Group No								
		9	10	10	10	10	10	10	10	10
	NF/AFNOR (FRANCE)	55 NCDV 7; 55 NiCrMoV7	9 Ni; Z 8 N 09	Z 18 N 5; Z 10 N 05; 5 Ni	Z 200 CD 12; Z 210 CW 12-01; X210CrW12-1	X 40 CrMoV 5; Z 40 CDV 5	X 100 CrMoV 5; Z 100 CDW 5	Z 30 WCV 9		
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	L6; T61206	K71340; K81340	2515; A2515; 2517; E2517; K41583	D4; T30404; D6; T30406	H13; T20813	A2; T30102	H21; T20821		
	BS (UK)		1501-509; 1501-510; 502-650; 509-690		BD6	BH 13	BA 2	BH 21		
	DIN (GERMANY)	55NiCrMoV7; 56 NiCrMoV 7	X8Ni9	X12Ni5; 12Ni19;	X210CrW12; X 210 CrW 12	X40CrMoV5-1; X40 CrMoV 5 1	X100CrMoV5; X100CrMoV5-1; X 100 CrMoV 5 1	X30WCrV9-3; X30WCrV9 3	X165CrMoV12; X 165 CrMoV 12	X36CrMo17; X38CrMo16
	Werkstoff (GERMANY)	1.2714	1.5662	1.5680	1.2436	1.2344	1.2363	1.2581	1.2601	1.2316
	EN (EUROPE)	55NiCrMoV7	X8Ni9	X12Ni5	X210CrW12	X40CrMoV5-1	X100CrMoV5	X30WCrV9-3; X30WCrV9 3	X165CrMoV12	X38CrMo16
	GOST (RUSSIA)	5ChGNM				4Ch5MF1S		3Ch2W8F		
	JIS (JAPAN)	SKT 4	SL9N520; SL9N590; STBL 690; STPL 690; SL9N53; SL9N60; STBL 70; STPL 70	SL5N590; SL5N60	SKD 2	SKD 61	SKD 12	SKD 5		
	SS (SWEDEN)				2312	2242	2260		2310	
	UNE (SPAIN)	F.520.B; 55 NiCrMoV 7; F.5307	F.2645; XBNi 09		F.5213; X210 CrW 12	F.5318; X 40 CrMoSiV 5	F.536; F.5227; X 100 CrMoV 5	F.5323; X 30 WCrV 9		
	UNI (ITALY)	55 NiCrMoV 7 KU; 56 NiCrMoV 7 KU	X 10 Ni 9; X 12 Ni 09		X 215 CrW 12 1 KU	X 40 CrMoV 5 1 1 KU	X 100 CrMoV 5 1 KU	X 30 WCrV 9 3 KU	X165CrMoW12KU	
	IS (INDIA)									
	KS REP. OF) (KOREA	STF 4	SL9N590; SL9N520			STD 61	STD 12	STD 5		
	GB/YB/JB/ SY/NB (PRC)	5CrNiMo				40CrMoV5	Cr5Mo1V	3Cr2W8V	Cr12MoV	

Material Designation in Accordance with Selected Standards

Standards		Material Group No							
		10	10	10	10	10	10	10	10
	NF/AFNOR (FRANCE)	Z 85 WDCV 06-05-04-02; 6-5-2; HS6-5-2	Z 38 CDV 5; X38CrMoV	Z 35 CWDV 5; X35CrWMoV5	X 160 CrMoV 12; Z 160 CDV 12	Z 35 V CD 17.S	20 MC 5	45 NCD 16	
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	M2; T11302	H11; T20811	H12; T20812	D2; T30402				
	BS (UK)	BM 2; BM2	BH 11	BH 12	BD 2				
	DIN (GERMANY)	HS6-5-2; HS 6-5-2; S 6-5-2	X37CrMoV5-1; X38CrMoV5-1	X37CrMoW5-1; X 37 CrMoW 5 1; X35CrWMoV5; X 35 CrWMoV 5	X153CrMoV12; X155CrVMo12-1; X155 CrVMo 12 1	X33CrS16; X 33 CrS 16	21MnCr5; 21 MnCr 5	X45NiCrMo4; 45NiCrMo16; X 45 NiCrMo 4	X19NiCrMo4; X 19 NiCrMo 4; GX19NiCrMo4
	Werkstoff (GERMANY)	1.3343	1.2343	1.2606; 1.2605	1.2379	1.2085	1.2162	1.2767	1.2764
	EN (EUROPE)	HS6-5-2	X37CrMoV5-1	X37CrMoW5-1; X35CrWMoV5	X153CrMoV12	X33CrS16	21MnCr5	X45NiCrMo4	X19NiCrMo4
	GOST (RUSSIA)	R6M5	4Ch5MFS						
	JIS (JAPAN)	SKH 51	SKD 6	SKD 62	SKD 10; SKD 11				
	SS (SWEDEN)	2722			2310				
	UNE (SPAIN)	F.550.A; F.5604	F.520.G; F.5137; X 37 CrMoSiV 5	F.537	F.520.A				
	UNI (ITALY)		X 37 CrMoV 5 1 KU	X 35 CrMoW 05 KU	X 155 CrVMo 12 1 KU			40 NiCrMoV 8 KU	
	IS (INDIA)								
	KS REP. OF) (KOREA	SKH 51							
	GB/YB/JB/ SY/NB (PRC)	W6Mo5Cr4V2	4Cr5MoVS	4Cr5W2VSi	Cr12MoV				

Material Designation in Accordance with Selected Standards

Standards		Material Group No							
		10	10	10	10	10	10	10	10
	NF/AFNOR (FRANCE)	X200Cr12; Z 200 C 12				80 DCV 40; 80MoCrV42-16			Z 120 WDCV 06-05-04-03; HS6-5-3; Z 120 WDCV 06-05-04-04; HS6-5-4
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	D3; T30403			501; 502; S50100; S50200; K41545; SA213 T5	M50; T11350	K91231; AMS 6278	S7; T41907	M3 Class 2; T11323
	BS (UK)	BD 3							
	DIN (GERMANY)	X210Cr12; X 210 Cr 12	X38CrMoV5-3; X 38 CrMoV 5 3	27NiCrMoV15-6; 26NiCrMoV14-5; 26 NiCrMoV 14 5	X12CrMo5; X 11 CrMo 5; 12CrMo19-5; 12 CrMo 19 5; X16CrMo5-1	80MoCrV42-16; 80 MoCrV 42 16	M50NiL	50CrMoV13-4; 50 CrMoV 13 4; 50CrMoV13-15	HS6-5-3; HS 6-5-3; S 6-5-3
	Werkstoff (GERMANY)	1.2080	1.2367	1.6957	1.7362; 1.7366	1.3551	1.3590	1.2357; 1.2355	1.3344
	EN (EUROPE)	X210Cr12	X38CrMoV5-3		X12CrMo5; X16CrMo5-1	80MoCrV42-16	13MoCrNiV42-16-14	50CrMoV13-15	HS6-5-3
	GOST (RUSSIA)	Ch12							
	JIS (JAPAN)	SKD 1			SCMV 6; SFVA F 5 A; SFVA F 5 B; SFVA F 5 C; SFVA 5 D; SNB 5 Class 1; STBA 29; STFA 25; STPA 25				SKH 52; SKH 53
	SS (SWEDEN)								2725
	UNE (SPAIN)	F.521; F.5212; X 210 Cr 12			F.240.B; TU.J	80 MoCrV 40-16; F.1351			F.5605; 6-5-3
	UNI (ITALY)	X 205 Cr 12 KU							
	IS (INDIA)	T215Cr12							
	KS REP. OF) (KOREA								
	GB/YB/JB/ SY/NB (PRC)	Cr12			1Cr5Mo				

Material Designation in Accordance with Selected Standards

Standards		Material Group No					
		10	11	11	11	11	11
	NF/AFNOR (FRANCE)			Z 110 WKCDV 07-05-04-04-02	Z 110 DKCWV 09-08-04-02-01; 2-9-1-8; HS2-9-1-8	Z 130 WKCDV 10-10-04-04-03; 10-4-3-10; HS10-4-3-10	HS12-1-4-5
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)		M33; T11333; M34; T11334	M41; T11341	M42; T11342		T15; T12015
	BS (UK)		BM 34		BM 42	BT 42	BT 15
	DIN (GERMANY)	HS6-5-3C; HS 6-5-3 C	HS2-9-2-8; S 2-9-2-8	HS7-4-2-5; S 7-4-2-5	HS2-10-1-8; S 2-10-1-8	HS10-4-3-10; S 10-4-3-10	HS12-1-4-5; S 12-1-4-5
	Werkstoff (GERMANY)	1.3345	1.3249	1.3246	1.3247	1.3207	1.3202
	EN (EUROPE)	HS6-5-3C		HS7-4-2-5	HS2-10-1-8	HS10-4-3-10	
	GOST (RUSSIA)					R12F3K10M3-SCh	R13F4K5
	JIS (JAPAN)				SKH 59	SKH 57	
	SS (SWEDEN)				2716		
	UNE (SPAIN)		2-9-2-8; F.5611	F.5615; HS 7-4-2-5	F.5617; HS 2-10-1-8	F.550.B; F.5553; HS 10-4-3-10	F.5563; HS 12-1-5-5
	UNI (ITALY)				HS 2-9-1-8	HS 10-4-3-10	HS 12-1-5-5
	IS (INDIA)						
	KS REP. OF) (KOREA						
	GB/YB/JB/ SY/NB (PRC)			W7Mo4Cr4V2Co5	W2Mo9Cr4VCo8		W12Cr4V5Co5

Material Designation in Accordance with Selected Standards

Standards		Material Group No						
		11	11	11	11	11	11	11
	NF/AFNOR (FRANCE)	6-5-2-5; 6-5-2-5 HC; HS6-5-2-5; HS6-5-2-5HC; Z 85 WDKCV 06-05-05-04-02; Z 90 WDKCV 06-05-05-04-02	Z 100 DCWV 09-04-02-02; 2-9-2; HS2-9-2	Z 80 WKCV 19-05-04-01; HS 18-1-1-5	18-0-1; HS 18-0-1; Z 80 WCV 18-04-01			
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)		M7; T11307	T4; T12004	T1; T12001	HY 130; UNS K51255	H19; T20819	HY 100; K32045; J42240
	BS (UK)	BM 35		BT 4	BT 1			
	DIN (GERMANY)	HS6-5-2-5; S 6-5-2-5	HS2-9-2; S 2-9-2	HS18-1-2-5; S 18-1-2-5	HS18-0-1; S 18-0-1	X10NiMoCrV6	38CrCoWV18-17-17; 38 CrCoWV 18 17 17	20NiCrMo14-6; G19NiCrMo12-6; GS-19 NiCrMo 12 6
	Werkstoff (GERMANY)	1.3243	1.3348	1.3255	1.3355		1.2661	1.6742; 1.6783
	EN (EUROPE)	HS6-5-2-5	HS2-9-2	HS18-1-2-5	HS18-0-1		38CrCoWV18-17-17	
	GOST (RUSSIA)	R6M5K5			R18			12ChN3MD; 12ChN3MDF; AB2
	JIS (JAPAN)	SKH 55	SKH 58	SKH 3	SKH 2			
	SS (SWEDEN)	2723	2782		2750			
	UNE (SPAIN)	F.550.C; F.5613; HS 6-5-2-5	F.5607; HS 2-9-2	F.5530; HS 18-1-1-5	F.5520; HS 18-0-1			
	UNI (ITALY)	HS 6-5-2-5	HS 2 9 2	HS 18-1-1-5	HS 18-0-1			
	IS (INDIA)			T75W18Co6Cr4V1Mo75				
	KS REP. OF) (KOREA	SKH 55						
	GB/YB/JB/ SY/NB (PRC)		W2Mo9Cr4V2	W18Cr4VCo5	W18Cr4V			

Material Designation in Accordance with Selected Standards

Standards		Material Group No								
		11	11	11	11	11	12	12	12	12
	NF/AFNOR (FRANCE)		Z 2 CN 18-10 M				Z 13 CF 17	Z 12 CAS 18		Z 8 CD 17-01
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	M62, T11362	K92710	K92890; AMS 6512	K93120; AMS 6514	K93540; AMS 6515	430 F; S43020			434; S43400
	BS (UK)			BS S162						434 S 17
	DIN (GERMANY)		X2NiCoMo18-8-5	X2NiCoMo18-9-5; X2NiCoMo18-8-5	X2NiCoMo18-8-5	X2NiCoMo18-12; X2NiCoMoTi18-12-4	X12CrMoS17; X 12 CrMoS 17	X10CrAlSi18; X10CrAl18	X10CrAlSi13; X10CrAl13; X 10 CrAl 13	X6CrMo17-1; X 6 CrMo 17 1
	Werkstoff (GERMANY)		1.636	1.6358; 1.6359	1.6354; 1.6359	1.6355; 1.6356	1.4104	1.4742	1.4724	1.4113
	EN (EUROPE)	HS 6-10-2	X2NiCoMo18-8-5	X2NiCoMo18-8-5	X2NiCoMo18-8-5		X12CrMoS17	X10CrAlSi18	X10CrAlSi13	X6CrMo17-1
	GOST (RUSSIA)							15Ch18SJu	10Ch13SJu	
	JIS (JAPAN)						SUS 430 F	SUS 21		SUS 434
	SS (SWEDEN)						2383			2325
	UNE (SPAIN)						F.3413	F.3113; X 10 CrAl 18	F.3152; X 10 CrAl 13	F.3116
	UNI (ITALY)						X 10 CrS 17		X 10 CrAl 12	
	IS (INDIA)									
	KS REP. OF) (KOREA									STS 434
	GB/YB/JB/ SY/NB (PRC)						Y1Cr17	Cr17	1Cr13SiAl	1Cr17Mo

Material Designation in Accordance with Selected Standards

Standards		Material Group No									
		12	12	12	12	12	12	12	12	12	12
	NF/AFNOR (FRANCE)	Z 80 CSN 20-02	Z 10 CAS 24	Z 8 C 13 FF	X 89 CrMoV 18-1	Z 8 C 12	Z 10 C 13; Z 13 C 13	Z 8 CA 12	Z 11 CF 13		Z 8 C 17
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	HNV-6; HNV6; S65006	446; S44600	429; S42900	440B; S44003	410S; 403; S41008; S40300	410; S41000; S41001; CA-15; ASTM A182 Fa	405; S40500	416; S41600		430; S43000
	BS (UK)	443 S 65				403 S 17	410 S 21; ANC 1 grade A; En 56 A	405 S 17	416 S 21; En 56 AM		430 S 17; 430 S 15; 430 S 18
	DIN (GERMANY)	X80CrNiSi20; X 80 CrNiSi 20	X10CrAlSi25; X10CrAl24; X 10 CrAl 24	X7Cr14; X 7 Cr 14; G-X 7 Cr 13	X90CrMoV18	X6Cr13; X 6 Cr 13	X12Cr13; GX12Cr13; X 12 Cr 13; X 10 Cr 13	X6CrAl13; X 6 CrAl 13	X12CrS13; X 12 CrS 13	X8Cr17	X6Cr17; X 6 Cr 17
	Werkstoff (GERMANY)	1.4747	1.4762	1.4001	1.4112	1.4000	1.4006	1.4002	1.4005	1.4015	1.4016
	EN (EUROPE)		X10CrAlSi25	X7Cr14	X90CrMoV18	X6Cr13	X13Cr13	X6CrAl13	X12CrS13		X6Cr17
	GOST (RUSSIA)					08Ch13	12Ch13; 15Ch13L				12Ch17
	JIS (JAPAN)	SUH 4	SUH 446	SUS 4105		SUS 403; SUS 403 FB; SUS 410 S	SUS 410; SUS 410 FB; SUS 410 TB; SUS 410 TKA; SUS 410 TKC; SUS F 410-A; SUS F 410-B; SUS F 410-C	SUS 405; SUS 405 TB; SUS 405 TP	SUS 416		SUS 430; SUS 430 TB; SUS 430 TKA; SUS 430 TKC; SUS 430 TP
	SS (SWEDEN)		2322			2301	2302		2380		2320
	UNE (SPAIN)	F.320B	F.3154		SUS 440B	F.3110	F.3401	F.3111	F.3411		F.310.D; F.3113
	UNI (ITALY)	X 80 CrSiNi 20				X 6 Cr 13	X 12 Cr 13 KG; X 12 Cr 13 KW	X 6 CrAl 13	X12 CrS 13		X 8 Cr 17
	IS (INDIA)	X80Cr20Si2Ni1									
	KS REP. OF) (KOREA	STR 1	STR 446			STS 403	STS 410	STS 405	STS 416		STS 430
	GB/YB/JB/ SY/NB (PRC)		2Cr25N	MI0Cr18Ni12	9Cr18MoV	1Cr13; 1Cr12	1Cr13	0Cr13Al	Y1Cr13		1Cr17

Material Designation in Accordance with Selected Standards

Standards		Material Group No								
		12	12	12	12	12	12	12	12	12
	NF/AFNOR (FRANCE)	Z 20 C 13 M	Z 33 C 13 Cl; Z 33 C 13; Z 30 C 13			Z 4 CT 17	Z 12 C 25	Z 4 CNb 17	Z 3 CT 12	Z 6 CND 16-04-01
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)		420F; S42020			439; 430 Ti; S43035; S43036; XM 8	446-1		409; S40900	
	BS (UK)	ANC 1 grade B; ANC 1 grade C; 420 C 24; 420 C 29	420 S 37; 420 S 45; En 56 C; En 56 D	452 C 11					LW 19; 409 S 19	
	DIN (GERMANY)	GX20Cr14	X30Cr13; X 30 Cr 13	GX120Cr29; G-X 120 Cr 29	X20CrMo13; X 20 CrMo 13	X3CrTi17; X 6 CrTi 17	X18CrN28	X3CrNb17; X 6 CrNb 17	X2CrTi12; X 6 CrTi 12	X4CrNiMo16-5-1; X 4 CrNiMo 16 5
	Werkstoff (GERMANY)	1.4027	1.4028	1.4086	1.4720	1.4510	1.4749	1.4511	1.4512	1.4418
	EN (EUROPE)		X30Cr13			X3CrTi17	X18CrN28	X3CrNb17	X2CrTi12	X4CrNiMo16-5-1
	GOST (RUSSIA)	20Ch13L	30Ch13			08Ch17T				
	JIS (JAPAN)	SCS 2	SUS 420 F; SUS 420 J 2; SUS 420 J 2-CSP; SUS 420 J 2 FB; SUS 420 J 2 TKA			SUS 430 LX; SUS 430 LXTB; SUS XM8TB		SUS 430 LX; SUS 430 LXTB	SUH 409 L; SUS 409 LTB; SUS 409 TB	
	SS (SWEDEN)		2304							2387
	UNE (SPAIN)		F.3403			F.3115; X 5 CrTi 17		F.3122; X 5 CrNb 17	F.3121	
	UNI (ITALY)		X 30 Cr 13			X 6 CrTi 17		X 6 CrNb 17	X 6 CrTi 12	
	IS (INDIA)		X30Cr13							
	KS REP. OF) (KOREA		STS 420J2			STS 430LX		STS 430LX	SUH 409	
	GB/YB/JB/ SY/NB (PRC)	ZG2Cr13	3Cr13			1Cr17Ti		1Cr17		

Material Designation in Accordance with Selected Standards

Standards		Material Group No							
		12	12	12	13	13	13	13	13
	NF/AFNOR (FRANCE)	Z 20 C 13 Cl; Z 20 C 13	TU Z 10 CDVNA 49-213; TU Z 10 CDVNA 49-219	Z 3 CDT 18-02; Z 3 CDT 18-2	Z 40 C 14 Cl; Z 40 C 14		Z 20 CDNbV 11	Z 20 C 13 Cl; Z 20 C 13	Z 44 C 14 Cl; Z 44 C 14; Z 38 C 13 M
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	420; S42000	K91560; K90901; P91; F91; T91	443; 444; S44300; S44400	420; S42000; S42080			420; S42000	420; S42000
	BS (UK)	420 S 37; 420 S 29; En 56 C				BS 762		420 S 37; 420 S 29; En 56 C	
	DIN (GERMANY)	X20Cr13; X 20 Cr 13	X10CrMoVNb9-1; X 10 CrMoVNb 9 1	X2CrMoTi18-2; X 2 CrMoTi 18 2	X39Cr13; X 38 Cr 13	X20CrMoV11-1; X20CrMoV12-1; X 20 CrMoV 12 1	X22CrMoV12-1; X21CrMoNiV12-1; X 22 CrMoV 12 1	X20Cr13; X 20 Cr 13	X46Cr13; X 46 Cr 13
	Werkstoff (GERMANY)	1.4021	1.4903	1.4521	1.4031	1.4922	1.4923; 1.4934	1.4021	1.4034
	EN (EUROPE)	X20Cr13	X10CrMoVNb9-1	X2CrMoTi18-2	X39Cr13	X20CrMoV11-1; X20CrMoV12-1	X22CrMoV12-1; X21CrMoNiV12-1	X20Cr13	X46Cr13
	GOST (RUSSIA)	20Ch13			40Ch13		18Ch11MNFB; EP 291; 2Ch11MFBN	20Ch13	40Ch13
	JIS (JAPAN)	SUS 420 J 1; SUS 420 J 1 FB; SUS 420 J 1 TKA		SUS 444; SUS 444 TB; SUS 444 TP	SUS 420 J 2			SUS 420 J 1; SUS 420 J 1 FB; SUS 420 J 1 TKA	
	SS (SWEDEN)	2303		2326	2304	2317		2303	
	UNE (SPAIN)	F.310.J; F.3402		F.3123; X 2 CrMoTiNb 18 2	F.3404; X40 Cr 13			F.310.J; F.3402; X 20 Cr 13	F.3405; X 40 Cr 13
	UNI (ITALY)	X 20 Cr 13			X 40 Cr 14	X 20 CrMoNi 12 01		X 20 Cr 13	X 40 Cr 14
	IS (INDIA)	X20Cr13						X20Cr13	
	KS REP. OF) (KOREA			STS 444					
	GB/YB/JB/ SY/NB (PRC)	2Cr13		1Cr15	3Cr13			2Cr13	4Cr13

Material Designation in Accordance with Selected Standards

Standards		Material Group No 13	13	13	13	13	13	13	13
	NF/AFNOR (FRANCE)	Z 15 CN 16.02 Cl; Z 15 CN 16-02	Z 6 CN 13-04; Z 6 CN 13-4; Z 4 CND 13.4 M			Z 45 CS 9	X40Cr14; Z 40 C 14	Z 4 CND 13 4 M	MARVAL X12H
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	431; S43100	415; CA 6-NM; S41500; J91540; ASTM A182 F6NM		422; HNV 8; S42200	HNV 3; S65007		CA 6-NM; J91540	S10120; AMS 5935
	BS (UK)	431 S 29; En 57				401 S 45; En 52		425 C 11; 425 C 12	
	DIN (GERMANY)	X17CrNi16-2; X 20 CrNi 17 2; X 22 CrNi 17	X3CrNiMo13-4; X 4 CrNi 13 4	X39CrMo17-1; X 35 CrMo 17	X20CrMoWV12-1; X 20 CrMoWV 12 1	X45CrSi9-3; X 45 CrS 9 3; G-X 45 CrNi 9 3	X40Cr14; X 42 Cr 13	GX4CrNi13-4; G-X 5 CrNi 13 4	X1CrNiMoAlTi 12-10-2; X 1 CrNiMoAlTi 12 10 2
	Werkstoff (GERMANY)	1.4057	1.4313	1.4122	1.4935	1.4718	1.2083; 1.2083 ESR	1.4317	1.4596
	EN (EUROPE)	X17CrNi16-2	X3CrNiMo13-4	X39CrMo17-1	X20CrMoWV12-1	X45CrSi9-3	X40Cr14	GX4CrNi13-4	X1CrNiMoAlTi 12-10-2
	GOST (RUSSIA)	14Ch17N2; 20Ch17N2				40Ch9S2; 4Ch9S2			
	JIS (JAPAN)	SUS 431; SUS 431 FB				SUH 1	SUS 420 J 2	SCS 6; SCS 6X	
	SS (SWEDEN)	2321	2384				2314		
	UNE (SPAIN)	F.313; F.3427; X 19 CrNi 17 2				F.322; F.3220	F.5263; X 40 Cr 13		
	UNI (ITALY)	X16 CrNi 16		X 39 CrMo 17-1		X 45 CrSi 8	X 41 Cr 13 KU	GX 6 CrNi 13 04	
	IS (INDIA)					X45Cr9Si3			
	KS REP. OF) (KOREA	STS 431				STR 1			
	GB/YB/JB/ SY/NB (PRC)	1Cr17Ni2				4Cr9Si2	3Cr13		

Material Designation in Accordance with Selected Standards

Standards		Material Group No 13	13	Material Group No 14	14	14	14	14	14
	NF/AFNOR (FRANCE)	Z 100 CD 17 Cl; Z 100 CD 17		Z 6 CNT 18-10		Z 6 CND 17-11; Z 6 CND 17-11-02-FF; Z 7 CND 17-11-02; Z 7 CND 17-12-02	Z20CNS25.04	Z 10 CN 18.9 M	
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	440C; S44004; S44025		321; S32100		316; 316H; 316 H; S31600; S31609		J92701	
	BS (UK)			321 S 31; LW 18; LW 24; LWCF 18; LWCF 24; 321 S 12; 321 S 50; 321 S 51; 321 S 50-490; 1010; 1115		316 S 31; 316 S 33; 316 S 17; 316 S 19; 316 S 40; 316 S 41; 845		ANC 3 grade A; ANC 3 A; 302 C 25	
	DIN (GERMANY)	X105CrMo17; X105 CrMo 17	GX4CrNiMo16-5-1; G-X 5 CrNiMo 15 5	X6CrNiTi18-10	X2CrNiMo18-13-3	X5CrNiMo17-12-2; X 5 CrNiMo 18 10	X20CrNiSi25-4	GX10CrNi18-8	GX7CrNiMoCuNb18-18; G-X 7 CrNiMoCuNb 18 18
	Werkstoff (GERMANY)	1.4125	1.441	1.4541	1.4425	1.4401	1.4821	1.4312	1.4585
	EN (EUROPE)	X105CrMo17		X6CrNiTi18-10		X5CrNiMo17-12-2	X20CrNiSi25-4		
	GOST (RUSSIA)	95Ch18; 110Ch18M-SchD		06Ch18N10T; 08Ch18N10T; 09Ch18N10T; 12Ch18N10T		08Ch16N11M3		10Ch18N9L	
	JIS (JAPAN)	SUS 440 C		SUS 321		SUS 316; SUS 316 A; SUS 316 FB; SUS 316 HFB; SUS 316 HTB; SUS 316 HTP; SUS 316 TB; SUS 316 TBS		SCS 12; SCS 13A	
	SS (SWEDEN)			2337		2347			
	UNE (SPAIN)			F.332; F.3523; X 6 CrNiTi 18 10		F.310.A; F.3534; X 5 CrNiMo 17 12 2			
	UNI (ITALY)			X 6 CrNiTi 18 11; X 6 CrNiTi 18 11 KG; X 6 CrNiTi 18 11 KW; X 6 CrNiTi 18 11 KT		X 5 CrNiMo 17 12; X 5 CrNiMo 17 12 KG; X 5 CrNiMo 17 12 KW			X 6 CrNiMoTi 17 12
	IS (INDIA)								
	KS REP. OF) (KOREA			STS 321		STS 316		SSC 13A	
	GB/YB/JB/ SY/NB (PRC)	9Cr18		1Cr18Ni9Ti		0Cr17Ni12Mo2		ZG0Cr18Ni9Ti	

Material Designation in Accordance with Selected Standards

Standards		Material Group No						
		14	14	14	14	14	14	14
	NF/AFNOR (FRANCE)	Z 4 CNNb 19.10 M; Z 6 CNNb 18.10 M	23 NCDU 25.20 M	Z 4 CN 19-10 FF; Z 5 CN 17-08; Z 6 CN 18-09; Z 7 CN 18-09	Z 1 CN 18-12; Z 2 CN 18-10; Z 3 CN 19.10 M; Z 3 CN 18-10; Z 3 CN 19-11; Z 3 CN 19-11 FF	Z 6 CN 18.10 M; Z 6 CN 19.9 M	Z 10 CND 18.9 M	Z 12 CMN 17-07 Az
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	347; J92640; J82710		304; S30400	304L; 304 L; S30403; J92500; J92600	304H; 304 H; CF-8; J92590; J92600; J92650; J92710	J92701	201; S20100
	BS (UK)	347 C 17; 821 grade Nb		304 S 15; 304 S 31; LW 13; LW 15; LW 21; LWCF 13; LWCF 15; 302 S 17; 304 S 16; 304 S 17; 304 S 40	304 S 11; LW 20; LWCF 20; S.536; T.74; 304 C 12; 305 S 11	304 C 15	ANC 3 grade A; ANC 3 A; 3025 S 25	
	DIN (GERMANY)	GX5CrNiNb19-11; G-X 5 CrNiNb 18 9	GX7NiCrMoCuNb25-20; G-X 7 NiCrMoCuNb 25-20	X5CrNi18-10; X 5 CrNi 18 9	X2CrNi19-11; GXCrNi19-11	GX5CrNi19-10; G-X 6 CrNi 18 9	GX10CrNi18-8; G-X 10 CrNi 18 8	X12CrMnNiN17-7-5
	Werkstoff (GERMANY)	1.4552	1.4500	1.430	1.4306; 1.4309	1.4308	1.4312	1.4372
	EN (EUROPE)	GX5CrNiNb19-11		X5CrNi18-10	X2CrNi19-11; GXCrNi19-11	GX5CrNi19-10; 58E	GX10CrNi18-8	X12CrMnNiN17-7-5
	GOST (RUSSIA)			08Ch18N10	03Ch18N11	07Ch18N9L	10Ch18N9L	
	JIS (JAPAN)	SCS 21; SCS 21 X		SUS 304; SUS 304 A; SUS 304-CSP; SUS 304 FB; SUS 304 TB; SUS 304 TBS; SUS 304 TKA; SUS 304 TKC	SCS19	SCS 13; SCS 13 A; SCS 13 X	SCS 12	SUS 201
	SS (SWEDEN)			2333; 2332	2352			
	UNE (SPAIN)	AM-X 7 CrNiNb 20 10; F.8413		F.3504; X 5 CrNi 18 10	F.310.G; F.3503; X 2 CrNi 19 10; AM-X 2 CrNi 19 10; F.8412	AM-X 7 CrNi 20 10; F.8411		
	UNI (ITALY)			X 5 CrNi 18 10; X 5 CrNi 18 10 KG; X 5 CrNi 18 10 KW; X 5 CrNi 18 10 KT	X 3 CrNi 18 11; X 2 CrNi 18 11; GX 2 CrNi 19 10			
	IS (INDIA)							
	KS REP. OF) (KOREA			STS 304				
	GB/YB/JB/ SY/NB (PRC)	ZG1Cr18Ni9Ti		0Cr19Ni9	ZG0Cr18Ni9	ZG1Cr18Ni9	ZG0Cr18Ni9Ti	1Cr17Mn6Ni5N

Material Designation in Accordance with Selected Standards

Standards		Material Group No						
		14	14	14	14	14	14	14
	NF/AFNOR (FRANCE)	Z 6 CND 18-12-03; Z6 CND 18-13; Z 7 CND 18-12-03	Z 2 CND 17-12; Z 3 CND 17-11-02; Z 3 CND 17-12-02; Z 3 CND 17-12-02 FF; Z 3 CND 18-12-03	Z 2 CND 17-11 Az		Z 3 CND 17-12 Az	Z 3 CND 17-12-03; Z 3 CND 18-14-03	Z 3 CND 18-14-05 Az
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	316; S31600	316L; 316 L; S31603; J92700; J92800	316LN; 316 LN; S31653	CF-8M; J92900	316LN; 316 LN; S31563	316L; 316 L; S31603; J92800	S31726
	BS (UK)	316 S 31; 316 S 33; LW 23; LWCF 23; 316 S 19; 316 S 40; 316 S 41; 1.4436	316 S 11; 316 S 13; 316 S 14; 316 S 30; S.161; S.537; T.75	316 S 61; 316 S 63	ANC 4 grade B; ANC 4 B; 316 C 16; 845 grade B	316 S 63	316 S 13; 316 S 11; 316 S 14; 316 S 31; LW 22; LWCF 22; 845 B	
	DIN (GERMANY)	X3CrNiMo17-13-3; X 5 CrNiMo 17 13 3	X2CrNiMo17-12-2; X2CrNiMo17-13-2; X 2 CrNiMo 17 12 2; X 2 CrNiMo 17 13 2	X2CrNiMoN17-11-2; X2CrNiMoN17-12-2; X 2 CrNiMoN 17 12 2	GX5CrNiMo 19-11-2; G-X 6 CrNiMo 18 10	X2CrNiMoN17-13-3; X 2 CrNiMoN 17 13 3	X2CrNiMo18-4-3; X 2 CrNiMo18 14 3	X2CrNiMoN17-13-5; X 2 CrNiMoN 17 13 5
	Werkstoff (GERMANY)	1.444	1.4404	1.4406	1.4408	1.4429	1.4435	1.4439
	EN (EUROPE)	X3CrNiMo17-13-3	X2CrNiMo17-13-2	X2CrNiMoN17-11-2	GX5CrNiMo 19-11-2	X2CrNiMoN17-13-3	X2CrNiMo18-4-3	X2CrNiMoN17-13-5
	GOST (RUSSIA)				07Ch18N10G2S2M2L		O3Ch17N14M3	
	JIS (JAPAN)	SUS 316; SUS 316 A; SUS 316 FB; SUS 316 TB; SUS 316 TBS; SUS 316 TKA; SUS 316 TKC; SUS 316 TP	SUS 316 L; SUS 316 LFB; SUS 316 LTBS; SUS 316 LTP; SUS 316 F 316 L	SUS 316 LN; SUS F 316 LN	SCS 14; SCS 14 A; SCS 14 X	SUS 316 LN; SUS F 316 LN	SUS 316 L; SUS 316 LFB; SUS 316 LTBS; SUS 316 LTP; SUS F 316 L	
	SS (SWEDEN)	2343	2348			2375	2353	
	UNE (SPAIN)	F.3538; X 5 CrNiMo 17 13 3	F.310.K; F.3533; F.3537	F.3542; X 2 CrNiMoN 17 12 2	AM-X 7 CrNiMo 20 10; F.8414	F.3543; X 2 CrNiMoN 17 13 3	F.3533-X2 CrNiMo 17 13 2	F.3544; X 2 CrNiMoN 17 13 5
	UNI (ITALY)	X 5 CrNiMo 17 13; X 8 CrNiMo 17 13	X 2 CrNiMo 17 12	X 2 CrNiMoN 17 12		X 2 CrNiMoN 17 13	X 2 CrNiMoN 17 13; X 2 CrNiMoN 17 13 KG; X 2 CrNiMoN 17 13 KW	
	IS (INDIA)							
	KS REP. OF) (KOREA	STS 316	STS 316L	STS 316LN	SSC 14	STS 316LN	STS 316L	
	GB/YB/JB/ SY/NB (PRC)	0Cr17Ni12Mo2	00Cr17Ni14Mo2	00Cr18Ni14Mo2Cu2	ZG1Cr24Ni20Mo2Cu3	0Cr17Ni13Mo	00Cr17Ni14Mo2	

Material Designation in Accordance with Selected Standards

Standards		Material Group No						
		14	14	14	14	14	14	14
	NF/AFNOR (FRANCE)		Z 6 CNDT 17-12	Z 15 CN 23-13; Z 15 CN 24-13			Z 5 CN 18-09	Z 4 CNDNb 18.12 M
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	317; S31700	316 Ti; S31635	309S; 309 S; 309; S30908; S30900	S30415	S30815	304H; 304 H; S30409; S30480	
	BS (UK)	317 S 16	320 S 31; 320 S 18	309 S 24			304 S 50; 304 S 51; 801 grade A	ANC 4 grade C; ANC 4 C; 318 C 17; 845 grade Nb
	DIN (GERMANY)	X3CrNiMo18-12-3	X6CrNiMoTi17-12-2; X 6 CrNiMoTi 17 12 2	X12CrNi23-13; X 7 CrNi 23 14	X4CrNiSiN18-10; X 4 CrNiSiN 18 10	X9CrNiSiNCe21-11-2; X 8 CrNiSiN 21 11	X6CrNi18-10; X6CrNi18-11; X 6 CrNi 18 11;	GX5CrNiMoNb19-11-2; G X 5 CrNiMoNb 18 10
	Werkstoff (GERMANY)	1.4449	1.4571	1.4833	1.4891	1.4893	1.4948	1.4581
	EN (EUROPE)	X3CrNiMo18-12-3	X6CrNiMoTi17-12-2	X12CrNi23-13	X4CrNiSiN18-10	X9CrNiSiNCe21-11-2	X6CrNi18-10	GX5CrNiMoNb19-11-2
	GOST (RUSSIA)		08Ch16N11M3T; 08Ch17N13M2T; 10Ch17N13M2T					
	JIS (JAPAN)	SUS 317; SUS 317 TB; SUS 317 TP; SUS F 317	SUS 316 Ti; SUS 316 TiTB; SUS 316 TiTP	SUS 309 S; SUS 309 S TB; SUS 309 S TP			SUS 302	SCS 22
	SS (SWEDEN)		2350		2372	2368		
	UNE (SPAIN)		F.310.B; F.3535; X 6 CrNiMoTi 17 12 2					
	UNI (ITALY)	X 5 CrNiMo 18 15	X 6 CrNiMoTi 17 12; X 6 CrNiMoTi 17 12 KG; X 6 CrNiMoTi 17 12 KW	X 6 CrNi 23 14				GX 6 CrNiMoNb 20 11
	IS (INDIA)							
	KS REP. OF) (KOREA	STS 317		SSC17			STS 302	SSC 22
	GB/YB/JB/ SY/NB (PRC)	1Cr18Ni12Mo3Ti	1Cr18Ni12Mo2Ti	1Cr23Ni13			1Cr18Ni9	ZG1Cr18Mn8Ni4N

Material Designation in Accordance with Selected Standards

Standards		Material Group No						
		14	14	14	14	14	14	14
	NF/AFNOR (FRANCE)	Z 8 CNF 18-09	Z 1 CN 18-12; Z 3 CN 18-10; Z 3 CN 19-11; Z 3 CN 19-11 FF	Z 11 CN 17-08; Z 11 CN 18-08; Z 12 18-09	Z 3 CN 18-10 Az; Z 3 CN 18-07 Az	Z 6 CN 18.09	Z 2 CND 19-15-04; Z 3 CND 19-15-04	Z 6 CNT 18-10
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	303; S30300	304L; 304 L; S30403	301; J 230; S30100; S30200	304LN; 304 LN; S30453	304B1; 304B2; 304B3; 304 B1; 304 B2; 304 B3; S30461; S30462; S30463	317L; 317 L; S31703	321H; 321 H; S32109
	BS (UK)	303 S 31	304 S 11; LW14; LW 20; LWCF 14; LWCF 20; S.536; T.74; 304 C 12; 304 S 11	301 S 21; 301 S 22	304 S 61	304 S 31	317 S 12	321 S 31
	DIN (GERMANY)	X8CrNiS18-9; X 10 CrNiS 18 9	X2CrNi19-11; X 2 CrNi 19 11	X10CrNi18-8; X 12 CrNi 17 7	X2CrNiN18-10; X 2 CrNiN 18 10	X5CrNi18-9	X2CrNiMo18-15-4; X2 CrNiMo 18 16 4	X12CrNiTi18-10; X 12 CrNiTi 18-9
	Werkstoff (GERMANY)	1.4305	1.4306	1.4310	1.4311	1.4350	1.4438	1.4878
	EN (EUROPE)	X8CrNiS18-9; 58M	X2CrNi19-11	X10CrNi18-8	X2CrNiN18-10	58E	X2CrNiMo18-15-4	X12CrNiTi18-10; 58B
	GOST (RUSSIA)	30Ch18N11	03Ch18N11	12Ch18N9				
	JIS (JAPAN)	SUS 303	SUS 304 L; SUS 304 LFP; SUS 304 LTB; SUS 304 LTBS; SUS 304 LTP; SUS F 304 L	SUS 301; SUS 301-CSP; SUS 302; SUS 302 FB	SUS 304 LN; SUS F 304 LN		SUS 317 L; SUS 317 LFB; SUS 317 LTB; SUS 317 LTP; SUS F 317 L; SUS Y 317 L	SUS 321; SUS 321 HFB; SUS 321 HTB; SUS 321 HTP; SUS 321 TKA; SUS 321 TP; SUS F 321; SUS Y 321
	SS (SWEDEN)	2346	2352	2331	2371	2332; 2333	2367	2337
	UNE (SPAIN)	F.310.C; F.3508; X 10 CrNiS 18-09	F.310.G; F.3503; X 2 CrNi 18 10	F.3517; X 2 CrNiN 18 10	F.3541; X 2 CrNiN 18 10	F.3551	F.3539; X2 CrNiMo 18 16 4	F.3553
	UNI (ITALY)	X 10 CrNiS 18 09	X 2 CrNi 18 11; X 3 CrNi 18 11	X 12 CrNi 17 07	X 2 CrNiN 18 11	X 5 CrNi 18 10	X 2 CrNiMo 18 16	X 6 CrNiTi 18.11
	IS (INDIA)							
	KS REP. OF) (KOREA	STS 303	STS 304L	STS 302	STS 304LN	STS 304L	STS 317L	STS 321
	GB/YB/JB/ SY/NB (PRC)	1Cr18Ni9MoZr	00Cr19Ni10	Cr17Ni7	00Cr18Ni10N	0Cr18Ni9	00Cr19Ni13Mo	0Cr18Ni9Ti

Material Designation in Accordance with Selected Standards

Standards		Material Group No						
		14	14	14	14	14	14	14
	NF/AFNOR (FRANCE)	Z 6 CNNb 18-10	Z 6 CNDNb 18-12		Z 9 CN 24-13; Z 17 CNS 20-12	Z 15 CNS 25-20		Z 10 CNT 18-11; 9160/C 63; 9160C201
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	347; 348; S34700; S34800	318; S31803		309; S30900	310; 314; S3100; S31400; S31500	348; S34800	
	BS (UK)	347 S 31; ANC 3 grade B; ANC 3 B; 347 S 20; 347 S 40; 347 S 50; 347 S 51			309 S 24	314 S 25	2 S.130; 2 S.143; 3 S.144; 3 S.145; S.525; S.527	S.524; S.526; 2 S 129
	DIN (GERMANY)	X6CrNiNb18-10; X 6 CrNiNb 18 10	X10CrNiMoNb18-12; X 10CrNiMoNb 18 12	X1CrNiMoN25-22-2; X 2 CrNiMoN 25 22 7	X15CrNiSi20-12; X 15 CrNiSi 20 12	X15CrNiSi25-21; X 15 CrNiSi 25 20	X5CrNiNb18-10	
	Werkstoff (GERMANY)	1.4550	1.4583	1.4465; 1.4466	1.4828	1.4841	1.4546	1.4544; 1.4544.9
	EN (EUROPE)	X6CrNiNb18-10; 58F;		X1CrNiMoN25-22-2	58C; X15CrNiSi20-12	X15CrNiSi25-21		FE-PA 13
	GOST (RUSSIA)	08Ch18N12B			20Ch20N14S2	20Ch25N20S2		08Ch18N12T
	JIS (JAPAN)	SUS 347; SUS 347 FB; SUS 347 HTB; SUS 347 TB; SUS 347 TKA; SUS 347 TP; SUS F 347			SUH 309; SUS 309 TB; SUS 309 TP	SUH 310; SUS 310 TB; SUS Y 310		
	SS (SWEDEN)	2338						
	UNE (SPAIN)	F.3524; X 6 CrNiNb 18 10			F.3312; X 15 CrNiSi 20-12	F.3310; X 15 CrNiSi 25-20		
	UNI (ITALY)	X 6 CrNiNb 18 11; X 6 CrNiNb 18 11 KG; X 6 CrNiNb 18 11 KW; X 6 CrNiNb 18 11 KT	X 6 CrNiMoNb 20 11		X 16 CrNi 23 14	X 16 CrNiSi 25 20		X 6 CrNiTi 18 11
	IS (INDIA)							
	KS REP. OF) (KOREA	STS 347				STR 310		
	GB/YB/JB/ SY/NB (PRC)	1Cr18Ni11Nb	Cr17Ni12Mo3Mb		1Cr20Ni14Si2	1Cr25Ni20Si2		

Material Designation in Accordance with Selected Standards

Standards		Material Group No						
		14	14	14	14	14	14	14
	NF/AFNOR (FRANCE)			Z 3 CND 19.10 M	Z 3 CN 19.10 M		Z 2 CN 18 10	Z 6 CNU 18 10
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)			316N; 316 N; J92804	304L; 304 L J92500; J92620			302 HQ; 304 Cu; 304 HQ; XM-7; EV-17; S30430
	BS (UK)				304 C 12		304 S 12	394 S 17
	DIN (GERMANY)	X12CrNi18-9; X 12 CrNi 18 9	X12CrNi22-12; X 12 CrNi 22 12	GX2CrNiMo19-11-2; G-X 2 CrNiMo 19 11 2	GX2CrNi19-11	GX2CrNiMnMoNNb21-15-4-3; G-X 2 CrNiMnMoNNb 21 15 43	X2CrNi18-9; X 2 CrNi 18 9	X3CrNiCu18-9-4; X 3 CrNiCu 18 9
	Werkstoff (GERMANY)	1.6900	1.4829	1.4409	1.4309	1.4569	1.431	1.457
	EN (EUROPE)			GX2CrNiMo19-11-2	GX2CrNi19-11		X2CrNi18-9	X3CrNiCu18-9-4
	GOST (RUSSIA)							
	JIS (JAPAN)			SCS 16 A; SCS 16 AX SCS 16 AXN	SCS 19; SCS 19 A			SUS XM 7
	SS (SWEDEN)							
	UNE (SPAIN)			AM-X 2 CrNiMo 19 11; F.8415	AM-X 2 CrNi 19 10; F.8412			
	UNI (ITALY)			GX2 CrNiMo 19 11	GX 2 CrNi 19 10			
	IS (INDIA)							
	KS REP. OF) (KOREA				SSC 19			
	GB/YB/JB/ SY/NB (PRC)				ZG00Cr18Nice0			

Material Designation in Accordance with Selected Standards

Standards		Material Group No							
		14	14	14	14	14	14	14	14
	NF/AFNOR (FRANCE)				Z 5 CN 18-11 FF				
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	S21800; AMS 5848	S20910; XM-19	S24100; XM-28	305; 308; S30500; S30800	S31630			
	BS (UK)				305 S 17; 305 S 19				
	DIN (GERMANY)		X2CrNiMnMoNNb21-16-5-3		X4CrNi18-12; X 5 CrNi 18 12		GX6CrNIMo18-12; G-X 6 CrNIMo 18 12	GX2CrNIMoM17-13-4	GX6CrNiMo17-13; G-X 6 CrNiMo 17 13
	Werkstoff (GERMANY)		1.396		1.430		1.444	1.445	1.445
	EN (EUROPE)				X4CrNi18-12			GX2CrNIMoM17-13-4	
	GOST (RUSSIA)				06Ch18N11				
	JIS (JAPAN)				SUS 305 J 1; SUS 305				
	SS (SWEDEN)								
	UNE (SPAIN)				F.3513; X 8 CrNi 18 12				
	UNI (ITALY)				X 7 CrNi 18 10; X 8 CrNi 19 10				
	IS (INDIA)								
	KS REP. OF) (KOREA								
	GB/YB/JB/ SY/NB (PRC)								

Material Designation in Accordance with Selected Standards

Standards		Material Group No					
		14	14	14	14	14	14
	NF/AFNOR (FRANCE)		Z 2 NCDU 25-20		Z 8 CN 25-20; Z 12 CN 25-20; Z 12 CN 26-21		Z 52 CMN 21-09 Az; Z 53 CMN 21-09 Az
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	J93254; CK3MCuN	904L; 904 L; N08904		310H; 310 H; 310S; 310 S; S31008; S31009	254 SMo; S31254; F44	EV 8; S63008
	BS (UK)		904 S 13		310 S 16; 310 S 24; 310 S 25; 310 S 31		349 S 52
	DIN (GERMANY)	GX2CrNiMoCuN20-18-6	X1NiCrMoCu25-20-5; X 1 NiCrMoCuN 25 20 5	GX1NiCrMoCuN25-20-5; G-X 1 NiCrMoCuN 25 20 5	X8CrNi25-21; X 12 CrNi 25 21	X1CrNiMoN20-18-7	X53CrMnNiN21-9; X 53 CrMnNiN 21 9
	Werkstoff (GERMANY)	1.456	1.4539	1.454	1.4845	1.4547	1.4871
	EN (EUROPE)	GX2CrNiMoCuN20-18-6	X1NiCrMoCu25-20-5		X12CrNi25-21	X1CrNiMoN20-18-7	X53CrMnNiN21-9
	GOST (RUSSIA)				10Ch23N18; 20Ch23N18		55Ch20G9AN4
	JIS (JAPAN)				SUS 310 S; SUS 310 FB; SUS 310 STG; SUS 310 STP; SUS310 TB; SYS Y 310 S		SUH 35; SUH 36
	SS (SWEDEN)		2562		2361	2378	
	UNE (SPAIN)				F.331		F.3217; X 53 CrMnNiN 21-09
	UNI (ITALY)				X 6 CrNi 25 20 (X 6 CrNi 25 20)		X 53 CrMnNiN 21 9
	IS (INDIA)						X53Cr22Mn9Ni4N
	KS REP. OF) (KOREA						STR 35; STR 36
	GB/YB/JB/ SY/NB (PRC)				0Cr25Ni20		5Cr2Mn9Ni4N

Material Designation in Accordance with Selected Standards

Standards		Material Group No					
		14	14	14	14	14	14
	NF/AFNOR (FRANCE)	Z 6 CND 15-07; 9160/C 65; 9160C 211	Z 55 CMN 20-08 Az	Z 50 CMNNb 21.09; Z 50 CMNNb 21-09	Z 53 CMNB 21-09-02 Az		Z 9 CNA 17-07; Z 8 CNA 17-07
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	632; S15700; 15-7 PH; 15-7PH; AMS 5520; AMS 5657	EV 12; S63012	XEV-F; S63019		EV 16; S63018	631; 17-7PH; 17-7 PH; S17700
	BS (UK)				352 S 52		301 S 81
	DIN (GERMANY)	X8CrNiMoAl15-7-2; X 7 CrNiMoAl 15-7	X55CrMoNiN20-8; X 55 CrMoNiN 20 8	X50CrMnNiNbN21-9	X53CrMnNiNbN21-9; X 53 CrMnNiNbN 21 9	X33CrNiMnN23-8; X 33 CrNiMnN 23 8	X7CrNiAl17-7; X 7 CrNiAl 17 7
	Werkstoff (GERMANY)	1.4532; 1.4574	1.488	1.4882	1.487	1.487	1.4568; 1.4564; 1.4504
	EN (EUROPE)	X8CrNiMoAl15-7-2	X55CrMoNiN20-8	X50CrMnNiNbN21-9	X53CrMnNiNbN21-9	X33CrNiMnN23-8	X7CrNiAl17-7
	GOST (RUSSIA)						09Ch17N7Ju1
	JIS (JAPAN)						SUS 631; SUS 631 J 1; SUS 631-CSP
	SS (SWEDEN)						2388
	UNE (SPAIN)						X 2 CrNiMo 17 12
	UNI (ITALY)		X 55 CrMnNiN 20.8		X 53 CrMnNiNbN 21.9		
	IS (INDIA)						
	KS REP. OF) (KOREA						
	GB/YB/JB/ SY/NB (PRC)						0Cr17Ni7Al

Material Designation in Accordance with Selected Standards

Standards		Material Group No					
		14	14	14	14	14	14
	NF/AFNOR (FRANCE)				Z 3 CN 23-04 Az	Z 5 CND 27-05 Az; Z 3 CND 25-07 Az	Z 2 CND 24-08 Az; Z 3 CND 25-06-03 Az; Z 3 CND 25 -05 Az
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	S31266	654 SMo; S32654	J94650; CN7MS	S32304	329; S31260; S32900	S31803; S31260; S32900; A182 F51; A182 Gr. F51; A182 Grade F51
	BS (UK)						318 S 13; 1.4462
	DIN (GERMANY)	X1CrNiMoCuNW24-22-6	X1CrNiMoCuN24-22-8	GX2NiCrMoCuN25-20	X2CrNiN23-4; X 2 CrNiN 23 4	X3CrNiMoN27-5-2; X 4 CrNiMoN 27 5 2	X2CrNiMoN22-5-3; X 2 CrNiMoN 22 5 3
	Werkstoff (GERMANY)	1.466	1.465	1.454	1.4362	1.4460	1.4462
	EN (EUROPE)	X1CrNiMoCuNW24-22-6	X1CrNiMoCuN24-22-8		X2CrNiN23-4	X3CrNiMoN27-5-2	X2CrNiMoN22-5-3
	GOST (RUSSIA)				03Ch3N6	10Ch26N5M; 08Ch21N6M2T	
	JIS (JAPAN)					SUS 329 J 1; SUS 329 J 1 FB; SUS 329 J 1 TB; SUS 329 J 1 TP	SUS 329 J 3 L; SUS 329 J 3 LTB; SUS 329 J 3 LTP
	SS (SWEDEN)				2327	2324	2377
	UNE (SPAIN)					F.3552; F.3309; X 8 CrNiMo 27-05; X 8 CrNiMo 26 6	
	UNI (ITALY)						
	IS (INDIA)						
	KS REP. OF) (KOREA					STS 329J1	STS 329J3L
	GB/YB/JB/ SY/NB (PRC)				0Cr26Ni5Mo2	0Cr26Ni5Mo2	

Material Designation in Accordance with Selected Standards

Standards		Material Group No							
		14	14	14	14	14	14	14	14
	NF/AFNOR (FRANCE)						Z 2 CND 18.05.03		
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	J92605; J93005	329; S32900	S33100; A182 F10; A182 Gr. F10; A182 Grade F10			S31500		
	BS (UK)								
	DIN (GERMANY)	GX40CrNiSi27-4; G-X 40 CrNiSi 27 4	X6CrNiMo26-4-2; X 6 CrNiMo 26 4 2			GX2CrNiMoN25-6-3; G-X 3 CrNiMoN 26 6 3	GX2CrNiMoN25-7-3; G-X 2 CrNiMoN 25 7 3; X2CrNiMoSi18-5-3; X 2 CrNiMoSi 18 5 3	GX4CrNiN26-7; G-X 8 CrNiN 26-7; G-X 6 CrNiN 26-7	GX6CrNiMo24-8-2; G-X 6 CrNiMo 24 8 2
	Werkstoff (GERMANY)	1.4823	1.448			1.447	1.4417; 1.4424	1.435	1.446
	EN (EUROPE)	GX40CrNiSi27-4				GX2CrNiMoN25-6-3	GX2CrNiMoN25-7-3; X2CrNiMoSi18-5-3	GX4CrNiN26-7	
	GOST (RUSSIA)				03Ch22N6M2	03Ch24N6AM3			
	JIS (JAPAN)	SCH 11 X							
	SS (SWEDEN)						2376		
	UNE (SPAIN)								
	UNI (ITALY)								
	IS (INDIA)								
	KS REP. OF) (KOREA								
	GB/YB/JB/ SY/NB (PRC)								

Material Designation in Accordance with Selected Standards

Standards		Material Group No					
		14	14	14	14	14	14
	NF/AFNOR (FRANCE)						Z 3 CNDU 25-06 Az
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	J92205; CD3MN 4A; A 995 Grade 4A		J93372; CD4MCuN; A890 Grade 1B; A 995 Grade 1B		J92615; CC 50; CC-50	S32760; SA351/995; 25Cr-7Ni-Mo-N
	BS (UK)						
	DIN (GERMANY)	GX2CrNiMoN22-5-3	GX3CrNiMoCuN26-6-3-3; G-X 2 CrNiMoCuN 26 6 3 3	GX2CrNiMoCuN25-6-3-3; G-X 3 CrNiMoCuN 26 6 3 3	GX32CrNi28-10	GX40CrNi27-4; G-X 40 CrNi 27 4	X2CrNiMoCuWN25-7-4
	Werkstoff (GERMANY)	1.447	1.452	1.452	1.434	1.4340	1.4501
	EN (EUROPE)	GX2CrNiMoN22-5-3		GX2CrNiMoCuN25-6-3-3			X2CrNiMoCuWN25-7-4
	GOST (RUSSIA)						
	JIS (JAPAN)			SCS 32			
	SS (SWEDEN)						
	UNE (SPAIN)						
	UNI (ITALY)						
	IS (INDIA)						
	KS REP. OF) (KOREA						
	GB/YB/JB/ SY/NB (PRC)						0Cr26Ni5Mo2

Material Designation in Accordance with Selected Standards

Standards		Material Group No						
		14	14	14	14	14	14	14
	NF/AFNOR (FRANCE)	Z 5 CND 25-06 Az		Z 3 CNDU 25-06 Az; Z 3 CNDU 25-07 Az				
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	S32750		S32520; S32550; F61	S32950; SA276; SA479	J93380; CD3MNWCuN; A890 Grade 6A	J93503; J94003; J94013; HK 30; HH; A297-HH	J94203; J94204; J94224; HK
	BS (UK)						309 C 30	310 C 40; 310 C 45
	DIN (GERMANY)	X2CrNiMoN25-7-4; X 10 CrNiMo 18 9	GX2CrNiMoN26-7-4; G-X 2 CrNiMoN 25-7-4	X2CrNiMoCuN25-6-3		GX3CrNiMoWCuN27-6-3-1; G-X 3 CrNiMoWCuN 27 6 3 1	GX40CrNiSi25-12; G-X 40 CrNiSi 25 12	GX40CrNiSi25-20; G-X 40 CrNiSi 25 20
	Werkstoff (GERMANY)	1.4410	1.447	1.451		1.447	1.4837; 1.4848+Nb	1.4848
	EN (EUROPE)	X2CrNiMoN25-7-4	GX2CrNiMoN26-7-4	X2CrNiMoCuN25-6-3			GX40CrNiSi25-12	GX40CrNiSi25-20
	GOST (RUSSIA)						40Ch24N12SL	
	JIS (JAPAN)						SCH 13; SCH 13 A; SCH 13 X; SCH 17; SCS 17	SCH 21; SCH 22; SCH 22 X
	SS (SWEDEN)	2328						
	UNE (SPAIN)							AM-X 40 CrNi 25 20; F.8452
	UNI (ITALY)						G X 35 CrNi 25 12	G X 40 CrNi 26 20
	IS (INDIA)							
	KS REP. OF) (KOREA						SSC 17	HRSC 21; HRSC 22
	GB/YB/JB/ SY/NB (PRC)							ZG4Cr25Ni20Si2

Material Designation in Accordance with Selected Standards

Standards		Material Group No						
		14	14	14	14	14	14	14
	NF/AFNOR (FRANCE)							
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)				J94202; CK 20; AMS 5365; A351; A743			
	BS (UK)							
	DIN (GERMANY)	GX40NiCrSiNb38-19; G-X 40 NiCrSi 38 18	GX40NiCrSiNb35-26; G-X 40 NiCrSiNb 35 25	GX25CrNiSi20-14	GX15CrNi25-20	GX40CrNiSiNb24-24; G-X 30 CrNiSiNb 24 24	GX40NiCrSi35-26; G-X 40 NiCrSi 35 25	GX25CrNiSi18-9; G-X 25 CrNiSi 18 9
	Werkstoff (GERMANY)	1.4849	1.485	1.483	1.484	1.486	1.486	1.483
	EN (EUROPE)	GX40NiCrSiNb38-19	GX40NiCrSiNb35-26	GX25CrNiSi20-14		GX40CrNiSiNb24-24	GX40NiCrSi35-26	GX25CrNiSi18-9
	GOST (RUSSIA)							
	JIS (JAPAN)				SCS 18	SCH 33	SCH 24 X	
	SS (SWEDEN)							
	UNE (SPAIN)							
	UNI (ITALY)							
	IS (INDIA)							
	KS REP. OF) (KOREA							
	GB/YB/JB/ SY/NB (PRC)							

Material Designation in Accordance with Selected Standards

Standards		Material Group No			Material Group No				
		14	14	14	15	15	15	15	15
	NF/AFNOR (FRANCE)				Ft 10 D		Ft 15 D; R 15 D; FGL 150		Ft 20 D; FGL 200
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)		N08151; CT15C		F11401; A48-20; A48-20 B; Class 20; No 20 B	H10 J431	F11701; A48-25; A48 25 B; Class 25; No 25 B; G9H12 J431	H11 J431	F12101; A48-30; A48-30 B; Class 30, No.30 B; G110H18 J431
	BS (UK)				Grade 100		Grade 150		Grade 220
	DIN (GERMANY)	GX40CrNiSi22-10; G-X 40 CrNiSi 22 9	GX10NiCrSiNb32-20; G-X 10NiCrNb 32 20	GX50NiCrCoW35-25-15-5; G-X 50 NiCrCoWSi 35 25 15 5	EN-GJL-100; EN-JL 1010; GG-10	EN-GJL-HB155; EN-JL 2010; GG-150 HB	EN-GJL-150; EN-GJL-150C; EN-JL 1020; GG-15	EN-GJL-HB175; EN-JL 2020; GG-170 HB	EN-GJL-200; EN-GJL-200C; EN-JL 1030; GG-20
	Werkstoff (GERMANY)	1.483	1.486	1.487	0.6010; 5.1100	0.6012; 5.1101	0.6015; 5.1200	0.6017; 5.1201	0.6020; 5.1300
	EN (EUROPE)	GX40CrNiSi22-10	GX10NiCrSiNb32-20	GX50NiCrCoW35-25-15-5	EN-GJL-100; EN-JL 1010	EN-GJL-HB155; EN-JL 2010	EN-GJL-150; EN-GJL-150C; EN-JL 1020	EN-GJL-HB175; EN-JL 2020	EN-GJL-200; EN-GJL-200C; EN-JL 1030
	GOST (RUSSIA)				SCh10		SCh 15		SCh 20
	JIS (JAPAN)	SCH12	SCH 34	SCH 46	FC 10; FC 100		FC 15; FC 150		FC 20; FC 200
	SS (SWEDEN)				0110-00		0115-00		0120-00
	UNE (SPAIN)				FG 10		FG 15		FG 20
	UNI (ITALY)				G 10		G 14; G 15		G 20; Gh 190
	IS (INDIA)								
	KS REP. OF) (KOREA				GC 10		GC 15		GC 20
	GB/YB/JB/ SY/NB (PRC)				HT100		HT150		HT200

Material Designation in Accordance with Selected Standards

Standards	Material Group No							
	15	15	15	16	16	16	16	16
NF/AFNOR (FRANCE)				Ft 25 D; FGL 250	Ft 30 D; FGL 300	Ft 35 D; FGL 350		
AISI/ASM/ ASTM/SAE/ UNS/AA (US)	F10004; G1800; A159 Grade G1800	F10005; G2500; A159 Grade G2500	F10009; G2500a; A159 Grade G2500a	F12401; A48-40; A48-40 B; Class 40; No 40 B; A278-35; G11H20	F13101; A48-45; A48-45 B; Class 45; No 45 B; A278-45	F13501; A48-50; A48-50 B; Class 50; No 50 B; A278-50	H13 J431; H14 J431	H16 J431
BS (UK)				Grade 260; Grade 250	Grade 300	Grade 350		
DIN (GERMANY)				EN-GJL-250; EN-GJL-250C; EN-JL1040; GG-25	EN-GJL-300; EN-GJL-300C; EN-JL 1050; GG-30	EN-GJL-350; EN-GJL-350C; EN-JL 1060; GG-35	EN-GJL-HB195; EN-JL2030; GG-190 HB	EN-GJL-HB215; EN-JL2040; GG-220 HB
Werkstoff (GERMANY)				0.6025; 5.1301	0.6030; 5.1302	0.6035; 5.1303	0.6022; 5.1304	0.6027; 5.1305
EN (EUROPE)				EN-GJL-250; EN-GJL-250C; EN-JL1040	EN-GJL-300; EN-GJL-300C; EN-JL 1050	EN-GJL-350; EN-GJL-350C; EN-JL 1060	EN-GJL-HB195; EN-JL2030	EN-GJL-HB215; EN-JL2040
GOST (RUSSIA)				SCh 25	SCh 30	SCh 35		
JIS (JAPAN)				FC 25; FC250	FC 30; FC 300	FC 35; FC350		
SS (SWEDEN)				0125-00	0130-00	0135-00		
UNE (SPAIN)				FG 25	FG 30	FG 35		
UNI (ITALY)				G 25	G 30	G 35		
IS (INDIA)								
KS REP. OF) (KOREA				GC 25; GC 250	GC 30	GC 350		
GB/YB/JB/ SY/NB (PRC)				HT250	HT300	HT350		

Material Designation in Accordance with Selected Standards

Standards		Material Group No							
		16	16	16	16	16	16	16	16
	NF/AFNOR (FRANCE)				Ft 40 D				
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	H18 J431	H20 J431	F13801; A48-55; A48-55 B; Class 55; No 60 B	F14101; A48-60 B; Class 60; No 60 B	F10006; G3000; A159 Grade G3000	F10007; G3500; A159 Grade G3500	F10010; G3500b; A159 Grade G3500b	F10011; G3500c; A159 Grade G3500c
	BS (UK)				Grade 400				
	DIN (GERMANY)	EN-GJL-HB235; EN-JL2050; GG-240 HB	EN-GJL-HB255; EN-JL2060; GG-260 HB		EN-JLZ; GG-40				
	Werkstoff (GERMANY)	0.6032; 5.1306	0.6037; 5.1307		0.6040				
	EN (EUROPE)	EN-GJL-HB235; EN-JL2050	EN-GJL-HB255; EN-JL2060		EN-JLZ				
	GOST (RUSSIA)				SCh 40				
	JIS (JAPAN)								
	SS (SWEDEN)				0140-00				
	UNE (SPAIN)								
	UNI (ITALY)								
	IS (INDIA)								
	KS REP. OF) (KOREA								
	GB/YB/JB/ SY/NB (PRC)				HT400				

Material Designation in Accordance with Selected Standards

Standards		Material Group No						
		16	16	17	17	17	17	17
	NF/AFNOR (FRANCE)			FGS 370-/17			FGS 370-17	
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	F10008; G4000; A159 Grade G4000	F10012; G4000d; A159 Grade G4000d				F32800; 60-40-18; A395 60-40-18; A536 60-40-18	
	BS (UK)			350/22 L 40			370/17; Grade 370/17; 400/18; Grade 400/18; SG 24/17	
	DIN (GERMANY)			EN-GJS-350-22-LT; GGG-35.3			EN-GJS-400-18-LT; EN-GJS-400-18C-LT; EN-GJS-400-18U-LT; EN-JS1025; EN-JS1049; GGG-40.3	
	Werkstoff (GERMANY)			0.7033; 5.3100	5.310	5.310	0.7043; 5.3103	5.310
	EN (EUROPE)			EN-GJS-350-22-LT; EN-GJS-350-22C-LT; EN-GJS-350-22U-LT; EN-JS1015; EN-JS1019	EN-GJS-350-22-RT; EN-GJS-350-22C-RT; EN-GJS-350-22U-RT; EN-JS1014; EN-JS1029	EN-GJS-350-22; EN-GJS-350-22C; EN-GJS-350-22U; EN-JS1010; EN-JS1032; EN-JS2010	EN-GJS-400-18-LT; EN-GJS-400-18C-LT; EN-GJS-400-18U-LT; EN-JS1025; EN-JS1049	EN-GJS-400-18-RT; EN-GJS-400-18C-RT; EN-GJS-400-18U-RT; EN-JS1024; EN-JS1059
	GOST (RUSSIA)			VCh 42-12	VCh 35	VCh 35	VCh 42-2	
	JIS (JAPAN)			FCD 350-22L	FCD 350-22	FCD 350-22	FCD 400-18L; FCD 400-18AL; FCD 370	FCD 400-18; FCD 400-18A
	SS (SWEDEN)						0717-15	
	UNE (SPAIN)			FNG 38-17				
	UNI (ITALY)			GS 370/17			GSO 42/15	
	IS (INDIA)							
	KS REP. OF) (KOREA							
	GB/YB/JB/ SY/NB (PRC)			QT350-22L				

Material Designation in Accordance with Selected Standards

Standards		Material Group No							
		17	17	17	17	18	18	18	18
	NF/AFNOR (FRANCE)		FCS 400-12; FCS 400-12	FGS 450-10		FGS 500-7	FGS 600-3	FGS 700-2	
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	F32800; 60-40-18; A395 60-40-18; A536 60- 40-18; D400 J434; D4018 J434	F32800; 60-40-18; A395 60-40-18; A536 60-40-18	F33100; A395 65-45-15; 65-45-15; A536 65-45-12; 65-45-12		F33500; D5006 J 434; D5006	F33800; A536 80-55-06; 80-55-06; F34100; A538 80-60-03; 80-60-03	F34800; A536 100-70-03; 100-70-03; A536 100-70-03; D700 J434; D7003 J434	
	BS (UK)	400/18; Grade 400/18; SG 24/17	420/12; Grade 420/12	420/12; Grade 420/12; SG 27/12		500/7; Grade 500/7; SG 32/7	600/3; Grade 600/3	700/2; Grade 700/2; SG42/2; SNG700/2	
	DIN (GERMANY)		EN-GJS-400-15; EN-GJS-400-15C; EN-GJS-400-15U; EN-GJS-HB155; EN-JS 1030; EN-JS1072; EN-JS2030; GGG-40			EN-GJS-500-7; EN-GJS-500-7C; EN-GJS-500-7U; EN-GJS-HB200; EN-JS-1050; EN-JS-1082; EN-JS-2050; GGG-50	EN-GJS-600-3; EN-GJS-600-3C; EN-GJS-600-3U; EN-GJS-HB230; EN-JS1060; EN-JS1092; EN-JS2060; GGG-60	EN-GJS-700-2; EN-JS 1070; GGG-70	
	Werkstoff (GERMANY)	0.7043; 5.3105	0.7040; 5.3106	5.311	5.311	0.7050; 5.3200	0.7060; 5.3201	0.7070; 5.3300	5.311
	EN (EUROPE)	EN-GJS-400-18; EN-GJS-400-18-C; EN-GJS-400-18U; EN-GJS-HB-150; EN-JS1020; EN_JS1062; EN-JS-2020	EN-GJS-400-15; EN-GJS-400-15C; EN-GJS-400-15U; EN-GJS-HB155; EN-JS 1030; EN-JS1072; EN-JS2030	EN-GJS-450-10; EN-GJS-450-10C; EN-GJS-450-10U; EN-GJS-HB185; EN-JS1040; EN-JS1132; EN-JS-HB185	EN-GJS-450-18; EN-GJS-450-18C	EN-GJS-500-7; EN-GJS-500-7C; EN-GJS-500-7U; EN-GJS-HB200; EN-JS-1050; EN-JS-1082; EN-JS-2050	EN-GJS-600-3; EN-GJS-600-3C; EN-GJS-600-3U; EN-GJS-HB230; EN-JS1060; EN-JS1092; EN-JS2060	EN-GJS-700-2; EN-GJS-700-2C; EN-GJS-700-2U; EN GJS-HB265; EN-JS1070; EN-JS1102; EN-JS2070	EN-GJS-500-14; EN-GJS-500-14C
	GOST (RUSSIA)	VCh 40	VCh 40; VCh 42-12	VCh 45		VCh 50; VCh 50-2; VCh 50-2-2	VCh 60; VCh 60-2	VCh 70; VCh 70-2; VCh 70-3	
	JIS (JAPAN)	FCD 400-18; FCD 400-18A	FCD 400-15; FCD 400-15A; FCD 400; FCD 40	FCD 450-10		FCD 500-7; FCD 500-7A; FCD 500; FCD 50	FCD 600-3; FCD 600-3A; FCD 600; FCD 60; FCD 550-7; FCD 550	FCD 700-2; FCD 700; FCD 70	
	SS (SWEDEN)		0717-02			0727-02	0732-03	0737-01	
	UNE (SPAIN)		FGE 38-17			FGE 50-7	FGE 60-2	FGE 70-2	
	UNI (ITALY)		GS 400/12			GS 500/7	GS 600/3	GS 700-2	
	IS (INDIA)		SG370/17	SG400/12		SG500/7	SG600/3	SG700/2	
	KS REP. OF) (KOREA		DC 40; GCD 42			GCD 50; GCD 500-7	GCD 600-3	GCD 700-2	
	GB/YB/JB/ SY/NB (PRC)	QT400-18	QT400-15	QT400-18L		QT500-7	QT600-3	QT700-2	

Material Designation in Accordance with Selected Standards

Standards		Material Group No						
		18	18	18	19	19	19	20
	NF/AFNOR (FRANCE)			FGS 900-2	MN 35-10; A32-702 MN 350-10	MN 380-18; A32-702 MN 380-18		MP 60-3; A32-703 MP 60-3; Mn 550-4
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)		F36200; A536 120-90-02; 120-90-02		A47-32510; A47 Class 32510; A47 Grade 32510; 32510; F22200	A47-35018, A47 Class 35018; A47 Grade 35018	A47-22010; A47 Class 22010; A47 Grade 22010; F22200	A220-50005; A220 Class 50005; A220 Grade 50005; A220-60004; A220 Class 60004; F24130
	BS (UK)		800/2; Grade 800/2	900/2; Grade 900/2	B 340/12; 310 B340/12		B 32-10; 6681 B 32-10	P 55-04; P 510/4
	DIN (GERMANY)		EN-GJS-800-2; EN-GJS-800-2C; EN-GJS-800-2U; EN-GJS-HB300; EN-JS1080; EN-JS1112; EN-JS2080; GGG-80		EN-GJMB-350-10; EN-JM 1130; GTS-35-10; GTS-35			EN-GJMB-550-4; EN-JM1160; GTS-55-04
	Werkstoff (GERMANY)	5.3110	0.7080; 5.3301	5.330	0.8135; 5.4101			0.8155; 5.4207
	EN (EUROPE)	EN-GJS-600-10; EN-GJS-600-10C	EN-GJS-800-2; EN-GJS-800-2C; EN-GJS-800-2U; EN-GJS-HB300; EN-JS1080; EN-JS1112; EN-JS2080	EN-GJS-900-2; EN-GJS-900-2U; EN-GJS-HB330; EN-JS1090; EN-JS1122; EN-JS2090	EN-GJMB-350-10; EN-JM 1130			EN-GJMB-550-4; EN-JM1160
	GOST (RUSSIA)		VCh 80; VCh 80-2; VCh 80-3	VCh 100; VCh 100-4	KCh 35-10	KCh 37-12	KCh 33-8	KCh 55-4
	JIS (JAPAN)		FCD 800-2; FCD 800		FCMB 35-10; FCMB 340		FCMB 310	FCMP 55-04; FCMP 540
	SS (SWEDEN)				0810; 0815-00			0856-00
	UNE (SPAIN)				GTS 35; 36114 Type A			Type C; 36116 Type C
	UNI (ITALY)		GS 800/2		B 35-10			P 55-04
	IS (INDIA)							
	KS REP. OF) (KOREA							
	GB/YB/JB/ SY/NB (PRC)				KTH350-10	KTH370-12	KTH330-08	KTZ550-04

Material Designation in Accordance with Selected Standards

Standards		Material Group No 20	20	20	20	20	20	20	20
	NF/AFNOR (FRANCE)		Mn 650-3	MP 70-2; A 32-703 MP 70-2; Mn 700-2	MP 50-5; A32-703 MP 50-5	MN 700-2			
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	A220-70003; A220 Class 70003; A220 Grade 70003; A220-480M3; A220 Class 480M3; A602-M5503; F24830	A220-70003; A220 Class 70003; A220 Grade 70003; A220-80002; A220 Class 80002; F25530	A220-70003; A220 Class 70003; A220 Grade 70003; F26230; F20004; F24830; A220-90001; A220-620M1	A220-45006; A220 Class 45006; A220 Grade 45006 A220-45008; A220-310M6; A220-310M8; F23130; F23131	A220-80002; A220 Class 80002; A220 Grade 80002; A602-M8501; F20005	A220-90001; A220 Class 90001; A220 Grade 90001	A220-60004; A220 Class 60004; A220 Grade 60004	A220-40010; A220 Class 40010; A220 Grade 40010
	BS (UK)		P 65-02; 6681 P 65-02; P 570/3	P 70-2; 6681 P 70-2; P 690/2	P 45-06; 6681 P 45-06				
	DIN (GERMANY)	EN-GJMB-600-3; EN-JM1170	EN-GJMB-650-2; EN-JM1180; GTS-65-02	EN-GJMB-700-2; EN-JM1190; GTS-70-02	EN-GJMD-450-6; EN-JM1140; GTS-45-06; GTS-45	EN-GJMB-800-1; EN-JM1200			
	Werkstoff (GERMANY)	5.421	0.8165; 5.4300	0.8170; 5.4301	0.8145; 5.4205	5.4302			
	EN (EUROPE)	EN-GJMB-600-3; EN-JM1170	EN-GJMB-650-2; EN-JM1180	EN-GJMB-700-2; EN-JM1190	EN-GJMD-450-6; EN-JM1140	EN-GJMB-800-1; EN-JM1200			
	GOST (RUSSIA)	KCh60-3	KCh 63-3; KCh 65-3	KCh 70-2	KCh 45-7	KCh 80-1.5			
	JIS (JAPAN)	FCMP 60-03	FCMP 65-02; FCMP 590	FCMP 70-02; FCMP 690	FCMP 45-06	FCMP 80-01; FCMP 70; FCMP 700			
	SS (SWEDEN)		0862-030	0862-03	0854-00				0852-00
	UNE (SPAIN)		Type B; 36116 Type B	36116 Type A	Type E; 36116 Type E				
	UNI (ITALY)		GMN 65; P 65-02	P 70-2; GMN 70	P 45-06				
	IS (INDIA)								
	KS REP. OF) (KOREA					PMC 490	PMC 590		
	GB/YB/JB/ SY/NB (PRC)		KTZ650-02	KTZ700-02	KTZ450-06	KTZ650-02	KTZ700-02	KTZ550-04	

Material Designation in Accordance with Selected Standards

Standards		Material Group No			Material Group No				
		20	20	20	21	21	21	21	22
	NF/AFNOR (FRANCE)	MB 400-5	MB 35-7	MB 380-12	A G0-6	A5	A4	A-G4.5MC	A-U4G
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)				AA5005; AA5006; A95005; A95006; 5005; 5005A; 5006	AA1050; A91050; 1050; 1050A	AA1200; A91200; 1200; 1200A	AA5083; A95083; 5083	AA2017; A92017; 2017; 2017A
	BS (UK)	W 40-05	W 35-04		N41	1B	1C	N8	
	DIN (GERMANY)	EN-GJMW-400-5; GTW-40-05	EN-GJMW-350-4; GTW-35-04	GTW-S-38-12; EN-GJMW-360-12; EN-JM1020	AlMg1; AlMg1C	Al99,5; Al99.5	Al99,0; Al99.0; Al99	AlMg4,5Mn; AlMg4.5Mn	AlCu2,5Si(A); AlCu2.5Si(A); AlCuMg1
	Werkstoff (GERMANY)	0.8040; 5.4202	0.8035; 5.4200	0.8038; 5.4201	3.3315	3.0255	3.0205	3.355	3.1325; 3.1124
	EN (EUROPE)	EN-GJMW-400-5; EN-JM1030	EN-GJMW-350-4; EN-JM1010	EN-GJMW-360-12; EN-JM1020	AlMg1C; 5005A	Al99.5; Al99,5; 1050A	Al99.0; AL99,0; 1200	EN AW-5083; AlMg4,5Mn; AlMg4.5Mn	AlCu2,5Si(A); AlCu2.5Si(A); 2017A
	GOST (RUSSIA)				1510; AMg1	AD0	A0		V65
	JIS (JAPAN)	FCMW 40-05; FCMW 370	FCMW 35-04; FCMW 330	FCMW 38-12; FCMW 370	A5005		A1200	A5083	
	SS (SWEDEN)				144106	14407	144010	144140	
	UNE (SPAIN)	36113 Type A	36113 Type B		L-3350	L-3051	L-3001	L-3321	L-3120
	UNI (ITALY)	W 40-05	W 35-04		9005/1	9001/2	Al99.0	9005/5	
	IS (INDIA)				51000	19500	19000		24534
	KS REP. OF) (KOREA								
	GB/YB/JB/ SY/NB (PRC)	KTB380-12	KTB350-04	KTB380-12	5005	1A50	1200; L50		2A11; LY11

Material Designation in Accordance with Selected Standards

Standards		Material Group No							
		22	22	22	22	22	22	22	22
	NF/AFNOR (FRANCE)	A-SGM0.7		A-U5PbBi	A-Z5GU	A-U4G1	A-Z5G	A-GSUC	
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)				AA7075; A97075; 7075	AA2024; A92024; 2024		AA6061; A96061; 6061	AA7010; A97010; 7010
	BS (UK)	H30		FC1	7075; L95; L96	2024; 2L97	H17	H20	5120 B; 5130 A
	DIN (GERMANY)	AlMgSi1	AlZnMgCuO,5; AlZnMgCuO.5	AlCu6BiPb; AlCuBiPb	AlZn5,5MgCu; AlZn5.5MgCu; AlZnMgCu1,5; AlZnMgCu1.5	AlCuMg2	AlZn4,5Mg1; AlZn4.5Mg1	AlMg1SiCu	AlZn6MgCu
	Werkstoff (GERMANY)	3.2315	3.4345	3.1655	3.4365; 3.4364	3.1355; 3.1354	3.4335	3.3211; 3.3214	3.4394
	EN (EUROPE)	AlSiMgMn; 6082; EN AW-6082	AlZnMgCu0.5; AlZnMgCu0,5; 7022	AlCu6BiPb; 2011	AlZn5.5MgCu; AlZn5,.5MgCu; AW-7075; 7075	AlCu4Mg1; 2024	AlZn4.5Mg1; AlZn4,5Mg1; 7020	EN AW-6061; EN AW-AlMg1SiCu; AlMg1SiCu	EN AW-7010; AlZn6MgCu
	GOST (RUSSIA)	AD35			B95	D16		AD33	
	JIS (JAPAN)			A2011	A7075	A2024		A6061	
	SS (SWEDEN)	144312		144355			144425		
	UNE (SPAIN)	L-3453		L-3192	L-3710	L-3140	L-3741	L-3420	
	UNI (ITALY)	9006/4		9002/5	9007/2	9002/4; 3583	9007/1	9006/2	9007/4; P-AlZn6 2Mg2 3Cu 1.8Zr
	IS (INDIA)	64430			76528	24530	74530	65032	
	KS REP. OF) (KOREA				A7075P			A6061P	
	GB/YB/JB/ SY/NB (PRC)		7022		7075	2A12	7020	6061	

Material Designation in Accordance with Selected Standards

Standards		Material Group No								
		22	22	22	22	23	23	23	23	23
	NF/AFNOR (FRANCE)			A-U2GN; 2618A			A-S12U	A-G10S		
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	AA7050; A97050; 7050	AA6063; A96063; 6063	AA2618; A92618; A2618; 2618	AA7050; A97050; 7050			520.0; AA 520.0; A05200	222.0; AA 222.0; A02220	518.0; AA 518.0; A05180
	BS (UK)		H9	2618A; H16		LM5			LM12	
	DIN (GERMANY)	AlZn6CuMgZr	AlMg0.7Si	AlCu2Mg1.5Ni	AlZn6CuMgZr	G-AlMg5Si; GK-AlMg5Si; AlMg5Si; VDS 245	GD-AlSi12(Cu); G-AlSi12(Cu); AlSi12(Cu); VDS 231 D			G-AlMg9; GD-AlMg9; AlMg9; VDS 349
	Werkstoff (GERMANY)			3.192	3.4144	3.3261	3.2982			3.3292
	EN (EUROPE)	EN AW-7050; EN AW-AlZn6CuMgZr; AlZn6CuMgZr	EN AW-6063; AlMg0.7Si	EN AW-2618A; AlCu2Mg1.5Ni; 2618A	EN AW-7050; EN AW-AlZn6CuMgZr; AlZn6CuMgZr	EN AC-51400; EN AC-AlMg5Si; G-AlMg5Si; AlMg5Si	EN AC-47100; EN AC-AlSi12C; G-AlSi12Cu; AlSi12Cu; AlSi12Cu1(Fe)			EN AC-51200; EN AC-AlMg9; G-AlMg9; AlMg9
	GOST (RUSSIA)					AL13		A18		
	JIS (JAPAN)	A7050	A6063	A2618	A7050			AC7B		
	SS (SWEDEN)		144104			144163				
	UNE (SPAIN)		L-3441	L-3171; 2618A; Al-2CuMgNi				L-2310	L-2110	
	UNI (ITALY)			9002/6; 3578; P-AlCu2.3Mg1.5FeNi; 2618A			3048	3056	3041	
	IS (INDIA)						4685			
	KS REP. OF) (KOREA									
	GB/YB/JB/ SY/NB (PRC)			LD7	7050	ZL303		ZL301		

Material Designation in Accordance with Selected Standards

Standards		Material Group No									
		23	23	23	23	23	23	23	23	24	24
	NF/AFNOR (FRANCE)	AU5NKZr		A-Z5GF	A-G6	A-S13			A-G3T		A-S9G
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	203.0; AA 203.0; A02030	ER4047; A94047	712.0; AA 712.0; A07120	514.0; 514.1; AA 514.0; AA 514.1; A05140; A05141	B413.0; AA B413.0; A24130; B213.0; AA 213.0; A22130		A444.0; AA A444.0; A14440		515.0; AA 515.0; A05150	
	BS (UK)		4047A; NG2			LM6			H20		
	DIN (GERMANY)	G-AlCu5Ni1,5; G-AlCu5Ni1.5	SG-AlSi12	G-AlZn10Si8Mg; GK-AlZn10Si8Mg; AlZn10Si8Mg; VDS 108	G-AlMg5; GK-AlMg5; AlMg5; EN AC-51300; VDS 244	G-AlSi12; GK-AlSi12; GD-AlSi12; AlSi12	G-AlSi11; GK-AlSi11; AlSi11		G-AlMg3; GK-AlMg3; GF-AlMg3; AlMg3; VDC 244	G-AlMg3Si; GK-AlMg3Si; GF-AlMg3Si; AlMg3Si; AlMg3Si1	G-AlSi9Mg; GK-AlSi9Mg; AlSi9Mg
	Werkstoff (GERMANY)	3.1754	3.2585		3.3561	3.2581; 3,2582	3.2211		3.3541	3.3241	3.2373
	EN (EUROPE)		SG-AlSi12; EL-AlSi12	EN AC-71100; EN AC-AlZn10Si8Mg; G-AlZn10Si8Mg; AlZn10Si8Mg	EN AC-51300; EN AC-AlMg5; G-AlMg5; AlMg5	EN AC-44200; EN AC-AlSi12; G-AlSi12; GD-AlSi12; AlSi12	EN AC-44000; EN AC-AlSi11; G-AlSi11		EN AC-51100; EN AC-AlMg3; G-AlMg3; AlMg3	G-AlMg3Si1; AlMg3Si	G-AlSi9Mg; AlSi9Mg
	GOST (RUSSIA)				AL28; AMg5Mz;			AK7			AK9
	JIS (JAPAN)					AC3			ADC6		AC4A
	SS (SWEDEN)		144262			144261			144224		
	UNE (SPAIN)				L-2331	L-2520			L-2341		
	UNI (ITALY)			3602	3058	4514			3059		3051
	IS (INDIA)								53000		
	KS REP. OF) (KOREA										AC4A
	GB/YB/JB/ SY/NB (PRC)		4047	ZL402	YI302	YL102			5754		ZL102

Material Designation in Accordance with Selected Standards

Standards		Material Group No								
		24	24	24	24	24	24	24	24	24
	NF/AFNOR (FRANCE)	A-S7G03	AU5GT		A-S9U3		A-S5UZ	A-S10UG	A-S10G	
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	A356.0; AA A356.0; A13560; A356.2; AA A356.2; A13562	204.0; AA 204.0; A02040	A333.0; AA A333.0; A13330	380.0; AA 380.0; A03800	365.0; AA 365.0; A03650	319.0; AA 319.0; A03190			
	BS (UK)	2L99			LM24		LM21			
	DIN (GERMANY)	G-AlSi7Mg; GK-AlSi7Mg; GF-AlSi7Mg; AlSi7Mg	G-AlCu4TiMg; GK-AlCu4TiMg; GF-AlCu4TiMg; AlCu4TiMg	G-AlSi8Cu3; GK-AlSi8Cu3	G-AlSi9Cu3; GD-AlSi9Cu3; AlSi9Cu3; VDS 226	G-AlSi10MnMg	G-AlSi6Cu4; GK-AlSi6Cu4; AlSi6Cu4; VDS 225	G-AlSi10MgCu; GK-AlSi10MgCu; G-AlSi10Mg(Cu); GK-AlSi10Mg(Cu); AlSi10MgCu; AlSi10Mg(Cu)	G-AlSi10Mg; GK-AlSi10Mg; GD-AlSi10Mg; AlSi10Mg; VDS 239	G-AlCu4Ti; AlCu4Ti
	Werkstoff (GERMANY)	3.2371	3.1371	3.2161	3.2163		3.2151	3.2383	3.2381; 3.2385	3.1841
	EN (EUROPE)	G-AlSi7Mg; AlSi7Mg	EN AC-21000; EN AC-AlCu4TiMg; G-AlCu4TiMg	EN AC-AlSi8Cu3; EN AC-AlSi8Cu3; G-AlSi8Cu3	EN AC-46200; EN AC-AlSi8Cu3; G-AlSi9Cu3; AlSi8Cu3	EN AC-43500; EN AC-AlSi10MnMg; G-AlSi10MnMg	EN AC-45000; EN AC-AlSi6Cu4; G-AlSi6Cu4; AlSi6Cu4		EN AC-43000; EN AC-AlSi10Mg; G-AlSi10Mg; AlSi10Mg	EN AC-21100; EN AC-AlCu4Ti; G-AlCu4Ti; AlCu4Ti
	GOST (RUSSIA)	AL9		AL13	AK8M3; AK8		AK5M			AL19
	JIS (JAPAN)	AC4CH	AC1B		AC4B		AC2B			
	SS (SWEDEN)			144163	144252		144230		144253	
	UNE (SPAIN)	L-2651	L-2140		L-2630		L-2620			
	UNI (ITALY)				3610		7369/4			
	IS (INDIA)									2280
	KS REP. OF) (KOREA									
	GB/YB/JB/ SY/NB (PRC)	ZL101	ZL201		ZL105A		ZL107		YL104	ZL203

Material Designation in Accordance with Selected Standards

Standards		Material Group No									
		24	25	25	25	26	26	26	26	26	26
	NF/AFNOR (FRANCE)						CuPb5Sn5Zn5; UE5; U-E 5 Pb 5 Z 5	CuSn7Pb6Zn4; UE7; U-E 7 Z 5 Pb 4	U-Pb15E8; U-Pb 15 E8	U-Pb10	CuZn36Pb3
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	A304	390.0; AA 390.0; A03900	393.0; AA 393.0; A03930		C83810	C83600	C93200	C93800	C93700	C36000
	BS (UK)		LM30	LM29	LM28	LG1	LG2	GC 493K	LB1	LB2	CZ124
	DIN (GERMANY)		G-AlSi17Cu4Mg	G-AlSi20CuMgNi; AlSi20CuMgNi	G-AlSi18Cu1MgNi; AlSi18Cu1MgNi	CuSn3Zn8Pb5-C; G-CuSn2ZnPb	CuSn5Zn5Pb5-C; G-CuSn5ZnPb; Rg 5	CuSn7Zn4Pb7-C; G-CuSn7ZnPb; GC-CuSn7ZnPb; GZ-CuSn7ZnPb; Rg 7	CuSn7Pb15-C; G-CuPb15Sn; GC-CuPb15Sn; GZ-CuPb15Sn	CuSn10Pb10-C; G-CuPb10Sn; GC-CuPb10Sn; GZ-CuPb10Sn	CuZn36Pb3
	Werkstoff (GERMANY)					2.1098	2.1096; 2.1096.01	2.1090	2.1182	2.1176	2.0375
	EN (EUROPE)		EN AB-48100; EN AC-48100; G-AlSi17Cu4Mg; AlSi17Cu4Mg			CuSn3Zn8Pb5-C	CuSn5Zn5Pb5-C	CuSn7Zn4Pb7-C	CuSn7Pb15-C; CC496K	CuSn10Pb10-C	CuZn36Pb3; CW603N
	GOST (RUSSIA)			AK21M2N2			BrO5Ts5S5				
	JIS (JAPAN)		ADC14				H5111; H2203				C3600; C3601; C3602
	SS (SWEDEN)		4282				5204-15				
	UNE (SPAIN)								C-3300		
	UNI (ITALY)										12167
	IS (INDIA)										
	KS REP. OF) (KOREA										
	GB/YB/JB/ SY/NB (PRC)						QSn4-0.3			ZCuPb10Sn10	HPb63-3

Material Designation in Accordance with Selected Standards

Standards		Material Group No								
		26	26	27	27	27	27	27	27	27
	NF/AFNOR (FRANCE)	CuZn38Pb2		U-Z10; CuZn10	U-Z36N3; CuZn19Al6Y20	U-Z36; CuZn 36				U-Z15; CuZn15
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	C37000	C67300; J461; J463	C22000	C86200; SAE 430A	C27200	C27400	C86400	C46400	C23000; 85Cu-15Zn
	BS (UK)	CZ129		CZ101	HTB 1	CZ108	CZ108	HTB 1	CZ112	CZ102
	DIN (GERMANY)	CuZn38Pb2; CuZn38Pb1.5		CuZn10; Ms90	CuZn34Mn3Al2Fe1-C; G-CuZn34Al2; GK-CuZn34Al2; GZ-CuZn34Al2	CuZn36; Ms64	CuZn37; Ms63	CuZn35Mn2Al1Fe1-C; G-CuZn35Al1; GK-CuZn35Al1; GZ-CuZn35Al1; G-Ms60	CuZn38Sn1As; CuZn38Sn1	CuZn15 ; CuZn 15
	Werkstoff (GERMANY)	2.037		2.0230	2.0596	2.0335	2.0321	2.0592	2.0530	2.0240
	EN (EUROPE)	CuZn38Pb2; CW608N	CuZn35Mn3Pb2Si1	CuZn10; CW501L	CuZn34Mn3Al2Fe1-C; CC764S	CuZn36; CW507L	CuZn37; CW508L	CuZn35Mn2Al1Fe1-C; CC765S	CuZn38Sn1As; CW717R	CuZn15; CW502L
	GOST (RUSSIA)	LS59-1		L90	LTs23A; LTs23A6Zh3MTs2	L63	L63		LO60-1	
	JIS (JAPAN)	C3710		C2200	HBSC4; H5102/class 3; H5102/class 4		C2720	HBSC1; CAC301	C4640	C2300
	SS (SWEDEN)									5112-02; 5112-04; 5112-05
	UNE (SPAIN)									
	UNI (ITALY)			P-CuZn10; P-OT90		C 2700	P-CuZn37; P-OT63		P-CuZn39Sn1	
	IS (INDIA)									
	KS REP. OF) (KOREA									
	GB/YB/JB/ SY/NB (PRC)			H90	ZCuZn25Al6Fe3Mn3	H65	H63	ZCuZn35Al2Mn2Fe1	HSn60-1	H85

Material Designation in Accordance with Selected Standards

Standards		Material Group No 27	27	27	27	27	27	28	28	28	28
	NF/AFNOR (FRANCE)	CuZn20	CuZn30				CuZn40	U-A10N; CuAl9Ni5Fe3	CuSn8	UE12P	CuAl10Fe5Ni5 Y70
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	C24000; 80Cu-20Zn	C26000; CA260	C27453		C85566	C28000	C63000	C90700	C90800; C91700	C95800; C95810
	BS (UK)	CZ103	CZ106				CZ109	CA 104	CT1	PB2	
	DIN (GERMANY)	CuZn20; CuZn 20; Ms80	CuZn30; CuZn 30				CuZn40	CuAl10Ni5Fe4; CuAl 10 Ni 5 Fe 4	CuSn10-C; G-CuSn 10; SnBz10	CuSn12-C; G-CuSn12; GZ-CuSn12; SnBz12, Gbz12	G-CuAl10Fe5Ni5-C; G-CuAl 10 Ni; NiAlBz-F60
	Werkstoff (GERMANY)	2.0250	2.0265				2.036	2.0966	2.1050	2.1052; 2.1052.01; 2.1052.04; 2.1052.03; 2.1056	2.0975
	EN (EUROPE)	CuZn20; CW503L	CuZn30; CW505L	CuZn38As; CW511L	CuZn36AlAsSb-B; CB771S	CuZn38AsSb-C; CC771S	CuZn40; CW509L	CuAl10Ni5Fe4; CW307G	CuSn10-C; CC480K	CuSn12-C; CC483K	CC333G
	GOST (RUSSIA)						L60	BrAD; BrAZhN10-4-4; N10-4-4			
	JIS (JAPAN)	C2400	C2600				C2801	C6301		CAC502C; PBC2C	CAC703C
	SS (SWEDEN)	5114-02; 5114-04; 5114-05									
	UNE (SPAIN)										
	UNI (ITALY)							P-CuAl10Ni5Fe5			
	IS (INDIA)										
	KS REP. OF) (KOREA										
	GB/YB/JB/ SY/NB (PRC)	H80	H70					QAl10-4-4			

Material Designation in Accordance with Selected Standards

Standards	Material Group No										
	28	28	28	28	28	28	28	28	28	28	28
NF/AFNOR (FRANCE)	Cu-B	U-Cr0.8Zr		Ci-c1; Cu-c2		U-C1Z; U-Cr0.8Zr	Cu-B	UA9	CuAl8	CuNi10Fe1Mn	CuZn16Si4-C
AISI/ASM/ ASTM/SAE/ UNS/AA (US)	C11000	C81500	C10300	C10100; C10200	C86550	C18100; C18150	C11000; C12200	C95500	C61000	C70600; 90Cu-10Ni	C87500; C87400; C87800
BS (UK)	C101	CC1-FF		C103; C110		CC102	C106			CN 102; CN102	ZCuZn16Si4
DIN (GERMANY)	Cu-ETP; E-Cu57; E Cu 57	G-CuCrF 35	Cu-HCP; Cu-PHC; SE-Cu	Cu-OF; OF-Cu	G-CuZn40Fe; G-SoMsF30	CuCr1Zr; CuCrZr	Cu-DHP; E-Cu58; E Cu 58 SF-Cu	CuAl9Ni3Fe2	CuAl8; Cu Al 8	CuNi10Fe1Mn	G-CuZn15Si4; GD-CuZn15Si4; GK-CuZn15Si4
Werkstoff (GERMANY)	2.0060	2.1292	2.0070	2.0040	2.0590	2.1293	2.0090	2.0971	2.0920	2.0872	2.0492; 2.0492-01; 2.0492-02; 2.0492-05
EN (EUROPE)	Cu-ETP; E-Cu57; CW004A		Cu-HCP; CW020A; Cu-PHC; CW021A	Cu-OF; CW008A	G-CuZn40Fe	CuCr1Zr; CW106C	Cu-DHP; E-Cu58; CW024A		CuAl8	CW 352H; CuNi10Fe1Mn	CuZn16Si4-B; CuZn16Si4-C; CB761S; CC761S
GOST (RUSSIA)	M1		LS60-2	M0b			M1f	BrA10Zh4N4L	BrA7	MNZhMtz10-1-1	LTs16K4
JIS (JAPAN)	C1100		C103	C1011; C1020			C1100; C1220			C7060; YCuNi-1	SzBC2; H5112/class 2; H5112/class 3
SS (SWEDEN)										5667	
UNE (SPAIN)	C11020			C-1120						CW 352H	
UNI (ITALY)	Cu-DHP										
IS (INDIA)											
KS REP. OF) (KOREA											
GB/YB/JB/ SY/NB (PRC)	T2			TU2		QCr0.6-0.4-0.05	TP2		QAl7	BFe10-1-1	

Material Designation in Accordance with Selected Standards

Standards		Material Group No						Material Group No			
		29	29	29	29	29	29	31	31	31	31
	NF/AFNOR (FRANCE)							Z 20 NCS 33-16; Z 12 NCS 37-18; Z 12 NCS 35-16			
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)							330; N08330	N08002; N08004; N08005; N08030		N08031
	BS (UK)							NA 17; INCOLOY alloy DS	330 C 11; 330 C 40; 331 C 40	NA 15	
	DIN (GERMANY)							X12NiCrSi35-16; X12NiCrSi36-16; X12 NiCrSi 36 16	GX40NiCrSi38-19 GX40NiCrSi38-18; G-X40 NiCrSi38 18	X2NiCrAlTi32-20; X2 NiCrAlTi 32 20	X1NiCrMoCu32-28-7; X1 NiCrMoCu 32 28 7
	Werkstoff (GERMANY)							1.486	1.487	1.456	1.456
	EN (EUROPE)							X12NiCrSi35-16	GX40NiCrSi38-18	X2NiCrAlTi32-20	X1NiCrMoCu32-28-7
	GOST (RUSSIA)	Capron; Nylon	Polymetylmetakrylat; orgsteklo; SOL; ST-1; 2-55	PVCh	Polystyrol	Teflon; PTFE; Ftoroplast-4	RST; RST-250; RST-275; RST-320; RST-410				
	JIS (JAPAN)							SUH 330	SCH 15; SCH 16	NCF 800	
	SS (SWEDEN)										
	UNE (SPAIN)							F.3313; X 12 CrNiSi 36-16			
	UNI (ITALY)								GX 50 NiCr 39 19		
	IS (INDIA)										
	KS REP. OF) (KOREA							STR 330	HRSC 15		
	GB/YB/JB/ SY/NB (PRC)							1Cr16Ni35		NS111	NS1404

Material Designation in Accordance with Selected Standards

Standards		Material Group No							
		31	31	31	31	31	31	31	31
	NF/AFNOR (FRANCE)		Z 8 NC 33-21; Z 10 NC 32-21	Z 2 NCDU 31-27; Z 1 NCDU 31-27-03	Z 10 NC 32-21; Z 8 NC 33-21				
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)		N08811	N08028	B 163; N08800; N08810; N08332; N08811				
	BS (UK)	NA 15	NA 15; NA 15 H		NA 15; NA 15 H				
	DIN (GERMANY)	X5NiCrAlTi31-20; X5 NiCrAlTi 31 20	X8NiCrAlTi32-21; X8 NiCrAlTi 32 21	X1NiCrMoCu31-27-4; X1 NiCrMoCu 31 27 4	X10NiCrAlTi32-21; X10NiCrAlTi32-20; X10 NiCrAlTi 32 20				
	Werkstoff (GERMANY)	1.496	1.496	1.456	1.488				
	EN (EUROPE)	X5NiCrAlTi31-20	X8NiCrAlTi32-21	X1NiCrMoCu31-27-4	X10NiCrAlTi32-21				
	GOST (RUSSIA)			EK77; ChN30MDB		08Ch15N25M3TYuB	06Ch16N15M3B; EI 847	08Ch15N24VTR; Ch15N24VT; EP 164	08Ch16N9M2
	JIS (JAPAN)	NCF 800 H; NCF 718			NCF 800; NCF 800 TB; NCF 800 TP				
	SS (SWEDEN)			2584					
	UNE (SPAIN)				F.3314; F.3545				
	UNI (ITALY)								
	IS (INDIA)								
	KS REP. OF) (KOREA								
	GB/YB/JB/ SY/NB (PRC)				NS112				

Material Designation in Accordance with Selected Standards

Standards		Material Group No									
		31	31	31	31	32	32	32	32	32	32
	NF/AFNOR (FRANCE)		A54-301			Z 42 CNKDWNb	Z 3 NCT 25; Z 6 NCTDV 25.15 B	Z 6 NCTDV 25-15 B			
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)		K94610; AMS 7726; F15	K93600; K93601; B388; F1684	K93500; AMS 1-23011	S590; J 467	660; S66286; AMS 5731; AMS 5732; AMS 5737; AMS 5525		661; R30155	R30556	S41880; AMS 5508; AMS 5616; A565 Grade 615; J467
	BS (UK)			4J36			HR 51; HR 52; 286 S 31	HR 51			
	DIN (GERMANY)		NiCo 29 18; X3NiCo29-18	Ni36; Ni 36		X40CoCrNi20-20; X40 CoCrNi 20 20	X6NiCrTiMoVB25-15-2; X5NiCrTi26-15 X6 NiCrTiMoVB 25 15 2; X5 NiCrTi 26 15	X4NiCrTi25-15; X5NiCrTi26-15	X12CrCoNi21-20; X12 CrCoNi 21 20		
	Werkstoff (GERMANY)		1.398	1.391		1.4977	1.4980	1.4943; 1.4944	1.4971		
	EN (EUROPE)						X6NiCrTiMoVB25-15-2; X5NiCrTi26-15	X4NiCrTi25-15; X5NiCrTi26-15	X12CrCoNi21-20		
	GOST (RUSSIA)	20Ch12N2V2MF		36N; 36N-VI				36NChTYu			
	JIS (JAPAN)										
	SS (SWEDEN)							2570			
	UNE (SPAIN)										
	UNI (ITALY)										
	IS (INDIA)										
	KS REP. OF) (KOREA										
	GB/YB/JB/ SY/NB (PRC)						0Cr15Ni25Ti2MoA	GH2132	GH19		

Material Designation in Accordance with Selected Standards

Standards	Material Group No								
	32	32	32	32	32	32	32	32	32
NF/AFNOR (FRANCE)									
AISI/ASM/ ASTM/SAE/ UNS/AA (US)	651; S63198; AMS 5579; AMS 5526	AMS 5725	662; S66220; AMS 5733	R30590; S-590			S38100; XM-15; A249 Grade TPXM-15		S66009
BS (UK)									
DIN (GERMANY)			X4NiCrMoTiMnSiB26-14-3-2			X5NiCrTiMoV26-15			
Werkstoff (GERMANY)			1.464			1.3980			
EN (EUROPE)									
GOST (RUSSIA)					36NChTYu	08Ch15N25T2MFR	08Ch20N14S2; 08Ch20N14S2; EI 732	37Ch12N8G8MFB	45Ch14N14B2M
JIS (JAPAN)									
SS (SWEDEN)									
UNE (SPAIN)									
UNI (ITALY)									
IS (INDIA)									
KS REP. OF) (KOREA									
GB/YB/JB/ SY/NB (PRC)									

Material Designation in Accordance with Selected Standards

Standards		Material Group No									
		32	32	32	33	33	33	33	33	33	33
	NF/AFNOR (FRANCE)				KC 20 WN	K 13 C 20 N16 Fe 15 D 7		NC 21 Fe DU		NC 20 T	NC 22 FeDNb
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)			S66315	R30605; 670; 5537C; AMS 5759	R30003; R30008; F1058; F1058 Grade 1; F1058 Grade 2	R31233; B815; B818	Incoloy 825; N08825;	Hastelloy C-4; N06455	Nimonic 75; N06075; AMS 5715	Inconel 625; N06625; AMS 5666
	BS (UK)							NA 16		HR 5; HR 203-4	NA 21
	DIN (GERMANY)				CoCr20W15Ni	CoCr20Ni15Mo7; CoCr 20 Ni 15 Mo	CoCr26Ni9Mo5W; CoCr 26 Ni 9 Mo 5 W	NiCr21Mo	NiMo16Cr16Ti	NiCr20Ti	NiCr22Mo9Nb
	Werkstoff (GERMANY)				2.4964	2.471	2.468	2.4858	2.4610	2.4630; 2.4951	2.4856
	EN (EUROPE)				CoCr20W15Ni						
	GOST (RUSSIA)	40Ch15N7GF2MS; EI 388	ChN35VTYu; EI 787					ChN38VT			
	JIS (JAPAN)										
	SS (SWEDEN)										
	UNE (SPAIN)										
	UNI (ITALY)										
	IS (INDIA)										
	KS REP. OF) (KOREA										
	GB/YB/JB/ SY/NB (PRC)				GH25			NS142	GH182		GH984

Material Designation in Accordance with Selected Standards

Standards		Material Group No									
		33	33	33	33	33	33	33	33	33	33
	NF/AFNOR (FRANCE)	NC 30 Fe	NU 30	NC 22 FeD	NC 14 K 9 T 5 DWA	Z 8 NCDT 42		NC 19 KDT		NU 30	NC 16 FeT
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	Inconel 690; N06690	Monel 400; N04400	Hastelloy X; Inconel HX; N06002; 5390A; AMS 5754; AMS 5536	Inconel 617; N06617; AMS 5887	Nimonic 90; N07090; AMS 5829	Haynes 214; NO7214	Rene 41; N07041; AMS 5712; AMS 5713; AMS 5800	Hastelloy B2; N10665	Monel R-405; N04405	Inconel 600; N06600; AMS 5665
	BS (UK)		NA 13; ANC 18	HR 6; HR 204		HR 2; HR202; HR 402; HR 501; HR 502; HR 503				NA 13	NA 14
	DIN (GERMANY)	NiC29Fe	NiCu30Fe	NiCr30FeMo; NiCr22Fe18Mo; NiCr21Fe18Mo9	NiCr23Co12Mo	NiCr20Co18Ti; NiCr 20 Co 18 Ti	NiCr16Al	NiCr19Co11MoTi; NiCr 19 CoMo	NiMo28; EL-NiM29; SG(UP)-NiMo27	NiCu30Fe	NiCr15Fe8; NiCr 15 Fe
	Werkstoff (GERMANY)	2.464	2.4360; 2.4361	2.4603; 2.4665	2.4663a	2.4632; 2.4969	2.4646	2.4973	2.4617; 2.4616; 2.4615	2.4360; 2.4361	2.4816
	EN (EUROPE)					NiCr20Co18Ti			NiMo28		NiCr15Fe8
	GOST (RUSSIA)										ChN78T
	JIS (JAPAN)								YNiMo-7		
	SS (SWEDEN)										
	UNE (SPAIN)										
	UNI (ITALY)										
	IS (INDIA)										
	KS REP. OF) (KOREA										
	GB/YB/JB/ SY/NB (PRC)	NS315		GH22; GH334; GH536GH739; SG-5		GH4037		GH141	NS322		NS312

Material Designation in Accordance with Selected Standards

Standards		Material Group No									
		33	33	33	33	33	33	33	33	33	33
	NF/AFNOR (FRANCE)	N C 23 FeA	NCK 20 D		NC 17 D		A54-301; Fe-Ni48	NW 11 AC			
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	Inconel 601; N06601	Nimonic 263; N07263; AMS 5872; AMS 5886	Hastelloy C-22; N06022	Hastelloy C-276; N10276	N06025	K94800; F 30	Nimonic PE 16	Haynes HR-120; N08120; B408; B409	Haynes HR-160; N12160	Udimet 520
	BS (UK)		HR 10; HR 206; HR 404					HR 55; HR 207			
	DIN (GERMANY)	NiCr23Fe15A; NiCr 23 Fe	NiCo20Cr20MoTi; NiCo 20 Cr 20 MoTi MoTi	NiCr21Mo14W	NiMo16Cr15W; NiMo 16 Cr 15 W	NiCr25FeAlY	Ni 48; RNi 12; RNi 8			NiCo29Cr28Si	
	Werkstoff (GERMANY)	2.4851	2.4650	2.4602	2.482	2.463	1.3922; 1.3926; 1.3927			2.488	
	EN (EUROPE)	NiCr23Fe15A	NiCo20Cr20MoTi			NiCr25FeAlY					
	GOST (RUSSIA)	ChN60Yu									
	JIS (JAPAN)			NW 6022		NCF 625					
	SS (SWEDEN)										
	UNE (SPAIN)										
	UNI (ITALY)										
	IS (INDIA)										
	KS REP. OF) (KOREA										
	GB/YB/JB/ SY/NB (PRC)	NS313	GH163		NS334						

Material Designation in Accordance with Selected Standards

Standards		Material Group No									
		33	33	34	34	34	34	34	34	34	34
	NF/AFNOR (FRANCE)			KC 22 WN					NU 30 AT	NC 19 Fe Nb	NiFe25Cr20NbTi
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	Incoloy 840	N08020	R30188; AMS 5608; AMS 5772	R30816; S-816; B639; Grade 671 Cobalt			R30600	Monel K-500; N05500	Inconel 718; N07718; AMS 5596; AMS 5589	
	BS (UK)		GH 1015; NS 1403; NS 143						NA 18	HR 8	
	DIN (GERMANY)	X8CrNiAlTi20-20	NiCr20CuMo	CoCr22W14Ni	CoCr20Ni20W				NiCu30Al3Ti; NiCu 30 Al	NiCr19Nb5Mo3; NiCr 19 NbMo; NiCr19Fe19Nb5Mo3	NiFe25Cr20NbTi; NiFe 25 Cr 20 NbTi
	Werkstoff (GERMANY)	1.485	2.466	2.4964	2.4989			2.478	2.438	2.467	2.496
	EN (EUROPE)		NiCr20CuMo	CoCr22W14Ni	CoCr20Ni20W				NiCu30Al3Ti	NiCr19Nb5Mo3	NiFe25Cr20NbTi
	GOST (RUSSIA)		ChN28VMAB		Altemp S-816						
	JIS (JAPAN)										
	SS (SWEDEN)										
	UNE (SPAIN)										
	UNI (ITALY)										
	IS (INDIA)										
	KS REP. OF) (KOREA										
	GB/YB/JB/ SY/NB (PRC)			GH25		GH4169	GH901; GH109	GH146			

Material Designation in Accordance with Selected Standards

Standards		Material Group No									
		34	34	34	34	34	34	34	34	34	34
	NF/AFNOR (FRANCE)		Z 8 NCDT 42	NCK 19 DAT	NC 20 TA			NC 20 K 14		NC 19 KDT	NC 14 K8
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	Incoloy 925; N09925	Nimonic 901; N09901; AMS 5660; AMS 5661	Udimet 500; N07500; AISI 684	Nimonic 80A; N07080	MAR-M 246	Inconel 722; N07722; AMS 5411	Waspaloy; N07001; AISI 685; AMS 5704; AMS 5706; AMS 5708; AMS 5544		Rene 41; N07041; AMS 5712; AMS 5713; AMS 5800	Rene 95
	BS (UK)				HR 401; HR 601						
	DIN (GERMANY)		NiFe35Cr14MoTi; NiCr13Mo6Ti3; NiCr 13 Mo 6 Ti 3	NiCr18Co18MoAlTi	NiCr20TiAl; NiCr 20 TiAl	NiCr23Mo16Cu; NiCr 23 Mo 16 Cu		NiCr20Co13Mo4Ti3AL; NiCr 19 Co 14 Mo 4 Ti		NiCr19Co11MoTi; NiCr 19 CoMo	
	Werkstoff (GERMANY)		2.4662	2.4983	2.4631; 2.4952	2.4675		2.4654		2.4973	
	EN (EUROPE)			NiCr18Co18MoAlTi	NiCr20TiAl	NiCr23Mo16Cu		NiCr20Co13Mo4Ti3AL			
	GOST (RUSSIA)				ChN77TYuR; ChN56VMTYu				ChN75VMYu; EI 827		
	JIS (JAPAN)				NCF 80 A						
	SS (SWEDEN)										
	UNE (SPAIN)										
	UNI (ITALY)										
	IS (INDIA)										
	KS REP. OF) (KOREA										
	GB/YB/JB/ SY/NB (PRC)				GH80A		GH141	GH738			

Material Designation in Accordance with Selected Standards

Standards		Material Group No									
		34	34	34	34	34	34	34	34	34	34
	NF/AFNOR (FRANCE)					NK 20 CDA; NCK 20 Atv	NCK 15 ATD	NC 19 KDu/v	NC 16 FeTNb		Z 3 NK 28; Z 3 NK 38
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	N06230; AMS 5891; AMS 5878			Udimet 700; 687; AMS 5846; J467; GE C50T67	Nimonic 105; N13021; C565	Nimonic 115; N06115; AMS 5666	Nimonic PK 33	Inconel X-750; N07750; AMS 5542; AMS 5582; AMS 5670; AMS 5667	Astroloy; N13017; AMS 5851; AMS 5852; AMS 5882	Incoloy 903; N19903; AMS 5803; ANS 5884; AMS 5892; AMS 5893
	BS (UK)					HR 3	HR 4				
	DIN (GERMANY)	NiCr22W14Mo				NiCo20Cr15MoAlTi; NiCo 20 Cr 5 MoAlTi	NiCo15Cr15MoAlTi; NiCo 15 Cr 5 MoAlTi		NiCr15Fe7TiAl; NiCr15Fe7Ti2Al		
	Werkstoff (GERMANY)	2.473				2.463	2.464		2.467		
	EN (EUROPE)								NiCr15Fe7TiAl; NiCr15Fe7Ti2Al		
	GOST (RUSSIA)		ChN72MVKYu	ChN60MVTYu							
	JIS (JAPAN)										
	SS (SWEDEN)										
	UNE (SPAIN)										
	UNI (ITALY)										
	IS (INDIA)										
	KS REP. OF) (KOREA										
	GB/YB/JB/ SY/NB (PRC)										

Material Designation in Accordance with Selected Standards

Standards		Material Group No								
		34	34	35	35	35	35	35	35	35
	NF/AFNOR (FRANCE)				ND 30 M		NK 15 CAT		NC 13 AD	
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)		Inconel 740H; N07740	5388C; N30002; CW-12MW;	N7M; N-7M; N30007	N12MV; N-12MV; N30012	Nimocast PK24; N13100; AMS 5397	Jethete M-252; N07252; AMS 5551	Nimocast 713; N07713; AMS 5391; Inconel 713LC	M-35-1; N214135
	BS (UK)						HC 204		HC 203	
	DIN (GERMANY)	NoCr25Co20TiMo		G-NiM16CrW	G-NiMo28	G-NiMo30	G-NiCo15Cr10AlTiMo	G-NiCr19Co; G-NiCr 19 Co	G-NiCr13Al6MoNb	G-NiCu40Nb
	Werkstoff (GERMANY)	2.488		2.4883	2.4685	2.4882; 9.4810; 2.4810/9.4810	2.4674	2.4916	2.467	2.4365; 2.4365/9.4365
	EN (EUROPE)	NoCr25Co20TiMo								
	GOST (RUSSIA)									
	JIS (JAPAN)									NiCuC
	SS (SWEDEN)									
	UNE (SPAIN)									
	UNI (ITALY)									
	IS (INDIA)									
	KS REP. OF) (KOREA									
	GB/YB/JB/ SY/NB (PRC)									

Material Designation in Accordance with Selected Standards

Standards		Material Group No										
		35	35	35	35	35	35	35	35	35	35	35
	NF/AFNOR (FRANCE)			NC14 K9 T5 DWA								
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)		Rene 77	Rene 80					MAR-M 247	MAR-M 421	MAR-M 432	Rene 125
	BS (UK)											
	DIN (GERMANY)	G-NiCr28W			G-NiCr15				G-NiCo10W10CrAlNb			
	Werkstoff (GERMANY)	2.488			2.482				2.468			
	EN (EUROPE)	G-NiCr28W			G-NiCr15							
	GOST (RUSSIA)					ChN62MVKYuL	ChN65VMTYuL	ChN67VMTYuL				
	JIS (JAPAN)											
	SS (SWEDEN)											
	UNE (SPAIN)											
	UNI (ITALY)											
	IS (INDIA)											
	KS REP. OF) (KOREA											
	GB/YB/JB/ SY/NB (PRC)											

Material Designation in Accordance with Selected Standards

Standards		Material Group No								
		35	35	35	35	35	35	36	36	36
	NF/AFNOR (FRANCE)			KD 27 DN	KC 25 NW; KC 25 N 10 W 7 Fe			T-35	T-40	T-50
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	Rene 220C	Udimet 700B	F75; AMS 5385D	A567; AMS 5382E; Cobalt Alloy 31; Cobalt #31			R50250; Titanium Grade 1; ASTM GR. 1	R50400; Titanium Grade 2; AMS 4902; AMS 4941; ASTM Gr. 2	R50500; R50550; Titanium Grade 3; AMS 4900
	BS (UK)			ANC 14	ANC 13; 3146.2			TA1	TA2; TA3; TA4; TA5	DTD 5023, DTD 5273
	DIN (GERMANY)			CoCr28MoNi	CoCr25NiW	G-CoCr28	G-CoCr28Nb	Ti 1; Ti 99.8; Titan Grade 1	Ti 2; Ti 99.7	Ti 3; Ti 99.6; Titan Grade 3
	Werkstoff (GERMANY)			2.498	2.497	2.478	2.478	3.7024; 3.7025	3.7034; 3.7035; 3.7036	3.7055; 3.7056
	EN (EUROPE)					G-CoCr28		Ti 99.8	Ti 99.7	Ti 99.6
	GOST (RUSSIA)							VT1-00	VT1-0	
	JIS (JAPAN)							Class 2; Gr-1	Class 2; Gr-2	Class 3; Gr-3
	SS (SWEDEN)									
	UNE (SPAIN)							Ti-PO1	Ti-PO2; 38-711L-7001; 38-712L-7002	
	UNI (ITALY)							Ti1-Type 1	Ti1-Type 2	Ti1-Type 3
	IS (INDIA)									
	KS REP. OF) (KOREA									
	GB/YB/JB/ SY/NB (PRC)							TA0	TA1	TA2

Material Designation in Accordance with Selected Standards

Standards		Material Group No							
		36	36	36	36	36	36	36	36
	NF/AFNOR (FRANCE)	T-60							
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	R50700; Titanium Grade 4; AMS 4901; AMS 4921	R52400; Titanium Grade 7; Ti-0.15Pd	R52250; Titanium Grade 11; Ti-0.15Pd	R52402; Titanium Grade 16; Ti-0.05Pd	R52252; Titanium Grade 17; Ti-0.05Pd	R52404; Titanium Grade 26; Ti-0.1Ru	R52254; Titanium Grade 27; Ti-0.1Ru	R53400; Titanium Grade 12; Ti-0.3Mo-0.8Ni; AMS 4902
	BS (UK)	TA7; TA8; TA9							
	DIN (GERMANY)	Ti 4; Ti 99.5; Titan Grade 4							TiNi0.8Mo0.3
	Werkstoff (GERMANY)	3.7064; 3.7065; 3.7066	3.724	3.723					3.711
	EN (EUROPE)	Ti 99.5							TiNi0.8Mo0.3
	GOST (RUSSIA)								
	JIS (JAPAN)	Class 4; Gr-4	Class 13; Gr-13	Class 13; Gr-13					
	SS (SWEDEN)								
	UNE (SPAIN)	38-714L-7004	38-715L-7021	38-715L-7021					
	UNI (ITALY)	Ti1-Type 4	Ti2Pd-Type 7	Ti2Pd-Type 7					
	IS (INDIA)								
	KS REP. OF) (KOREA								
	GB/YB/JB/ SY/NB (PRC)	TA3	TA9						

Material Designation in Accordance with Selected Standards

Standards		Material Group No 37	37	37	37	37	37	37
	NF/AFNOR (FRANCE)	TA6V; T-A6V; Ti-P.63	TA6ZR4DE; T-A6ZR4DE		TA6V6E2; T-A6V6E2		TU2; T-U2	TA4DE; T-A4DE
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	R56400; Titanium Grade 5; Ti-6Al-4V; AMS 4911; AMS 4928	R54620; Titanium Grade 6Al-2Sn-4Zr-2Mo; 6Al-2Sn-4Zr-2Mo; AMS 4975; AMS 4976; AMS 4919	R54790; Ti-679; AMS 4974	R56620; Titanium Grade 6Al-6V-2Sn; Ti-6Al-6V-2Sn; AMS 4918; AMS 4936; AMS 4971; AMS 4978	R56320; Titanium Grade 9; Ti-3Al-2.5V; AMS 4943; AMS 4944		
	BS (UK)	TA10; TA11; TA12; TA13; TA 28; TA56; Ti-Al-V	TA18; TA19; TA20; TA25; TA26; TA27	TA18; TA19; TA20; TA25; TA26; TA27			TA21; TA22; TA23; TA24	TA45; TA46; TA47; TA48; TA49; TA50; TA51; TA57
	DIN (GERMANY)	Ti6Al4V; Titan Grade 5; Titan 6 Al 4V	TiAl6Sn2Zr4Mo2		Ti-6Al-2Sn-4Zr-6Mo	Ti6Al2.5V; Titan Grade 9; Titan 3Al 2,5V	TiCu2	Ti4Al4Mo2Sn; TiAl4Mo4Sn4Si0.5
	Werkstoff (GERMANY)	3.7165; 3.7164	3.7145; 3.7144		3.7175; 3.7174	3.7195; 3.7194	3.712	3.7185; 3.7184
	EN (EUROPE)	Ti6Al4V	TiAl6Sn2Zr4Mo2		Ti-6Al-6V-2Sn	Ti6Al2.5V		
	GOST (RUSSIA)	VT6; VT6L	VT25			PT-3V		
	JIS (JAPAN)	Class 6 0; Gr 6 0; SAT-64; TAB 6400E; TAF 6400				Class 6 1; Gr 6 1		
	SS (SWEDEN)							
	UNE (SPAIN)	Ti-P63; 38-723L-7301			38-725L-7303		Ti-P11	Ti-P68
	UNI (ITALY)	TiAl6V4-Type 5				TiAl3V2.5-Type 9		
	IS (INDIA)							
	KS REP. OF) (KOREA							
	GB/YB/JB/ SY/NB (PRC)				TC4	TC2		

Material Designation in Accordance with Selected Standards

Standards		Material Group No						
		37	37	37	37	37	37	37
	NF/AFNOR (FRANCE)	TA5E; T-A5E; Ti-P.65			TA6VE; T-A6VE	TA4D3V; T-A4D3V		TA8DV; T-A8DV
	AISI/ASM/ASTM/SAE/UNS/AA (US)	R54520; Titanium Grade 6; Ti-5Al-2.5Sn; Gr6; AMS 4910; AMS 4926	R54521; Titanium Grade Ti-5Al-2.5Sn-ELI; Ti-5Al-2.5Sn-ELI; AMS 4909; AMS 4924	R56410; Titanium Grade Ti-10V-2Fe-3Al	R56401; R56407; Titanium Grade 23; Ti-6Al-4V-ELI; AMS 4907; AMS 4930; AMS 4956	Ti-4Al-3Mo-1V		R54810; Titanium Grade Ti-8Al-1Mo-1V; Ti-8Al-1Mo-1V; AMS 4915; AMS 4916; AMS 4972; AMS 4973
	BS (UK)	TA14; TA17	TA32		TA11			TA40
	DIN (GERMANY)	TiAl5Sn2.5; TiAl 5 Sn 22; Titan 5Al2.5Sn; Ti5Al2,5Sn	TiAl5Sn2.5 ELI		Ti6Al4V ELI			
	Werkstoff (GERMANY)	3.7115.1; 3.7115; 3.7114						
	EN (EUROPE)	TiAl5Sn2.5						
	GOST (RUSSIA)	VT5-1	VT5-1		VT6S	VT14	VT22	
	JIS (JAPAN)	SAT-525			Class 6 1; Gr 6 1			
	SS (SWEDEN)							
	UNE (SPAIN)	38-716L-7101						
	UNI (ITALY)				TiAl6V4ELI-Type 5.1			
	IS (INDIA)							
	KS REP. OF) (KOREA							
	GB/YB/JB/SY/NB (PRC)	TA7						

Material Designation in Accordance with Selected Standards

Standards		Material Group No					
		37	37	37	37	37	37
	NF/AFNOR (FRANCE)						
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	R56322; Titanium Grade 18; Ti-3Al-2.5V-0.05Pd; Ti-Pd18; F18	R56323; Titanium Grade 28; Ti-3Al-2.5V-0.1Ru	R54250; Titanium Grade 38; Ti-4Al-2.5V; AMS 6946B	R56260; Titanium Grade 6Al-2Sn-4Zr-6Mo; Ti-6Al-2Sn-4Zr-6Mo; AMS 4981B	R58650; Titanium Grade Ti-5Al-2Sn-2Zr-4Cr-4Mo; AMS 4995; AMS 4997	Ti-6Al-2Sn-2Zr-2Mo-2Cr-0.15Si; AMS 4898
	BS (UK)						
	DIN (GERMANY)				Ti6Al2Sn4Zr6Mo	Ti5Al2Sn2Zr4Mo4Cr	
	Werkstoff (GERMANY)						
	EN (EUROPE)				Ti6Al2Sn4Zr6Mo	Ti5Al2Sn2Zr4Mo4Cr	
	GOST (RUSSIA)						
	JIS (JAPAN)		TAT 3250 Class 61				
	SS (SWEDEN)						
	UNE (SPAIN)						
	UNI (ITALY)						
	IS (INDIA)						
	KS REP. OF) (KOREA						
	GB/YB/JB/ SY/NB (PRC)						

Material Designation in Accordance with Selected Standards

Standards		Material Group No							
		37	37	37	37	37	37	37	37
	NF/AFNOR (FRANCE)								
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	Ti-4.5Al-3V-2Mo-2Fe; AMS 4899	R56700; Titanium Grade Ti-6Al-7Nb; F1295			R56410; Ti-10V-2Fe-3Al; AMS 4983; AMS 4984; AMS 4986; AMS 4987	R58010; Ti-13V-11Cr-3Al; AMS 4917; AMS 4959; B120VCA; B-1; 3Al-13V-11Cr	R58030; Titanium Grade 10; Ti-11.5Mo-6Zr-4.5Sn; AMS 4977; AMS 4980	R58153; Ti-15V-3Cr-3Al-3Sn; AMS 4914
	BS (UK)						TA3	TA5	
	DIN (GERMANY)								
	Werkstoff (GERMANY)								
	EN (EUROPE)				Ti5Al5V5Mo3Cr				
	GOST (RUSSIA)			OT4-1	VST 5553				
	JIS (JAPAN)			ST-A90					
	SS (SWEDEN)								
	UNE (SPAIN)						38-729L-7701		
	UNI (ITALY)								
	IS (INDIA)								
	KS REP. OF) (KOREA								
	GB/YB/JB/ SY/NB (PRC)								

Material Designation in Accordance with Selected Standards

Standards		Material Group No							Material Group No
		37	37	37	37	37	37	37	38
	NF/AFNOR (FRANCE)								C 105 E 2 U; Y1 105; C105E2U
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	R58210; Titanium Grade 21; Ti-15Mo-2.7Nb-3Al-0.2Si; B265	R58640; Titanium Grade 19; Ti-3Al-8V-6Cr-4Mo-4Zr	R58645; Titanium Grade 20; Ti-3Al-8V-6Cr-4Mo-4Zr	R58820; Titanium Grade 8Mo-8V-2Fe-3Al; Ti-8Mo-8V-2Fe-3Al				W110; T72301
	BS (UK)		TA38						
	DIN (GERMANY)								C105U; C 105 W 1; C 105 U
	Werkstoff (GERMANY)								1.1545
	EN (EUROPE)								C105U
	GOST (RUSSIA)					VT15	VT15-1	VT19	U10A-1; U10A-2; U11-1
	JIS (JAPAN)								SK 105; SK 3; TC 105
	SS (SWEDEN)								1880
	UNE (SPAIN)								F.515; F.516
	UNI (ITALY)								C 100 KU
	IS (INDIA)								
	KS REP. OF) (KOREA								STC 105; STC 3
	GB/YB/JB/ SY/NB (PRC)								T10

Material Designation in Accordance with Selected Standards

Standards		Material Group No									
		38	38	38	38	38	38	38	38	38	38
	NF/AFNOR (FRANCE)	35 NCD 14	C 105 E 2 UV 1; Y1 105 V; 100 V 2	50CrV4RR; 50 CV 4; 51 CV 4	34 CD 4		X40Cr14; Z 40 C 14			Z 30 WCV 9	
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)		W210; T72302	6145; 6150; 6150 H; G61500; H61500	P20; T51620			300M; 4340M; K44220		H21; T20821	S7; T41907
	BS (UK)	832 M 31	BW 2	735 A 50; 735 A 51; 735 H 51; 735 M 50; En 47	708 A 37					BH 21	
	DIN (GERMANY)	32NiCrMo14-5; 32 NiCrMo 14-5	100V1; 100 V 1	51CrV4; 50CrV4; 50 CrV 4	35CrMo4; 35 CrMo 4	26MnCr6-3	X40Cr14; X 42 Cr 13	41SiNiCrMoV7-6		X30WCrV9-3; X30WCrV9 3	50CrMoV13-4; 50 CrMoV 13 4; 50CrMoV13-15
	Werkstoff (GERMANY)	1.6746	1.2833	1.8159	1.2330	1.8721	1.2083; 1.2083 ESR	1.6928		1.2581	
	EN (EUROPE)	32NiCrMo14-5	100V1	51CrV4	35CrMo4	26MnCr6-3	X40Cr14	S 155		X30WCrV9-3; X30WCrV9 3	50CrMoV13-15
	GOST (RUSSIA)			50ChFA; 50ChGFA					30ChGSA	3Ch2W8F	
	JIS (JAPAN)		SKS 43	SUP 10; SUP 10-CSP; SUP 10 M			SUS 420 J 2			SKD 5	
	SS (SWEDEN)			2230	2234		2314				
	UNE (SPAIN)	F.1262-32 NiCrMo 12		F.143; F.143.A; 51 CrV 4; F.1430			F.5263; X 40 Cr 13			F.5323; X 30 WCrV 9	1.2357; 1.2355
	UNI (ITALY)		102 V 2 KU	50 CrV 4	35 CrMo 4		X 41 Cr 13 KU			X 30 WCrV 9 3 KU	
	IS (INDIA)										
	KS REP. OF) (KOREA		SPS 4	SPS 10	SCM 435TK		STS 420J2				
	GB/YB/JB/ SY/NB (PRC)		T9 ; V	50CrVA	3CrMo		3Cr13				

Material Designation in Accordance with Selected Standards

Standards		Material Group No									
		38	38	38	38	38	38	38	38	38	39
	NF/AFNOR (FRANCE)			Z 40 C 13		55WC20; 55 WC 20	Z 2 CN 18-10 M				X 160 CrMoV 12; Z 160 CDV 12
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	A9; T30109	S6; T41906	420 C	414; S41400; AMS 5615	S1; T41901	K92710	K92890; AMS 6512	K93120; AMS 6514	K93540; AMS 6515	D2; T30402
	BS (UK)			420 S 45		BS 1		BS S162			BD 2
	DIN (GERMANY)			X39Cr13; X 38 Cr 13		60WCrV8; 60 WCrV 7	X2NiCoMo18-8-5	X2NiCoMo18-9-5; X2NiCoMo18-8-5	X2NiCoMo18-8-5	X2NiCoMo18-12; X2NiCoMoTi18-12-4	X153CrMoV12; X155CrVMo12-1; X155 CrVMo 12 1
	Werkstoff (GERMANY)			1.4031		1.2550	1.6359	1.6358; 1.6359	1.6354; 1.6359	1.6355; 1.6356	1.238
	EN (EUROPE)			X39Cr13		60WCrV8	X2NiCoMo18-8-5	X2NiCoMo18-8-5	X2NiCoMo18-8-5		X153CrMoV12
	GOST (RUSSIA)			40Ch13		6ChV2S; 5ChV2S					
	JIS (JAPAN)										SKD 10; SKD 11
	SS (SWEDEN)										2310
	UNE (SPAIN)										F.520.A
	UNI (ITALY)			X 40 Cr 14		55 WCrV 8 KU					X 155 CrVMo 12 1 KU
	IS (INDIA)										
	KS REP. OF) (KOREA										
	GB/YB/JB/ SY/NB (PRC)										Cr12MoV

Material Designation in Accordance with Selected Standards

Standards		Material Group No									
		39	39	39	39	39	39	39	39	39	39
	NF/AFNOR (FRANCE)	X200Cr12; Z 200 C 12	100Cr6RR; 100 C 6; 100Cr6; Y 100 C 6	90 MnV 8; 90 MV 8	X 40 CrMoV 5; Z 40 CDV 5		Z 100 CD 17 Cl; Z 100 CD 17			100 C 3	55 NCDV 7; 55 NiCrMoV7
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	D3; T30403	L3; T61203	O2; T31502	H13; T20813		440C; S44004; S44025	440A; S44002; J91606		L2; T61202	L6; T61206
	BS (UK)	BD 3	BL 3; BL3	BO 2; BO2	BH 13						
	DIN (GERMANY)	X210Cr12; X 210 Cr 12	102Cr6; 102 Cr 6; 100 Cr 6	90MnCrV8; 90 MnCrV 8	X40CrMoV5-1; X40 CrMoV 5 1		X105CrMo17; X105 CrMo 17	X70CrMo15; X 65 CrMo 14	62SiMnCr4; 62 SiMnCr 4	115CrV3; 115 CrV 3	55NiCrMoV7; 56 NiCrMoV 7
	Werkstoff (GERMANY)	1.2080	1.2067	1.284	1.2344		1.4125	1.411	1.2101	1.2210	1.2714
	EN (EUROPE)	X210Cr12	102Cr6	90MnCrV8	X40CrMoV5-1		X105CrMo17	X70CrMo15		115CrV3	55NiCrMoV7
	GOST (RUSSIA)	Ch12	Ch		4Ch5MF1S		95Ch18; 110Ch18M-SchD				5ChGNM
	JIS (JAPAN)	SKD 1	SUJ 2		SKD 61		SUS 440 C				SKT 4
	SS (SWEDEN)				2242						
	UNE (SPAIN)	F.521; F.5212; X 210 Cr 12	F.5230; 100 Cr 6	90 MnCrV 8; F.5229	F.5318; X 40 CrMoSiV 5					F.520.L; F.5125	F.520.B; 55 NiCrMoV 7; F.5307
	UNI (ITALY)	X 205 Cr 12 KU	102 Cr 6 KU	90 MoVCr 8 KU	X 40 CrMoV 5 1 1 KU					107 CrV 3 KU	55 NiCrMoV 7 KU; 56 NiCrMoV 7 KU
	IS (INDIA)	T215Cr12									
	KS REP. OF) (KOREA	STR 3	STB 2		STD 61	STF 4					
	GB/YB/JB/ SY/NB (PRC)	Cr12	Cr2	9Mn2V	40CrMoV5	5CrNiMo	9Cr18				

Material Designation in Accordance with Selected Standards

Standards		Material Group No											
		39	39	39	39	39	39	39	39	39	39	39	39
	NF/AFNOR (FRANCE)									C 105 E 2 U; Y1 105; C105E2U	X200Cr12; Z 200 C 12	HS 2-8-1; Z 85 DCWV 08-04-02-01	18-0-1; HS 18-0-1; Z 80 WCV 18-04-01
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	S2; T41902	S5; T41905	D7; T30407	A6; T30106	A8; T30108	440F; S44020	K93540; AMS 6515	W1; T72301	W110; T72301	D3; T30403	M1; H41; T11301; T20841	T1; T12001
	BS (UK)								BW 18		BD 3	BM 1	BT 1
	DIN (GERMANY)							X2NiCoMo18-12; X2NiCoMoTi18-12-4	C80W2; C 80 W2	C105U; C 105 W 1; C 105 U	X210Cr12; X 210 Cr 12	HS2-9-1; S 2-9-1	HS18-0-1; S 18-0-1
	Werkstoff (GERMANY)							1.6355; 1.6356	1.1625	1.1545	1.2080	1.3346	1.336
	EN (EUROPE)								C80W2	C105U	X210Cr12	HS2-9-1	HS18-0-1
	GOST (RUSSIA)								U8-1	U10A-1; U10A-2; U11-1	Ch12		R18
	JIS (JAPAN)								SK 75; SK 85; SK 85 M; SK 5; SK 5 M; SK 6	SK 105; SK 3; TC 105	SKD 1		SKH 2
	SS (SWEDEN)									1880			2750
	UNE (SPAIN)								F.520.U; F.5107; C 80	F.515; F.516	F.521; F.5212; X 210 Cr 12		F.5520; HS 18-0-1
	UNI (ITALY)									C 100 KU	X 205 Cr 12 KU		HS 18-0-1
	IS (INDIA)												
	KS REP. OF) (KOREA									STC 105; STC 3			
	GB/YB/JB/ SY/NB (PRC)								T7	T10			W18Cr4V

Material Designation in Accordance with Selected Standards

Standards		Material Group No										
		39	39	39	39	39	39	39	39	39	39	40
	NF/AFNOR (FRANCE)	90 MnV 8; 90 MV 8	Z 85 WDCV 06-05-04-02; 6-5-2; HS6-5-2						Z 80 WKCV 19-05-04-01; HS 18-1-1-5	Z 120 WDCV 06-05-04-03; HS6-5-3; Z 120 WDCV 06-05-04-04; HS6-5-4		
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	O2; T31502	M2; T11302	D7; T30407	A3; T30103	A7; T30107	W5; T72305	P4; T51604	T4; T12004	M3 Class 2; T11323		A532 IB; Ni-Hard 2; Ni-Cr-Lc; F45001
	BS (UK)	BO 2; BO2	BM 2; BM2						BT 4			Grade 2 A
	DIN (GERMANY)	90MnCrV8; 90 MnCrV 8	HS6-5-2; HS 6-5-2; S 6-5-2					6CrMo15-5; X 6 CrMo 4	HS18-1-2-5; S 18-1-2-5	HS6-5-3; HS 6-5-3; S 6-5-3	HS6-5-3C	G-X 260 NiCr 4 2; EN-GJN-HV520; EN-GJN-HB480; EN-JN2029
	Werkstoff (GERMANY)	1.284	1.3343					1.234	1.3255	1.334	1.335	0.9620; 5.5602
	EN (EUROPE)	90MnCrV8	HS6-5-2						HS18-1-2-5	HS6-5-3	HS6-5-3C	EN-GJN-HB480; EN-JN2029
	GOST (RUSSIA)		R6M5									
	JIS (JAPAN)		SKH 51						SKH 3	SKH 52; SKH 53		
	SS (SWEDEN)		2722							2725		0512-00
	UNE (SPAIN)	90 MnCrV 8; F.5229	F.550.A; F.5604						F.5530; HS 18-1-1-5	F.5605; 6-5-3		
	UNI (ITALY)	90 MoVCr 8 KU							HS 18-1-1-5			
	IS (INDIA)		T83MoW6Cr4V2									
	KS REP. OF) (KOREA		SKH 51									
	GB/YB/JB/ SY/NB (PRC)	9Mn2V	W6Mo5Cr4V2									

Material Designation in Accordance with Selected Standards

	Standards	Material Group No 40	40	40	40	40	40	40	40	40	40	40
	NF/AFNOR (FRANCE)											
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)				SAE J2477 AD 1400	F37006; A897 230-185-01; A897 (230/185/01); A897M 1600-1300-01; A897M (1600/1300/01); A897 Grade 5; SAE J2477 AD 1600						
	BS (UK)	Grade 1 A; Grade 1 B; Grade 1 C										
	DIN (GERMANY)	EN-GJN-HV350; EN-GJN-HB340; EN-JN2019	EN-GJN-HB400; EN-JN2059	EN-GJN-HB500	EN-GJS-HB400	EN-GJS-HB450	G-X 250 CrMoV 25					
	Werkstoff (GERMANY)	0.9610; 5.5600	5.5601	5.560	5.3406	5.3407	1.4192					
	EN (EUROPE)	EN-GJN-HB340; EN-JN2019	EN-GJN-HB400; EN-JN2059	EN-GJN-HB500	EN-GJS-HB400	EN-GJS-HB450						
	GOST (RUSSIA)							ChS15M4	ChS17	ChS17M3	ChKh16	ChKh22
	JIS (JAPAN)											
	SS (SWEDEN)											
	UNE (SPAIN)											
	UNI (ITALY)											
	IS (INDIA)											
	KS REP. OF) (KOREA											
	GB/YB/JB/ SY/NB (PRC)											

Material Designation in Accordance with Selected Standards

Standards		Material Group No							
		40	40	40	40	41	41	41	41
	NF/AFNOR (FRANCE)								
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)					A532 IID 20% CrMo-LC; A532 Class II Type D; F45007	A532 IIC 15% CrMo-HC; A532 Class II Type C; 15% CrMo; F45005	A532 IIIA 25% Cr; A532 Class III Type A	A532 ID; Ni-Hard 4; Ni-HiCr; F45003
	BS (UK)					Grade 3 C	Grade 3 A; Grade 3 B	Grade 3 D	Grade 2 C; Grade 2 D; Grade 2 E
	DIN (GERMANY)					G-X 260 CrMoNi 20 2 1; EN-GJN-HV600(XCr23); EN-GJN-HB555(XCr18); EN-JN3039	G-X 300 CrMo 15 3; G-X 300 CrMoNi 15 2 1; EN-GJN-HV600(XCr14)	G-X 260 Cr 27; EN-GJN-HB555(XCr23); EN-JN3049	G-X 300 CrNiSi 9 5 2; EN-GJN-HV600;
	Werkstoff (GERMANY)					0.9645; 5.5609	0.9635; 0.9640; 5.5608	0.9650; 5.5610	0.9630; 5.5605
	EN (EUROPE)					EN-GJN-HB555(XCr18); EN-JN3039	EN-GJN-HB555(XCr14)	EN-GJN-HB555(XCr23); EN-JN3049	EN-GJN-HB555; EN-JN2049
	GOST (RUSSIA)	ChKh28D2	ChG7Kh4	ChYu30	ChN3KhMDSha			ChWG	
	JIS (JAPAN)								
	SS (SWEDEN)							0466-00	0457-00
	UNE (SPAIN)								
	UNI (ITALY)								
	IS (INDIA)								
	KS REP. OF) (KOREA								
	GB/YB/JB/ SY/NB (PRC)								

Material Designation in Accordance with Selected Standards

Standards		Material Group No								
		41	41	41	41	41	41	41	41	41
	NF/AFNOR (FRANCE)									
	AISI/ASM/ ASTM/SAE/ UNS/AA (US)	A532 IA; Ni-Hard; F45000; Ni-Cr-Hc	A532 IIIA 25% Cr							
	BS (UK)	Grade 2 B	Grade 3 E							
	DIN (GERMANY)	G-X 330 NiCr 4 2; EN-GJN-HV550; EN-GJN-HB510; EN-JN2039	G-X 300 CrMo 27 1; EN-GJN-HB555(XCr23)	G-X 250 CrMoV 25						
	Werkstoff (GERMANY)	0.9625; 5.5604	0.9655; 5.5610	1.419						
	EN (EUROPE)	EN-GJN-HB510; EN-JN2039	EN-GJN-HB555(XCr23)							
	GOST (RUSSIA)		20Ch25N20S2		ChKh9N5	ChKh16M2	ChKh22	ChKh28D2	ChYu30	ChN3KhMDSha
	JIS (JAPAN)									
	SS (SWEDEN)	0513-00								
	UNE (SPAIN)									
	UNI (ITALY)									
	IS (INDIA)									
	KS REP. OF) (KOREA									
	GB/YB/JB/ SY/NB (PRC)									

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