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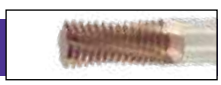
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Endmills 90°



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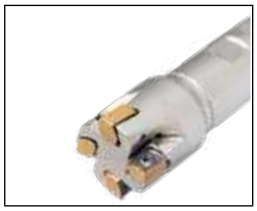
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HELI3MILL
HM390 LINE

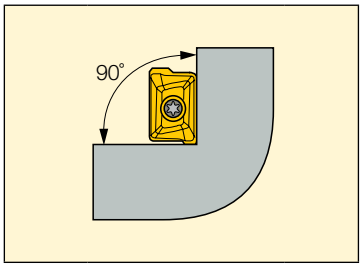
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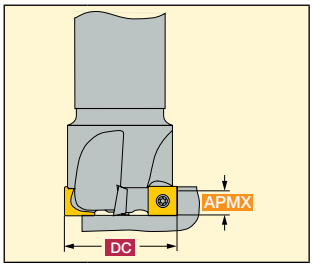


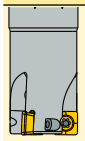
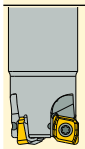
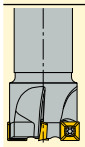
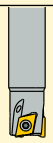
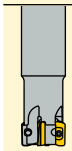
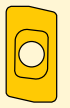
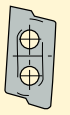
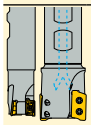
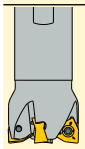
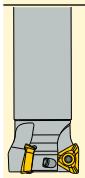
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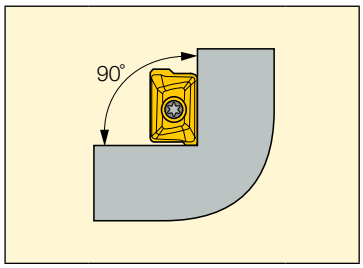
Endmills 90° Selection Guide

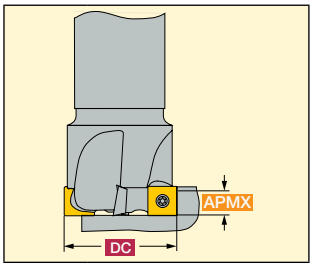


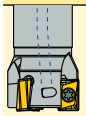
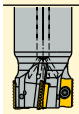
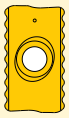
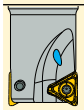
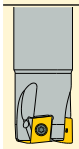
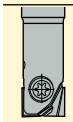


Tools	Pages	DC / APMX	6	8	10	12	14	16	17	18	19	20	21	22	25	28	30	32	38	40	50	63	80	Inserts
 E90SO-04 E90SO-MM-04	11 11	3.5	•	•	•	•	•	•				•												 SOMT/CT 0402
 E90CN-M E90CN	15 16	0.5		•	•	•	•	•				•												 CNHT/MT 07
 E90SP E90X	21 16	9.6 5.8		•	•	•	•	•		•		•			•			•		•				 SPMT 10.../ XPMT 10.../ QPMR 10.../ QPMT 10... SOMT 06.../ XOMT 06.../ SPCT 10.../ SPMR 10.../
 T290 ELN-05 T290 ELN-MM-05 T290 ELN-10	15 15 21	5 10		•	•	•	•	•				•			•			•		•				 T290 LNMT 05... T290 LNMT 1004
 HP E90AN-07 HP E90AN-M-07 HP E90AN-MM-07 HP E90AT-19	17 17 18 35	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	24-26 27 28 31 32	10 10 10 14.3 14.3			•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•			 HM90 AP...10/ AP...10/ HM90 AD...15/ AD...15/
 H690 EWN-04 H690 EWN-07	12 16	4 7								•	•	•			•			•		•				 H690 WNMU 0403 H690 WNHU/ WNMU 0705
 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	13 13 14 14 18 18 22 22 23 30 31 33	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

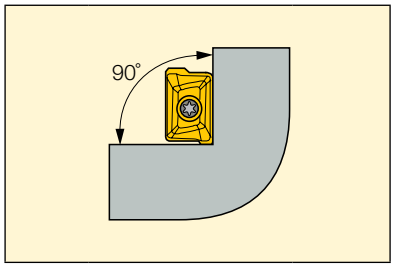
Endmills 90° Selection Guide

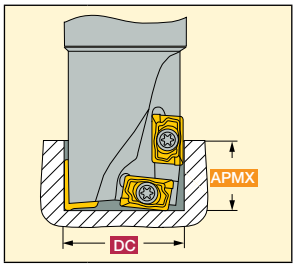


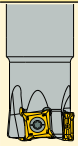
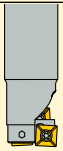
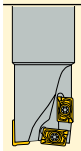


Tools	Pages	DC / APMX	6	8	10	12	14	16	17	18	19	20	21	22	25	28	30	32	38	40	50	63	80	Inserts
 H490 E90AX-09 H490 E90AX-M H490 E90AX-MM H490 E90AX-12 H490 E90AX-17	20 20 21 30 33	8 12 16.3						•		•		•		•	•			•		•	•	•	•	 HM490 ANKX/ANCX -09/ HM490 ANKX/ANCX -12/ HM490 ANKX/ANCX -17
 P290 EPW P290 EPW-M	34 35	12 18										•			•			•		•				 P290 ACKT 1204 P290 ACKT 1806
 H690 E90AX-10	28	8										•			•			•		•				 HM690 TNKX/ TNCX 1005
 T490 ELN-08 T490 ELN-M-08 T490 ELN-MM..-08 T490 ELN-11 T490 ELN-13 T490 ELN-16	19 19 20 29 30 33	8 9 12.5 16						•		•		•		•	•			•		•	•			 T490 LN..0804 T490 LN..1106 T490 LN..1306 T490 LN..1607
 HCE HCE-MM	23 23	8.1- 14.7				•		•				•			•									 HTR HCC

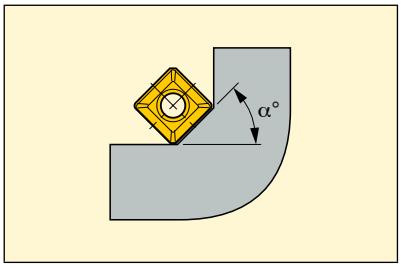
Center Cutting Endmills

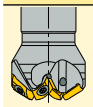
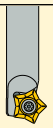
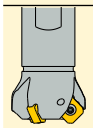
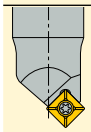
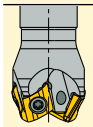
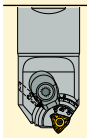




Tools	Pages	DC / APMX	8	10	12	14	16	17	18	19	20	21	22	25	28	30	32	38	40	50	63	80	Inserts
 T890HT ELN-R13	29	9.5															•		•				 T890 LN.T 1306
 E90XC	36	5.8-22			•		•				•												 SOMT-HQ XOMT-HQ
 E90AC	36	19-38												•			•	•					 ADCT 1505.../ ADKT 1505.../ FDKT 1505...

Endmills 30°, 45°, 60° Selection Guide

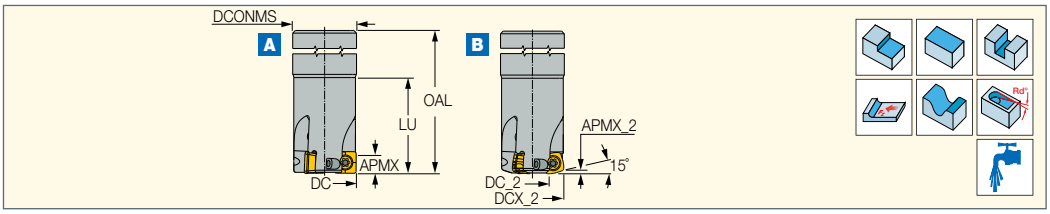


Tools	Pages	DC / APMX	6	8	12	16	20	25	30	32	40	Inserts
			Number of Teeth (Effective)									
 E30 T230	36 36	2.5 7 α=30°			4	3						 T290 LNMT 05...  TPMT
 CH45-PN06 CH45-MM-PN06	37 37	1.5 α=45°			1	1						 PNMT 0602-TN
 SOE 45 8/16	38	3.5-6 α=45°						2		3	4	 S845 SNMU/ SNHU 1306  ONMU/ ONHU 0505
 E45X	38	4 α=45°	1	1								 SOMT 06... XOMT 06.. QOMT 06..
 E45 T245	38 38	3.6-9.7 α=45°			1-4	2			3			 SCMT 12 SDMT 09 T290 LNMT 05... TPMT
 HCM	262-265	5 - 12 α=45°			2	2	2	2				 HCD
 E60 T260	39 39	4.5 12.3 α=60°			4			2				 T290 LNMT 05...TPMT
 HM390 E10-80-07	39	0.35-1.97 α=10°-80°						1				 HM390 TCK/CT 0703

HELI4MILL HM490 LINE

E90SO-04

Endmills Carrying Inserts for Shouldering and Fast Feed 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

(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 (500) • SOMT/CT 0402 (500)

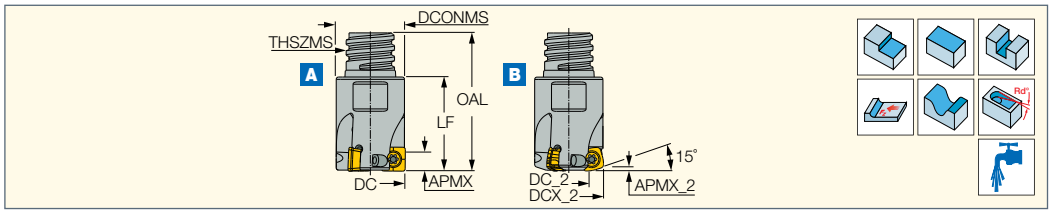
Spare Parts

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 HM490 LINE MULTI-MASTER

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

(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 (500) • SOMT/CT 0402 (500)

For holders, see pages: MM CAB (667) • MM CAB-T-T (91) • MM GRT (shanks) (86) • MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

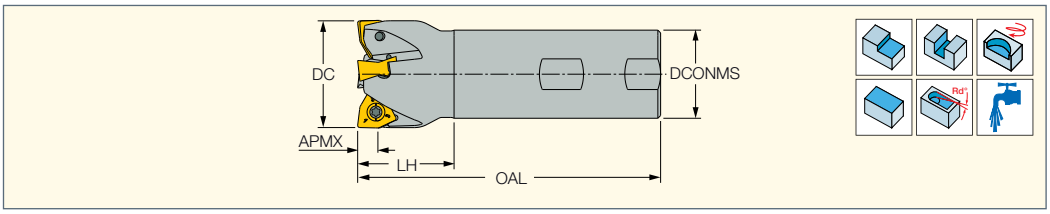
Spare Parts

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 542-548

(1) Number of inserts

(2) C-Cylindrical , W-Weldon

(3) Maximum ramping angle

For inserts, see pages: H690 WNMU 0403 (468)

Spare Parts

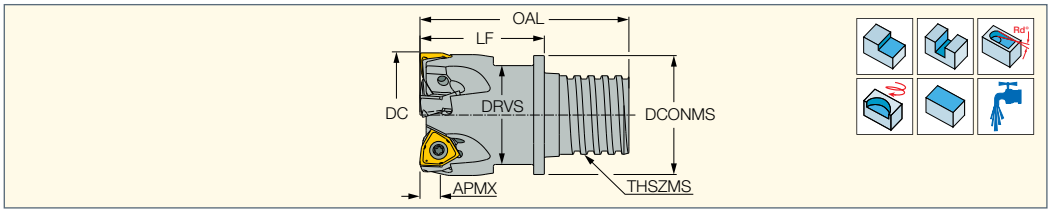
Designation		
H690 EWN-04	SR M2.5X6-T7-60	T-7/51

HELIDO TRIGON LINE

MULTI-MASTER

H690 EWN-MM-04

90° Endmills with a MULTI-MASTER Threaded Connection 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 44 • For user guide see pages 542-548

(1) Number of inserts

(2) Clamping wrench size

(3) Maximum ramping angle

(4) Tool tightening torque (Nxm)

For inserts, see pages: H690 WNMU 0403 (468)

For holders, see pages: MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

Spare Parts

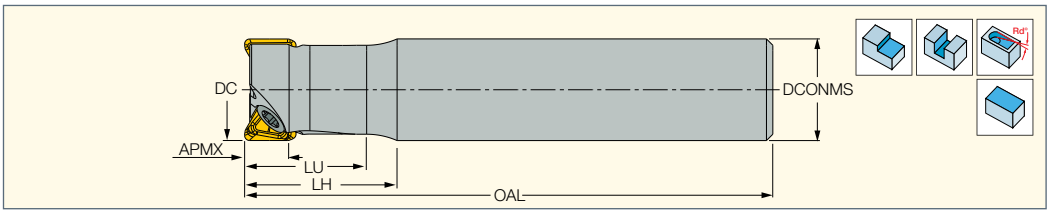
Designation		
H690 EWN-MM-04	SR M2.5X6-T7-60(a)	T-7/51

(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
(2) C-Cylindrical
(3) Maximum ramping angle
For inserts, see pages: HM390 TPKR 0401 (446)

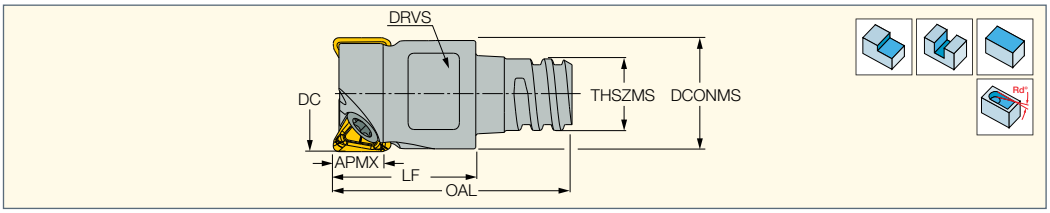
Spare Parts

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
MULTI-MASTER

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	0.00
HM390 ETP D10-3-MMT06-04	10.00	3.00	3	12.00	9.60	T06	18.30	8.0	2.5	0.00

• Insert tightening torque 0.5 N*m • For adaptation, see page 44 • For user guide, see pages 542-548
(1) Number of inserts
(2) Clamping wrench size
(3) Maximum ramping angle
For inserts, see pages: HM390 TPKR 0401 (446)
For holders, see pages: MM CAB (667) • MM CAB-T-T (91) • MM GRT (shanks) (86) • MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

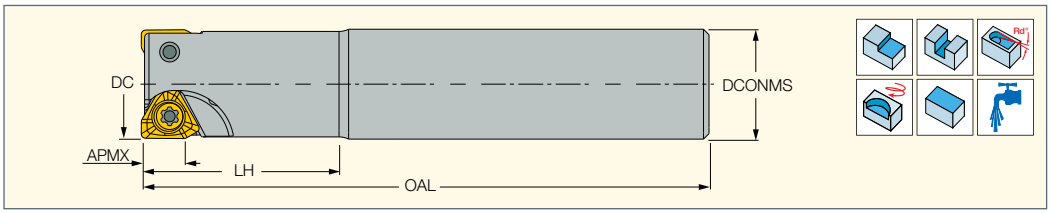
Spare Parts

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 D06-01-C06-05-C	6.00	3.50	1	57.00	15.0	6.00	C	1.0	0.06
HM390 ETP D08-01-C08-05-C	8.00	3.50	1	60.00	14.9	8.00	C	1.0	0.03
HM390 ETP D10-02-C10-05-C	10.00	3.50	2	70.00	18.0	10.00	C	2.0	0.03
HM390 ETP D12-03-C12-05-C	12.00	3.50	3	70.00	18.0	12.00	C	1.5	0.06
HM390 ETP D14-03-C14-05-C	14.00	3.50	3	80.00	20.0	14.00	C	1.5	0.08
HM390 ETP D16-04-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 542-548

(1) Number of inserts

(2) C-Cylindrical

(3) Maximum ramping angle

For inserts, see pages: HM390 TPKT/CT 0502 (446)

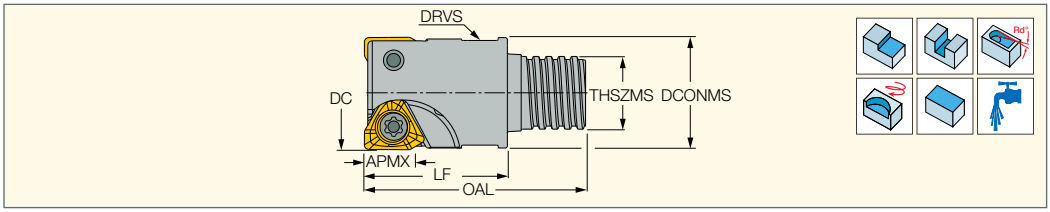
Spare Parts

Designation		
HM390 ETP D06-01-C06-05-C	TS 18041I/HG/S	T-6IP/51
HM390 ETP D08-01-C08-05-C	TS 18041I/HG/S	T-6IP/51
HM390 ETP D10-02-C10-05-C	TS 18041I/HG	T-6IP/51
HM390 ETP D12-03-C12-05-C	TS 18041I/HG	T-6IP/51
HM390 ETP D14-03-C14-05-C	TS 18041I/HG	T-6IP/51
HM390 ETP D16-04-C16-05-C	TS 18041I/HG	T-6IP/51

HELI3MILL HM390 LINE MULTI-MASTER

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 D10-02-MMT06-05	10.00	3.50	2	15.00	9.60	T06	21.60	8.0	2.0	0.01
HM390 ETP D12-03-MMT08-05	12.00	3.50	3	16.00	11.60	T08	24.20	10.0	1.5	0.01
HM390 ETP D14-03-MMT08-05	14.00	3.50	3	16.00	13.60	T08	22.90	10.0	1.5	0.01
HM390 ETP D16-04-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 44 • For user guide, see pages 542-548

(1) Number of inserts

(2) Clamping wrench size

(3) Maximum ramping angle

For inserts, see pages: HM390 TPKT/CT 0502 (446)

For holders, see pages: MM CAB (667) • MM CAB-T-T (91) • MM GRT (shanks) (86) • MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

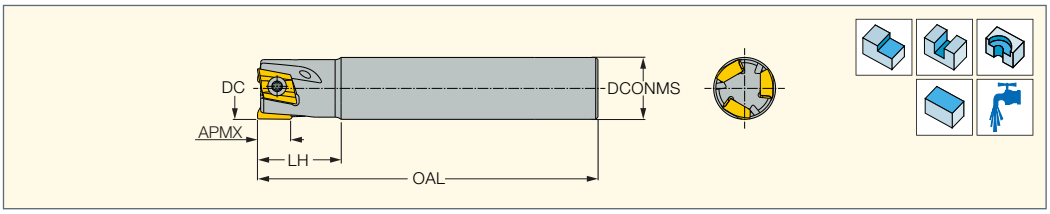
Spare Parts

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

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	0.07	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 542-548

(1) Number of inserts

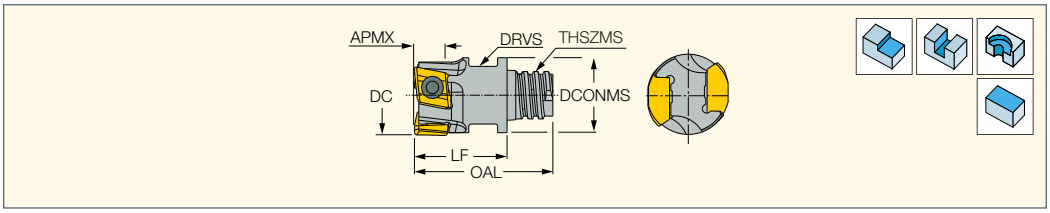
(2) C-Cylindrical

For inserts, see pages: T290 LNMT/LNHT 0502 (474)

SUMOMILL 290 LINE MULTI-MASTER

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	31.00	13.0	0.03	SR 10503833	T-7/51

• Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation see page 44 • For user guide see pages 542-548

(1) Number of inserts

(2) Clamping wrench size

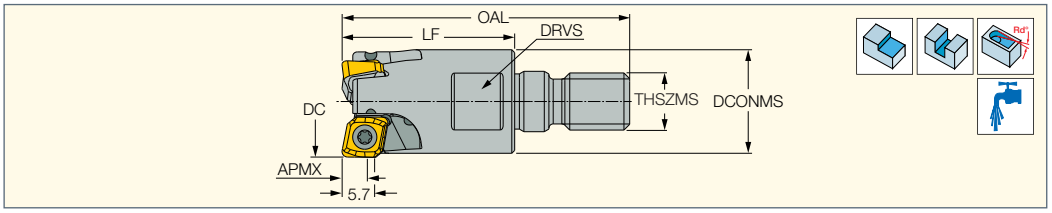
For inserts, see pages: T290 LNMT/LNHT 0502 (474)

For holders, see pages: MM CAB (667) • MM CAB-T-T (91) • MM GRT (shanks) (86) • MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

TORMILL FLEXFIT

E90CN-M

90° Endmills with a FLEXFIT 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 44 • For user guide see pages 542-548

• 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) Number of inserts

(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

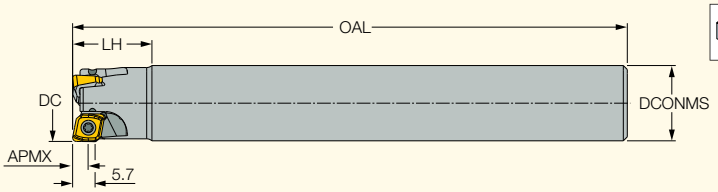
(5) Tool tightening torque Nxm (lbfxin)

For inserts, see pages: CNHT/MT 07 (538)

For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

TORMILL

E90CN
90° Endmills Carrying CNMT/HT 0703 Inserts



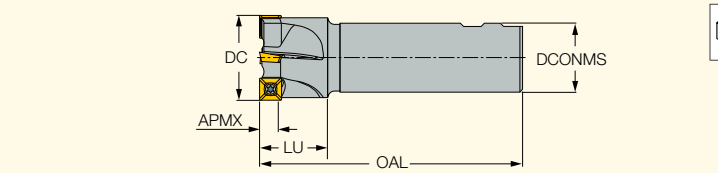
Designation	DC	CICT(1)	APMX(2)	LH	OAL	RMPX°(3)	DCONMS	kg		
E90CN D16-2-L100-C15-07-C	16.00	2	4.00	20.0	100.00	5.0	15.00	0.11	SR 34-505/LHG	T-8/53
E90CN D20-3-L140-C19-07-C	20.00	3	4.00	20.0	140.00	3.5	19.00	0.27	SR 34-505/LHG	T-8/53
E90CN D25-4-L160-C24-07-C	25.00	4	4.00	20.0	160.00	2.5	24.00	0.48	SR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

- For user guide see pages 542-548

(1) Number of inserts
(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 (538)

HELIQUAD

E90X
Endmills Carrying Square Q/S/XOMT Inserts



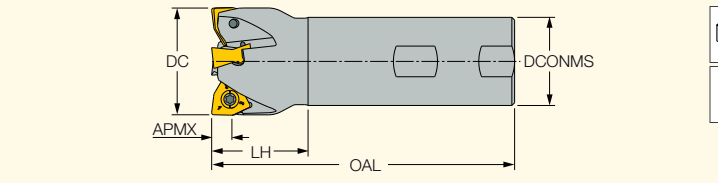
Designation	DC	CICT(1)	APMX	LU	OAL	DCONMS	Shank(2)	RMPX°(3)	kg		
E90X D08-C10-06	8.00	1	5.80	16.0	70.00	10.00	C	0.5	0.04	SR 34-508	T-7/51
E90X D10-C10-06	10.00	1	5.80	20.0	80.00	10.00	C	1.0	0.04	SR 34-508	T-7/51
E90X D12-C16-06	12.00	1	5.80	22.0	80.00	16.00	C	90.0	0.10	SR 34-508	T-7/51
E90X D14-C16-06	14.00	2	5.80	20.0	80.00	16.00	C	-	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	-	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	3.5	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	2.5	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	3.8	0.34	SR 34-508/L	T-7/51

- For user guide see pages 542-548

(1) Number of inserts
(2) C-Cylindrical, W-Weldon
(3) Maximum ramping angle
For inserts, see pages: QOMT-HQ (494) • SOMT-HQ (494) • XOMT-HQ (494)

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

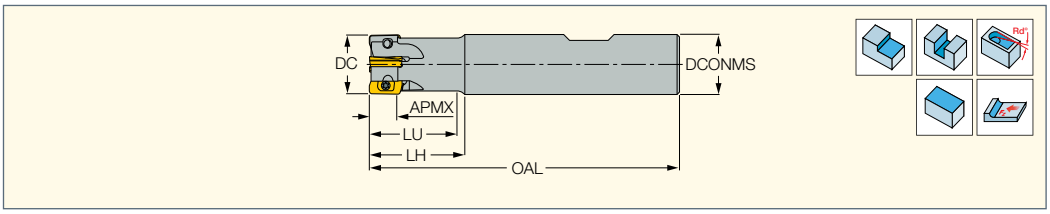
- Insert clamping screw must be lubricated every indexing. • Tightening torque 0.9 Nxm. • For user guide see pages 542-548

(1) Number of inserts
(2) C-cylindrical, W-Weldon
(3) Maximum ramping angle
For inserts, see pages: H690 WNHU/WNMU 0705 (469)

HELIPLUS

HP E90AN-07

Endmills with HELIPLUS
HP ANKT 0702.. Inserts



Designation	DC	CICT(2)	LH	LU	OAL	APMX	DCONMS	Shank(3)	RMPX°(4)	RMPX°_2(5)	CSP(6)	kg		
HP E90AN-D10-1-C10-07-C	10.00	1	20.0	18.0	80.00	7.70	10.00	C	2.5	-	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	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	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	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	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	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	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	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	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	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	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	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	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	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	1	0.48	SR 34-533/L/HG	T-6/51

• Insert tightening torque: 62 Nxcm • For user guide see pages 542-548

(1) "B" suffix - cylindrical shank which may be shortened.

(2) Number of inserts

(3) C-Cylindrical, W-Weldon

(4) Maximum ramping angle

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

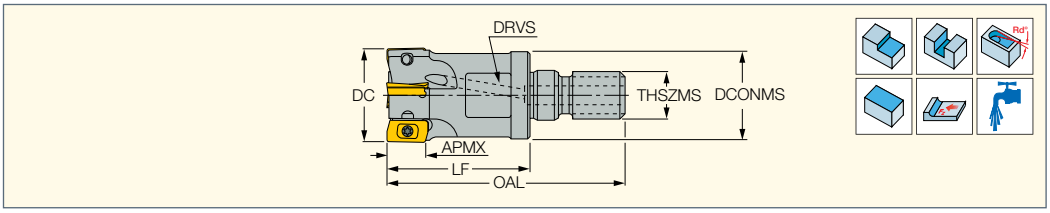
(6) 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: HP ANCR 0702PNFR (444) • HP ANKT 0702...-FF (445) • HP ANKT/ANCT 0702..PN-R/PNTR (444) • HP ANKW 070204PNTR (444)

HELIPLUS FLEXFIT

HP E90AN-M-07

90° Endmills with a FLEXFIT
Threaded Adaptation
Carrying HELIPLUS HP
ANKT 0702.. Inserts



Designation	DC	CICT(1)	THSZMS	OAL	LF	APMX	DCONMS	RMPX°(2)	RMPX°_2(3)	DRVS(5)	TQ_3(4)	kg		
HP E90AN-D25-5-M12	25.00	5	M12	57.00	35.00	7.70	21.00	2.0	3.0	19.0	33	0.09	SR 34-533/L/HG	T-6/51

• Insert tightening torque: 62 Nxcm • For adaptation see page 44 • For user guide see pages 542-548 • 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) Number of inserts

(2) Maximum ramping angle

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

(4) Torque key size

(5) Tool tightening torque Nxm (lbfxin)

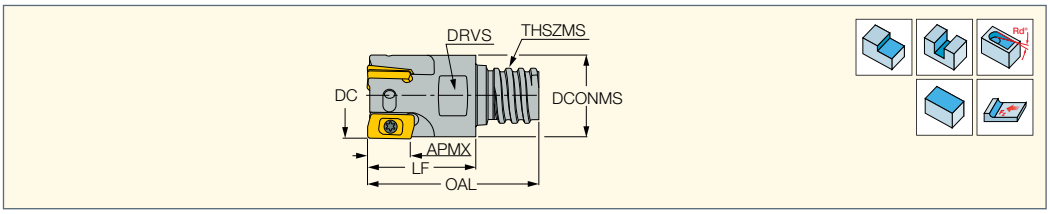
For inserts, see pages: HP ANCR 0702PNFR (444) • HP ANKT 0702...-FF (445) • HP ANKT/ANCT 0702..PN-R/PNTR (444) • HP ANKW 070204PNTR (444)

For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

HELIPLUS
MULTI-MASTER

HP E90AN-MM-07

90° Endmills with a MULTI-MASTER Threaded Adaptation Carrying HELIPLUS HP ANKT 0702.. Inserts



Designation	DC	CICT(1)	OAL	LF	APMX	THSZMS	DCONMS	DRVS(2)	RMPX°(3)	RMPX°_2(4)	kg		
HP E90AN-D12-2-MMT08	12.00	2	24.45	16.50	7.70	T08	10.60	10.0	2.7	3.5	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	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	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	0.05	SR 34-533/L/HG	T-6/51

• Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation see page 44 • For user guide see pages 542-548

(1) Number of inserts

(2) Clamping wrench size

(3) Maximum ramping angle

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

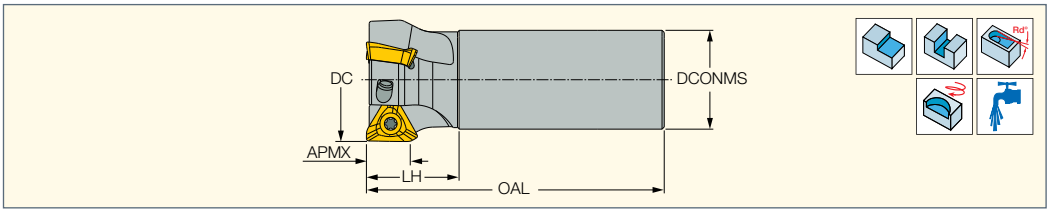
For inserts, see pages: HP ANCR 0702PNFR (444) • HP ANKT 0702...-FF (445) • HP ANKT/ANCT 0702..PN-R/PNTR (444) • HP ANKW 070204PNTR (444)

For holders, see pages: MM CAB (667) • MM GRT (shanks) (86) • MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

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 542-548

(1) Number of inserts

(2) C-Cylindrical, W-Weldon

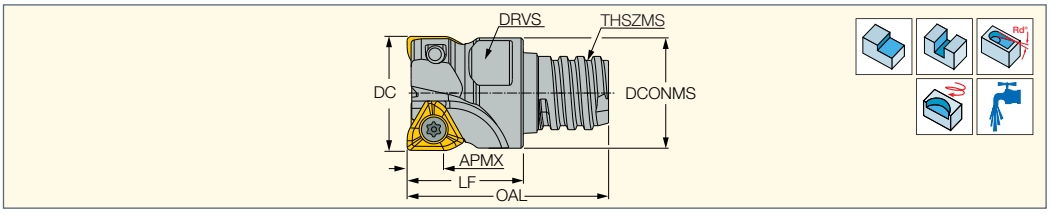
(3) Maximum ramping angle

For inserts, see pages: HM390 TCKT/CT 0703 (446)

HELI3MILL HM390 LINE
MULTI-MASTER

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 44 • For user guide see pages 542-548

(1) Number of inserts

(2) Clamping wrench size

(3) Maximum ramping angle

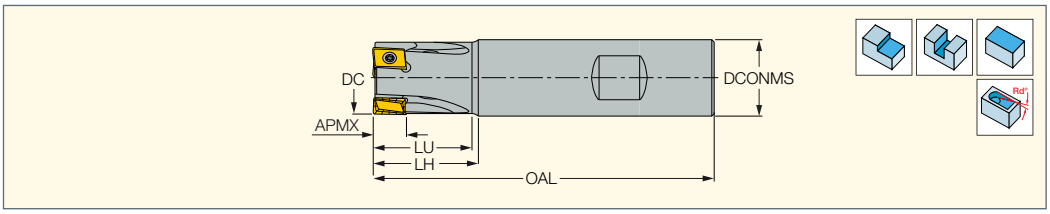
For inserts, see pages: HM390 TCKT/CT 0703 (446)

For holders, see pages: MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

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 542-548

(1) Number of inserts

(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

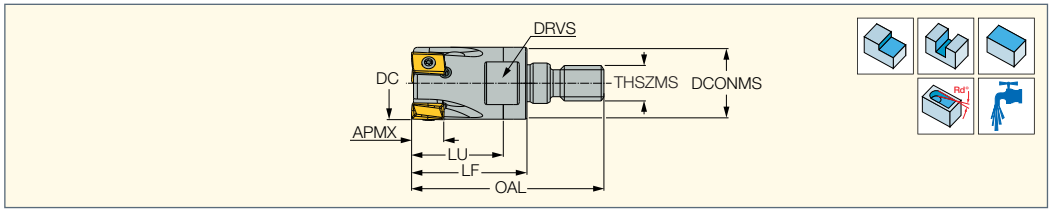
(5) Maximum ramping angle - valid only with T490 LNMT 080404PNR-RD inserts

For inserts, see pages: T490 LNAR-P (480) • T490 LNMT/LNHT 0804 (476)

HELITANG T490 LINE FLEXFIT

T490 ELN-M-08

90° Endmills with a FLEXFIT Threaded Adaptation Carrying Tangentially Clamped Inserts



Designation	DC	CICT(1)	APMX	DCONMS	LU	LF	OAL	THSZMS	DRVS(2)	RMPX°(3)	RMPX°_2(4)	Insert	TQ_3(5)	kg
T490 ELN D16-2-M10	16.00	2	8.00	18.00	22.0	30.00	50.00	M10	12.7	2.0	1.1	T490 LN.. 08	29	0.04
T490 ELN D20-3-M10	20.00	3	8.00	18.70	-	30.00	50.00	M10	15.0	1.7	0.8	T490 LN.. 08	29	0.06
T490 ELN D25-3-M12	25.00	3	8.00	21.00	-	28.00	50.00	M12	17.0	-	-	T490 LN.. 08	33	0.08
T490 ELN D25-4-M12	25.00	4	8.00	21.00	-	28.00	50.00	M12	17.0	-	-	T490 LN.. 08	33	0.08
T490 ELN D32-3-M16-13	32.00	3	12.50	29.00	-	45.00	70.00	M16	25.0	-	-	T490 LN.. 13	40	0.22
T490 ELN D32-5-M16	32.00	5	8.00	29.00	-	30.00	55.00	M16	25.0	-	-	T490 LN.. 08	40	0.16

• For adaptation see page 44 • For user guide see pages 542-548 • 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) Number of inserts

(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)

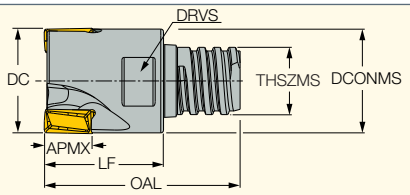
For inserts, see pages: T490 LNAR-P (480) • T490 LNMT/LNHT 0804 (476)

For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

HELITANG T490 LINE MULTI-MASTER

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 D20-2-MMT12	20.00	2	8.00	18.70	21.50	35.00	T12	16.0	1.7	0.8	0.05	SR 10502813-HG-M	IP-7/51
T490 ELN D20-3-MMT12	20.00	3	8.00	18.70	21.50	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 44 • For user guide see pages 542-548

(1) Number of inserts

(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

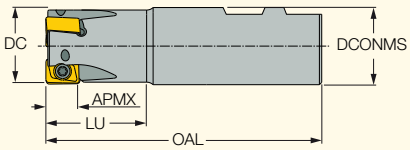
For inserts, see pages: T490 LNAR-P (480) • T490 LNMT/LNHT 0804 (476)

For holders, see pages: MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

HELIDO 490 LINE

H490 E90AX-09

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



Designation	DC	CICT(1)	APMX	OAL	LU	DCONMS	Shank(2)	kg			
H490 E90AX D16-2-C15-09-B	16.00	2	8.00	150.00	40.0	15.00	C	0.18	SR 10508082-HG	SW4-SD	BLD T08/M7
H490 E90AX D16-2-C16-09	16.00	2	8.00	90.00	26.0	16.00	C	0.12	SR 10508082-HG	SW4-SD	BLD T08/M7
H490 E90AX D16-2-W16-09	16.00	2	8.00	85.00	26.0	16.00	W	0.11	SR 10508082-HG	SW4-SD	BLD T08/M7
H490 E90AX D18-2-C16-09	18.00	2	8.00	90.00	25.0	16.00	C	0.12	SR 10508082-HG	SW4-SD	BLD T08/M7
H490 E90AX D20-2-C19-09-B	20.00	2	8.00	160.00	40.0	19.00	C	0.31	SR 10508082-HG	SW4-SD	BLD T08/M7
H490 E90AX D20-2-C20-09	20.00	2	8.00	110.00	26.0	20.00	C	0.23	SR 10508082-HG	SW4-SD	BLD T08/M7
H490 E90AX D20-2-W20-09	20.00	2	8.00	90.00	26.0	20.00	W	0.18	SR 10508082-HG	SW4-SD	BLD T08/M7
H490 E90AX D20-3-C20-09	20.00	3	8.00	110.00	26.0	20.00	C	0.23	SR 10508082-HG	SW4-SD	BLD T08/M7
H490 E90AX D20-3-W20-09	20.00	3	8.00	90.00	26.0	20.00	W	0.18	SR 10508082-HG	SW4-SD	BLD T08/M7
H490 E90AX D22-3-C20-09	22.00	3	8.00	115.00	25.0	20.00	C	0.25	SR 10508082-HG	SW4-SD	BLD T08/M7
H490 E90AX D25-3-C24-09-B	25.00	3	8.00	200.00	40.0	24.00	C	0.61	SR 10508082-HG	SW4-SD	BLD T08/M7
H490 E90AX D25-3-C25-09	25.00	3	8.00	120.00	26.0	25.00	C	0.39	SR 10508082-HG	SW4-SD	BLD T08/M7
H490 E90AX D25-3-W25-09	25.00	3	8.00	95.00	26.0	25.00	W	0.30	SR 10508082-HG	SW4-SD	BLD T08/M7
H490 E90AX D25-4-C25-09	25.00	4	8.00	120.00	26.0	25.00	C	0.39	SR 10508082-HG	SW4-SD	BLD T08/M7
H490 E90AX D25-4-W25-09	25.00	4	8.00	95.00	26.0	25.00	W	0.30	SR 10508082-HG	SW4-SD	BLD T08/M7
H490 E90AX D32-4-W32-09	32.00	4	8.00	110.00	30.0	32.00	W	0.60	SR 10508082-HG	SW4-SD	BLD T08/M7
H490 E90AX D32-5-C32-09	32.00	5	8.00	130.00	30.0	32.00	C	0.72	SR 10508082-HG	SW4-SD	BLD T08/M7
H490 E90AX D32-5-W32-09	32.00	5	8.00	110.00	30.0	32.00	W	0.60	SR 10508082-HG	SW4-SD	BLD T08/M7

• For user guide see pages 542-548 • "B" Suffix cylindrical shank which may be shortened

(1) Number of inserts

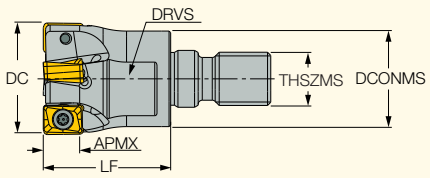
(2) C-Cylindrical, W-Weldon

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

HELIDO 490 LINE FLEXFIT

H490 E90AX-M

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



Designation	DC	CICT(1)	APMX	LF	DHUB	THSZMS	DRVS(2)	TQ_3(3)	kg			
H490 E90AX D20-3-M10-09	20.00	3	8.00	30.00	18.70	M10	16.0	29	0.06	SR 10508082-HG	BLD T08/M7	SW4-SD
H490 E90AX D25-4-M12-09	25.00	4	8.00	28.00	21.00	M12	17.0	33	0.07	SR 10508082-HG	BLD T08/M7	SW4-SD
H490 E90AX D32-5-M16-09	32.00	5	8.00	30.00	29.00	M16	25.0	40	0.16	SR 10508082-HG	BLD T08/M7	SW4-SD

• For adaptation see page 44 • For user guide see pages 542-548 • 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) Number of inserts

(2) Clamping wrench size

(3) Tool tightening torque Nxm (lbfxin)

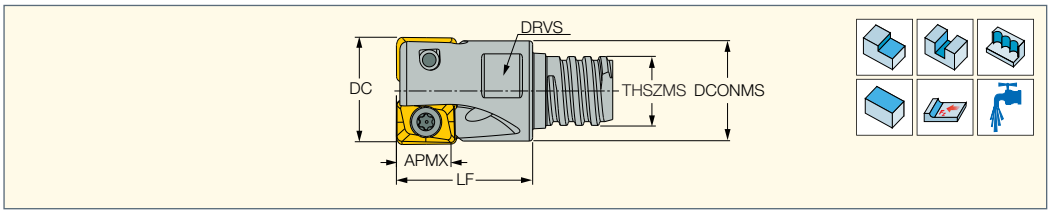
For inserts, see pages: H490 ANKX 0904-FF (470) • H490 ANKX/ANCX-09 (469)

For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

HELIDO 490 LINE
MULTI-MASTER

H490 E90AX-MM

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



Designation	DC	CICT(1)	APMX	LF	DCONMS	THSZMS	DRVS(2)	kg			
H490 E90AX D20-3-MMT12-09	20.00	3	8.00	24.70	18.70	T12	16.0	0.05	SR 10508082-HG	BLD T08/M7	SW4-SD

• Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation see page 44 • For user guide see pages 542-548

(1) Number of inserts

(2) Clamping wrench size

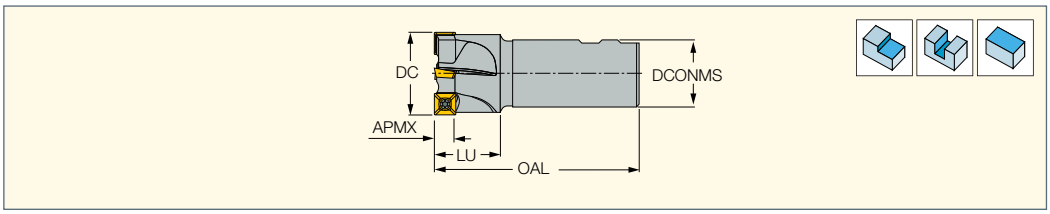
For inserts, see pages: H490 ANKX 0904-FF (470) • H490 ANKX/ANCX-09 (469)

For holders, see pages: MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

HELIQUAD

E90SP

Endmills Carrying Square S/XPMT Inserts



Designation	DC	CICT(1)	APMX	LU	OAL	DCONMS	Shank(2)	kg			
E90SP D25-02-C25-10	25.00	2	9.60	32.0	110.00	25.00	C	0.35	SR 10514114	SW6-T-SH	BLD IP15/M7
E90SP D25-02-W25-10	25.00	2	9.60	32.0	95.00	25.00	W	0.29	SR 10514114	BLD IP15/M7	SW6-T-SH
E90SP D25-03-C25-10	25.00	3	9.60	32.0	110.00	25.00	C	0.76	SR 10514114	SW6-T-SH	BLD IP15/M7
E90SP D25-03-W25-10	25.00	3	9.60	32.0	95.00	25.00	W	0.00	SR 10514114	BLD IP15/M7	SW6-T-SH
E90SP D32-03-C32-10	32.00	3	9.60	32.0	130.00	32.00	C	0.69	SR 10514114	SW6-T-SH	BLD IP15/M7
E90SP D32-03-W25-10	32.00	3	9.60	31.8	95.00	25.00	W	0.00	SR 10514114	BLD IP15/M7	SW6-T-SH
E90SP D40-04-C32-10	40.00	4	9.60	32.0	130.00	32.00	C	0.00	SR 10514114	SW6-T-SH	BLD IP15/M7
E90SP D40-04-W32-10	40.00	4	9.60	32.0	110.00	32.00	W	0.00	SR 10514114	BLD IP15/M7	SW6-T-SH
E90SP D50-06-C32-10	50.00	6	9.60	35.0	130.00	32.00	C	0.00	SW6-T-SH	BLD IP15/M7	SR 10514114

• For user guide see pages 542-548

(1) Number of inserts

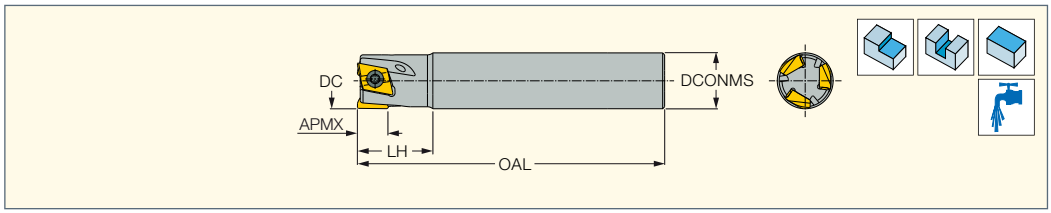
(2) C-Cylindrical, W-Weldon

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 D32-04-C32-10-XL	32.00	4	150.00	30.0	10.00	32.00	C	0.85	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
T290 ELN D32-05-W32-10	32.00	5	110.00	30.0	10.00	32.00	W	0.60	SR 10504970	BLD IP15/M7	SW6-T-SH
T290 ELN D40-05-C32-10-XL	40.00	5	150.00	30.0	10.00	32.00	C	0.88	SR 10504970	BLD IP15/M7	SW6-T-SH
T290 ELN D40-06-C32-10	40.00	6	130.00	30.0	10.00	32.00	C	0.75	SR 10504970	BLD IP15/M7	SW6-T-SH
T290 ELN D40-06-W32-10	40.00	6	110.00	30.0	10.00	32.00	W	0.63	SR 10504970	BLD IP15/M7	SW6-T-SH

• For user guide see pages 542-548

(1) Number of inserts

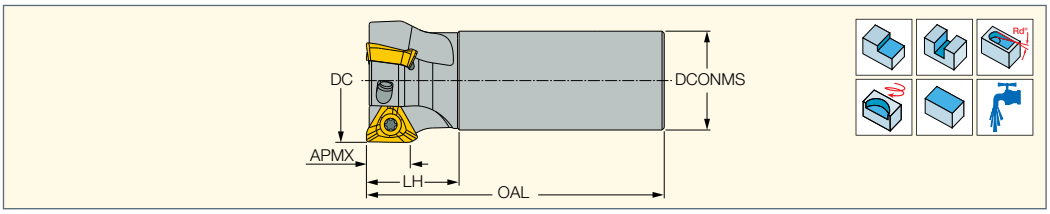
(2) C-Cylindrical, W-Weldon

For inserts, see pages: T290 LNMT/LNHT 1004 (474)

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 542-548

(1) Number of inserts

(2) C-Cylindrical, W-Weldon

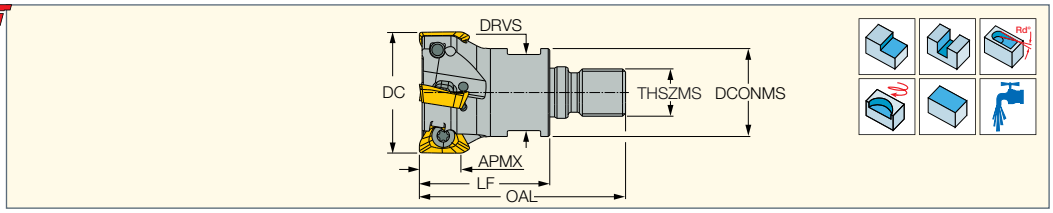
(3) Maximum ramping angle

For inserts, see pages: HM390 TPKT/CT 1003 (447)

HELI3MILL HM390 LINE FLEXFIT

HM390 ETP-M

90° Endmills with a FLEXFIT 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	18.0	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	25.0	2.1	40	0.16	SR 14-562/S	BLD T10/S7	SW6-SD

• For adaptation see page 44 • For user guide see pages 542-548 • 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) Number of inserts

(2) Clamping wrench size

(3) Maximum ramping angle

(4) Tool tightening torque Nxm (lbfxin)

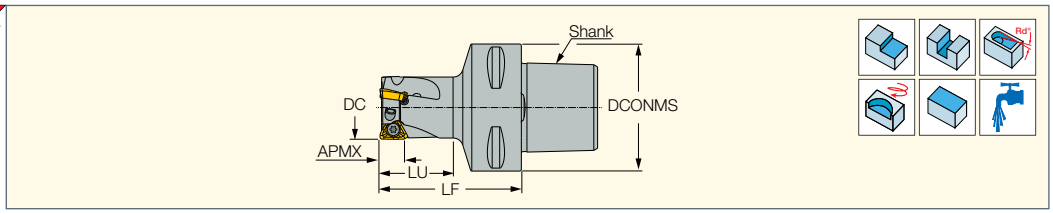
For inserts, see pages: HM390 TPKT/CT 1003 (447)

For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

HELI3MILL CAMFIX
HM390 LINE

HM390 ETP-C#-10

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



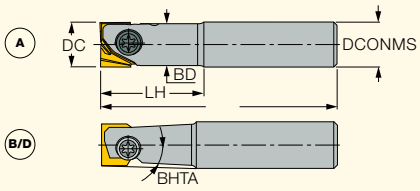
Designation	DCONMS	DC	APMX	CICT(1)	LU	LF	RMPX°(2)	Shank	CDI	kg			
HM390 ETP D25-3-L39-C3-10	32.00	25.00	8.00	3	39.0	55.00	2.9	CAMFIX	0	0.21	SR 14-562/S	BLD T10/S7	SW6-SD
HM390 ETP D66-7-L52-C6-10	63.00	66.00	8.00	7	52.0	75.00	0.8	CAMFIX	1	1.80	SR 14-562/S	BLD T10/S7	SW6-SD

• For user guide see pages 542-548
(1) Number of inserts
(2) Maximum ramping angle
For inserts, see pages: HM390 TPKT/CT 1003 (447)

BALLPLUS

HCE

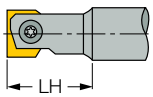
Multifunction Endmills that Can Carry Several Insert Geometries



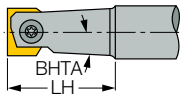
Designation	DC	LH	OAL	BD	DCONMS	Shank(1)	BHTA	Type	kg			
HCE D12-A-L120-C12	12.00	30.0	120.00	11.10	12.00	C	-	A	0.10	SR 34-540	BLD T15/S7	SW6-T
HCE D12-B-L160-C20	12.00	50.0	160.00	-	20.00	C	4.6	B	0.41	SR 34-540	BLD T15/S7	SW6-T
HCE D12-D-L160-C16	12.00	60.0	160.00	-	16.00	C	1.9	D	0.21	SR 34-540	BLD T15/S7	SW6-T
HCE D16-A-L130-C16	16.00	36.0	130.00	14.90	16.00	C	-	A	0.19	SR 105739	BLD T20/S7	SW6-T
HCE D16-B-L160-C25	16.00	60.0	160.00	-	25.00	C	4.3	B	0.50	SR 105739	BLD T20/S7	SW6-T
HCE D16-D-L160-C20	16.00	65.0	160.00	-	20.00	C	1.7	D	0.32	SR 105739	BLD T20/S7	SW6-T
HCE D20-A-L150-C20	20.00	60.0	150.00	18.80	20.00	C	-	A	0.33	SR 1052964	BLD T25/S7	SW6-T
HCE D20-D-L200-C25	20.00	90.0	200.00	-	25.00	C	1.6	D	0.62	SR 1052964	BLD T25/S7	SW6-T
HCE D25-A-L170-C25	25.00	70.0	170.00	23.00	25.00	C	-	A	0.57	SR 1051666	BLD T25/S7	SW6-T
HCE D25-D-L250-C32	25.00	125.0	250.00	-	32.00	C	1.6	D	1.20	SR 1051666	BLD T25/S7	SW6-T

• For undercutting, use HTR inserts only • The dimensions are for HCC inserts with RE=0.5 mm • For user guide see pages 542-548
(1) C-Cylindrical
For inserts, see pages: HCC-QF (534)

Type A



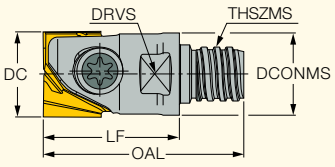
Type B, D



BALLPLUS
MULTI-MASTER

HCE-MM

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

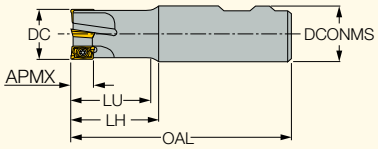


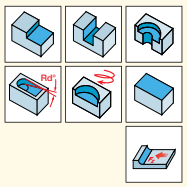
Designation	DC	OAL	LF	APMX	THSZMS	DCONMS	DRVS(1)	TQ	kg			
HCE D12/.50-MMT08	12.00	28.00	20.00	8.10	T08	11.50	10.0	15.0	0.01	SR 34-540	BLD T15/S7	SW6-T
HCE D16/.62-MMT10	16.00	36.75	25.00	10.30	T10	15.20	13.0	28.0	0.03	SR 105739	BLD T20/S7	SW6-T
HCE D20/.75-MMT12	20.00	48.80	35.00	12.80	T12	18.50	15.0	28.0	0.06	SR 1052964	BLD T25/S7	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 44 • For user guide see pages 542-548
(1) Width across flats (wrench should be ordered separately)
For inserts, see pages: HCC-QF (534)
For holders, see pages: MM CAB (667) • MM GRT (shanks) (86) • MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

HELI2000

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





Designation	DC	CICT[1]	APMX	OAL	LH	LU	RMPX°[2]	DCONMS	Shank[3]	CSP[4]	RPMX[5]	kg
HM90 E90A-D10-1-C10	10.00	1	10.00	80.00	20.0	13.8	5.0	10.00	C	0	132843	0.04
HM90 E90A-D10-1-C10-C	10.00	1	10.00	80.00	20.0	13.8	5.0	10.00	C	1	131850	0.04
HM90 E90A-D10-1-C16-LB	10.00	1	10.00	160.00	30.0	13.8	5.0	16.00	C	0	132843	0.22
HM90 E90A-D10-1-W16	10.00	1	10.00	80.00	20.0	10.6	5.0	16.00	W	0	132843	0.10
HM90 E90A-D12-1-C16	12.00	1	10.00	80.00	20.0	14.0	32.0	16.00	C	0	92536	0.11
HM90 E90A-D12-1-C16-C	12.00	1	10.00	80.00	20.0	14.0	32.0	16.00	C	1	92536	0.10
HM90 E90A-D12-1-C16-LB	12.00	1	10.00	160.00	30.0	16.0	32.0	16.00	C	0	92536	0.23
HM90 E90A-D12-1-W16	12.00	1	10.00	80.00	20.0	14.0	32.0	16.00	W	0	92536	0.11
HM90 E90A-D12-1-W16-C	12.00	1	10.00	80.00	20.0	14.0	32.0	16.00	W	1	92536	0.10
HM90 E90A-D14-1-C16	14.00	1	10.00	80.00	23.0	18.4	7.0	16.00	C	0	75930	0.11
HM90 E90A-D14-1-W16	14.00	1	10.00	80.00	23.0	18.4	7.0	16.00	W	0	75930	0.11
HM90 E90A-D16-2-C15-B	16.00	2	10.00	150.00	25.0	24.4	15.0	15.00	C	0	66712	0.19
HM90 E90A-D16-2-C15-B-C	16.00	2	10.00	150.00	25.0	24.4	15.0	15.00	C	1	66712	0.17
HM90 E90A-D16-2-C16	16.00	2	10.00	90.00	26.0	25.2	15.0	16.00	C	0	66712	0.12
HM90 E90A-D16-2-C16-B	16.00	2	10.00	150.00	40.0	38.2	15.0	16.00	C	0	66712	0.22
HM90 E90A-D16-2-C16-B-C	16.00	2	10.00	150.00	40.0	38.2	15.0	16.00	C	1	66712	0.20
HM90 E90A-D16-2-C16-C	16.00	2	10.00	90.00	26.0	25.2	15.0	16.00	C	1	66712	0.11
HM90 E90A-D16-2-C16-LB	16.00	2	10.00	180.00	40.0	38.1	15.0	16.00	C	0	66712	0.26
HM90 E90A-D16-2-W16	16.00	2	10.00	85.00	26.0	25.2	15.0	16.00	W	0	66712	0.12
HM90 E90A-D16-2-W16-C	16.00	2	10.00	85.00	26.0	25.2	15.0	16.00	W	1	66712	0.11
HM90 E90A-D17-2-C16	17.00	2	10.00	90.00	28.0	27.0	15.0	16.00	C	0	63393	0.13
HM90 E90A-D17-2-C16-L170	17.00	2	10.00	170.00	27.0	-	4.5	16.00	C	0	63393	0.25
HM90 E90A-D18-2-C16	18.00	2	10.00	90.00	26.0	-	7.5	16.00	C	0	60361	0.13
HM90 E90A-D18-2-C16-C	18.00	2	10.00	90.00	26.0	-	7.5	16.00	C	1	60361	0.12
HM90 E90A-D18-2-W20	18.00	2	10.00	90.00	30.0	26.4	7.5	20.00	W	0	60361	0.18
HM90 E90A-D18-2-W20-C	18.00	2	10.00	90.00	30.0	26.4	7.5	20.00	W	1	60361	0.17
HM90 E90A-D19-2-C20	19.00	2	10.00	90.00	26.0	25.0	7.5	20.00	C	0	57727	0.19
HM90 E90A-D20-2-C19-B	20.00	2	10.00	160.00	25.0	-	7.5	19.00	C	0	55578	0.33
HM90 E90A-D20-2-C19-B-C	20.00	2	10.00	160.00	25.0	-	7.5	19.00	C	1	55578	0.30
HM90 E90A-D20-2-C20	20.00	2	10.00	110.00	26.0	25.3	7.5	20.00	C	0	55578	0.24
HM90 E90A-D20-2-C20-B	20.00	2	10.00	160.00	40.0	38.0	7.5	20.00	C	0	55578	0.36
HM90 E90A-D20-2-C20-B-C	20.00	2	10.00	160.00	40.0	38.0	7.5	20.00	C	1	55578	0.33
HM90 E90A-D20-2-C20-C	20.00	2	10.00	110.00	26.0	25.3	7.5	20.00	C	1	55578	0.22
HM90 E90A-D20-2-C20-LB	20.00	2	10.00	200.00	40.0	38.0	7.5	20.00	C	0	55578	0.46
HM90 E90A-D20-2-C20-XL	20.00	2	10.00	130.00	60.0	59.0	7.5	20.00	C	0	55578	0.27
HM90 E90A-D20-2-W20	20.00	2	10.00	90.00	26.1	25.0	7.5	20.00	W	0	55578	0.19
HM90 E90A-D20-2-W20-C	20.00	2	10.00	90.00	26.1	25.0	7.5	20.00	W	1	55578	0.18
HM90 E90A-D20-2-W20-XL	20.00	2	10.00	130.00	60.0	59.0	7.5	20.00	W	0	55578	0.27
HM90 E90A-D20-3-C20	20.00	3	10.00	110.00	26.1	25.0	7.5	20.00	C	0	55578	0.24
HM90 E90A-D20-3-C20-C	20.00	3	10.00	110.00	26.1	25.0	7.5	20.00	C	1	55578	0.22
HM90 E90A-D20-3-W16	20.00	3	10.00	85.00	26.1	-	7.5	16.00	W	0	55578	0.13
HM90 E90A-D20-3-W16-C	20.00	3	10.00	85.00	26.1	-	7.5	16.00	W	1	55578	0.12
HM90 E90A-D20-3-W20	20.00	3	10.00	90.00	26.1	25.0	7.5	20.00	W	0	55578	0.19
HM90 E90A-D20-3-W20-C	20.00	3	10.00	90.00	26.1	25.0	7.5	20.00	W	1	55578	0.18
HM90 E90A-D21-2-C20-L270	21.00	2	10.00	270.00	26.0	-	2.8	20.00	C	0	53729	0.64
HM90 E90A-D21-3-C20	21.00	3	10.00	115.00	26.0	25.0	7.5	20.00	C	0	53729	0.26
HM90 E90A-D22-3-C20	22.00	3	10.00	115.00	26.0	-	7.5	20.00	C	0	51846	0.26
HM90 E90A-D22-3-C20-C	22.00	3	10.00	115.00	26.0	-	7.5	20.00	C	1	51846	0.25
HM90 E90A-D22-3-W25	22.00	3	10.00	95.00	26.0	21.0	7.5	25.00	W	0	51846	0.31
HM90 E90A-D22-3-W25-C	22.00	3	10.00	95.00	26.0	21.0	7.5	25.00	W	1	51846	0.29
HM90 E90A-D25-2-C25	25.00	2	10.00	120.00	26.1	25.0	2.5	25.00	C	0	47512	0.42
HM90 E90A-D25-2-W25	25.00	2	10.00	95.00	26.1	25.0	2.5	25.00	W	0	47512	0.32
HM90 E90A-D25-3-C24-B	25.00	3	10.00	200.00	25.0	-	2.5	24.00	C	0	47512	0.67
HM90 E90A-D25-3-C24-B-C	25.00	3	10.00	200.00	25.0	24.0	2.5	24.00	C	1	47512	0.64
HM90 E90A-D25-3-C25	25.00	3	10.00	120.00	26.1	25.0	2.5	25.00	C	0	47512	0.42

- For user guide see pages 542-548

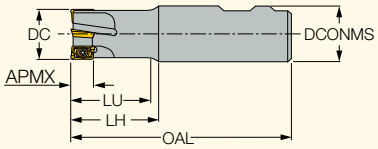
[1] Number of inserts
[2] Maximum ramping angle
[3] C-Cylindrical, W-Weldon
[4] 0 - Without coolant supply, 1 - With coolant supply
[5] Maximum RPM

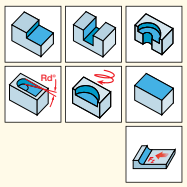
For inserts, see pages: APCR 1003PDFR-P (450) • APCT 1003PDR-HM (450) • APKR 1003PDR-HM (451) • APKT 1003..R (453) • APKT 1003..TR-RM (452) • APKT 1003PDR-HM (451) • APKT 1003PDR-HM-CS (451) • APKT 1003PDTR-76 (452) • APKT 1003PDTR/L-RM (452) • APKT 1003R8T-FF (454) • APKW 100304 PDR (PCD) (450) • HM90 APCR 100304PDFR-P/DP (449) • HM90 APCT 1003 (448) • HM90 APKT 1003 (449) • HM90 APKT 1003PD-W (453) • HM90 APKW 1003PDR (453)

HELI2000

HM90 E90A-10 (continued)

Endmills Carrying HM90
AP.. 1003... Inserts





Designation	DC	CICT[1]	APMX	OAL	LH	LU	RMPX°[2]	DCONMS	Shank[3]	CSP[4]	RPMX[5]	kg
HM90 E90A-D25-3-C25-B	25.00	3	10.00	200.00	40.0	37.0	2.5	25.00	C	0	47512	0.72
HM90 E90A-D25-3-C25-B-C	25.00	3	10.00	200.00	40.0	37.0	2.5	25.00	C	1	47512	0.68
HM90 E90A-D25-3-C25-C	25.00	3	10.00	120.00	26.1	25.0	2.5	25.00	C	1	47512	0.39
HM90 E90A-D25-3-W25	25.00	3	10.00	95.00	26.1	25.0	2.5	25.00	W	0	47512	0.32
HM90 E90A-D25-3-W25-C	25.00	3	10.00	95.00	26.1	25.0	2.5	25.00	W	1	47512	0.30
HM90 E90A-D25-3-W25-XL	25.00	3	10.00	140.00	80.0	79.0	2.5	25.00	W	0	47512	0.47
HM90 E90A-D25-4-C25	25.00	4	10.00	120.00	26.0	25.0	2.5	25.00	C	0	47512	0.42
HM90 E90A-D25-4-C25-C	25.00	4	10.00	120.00	26.0	25.0	2.5	25.00	C	1	47512	0.39
HM90 E90A-D25-4-W25	25.00	4	10.00	95.00	26.0	25.0	2.5	25.00	W	0	47512	0.31
HM90 E90A-D25-4-W25-C	25.00	4	10.00	95.00	26.0	25.0	2.5	25.00	W	1	47512	0.30
HM90 E90A-D28-4-C25	28.00	4	10.00	120.00	26.0	-	2.0	25.00	C	0	44005	0.44
HM90 E90A-D28-4-C25-C	28.00	4	10.00	120.00	26.0	-	2.0	25.00	C	1	44005	0.41
HM90 E90A-D28-4-W25	28.00	4	10.00	95.00	26.0	-	2.0	25.00	W	0	44005	0.33
HM90 E90A-D30-4-C32	30.00	4	10.00	130.00	40.0	35.4	2.0	32.00	C	0	36782	0.72
HM90 E90A-D30-4-W25	30.00	4	10.00	95.00	30.0	-	2.0	25.00	W	0	36782	0.35
HM90 E90A-D30-4-W25-C	30.00	4	10.00	95.00	30.0	-	2.0	25.00	W	1	36782	0.33
HM90 E90A-D32-3-C32	32.00	3	10.00	130.00	30.0	28.5	3.0	32.00	C	0	35614	0.76
HM90 E90A-D32-3-W32	32.00	3	10.00	110.00	30.0	28.5	3.0	32.00	W	0	35614	0.63
HM90 E90A-D32-4-C32	32.00	4	10.00	130.00	30.0	28.5	3.0	32.00	C	0	35614	0.75
HM90 E90A-D32-4-C32-B	32.00	4	10.00	200.00	40.0	37.2	3.0	32.00	C	0	35614	1.18
HM90 E90A-D32-4-C32-LB	32.00	4	10.00	250.00	40.0	37.2	3.0	32.00	C	0	35614	1.50
HM90 E90A-D32-4-W25	32.00	4	10.00	95.00	30.0	-	3.0	25.00	W	0	35614	0.37
HM90 E90A-D32-4-W32-XL	32.00	4	10.00	160.00	100.0	28.5	3.0	32.00	W	0	35614	0.87
HM90 E90A-D32-5-C32	32.00	5	10.00	130.00	30.0	28.5	3.0	32.00	C	0	35614	0.75
HM90 E90A-D32-5-C32-C	32.00	5	10.00	130.00	30.0	28.5	3.0	32.00	C	1	35614	0.72
HM90 E90A-D32-5-W25	32.00	5	10.00	95.00	30.0	-	3.0	25.00	W	0	35614	0.37
HM90 E90A-D32-5-W25-C	32.00	5	10.00	95.00	30.0	-	3.0	25.00	W	1	35614	0.35
HM90 E90A-D32-5-W32-C	32.00	5	10.00	110.00	30.0	28.5	3.0	32.00	W	1	35614	0.60
HM90 E90A-D40-5-C32	40.00	5	10.00	130.00	30.0	-	2.7	32.00	C	0	31855	0.83
HM90 E90A-D40-5-W32-C	40.00	5	10.00	110.00	30.0	-	2.7	32.00	W	1	31855	0.68
HM90 E90A-D50-7-C32	50.00	7	10.00	130.00	41.6	-	2.7	32.00	C	0	28492	0.94

- For user guide see pages 542-548

[1] Number of inserts
[2] Maximum ramping angle
[3] C-Cylindrical, W-Weldon
[4] 0 - Without coolant supply, 1 - With coolant supply
[5] Maximum RPM

For inserts, see pages: APCR 1003PDFR-P (450) • APCT 1003PDR-HM (450) • APKR 1003PDR-HM (451) • APKT 1003..R (453) • APKT 1003..TR-RM (452) • APKT 1003PDR-HM (451) • APKT 1003PDR-HM-CS (451) • APKT 1003PDTR-76 (452) • APKT 1003PDTR/L-RM (452) • APKT 1003R8T-FF (454) • APKW 100304 PDR (PCD) (450) • HM90 APCR 100304PDFR-P/DP (449) • HM90 APCT 1003 (448) • HM90 APKT 1003 (449) • HM90 APKT 1003PD-W (453) • HM90 APKW 1003PDR (453)

Spare Parts

Designation			
HM90 E90A-D10-1-C10	SR 34-505/HG	T-8/53	
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-C	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	T-8/53	
HM90 E90A-D12-1-W16-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	SW4-SD	BLD T08/M7
HM90 E90A-D16-2-C15-B	SR 34-505/HG	T-8/53	
HM90 E90A-D16-2-C15-B-C	SR 34-505/HG	T-8/53	

Spare Parts

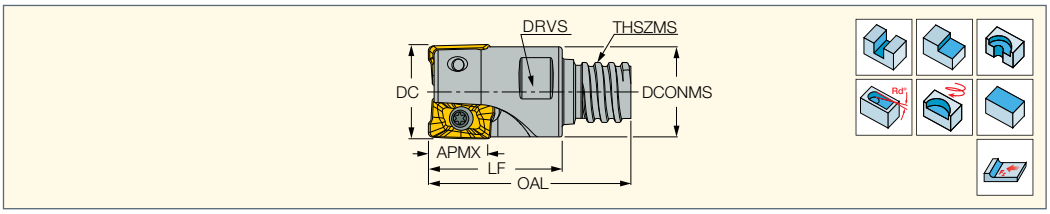
Designation			
HM90 E90A-D16-2-C16	SR 34-505/HG	SW4-SD	BLD T08/M7
HM90 E90A-D16-2-C16-B	SR 34-505/HG	T-8/53	
HM90 E90A-D16-2-C16-B-C	SR 34-505/HG	T-8/53	
HM90 E90A-D16-2-C16-C	SR 34-505/HG	T-8/53	
HM90 E90A-D16-2-C16-LB	SR 34-505/HG	T-8/53	
HM90 E90A-D16-2-W16	SR 34-505/HG	T-8/53	
HM90 E90A-D16-2-W16-C	SR 34-505/HG	T-8/53	
HM90 E90A-D17-2-C16	SR 34-505/HG	T-8/53	
HM90 E90A-D17-2-C16-L170	SR 34-505/HG	T-8/53	
HM90 E90A-D18-2-C16	SR 34-505/HG	T-8/53	
HM90 E90A-D18-2-C16-C	SR 34-505/HG	T-8/53	
HM90 E90A-D18-2-W20	SR 34-505/HG	SW4-SD	BLD T08/M7
HM90 E90A-D18-2-W20-C	SR 34-505/HG	T-8/53	
HM90 E90A-D19-2-C20	SR 34-505/HG	T-8/53	
HM90 E90A-D20-2-C19-B	SR 34-505/HG	T-8/53	
HM90 E90A-D20-2-C19-B-C	SR 34-505/HG	T-8/53	
HM90 E90A-D20-2-C20	SR 34-505/HG	SW4-SD	BLD T08/M7
HM90 E90A-D20-2-C20-B	SR 34-505/HG	T-8/53	
HM90 E90A-D20-2-C20-B-C	SR 34-505/HG	T-8/53	
HM90 E90A-D20-2-C20-C	SR 34-505/HG	SW4-SD	BLD T08/M7
HM90 E90A-D20-2-C20-LB	SR 34-505/HG	T-8/53	
HM90 E90A-D20-2-C20-XL	SR 34-505/HG	T-8/53	
HM90 E90A-D20-2-W20	SR 34-505/HG	T-8/53	
HM90 E90A-D20-2-W20-C	SR 34-505/HG	T-8/53	
HM90 E90A-D20-2-W20-XL	SR 34-505/HG	T-8/53	
HM90 E90A-D20-3-C20	SR 34-505/HG	SW4-SD	BLD T08/M7
HM90 E90A-D20-3-C20-C	SR 34-505/HG	SW4-SD	BLD T08/M7
HM90 E90A-D20-3-W16	SR 34-505/HG	SW4-SD	BLD T08/M7
HM90 E90A-D20-3-W16-C	SR 34-505/HG	T-8/53	
HM90 E90A-D20-3-W20	SR 34-505/HG	T-8/53	
HM90 E90A-D20-3-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	SW4-SD	BLD T08/M7
HM90 E90A-D22-3-W25	SR 34-505/HG	T-8/53	
HM90 E90A-D22-3-W25-C	SR 34-505/HG	T-8/53	
HM90 E90A-D25-2-C25	SR 34-505/HG	T-8/53	
HM90 E90A-D25-2-W25	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	
HM90 E90A-D25-3-C25	SR 34-505/HG	T-8/53	
HM90 E90A-D25-3-C25-B	SR 34-505/HG	T-8/53	
HM90 E90A-D25-3-C25-B-C	SR 34-505/HG	T-8/53	
HM90 E90A-D25-3-C25-C	SR 34-505/HG	T-8/53	
HM90 E90A-D25-3-W25	SR 34-505/HG	T-8/53	
HM90 E90A-D25-3-W25-C	SR 34-505/HG	T-8/53	
HM90 E90A-D25-3-W25-XL	SR 34-505/HG	T-8/53	
HM90 E90A-D25-4-C25	SR 34-505/HG	T-8/53	
HM90 E90A-D25-4-C25-C	SR 34-505/HG	SW4-SD	BLD T08/M7
HM90 E90A-D25-4-W25	SR 34-505/HG	T-8/53	
HM90 E90A-D25-4-W25-C	SR 34-505/HG	SW4-SD	BLD T08/M7
HM90 E90A-D28-4-C25	SR 34-505/HG	T-8/53	
HM90 E90A-D28-4-C25-C	SR 34-505/HG	T-8/53	
HM90 E90A-D28-4-W25	SR 34-505/HG	T-8/53	
HM90 E90A-D30-4-C32	SR 34-505/HG	T-8/53	
HM90 E90A-D30-4-W25	SR 34-505/HG	T-8/53	
HM90 E90A-D30-4-W25-C	SR 34-505/HG	T-8/53	
HM90 E90A-D32-3-C32	SR 34-505/HG	T-8/53	
HM90 E90A-D32-3-W32	SR 34-505/HG	T-8/53	
HM90 E90A-D32-4-C32	SR 34-505/HG	T-8/53	
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	T-8/53	
HM90 E90A-D32-5-C32	SR 34-505/HG	T-8/53	
HM90 E90A-D32-5-C32-C	SR 34-505/HG	SW4-SD	BLD T08/M7
HM90 E90A-D32-5-W25	SR 34-505/HG	SW4-SD	BLD T08/M7
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	T-8/53	

HELI2000

MULTI-MASTER

HM90 E90A-MM-10

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



Designation	DC	CICT(1)	APMX	OAL	RMPX°(2)	LF	THSZMS	DRVS(3)	DCONMS	kg		
HM90 E90A-D16-2-MMT10	16.00	2	10.00	34.75	15.0	23.00	T10	13.0	15.30	0.03	SR 34-505/HG	T-8/53
HM90 E90A-D20-2-MMT12	20.00	2	10.00	38.30	7.5	24.60	T12	16.0	19.20	0.05	SR 34-505/HG	T-8/53
HM90 E90A-D20-3-MMT12	20.00	3	10.00	38.30	7.5	24.60	T12	16.0	19.20	0.05	SR 34-505/HG	T-8/53

• Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation see page 44 • For user guide see pages 542-548

(1) Number of inserts

(2) Maximum ramping angle

(3) Clamping wrench size

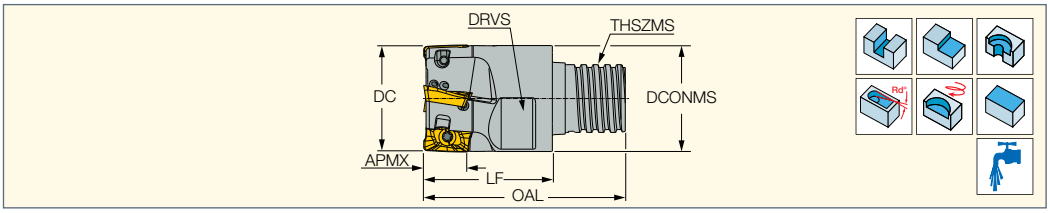
For inserts, see pages: APCR 1003PDFR-P (450) • APCT 1003PDR-HM (450) • APKR 1003PDR-HM (451) • APKT 1003..R (453) • APKT 1003..TR-RM (452) • APKT 1003PDR-HM (451) • APKT 1003PDR-HM-CS (451) • APKT 1003PDTR-76 (452) • APKT 1003PDTR/L-RM (452) • APKT 1003R8T-FF (454) • APKW 100304 PDR (PCD) (450) • HM90 APCR 100304PDFR-P/DP (449) • HM90 APCT 1003 (448) • HM90 APKT 1003 (449) • HM90 APKT 1003PD-W (453) • HM90 APKW 1003PDR (453)

For holders, see pages: MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

MULTI-MASTER

HM90 E90A-MM-10-JHP

90° JHP Endmills with a MULTI-MASTER Threaded Adaptation Carrying HELI2000 and HELIMILL Inserts



Designation	DC	CICT(1)	APMX	OAL	RMPX°(2)	LF	THSZMS	TQ_3(3)	DRVS(4)	DCONMS	MIID(5)	kg
HM90 E90A D16-2-MMT10-JHP	16.00	2	10.00	34.80	15.0	23.40	T10	28	13.0	15.60	APKT 1003PDR-HM	0.10
HM90 E90A D20-3-MMT12-JHP	20.00	3	10.00	38.50	7.5	25.50	T12	28	16.0	19.70	APKT 1003PDR-HM	0.15
HM90 E90A D25-4-MMT15-JHP	25.00	4	10.00	47.00	7.5	30.00	T15	40	20.0	24.70	APKT 1003PDR-HM	0.05

• Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation see page 44 • For user guide see pages 542-548

(1) Number of inserts

(2) Maximum ramping angle

(3) Tool tightening torque Nxm (lbfxin)

(4) Torque key size

(5) Master insert identification

For inserts, see pages: APCR 1003PDFR-P (450) • APCT 1003PDR-HM (450) • APKR 1003PDR-HM (451) • APKT 1003..R (453) • APKT 1003..TR-RM (452) • APKT 1003PDR-HM (451) • APKT 1003PDR-HM-CS (451) • APKT 1003PDTR-76 (452) • APKT 1003PDTR/L-RM (452) • APKT 1003R8T-FF (454) • APKW 100304 PDR (PCD) (450) • HM90 APCR 100304PDFR-P/DP (449) • HM90 APCT 1003 (448) • HM90 APKT 1003 (449) • HM90 APKT 1003PD-W (453) • HM90 APKW 1003PDR (453)

For holders, see pages: MM CAB (667) • MM GRT (shanks) (86) • MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

Spare Parts

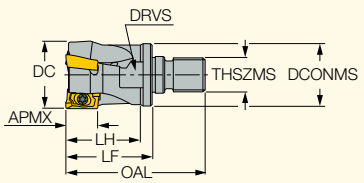
Designation			
HM90 E90A-MM-10-JHP	SR 34-505/HG(a)	BLD T08/M7	SW4-SD

(a) Recommended tightening torque for this item: 1.2 Nxm

FLEXFIT HELI2000

HM90 E90A-M-10

90° Endmills with a FLEXFIT Threaded Adaptation Carrying HM90 AP.. 1003... Inserts



Designation	DC	CICT(1)	DCONMS	THSZMS	LH	LF	OAL	APMX	RMPX°(2)	CSP(3)	DRVS(4)	TQ_3(5)	kg
HM90 E90A-D16-2-M08	16.00	2	14.75	M08	24.0	30.00	47.50	10.00	15.0	0	20	10.0	0.03
HM90 E90A-D20-3-M10	20.00	3	18.00	M10	30.0	30.00	50.00	10.00	7.5	1	15.0	29	0.05
HM90 E90A-D20-3-M12	20.00	3	21.00	M12	24.0	30.00	52.00	10.00	7.5	1	33	19.0	0.06
HM90 E90A-D25-3-M12	25.00	3	21.00	M12	35.0	35.00	57.00	10.00	2.5	1	19.0	33	0.08
HM90 E90A-D25-4-M12	25.00	4	21.00	M12	35.0	35.00	57.00	10.00	2.5	1	19.0	33	0.08
HM90 E90A-D32-4-M16	32.00	4	29.00	M16	35.0	35.00	60.00	10.00	3.0	1	25.0	40	0.16

• For adaptation see page 44 • For user guide see pages 542-548 • 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) Number of inserts

(2) Maximum ramping angle

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

(4) Torque key size

(5) Tool tightening torque Nxm (lbfxin)

For inserts, see pages: APCR 1003PDFR-P (450) • APCT 1003PDR-HM (450) • APKR 1003PDR-HM (451) • APKT 1003..R (453) • APKT 1003..TR-RM (452) • APKT 1003PDR-HM (451) • APKT 1003PDR-HM-CS (451) • APKT 1003PDTR-76 (452) • APKT 1003PDTR/L-RM (452) • APKT 1003R8T-FF (454) • APKW 100304 PDR (PCD) (450) • HM90 APCR 100304PDFR-P/DP (449) • HM90 APCT 1003 (448) • HM90 APKT 1003 (449) • HM90 APKT 1003PD-W (453) • HM90 APKW 1003PDR (453)

For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

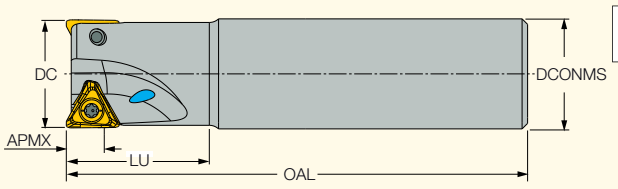
Spare Parts

Designation				
HM90 E90A-D16-2-M08	SR 34-505/HG	T-8/53		
HM90 E90A-D20-3-M10	SR 34-505/HG	T-8/53		
HM90 E90A-D20-3-M12	SR 34-505/HG	T-8/53		
HM90 E90A-D25-3-M12	SR 34-505/HG	T-8/53		
HM90 E90A-D25-4-M12	SR 34-505/HG		SW4-SD	BLD T08/M7
HM90 E90A-D32-4-M16	SR 34-505/HG	T-8/53		

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 542-548

(1) Number of inserts

(2) C-Cylindrical, W-Weldon

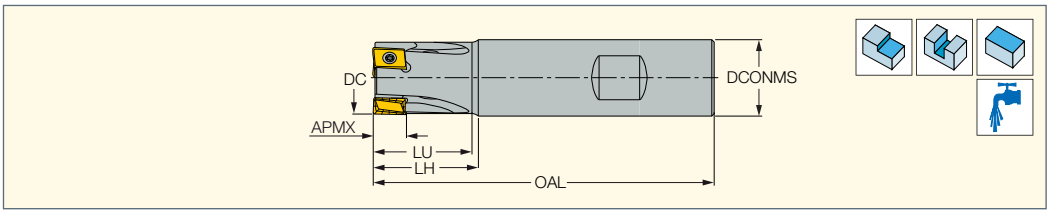
(3) Maximum ramping angle

For inserts, see pages: H690 TNKX/TNCX 1005 (472)

HELITANG T490 LINE

T490 ELN-11

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



Designation	DC	CICT[4]	LH	LU	APMX	OAL	DCONMS	Shank[5]	RMPX°[6]	kg			
T490 ELN D22-2-W25-11 [1]	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 [2]	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 [3]	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 [3]	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 [2]	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

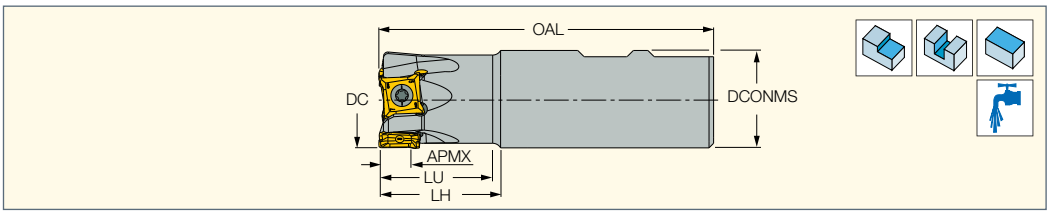
[1] Recommended cutting conditions: at a_p=6 mm, f_z=0.12 mm/t at a_p=8 mm, f_z=0.10 mm/t
[2] Long cylindrical shank
[3] Recommended cutting conditions: at a_p=6 mm, f_z=0.15 mm/t at a_p=8 mm, f_z=0.12 mm/t
[4] Number of inserts
[5] C-Cylindrical, W-Weldon
[6] Maximum ramping angle - valid only with 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 (477)

LOGIQ8TANG T890 MILLING LINE

T890HT ELN-R13

90° Endmills Carrying
T890 LN.T 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
[2] C-Cylindrical, W-Weldon

For inserts, see pages: T890 LN.. 1306 (475)

Spare Parts

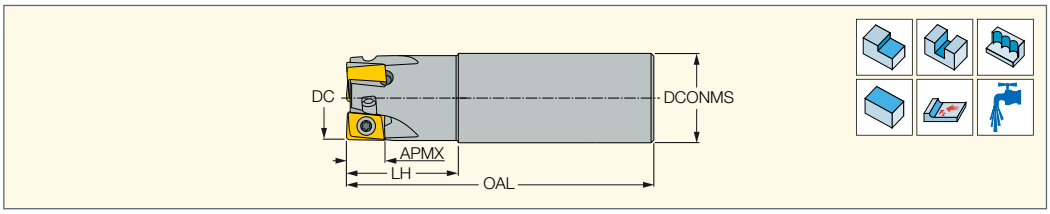
Designation			
T890HT ELN-R13	SR 10513105[a]	BLD IP20/M7	SW6-T-SH

[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	CICT(1)	APMX	OAL	LH	DCONMS	Shank(2)	RMPX°(3)	kg			
H490 E90AX D25-2-C25-12	25.00	2	12.00	110.00	35.0	25.00	C	1.5	0.36	SR 14-544/S	SW6-T	BLD T15/M7
H490 E90AX D25-2-W25-12	25.00	2	12.00	110.00	35.0	25.00	W	1.5	0.35	SR 14-544/S	SW6-T	BLD T15/M7
H490 E90AX D32-3-C32-12	32.00	3	12.00	110.00	40.0	32.00	C	4.0	0.60	SR 14-544	SW6-T	BLD T15/M7
H490 E90AX D32-3-W32-12	32.00	3	12.00	110.00	40.0	32.00	W	4.0	0.59	SR 14-544	SW6-T	BLD T15/M7
H490 E90AX D40-4-C32-12	40.00	4	12.00	130.00	40.0	32.00	C	1.5	0.83	SR 14-544	SW6-T	BLD T15/M7
H490 E90AX D40-4-W32-12	40.00	4	12.00	115.00	40.0	32.00	W	1.5	0.73	SR 14-544	SW6-T	BLD T15/M7

• For user guide see pages 542-548

(1) Number of inserts

(2) C-Cylindrical, W-Weldon

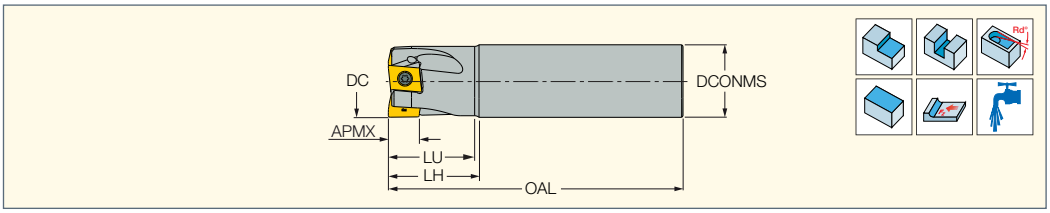
(3) Maximum ramping angle - valid only when the H490 ANKX1205R 15T-FF insert is used

For inserts, see pages: H490 ANKX/ANCX 1205-FF (471) • H490 ANKX/ANCX-12 (470)

HELITANG T490 LINE

T490 ELN-13

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



Designation	DC	CICT(2)	OAL	LH	LU	APMX	DCONMS	Shank(3)	RMPX°(4)	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	BLD T15/S7	SW6-T-SH
T490 ELN D25-2-W25-13	25.00	2	95.00	35.0	33.0	12.50	25.00	W	-	0.29	SR M4.5-10507218	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	2.8	0.72	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 ELN D32-3-C32-13B (1)	32.00	3	250.00	50.0	48.0	12.50	32.00	C	2.8	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	2.8	0.59	SR 34-535-SN	BLD T15/S7	SW6-T-SH
T490 ELN D40-3-C40-13B (1)	40.00	3	250.00	50.0	48.0	12.50	40.00	C	2.0	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	2.0	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	2.0	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	1.5	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	1.5	0.96	SR 34-535-SN	BLD T15/S7	SW6-T-SH

• For user guide see pages 542-548

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

(2) Number of inserts

(3) C-Cylindrical, W-Weldon

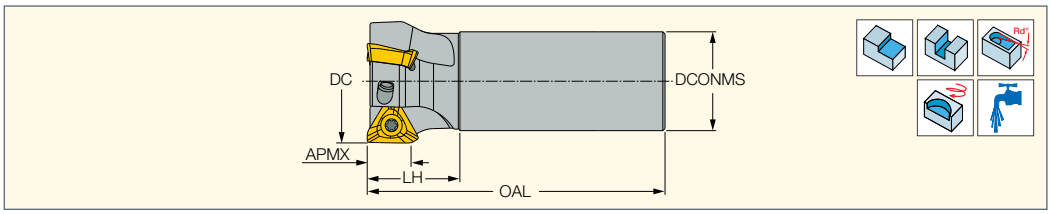
(4) Maximum ramping angle - valid only when T490 LNHT 1306 PNTR-RD insert is used

For inserts, see pages: T490 LNAR-P (480) • T490 LNMT 1306PNR-FF (479) • T490 LNMT 1306PNTR-FW (479) • T490 LNMT/LNHT/LNAR 1306 (478)

HELI3MILL HM390 LINE

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 542-548

(1) Number of inserts

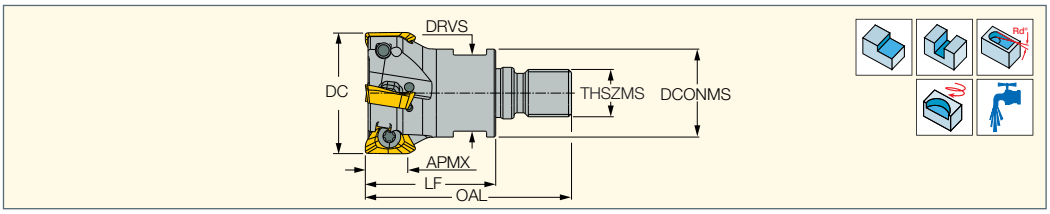
(2) Maximum ramping angle

For inserts, see pages: HM390 TDCR 1505 (448) • HM390 TDKT/CT 1505 (447)

HELI3MILL HM390 LINE
FLEXFIT

HM390 ETD-M

90° Endmills with a FLEXFIT 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	2.1	40	0.22	SR 10511869	BLD IP20/S7	SW6-T

• For adaptation, see page 44 • For user guide see pages 542-548 • 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

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

(1) Number of inserts

(2) Clamping wrench size

(3) Maximum ramping angle

(4) Tool tightening torque Nxm (lbfxin)

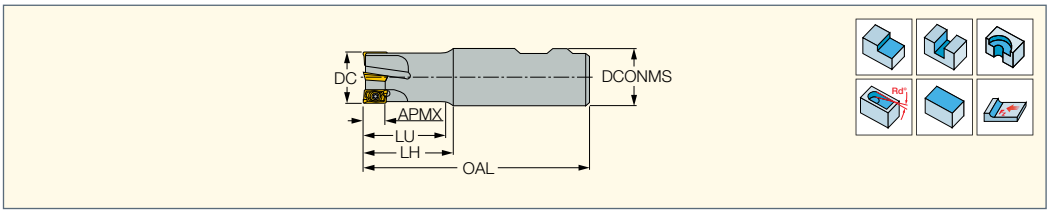
For inserts, see pages: HM390 TDCR 1505 (448) • HM390 TDKT/CT 1505 (447)

For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

HELI2000

HM90 E90AD-15

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



Designation	DC	CICT(1)	APMX	OAL	LH	LU	RMPX°(2)	DCONMS	Shank(3)	CSP(4)	kg			
HM90 E90AD-D20-1-C20	20.00	1	14.30	110.00	35.0	34.0	3.0	20.00	C	0	0.24	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-C24-B	25.00	2	14.30	200.00	30.0	-	11.5	24.00	C	0	0.67	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-C25	25.00	2	14.30	110.00	35.0	34.0	11.5	25.00	C	0	0.37	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-C25-B	25.00	2	14.30	200.00	50.0	49.0	11.5	25.00	C	0	0.71	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-C25-C	25.00	2	14.30	110.00	35.0	34.0	11.5	25.00	C	1	0.34	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-C25-XL	25.00	2	14.30	150.00	35.0	34.0	11.5	25.00	C	0	0.53	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-W25	25.00	2	14.30	100.00	35.0	34.0	11.5	25.00	W	0	0.33	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-W25-C	25.00	2	14.30	100.00	35.0	34.0	11.5	25.00	W	1	0.30	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D25-2-W25-XL	25.00	2	14.30	150.00	70.0	69.0	11.5	25.00	W	0	0.51	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D32-2-C32	32.00	2	14.30	120.00	40.0	38.0	5.3	32.00	C	0	0.68	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D32-3-C31-B	32.00	3	14.30	250.00	30.0	-	5.3	31.00	C	0	1.41	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D32-3-C32	32.00	3	14.30	120.00	40.0	38.0	5.3	32.00	C	0	0.67	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D32-3-C32-B	32.00	3	14.30	250.00	50.0	48.0	5.3	32.00	C	0	1.48	SR 14-544/S	SW6-T-SH	BLD T15/M7
HM90 E90AD-D32-3-C32-C	32.00	3	14.30	120.00	40.0	38.0	5.3	32.00	C	1	0.63	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D32-3-C32-XL	32.00	3	14.30	160.00	40.0	38.0	5.3	32.00	C	0	0.92	SR 14-544/S	SW6-T-SH	BLD T15/M7
HM90 E90AD-D32-3-W32	32.00	3	14.30	110.00	40.0	38.3	5.3	32.00	W	0	0.59	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D32-3-W32-C	32.00	3	14.30	110.00	40.0	38.3	5.3	32.00	W	1	0.56	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D32-3-W32-XL	32.00	3	14.30	160.00	40.0	38.3	5.3	32.00	W	0	0.91	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D40-3-C40-B	40.00	3	14.30	250.00	50.0	48.0	4.0	40.00	C	0	2.34	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D40-3-W40-XL	40.00	3	14.30	200.00	80.0	78.0	4.0	40.00	W	0	1.81	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D40-4-C32	40.00	4	14.30	130.00	40.0	-	4.0	32.00	C	0	0.82	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D40-4-W32	40.00	4	14.30	115.00	40.0	-	4.0	32.00	W	0	0.73	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D40-4-W32-C	40.00	4	14.30	115.00	40.0	-	4.0	32.00	W	1	0.69	SR 14-544/S	SW6-SD	BLD T15/M7

• For user guide see pages 542-548

(1) Number of inserts

(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

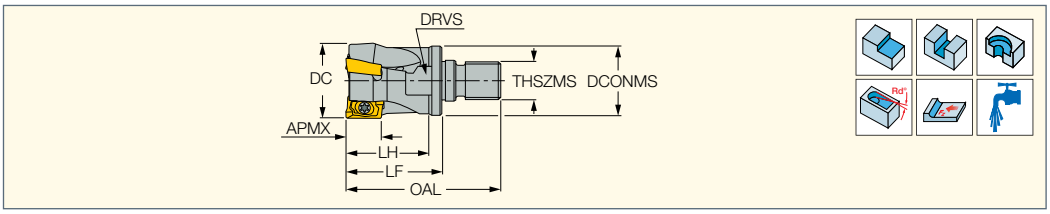
(4) 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: ADCR 1505PDFR (456) • ADCT 1505PDFR-HM (457) • ADKR 1505PDR/L-HM (456) • ADKT 1505-FF (459) • ADKT 1505..R/L-HM (459) • ADKT 1505PD-W (460) • ADKT 1505PDR/L-HM (458) • ADKT 1505PDTR-76 (459) • ADKT 1505PDTR/L-RM (458) • ADKW (CBN) (457) • ADKW (PCD) (457) • ADMT 1505PDR-HS (458) • HM90 ADCR 1505PDFR-P (456) • HM90 ADCT 1505 (455) • HM90 ADCT 1505PDR-CF (455) • HM90 ADKT 1505 (454) • HM90 ADKT 1505PD-W (460) • HM90 ADKW 1505PDR (462)

HELI2000 FLEXFIT

HM90 E90AD-M-15

90° Endmills with a FLEXFIT Threaded Adaptation Carrying HM90 ADKT-1505... Inserts



Designation	DC	CICT(1)	APMX	DCONMS	THSZMS	LH	LF	OAL	RMPX°(2)	DRVS(3)	TQ_3(4)	kg			
HM90 E90AD-D25-2-M12	25.00	2	14.30	21.00	M12	30.8	35.00	57.00	11.5	19.0	33	0.08	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D32-3-M16	32.00	3	14.30	29.00	M16	40.0	40.00	65.00	5.3	25.0	40	0.16	SR 14-544/S	SW6-SD	BLD T15/M7
HM90 E90AD-D40-4-M16	40.00	4	14.30	29.00	M16	40.0	40.00	65.00	4.0	25.0	40	0.21	SR 14-544/S	SW6-SD	BLD T15/M7

• For adaptation see page 44 • For user guide, see pages 542-548 • 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) Number of inserts

(2) Maximum ramping angle

(3) Torque key size

(4) Tool tightening torque Nxm (lbfxin)

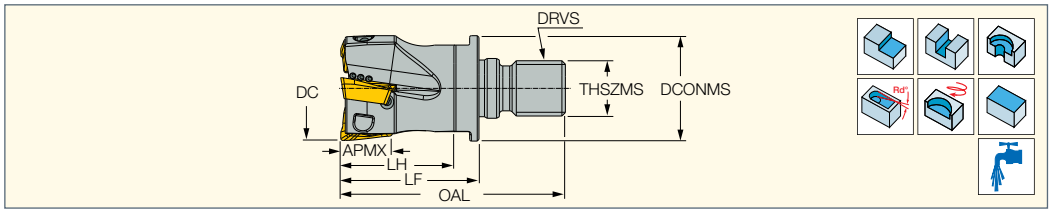
For inserts, see pages: ADCR 1505PDFR (456) • ADCT 1505PDFR-HM (457) • ADKR 1505PDR/L-HM (456) • ADKT 1505-FF (459) • ADKT 1505..R/L-HM (459) • ADKT 1505PD-W (460) • ADKT 1505PDR/L-HM (458) • ADKT 1505PDTR-76 (459) • ADKT 1505PDTR/L-RM (458) • ADKW (CBN) (457) • ADKW (PCD) (457) • ADMT 1505PDR-HS (458) • HM90 ADCR 1505PDFR-P (456) • HM90 ADCT 1505 (455) • HM90 ADCT 1505PDR-CF (455) • HM90 ADKT 1505 (454) • HM90 ADKT 1505PD-W (460) • HM90 ADKW 1505PDR (462)

For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

FLEXFIT

HM90 E90AD-M-15-JHP

90° JHP Endmills With a FLEXFIT Threaded Adaptation Carrying HELI2000 and HELIMILL Inserts



Designation	DC	CICT(1)	APMX	OAL	RMPX°(2)	LF	THSZMS	DRVS(3)	DCONMS	TQ_3(4)	MIID(5)	MIID_2(6)	kg
HM90 E90AD D32-3-M16-JHP	32.00	3	14.30	65.00	5.3	40.00	M16	25.0	30.50	40	ADKT 1505PDTR	ADCT 1505R8T-FF	0.17

• For adaptation see page 44 • For user guide, see pages 542-548 • 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) Number of inserts

(2) Maximum ramping angle

(3) Torque key size

(4) Tool tightening torque Nxm (lbfxin)

(5) Master insert identification

(6) Master insert identification 2

For inserts, see pages: ADCR 1505PDFR (456) • ADCT 1505PDFR-HM (457) • ADKR 1505PDR/L-HM (456) • ADKT 1505-FF (459) • ADKT 1505..R/L-HM (459) • ADKT 1505PD-W (460) • ADKT 1505PDR/L-HM (458) • ADKT 1505PDTR-76 (459) • ADKT 1505PDTR/L-RM (458) • ADKW (CBN) (457) • ADKW (PCD) (457) • ADMT 1505PDR-HS (458) • HM90 ADCR 1505PDFR-P (456) • HM90 ADCT 1505 (455) • HM90 ADCT 1505PDR-CF (455) • HM90 ADKT 1505 (454) • HM90 ADKT 1505PD-W (460) • HM90 ADKW 1505PDR (462)

For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

Spare Parts

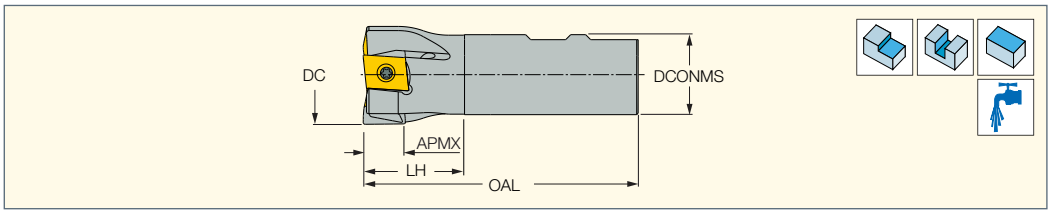
Designation			
HM90 E90AD-M-15-JHP	SR 14-544/S(a)	BLD T15/M7	SW6-T-SH

(a) Recommended tightening torque for this item: 4.8 Nxm

HELITANG T490 LINE

T490 ELN-16

90° Endmills Carrying Tangentially Clamped Inserts with 4 Helical, 16 mm Long Cutting Edges



Designation	DC	CICT(1)	APMX	LH	OAL	DCONMS	Shank(2)	kg			
T490 ELN D32-2-C32-16	32.00	2	16.00	41.0	130.00	32.00	C	0.70	SR 14-591-S	BLD T20/M7	SW6-T
T490 ELN D32-2-W32-16	32.00	2	16.00	41.0	130.00	32.00	W	0.70	SR 14-591-S	BLD T20/M7	SW6-T
T490 ELN D40-3-C32-16	40.00	3	16.00	40.0	130.00	32.00	C	0.76	SR 14-591	BLD T20/M7	SW6-T
T490 ELN D40-3-W32-16	40.00	3	16.00	40.0	110.00	32.00	W	0.64	SR 14-591	BLD T20/M7	SW6-T

• For user guide see pages 542-548

(1) Number of inserts

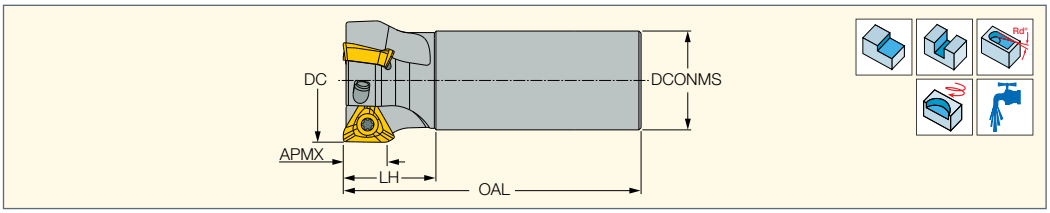
(2) C-Cylindrical, W-Weldon

For inserts, see pages: T490 LNAR-P (480) • T490 LNMT/LNHT 1607 (480)

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 542-548

(1) Number of inserts

(2) Maximum ramping angle

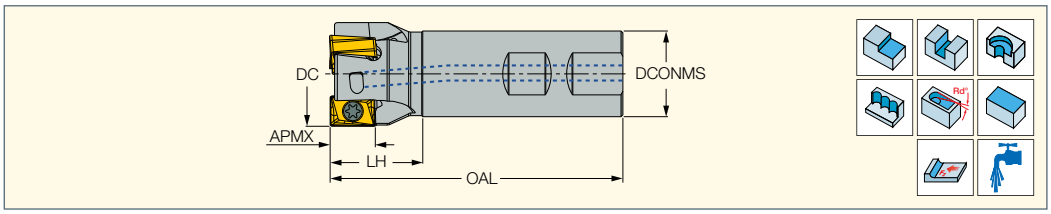
(3) C-Cylindrical

For inserts, see pages: HM390 TDKT 1907 (448)

HELIDO 490 LINE

H490 E90AX-17

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



Designation	DC	CICT(1)	APMX	OAL	LH	DCONMS	Shank(2)	RMPX°(3)	kg			
H490 E90AX D32-2-C32-17	32.00	2	16.30	130.00	44.0	32.00	C	6.5	0.70	SR 14-591	SW6-T	BLD T20/M7
H490 E90AX D32-2-W32-17	32.00	2	16.30	95.00	30.0	32.00	W	6.5	0.50	SR 14-591	SW6-T	BLD T20/M7
H490 E90AX D40-3-C32-17	40.00	3	16.30	130.00	44.0	32.00	C	4.4	0.76	SR 14-591	SW6-T	BLD T20/M7
H490 E90AX D40-3-W32-17	40.00	3	16.30	110.00	35.0	32.00	W	4.4	0.64	SR 14-591	SW6-T	BLD T20/M7
H490 E90AX D50-4-C32-17	50.00	4	16.30	120.00	40.0	32.00	C	3.8	0.81	SR 14-591	SW6-T	BLD T20/M7

• Rampdown angle is valid only when the H490 ANKX1706R15T-FF insert is used and tool diameter is 1.5 mm larger. • For user guide see pages 542-548

(1) Number of inserts

(2) C-Cylindrical, W-Weldon

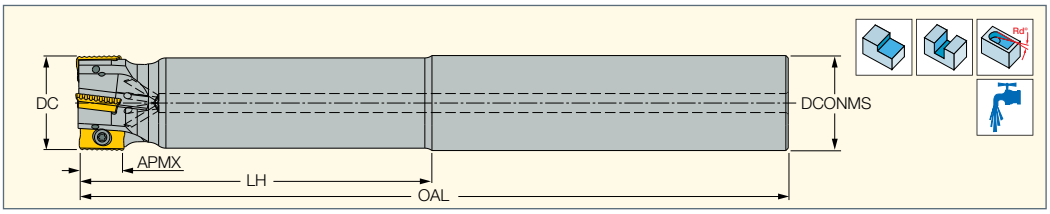
(3) Maximum ramping angle

For inserts, see pages: H490 ANKX 1706-FF (472) • H490 ANKX/ANCX-17 (472)

MILLSHRED P290 LINE

P290 EPW

Long Reach Endmills Carrying 12 and 18 mm Long Edged Inserts



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

• For user guide see pages 542-548

(1) Number of inserts

(2) C-Cylindrical, W-Weldon

(3) Maximum ramping angle

For inserts, see pages: P290 ACCT/KT (461) • P290 ACKT (461)

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
P290 EPW D32-3-170-W32-18	SR 14-544/S(b)		BLD T15/M7	SW6-T
P290 EPW D32-3-210-C32-18	SR 14-544/S(b)		BLD T15/M7	SW6-T
P290 EPW D32-3-240-C32-18	SR 14-544/S(b)		BLD T15/M7	SW6-T
P290 EPW D40-4-170-W32-18	SR 14-544/S(b)		BLD T15/M7	SW6-T
P290 EPW D40-4-200-C32-18	SR 14-544/S(b)		BLD T15/M7	SW6-T
P290 EPW D40-4-250-W40-18	SR 14-544/S(b)		BLD T15/M7	SW6-T

(a) Recommended tightening torque:2.0 N*m

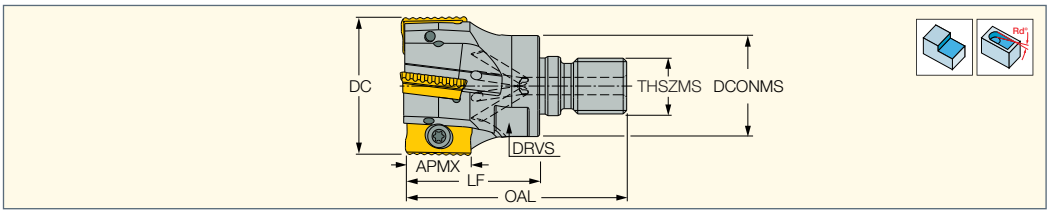
(b) Recommended tightening torque:4.8 N*m



MILLSHRED P290 LINE
FLEXFIT

P290 EPW-M

Endmills with FLEXFIT 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 44 • For user guide, see pages 542-548 • 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) Number of inserts

(2) Clamping wrench size

(3) Maximum ramping angle

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

(5) Tool tightening torque Nxm (lbfxin)

For inserts, see pages: P290 ACCT/KT (461) • P290 ACKT (461)

For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

Spare Parts

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

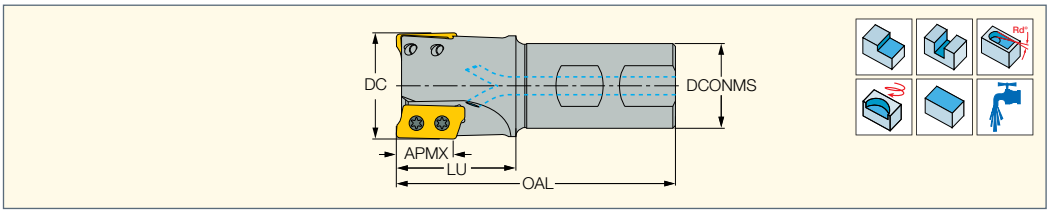
(a) Recommended tightening torque:2.0 N*m

(b) Recommended tightening torque:4.8 Nxm

HELIPLUS

HP E90AT-19

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



Designation	DC	CICT(1)	APMX	OAL	LU	RMPX°(2)	DCONMS	Shank(3)	kg			
HP E90AT-D25-2-W25-19	25.00	2	18.00	100.00	40.0	14.0	25.00	W	0.30	SR 14-571/L	SW6-SD	BLD T10/S7
HP E90AT-D32-3-W32-19	32.00	3	18.00	105.00	40.0	7.0	32.00	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 542-548

(1) Number of inserts

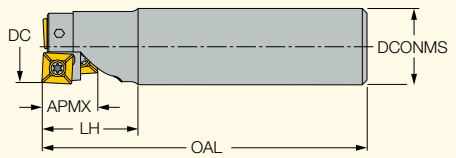
(2) Maximum ramping angle

(3) W-Weldon

For inserts, see pages: HP ADCR 1906 (464) • HP ADKT/ADCT 1906 (464)

HELIQUAD

E90XC
Drilling Endmills Carrying Square S/XOMT Inserts

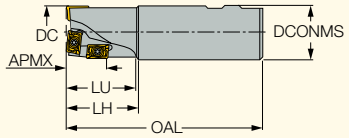


Designation	DC	CICT(1)	NOF(2)	APMX	LH	OAL	DCONMS	Shank(3)	CSP(4)	kg		
E90XC D12-06-C12-06	12.00	1	1	5.80	25.0	90.00	12.00	C	0	0.07	SR 34-508	T-7/51
E90XC D20-22-C20-06	20.00	5	1	22.00	37.0	120.00	20.00	C	1	0.24	SR 34-508/L	T-7/51

• Use the XOMT 06.... insert in central face location • For user guide see pages 542-548
(1) Number of inserts
(2) Number of flutes
(3) C-Cylindrical
(4) 0 - Without coolant supply, 1 - With coolant supply
For inserts, see pages: SOMT-HQ (494) • XOMT-HQ (494)

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

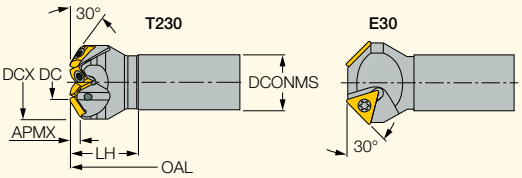
• For user guide see pages 542-548
(1) Number of inserts
(2) Number of flutes
(3) W-Weldon
(4) Master insert identification
For inserts, see pages: ADCT 1505PDFR-HM (457) • ADKT 1505..R/L-HM (459) • ADKT 1505PDR/L-HM (458) • ADKT 1505PDTR-76 (459) • APKT 1003PDR-HM (451) • APKT 1003PDR-HM-CS (451) • APKT 1003PDTR-76 (452) • XPMT-HQ (496)

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	
E90AC D38-25W32	SR 14-544/S	BLD T15/M7	SW6-T	ZPN 4-520

ISCARMILL

E30 / T230
30° Chamfering Endmills



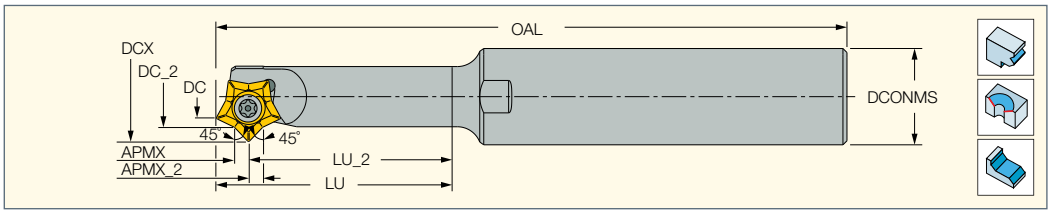
Designation	DC	DCX(1)	CICT(2)	APMX	OAL	LH	DCONMS	Shank(3)	CSP(4)	MIID(5)	kg		
T230 ELN D12-4-C16-05	12.00	21.50	4	2.50	90.00	20.0	16.00	C	1	T290 LNHT 0502	0.13	SR 10503833	T-7/51
T230 ELN D12-4-W16-05	12.00	21.50	4	2.50	90.00	20.0	16.00	W	1	T290 LNHT 0502	0.13	SR 10503833	T-7/51
E30 D16-W25	16.00	40.90	3	7.00	100.00	36.4	25.00	W	0	TPMT 1603	0.42	SR 14-541	T-15/51

• For user guide see pages 542-548
(1) Cutting diameter maximum
(2) Number of inserts
(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 (474) • TPMT (468)

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
(3) Minimum penetration diameter for back chamfering
For inserts, see pages: PNMT 0602-TN (540)

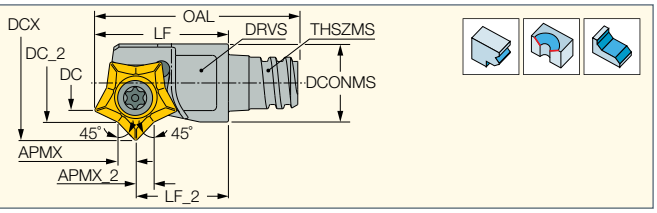
Spare Parts

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

CHAMFMILL
CHAMFERING LINE
MULTI-MASTER

CH45-MM-PN06

Upper and Bottom Chamfering Endmills with 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 44 • For user guide see pages 542-548
(1) Cutting diameter maximum
(2) Number of inserts
(3) Width across flats (wrench should be ordered separately)
(4) Minimum penetration diameter for back chamfering
For inserts, see pages: PNMT 0602-TN (540)
For holders, see pages: MM CAB (667) • MM CAB-T-T (91) • MM GRT (shanks) (86) • MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

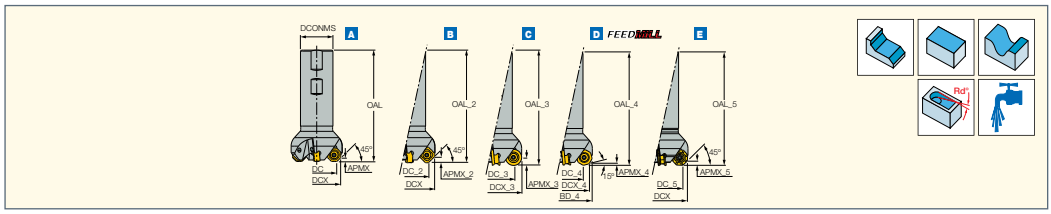
Spare Parts

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 Various 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
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
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
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

Designation	APMX_5	DCONMS	CICT(2)	OAL	OAL_2	OAL_3	OAL_4	OAL_5	RMPX°(3)	kg
SOE45 8/16-D025-02-W20R	2.90	20.00	2	100.00	101.2	101.60	101.30	101.20	3.1	0.25
SOE45 8/16-D032-03-W25R	2.90	25.00	3	100.00	101.2	101.60	101.30	101.20	4.2	0.38
SOE45 8/16-D040-04-W32R	2.90	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 542-548

(1) Cutting diameter maximum
(2) Number of inserts
(3) Maximum ramping angle - valid only with RXMT 1607N insert

For inserts, see pages: ONHU 0505-W (487) • ONHU/ONMU-05 (487) • OXMT 0507 (488) • RXMT 1607 (505) • S845 SNHU 1305-W (484) • S845 SNMU/SNHU-13 (483)

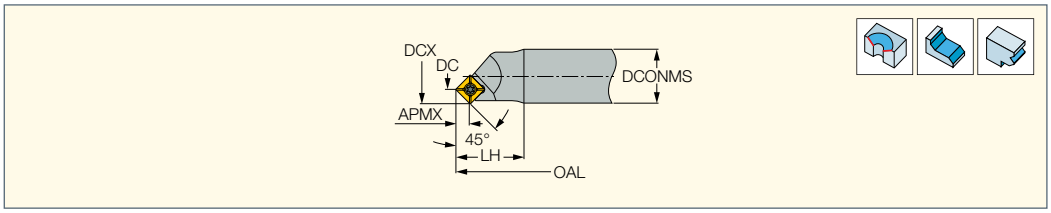
Spare Parts

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	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	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	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	T-7/51

• For user guide see pages 542-548

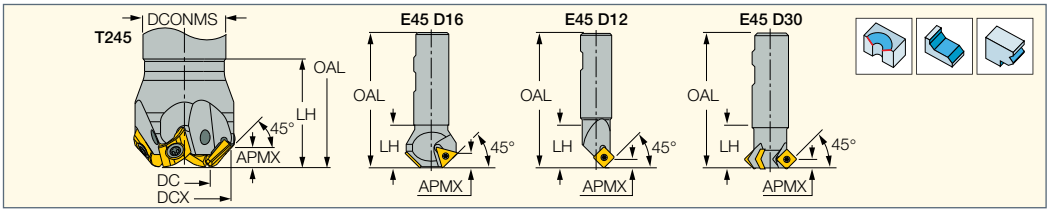
(1) Cutting diameter maximum
(2) Number of inserts
(3) C-Cylindrical, W-Weldon

For inserts, see pages: QOMT-HQ (494) • SOMT-HQ (494) • XOMT-HQ (494)

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 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 542-548

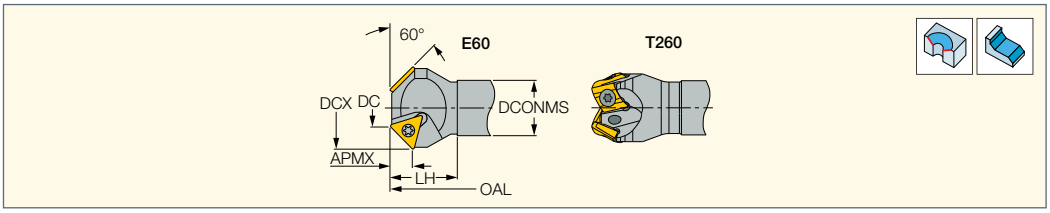
(1) Cutting diameter maximum
(2) Number of inserts
(3) W-Weldon C-Cylindrical
(4) 0 - Without coolant supply, 1 - With coolant supply
(5) Master insert identification

For inserts, see pages: SCMT-19 (514) • SDMT-AD-N (513) • T290 LNMT/LNHT 0502 (474) • TPMT (468)

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 542-548

(1) Cutting diameter maximum

(2) Number of inserts

(3) W-Weldon C-Cylindrical

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

(5) Master insert identification

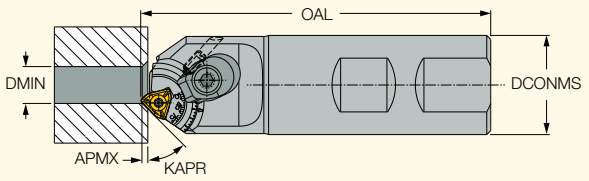
For inserts, see pages: T290 LNMT/LNHT 0502 (474) • TPMT (468)

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

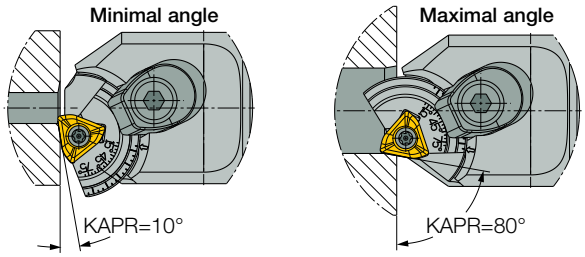
- For user guide see pages 542-548

(1) Number of inserts

(2) W-Weldon

(3) Master insert identification

For inserts, see pages: HM390 TCKT/CT 0703 (446)



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
Table of Contents

Type	Helix Angle	No. of Flutes	Diameter Range	Remarks	Page	
MM HC	10º	2	7.8-16	Slot Drill Milling Heads	73	E 
MM EA	45º	2, 3	8-20	High Speed Machining on Aluminum	81	
MM EA-CF	40º	3, 4	8-25	High Speed Machining on Aluminum-CHATTERFREE	82	
MM ECU	38º	3	7.7-19.7	For Keyways (DIN 6885)	72	
MM EC-3	45º	3	8-12		73	
MM EC-4	30º, 45º	4	5-20		74	
MM EC-6 MM EC-D	30º, 45º 50°	6 6, 8, 10	8-12 8-20	For Machining Hardened Steel (up to 65 HRC).	75	
MM ECK-CF	35º, 38º	5,6	8-32	For Machining Titanium Alloys	77	
MM EC-8/10	30º, 45º	8,10	16-25		76	
MM EFS	45º	4	8-25	Finishred	79	
MM EFS-CF	38°	4	6-25	Finishred CHATTERFREE	79	
MM EC-CF MM EC-CF-1.5xD	38º 36º, 46.5º	4, 12 4, 7, 9	8-25	CHATTERFREE	77 76	
MM ERA	45°	3	8-25	Rough Machining on Aluminum	81	
MM ERS MM ERS-1.5xD	45º 40º-47º	4, 5, 6	8-25	Rough Milling	80	
MM EBA	45º	2	8-25	Ball Nose for Machining Aluminum	72	

E = Economical

Indexable Solid Carbide Milling Heads
Table of Contents

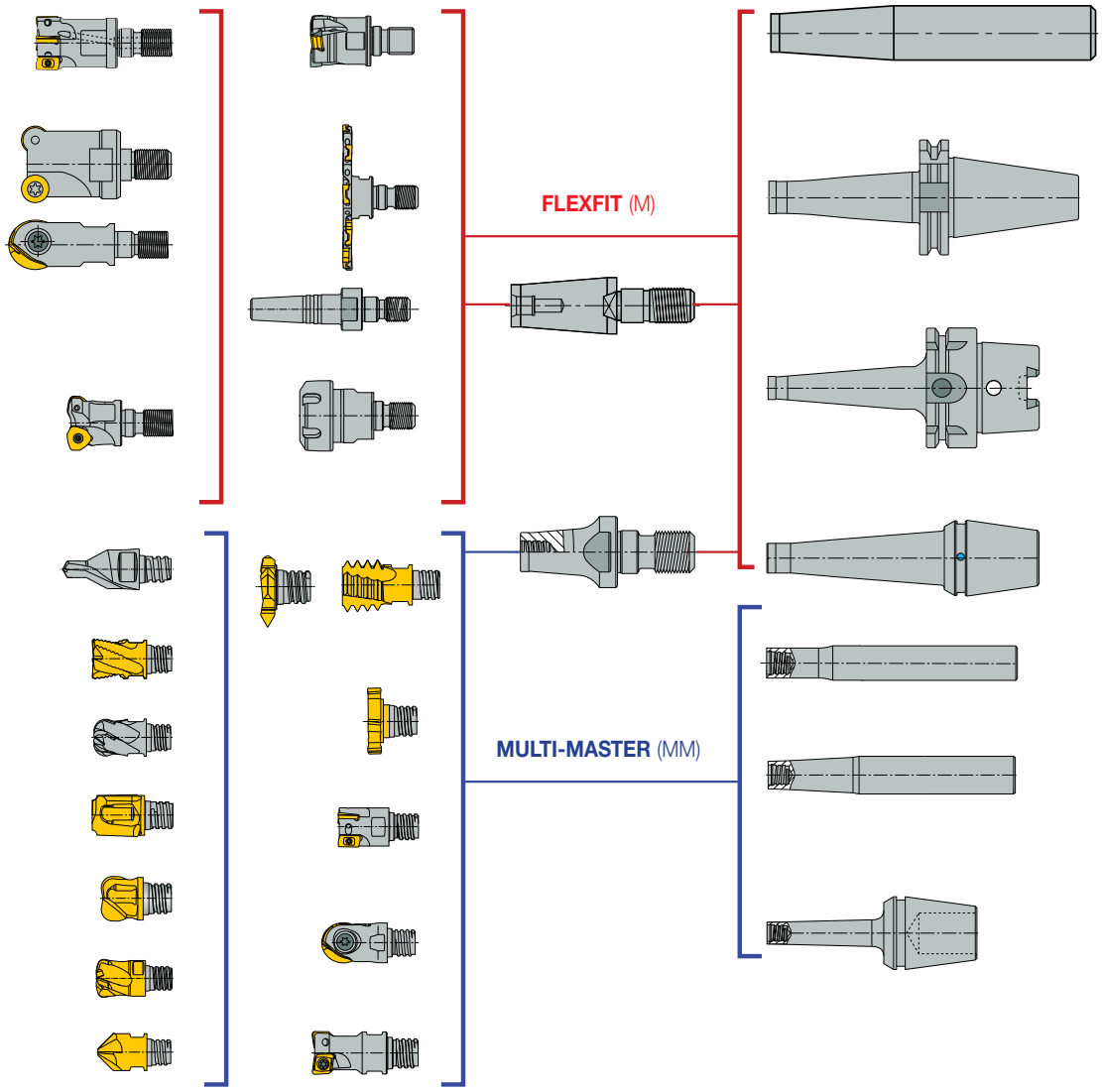
Type	Helix Angle	No. of Flutes	Diameter Range	Remarks	Page	
MM EPG	—	1	8	Engraving	50	
MM FM	—	6	12-25	Face Mill	61	
MM EB MM EBC	30º 45º	2, 4 4	5-25 8-20	Ball Nose Milling	71 72	
MM EOB	—	4	8,10,12,16	Oval-Shaped (Barrel)	61	
MM ELB	—	4	8,10,12,16	Lens-Shaped (Barrel)	61	
MM HCR MM HRF	—	2	8-16	Ball Nose for General Finishing	70	E 
MM HBR	—	2	10-25.4	Center Cutting, 240° Spherical Cutting Profile	71	E 
MM HT	—	2	10-20	Torodial	69	E 
MM FF	—	2	10-20	Feed Mill	67	E 
MM EFF	—	4,6	8-25.4	Feed Mill	68	
MM ETR	30˚	6	8-16	Torodial	69	
MM HR MM ER	—	2 4	8-20 8-12.7	Corner Rounding	49	E 
MM HCD	—	2	8-20	Chamfering, Countersinking and Spot Drilling for DIN 74 Screw	45	E 
MM ECF	—	4, 6	8-25 10-25	Chamfering and Countersinking	46	
MM ECS	—	2	1.07-6.41	Centering Drills (DIN 332)	51	
MM ECDF	—	2	8-20	Flat Bottom Drill Heads	52	

Indexable Solid Carbide Milling Heads
Table of Contents

Type	Helix Angle	No. of Flutes	Diameter Range	Remarks	Page	
MM HDF	—	2	9.8-15.7	Double Chamfering	46	
MM EDF	—	3	7.4-11.6	Double Chamfering	47	
MM TS	—	4,6	7.7-25	Groove Milling	54-55	
MM GRIT-22K/P, 28K/P	—	4, 6	21.7, 27.7	Groove Milling	59	
MM GRIT-16K/ P,18K/P 3T6	—	3	15.7,17.7	Groove Milling	56-57	
MM GRIT-4T8 /6T10	—	4	21.7	Groove Milling	58	
MM SS	—	4	21.7	Involute Spline	62	
MM GRIT-45A	—	3,4	17.7,21.7	45° Chamfering	47	
MM GRIT-K/P-45A MM GRIT 28P-DR	—	3,4,6 6	17.7,21.7,27.7 27.7	45° Chamfering Double-Sided Corner Rounding Milling	48 49	
MM TS-DG	—	4	15.88, 19.05, 25.4		55	
MM TRF 55	—	5,6	11.94,15.94, 19.94		63	
MM TRF 60	—	5,6	11.94,15.94, 19.94,27.7		63	
MM TRD MT-MM	—	3,4 3-6	15.7, 21.7 10-20	55º-DIN ISO 228, B.S 84 60º-ISO 68, DIN13	64 65-67	
MM ESR-G	—		8-32 8-25.4	Blank Heads	82	
MM TC-G	—		13.8,17.1,23.4, 28.6,35.6	Blank Heads	83	

E = Economical

MULTI-MASTER and FLEXFIT Connection Options



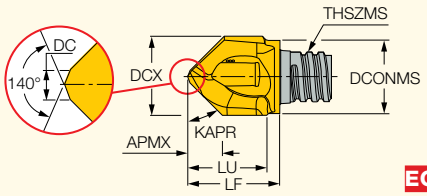
Features
Modular system reduces stock cost by using the same head with different shank options. Enables machining with larger overhang. Same head can be mounted on metric and inch combinations.

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 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.375-080-2T06	9.50	z9	2	9.00	T06	9.20	11.80	5.00	2.00	50.0	•
MM HCD.375-100-2T06 [2]	9.50	z9	2	9.70	T06	9.50	13.40	3.60	2.00	40.0	•
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	18.45	24.70	15.50	2.50	60.0	•
MM HCD200-120-2T12	20.00	h10	2	14.65	T12	18.45	21.15	5.50	1.50	30.0	•
MM HCD200-090-2T12 [1]	20.00	z9	2	18.20	T12	18.45	24.70	9.40	1.50	45.0	•

- For shanks, see pages 84-91 • Clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

[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

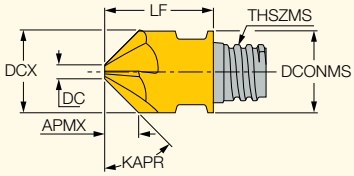


MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

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	•

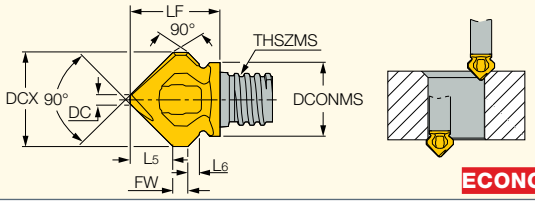
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Tool cutting edge angle
(2) Cutting diameter maximum
(3) Number 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*	•

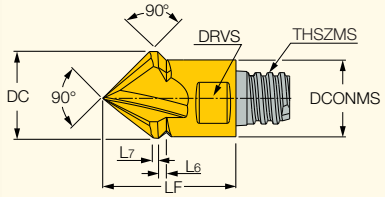
• For shanks, see pages 84-91 • Clamping keys should be ordered separately • For tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection • For user guide see pages 44, 177-184
(1) Cutting diameter maximum
(2) Number of flutes
* Optional, should be ordered separately

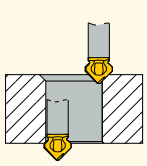
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EDF

Interchangeable 3 Flute Solid Carbide Heads for Upper and Bottom Chamfering







Designation	Dimensions DC	DCONMS	NOF(1)	L6	L7	LF	THSZMS	IC908
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	●

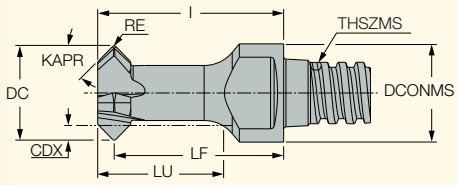
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Number of flutes

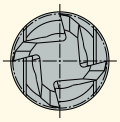
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TS-45

Interchangeable Solid Carbide Small Diameter 45° Chamfering Heads









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

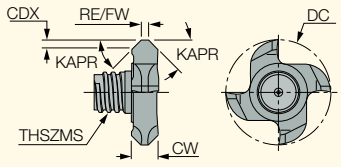
• For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92 • Do not apply lubricant to the threaded connection
(1) Tool cutting edge angle
(2) Cutting depth maximum
(3) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM GRIT-45A

Interchangeable Solid Carbide Small Diameter 45° Chamfering Heads





Designation	Dimensions DC	KAPR(1)	CDX(2)	RE	FW	CW	THSZMS	NOF(3)		IC908
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 GRIT28K-45A-6T10	27.70	45.0	4.00	-	0.50	9.80	T10	6	T-40/3 L*	●

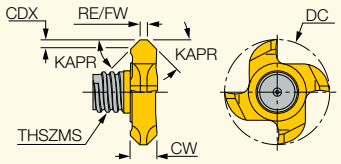
• P-TYPE - Positive geometry for soft and gummy materials. • K-Type - For general steel machining. • Modification options on request.
• Do not apply lubricant to the threaded connection. • For clamping instructions, see pages 91-92 • For shanks, see pages 84-91
(1) Tool cutting edge angle
(2) Cutting depth maximum
(3) Number of flutes
* Optional, should be ordered separately

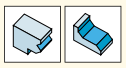
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM GRIT-K/P-45A

Interchangeable Solid Carbide Small Diameter 45° Chamfering Heads







Designation	Dimensions DC	KAPR[1]	CDX[2]	RE	FW	CW	THSZMS	NOF[3]	∠	IC528
MM GRIT 18K-45A	17.70	45.0	1.40	0.10	-	3.40	T06	3	MM EGR 16-18*	●
MM GRIT 18P-45A	17.70	45.0	1.40	0.10	-	3.40	T06	3	MM EGR 16-18*	●
MM GRIT 22K-45A	21.70	45.0	1.70	-	1.50	5.50	T08	4	MM EGR 20-22*	●
MM GRIT 22P-45A	21.70	45.0	1.70	-	1.50	5.50	T08	4	MM EGR 20-22*	●
MM GRIT 28K-45A	27.70	45.0	4.00	-	0.50	9.80	T10	6	T-40/3 L*	●

• Use carbide shanks for groove milling heads. • Keys for other milling heads must be ordered separately. • MM GRT.. shanks serve mainly for MM GRIT.. slitting heads.
• K-Type - For general steel machining. • P-Type - Positive geometry for soft and gummy materials. • For user guide see pages 44, 177-184

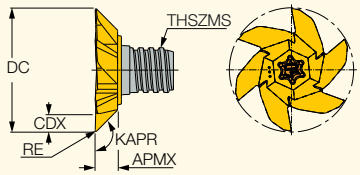
(1) Tool cutting edge angle
(2) Cutting depth maximum
(3) Number of flutes
* Optional, should be ordered separately

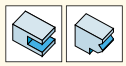
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM GRIT Dovetail

Interchangeable Solid Carbide Heads







Designation	Dimensions DC	KAPR[1]	CDX[2]	APMX	RE	THSZMS	NOF[3]	∠	Tough ↔ Hard IC528	IC908
MM GRIT 28K-45D-6T10	27.70	135.0	4.00	5.00	0.20	T10	6	T-40/3 L*	●	●
MM GRIT 28K-60D-6T10	27.70	120.0	4.00	7.80	0.20	T10	6	T-40/3 L*	●	●
MM GRIT 28K-75D-6T10	27.70	105.0	2.20	10.10	0.20	T10	6	T-40/3 L*	●	●

• Use carbide shanks for groove milling heads • For user guide see pages 44, 177-184

(1) Tool cutting edge angle
(2) Cutting depth maximum
(3) Number of flutes
* Optional, should be ordered separately



MM GRIT 28K-45D-6T10



MM GRIT 28K-60D-6T10



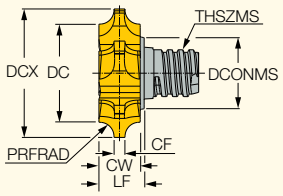
MM GRIT 28K-75D-6T10

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM GRIT 28P-DR

Interchangeable 6 Flute Solid Carbide Double-Sided Corner Rounding Milling Heads





Designation	Dimensions PRFRAD	CF	DCX(1)	DC	LF	CW	NOF(2)	THSZMS	DCONMS		Tough ↔ Hard IC528	IC908
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*	•	•

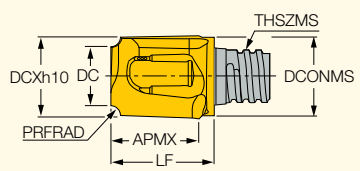
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Cutting diameter maximum
(2) Number of flutes
* Optional, should be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM HR

Interchangeable 2 Flute Solid Carbide Corner Rounding Milling Heads





ECONOMICAL SOLUTION

Designation	Dimensions DCX(1)	PRFRAD	Tm(2)	NOF(3)	DC	APMX	THSZMS	DCONMS	LF	IC908
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	5.00	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	•

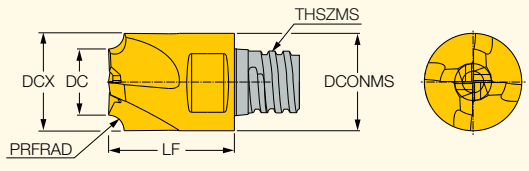
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Cutting diameter maximum
(2) Specially tailored radius range upon request.
(3) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM ER

Interchangeable 4 Flute Solid Carbide Corner Rounding Milling Heads



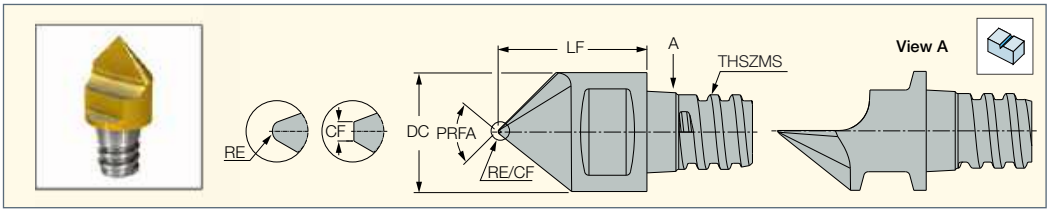


Designation	Dimensions PRFRAD	Tm(1)	DC	DCX(2)	DCONMS	NOF(3)	LF	THSZMS	IC908
MM ER1.0/047-5.8-4T05	1.00	0.5-1.4	5.80	8.00	8.00	4	10.00	T05	•
MM ER1.6/063-6.8-4T06	1.60	0.5-2.5	6.80	10.00	10.00	4	13.00	T06	•
MM ER2.0/078-6.0-4T06	2.00	0.5-2.5	6.00	10.00	10.00	4	13.00	T06	•
MM ER2.5/094-5.1-4T06	2.50	0.5-2.5	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 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Specially tailored radius range upon request.
(2) Cutting diameter maximum
(3) Number of flutes

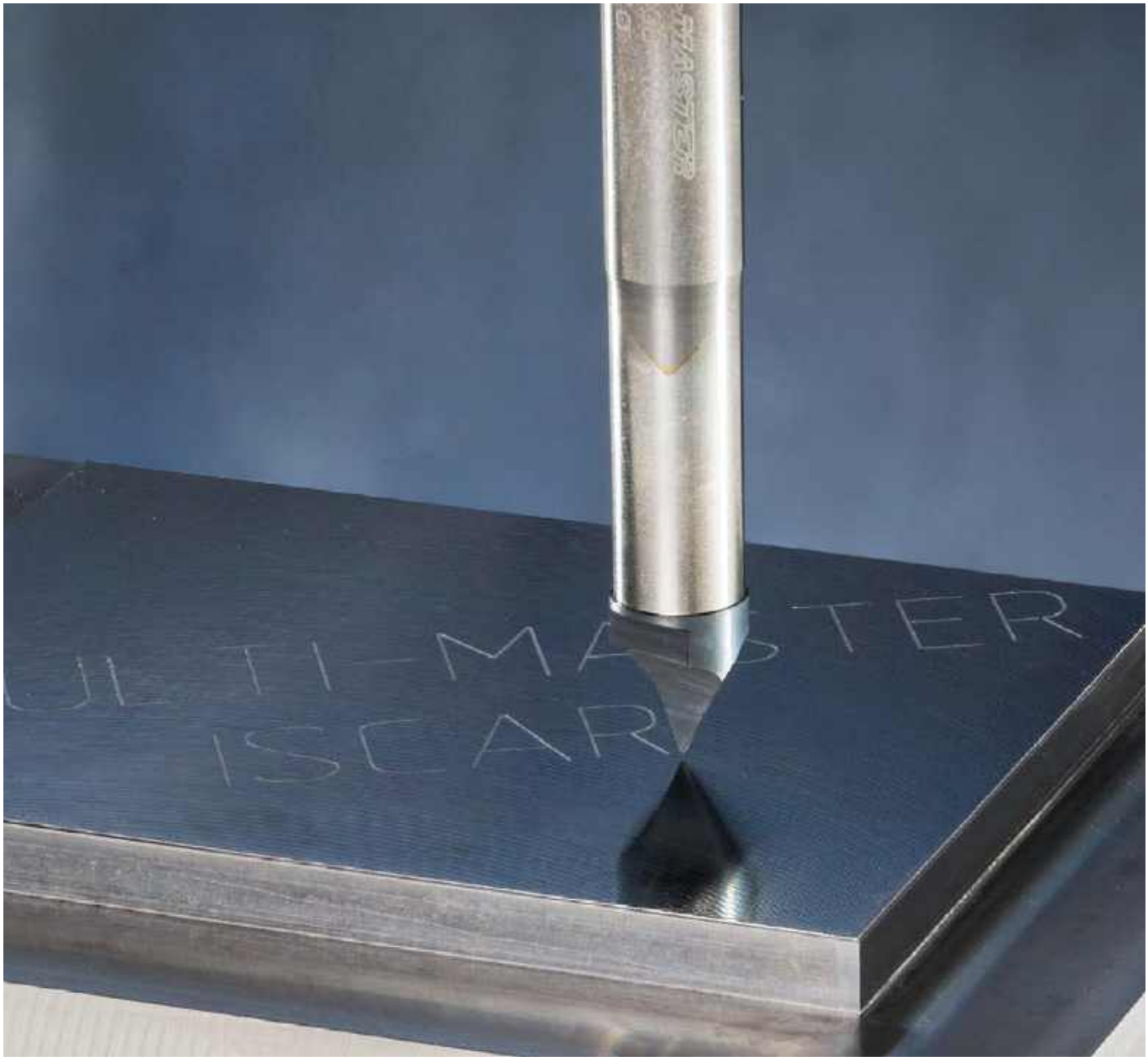
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EPG
Single Flute MULTI-MASTER
Engraving Tool Head



Designation	Dimensions						IC908
	DC	RE	CF[1]	PRFA	LF	THSZMS	
MM 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 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection
(1) Frontal corner flat



SOLIDDRILL

MULTI-MASTER

MM ECS

Interchangeable Solid Carbide Centering Drills (DIN 332)



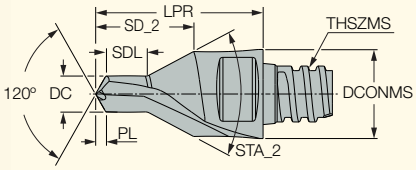


Fig. 1 Type A

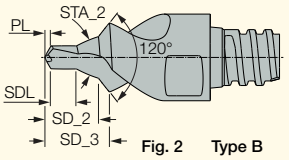
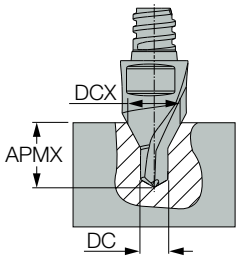


Fig. 2 Type B

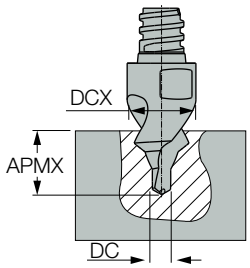
Designation	Dimensions										IC908
	DC	DCONMS	THSZMS	LPR	SDL	SD_2	SD_3	STA_2	PL	Fig.	
MM ECS-A1.00X06-2T04	1.07	6.00	T04	10.00	1.32	4.14	-	60.0	0.280	1	●
MM ECS-A1.60X06-2T04	1.65	6.00	T04	10.00	1.97	4.45	-	60.0	0.430	1	●
MM ECS-A2.00X06-2T04	2.07	6.00	T04	10.00	2.36	6.37	-	60.0	0.540	1	●
MM ECS-A3.15X08-2T05	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 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184



	ISO	IC908 *Vcxfz [m/minxmm/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 *Vcxfz [m/minxmm/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

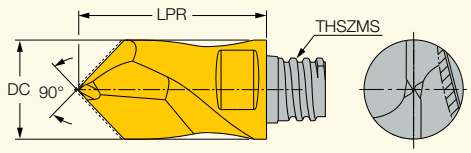
* V_c Calculated for ØDC

SOLIDDRILL
MULTI-MASTER

MM ECD

NC Spotting Drills for Accurately Locating a Hole without Using a Guide Bushing





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

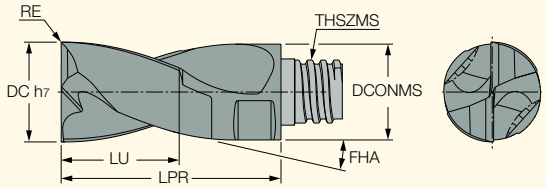
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection

SOLIDDRILL
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	12.00	22.00	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 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Number of flutes

ISO	Material		Condition	Tensile Strength [N/mm²]	Kc1(1) [N/mm²]	mc(2)	Hardness HB	Material Group No.	V m/min	Feed vs. Flat-Drill Diameter DC=18.0-25.4 frev mm/rev	DC=16.0-17.9	DC=13.0-15.9	DC=10.0-12.9	DC=8.0-9.9
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	1350	0.21	125	1	80-110-140	0.08	0.10	0.12	0.14	0.18
		>= 0.25 %C	Annealed	650	1500	0.22	190	2		0.10	0.12	0.15	0.17	0.21
		< 0.55 %C	Quenched and tempered	850	1675	0.24	250	3		0.12	0.14	0.18	0.20	0.24
		>= 0.55 %C	Annealed	750	1700	0.24	220	4						
			Quenched and tempered	1000	1900	0.24	300	5	80-105-130					
	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	60-80-100					
				1000	1725	0.24	300	8						
				1200	1800	0.24	350	9		0.06	0.06	0.08	0.10	0.12
	High alloyed steel, cast steel and tool steel		Annealed	680	2450	0.23	200	10		0.08	0.08	0.10	0.12	0.14
			Quenched and tempered	1100	2500	0.23	325	11		0.10	0.10	0.12	0.14	0.16
	Stainless steel and cast steel		Ferritic/ martensitic	680	1875	0.21	200	12	60-80-100	0.01	0.02	0.03	0.04	0.06
			Martensitic	820	1875	0.21	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	2150	0.20	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	Grey cast iron (GG)		Ferritic/ pearlitic		1150	0.20	180	17	80-120-160					
			Pearlitic / martensitic		1350	0.28	260	18		0.08	0.10	0.14	0.16	0.18
	Cast iron nodular (GGG)		Ferritic		1225	0.25	160	15		0.10	0.12	0.16	0.18	0.20
			Pearlitic		1350	0.28	250	16		0.12	0.14	0.18	0.20	0.22
	Malleable cast iron		Ferritic		1225	0.25	130	19						
			Pearlitic		1420	0.30	230	20						

■ recommended cutting data

Spare Parts

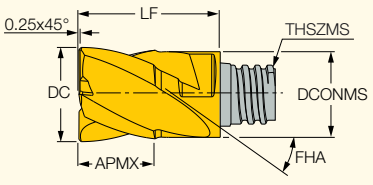
Designation	
MM ECDF080A100-2T05	MM KEY 6X4*
MM ECDF100A120-2T06	MM KEY 8X5*
MM ECDF120A150-2T08	MM KEY 10X7*
MM ECDF160A200-2T10	MM KEY 13X8*
MM ECDF200A250-2T12	MM KEY 16X9*

* Optional, should be ordered separately

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	45.0	0.25	●	0.03-0.04
MM EFCB140A11-4T08	14.00	11.50	28.00	12.00	T08	4	30.0	45.0	0.25	●	0.04-0.05

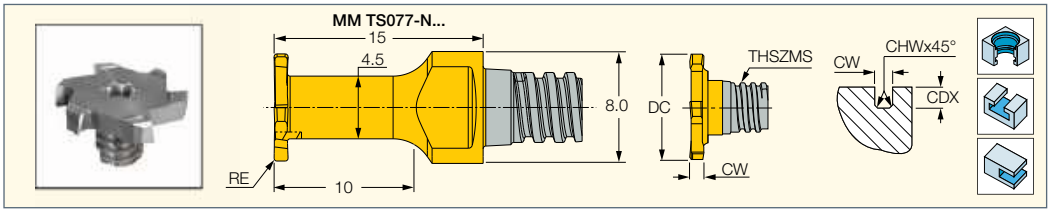
- 0.06 mm maximum concavity on the tool's bottom • For shanks, see pages 84-91
- For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

(1) e8 tolerance
(2) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TS-N

Interchangeable Solid Carbide
T-Slot Milling Heads



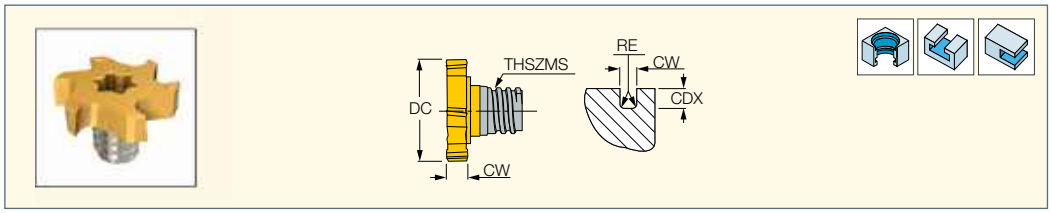
Designation	Dimensions DC	DCTOLL	CW	NOF(1)	THSZMS	CDX(2)	RE	CHW			Tough ↔ Hard IC328	IC928	IC908
MM TS077-N07A-4T05	7.70	-0.05	0.70	4	T05	1.20	0.20	-	MM KEY 6X4*				●
MM TS077-N08A-4T05	7.70	-0.05	0.80	4	T05	1.20	0.20	-	MM KEY 6X4*				●
MM TS077-N09A-4T05	7.70	-0.05	0.90	4	T05	1.20	0.20	-	MM KEY 6X4*				●
MM TS077-N10A-4T05	7.70	-0.05	1.00	4	T05	1.20	0.20	-	MM KEY 6X4*				●
MM TS077-N15A-4T05	7.70	-0.05	1.50	4	T05	1.20	0.20	-	MM KEY 6X4*				●
MM TS077-N20A-4T05	7.70	-0.05	2.00	4	T05	1.20	0.20	-	MM KEY 6X4*				●
MM TS105-N20D-06T04	10.50	-0.05	2.00	6	T04	2.00	0.40	-		T-15/3*		●	
MM TS.500-N062P-06T05	12.70	-0.05	1.58	6	T05	2.25	-	0.15		T-20/3*	●		●
MM TS.500-N078P-06T05	12.70	-0.05	1.98	6	T05	2.25	-	0.15		T-20/3*	●		●
MM TS135-N20P-06T05	13.50	-0.05	2.00	6	T05	2.65	-	0.20		T-20/3*	●		●
MM TS135-N25P-06T05	13.50	-0.05	2.50	6	T05	2.65	-	0.20		T-20/3*	●		●

• For shanks, see pages 84-91 • For tightening torques and clamping instructions, see pages 91-92 • Do not apply lubricant to the threaded connection
• For user guide see pages 44, 177-184
(1) Number of flutes
(2) Cutting depth maximum
* Optional, should be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TS-H

Interchangeable Solid Carbide
T-Slot Milling Heads with
Various Corner Radii



Designation	Dimensions DC	DCTOLL	CW	CDX(1)	NOF(2)	RE	THSZMS		Tough ↔ Hard IC328	IC908
MM TS135-H30D-06T05	13.50	-0.05	3.00	2.65	6	0.40	T05	T-20/3*	●	●
MM TS135-H40D-06T05	13.50	-0.05	4.00	2.65	6	0.40	T05	T-20/3*	●	●
MM TS165-H40A-06T05	16.50	-0.05	4.00	4.25	6	0.20	T05	T-20/3*	●	●
MM TS160-H20D-06T06	16.00	-0.05	2.00	3.00	6	0.40	T06	T-20/3*	●	●
MM TS160-H30D-06T06	16.00	-0.05	3.00	3.00	6	0.40	T06	T-25/3*	●	●
MM TS160-H40D-06T06	16.00	-0.05	4.00	3.00	6	0.40	T06	T-25/3*	●	●
MM TS165-H20D-06T06	16.50	-0.05	2.00	3.25	6	0.40	T06	T-20/3*	●	●
MM TS165-H30D-06T06	16.50	-0.05	3.00	3.25	6	0.40	T06	T-25/3*	●	●
MM TS165-H40D-06T06	16.50	-0.05	4.00	3.25	6	0.40	T06	T-25/3*	●	●
MM TS195-H60A-06T06	19.50	-0.05	6.00	4.45	6	0.20	T06	T-25/3*	●	●
MM TS225-H60A-06T06	22.50	-0.05	6.00	5.95	6	0.20	T06	T-25/3*	●	●
MM TS195-H40D-06T08	19.50	-0.05	4.00	3.45	6	0.40	T08	T-30/3 L*	●	●
MM TS195-H50D-06T08	19.50	-0.05	5.00	3.45	6	0.40	T08	T-30/3 L*	●	●
MM TS195-H60D-06T08	19.50	-0.05	6.00	3.45	6	0.40	T08	T-30/3 L*	●	●
MM TS225-H40D-06T08	22.50	-0.05	4.00	4.90	6	0.40	T08	T-40/3 L*	●	●
MM TS225-H50D-06T08	22.50	-0.05	5.00	4.95	6	0.40	T08	T-40/3 L*	●	●
MM TS225-H60D-06T08	22.50	-0.05	6.00	4.95	6	0.40	T08	T-40/3 L*	●	●
MM TS225-H80D-06T08	22.50	-0.05	8.00	4.95	6	0.40	T08	T-40/3 L*	●	●
MM TS250-H50D-06T08	25.00	-0.05	5.00	5.90	6	0.40	T08	T-50/3 L*	●	●
MM TS250-H60D-06T08	25.00	-0.05	6.00	5.90	6	0.40	T08	T-50/3 L*	●	●
MM TS250-H80D-06T08	25.00	-0.05	8.00	5.90	6	0.40	T08	T-50/3 L*	●	●
MM TS250-H50D-06T10	25.00	-0.05	5.00	4.30	6	0.40	T10	T-50/3 L*	●	●
MM TS250-H60D-06T10	25.00	-0.05	6.00	4.30	6	0.40	T10	T-50/3 L*	●	●
MM TS250-H80D-06T10	25.00	-0.05	8.00	4.30	6	0.40	T10	T-50/3 L*	●	●

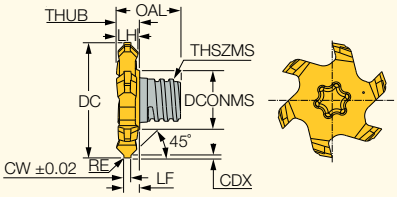
• Inserts in 5 mm and wider feature chip splitting edges • For tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection • For shanks, see pages 84-91 • For user guide see pages 44, 177-184
(1) Cutting depth maximum
(2) Number of flutes
* Optional, should be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TS-C

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





Designation	Dimensions DC	CW	CDX	LF	t	RE	THUB	LH	OAL	DCONMS	NOF(1)	THSZMS		IC928
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		●

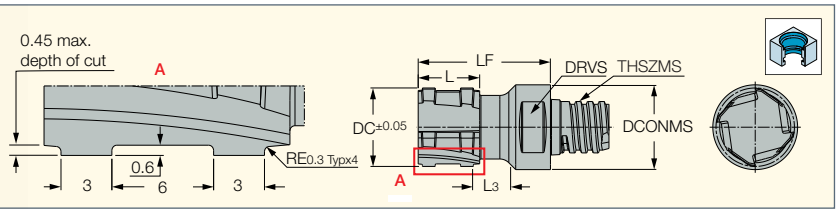
• For shanks, see pages 84-91 • For tightening torques and clamping instructions, see pages 91-92 • Do not apply lubricant to the threaded connection
• For user guide see pages 44, 177-184
(1) Number of flutes
* Optional, should be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TS-DG

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





Designation	Dimensions DC	DCONMS	PHD(1)	THSZMS	NOF(2)	LF	L3	L	DRVS(3)		IC908
MM TS155-04T10-8238	15.50	16.00	15.88	T10	4	34.00	18.10	14.10	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	23.90	25.40	T15	4	37.40	11.00	14.40	20.0	MM KEY 20*	●

• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection • For user guide see pages 44, 177-184
(1) For minimum tube outer diameter
(2) Number of flutes
(3) Clamping wrench size
* Optional, should be ordered separately

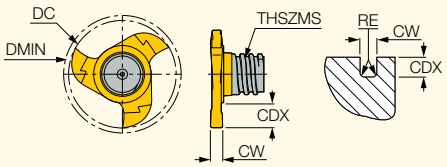


MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM GRIT-16K/P,18K/P

Interchangeable Solid Carbide Small Diameter Groove Milling Heads





Designation	Dimensions								IC528
	DC	CW	CDX[2]	NOF[3]	RE	DMIN[4]	THSZMS		
MM GRIT 16K-1.50-0.10	15.70	1.50	2.80	3	0.10	16.00	T06	MM EGR 16-18*	●
MM GRIT 16P-1.50-0.10	15.70	1.50	2.80	3	0.10	16.00	T06	MM EGR 16-18*	●
MM GRIT 16K-1.57-0.20	15.70	1.57	2.80	3	0.20	16.00	T06	MM EGR 16-18*	●
MM GRIT 16K-2.00-0.20	15.70	2.00	2.80	3	0.20	16.00	T06	MM EGR 16-18*	●
MM GRIT 16P-2.20-1.10	15.70	2.20	2.80	3	1.10	16.00	T06	MM EGR 16-18*	●
MM GRIT 16K-2.39-0.20	15.70	2.39	2.80	3	0.20	16.00	T06	MM EGR 16-18*	●
MM GRIT 16K-2.50-0.20	15.70	2.50	2.80	3	0.20	16.00	T06	MM EGR 16-18*	●
MM GRIT 16K-3.00-0.20	15.70	3.00	2.80	3	0.20	16.00	T06	MM EGR 16-18*	●
MM GRIT 16P-3.00-0.20	15.70	3.00	2.80	3	0.20	16.00	T06	MM EGR 16-18*	●
MM GRIT 16K-3.17-0.20	15.70	3.17	2.80	3	0.20	16.00	T06	MM EGR 16-18*	●
MM GRIT 18K-1.20-0.05 [1]	17.70	1.20	3.80	3	0.05	18.00	T06	MM EGR 16-18*	●
MM GRIT 18P-1.20-0.60	17.70	1.20	3.80	3	0.60	18.00	T06	MM EGR 16-18*	●
MM GRIT 18K-1.40-0.05 [1]	17.70	1.40	3.80	3	0.05	18.00	T06	MM EGR 16-18*	●
MM GRIT 18K-1.50-0.10	17.70	1.50	3.80	3	0.10	18.00	T06	MM EGR 16-18*	●
MM GRIT 18K-1.57-0.20	17.70	1.57	3.80	3	0.20	18.00	T06	MM EGR 16-18*	●
MM GRIT 18K-1.70-0.05 [1]	17.70	1.70	3.80	3	0.05	18.00	T06	MM EGR 16-18*	●
MM GRIT 18K-2.00-0.20	17.70	2.00	3.80	3	0.20	18.00	T06	MM EGR 16-18*	●
MM GRIT 18P-2.00-1.00	17.70	2.00	3.80	3	1.00	18.00	T06	MM EGR 16-18*	●
MM GRIT 18P-2.20-1.10	17.70	2.20	3.80	3	1.10	18.00	T06	MM EGR 16-18*	●
MM GRIT 18K-2.39-0.20	17.70	2.39	3.80	3	0.20	18.00	T06	MM EGR 16-18*	●
MM GRIT 18K-2.50-0.20	17.70	2.50	3.80	3	0.20	18.00	T06	MM EGR 16-18*	●
MM GRIT 18K-3.00-0.20	17.70	3.00	3.80	3	0.20	18.00	T06	MM EGR 16-18*	●
MM GRIT 18P-3.00-1.50	17.70	3.00	3.80	3	1.50	18.00	T06	MM EGR 16-18*	●
MM GRIT 18K-3.17-0.20	17.70	3.17	3.80	3	0.20	18.00	T06	MM EGR 16-18*	●

- Recommended for O-rings and retaining rings • MM EGR clamping key is supplied with each MM GRT... shank • Modification options on request
- Do not apply lubricant to the threaded connection • For clamping instructions, see pages 91-92
- For shanks, see pages 84-91 • K - For general steel machining • P - Positive geometry for soft and gummy materials • Use carbide shanks for groove milling heads.
- Keys for other milling heads must be ordered separately. • MM GRT.. shanks serve mainly for MM GRIT.. slitting heads.
- K-Type - For general steel machining. • P-Type - Positive geometry for soft and gummy materials. • For user guide see pages 44, 177-184

[1] For circle clips according to DIN 471/472 and ANSI B27.7M
[2] Cutting depth maximum
[3] Number of flutes
[4] Minimum bore diameter
* Optional, should be ordered separately

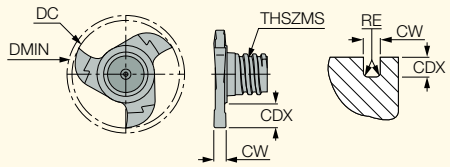


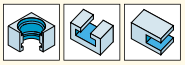
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM GRIT-16K/P,18K/P 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-25/3*	●
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 91-92 • For shanks, see pages 84-91 • K-Type - For general steel machining
- P-Type - Positive geometry for soft and gummy materials • Use carbide shanks for groove milling heads. • Keys for other milling heads must be ordered separately.
- MM GRT.. shanks serve mainly for MM GRIT.. slitting heads. • K-Type - For general steel machining. • P-Type - Positive geometry for soft and gummy materials.
- For user guide see pages 44, 177-184

(1) Cutting depth maximum
(2) Number of flutes
(3) Minimum bore diameter
* Optional, should be ordered separately

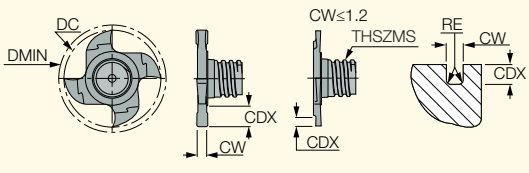


MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM GRIT-22K/P,28K/P 4T8/6T10

Interchangeable Solid Carbide Small Diameter Groove Milling Heads





Designation	Dimensions DC	CW	CDX(1)	NOF(2)	RE	DMIN(3)	THSZMS			IC908
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	0.20	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 91-92
- For shanks, see pages 84-91 • Use carbide shanks for groove milling heads.
- Keys for other milling heads must be ordered separately.
- MM GRT.. shanks serve mainly for MM GRIT.. slitting heads. • K-Type - For general steel machining. • P-Type - Positive geometry for soft and gummy materials.
- For user guide see pages 44, 177-184

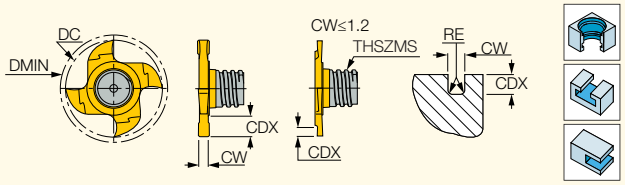
(1) Cutting depth maximum
(2) Number of flutes
(3) Minimum bore diameter
* Optional, should be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM GRIT-22K/P,28K/P

Interchangeable Solid Carbide Small Diameter Groove Milling Heads





Designation	Dimensions DC	CW	CDX(2)	NOF(3)	RE	DMIN(4)	THSZMS	∠	IC528
MM GRIT 22K-0.76-0.00 (1)	21.70	0.76	1.50	4	0.00	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-0.86-0.00 (1)	21.70	0.86	1.70	4	0.00	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-0.96-0.00 (1)	21.70	0.96	1.90	4	0.00	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-1.00-0.05	21.70	1.00	2.00	4	0.05	22.00	T08	MM EGR 20-22*	•
MM GRIT 22P-1.00-0.05	21.70	1.00	2.00	4	0.05	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-1.20-0.05 (1)	21.70	1.20	4.50	4	0.05	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-1.40-0.05 (1)	21.70	1.40	4.50	4	0.05	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-1.57-0.00	21.70	1.57	4.50	4	0.00	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-1.70-0.10 (1)	21.70	1.70	4.50	4	0.10	22.00	T08	MM EGR 20-22*	•
MM GRIT 22P-1.70-0.10 (1)	21.70	1.70	4.50	4	0.10	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-1.95-0.20 (1)	21.70	1.95	4.50	4	0.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-2.00-0.20	21.70	2.00	4.50	4	0.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22P-2.00-0.20	21.70	2.00	4.50	4	0.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-2.25-0.20 (1)	21.70	2.25	4.50	4	0.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-2.39-0.20	21.70	2.39	4.50	4	0.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-2.50-0.20	21.70	2.50	4.50	4	0.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22P-2.50-0.20	21.70	2.50	4.50	4	0.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-2.75-0.20 (1)	21.70	2.75	4.50	4	0.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-3.00-0.20	21.70	3.00	4.50	4	0.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22P-3.00-0.20	21.70	3.00	4.50	4	0.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-3.17-0.20	21.70	3.17	4.50	4	0.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-3.25-0.20 (1)	21.70	3.25	4.50	4	0.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22P-3.81-0.20	21.70	3.81	4.50	4	0.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-4.00-0.20	21.70	4.00	4.50	4	0.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22P-4.00-0.20	21.70	4.00	4.50	4	0.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22P-4.00-2.00	21.70	4.00	4.50	4	2.00	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-4.25-0.20 (1)	21.70	4.25	4.50	4	0.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-4.25-1.20 (1)	21.70	4.25	4.50	4	1.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-4.75-0.20	21.70	4.75	4.50	4	0.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-5.25-0.20 (1)	21.70	5.25	4.50	4	0.20	22.00	T08	MM EGR 20-22*	•
MM GRIT 22K-6.00-3.00	21.70	6.00	4.50	4	3.00	22.00	T08	MM EGR 20-22*	•
MM GRIT 28K-2.50-0.2	27.70	2.50	6.00	6	0.20	28.00	T10	T-40/3 L*	•
MM GRIT 28K-5.25-0.2	27.70	5.25	6.00	6	0.20	28.00	T10	T-40/3 L*	•
MM GRIT 28P-7.0-3.5	27.70	7.00	5.70	6	3.50	28.00	T10	T-40/3 L*	•
MM GRIT 28K-10.0-0.2	27.70	10.00	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 91-92
- For user guide see pages 542-548 • For shanks, see pages 84-91 • Use carbide shanks for groove milling heads.
- Keys for other milling heads must be ordered separately.
- MM GRT.. shanks serve mainly for MM GRIT.. slitting heads. • K-Type - For general steel machining. • P-Type - Positive geometry for soft and gummy materials.
- For user guide see pages 44, 177-184

(1) For circle clips according to DIN471/472 and ANSI B27.7M
(2) Cutting depth maximum
(3) Number of flutes
(4) Minimum bore diameter
* Optional, should be ordered separately

Machining Data for MULTI-MASTER Groove Milling Heads

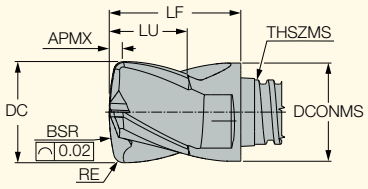
ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Material No.	MM-TS			MM-GRIT K-TYPE			MM-GRIT P-TYPE		
							Speed	Feed mm/t		Speed	Feed mm/t		Speed	Feed mm/t	
							V m/min	$F_{z\ (min)}$	$F_{z\ (max)}$	V m/min	$F_{z\ (min)}$	$F_{z\ (max)}$	V m/min	$F_{z\ (min)}$	$F_{z\ (max)}$
P	Non-alloy 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
NEOBARREL PROFILE MILLING

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	8.00	4	10.00	●
MM ELB10R20A07-4T06	10.00	20.00	1.00	7.50	1.42	T06	10.00	4	13.00	●
MM ELB12R24A09-4T08	12.00	24.00	1.00	9.00	1.55	T08	12.00	4	16.50	●
MM ELB16R32A12-4T10	16.00	32.00	1.00	12.00	1.80	T10	16.00	4	20.50	●

• For user guide see pages 44, 177-184

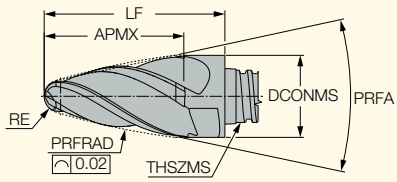
(1) Number of flutes

MULTI-MASTER INDEXABLE SOLID CARBIDE LINE
NEOBARREL PROFILE MILLING

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 EOB12R2.0R75A21-4T08	75.00	2.00	21.30	24.00	T08	4	12.00	27.00	●
MM EOB10R2.0R85A16-4T06	85.00	2.00	16.50	24.00	T06	4	10.00	22.00	●
MM EOB16R3.0R75A26-4T10	75.00	3.00	27.00	24.00	T10	4	16.00	33.40	●

• For user guide see pages 44, 177-184

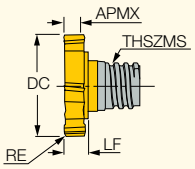
(1) Number of flutes

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 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

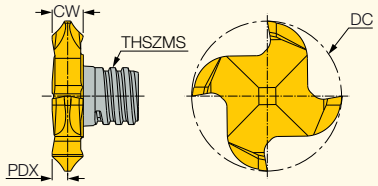
* Optional, should be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM SS

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







Designation	Dimensions								IC528
	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 EGR 20-22*	●
MM SS22M100Z2125-4T08	1.00	21-25	21.70	2.3	4.50	4	T08	MM EGR 20-22*	●
MM SS22M150Z1720-4T08	1.50	17-20	21.70	2.7	5.40	4	T08	MM EGR 20-22*	●

• MM EGR 20-22 clamping keys are supplied with each MM GRT... shanks • Tightening torque 1500 Nxcm • Do not apply lubricant to the threaded connection.
• For clamping instructions, see pages 91-92 • For user guide see pages 44, 177-184 • For shanks, see pages 84-91

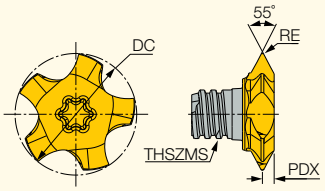
(1) Teeth range
(2) Number of flutes
* Optional, should be ordered separately

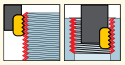
SOLIDTHREAD
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

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]	Standard	
MM TRF12-W55-P11-5T05	11.94	5	11.00	14.00	0.23	1.15	T05	15.875	13.60	7.0	DIN/ISO 228, B.S. 84	●
MM TRF12-W55-P19-5T05	11.94	5	19.00	28.00	0.11	0.75	T05	14.287	13.10	10.0	DIN/ISO 228, B.S. 84	●
MM TRF16-W55-P8-5T06	15.94	5	8.00	14.00	0.23	1.55	T06	20.637	18.30	15.0	DIN/ISO 228, B.S. 84	●
MM TRF20-W55-P6-6T08	19.94	6	6.00	8.00	0.40	1.95	T08	25.4	21.30	28.0	DIN/ISO 228, B.S. 84	●

• For ISO metric thread (ISO 68, DIN13, ANSI B 1.13M-1983) • For shanks, see pages 84-91 • For clamping instructions, see pages 91-92
• 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*

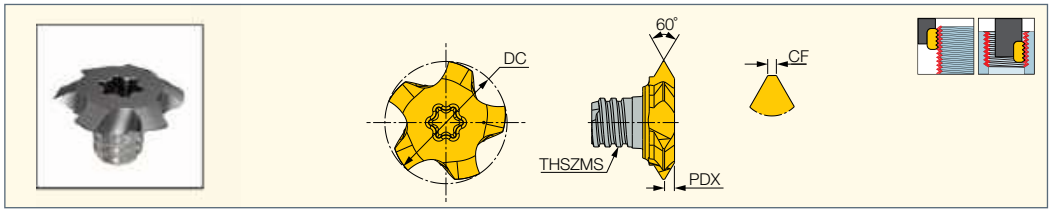
* Optional, should be ordered separately

SOLIDTHREAD

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)	TTP	TTP_DF2	TPN(2)	TPX(3)	TPN_DF2	TPX_DF2	TPIN(4)	TPIX(5)	TPIN_DF2	TPIX_DF2
MM TRF12A60-P080-5T05	11.94	5	INT	EXT	0.500	0.800	0.400	0.800	28.00	56.00	32.00	64.00
MM TRF12A60-P175-5T05	11.94	5	INT	EXT	1.000	1.750	0.800	1.500	14.00	28.00	16.00	32.00
MM TRF12A60-P250-5T05	11.94	5	INT	EXT	2.000	2.500	1.750	2.000	10.00	13.00	11.00	15.00
MM TRF16A60-P080-5T06	15.94	5	INT	EXT	0.500	0.800	0.400	0.800	28.00	56.00	32.00	64.00
MM TRF16A60-P175-5T06	15.94	5	INT	EXT	1.000	1.750	0.800	1.500	14.00	28.00	16.00	32.00
MM TRF16A60-P300-5T06	15.94	5	INT	EXT	2.000	3.000	1.750	2.500	8.00	13.00	10.00	15.00
MM TRF20A60-P200-6T08	19.94	6	INT	EXT	1.000	2.000	0.800	1.750	13.00	28.00	15.00	32.00
MM TRF20A60-P300-6T08	19.94	6	INT	EXT	2.000	3.000	1.750	2.500	8.00	13.00	10.00	15.00
MM TRF20A60-P400-6T08	19.94	6	INT	EXT	3.000	4.000	2.500	3.500	6.00	9.00	7.00	10.00
MM TRF28A60-P600-5T10	27.70	5	INT	EXT	5.000	6.000	4.500	5.000	4.00	5.00	5.00	6.00
MM TRF28A60-P500-6T10	27.70	6	INT	EXT	3.000	5.000	2.500	4.500	6.00	8.00	6.00	10.00

Designation	CF	PDX	THSZMS	TDZ(6)	TQ	DMIN	Standard	IC908
MM TRF12A60-P080-5T05	0.05	0.55	T05	M14	7.0	13.50	ISO 68, DIN 13	●
MM TRF12A60-P175-5T05	0.11	0.96	T05	M14	7.0	13.00	ISO 68, DIN 13	●
MM TRF12A60-P250-5T05	0.22	1.21	T05	M16	7.0	14.00	ISO 68, DIN 13	●
MM TRF16A60-P080-5T06	0.05	0.55	T06	M18	10.0	17.50	ISO 68, DIN 13	●
MM TRF16A60-P175-5T06	0.10	1.00	T06	M18	10.0	17.00	ISO 68, DIN 13	●
MM TRF16A60-P300-5T06	0.22	1.41	T06	M20	10.0	18.00	ISO 68, DIN 13	●
MM TRF20A60-P200-6T08	0.11	0.95	T08	M24	10.0	23.00	ISO 68, DIN 13	●
MM TRF20A60-P300-6T08	0.22	1.41	T08	M24	15.0	22.00	ISO 68, DIN 13	●
MM TRF20A60-P400-6T08	0.31	1.86	T08	M25	15.0	22.00	ISO 68, DIN 13	●
MM TRF28A60-P600-5T10	0.57	2.49	T10	M38	28.0	33.00	ISO 68, DIN 13	●
MM TRF28A60-P500-6T10	0.34	2.17	T10	M33	28.0	30.00	ISO 68, DIN 13	●

- For ISO metric thread (ISO 68, DIN13, ANSI B 1.13M-1983) • For shanks, see pages 84-91 • For clamping instructions, see pages 91-92
- 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

Spare Parts

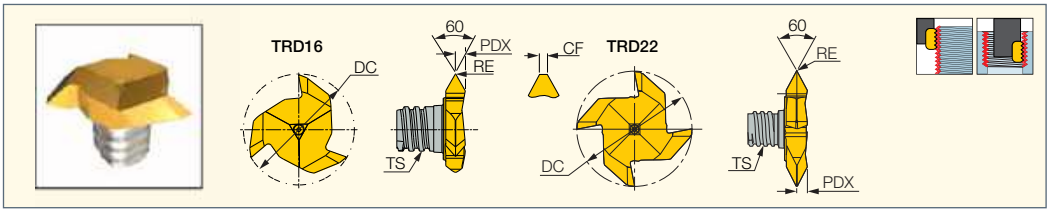
Designation	
MM TRF12A60-P080-5T05	BIT SOCKET T20 3/8" DRIVE*
MM TRF12A60-P175-5T05	BIT SOCKET T20 3/8" DRIVE*
MM TRF12A60-P250-5T05	BIT SOCKET T20 3/8" DRIVE*
MM TRF16A60-P080-5T06	BIT SOCKET T20 3/8" DRIVE*
MM TRF16A60-P175-5T06	BIT SOCKET T25 3/8" DRIVE*
MM TRF16A60-P300-5T06	BIT SOCKET T25 3/8" DRIVE*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

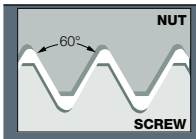
* Optional, should be ordered separately

SOLIDTHREAD
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TRD-M

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





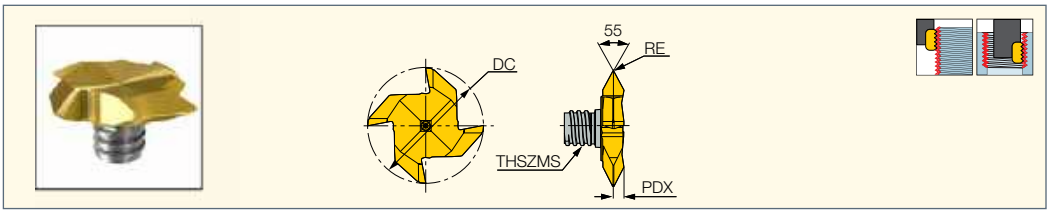
Designation	Dimensions												IC528
	DC	NOF(1)	TPN(2)	TPX(3)	RE	CF	PDX	THSZMS	TDZ(4)	DMIN	Standard		
MM TRD16-M60-05P-3T06	15.70	3	0.500	2.000	- (5)	0.05	1.4	T06	M20	19.05	ISO 68, DIN 13	MM EGR 16-18*	●
MM TRD16-M60-15P-3T06	15.70	3	1.500	2.000	0.05	-	1.4	T06	M22	19.05	ISO 68, DIN 13	MM EGR 16-18*	●
MM TRD22-M60-30P-4T08	21.70	4	3.000	4.500	0.20	-	2.4	T08	M36	31.00	ISO 68, DIN 13	MM EGR 20-22*	●

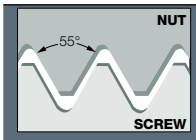
• For ISO metric thread (ISO 68, DIN13, ANSI B 1.13M-1983) • For shanks, see pages 84-91 • For clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection.
(1) Number of flutes
(2) Thread pitch minimum (mm)-internal
(3) Thread pitch maximum (mm)-internal
(4) Thread pitch minimum (mm)-external
* Optional, should be ordered separately

SOLIDTHREAD
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TRD-W

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





Designation	Dimensions											IC528
	DC	NOF(1)	RE	PDX	TPIN(2)	TPIX(3)	THSZMS	TDZ(4)	DMIN	Standard		
MM TRD22-W55-14P-4T08	21.70	4	0.20	2.0	11.00	14.00	T08	G3/4	24.20	DIN ISO 228, B.S. 84	MM EGR 20-22*	●

• For shanks, see pages 84-91 • For clamping instructions, see pages 91-92 • Do not apply lubricant to the threaded connection.
(1) Number of flutes
(2) Threads per inch minimum-internal
(3) Threads per inch maximum-internal
(4) Threads per inch minimum-external
* Optional, should be ordered separately



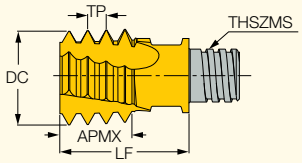
SOLIDTHREAD

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MT-ISO-MM

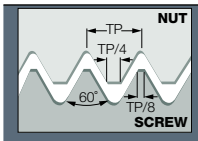
Carbide Milling Heads with a Threaded Connection for Internal ISO Metric Thread







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 98	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.
There is a possibility that the customer will receive the old item (with TORX) until the stock is depleted.

• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92

• Do not apply lubricant to the threaded connection

[1] Thread pitch

[2] Number of flutes

* Optional, should 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

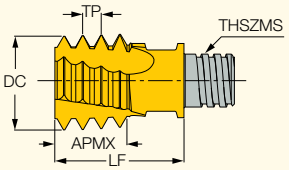
SOLIDTHREAD

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MT-UN-MM

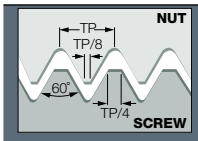
Carbide Milling Heads with a Threaded Connection for Internal UN Thread Profile







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.

There is a possibility that the customer will receive the old item (with TORX) until the stock is depleted.

- For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection

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



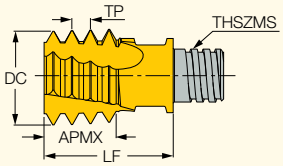
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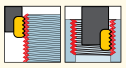
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MT-W-MM

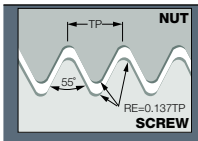
Carbide Milling Heads with a Threaded Connection for Internal and External 55° BSW Thread Profile







Application: General engineering fittings and pipe couplings



Designation	Dimensions TPI[1]	TDZ	DC	NOF[2]	APMX	LF	THSZMS	TP[3]	IC908
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.
There is a possibility that the customer will receive the old item (with TORX) until the stock is depleted.
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection
(1) Threads per inch
(2) Number of flutes
(3) Thread pitch







Thread Size	Key [1]	Torque Wrench [1]	Wrench [1]	Tightening Torque (Nxcm)
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

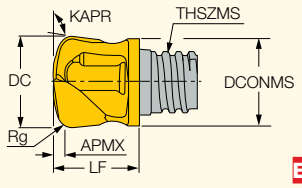
MULTI FEED MASTER

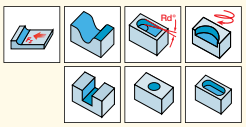
SOLID FEED MILL

MM FF

Interchangeable 2 Flute FEEDMILL Solid Carbide Heads for Milling at Very Fast Feeds and Small D.O.C.







ECONOMICAL SOLUTION

Designation	Dimensions DC	NOF[1]	APMX	Rg[2]	THSZMS	DCONMS	LF	KAPR[3]	RMPX°[4]	Tough ↔ Hard IC908	IC903	Recommended Machining Data f_z (mm/t)
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 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(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

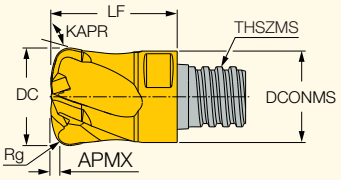
Milling
a_p = 0.2 mm
a_e = 6 mm
V_c = 150 m/min
F_z = 1.4 mm/tooth
V_f = 8355
T = 60 min

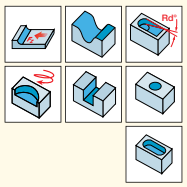
MULTIFEED MASTER
SOLIDFEED MILL

MM EFF

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







Designation	Dimensions DC	NOF[3]	APMX	THSZMS	DCONMS	LF	RMPX°[4]	KAPR[5]	Rg[6]	CSP[7]	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 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 EFF100T2R1.0-6T06H [1]	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 [1]	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 EFF120T2R1.2-6T08H [1]	12.00	6	0.65	T08	11.50	12.50	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 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 [1]	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 EFF160T4R2.0-6T10H [1]	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 EFF200T5R2.2-6T12H [1]	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 [2]	25.00	6	1.20	T15	23.90	25.00	5.0	97.0	3.10	0		•	0.25-1.00
MM EFF254A7R3.1-6T15 [2]	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 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

[1] With a central coolant hole
[2] Cannot be used for plunging application
[3] Number of flutes
[4] Maximum ramping angle
[5] Tool cutting edge angle
[6] Radius for programming
[7] 0 - Without coolant supply, 1 - With coolant supply

Machining Recommendations

VDI 3323	Material Group[1]	V_c (m/min)	a_p	AE	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	Apmax	0.7xD	0.45	0.52	0.60	0.70	0.80	0.90
	17-18	160	Apmax	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

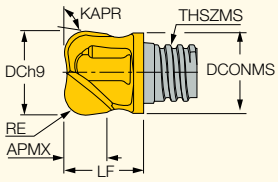
a_p - Depth of cut
AE - Width of cut

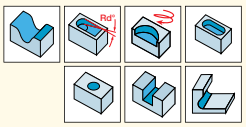
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

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	•	

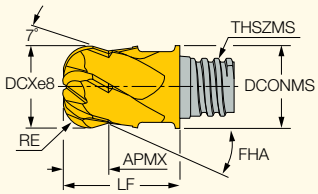
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Number of flutes
(2) Specially tailored radius range upon request
(3) Tool cutting edge angle

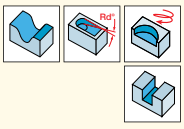
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM ETR

Torodial 2 Flute Interchangeable Solid Carbide Milling Heads







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

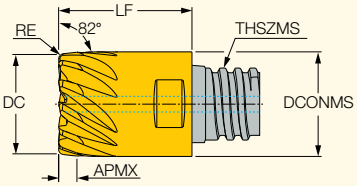
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Cutting diameter maximum
(2) Number of flutes
(3) Maximum ramping angle

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM ET

Solid Carbide Tapered Heads with 20/30° Helix, Variable Pitch and Coolant Holes for CHATTERFREE 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

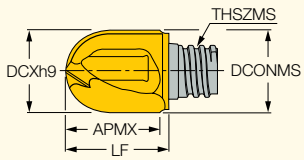
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Number of flutes
(2) Maximum ramping angle

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	●

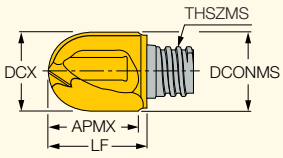
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Cutting diameter maximum
(2) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM HRF

Interchangeable 2 Flute Solid Carbide Ball Nose Finish 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		●

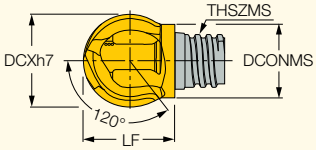
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Cutting diameter maximum
(2) Number of flutes

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*	●

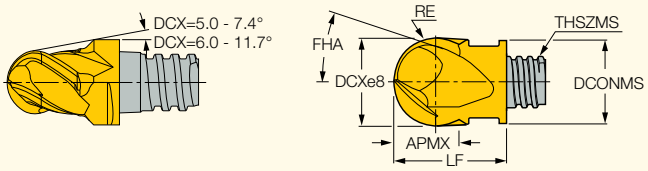
• For shanks, see pages 84-91 • For tightening torques and clamping instructions, see pages 91-92 • Do not apply lubricant to the threaded connection.
• For user guide see pages 44, 177-184
(1) Cutting diameter maximum
(2) Number of flutes
* Optional, should be ordered separately

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	IC908
MM EB050E07-4T05	5.00	4	7.00	2.49	T05	8.00	15.00	38.0	●
MM EB060E04-4T04	6.00	4	4.00	2.99	T04	5.80	7.60	37.0	●
MM EB060E05-4T05	6.00	4	5.00	2.99	T05	8.00	10.00	38.0	●
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	●

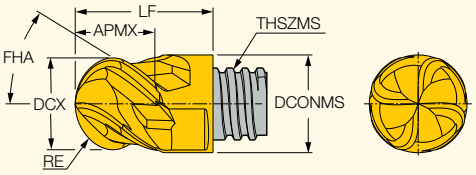
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) With coolant holes directed to each flute
(2) Cutting diameter 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 EBC100B07-4T06CF	10.00	4	7.40	4.98	T06	9.60	13.00	45.0	●
MM EBC120B09-4T08CF	12.00	4	9.30	5.98	T08	11.70	16.50	45.0	●
MM EBC160B12-4T10CF	16.00	4	12.40	7.98	T10	15.30	20.50	45.0	●
MM EBC200B15-4T12CF	20.00	4	16.00	9.97	T12	18.45	25.50	45.0	●

- For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

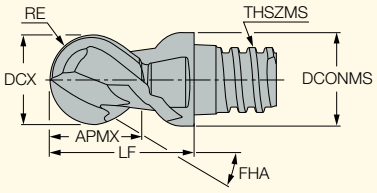
(1) Cutting diameter maximum
(2) Number of flutes
* Optional, should be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EBA

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 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

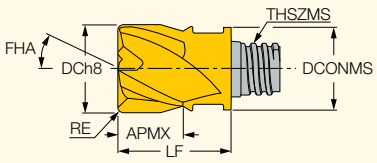
(1) Cutting diameter maximum
(2) Number of flutes
(3) Corner radius tolerance (+/-)

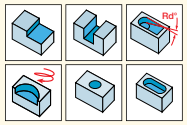
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM ECU

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







Designation	Dimensions								IC908	Recommended Machining Data
	DC	NOF(1)	APMX	RE	THSZMS	DCONMS	LF	FHA		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 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

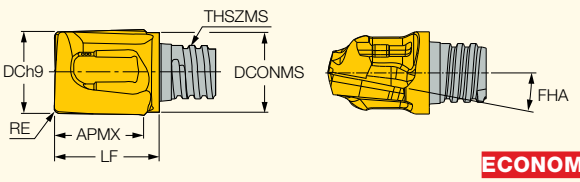
(1) Number of flutes

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 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

(1) Number of flutes

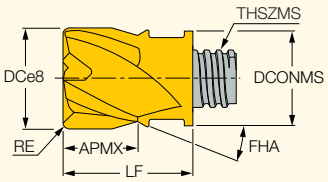
(2) Specially tailored radius range, available upon request.

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 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 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

(1) With coolant holes directed to each flute

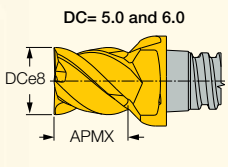
(2) Number of flutes

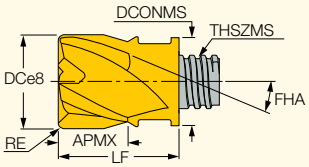
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

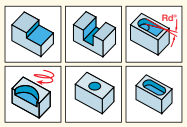
MM EC-4

Interchangeable 4 Flute Solid Carbide Endmill Heads with 30° and 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 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

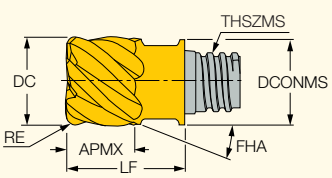
(1) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EC-6

Interchangeable 6 Flute Solid Carbide Endmill Heads with 30° and 45° Helix and Various Corner Radii





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

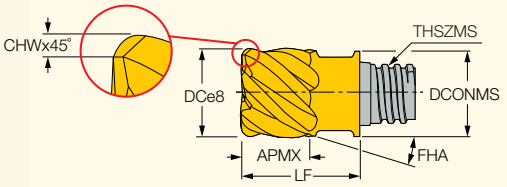
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Number of flutes
(2) Maximum ramping angle

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

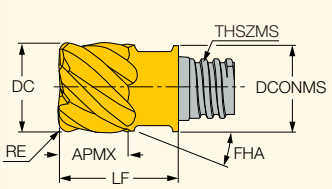
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Number of flutes
(2) Maximum ramping angle

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EC-8/10

Interchangeable 8, 10 Flute Solid Carbide Endmill Heads with 30° and 45° Helix and Various Corner Radii





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

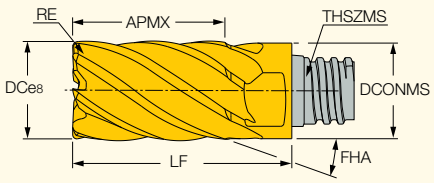
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) With a central coolant hole
(2) Number of flutes
(3) Maximum 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

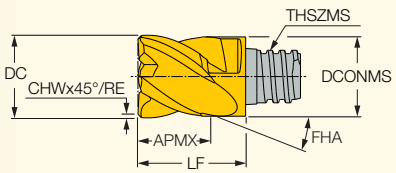
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection • For user guide see pages 44, 177-184
(1) Number of flutes
(2) Maximum ramping angle

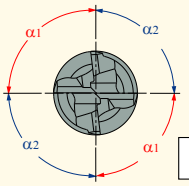
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE
CHATTERFREE
MULTI-MASTER LINE

MM EC-CF

Interchangeable Solid Carbide Endmill Heads for CHATTERFREE 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

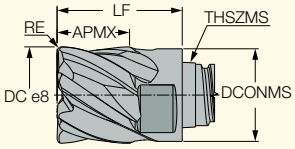
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) With coolant holes directed to each flute
(2) Number of flutes

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







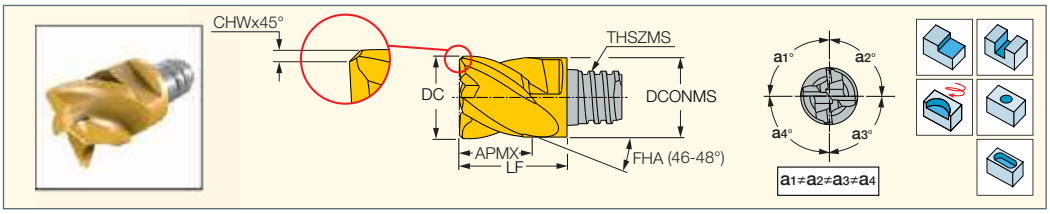
Designation	Dimensions DC	RE	NOF(1)	APMX	THSZMS	DCONMS	LF	RMPX°(2)	IC908	Recommended Machining Data f_z (mm/t)
MM ECK080H05R04-6T05CF	8.00	0.40	6	5.00	T05	7.70	10.00	5.0	•	0.04-0.08
MM ECK100H07R05-6T06CF	10.00	0.50	6	7.00	T06	9.60	13.00	5.0	•	0.04-0.08
MM ECK120H09R05-6T08CF	12.00	0.50	6	9.00	T08	11.70	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 ECK200H15R10-6T12CF	20.00	1.00	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 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 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Number of flutes
(2) Maximum ramping angle

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EC-H-4-CF

Interchangeable Solid Carbide Endmill Heads for CHATTERFREE Milling of Alloyed Steel



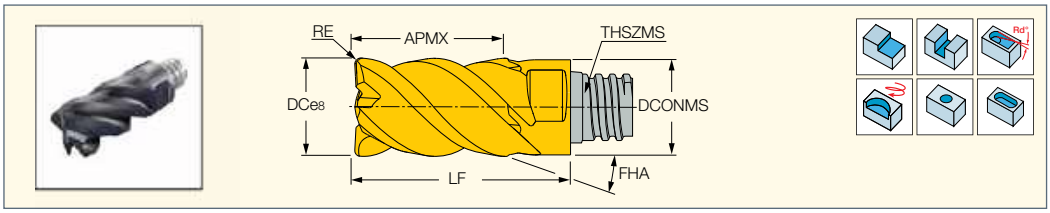
Designation	Dimensions DC	NOF(1)	APMX	THSZMS	DCONMS	LF	CHW	KCH	IC908	Recommended Machining Data f_z (mm/t)
MM EC080H05C3-4T05CF	8.00	4	5.00	T05	7.70	10.00	0.30	45.0	●	0.03-0.09
MM EC100H07C4-4T06CF	10.00	4	7.00	T06	9.60	13.00	0.40	45.0	●	0.03-0.10
MM EC120H09C5-4T08CF	12.00	4	9.00	T08	11.70	16.50	0.50	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 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE
CHATTERFREE
MULTI-MASTER LINE

MM EC-CF-Z4-1.5xD

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



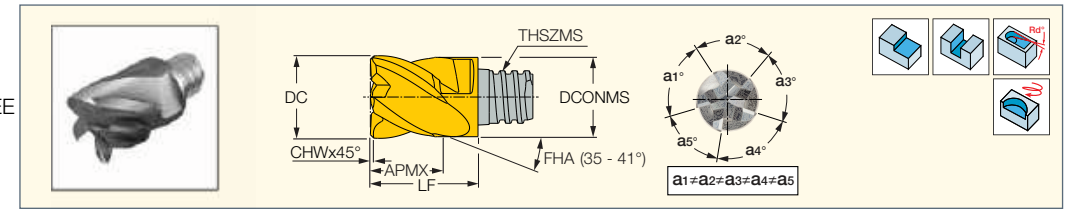
Designation	Dimensions DC	NOF(1)	APMX	RE	THSZMS	DCONMS	LF	FHA	IC908	Recommended Machining Data f_z (mm/t)
MM EC080H12R05CF-4T05	8.00	4	12.00	0.50	T05	7.70	18.00	46.5	●	0.03-0.09
MM EC100H15R05CF-4T06	10.00	4	15.00	0.50	T06	9.60	22.00	46.5	●	0.03-0.10
MM EC120H18R05CF-4T08	12.00	4	18.00	0.50	T08	11.70	27.00	46.5	●	0.04-0.11
MM EC160H24R05CF-4T10	16.00	4	24.00	0.50	T10	15.30	33.50	46.5	●	0.05-0.13
MM EC200H30R05CF-4T12	20.00	4	30.00	0.50	T12	18.45	41.00	46.5	●	0.05-0.17
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 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection • For user guide see pages 44, 177-184
(1) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM EC-H-5-CF

Interchangeable Solid Carbide Endmill Heads for CHATTERFREE Milling of High Temperature Alloys like Titanium and Inconel



Designation	Dimensions DC	NOF(1)	APMX	THSZMS	DCONMS	LF	RMPX°(2)	CHW	KCH	IC308	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

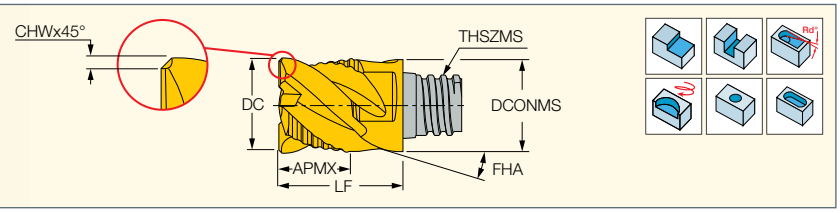
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Number of flutes
(2) Maximum ramping angle

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE
FINISHRED
MULTI-MASTER 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

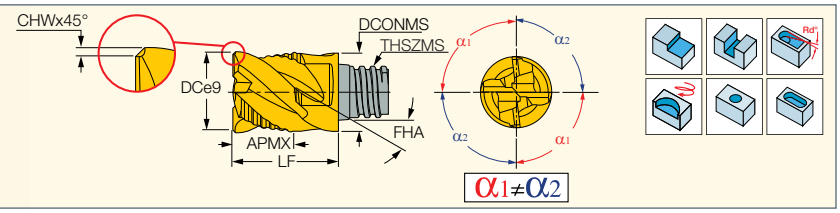
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Number of flutes

FINISHRED
MULTI-MASTER LINE
CHATTERFREE
MULTI-MASTER LINE

MM EFS-CF

4 Flute Solid Carbide Heads with 38° Helix and Variable Pitch for CHATTERFREE 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 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Number of flutes

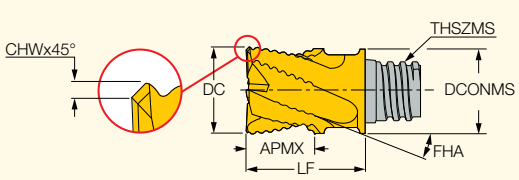


MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

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 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184

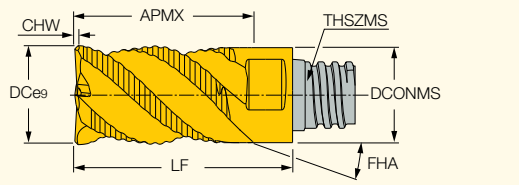
(1) With a central coolant hole
(2) With coolant holes directed to each flute
(3) Number of flutes
(4) Maximum ramping angle

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 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection • For user guide see pages 44, 177-184

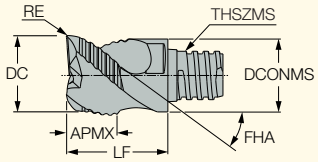
(1) Number of flutes
(2) Maximum ramping angle

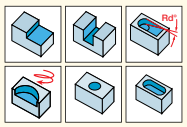
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

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

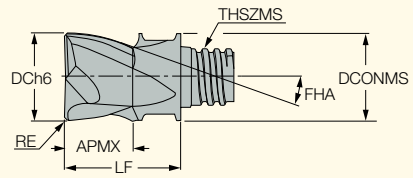
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Number of flutes

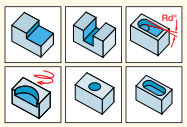
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

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 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

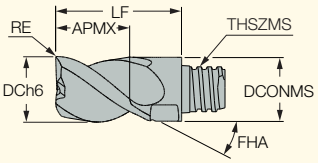
• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection.
(1) Number of flutes

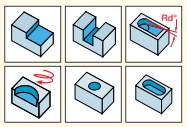
CHATTERFREE
MULTI-MASTER LINE

MM EA-CF

Interchangeable Solid Carbide Endmill Heads with Different Helix for Machining Aluminum







ALUMINUM

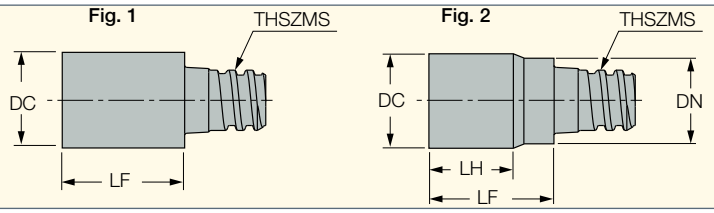
Designation	Dimensions DC	NOF(1)	APMX	RE	THSZMS	DCONMS	LF	FHA	IC08	Recommended Machining Data f_z (mm/t)
MM EA080H08R0CF-4T05	8.00	4	8.00	0.00	T05	7.70	15.00	40.0	●	0.03-0.09
MM EA100H10R0CF-4T06	10.00	4	10.00	0.00	T06	9.60	19.00	40.0	●	0.03-0.10
MM EA120H12R0.2CF-3T08	12.00	3	12.00	0.20	T08	11.70	23.00	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 EA160H16R0CF-4T10	16.00	4	16.00	0.00	T10	15.30	26.00	40.0	●	0.05-0.12
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 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

• For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection. • For user guide see pages 44, 177-184
(1) Number of flutes

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM ESR BLANKS

Interchangeable Solid Carbide Blank Heads

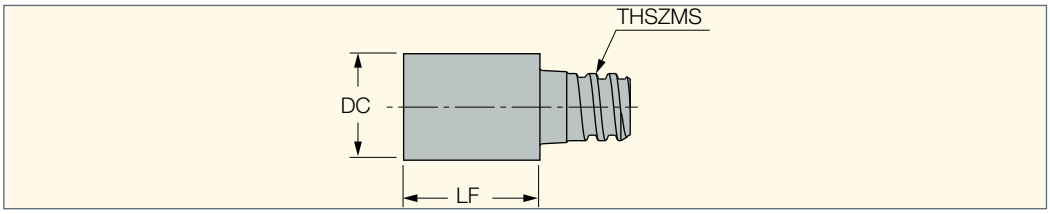


Designation	Dimensions DC	LF	THSZMS	LH	DN	Fig.	Tough ↔ Hard IC08	IC03
MM ESR-G 080-10 T05	8.00	10.35	T05	-	-	1	●	●
MM ESR-G 080-15 T05	8.00	15.40	T05	-	-	1	●	
MM ESR-G 100-13 T05	10.00	13.35	T05	-	-	1	●	
MM ESR-G 100-13 T06	10.00	13.35	T06	-	-	1	●	●
MM ESR-G 100-19 T06	10.00	19.45	T06	-	-	1	●	
MM ESR-G 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 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 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 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
INDEXABLE SOLID CARBIDE LINE

MM ESR-1.5D BLANKS

Interchangeable Solid Carbide Blank Heads

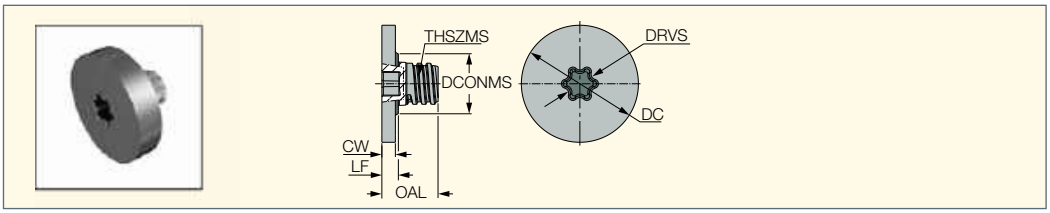


Designation	Dimensions DC	LF	THSZMS	IC08
MM ESR-G 080-18.0 T05 08	8.00	18.40	T05	•
MM ESR-G 100-22.0 T06	10.00	22.40	T06	•
MM ESR-G 120-27.0 T08 08	12.00	27.45	T08	•
MM ESR-G 160-33.5 T10	16.00	34.00	T10	•
MM ESR-G 200-41.0 T12	20.00	41.50	T12	•
MM ESR-G 250-52.5 T15	25.00	53.00	T15	•

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TC-G

Interchangeable Cemented Carbide Blank Heads



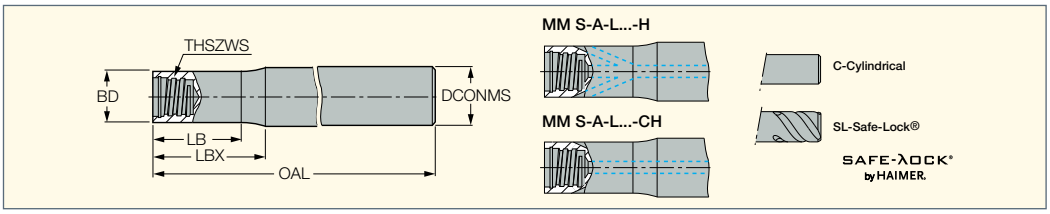
Designation	Dimensions DC	CW	LF	OAL	DCONMS	DRVS(1)	THSZMS	Tough ↔ Hard IC28	IC08
MM TC138N-19-G-T05	13.80	1.90	2.50	9.60	7.60	20.0	T05	•	
MM TC138N-23-G-T05	13.80	2.30	2.90	10.00	7.60	20.0	T05	•	
MM TC138N-28-G-T05	13.80	2.80	3.40	10.50	7.60	20.0	T05	•	
MM TC138N-35-G-T05	13.80	3.50	4.10	11.20	7.60	20.0	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	19.05	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 84-91 • For tightening torques and clamping instructions, see pages 91-92 • Do not apply lubricant to the threaded connection
• For user guide see pages 44, 177-184
(1) Torque key size

MULTI-MASTER

MM S-A (stepped shanks)

Stepped Cylindrical Shanks
Carrying Interchangeable
Milling Heads



Designation	THSZWS	DCONMS	BD	LB	LBX	OAL	Shank[3]	Shank m.[4]	CSP[5]	RPMX[6]	Kg
MM S-A-L050-C08-T04	T04	8.00	5.80	9.90	14.0	50.00	C	S	0	60000	0.02
MM S-A-L060/20-C08-T04-C	T04	8.00	5.80	16.90	20.0	60.00	C	C	0	60000	0.00
MM S-A-L060-C08-T05	T05	8.00	7.60	12.50	15.0	60.00	C	S	0	60000	0.02
MM S-A-L065/24-SL08T05C [1]	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	60000	0.08
MM S-A-L075-C10-T06	T06	10.00	9.60	17.40	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	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	53940	0.04
MM S-A-L075/30-SL10T06C [1]	T06	10.00	9.60	30.00	31.7	75.00	SL	C	0	53940	0.08
MM S-A-L090-C10-T06-C	T06	10.00	9.60	38.50	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	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	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	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	0.00
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	60000	0.11
MM S-A-L085/36-C12T08C [2]	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	43000	0.08
MM S-A-L090-C12-T08	T08	12.00	11.60	13.30	16.0	90.00	C	S	0	43000	0.08
MM S-A-L070/020C12T08C-CH	T08	12.00	11.60	18.00	20.0	70.00	C	C	1	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	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	49800	0.15
MM S-A-L090/040C12T08C-CH	T08	12.00	11.50	38.00	40.0	90.00	C	C	1	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	41010	0.08
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	30210	0.18
MM S-A-L110/060C12T08C-CH	T08	12.00	11.50	58.00	60.0	110.00	C	C	1	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	20100	0.21
MM S-A-L130/080C12T08C-CH	T08	12.00	11.50	78.00	80.0	130.00	C	C	1	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	60000	0.21
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	57510	0.27
MM S-A-L090/040C16T10C-CH	T10	16.00	15.30	38.00	40.0	90.00	C	C	1	57510	0.17
MM S-A-L100-C16-T10	T10	16.00	15.30	16.30	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	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	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	38040	0.14
MM S-A-L100/48-C16T10C [2]	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	58.00	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	36030	0.33
MM S-A-L110/060C16T10C-H	T10	16.00	15.00	58.10	60.0	110.00	C	C	1	60000	0.00
MM S-A-L110/060C16T10C-CH	T10	16.00	15.30	58.00	60.0	110.00	C	C	1	36030	0.17
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	24450	0.41
MM S-A-L130/080C16T10C-CH	T10	16.00	15.30	78.00	80.0	130.00	C	C	1	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

- Do not apply lubricant to the threaded connection.

[1] SL-Safe-Lock® (by Haimer) helical grooves that prevent pull-out(available upon request).

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

[3] C-Cylindrical, SL-Safe-Lock® (by Haimer)

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

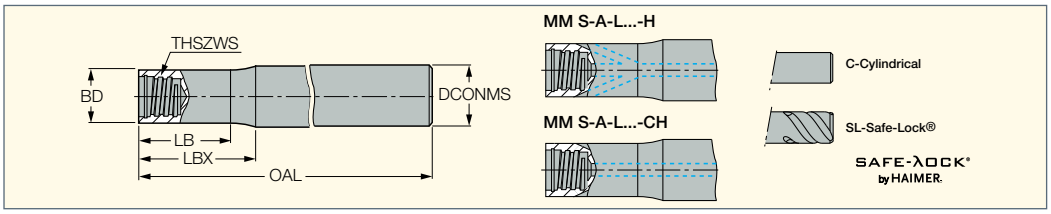
[5] 0 - Without coolant supply, 1 - With coolant supply

[6] 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 (stepped shanks) (Continue)

Stepped Cylindrical Shanks Carrying Interchangeable Milling Heads



Designation	THSZWS	DCONMS	BD	LB	LBX	OAL	Shank[3]	Shank m.[4]	CSP[5]	RPMX[6]	Kg
MM S-A-L150-C16-T10-W-H	T10	16.00	15.30	98.20	100.0	150.00	C	W	1	17610	0.45
MM S-A-L090-C20-T12-C	T12	20.00	18.30	37.00	40.0	90.00	C	C	0	60000	0.27
MM S-A-L090-C20-T12-W-H	T12	20.00	18.30	36.90	40.0	90.00	C	W	1	60000	0.41
MM S-A-L090/040C20T12C-CH	T12	20.00	18.30	37.20	40.0	90.00	C	C	1	60000	0.30
MM S-A-L110/50-SL20T12C [1]	T12	20.00	18.30	50.00	53.3	110.00	SL	C	0	60000	0.08
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	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	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	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	31650	0.59
MM S-A-L130/080C20T12C-CH	T12	20.00	18.30	77.20	80.0	130.00	C	C	1	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	12540	0.92
MM S-A-L200/120C20T12C-CH	T12	20.00	18.30	117.20	120.0	200.00	C	C	1	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	41700	0.89
MM S-A-L125/63-C25T15C [2]	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	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	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-L100/32-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-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-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

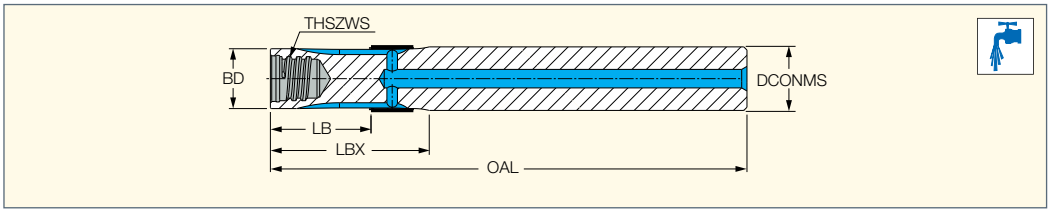
- Do not apply lubricant to the threaded connection.

[1] SL-Safe-Lock® (by Haimer) helical grooves that prevent pull-out(available upon request).
[2] With Safe-Lock® (by Haimer) pull-out prevention helical grooves
[3] C-Cylindrical, SL-Safe-Lock® (by Haimer)
[4] S-steel, C-carbide, W-tungsten
[5] 0 - Without coolant supply, 1 - With coolant supply
[6] 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 Carrying Interchangeable Milling Heads



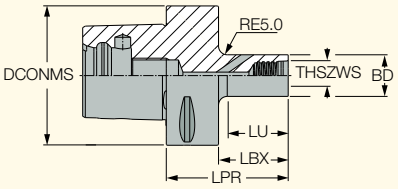
Designation	THSZWS	DCONMS	BD	LB	LBX	OAL	Shank m.[1]	kg
MM S-A-L075-C10-T06-N	T06	10.00	9.60	18.00	28.0	75.00	S	0.04
MM S-A-L090-C12-T08-N	T08	12.00	11.60	18.00	30.0	90.00	S	0.07
MM S-A-L100-C16-T10-N	T10	16.00	15.30	23.00	35.0	100.00	S	0.04

- Do not apply lubricant to the threaded connection

[1] S-steel

MULTI-MASTER
CAMFIX

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



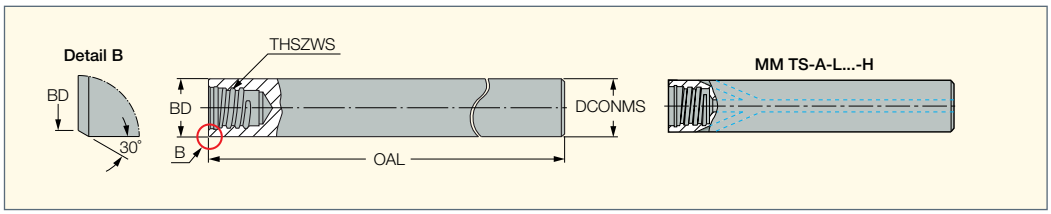
Designation	DCONMS	THSZWS	BD	LPR	LBX	LU	CDI(1)	kg
MM S-A-H035-C3-T05	32.00	T05	7.60	35.00	20.0	15.00	0	0.00
MM S-A-H035-C3-T06	32.00	T06	9.25	35.00	20.0	15.00	0	0.12
MM S-A-H040-C3-T08	32.00	T08	11.60	40.00	25.0	20.00	0	0.13
MM S-A-H040-C3-T10	32.00	T10	15.30	40.00	25.0	20.00	0	0.15
MM S-A-H045-C3-T12	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	0.00
MM S-A-H045-C4-T08	40.00	T08	11.60	45.00	25.0	20.00	0	0.00
MM S-A-H050-C4-T10	40.00	T10	15.30	50.00	30.0	25.00	0	0.00
MM S-A-H055-C4-T12	40.00	T12	18.30	55.00	35.0	30.00	0	0.00
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	0.00
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	0.00
MM S-A-H065-C6-T15	63.00	T15	23.90	65.00	43.0	38.00	0	0.00
MM S-A-H070-C8-T15	80.00	T15	23.90	70.00	40.0	35.00	0	0.00

• Do not apply lubricant to the threaded connection • For adaptation options, see page 44

(1) 1 - Hole for data chip, 0 - Without hole for data chip

MULTI-MASTER

MM TS-A
Cylindrical Shanks Carrying Interchangeable Milling Heads



Designation	THSZWS	DCONMS	BD	OAL	Shank m.(1)	RPMX(2)	CSP(3)	kg
MM TS-A-L070-C08-T04	T04	8.00	5.80	70.00	S	-	0	0.00
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	0.04
MM TS-A-L090-C12-T08	T08	12.00	11.60	90.00	S	43110	0	0.08
MM TS-A-L090-C12-T08-H	T08	12.00	11.60	90.00	S	42780	1	0.08
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	0.14

• Do not apply lubricant to the threaded connection

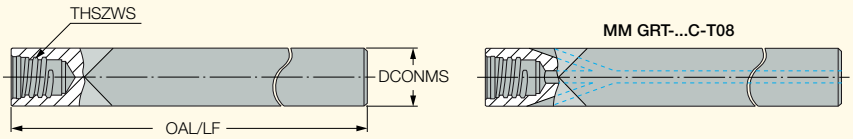
(1) S-steel, C-carbide

(2) The actual maximum RPM should 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

MULTI-MASTER

MM GRT (shanks)
Solid Carbide Cylindrical Shanks Carrying 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 precision.

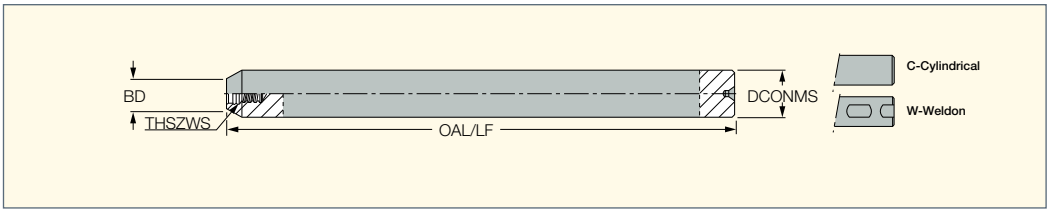
(1) C - Solid carbide

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

MULTI-MASTER

MM S-A (straight shanks)

Shanks Carrying 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

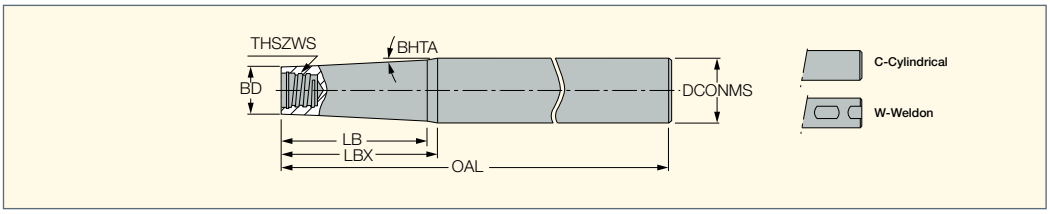
[3] S-steel

[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 Carrying 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	0.00
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	0.11
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.

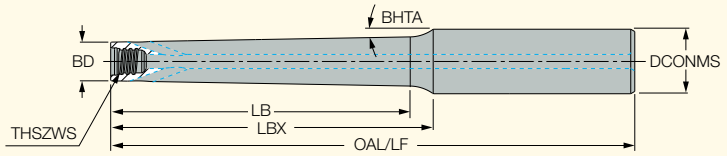
[1] C-Cylindrical, W-Weldon

[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 Carrying 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	0.00
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	120.0	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

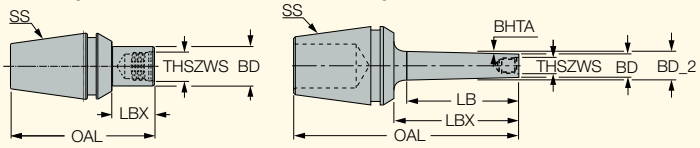
(2) The maximum RPM must be calculated. Divide the listed max. RPM by the number of flutes (on the milling head) being used.



MULTI-MASTER

MM S-ER

Shanks Carrying MULTI-MASTER Solid Carbide Heads with an ER Collet Adaptation



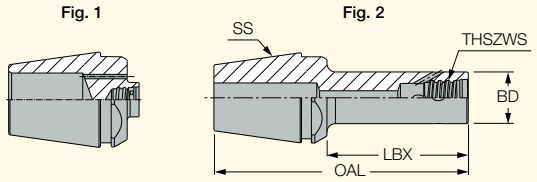
Designation	SS	THSZWS	BHTA	BD	BD_2	LB	LBX	OAL	Fig.	kg
MM S-A-H004-ER11-T04	ER11	T04	-	5.80	-	-	4.0	22.00	1.	0.00
MM S-A-H004-ER11-T05	ER11	T05	-	7.60	-	-	4.0	22.00	1.	0.01
MM S-A-H10.5-ER11-T05	ER11	T05	-	7.60	-	-	10.5	28.50	1.	0.01
MM S-A-H004-ER16-T05	ER16	T05	-	7.60	-	-	4.0	31.50	1.	0.03
MM S-A-H004-ER16-T06	ER16	T06	-	9.25	-	-	4.0	31.50	1.	0.03
MM S-A-H004-ER16-T08	ER16	T08	-	11.60	-	-	4.0	31.50	1.	0.04
MM S-A-H10.5-ER16-T05	ER16	T05	-	7.60	-	-	10.5	38.00	1.	0.04
MM S-A-H10.5-ER16-T06	ER16	T06	-	9.25	-	-	10.5	38.00	1.	0.04
MM S-A-H013-ER16-T08	ER16	T08	-	11.60	-	-	14.0	40.50	1.	0.02
MM S-A-H004-ER20-T05	ER20	T05	-	7.60	-	-	4.0	35.50	1.	0.06
MM S-A-H004-ER20-T06	ER20	T06	-	9.25	-	-	4.0	35.50	1.	0.06
MM S-A-H004-ER20-T08	ER20	T08	-	11.60	-	-	4.0	35.50	1.	0.07
MM S-A-H004-ER20-T10	ER20	T10	-	15.30	-	-	4.0	35.50	1.	0.06
MM S-A-H10.5-ER20-T05	ER20	T05	-	7.60	-	-	10.5	42.00	1.	0.06
MM S-A-H10.5-ER20-T06	ER20	T06	-	9.25	-	-	10.5	42.00	1.	0.06
MM S-A-H013-ER20-T08	ER20	T08	-	11.60	-	-	13.0	44.50	1.	0.07
MM S-A-H016-ER20-T10	ER20	T10	-	15.30	-	-	16.0	47.50	1.	0.07
MM S-A-H004-ER25-T05	ER25	T05	-	7.60	-	-	4.0	38.00	1.	0.10
MM S-A-H10.5-ER25-T05	ER25	T05	-	7.60	-	-	10.5	44.50	1	0.10
MM S-A-H004-ER25-T06	ER25	T06	-	9.25	-	-	4.0	38.00	1.	0.07
MM S-A-H10.5-ER25-T06	ER25	T06	-	9.25	-	-	10.5	44.50	1.	0.12
MM S-A-H004-ER25-T08	ER25	T08	-	11.60	-	-	4.0	38.00	1.	0.11
MM S-A-H10.5-ER25-T08	ER25	T08	-	11.60	-	-	10.5	44.50	1.	0.06
MM S-A-H004-ER25-T10	ER25	T10	-	15.30	-	-	4.0	38.00	1.	0.10
MM S-A-H10.5-ER25-T10	ER25	T10	-	15.30	-	-	10.5	44.50	1.	0.10
MM S-A-H004-ER25-T12	ER25	T12	-	18.30	-	-	4.0	38.00	1.	0.10
MM S-A-H10.5-ER25-T12	ER25	T12	-	18.30	-	-	10.5	44.50	1.	0.06
MM S-A-H025-ER32-T06	ER32	T06	-	9.25	10.00	18.00	25.0	65.00	2.	0.15
MM S-B-H025-ER32-T06	ER32	T06	5.0	9.60	13.50	22.30	25.0	65.00	2.	0.16
MM S-B-H050-ER32-T06	ER32	T06	5.0	9.60	17.90	47.30	50.0	90.00	2.	0.20
MM S-B-H075-ER32-T06	ER32	T06	5.0	9.60	22.60	74.10	75.0	115.00	2.	0.25
MM S-D-H050-ER32-T06	ER32	T06	1.0	9.60	11.20	45.00	50.0	90.00	2.	0.17

• Do not apply lubricant to the threaded connection. • For adaptation see page 44 • 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

MULTI-MASTER

MM S-ER-H

Shanks Carrying MULTI-MASTER Solid Carbide Heads with an ER Collet Adaptation and Coolant Holes



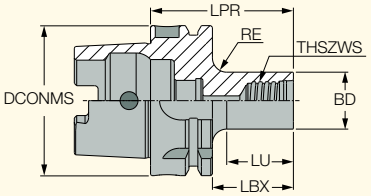
Designation	SS	THSZWS	BD	LBX	OAL	Fig.	kg
MM S-A-H004-ER32-T05-H	ER32	T05	7.60	4.0	44.00	1	0.14
MM S-A-H025-ER32-T05-H	ER32	T05	7.60	25.0	65.00	2	0.20
MM S-A-H040-ER32-T05-H	ER32	T05	7.60	40.0	80.00	2	0.23
MM S-A-H004-ER32-T06-H	ER32	T06	9.60	4.0	44.00	1	0.14
MM S-A-H025-ER32-T06-H	ER32	T06	9.25	25.0	65.00	2	0.20
MM S-A-H040-ER32-T06-H	ER32	T06	9.25	40.0	80.00	2	0.22
MM S-A-H004-ER32-T08-H	ER32	T08	11.60	4.0	44.00	1	0.14
MM S-A-H025-ER32-T08-H	ER32	T08	11.60	25.0	65.00	2	0.20
MM S-A-H050-ER32-T08-H	ER32	T08	11.60	50.0	90.00	2	0.23
MM S-A-H004-ER32-T10-H	ER32	T10	15.30	4.0	44.00	1	0.14
MM S-A-H025-ER32-T10-H	ER32	T10	15.30	25.0	65.00	2	0.20
MM S-A-H050-ER32-T10-H	ER32	T10	15.20	50.0	90.00	2	0.25
MM S-A-H004-ER32-T12-H	ER32	T12	18.30	4.0	44.00	1	0.14
MM S-A-H025-ER32-T12-H	ER32	T12	18.30	25.0	65.00	2	0.22
MM S-A-H050-ER32-T12-H	ER32	T12	18.30	50.0	90.00	2	0.22
MM S-A-H004-ER32-T15-H	ER32	T15	23.90	4.0	44.00	1	0.15
MM S-A-H025-ER32-T15-H	ER32	T15	23.90	25.0	65.00	2	0.21
MM S-A-H050-ER32-T15-H	ER32	T15	23.90	50.0	90.00	2	0.25

• Do not apply lubricant to the threaded connection. • For adaptation see page 44

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	CDI[1]	kg
MM S-A-H035-HSK A40-T05	40.00	T05	7.60	35.00	15.0	10.00	5.0	1	0.00
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-H060-HSK A63-T15	63.00	T15	23.90	60.00	34.0	28.00	6.0	1	0.76

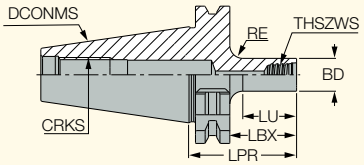
• Do not apply lubricant to the threaded connection • For adaptation options, see page 44

(1) 1 - Hole for data chip, 0 - Without hole for data chip

MULTI-MASTER DIN69871

MM S-A-SK

DIN 69871 Integral Tapered Shanks Carrying MULTI-MASTER Milling Heads



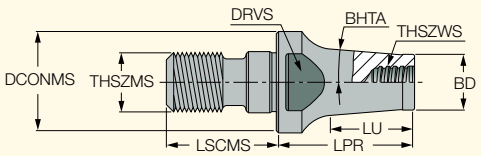
Designation	DCONMS	CRKS	THSZWS	BD	LPR	LBX	LU	RE	kg
MM S-A-H040-SK 40-T06	40.00	M16	T06	9.25	40.00	21.0	15.00	6.0	0.86
MM S-A-H045-SK 40-T08	40.00	M16	T08	11.60	45.00	26.0	20.00	6.0	0.87
MM S-A-H050-SK 40-T10	40.00	M16	T10	15.30	50.00	31.0	25.00	6.0	0.88
MM S-A-H050-SK 40-T12	40.00	M16	T12	18.30	50.00	31.0	25.00	6.0	0.90
MM S-A-H050-SK 40-T15	40.00	M16	T15	23.90	50.00	31.0	25.00	6.0	0.93

• Do not apply lubricant to the threaded connection • For adaptation, see page 44

FLEXFIT MULTI-MASTER

MM CAB

Adapters for Connecting FLEXFIT 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	0.03
MM CAB T08M08-25/1.0	T08	M08	25.00	19.50	11.70	13.00	17.50	11.0	1.5	20	0.03
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 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

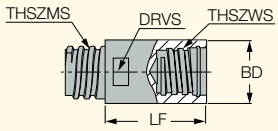
(1) Clamping wrench size

(2) Tool tightening torque Nxm (lbfxin)

MULTI-MASTER

MM CAB-T-T

MULTI-MASTER Shank Extensions



Designation	BD	THSZMS	THSZWS	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

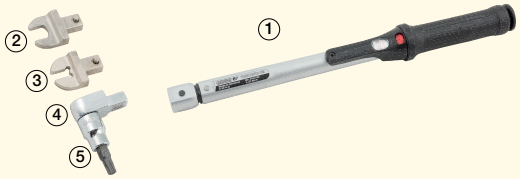
• Clamping key should be ordered separately • For adaptation, see page 44

(1) Clamping wrench 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 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 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: For recommended clamping torque for each MULTI-MASTER connection size, see page 92

(1) MULTI-MASTER connection size

(2) Clamping torque Nxm

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

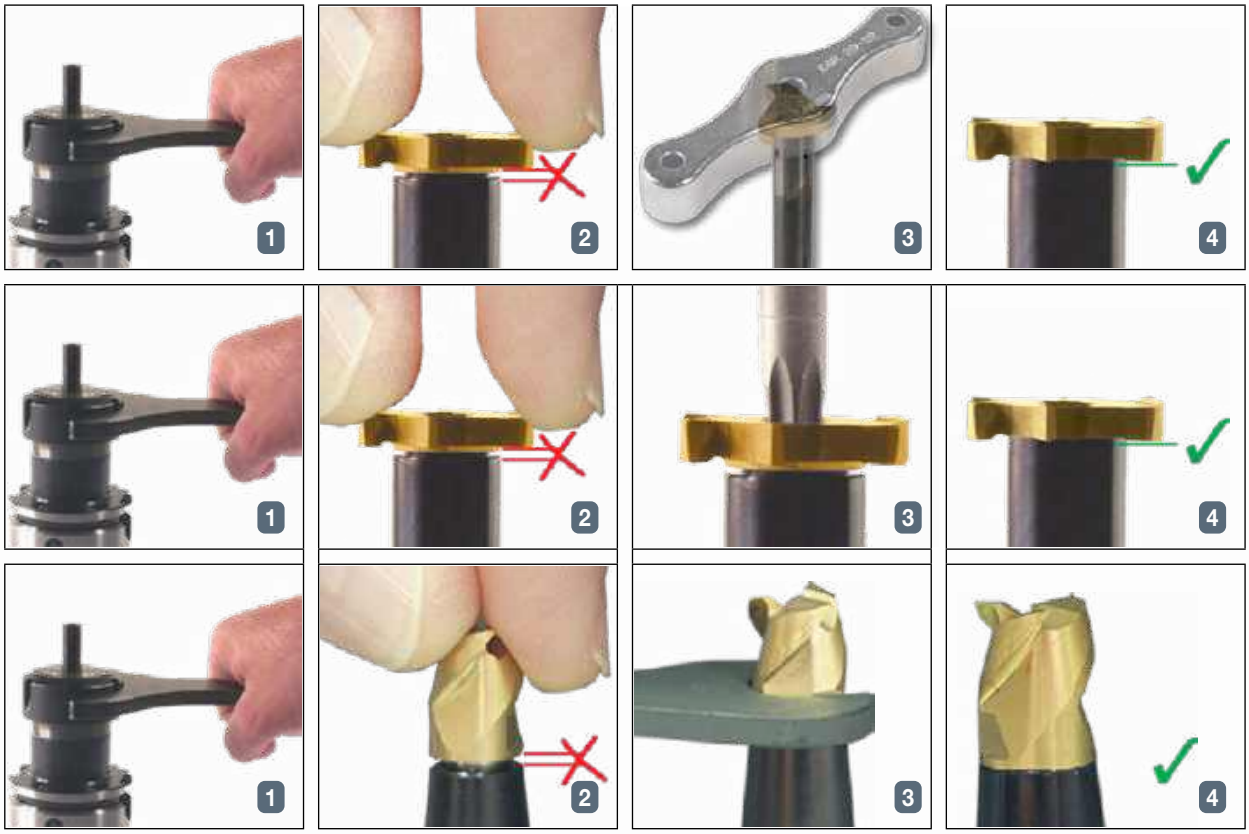





The adjustable torque handle, interchangeable wrenches and Torx bits are optional and should be ordered separately.



Clamping and Indexing Instructions



Do not apply lubricant to the threaded connection.

Thread Size	Key(1)	Tightening Torque (Nxcm)
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



SOLID CARBIDE ENDMILLS



WORKPIECE MATERIAL	ISO	Page
STEEL	P	94
STAINLESS STEEL	M	98
CAST IRON	K	100
ALUMINUM / NON FERROUS MATERIALS	N	103
SUPERALLOYS / TITANIUM	S	105
HARD STEELS	H	107

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	6-20	-	2xDC	4	CHWx45	NO	115
	ECP-H4L-CFR	6-20	3XDC	2xDC	4	RE	NO	116
	EC-E4L-CF	1-25	3XDC	2xDC	4	CHWx45	NO	117
	EFS-E44	6-25	-	2xDC	4	CHWx45	NO	125
	EFS-B44	4-25	3xDC	2xDC	4	CHWx45	NO	126
	ECR-B-MF	6-25	-	2xDC	4/6	CHWx45	NO	129
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	127

FINISHING

P (Steel Materials)								
	Designation	Ø	**LU (Neck)**	**a_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	127
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	119-120
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	123
	ECXL-B-4/6	10-20	-	6xDC	4/6	-	NO	152
	ECH-B-6	6-20	-	2xDC	6	-	NO	151

TROCHOIDAL / DYNAMIC MILLING

	Designation	Ø	**LU (Neck)**	**a_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	119-120
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	123

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	132
	EFF-S	1-20	3xDC	MIN.	2/4	RE	NO	132

CHAMFERING AND DEBURRING

	Designation	Ø	LU (Neck)	a_p	ZEFF	Corner Type	Coolant	Page
	ECF.../45	4-12	-	2.5xDC	4	-	NO	174
	ECD-S2	3-12	2xDC	0.5xDC	2	-	NO	175

P (Steel Materials)	
Tool Type	**Features**
EC-H4M-CF-E (ECO Type)	• Rough and finish operations • General use • Low power machines • **CHATTERFREE**
ECP-H4L-CFR	• Rough operations • General use • Chip splitter **CHATTERFREE**
EC-E4L-CF	• Rough and finish operations • Used for machining alloyed steel and general use • Low power machines **CHATTERFREE**
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 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

P (Steel Materials)

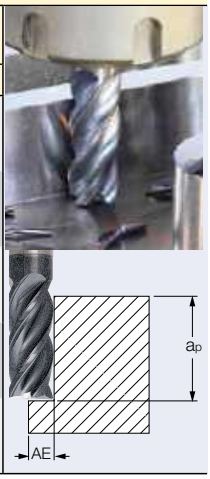
ROUGH: AE = 40% - Full Cut , a_p = 2 x DC

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
V_c (IC300) (m/min)	130-160	110-120	100-130	100-120	100-120	60-80	60-90	50-80
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



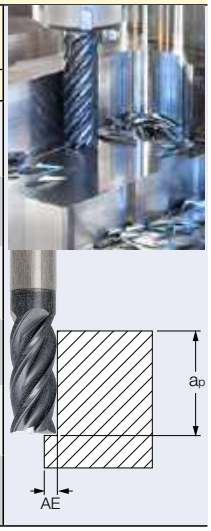
SEMI-FINISH: AE = 10% - 40%, a_p = 2 x DC

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
V_c (IC300) (m/min)	160-190	120-130	130-150	120-130	120-130	80-90	90-110	80-100
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 (IC300) (m/min)	190-220	130-140	150-180	130-140	130-140	90-100	110-130	100-120
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



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

ROUGHING

	Designation	Ø	LU (Neck)	a_p	ZEFF	Corner Type	Coolant	Page
	EC-H4M-CF-E	6-20	-	2xDC	4	CHWx45	NO	115
	ECP-H4L-CFR	6-20	3XDC	2xDC	4	RE	NO	116
	EC-H5M-CFR	4-20	-	2xDC	5	RE	NO	118
	EC-H4-L/M/XL/CFR	3-25	-	2xDC	-	RE	NO	117
	EFS-B44	6-25	3xDC	2xDC	4	CHWx45	NO	126
	ECP-E4L	5-20	3xDC	2xDC	4	CHWx45	NO	130

FINISHING

	Designation	Ø	LU (Neck)	a_p	ZEFF	Corner Type	Coolant	Page
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	119-120
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	123
	EC-H5M-CFR	4-20	-	2xDC	5	RE	NO	118
	ECXL-B-4/6	10-20	-	6xDC	7	-	NO	152
	ECH-B-6	6-20	-	2xDC	6	-	NO	151

TROCHOIDAL / DYNAMIC MILLING

	Designation	Ø	LU (Neck)	a_p	ZEFF	Corner Type	Coolant	Page
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	119-120
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	123

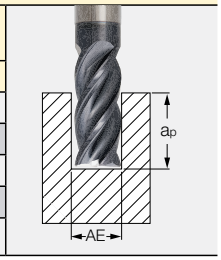
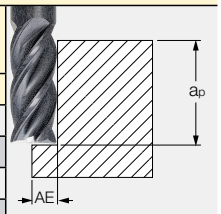
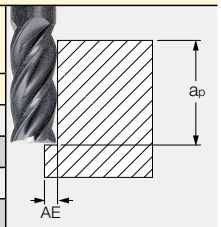
HIGH FEED MILLING

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	132
	EFF-S	1-20	3xDC	MIN.	2/4	RE	NO	132

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	174
	ECD-S2	3-12	2xDC	0.5xDC	2	-	NO	174

Tool Type	Features
EC-H4M-CF-E (ECO Type)	• Rough and finish operations • General use • Low power machines • **CHATTERFREE**
ECP-H4L-CFR	• Rough operations • General use • Chip splitter **CHATTERFREE**
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

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	
V_c (IC300) (m/min)	50-70	
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	
V_c (IC300) (m/min)	70-90	
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 (IC300) (m/min)	90-100	
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/H.S.M**
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

ROUGHING

	Designation	Ø	LU (Neck)	a_p	ZEFF	Corner Type	Coolant	Page
	EC-H4M-CF-E	6-20	-	2xDC	4	CHWx45	NO	115
	ECP-H4L-CFR	6-20	3XDC	2xDC	4	RE	NO	116
	EC-E4L-CF	1-25	3XDC	2xDC	4	CHWx45	NO	127
	EFS-E44	6-25	-	2xDC	4	CHWx45	NO	125
	EFS-B44	4-25	3xDC	2xDC	4	CHWx45	NO	126
	ECR-B-MF	6-20	-	2xDC	4/6	CHWx45	NO	129
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	127

FINISHING

	Designation	Ø	LU (Neck)	a_p	ZEFF	Corner Type	Coolant	Page
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	127
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	119-120
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	123
	ECXL-B-4/6	10-20	-	6xDC	4/6	-	NO	152
	ECH-B-6	6-20	-	2xDC	6	-	NO	151

TROCHOIDAL / DYNAMIC MILLING

	Designation	Ø	LU (Neck)	a_p	ZEFF	Corner Type	Coolant	Page
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	119-120
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	123

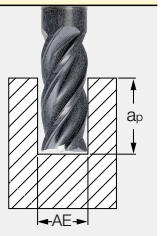
HIGH FEED MILLING

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	132
	EFF-S	1-20	3xDC	MIN.	2/4	RE	NO	132

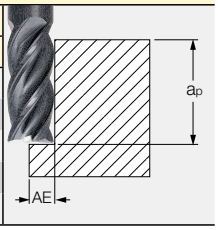
CHAMFERING AND DEBURRING

	Designation	**Ø**	**LU (Neck)**	**a_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	ECF.../45	4-12	-	2.5xDC	4	-	NO	174
	ECD-S2	3-12	2xDC	0.5xDC	2	-	NO	174

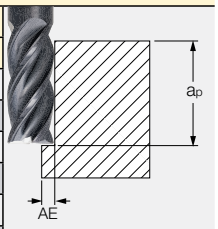
Tool Type	**Features**
EC-H4M-CF-E (ECO Type)	• Rough and finish operations • General use • Low power machines • **CHATTERFREE**
ECP-H4L-CFR	• Rough operations • General use • Chip splitter **CHATTERFREE**
EC-E4L-CF	• Rough and finish operations • Used for machining alloyed steel and general use • Low 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	
V_c (IC300) (m/min)	60-140	70-140	110-150	
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	

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
V_c (IC300) (m/min)	140-180	140-180	150-180
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 (IC300) (m/min)	180-210	180-220	180-220
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
ECA-H3-CF-C	1	2	2

ROUGHING

	Designation	Ø	**LU (Neck)**	**a_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	ECA-H3-CF	1.5-25	3XDC	2xDC	3	RE	NO	154-156
	ECAP-H3-CF	10-25	5XDC	2xDC	3	RE	YES	157
	ECA-H4-CF	6-25	5XDC	2xDC	4	RE	NO	156
	ECA-B-3	4-20	4xDC	2xDC	3	RE	NO	160
	ECR-B3-R	6-20	-	1xDC	3	RE	NO	158

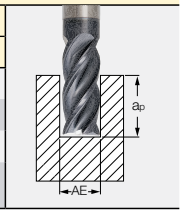
FINISHING

	Designation	Ø	LU (Neck)	a_p	ZEFF	Corner Type	Coolant	Page
	ECA-H3-CF	1-25	3XDC	2xDC	3	RE	NO	154-156
	ECA-H4-CF	6-25	5XDC	2xDC	4	RE	NO	156
	ECA-B-3	4-20	4xDC	2xDC	3	RE	NO	160

N (Non-Ferrous Metals)	
Tool Type	**Features**
ECA-H3-CF	• Suitable for roughing and finishing operations • **CHATTERFREE** • Full slot up to 1.5XDC and 2XDC * • Excellent solution for low power machines
ECA-H3-CF-C	• Suitable for roughing and finishing operations • **CHATTERFREE** • Full slot up to 2XDC • Internal coolant for better chip evacuation in deep cavity
ECAP-H3-CF	• Suitable for roughing • Chip splitter **CHATTERFREE** • Internal coolant for better chip evacuation in deep cavity
ECA-H4-CF	• Suitable for roughing and finishing operations • **CHATTERFREE** • 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

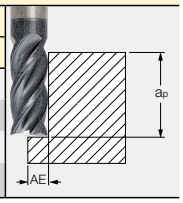
D 2x ROUGH: AE = 40% - Full Cut , a_p = 1.5xDC*

Material Group Parameters	Alu Wrought alloy 21-22	Alu Cast Alloy 23-25	Copper Alloy 26-27	Electrolitic Copper 28	Non-Metallic 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



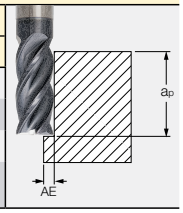
SEMI-FINISH: AE = 10% - 40%, a_p = 2 x DC

Material Group Parameters	Alu Wrought alloy 21-22	Alu Cast Alloy 23-25	Copper Alloy 26-27	Electrolitic Copper 28	Non-Metallic 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 21-22	Alu Cast Alloy 23-25	Copper Alloy 26-27	Electrolitic Copper 28	Non-Metallic 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
EFS-B44 (IC300)	1	1	-
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	6-20	-	2xDC	4	CHWx45	NO	115
	ECP-H4L-CFR	6-20	3XDC	2xDC	4	RE	NO	116
	EC-E4L-CF	1-25	3XDC	2xDC	4	CHWx45	NO	127
	ECK-H4M-CFR	6-20	-	2xDC	4	-	NO / YES	123
	EFS-B44	4-25	3xDC	2xDC	4	CHWx45	NO	126
	ECR-B-MF	6-25	-	2xDC	4/6	CHWx45	NO	129
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	127

FINISHING

	Designation	Ø	LU (Neck)	a_p	ZEFF	Corner Type	Coolant	Page
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	127
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	119-120
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	123
	ECXL-B-4/6	10-20	-	6xDC	4/6	-	NO	152
	ECH-B-6	6-20	-	2xDC	6	-	NO	151

TROCHOIDAL / DYNAMIC MILLING

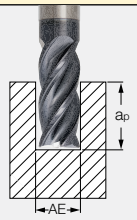
S (High Heat Resistant Alloys)								
	Designation	**Ø**	**LU (Neck)**	**a_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	119-120
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	123

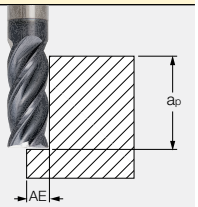
HIGH FEED MILLING

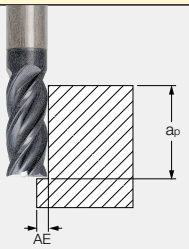
	Designation	**Ø**	**LU (Neck)**	**a_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	EFP-E4,5CF	6-20	-	2.5xDC	4/5	RE	NO	132
	EFF-S	1-20	3xDC	MIN.	2/4	RE	NO	132

CHAMFERING AND DEBURRING

	Designation	**Ø**	**LU (Neck)**	**a_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	ECF.../45	4-12	-	2.5xDC	4	-	NO	174
	ECD-S2	3-12	2xDC	0.5xDC	2	-	NO	174

***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	
V_c (IC300) (m/min)	20-30	20-40	
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	
V_c (IC300) (m/min)	30-45	40-50	
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 (IC300) (m/min)	45-60	50-60	
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	6-20	-	2xDC	4	CHWx45	NO	115
	ECP-H4L-CFR	6-20	3XDC	2xDC	4	RE	NO	116
	EC-E4L-CF	1-25	3XDC	2xDC	4	CHWx45	NO	127
	EFS-B44	4-25	3xDC	2xDC	4	CHWx45	NO	126
	ECR-B-MF	6-25	-	2xDC	4/6	CHWx45	NO	129
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	127

FINISHING

	Designation	Ø	LU (Neck)	a_p	ZEFF	Corner Type	Coolant	Page
	EC-E5L-CF	6-20	-	2xDC	5	CHWx45	NO	127
	EC-E7/H7-CF	2-20	-	2xDC, 4xDC	7	-	NO	119-120
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	123
	ECXL-B-4/6	10-20	-	6xDC	4/6	-	NO	152
	ECH-B-6	6-20	-	2xDC	6	-	NO	151

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	119-120
	EC-H-CF	6-20	-	2xDC	6-20	CHWx45	NO	123

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	132
	EFF-S	1-20	3xDC	MIN.	2/4	RE	NO	132

CHAMFERING AND DEBURRING

	Designation	**Ø**	**LU (Neck)**	**a_p**	**ZEFF**	**Corner Type**	**Coolant**	**Page**
	ECF.../45	4-12	-	2.5xDC	4	-	NO	174
	ECD-S2	3-12	2xDC	0.5xDC	2	-	NO	174

Tool Type	**Features**
EC-H4M-CF-E (ECO Type)	• Rough and finish operations • General use • Low power machines • **CHATTERFREE**
ECP-H4L-CFR	• Rough operations • General use • Chip splitter **CHATTERFREE**
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

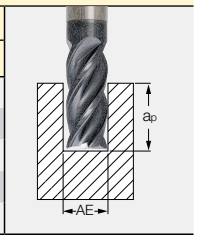
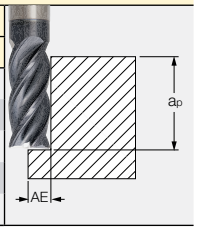
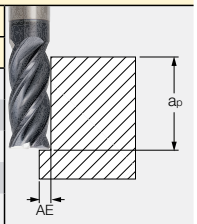
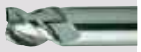
H (Hard Materials)				
ROUGH: AE = 40% - Full Cut , Ap = 2 x DC				
Material Group Parameters	**Hardened Steel**	**Chilled Cast Iron**	**Cast Iron**	
	38-39	**40**	**41**	
V_c (IC900/608) (m/min)	20-30	60-65	30-35	
V_c (MC300) (m/min)	20-25	50-55	20-25	
F_z (Ø6 – 8) (mm/z)	0.01-0.015	0.01-0.015	0.01-0.015	
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	
V_c (MC300) (m/min)	25-30	50-55	25-30	
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 (MC300) (m/min)	30-40	55-60	30-40	
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	

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Type	Helix Angle	Cutting Length	Workpiece Hardness HRc	No. of Flutes	Diameter Range		Page	
EFS-E44	38º	2DC	<45	4	6-25		125	
ECK-H4M-CFR	Different helix with variable pitch	2DC	Titanium	4	4-20		158	
ECK-H7/9-CFR	Different helix with variable pitch	2DC	Titanium	7-9	6-20		124	
EFS-B44	45º	2DC	<55	4	4-25		126	
EC-H4S-CF	Different helix with variable pitch	DC	<55	4	6-20		115	
EC-H4M-CF-E	Different helix with variable pitch	2DC	<55	4	6-20		115	
EC-H4-L/M/XL/CFR	Different helix with variable pitch	-	<55	4	3-25		117	
ECP-H4L-CFR	Different helix with variable pitch	2DC	<55	4	6-20		116	
EC-E7/H7-CF	Different helix with variable pitch	2DC, 4DC	<55	7	2-20		119-120	
EC-H-CF	Different helix with variable pitch	2DC	<55	6-20	6-20		123	
EC-E4L-CF	38º helix with variable pitch	2DC	<45	4	1-25		127	
EC-E5L-CF	38º helix with variable pitch	2.5DC	<45	5	6-20		127	
EFP-E4,5CF	38º helix with variable pitch	2DC	<55	4-5	6-20	High feed at small D.O.C.	132	
ECR-B-X/L/M/S	45º	1-2DC	<55	4-7	5-20		128	
ECR-B-MF	45º	2DC	<65	4,6	6-25	Excellent for hardened steel	129	
ECP-E-L	38º	2DC	<45	3,4	5-20	Recommended for stainless steel	129-130	
ERF-A/E-3,4,6	30º, 38º	2DC	<55	3-6	4-25	Fine pitch steel alloys	130	
ECR-T-M	20º	2DC	<55	4	6-20		131	

(1) Provides high surface finish in rough machining conditions

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Type	Helix Angle	Cutting Length	Workpiece Hardness HRc	No. of Flutes	Diameter Range		Page	
EBRF-T	20º	2DC	<55	3,4	6-20		131	
EFF-S	0º	0.05DC	<65	4	1-20		132	
ETR-A2	30º	1DC	<45	2	2-10		133	
EC-A2 (economical short/ medium/extra long)	30º	1-10DC	<45	2	1-20		135	
EC/ECC-A-2	30º	2-3.5DC	<45	2	2-20	Reinforced	134	
ECS/ECCS-E-3	38º	1-1.5DC	<45	3	2-20		133	
EC-B3 (economical-short/ medium)	45º	1-2DC	<45	3	1.5-20		137	
EC-E-3	38º	1-2.5DC	<45	3	1-20		138	
ECC-E-3	38º	2-3.5DC	<45	3	2-20	Reinforced	139	
ECU-E-3	38º	2DC	<45	3	2.8-19.7	Undersized for keyholes	138	
ECU-E-3-R	38º	1.25DC	<45	3	3.8-11.7	Undersized for keyholes with corner radii	139	
EC-B-3/3R	45º	2-3.5DC	<45	3	2-20		140	
EC-B-4/4R	45º	2-3.5DC	<45	4	2-20		141	
EC-A-4/4R	30º	2-3.5DC	<45	4	2-20		142	
EC-A4(economical-medium&extra long)	30º	2-10DC	<45	4	2-20		144	
ECC-A-4	30º	2-3.5DC	<45	4	2-20	Reinforced	143	
EC-A2-M	30º	1-1.5DC	<65	2	0.4-6		147-148	
EC-A2-R/H	30°	1.5DC	<65	2	0.1-12		145-146	

(1) Provides high surface finish in rough machining conditions

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Type	Helix Angle	Cutting Length	Workpiece Hardness HRc	No. of Flutes	Diameter Range		Page	
EC-A2 (medium length)	30º	2DC	<65	2	1-25		149	
EC-A4	30º	2-3DC	<65	4	2-25		150	
EC-B4-R	45º	1.5DC	<65	4	10-22		150	
ECH-B-6	45º	2DC	<65	6	6-20	High temp. alloys	151	
ECL-B-4/6	45º	3-5DC	<45	4,6	6-20		151	
ECXL-B-4,6	45º	4-6DC	<45	4,6	10-20		152	
EC-D6	50º	2DC	<65	6	6-20		152	
EC-B6-H	45º	2DC	<65	6	6-20		153	
EC-B6	45º	4DC	<65	6	6-25		153	
EPN-F	15º	2-4DC	CFRP Composites	9-12	3-12		161	
EPNC	15º	2-4DC	CFRP Composites	10	8-12		161	
EPND	15º	2-4DC	CFRP Composites	6-10	1.6-12		161	
EPX	15º	2DC	CFRP Composites	6-8	6-12		162	
ECA-H3-CF	39-41° variable helix	2DC	Aluminum	3	1-25		154-156	
ECA-H4-CF	Different helix with variable pitch	1.5-2DC	Aluminum	4	6-25		156	
ECAP-H3-CF	Different helix with variable pitch	1.5-2DC	Aluminum	3	10-25		157	
ERC-E-3	38º	2DC	Aluminum	3	6-25		157	
ECR-B3-R	45º	1-3DC	Aluminum	3	6-20		158	

(1) Provides high surface finish in rough machining conditions

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Type	Helix Angle	Cutting Length	Workpiece Hardness HRc	No. of Flutes	Diameter Range		Page	
ECR-B3-R-C	45°	DC	Aluminum	3	8-25		158	
ECA-B-2	45	2-3DC	Aluminum	2	4-20	High Speed Machining on aluminum	159	
ECA-B-3	45°	2-3DC	Aluminum	3	4-20	High Speed Machining on aluminum	160	
ECA-F-2	55°	2-5DC	Aluminum	2	4-25	High Speed Machining on aluminum	160	
EB-H-CF	Different helix with variable pitch	2DC	<55	3-5	6-20		163	
EB-E4L-CF	38°	2DC	<45	4	3-16		164	
EB-A-2	30°	1-2DC	<45	2	2-20		164	
EB-A2 (stub cut length)	30°	1DC	<70	2	1-25	Stub cut length	165	
EB-A2 (rib processing)	30°	1.5DC	<65	2	0.4-6		170-171	
EB-A2-H (rib processing)	30°	0.8-1DC	<65	2	0.1-4.0		169	
EB-A2 (long with neck)	30°	2-3DC	<65	2	3-25	Long overhang length	171	
EB-A2 (extra long)	30°	2-3DC	<65	2	2-20	Extra long overhang length	172	
EB-A2 (tapered flute & neck)	30°	2DC	<65	2	1-12	Tapered neck	172	
EB-A2 (precision stub cut)	30°	1DC	<65	2	1-25	Precision stub cut	173	
ESB-A2	30°	0.75DC	<65	2	3-16	Long overhand length	174	
ESB-A4	30°	0.75DC	<65	4	5-16		174	
EBM-A-2	30°	2-3DC	<45	2	0.4-2	Miniature	173	
EB-A2 (economical)	30°	2-3DC	<45	2	2-20		165	

(1) Provides high surface finish in rough machining conditions

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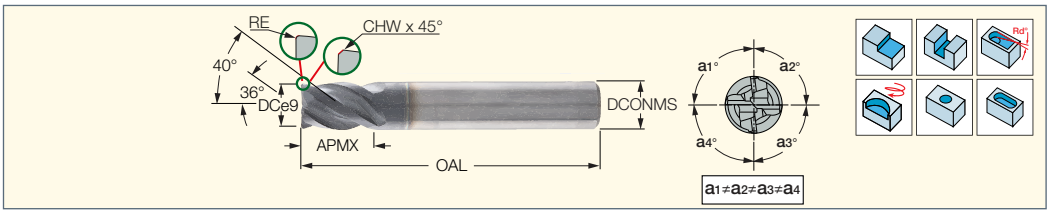
Type	Helix Angle	Cutting Length	Workpiece Hardness HRc	No. of Flutes	Diameter Range		Page	
EB-A2 (economical- extra long)	30º	3.5-10DC	<45	2	3-20		166	
EB-A-3	30º	1.25DC	<45	3	1.6-12		166	
EB-A4 (economical-short)	30º	1-2DC	<45	4	2-20		167	
EB-A-4 (short length)	30º	1-1.5DC	<45	4	2-20		167	
EB-A-4 (medium length)	30º	2-2.5DC	<45	4	3-20		168	
EBL-A-4	30º	2-3DC	<45	4	4-16		168	
ECF../45		1.5-2.5DC	<65	4	4-12		174	
ECD-S2	straight	-	-	2	3-12		174	
SC EOB		2.5-3D	<45	4	8-12	3D Profiling	175	
SC ETB		1D	<45	4	8-12	3D Profiling	175	
SC ELB		0.7D	<45	4,6	8-12	3D Profiling	176	

(1) Provides high surface finish in rough machining conditions

SOLIDMILL TEC LINE
CHATTERFREE SOLID MILL LINE

EC-H4S-CF

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



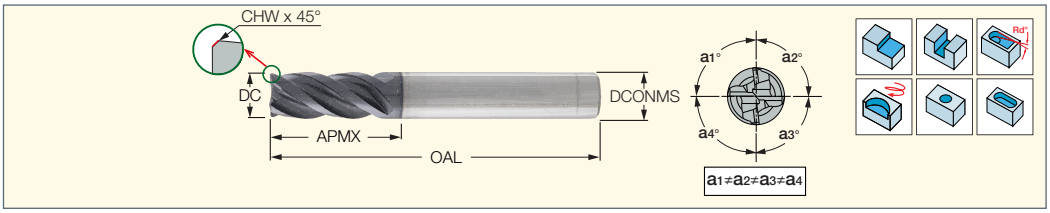
Designation	Dimensions										Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	RE	RMPX°(2)	Shank(3)	CHW	KCH	IC900	IC608	f_z (mm/t)
EC-H4S 06-06C06CF-E50	6.00	6.00	6.00	50.00	4	-	5.0	C	0.25	45.0	•	•	0.03-0.08
EC-H4S 06-06C06CFR.2E50	6.00	6.00	6.00	50.00	4	0.20	5.0	C	-	-	•	•	0.03-0.08
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 177-184
(1) Number of flutes
(2) Maximum ramping angle
(3) C-Cylindrical, W-Weldon

SOLIDMILL TEC LINE
CHATTERFREE SOLID MILL LINE

EC-H4M-CF-E

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



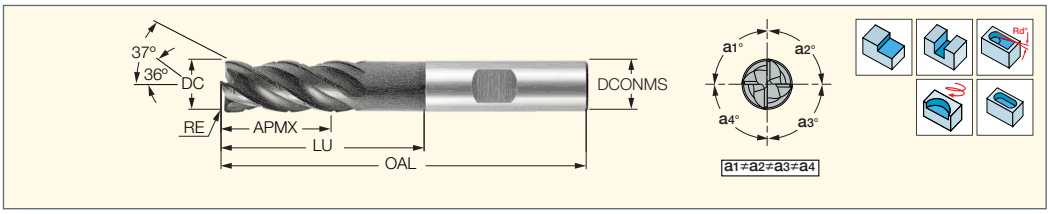
Designation	Dimensions									IC900	Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	RMPX°(2)	Shank(3)	CHW	KCH		f_z (mm/t)
EC-H4M 06-12C06CF-E57	6.00	6.00	12.00	57.00	4	5.0	C	0.25	45.0	•	0.03-0.07
EC-H4M 06-12W06CF-E57	6.00	6.00	12.00	57.00	4	5.0	W	0.25	45.0	•	0.03-0.07
EC-H4M 08-16C08CF-E63	8.00	8.00	16.00	63.00	4	5.0	C	0.30	45.0	•	0.03-0.09
EC-H4M 08-16W08CF-E63	8.00	8.00	16.00	63.00	4	5.0	W	0.30	45.0	•	0.03-0.09
EC-H4M 10-20C10CF-E72	10.00	10.00	20.00	72.00	4	5.0	C	0.40	45.0	•	0.03-0.09
EC-H4M 10-20W10CF-E72	10.00	10.00	20.00	72.00	4	5.0	W	0.40	45.0	•	0.03-0.09
EC-H4M 12-24C12CF-E83	12.00	12.00	24.00	83.00	4	5.0	C	0.50	45.0	•	0.04-0.10
EC-H4M 12-24W12CF-E83	12.00	12.00	24.00	83.00	4	5.0	W	0.50	45.0	•	0.04-0.10
EC-H4M 16-32C16CF-E92	16.00	16.00	32.00	92.00	4	5.0	C	0.60	45.0	•	0.05-0.11
EC-H4M 16-32W16CF-E92	16.00	16.00	32.00	92.00	4	5.0	W	0.60	45.0	•	0.05-0.11
EC-H4M 20-40C20CF-E104	20.00	20.00	40.00	104.00	4	5.0	C	0.60	45.0	•	0.05-0.11
EC-H4M 20-40W20CF-E104	20.00	20.00	40.00	104.00	4	5.0	W	0.60	45.0	•	0.05-0.11

• For user guide, see pages 177-184
(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	
ECP-H4L 10-22/32W10CFR.5	10.00	10.00	22.00	32.0	72.00	4	W	0.50	●
ECP-H4L 10-22/40W10CFR.5	10.00	10.00	22.00	40.0	80.00	4	W	0.50	●
ECP-H4L 12-26/38W12CFR.5	12.00	12.00	26.00	38.0	83.00	4	W	0.50	●
ECP-H4L 12-26/50W12CFR.5	12.00	12.00	26.00	50.0	95.00	4	W	0.50	●
ECP-H4L 16-34/50W16CFR1	16.00	16.00	34.00	50.0	100.00	4	W	1.00	●
ECP-H4L 16-34/64W16CFR1	16.00	16.00	34.00	64.0	116.00	4	W	1.00	●
ECP-H4L 20-42/62W20CFR1	20.00	20.00	42.00	62.0	112.00	4	W	1.00	●
ECP-H4L 20-42/75W20CFR1	20.00	20.00	42.00	75.0	125.00	4	W	1.00	●

(1) Number of flutes
(2) C-Cylindrical, W-Weldon

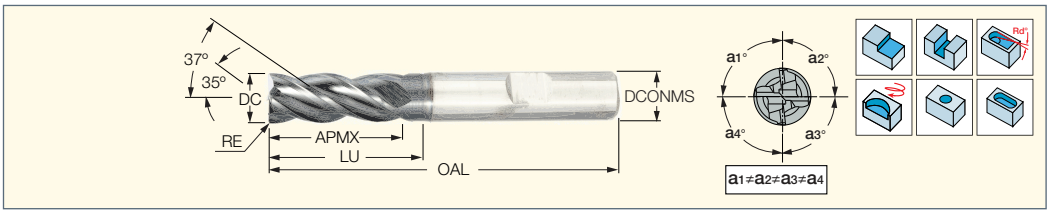


SOLIDMILL PREMIUM LINE

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 DC	DCONMS	APMX	LU	OAL	NOF(1)	RE	RMPX°(2)	Shank(3)	CSP(4)	IC900	Recommended Machining Data f_z (mm/t)
EC-H4L 03-08/10C6CFR.2	3.00	6.00	8.00	10.00	52.00	4	0.20	5.0	C	0	•	-
EC-H4L 04-11/13C6CFR.2	4.00	6.00	11.00	13.00	52.00	4	0.20	5.0	C	0	•	-
EC-H4L 05-13/20C6CFR.2	5.00	6.00	13.00	20.00	57.00	4	0.20	5.0	C	0	•	-
EC-H4L 06-14/20C6CFR.2	6.00	6.00	14.00	20.00	52.00	4	0.20	5.0	C	0	•	-
EC-H4L 06-14/20C6CFR.2C	6.00	6.00	14.00	20.00	52.00	4	0.20	5.0	C	1	•	-
EC-H4L 06-14/25C6CFR.2	6.00	6.00	14.00	25.00	57.00	4	0.20	5.0	C	0	•	-
EC-H4L 06-14/25C6CFR.2C	6.00	6.00	14.00	25.00	57.00	4	0.20	5.0	C	1	•	-
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 06-12W06CFR0.2-57	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 08-18/25W8CFR.3	8.00	8.00	18.00	25.00	63.00	4	0.30	5.0	W	0	•	-
EC-H4L 08-18/25W8CFR.3C	8.00	8.00	18.00	25.00	63.00	4	0.30	5.0	W	1	•	-
EC-H4L 08-18/32W8CFR.3	8.00	8.00	18.00	32.00	63.00	4	0.30	5.0	W	0	•	-
EC-H4L 08-18/32W8CFR.3C	8.00	8.00	18.00	32.00	63.00	4	0.30	5.0	W	1	•	-
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 08-16W08CFR0.4-63	8.00	8.00	16.00	-	63.00	4	0.40	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	•	-
EC-H4L 10-22/32W10CFR.5C	10.00	10.00	22.00	32.00	72.00	4	0.50	5.0	W	1	•	-
EC-H4L 10-22/40W10CFR.5	10.00	10.00	22.00	40.00	80.00	4	0.50	5.0	W	0	•	-
EC-H4L 10-22/40W10CFR.5C	10.00	10.00	22.00	40.00	80.00	4	0.50	5.0	W	1	•	-
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
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-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	•	-
EC-H4L 12-26/38W12CFR.5C	12.00	12.00	26.00	38.00	83.00	4	0.50	5.0	W	1	•	-
EC-H4L 12-26/50W12CFR.5	12.00	12.00	26.00	50.00	95.00	4	0.50	5.0	W	0	•	-
EC-H4L 12-26/50W12CFR.5C	12.00	12.00	26.00	50.00	95.00	4	0.50	5.0	W	1	•	-
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-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	•	-
EC-H4L 16-34/50W16CFR1C	16.00	16.00	34.00	50.00	100.00	4	1.00	5.0	W	1	•	-
EC-H4L 16-34/64W16CFR1	16.00	16.00	34.00	64.00	116.00	4	1.00	5.0	W	0	•	-
EC-H4L 16-34/64W16CFR1C	16.00	16.00	34.00	64.00	116.00	4	1.00	5.0	W	1	•	-
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 16-32W16CFR0.8-92	16.00	16.00	32.00	-	92.00	4	0.80	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	•	-
EC-H4L 20-42/64W20CFR1C	20.00	20.00	42.00	64.00	112.00	4	1.00	5.0	W	1	•	-
EC-H4L 20-42/75W20CFR1	20.00	20.00	42.00	75.00	125.00	4	1.00	5.0	W	0	•	-
EC-H4L 20-42/75W20CFR1C	20.00	20.00	42.00	75.00	125.00	4	1.00	5.0	W	1	•	-
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-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 177-184

(1) Number of flutes

(2) Maximum ramping angle

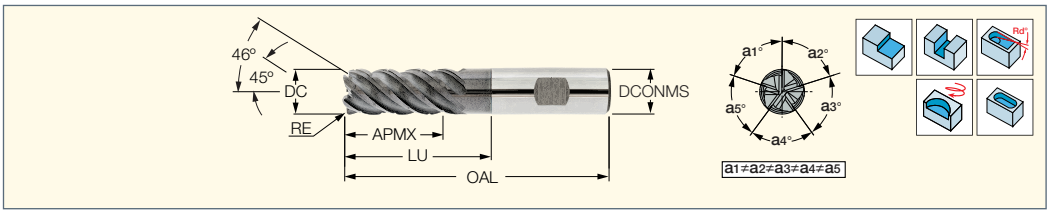
(3) C-Cylindrical, W-Weldon

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

CHATTERFREE SOLID MILL LINE

ECP-H5L-CFR

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



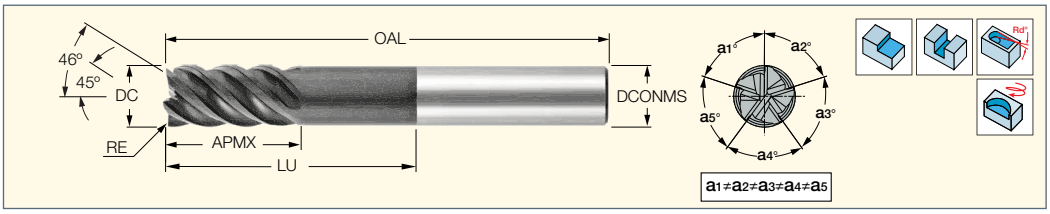
Designation	Dimensions								IC900
	DC	DCONMS	APMX	LU	OAL	NOF(1)	Shank	RE	
ECP-H5L 08-18/26W08CFR.3	8.00	8.00	18.00	26.0	63.00	5	W	0.30	●
ECP-H5L 08-18/32W08CFR.3	8.00	8.00	18.00	32.0	68.00	5	W	0.30	●
ECP-H5L 10-22/32W10CFR.5	10.00	10.00	22.00	32.0	72.00	5	W	0.50	●
ECP-H5L 10-22/40W10CFR.5	10.00	10.00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

(1) Number of flutes

CHATTERFREE SOLID MILL LINE

EC-H5M-CFR

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



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

• For user guide, see pages 177-184

(1) Number of flutes

(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

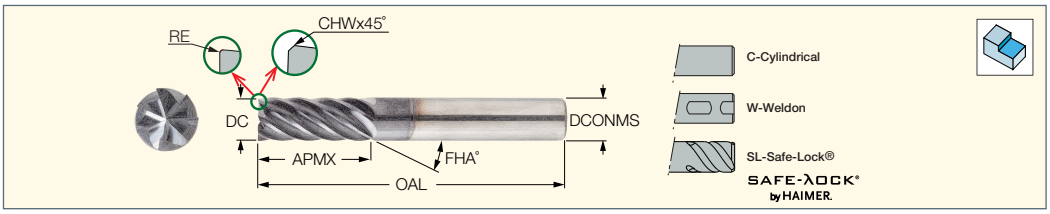
(4) 0 - Without coolant supply, 1 - With coolant supply

SOLIDMILL PREMIUM LINE

CHATTERFREE SOLID MILL LINE

EC-E7/H7-CF

7 Flute Endmills with Different Helix and Variable Pitch for CHATTERFREE High Speed Finish Milling



Designation	Dimensions												IC902	Recommended Machining Data
	DC	DCONMS	APMX	OAL	Shank[2]	NOF[3]	FHA	RE	RETOL[4]	CHW	KCH	RMPX°[5]		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
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

• Enables processing at a radial width of cut (AE) of up to 0.10xDC ,For user guide,see pages 177-184

(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

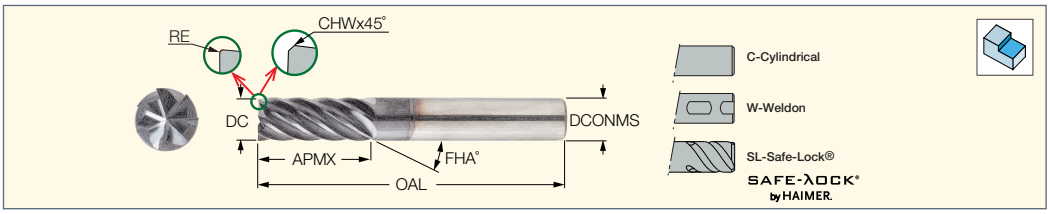
(4) Corner radius tolerance (+/-)

(5) Maximum ramping angle

SOLIDMILL PREMIUM LINE
CHATTERFREE SOLID MILL LINE

EC-E7/H7-CF (continued)

7 Flute Endmills with Different Helix and Variable Pitch for CHATTERFREE High Speed Finish Milling



Designation	Dimensions												IC902	Recommended Machining Data
	DC	DCONMS	APMX	OAL	Shank[2]	NOF[3]	FHA	RE	RETOL[4]	CHW	KCH	RMPX°[5]		f_z (mm/t)
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 177-184

[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

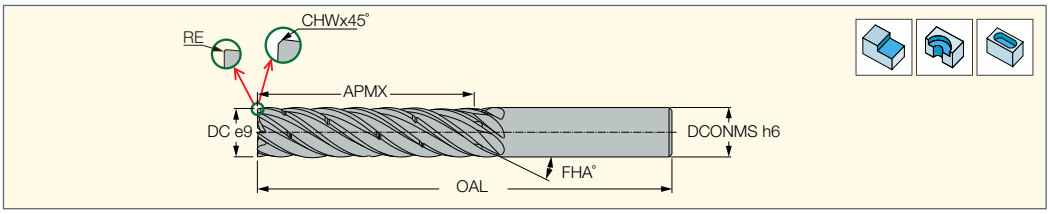
[4] Corner radius tolerance (+/-)

[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											IC902	Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF[1]	FHA	Shank[2]	RE	RETOL[3]	CHW	KCH		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 06-24C06CF-70	6.00	6.00	24.00	70.00	7	36.0	C	-	-	0.20	45.0	●	0.02-0.07
ECP-H7 06-36C06CF-90	6.00	6.00	36.00	90.00	7	36.0	C	-	-	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 08-32C08CF-90	8.00	8.00	32.00	90.00	7	36.0	C	-	-	0.20	45.0	●	0.02-0.09
ECP-H7 08-48C08CF-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 10-30C10CFR1.6-85	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 10-40C10CFR1.6-100	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 12-36C12CFR1.6-95	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 12-48C12CFR1.6-110	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-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 16-96C16CF-175	16.00	16.00	96.00	175.00	7	36.0	C	-	-	0.30	45.0	●	0.05-0.13
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 20-60C20CF-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 20-60C20CFR2.0-140	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

(1) Number of flutes
(2) C-Cylindrical
(3) Corner radius tolerance (+/-)

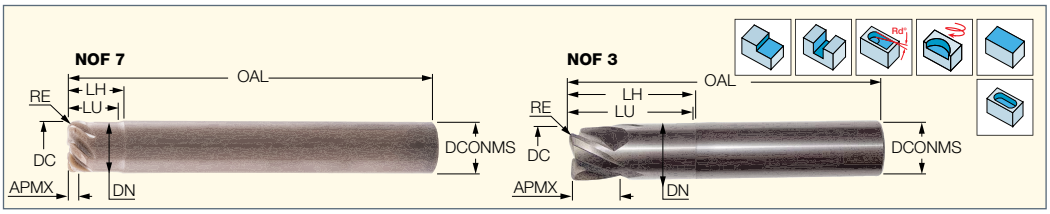
Table - Average Cutting Data for ECP-H7...

Workpiece Material						Cutting Speed	f_z [mm/tooth]		
ISO class DIN/ISO 513	Description	ISCAR mat group*	Hardness HB	Typical Materials AISI/SAE/ASTM	Typical Materials DIN W.-Nr.	V_c [m/min]	Starting	Range	Coolant
P	Non-alloy steel and cast steel, free cutting steel <0.25%C	1	125	1020	1.1151	210-300	0.12	0.05-0.2	Dry
	Non-alloy steel and cast steel, free cutting steel >=0.25%C	2	190	1040	1.0511	200-280	0.12	0.05-0.2	
	Non-alloy steel and cast steel, free cutting steel <0.55%C	3	250	1040	1.1186	200-260	0.1	0.05-0.2	
	Non-alloy steel and cast steel, free cutting steel >=0.55%C	4	220	1060	1.0601	180-250	0.1	0.05-0.2	
	Non-alloy steel and cast steel, free cutting steel >=0.55%C	5	300	E 360	1.0070	180-240	0.1	0.05-0.2	
	Low alloy & cast steel (less than 5% of alloying elements)	6	200	5120	1.0841	170-240	0.1	0.05-0.2	
		7	275	4340	1.6565	160-230	0.1	0.05-0.2	
		8	300	6150	1.8159	150-230	0.1	0.05-0.2	
		9	350		1.4882	140-220	0.1	0.05-0.2	
	High alloyed steel, cast steel and tool steel	10	200	H13	1.2344	120-210	0.08	0.05-0.2	
		11	325	T15	1.3243	110-170	0.08	0.05-0.2	
	Ferritic and martensitic stainless	12	200	420	1.4028	150-230	0.08	0.03-0.16	Dry / Wet
		13	240	430	1.4021	140-220	0.08	0.03-0.16	
M	Austenitic and duplex stainless	14	180	304L	1.4306	100-160	0.06	0.03-0.16	Wet
K	Grey cast iron	15	180	CLASS25	0.6015	150-250	0.1	0.03-0.16	Dry
		16	260	CLASS45	0.6030	120-200	0.1	0.03-0.16	
	Nodular cast iron	17	160	80-55-06	0.7050	150-300	0.08	0.03-0.16	
		18	250	100/70/03	0.7070	100-250	0.08	0.03-0.16	
	Malleable cast iron	19	130	32510	0.8135	150-300	0.08	0.03-0.16	
		20	230	90001	0.8170	100-220	0.08	0.03-0.16	
S	High temp. alloys, Fe-based	31	200	330	1.4864	50-60	0.08	0.02-0.16	Wet
		32	280		1.4977	40-50	0.03	0.02-0.16	
	High temp. alloys, Ni- or Co- based	33	250	Inconel 625	2.4856	35-50	0.04	0.02-0.16	
		34	350	Inconel 718	2.4668	25-35	0.03	0.02-0.16	
		35	320	Inconel X-750	2.4669	30-40	0.03	0.02-0.16	
	Titanium (pure)	36	HRC 30-32	AMS 5397	2.4674	65-110	0.1	0.02-0.16	
	Titanium alloys	37	HRC 30-32	AMS R56400	3.7165	35-70	0.08	0.02-0.16	
H	Hardened steel	38.1	HRC 45-49	4340	1.6565	55-75	0.03	0.02-0.16	Dry
		38.2	HRC 50-55	P20	1.2330	55-75	---	---	

SOLIDMILL CERAMIC ENDMILL

EC-E3/E7-CE (ceramic)

3 and 7 Flute Solid Ceramic Endmills with Relieved Necks for Machining Nickel Base 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-E3 20-20/40C20R2.N93CE	20.00	15.00	39.50	40.0	19.50	2.50	3	20.00	3.0	93.00	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

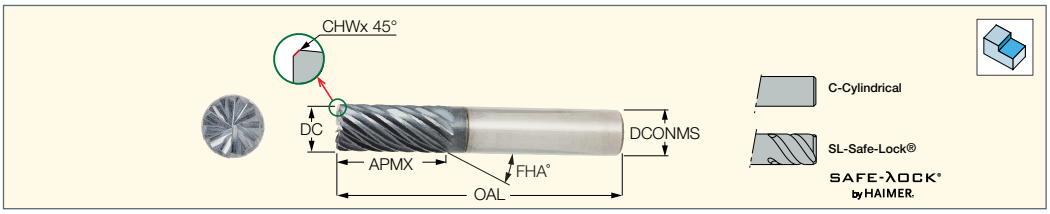
P	M	K	N(K)	S(M)	H(P/K)
		+	+	+	

+ recommended

SOLIDMILL PREMIUM LINE
CHATTERFREE SOLID MILL LINE

EC-H-CF

6-20 Flute Endmills with Different Helix and Variable Pitch for CHATTERFREE 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	72.00	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	20.00	72.00	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	35.0	SL	-	-	●	0.05-0.13

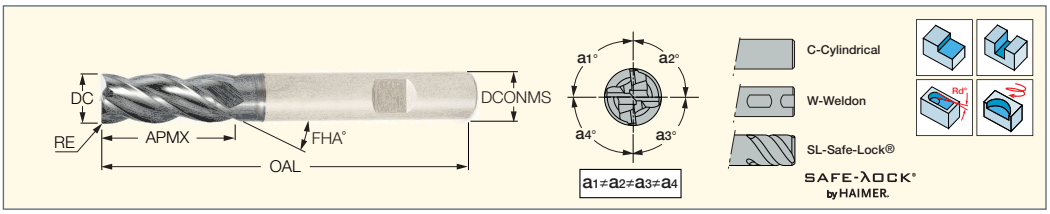
- Enables processing at a radial width of cut (AE) of up to 0.06xDC .For user guide,see pages 177-184

(1) With Safe-Lock® (by Haimer) pull-out prevention helical grooves
(2) Number of flutes
(3) C-Cylindrical, SL-Safe-Lock® (by Haimer)

CHATTERFREE SOLID MILL LINE
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(3)	RE	FHA	RMPX°(4)	Shank(5)	CSP(6)	Tough ↔ Hard IC300	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 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 06-12C06CFR.2-57C (1)	6.00	6.00	12.00	57.00	4	0.20	36.0	5.0	C	1	●		0.03-0.06
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 06-12W06CFR0.2-57	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 08-16W08CFR.4-63C (1)	8.00	8.00	16.00	63.00	4	0.40	36.0	5.0	W	1	●		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 (2)	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 (2)	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 10-20W10CFR.5-72C (1)	10.00	10.00	20.00	72.00	4	0.50	36.0	5.0	W	1	●		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 (2)	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 12-24W12CFR.6	12.00	12.00	24.00	83.00	4	0.60	36.0	5.0	W	0	●		0.04-0.08
ECK-H4M 12-24W12CFR.6-83C (1)	12.00	12.00	24.00	83.00	4	0.60	36.0	5.0	W	1	●		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 (2)	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 (2)	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 16-32W16CFR.8-92C (1)	16.00	16.00	32.00	92.00	4	0.80	36.0	5.0	W	1	●		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 (2)	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

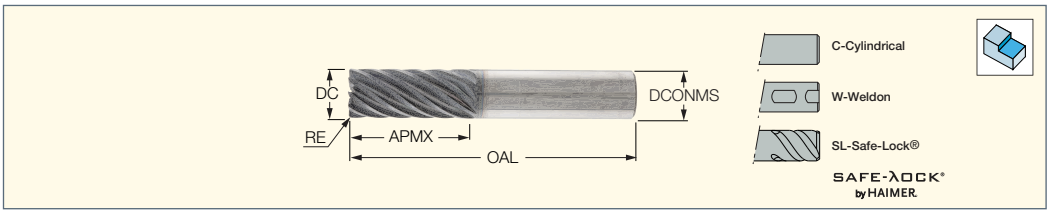
- For user guide, see pages 177-184

(1) With coolant channel
(2) With Safe-Lock® (by Haimer) pull-out prevention helical grooves
(3) Number of flutes
(4) Maximum ramping angle
(5) C-Cylindrical, W-Weldon, SL-Safe-Lock® (by Haimer)
(6) 0 - Without coolant supply, 1 - With coolant supply

CHATTERFREE SOLID MILL LINE
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 10-22SL10CFR0.5T72 [1]	10.00	10.00	22.00	72.00	7	0.50	5.0	SL	•
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	5.0	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 177-184

[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)

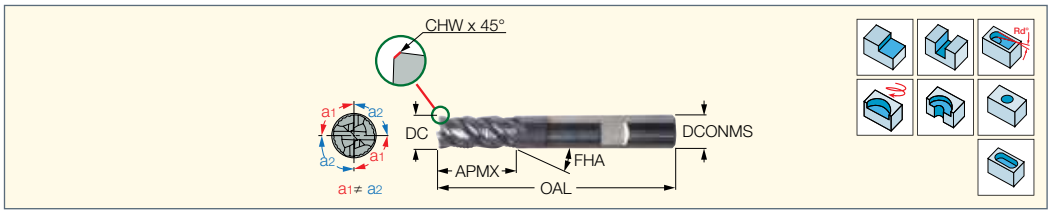
Feed Recommendations

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 CHATTERFREE 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 177-184

(1) Number of flutes

(2) Maximum ramping angle

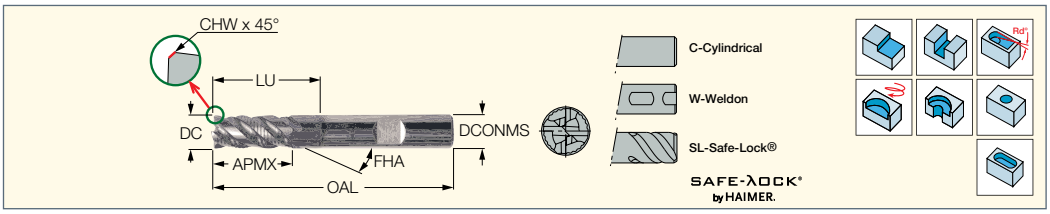
(3) C-Cylindrical, W-Weldon



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	IC300	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 06-14C06-57C	6.00	6.00	14.00	-	57.00	4	45.0	5.0	C	1	0.25	45.0	•			0.03-0.05
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 08-18W08-63C	8.00	8.00	18.00	-	63.00	4	45.0	5.0	W	1	0.30	45.0	•			0.03-0.06
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 10-22W10-72C	10.00	10.00	22.00	-	72.00	4	45.0	5.0	W	1	0.30	45.0	•			0.04-0.07
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 12-26W12-83C	12.00	12.00	26.00	-	83.00	4	45.0	5.0	W	1	0.40	45.0	•			0.04-0.08
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 16-34W16-92C	16.00	16.00	34.00	-	92.00	4	45.0	5.0	W	1	0.60	45.0	•			0.05-0.08
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 operation >= 0.05 x DC
- IC300 should be mainly used for machining exotic materials
- For user guide, see pages 177-184

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

(2) Number of flutes

(3) Maximum ramping angle

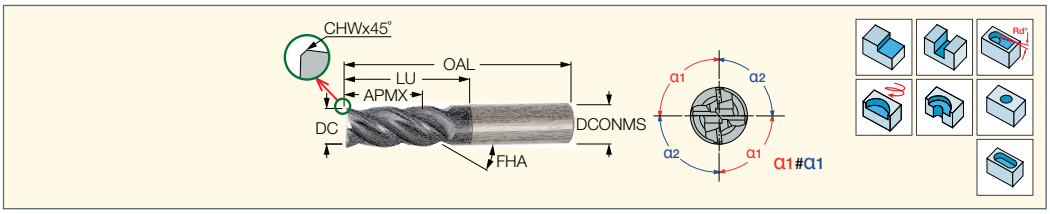
(4) C-Cylindrical, W-Weldon, SL-Safe-Lock® (by Haimer)

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

CHATTERFREE SOLID MILL LINE

EC-E4L-CF

4 Flute, 38° Helix Endmills with 3xD Relieved Neck and Variable Pitch for Chatter Dampening



Designation	Dimensions DC	DCONMS	APMX	LU	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	CHW	KCH	Tough ↔ Hard IC300	IC900	IC608	Recommended Machining Data f_z (mm/t)
EC-E4L 01-2/04C04CF50	1.00	4.00	2.20	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	4.30	6.10	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 06-14/20C06CF57	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 08-18/26C08CFS63	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 10-22/32C10CFS72	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 12-26/38C12CFS83	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 16-34/50C16CF100	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	W	0.60	45.0	•	•	•	0.05-0.13
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 25-50/65C25CF121	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 25-50/65W25CF121	25.00	25.00	50.00	65.00	121.00	4	38.0	5.0	W	0.60	45.0		•		0.05-0.17

• IC300 should be mainly used for machining exotic materials • For user guide, see pages 177-184

(1) Number of flutes

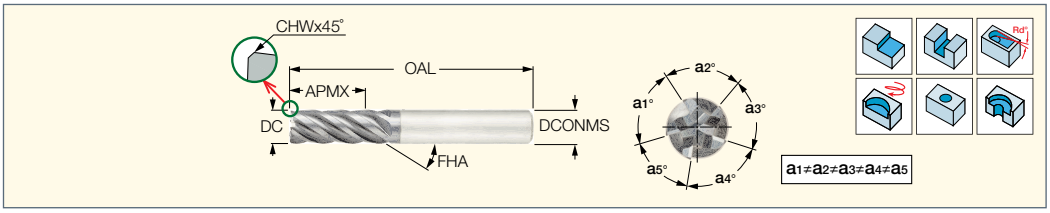
(2) Maximum ramping angle

(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 DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	CHW	KCH	IC900	Recommended Machining Data 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 177-184

(1) Number of flutes

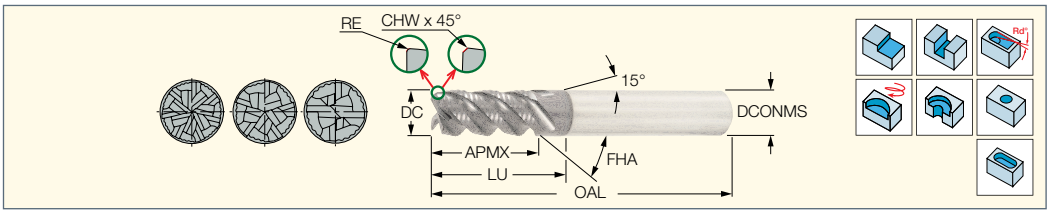
(2) Maximum ramping angle

(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												Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	NOF[2]	FHA	RMPX°[3]	Shank[4]	RE	CHW	KCH	IC300	IC900	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	-	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 177-184

(1) Cannot be used for plunging application

(2) Number of flutes

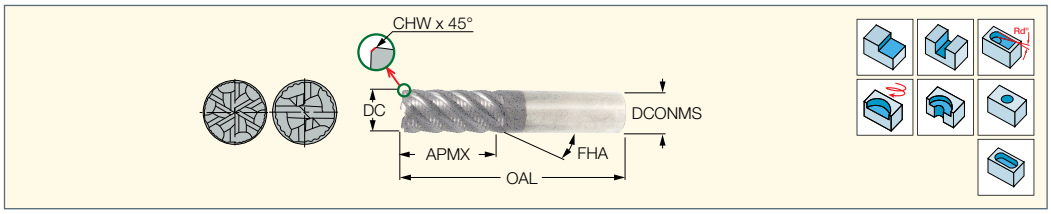
(3) Maximum ramping angle

(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 DC	DCONMS	APMX	OAL	NOF(2)	FHA	RMPX°(3)	Shank(4)	CHW	KCH	IC900	Recommended Machining Data 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 177-184

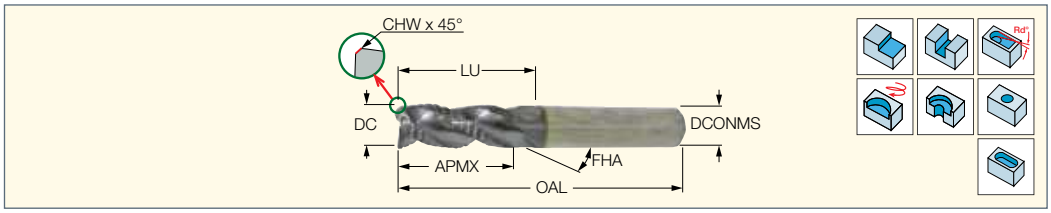
..

(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

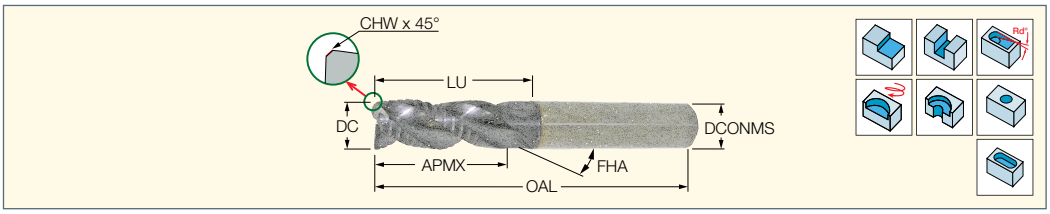
• Most recommended for machining stainless steel. • For user guide, see pages 177-184

(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)	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	0.50	45.0	•	0.05-0.15

• Most recommended for machining stainless steel. • For user guide, see pages 177-184

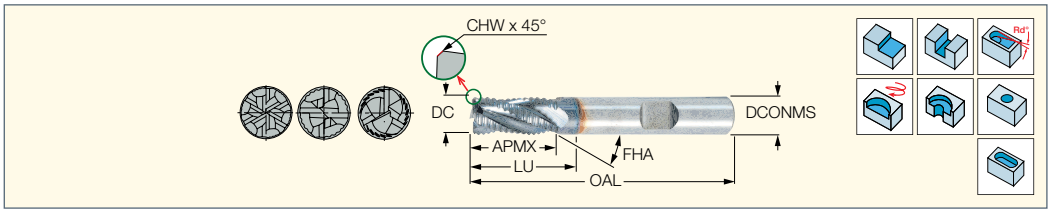
(1) Number of flutes

(2) C-Cylindrical, W-Weldon

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 DC	DCONMS	APMX	LU	OAL	NOF(2)	FHA	RMPX°(3)	Shank(4)	CHW	KCH	IC900	Recommended Machining Data 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 177-184

(1) No center cutting • Cannot be used for plunging application

(2) Number of flutes

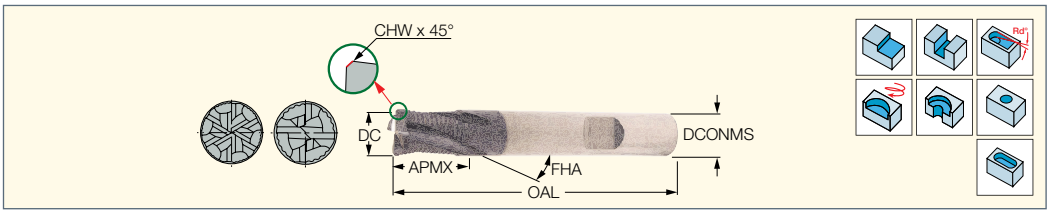
(3) Maximum ramping angle

(4) C-Cylindrical, W-Weldon

SOLIDSHRED

ECR-T-M

4 Flute, 20° Helix Medium Length Solid Carbide Roughing Endmills for High Stock Removal Rates



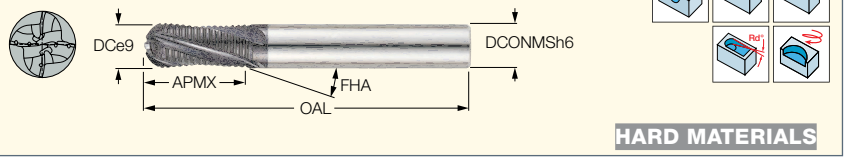
Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	CHW	KCH	IC900	Recommended Machining Data f_z (mm/t)
ECR-T4M 06-10-C06-57	6.00	6.00	10.00	57.00	4	20.0	5.0	C	0.30	45.0	●	0.03-0.06
ECR-T4M 06-10-W06-57	6.00	6.00	10.00	57.00	4	20.0	5.0	W	0.30	45.0	●	0.03-0.06
ECR-T4M 08-16-C08-63	8.00	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 177-184
(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



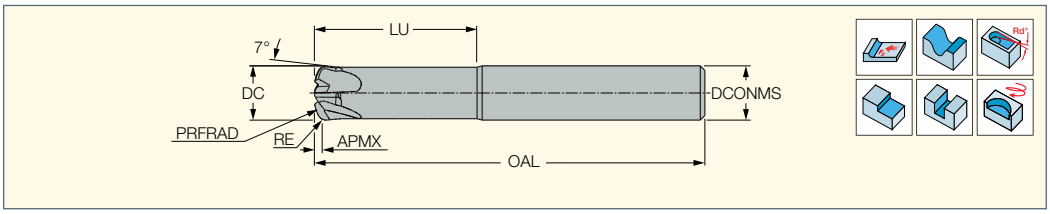
Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RETOL(3)	IC903
EBRF-T3 06-16C06M57	6.00	6.00	16.00	57.00	3	20.0	C	0.010	●
EBRF-T3 08-16C08M63	8.00	8.00	16.00	63.00	3	20.0	C	0.010	●
EBRF-T4 10-22C10M72	10.00	10.00	22.00	72.00	4	20.0	C	0.010	●
EBRF-T4 12-26C12M83	12.00	12.00	26.00	83.00	4	20.0	C	0.012	●
EBRF-T4 14-26C14M83	14.00	14.00	26.00	83.00	4	20.0	C	0.012	●
EBRF-T4 16-32C16M92	16.00	16.00	32.00	92.00	4	20.0	C	0.012	●
EBRF-T4 18-32C18M92 IC902	18.00	18.00	32.00	92.00	4	20.0	C	0.012	●
EBRF-T4 20-38C20M104	20.00	20.00	38.00	104.00	4	20.0	C	0.012	●

• For user guide, see pages 177-184
(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



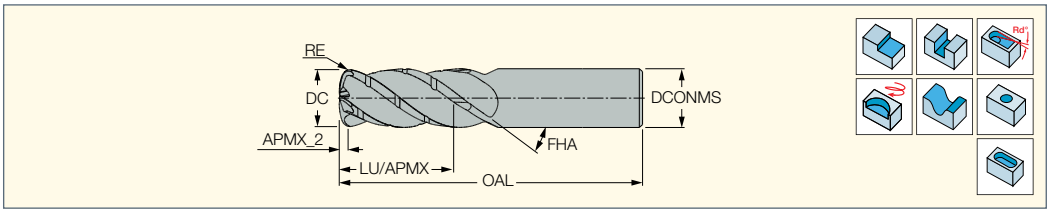
Designation	Dimensions DC	DCONMS	OAL	NOF(1)	LU	RE(2)	PRFRAD	APMX	Shank(3)	Tough ↔ Hard IC903	IC902	Recommended Machining Data f_z (mm/t)
EFF-S2 01-04/03C6RP.15M50	1.00	6.00	50.00	2	3.0	0.15	0.1	0.06	C		•	0.02-0.05
EFF-S2 02-07/06C6RP0.3M50	2.00	6.00	50.00	2	6.0	0.30	0.2	0.12	C		•	0.10-0.14
EFF-S2 03-1/09C06RP0.5M50	3.00	6.00	50.00	2	9.0	0.50	0.4	0.20	C		•	0.10-0.20
EFF-S4-04 020/14C06M57	4.00	6.00	57.00	4	14.0	0.70	0.5	0.20	C		•	0.10-0.25
EFF-S4-05 022/17C06M57	5.00	6.00	57.00	4	17.0	0.90	0.6	0.30	C		•	0.10-0.30
EFF-S4-06 030/20C06R1.0M	6.00	6.00	57.00	4	20.0	1.23	5.3	0.30	C	•		0.10-0.30
EFF-S6-06 025/20C06R0.7M	6.00	6.00	50.00	6	20.0	0.40	5.0	0.35	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	2.47	10.6	0.60	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	4.02	17.7	1.00	C	•		0.20-0.70

• For user guide, see pages 177-184
(1) Number of flutes
(2) Should be used for programming
(3) C-Cylindrical

CHATTERFREE SOLID MILL LINE
SOLID FEED MILL

EFP-E4,5CF

Solid Carbide Roughing Endmills with Chip Splitting Cutting Edges, Variable Pitch and Large Radius Frontal Edge



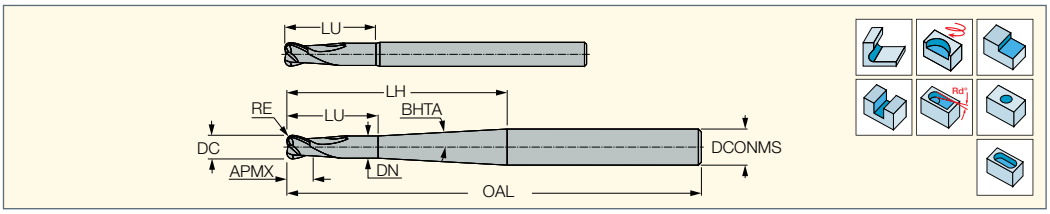
Designation	Dimensions DC	DCONMS	OAL	RE(2)	NOF(3)	FHA	APMX_2(4)	LU	RMPX°(5)	Shank(6)	IC903	Recommended Machining Data f_z (mm/t)
EFP-E4CF 06-12C06R1.0M57	6.00	6.00	57.00	1.00	4	38.0	0.30	12.00	5.0	C	•	0.02-0.30
EFP-E4CF 08-16C08R1.4M63	8.00	8.00	63.00	1.40	4	38.0	0.40	16.00	5.0	C	•	0.03-0.40
EFP-E4CF 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 177-184
(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 177-184

(1) Number of flutes

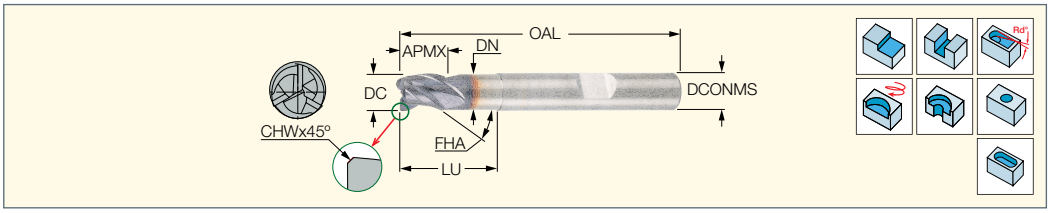
(2) Maximum ramping angle

(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												Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	LU	DN	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	CHW	KCH	IC300	IC900	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 177-184

(1) Number of flutes

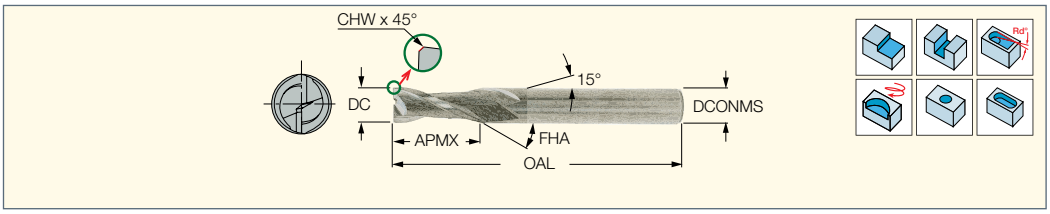
(2) Maximum ramping angle

(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	IC300	IC900	f_z (mm/t)
ECC020B07-2C03	2.00	3.00	7.00	38.00	2	45.0	5.0	C	0.10	45.0			●	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	0.10	45.0			●	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	0.10	45.0			●	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
ECC035A12-2C04	3.50	4.00	12.00	50.00	2	30.0	5.0	C	45.0	0.10		●		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
EC045A14-2C06	4.50	6.00	14.00	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
EC055A16-2C06	5.50	6.00	16.00	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	45.0	0.15			●	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
EC065A20-2C07	6.50	7.00	20.00	60.00	2	30.0	5.0	C	-	-		●		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	0.15	45.0			●	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
EC085A22-2C10	8.50	10.00	22.00	72.00	2	30.0	5.0	C	-	-		●		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	0.25	45.0			●	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 177-184

(1) Number of flutes

(2) Maximum ramping angle

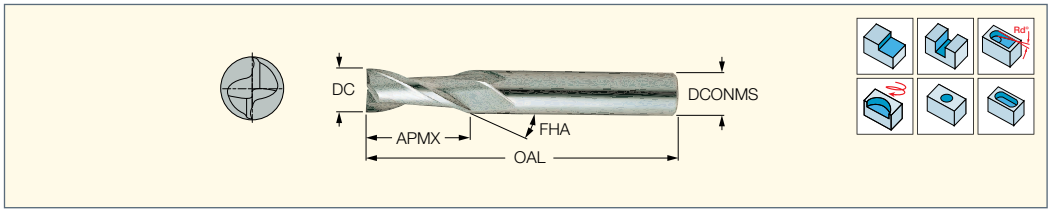
(3) C-Cylindrical, W-Weldon



SOLIDMILL TEC LINE

EC-A2 (economical-short/ medium/extra long)

Economical Type 2 Flute, 30° Helix Center Cutting, Short/ Medium/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	●	●	0.00-0.01
EC-A2 015-045C04E50	1.50	4.00	4.50	50.00	2	30.0	5.0	C	●	●	0.00-0.02
EC-A2 02-08C02E32	2.00	2.00	8.00	32.00	2	30.0	5.0	C	●	●	0.01-0.03
EC-A2 02-03W06E50	2.00	6.00	3.00	50.00	2	30.0	5.0	W	●	●	0.01-0.03
EC-A2 025-08C025E32	2.50	2.50	8.00	32.00	2	30.0	5.0	C	●	●	0.01-0.03
EC-A2 03-12C03E38	3.00	3.00	12.00	38.00	2	30.0	5.0	C	●	●	0.01-0.04
EC-A2 03-30C03E75	3.00	3.00	30.00	75.00	2	30.0	5.0	C	●	●	0.01-0.04
EC-A2 03-04W06E50	3.00	6.00	4.00	50.00	2	30.0	5.0	W	●	●	0.01-0.04
EC-A2 035-12C035E32	3.50	3.50	12.00	32.00	2	30.0	5.0	C	●	●	0.01-0.04
EC-A2 04-12C04E50	4.00	4.00	12.00	50.00	2	30.0	5.0	C	●	●	0.02-0.05
EC-A2 04-30C04E75	4.00	4.00	30.00	75.00	2	30.0	5.0	C	●	●	0.02-0.05
EC-A2 04-05W06E54	4.00	6.00	5.00	54.00	2	30.0	5.0	W	●	●	0.02-0.05
EC-A2 045-05W06E54	4.50	6.00	5.00	54.00	2	30.0	5.0	W	●	●	0.02-0.05
EC-A2 05-14C05E50	5.00	5.00	14.00	50.00	2	30.0	5.0	C	●	●	0.02-0.06
EC-A2 05-40C05E100	5.00	5.00	40.00	100.00	2	30.0	5.0	C	●	●	0.02-0.06
EC-A2 05-06W06E54	5.00	6.00	6.00	54.00	2	30.0	5.0	W	●	●	0.02-0.06
EC-A2 055-16C055E50	5.50	5.50	16.00	50.00	2	30.0	5.0	C	●	●	0.02-0.06
EC-A2 06-07W06E54	6.00	6.00	7.00	54.00	2	30.0	5.0	W	●	●	0.03-0.07
EC-A2 06-16C06E50	6.00	6.00	16.00	50.00	2	30.0	5.0	C	●	●	0.03-0.07
EC-A2 06-50C06E150	6.00	6.00	50.00	150.00	2	30.0	5.0	C	●	●	0.03-0.07
EC-A2 07-20C07E60	7.00	7.00	20.00	60.00	2	30.0	5.0	C	●	●	0.03-0.08
EC-A2 08-09W08E58	8.00	8.00	9.00	58.00	2	30.0	5.0	W	●	●	0.03-0.09
EC-A2 08-20C08E63	8.00	8.00	20.00	60.00	2	30.0	5.0	C	●	●	0.03-0.09
EC-A2 08-50C08E150	8.00	8.00	50.00	150.00	2	30.0	5.0	C	●	●	0.03-0.09
EC-A2 09-20C09E60	9.00	9.00	20.00	60.00	2	30.0	5.0	C	●	●	0.03-0.09
EC-A2 10-11W10E66	10.00	10.00	11.00	66.00	2	30.0	5.0	W	●	●	0.03-0.10
EC-A2 10-22C10E72	10.00	10.00	22.00	72.00	2	30.0	5.0	C	●	●	0.03-0.10
EC-A2 10-60C10E150	10.00	10.00	60.00	150.00	2	30.0	5.0	C	●	●	0.03-0.10
EC-A2 12-22C12E73	12.00	12.00	22.00	73.00	2	30.0	5.0	C	●	●	0.04-0.11
EC-A2 12-75C12E150	12.00	12.00	75.00	150.00	2	30.0	5.0	C	●	●	0.04-0.11
EC-A2 14-25C14E75	14.00	14.00	25.00	75.00	2	30.0	5.0	C	●	●	0.04-0.12
EC-A2 14-65C14E150	14.00	14.00	65.00	150.00	2	30.0	5.0	C	●	●	0.04-0.12
EC-A2 16-25C16E92	16.00	16.00	25.00	92.00	2	30.0	5.0	C	●	●	0.05-0.13
EC-A2 16-65C16E150	16.00	16.00	65.00	150.00	2	30.0	5.0	C	●	●	0.05-0.13
EC-A2 18-18W18E84	18.00	18.00	18.00	84.00	2	30.0	5.0	W	●		0.05-0.13
EC-A2 18-65C18E150	18.00	18.00	65.00	150.00	2	30.0	5.0	C	●	●	0.05-0.13
EC-A2 20-20W20E92	20.00	20.00	20.00	92.00	2	30.0	5.0	W	●	●	0.05-0.13
EC-A2 20-32C20E100	20.00	20.00	32.00	100.00	2	30.0	5.0	C	●	●	0.05-0.13
EC-A2 20-65C20E150	20.00	20.00	65.00	150.00	2	30.0	5.0	C	●	●	0.05-0.13

• For user guide, see pages 177-184

(1) Number of flutes

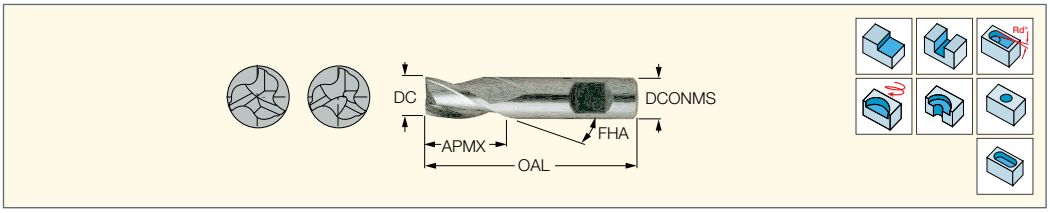
(2) Maximum ramping angle

(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-A3 05-08W06E39	5.00	6.00	8.00	39.00	3	30.0	5.0	W	●		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 177-184

(1) Number of flutes

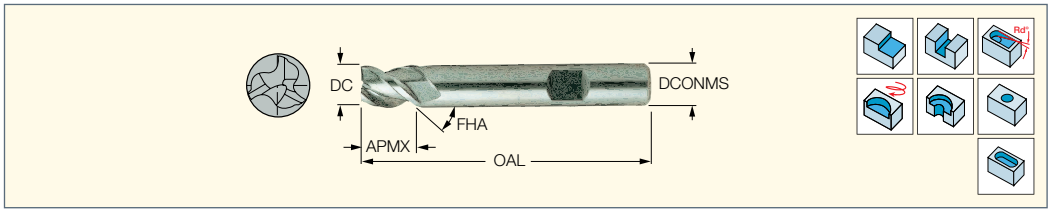
(2) Maximum ramping angle

(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



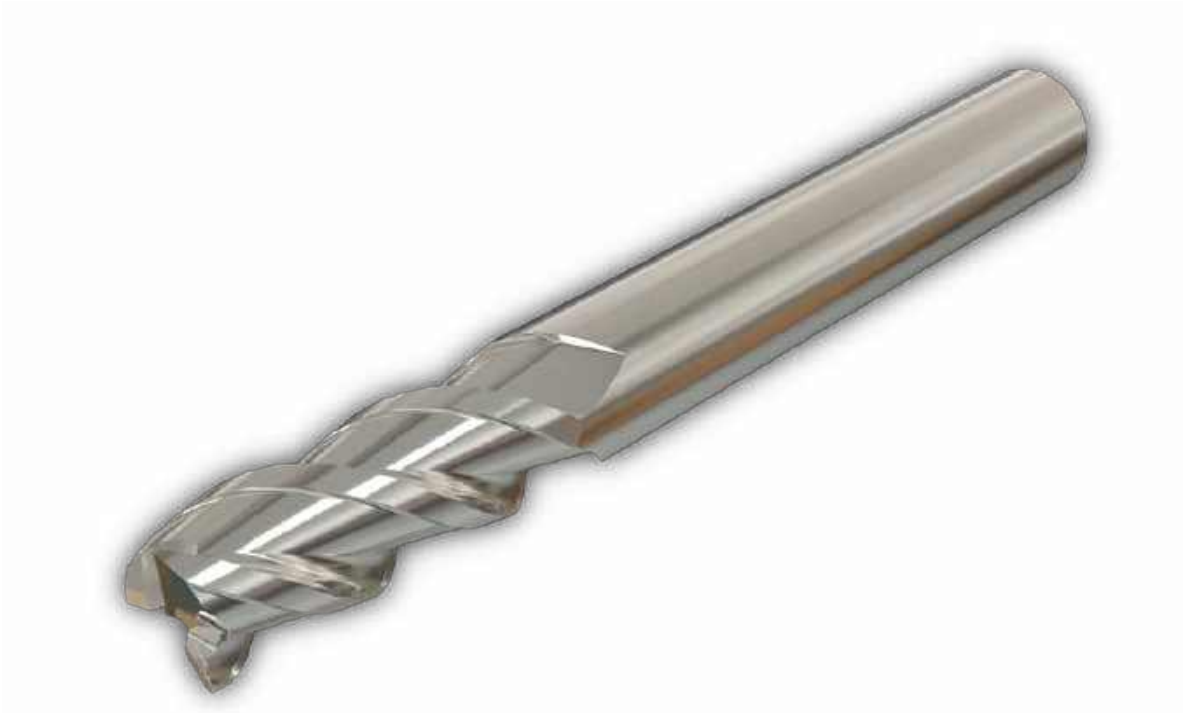
Designation	Dimensions								Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	IC08	IC900	f_z (mm/t)
EC-B3 015-03C03E38	1.50	3.00	3.00	38.00	3	45.0	5.0	C	●	●	0.00-0.02
EC-B3 02-03W06E50	2.00	6.00	3.00	50.00	3	45.0	5.0	W	●	●	0.01-0.03
EC-B3 03-04W06E50	3.00	6.00	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 14-14W14E75	14.00	14.00	14.00	75.00	3	45.0	5.0	W	●	●	0.04-0.12
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 177-184

(1) Number of flutes

(2) Maximum ramping angle

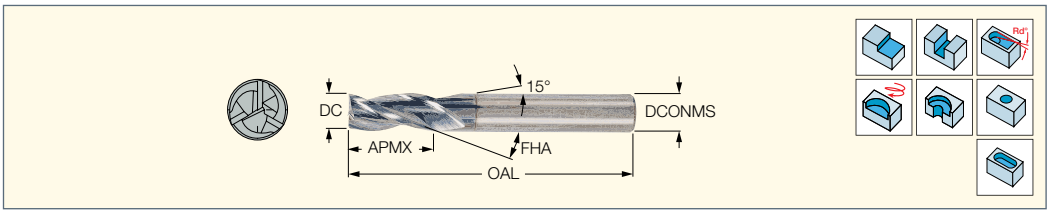
(3) C-Cylindrical, W-Weldon



SOLIDMILL PREMIUM LINE

EC-E-3

3 Flute, 38° Helix Medium Length Solid Carbide Endmills



Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	Tough ↔ Hard IC08	IC300	IC900	Recommended Machining Data 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 177-184

(1) Number of flutes

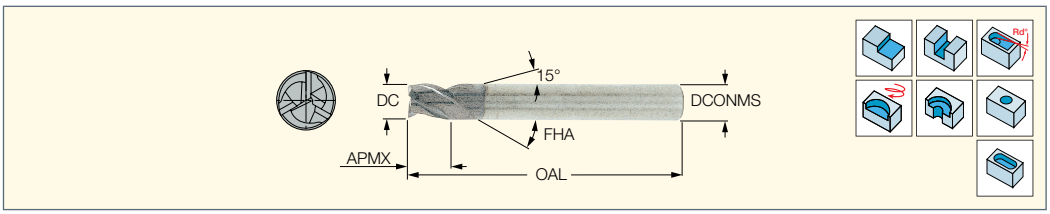
(2) Maximum ramping angle

(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 177-184

(1) Number of flutes

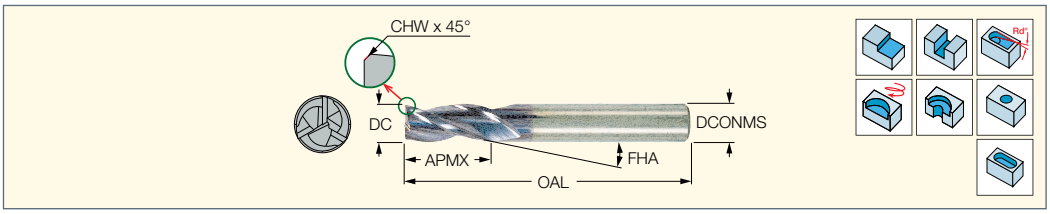
(2) Maximum ramping angle

(3) W-Weldon

SOLIDMILL PREMIUM LINE

ECC-E-3

3 Flute, 38 and 45° 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	Tough ↔ Hard IC300	IC900	Recommended Machining Data f_z (mm/t)
ECC020B07-3C03	2.00	3.00	7.00	38.00	3	45.0	5.0	C	0.10	45.0	•		0.01-0.03
ECC025E07-3C03	2.50	3.00	7.00	38.00	3	38.0	5.0	C	0.10	45.0	•		0.01-0.03
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 177-184

(1) Number of flutes

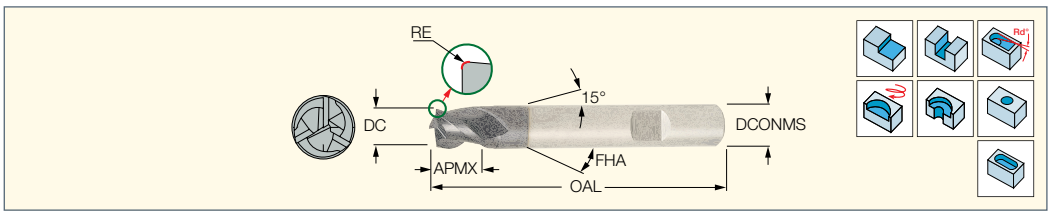
(2) Maximum ramping angle

(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 DC	DCONMS	APMX	RE	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	IC900	Recommended Machining Data 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 177-184

(1) Number of flutes

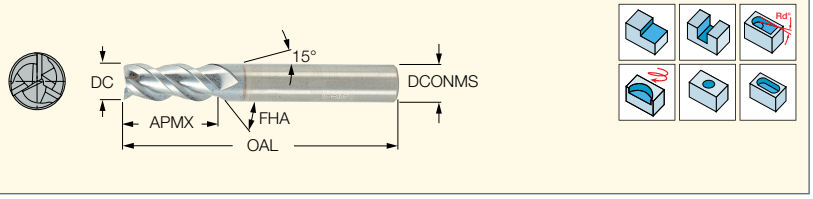
(2) Maximum ramping angle

(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	IC300	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 177-184

(1) Number of flutes

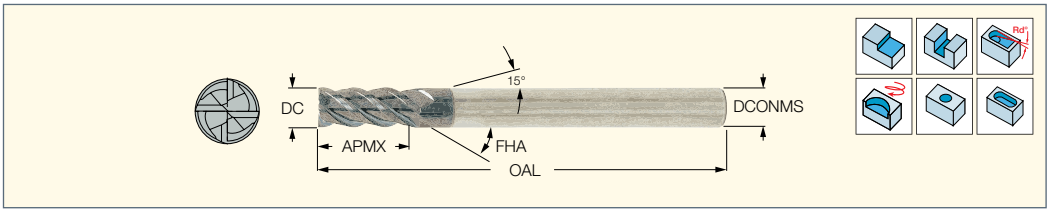
(2) Maximum ramping angle

(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 177-184

(1) Number of flutes

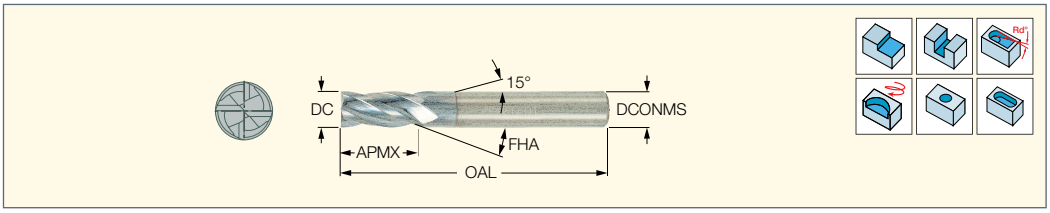
(2) Maximum ramping angle

(3) C-Cylindrical, W-Weldon

SOLIDMILL PREMIUM LINE

EC-A-4/4R

4 Flute, 30° Helix Medium Length Solid Carbide Endmills with Various Radii



Designation	Dimensions									Tough ↔ Hard			Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	RE	IC08	IC300	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 177-184

(1) Number of flutes

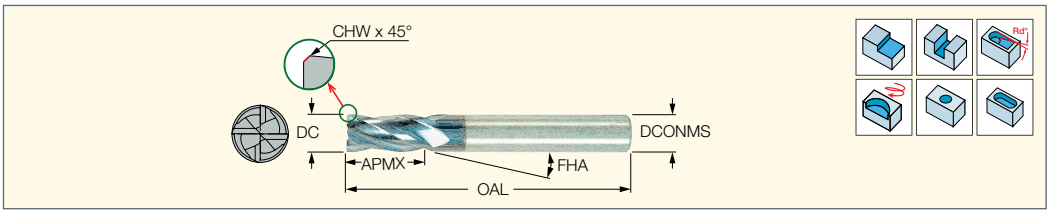
(2) Maximum ramping angle

(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										Tough ↔ Hard		Recommended Machining Data
	DC	DCONMS	APMX	OAL	NOF[1]	FHA	RMPX°[2]	Shank[3]	CHW	KCH	IC300	IC900	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 177-184

(1) Number of flutes

(2) Maximum ramping angle

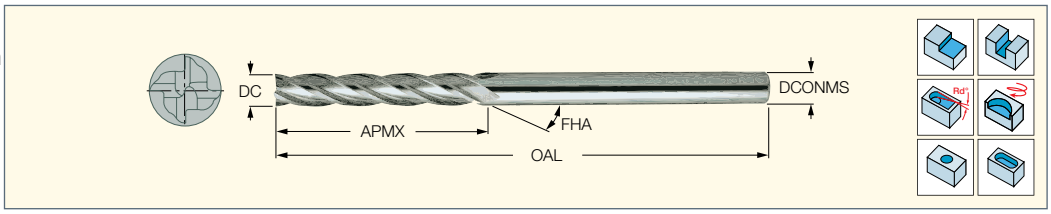
(3) C-Cylindrical, W-Weldon



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)	IC08	IC900	f_z (mm/t)
EC-A4 02-08C02E32	2.00	2.00	8.00	32.00	4	30.0	5.0	C	•	•	0.01-0.03
EC-A4 025-08C025E32	2.50	2.50	8.00	32.00	4	30.0	5.0	C	•	•	0.01-0.03
EC-A4 03-12C03E38	3.00	3.00	12.00	38.00	4	30.0	5.0	C	•	•	0.01-0.04
EC-A4 03-30C03E75	3.00	3.00	30.00	75.00	4	30.0	5.0	C	•	•	0.01-0.04
EC-A4 04-12C04E50	4.00	4.00	12.00	50.00	4	30.0	5.0	C	•	•	0.02-0.05
EC-A4 04-30C04E75	4.00	4.00	30.00	75.00	4	30.0	5.0	C	•	•	0.02-0.05
EC-A4 05-14C05E50	5.00	5.00	14.00	50.00	4	30.0	5.0	C	•	•	0.02-0.06
EC-A4 05-40C05E100	5.00	5.00	40.00	100.00	4	30.0	5.0	C	•	•	0.02-0.06
EC-A4 055-16C055E50	5.50	5.50	16.00	50.00	4	30.0	5.0	C	•	•	0.02-0.06
EC-A4 06-16C06E50	6.00	6.00	16.00	50.00	4	30.0	5.0	C	•	•	0.03-0.07
EC-A4 06-50C06E150	6.00	6.00	50.00	150.00	4	30.0	5.0	C	•	•	0.03-0.07
EC-A4 07-20C07E60	7.00	7.00	20.00	60.00	4	30.0	5.0	C	•	•	0.03-0.08
EC-A4 08-20C08E63	8.00	8.00	20.00	63.00	4	30.0	5.0	C	•	•	0.03-0.09
EC-A4 08-50C08E150	8.00	8.00	50.00	150.00	4	30.0	5.0	C	•	•	0.03-0.09
EC-A4 09-20C09E60	9.00	9.00	20.00	60.00	4	30.0	5.0	C	•	•	0.03-0.09
EC-A4 10-22C10E72	10.00	10.00	22.00	70.00	4	30.0	5.0	C	•	•	0.03-0.10
EC-A4 10-60C10E150	10.00	10.00	60.00	150.00	4	30.0	5.0	C	•	•	0.03-0.10
EC-A4 12-22C12E73	12.00	12.00	22.00	73.00	4	30.0	5.0	C	•	•	0.04-0.11
EC-A4 12-75C12E150	12.00	12.00	75.00	150.00	4	30.0	5.0	C	•	•	0.04-0.11
EC-A4 14-25C14E83	14.00	14.00	25.00	83.00	4	30.0	5.0	C	•	•	0.04-0.12
EC-A4 14-65C14E150	14.00	14.00	65.00	150.00	4	30.0	5.0	C	•	•	0.04-0.12
EC-A4 16-25C16E82	16.00	16.00	25.00	82.00	4	30.0	5.0	C	•	•	0.05-0.13
EC-A4 16-65C16E150	16.00	16.00	65.00	150.00	4	30.0	5.0	C	•	•	0.05-0.13
EC-A4 18-65C18E150	18.00	18.00	65.00	150.00	4	30.0	5.0	C	•	•	0.05-0.13
EC-A4 20-32C20E104	20.00	20.00	32.00	104.00	4	30.0	5.0	C	•	•	0.05-0.13
EC-A4 20-65C20E150	20.00	20.00	65.00	150.00	4	30.0	5.0	C	•	•	0.05-0.13

• For user guide, see pages 177-184

(1) Number of flutes

(2) Maximum ramping angle

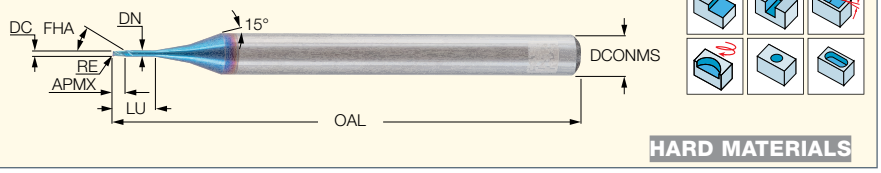
(3) C-Cylindrical



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										IC702	Recommended Machining Data
	DC	DCONMS	APMX	RE	LU	OAL	DN	NOF(1)	FHA	Shank(2)		f_z (mm/t)
EC-A2 001-0015/003C4H45	0.10	4.00	0.15	-	0.3	45.00	0.09	2	30.0	C	•	0.0020-0.0025
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 005-007/04C4H45	0.50	4.00	0.70	-	4.0	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
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

• For user guide, see pages 177-184

(1) Number of flutes

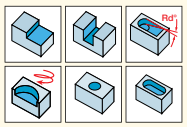
(2) C-Cylindrical

SOLIDMILL PREMIUM LINE

EC-A2-R/H (rib processing) (continued)

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)	IC702	Recommended Machining Data f_z (mm/t)
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.2H55	3.00	6.00	4.00	0.20	16.0	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 030-045/30C6H70	3.00	6.00	4.50	-	30.0	70.00	2.85	2	30.0	C	•	0.0150-0.0300
EC-A2 030-045/35C6H80	3.00	6.00	4.50	-	35.0	80.00	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 040-050/16C6R.2H55	4.00	6.00	5.00	0.20	16.0	55.00	3.85	2	30.0	C	•	0.0060-0.0200
EC-A2 040-050/16C6R.5H55	4.00	6.00	5.00	0.50	16.0	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 177-184

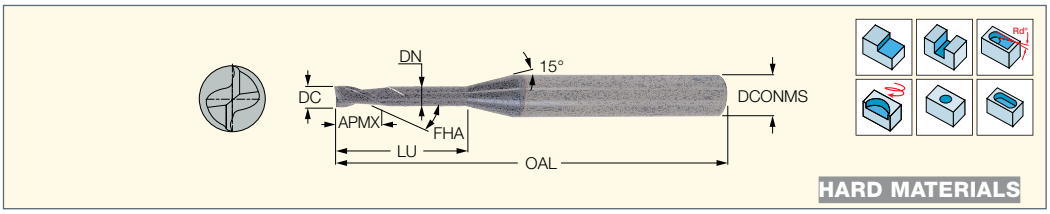
(1) Number of flutes

(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										IC903	Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	DN	NOF(1)	FHA	RMPX°(2)	Shank(3)		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 004-006/03C4M45	0.40	4.00	0.60	3.0	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

• The DC tolerance is: 0 - -0.015 mm • For user guide, see pages 177-184

(1) Number of flutes

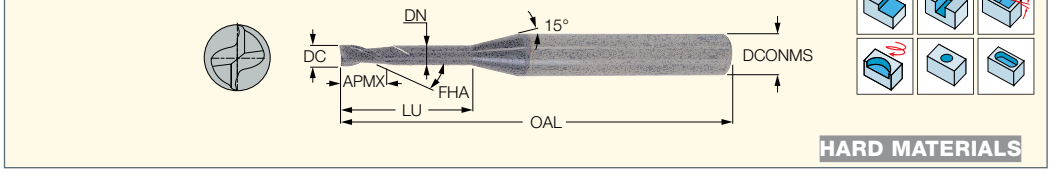
(2) Maximum ramping angle

(3) C-Cylindrical

SOLIDMILL PREMIUM LINE

EC-A2-M (rib processing) (continued)

2 Flute, 30° Helix Solid Carbide Endmills for Rib Processing on Hard Materials up to 55 HRC



Designation	Dimensions										IC903	Recommended Machining Data
	DC	DCONMS	APMX	LU	OAL	DN	NOF(1)	FHA	RMPX°(2)	Shank(3)		f_z (mm/t)
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
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 177-184

(1) Number of flutes

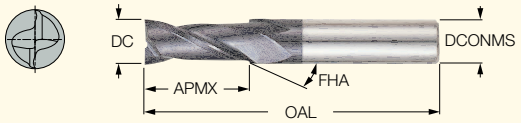
(2) Maximum ramping angle

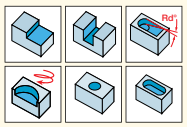
(3) C-Cylindrical

SOLIDMILL PREMIUM LINE

EC-A2 (medium length)

2 Flute, 30° Helix Medium Length Solid Carbide Endmills for Hard Materials up to 65 HRC





HARD MATERIALS

Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	IC903	Recommended Machining Data f_z (mm/t)
EC-A2 010-025C06-40	1.00	6.00	2.50	40.00	2	30.0	5.0	C	●	0.00-0.01
EC-A2 015-040C06-40	1.50	6.00	4.00	40.00	2	30.0	5.0	C	●	0.00-0.02
EC-A2 020-060C06-40	2.00	6.00	6.00	40.00	2	30.0	5.0	C	●	0.01-0.03
EC-A2 025-080C06-40	2.50	6.00	8.00	40.00	2	30.0	5.0	C	●	0.01-0.03
EC-A2 030-080C06-45	3.00	6.00	8.00	45.00	2	30.0	5.0	C	●	0.01-0.04
EC-A2 035-10C06M45	3.50	6.00	10.00	45.00	2	30.0	5.0	C	●	0.01-0.04
EC-A2 040-11C06-45	4.00	6.00	11.00	45.00	2	30.0	5.0	C	●	0.02-0.05
EC-A2 045-11C06-45	4.50	6.00	11.00	45.00	2	30.0	5.0	C	●	0.02-0.05
EC-A2 050-13C06-50	5.00	6.00	13.00	50.00	2	30.0	5.0	C	●	0.02-0.06
EC-A2 055-13C06-50	5.50	6.00	13.00	50.00	2	30.0	5.0	C	●	0.02-0.06
EC-A2 060-13C06-50	6.00	6.00	13.00	50.00	2	30.0	5.0	C	●	0.03-0.07
EC-A2 065-16C08-60	6.50	8.00	16.00	60.00	2	30.0	5.0	C	●	0.03-0.07
EC-A2 070-16C08-60	7.00	8.00	16.00	60.00	2	30.0	5.0	C	●	0.03-0.08
EC-A2 075-16C08-60	7.50	8.00	16.00	60.00	2	30.0	5.0	C	●	0.03-0.08
EC-A2 080-19C08-60	8.00	8.00	19.00	60.00	2	30.0	5.0	C	●	0.03-0.09
EC-A2 085-19C10-70	8.50	10.00	19.00	70.00	2	30.0	5.0	C	●	0.03-0.09
EC-A2 090-19C10-70	9.00	10.00	19.00	70.00	2	30.0	5.0	C	●	0.03-0.09
EC-A2 095-19C10-70	9.50	10.00	19.00	70.00	2	30.0	5.0	C	●	0.03-0.09
EC-A2 100-22C10-70	10.00	10.00	22.00	70.00	2	30.0	5.0	C	●	0.03-0.10
EC-A2 110-22C12-75	11.00	12.00	22.00	75.00	2	30.0	5.0	C	●	0.03-0.10
EC-A2 120-26C12-75	12.00	12.00	26.00	75.00	2	30.0	5.0	C	●	0.04-0.11
EC-A2 130-26C12-85	13.00	12.00	26.00	85.00	2	30.0	5.0	C	●	0.04-0.11
EC-A2 140-26C14-85	14.00	14.00	26.00	85.00	2	30.0	5.0	C	●	0.04-0.12
EC-A2 150-26C16-90	15.00	16.00	26.00	90.00	2	30.0	5.0	C	●	0.04-0.12
EC-A2 160-32C16-100	16.00	16.00	32.00	100.00	2	30.0	5.0	C	●	0.05-0.13
EC-A2 170-32C16-100	17.00	16.00	32.00	100.00	2	30.0	5.0	C	●	0.05-0.13
EC-A2 180-32C18-100	18.00	18.00	32.00	100.00	2	30.0	5.0	C	●	0.05-0.13
EC-A2 200-38C20-105	20.00	20.00	38.00	105.00	2	30.0	5.0	C	●	0.05-0.13
EC-A2 220-38C20-105	22.00	20.00	38.00	105.00	2	30.0	5.0	C	●	0.05-0.13

• For user guide, see pages 177-184

(1) Number of flutes

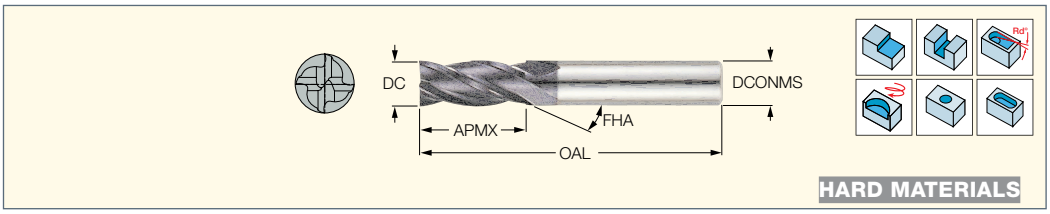
(2) Maximum ramping angle

(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 DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	IC903	Recommended Machining Data 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 130-26C12-85	13.00	12.00	26.00	85.00	4	30.0	5.0	C	•	0.04-0.11
EC-A4 140-26C12-85	14.00	12.00	26.00	85.00	4	30.0	5.0	C	•	0.04-0.12
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 140-26C16-85	14.00	16.00	26.00	85.00	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 170-32C16-100	17.00	16.00	32.00	100.00	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 220-38C20-105	22.00	20.00	38.00	105.00	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 177-184

(1) Number of flutes

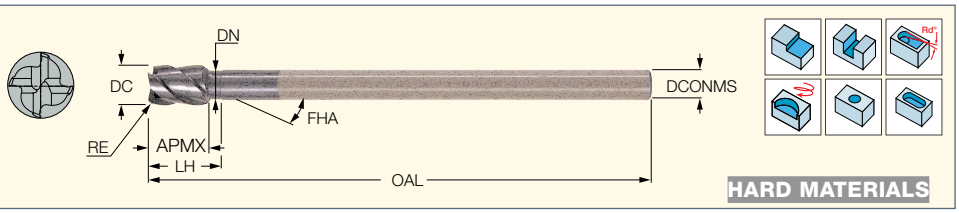
(2) Maximum ramping angle

(3) C-Cylindrical

SOLIDMILL PREMIUM LINE

EC-B4-R

4 Flute, 45° Helix Extra-Long Solid Carbide Endmills with Various Corner Radii for Hardened Steel



Designation	Dimensions DC	DCONMS	RE	APMX	LH	DN	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	IC903	Recommended Machining Data f_z (mm/t)
EC-B4 10-15C08R.5M130	10.00	8.00	0.50	15.00	19.2	7.50	130.00	4	45.0	5.0	C	•	0.03-0.10
EC-B4 12-18C10R.5M150	12.00	10.00	0.50	18.00	22.2	9.50	150.00	4	45.0	5.0	C	•	0.04-0.11
EC-B4 14-21C12R.5M160	14.00	12.00	0.50	21.00	25.2	11.50	160.00	4	45.0	5.0	C	•	0.04-0.12
EC-B4 14-21C12R1M160	14.00	12.00	1.00	21.00	25.2	11.50	160.00	4	45.0	5.0	C	•	0.04-0.12
EC-B4 18-27C16R0.5M180	18.00	16.00	0.50	27.00	31.2	15.50	180.00	4	45.0	5.0	C	•	0.05-0.13
EC-B4 22-33C20R.5M200	22.00	20.00	0.50	33.00	37.2	19.50	200.00	4	45.0	5.0	C	•	0.05-0.13

• For user guide, see pages 177-184

(1) Number of flutes

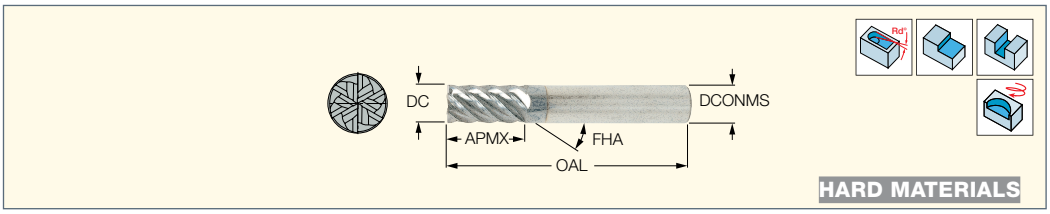
(2) Maximum ramping angle

(3) C-Cylindrical

SOLIDMILL PREMIUM LINE

ECH-B-6

6 Flute, 45° Helix Medium Length Solid Carbide Endmills for Finishing of Hard Materials up to 65 HRC



Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	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	●	●	0.03-0.07
ECH060B16-6W06	6.00	6.00	16.00	57.00	6	45.0	W	●		0.03-0.07
ECH080B20-6C08	8.00	8.00	20.00	63.00	6	45.0	C	●	●	0.03-0.09
ECH080B20-6W08	8.00	8.00	20.00	63.00	6	45.0	W	●		0.03-0.09
ECH100B22-6C10	10.00	10.00	22.00	72.00	6	45.0	C	●	●	0.03-0.10
ECH100B22-6W10	10.00	10.00	22.00	72.00	6	45.0	W	●		0.03-0.10
ECH120B25-6C12	12.00	12.00	25.00	83.00	6	45.0	C	●	●	0.04-0.11
ECH120B25-6W12	12.00	12.00	25.00	83.00	6	45.0	W	●		0.04-0.11
ECH160B32-6C16	16.00	16.00	32.00	92.00	6	45.0	C	●	●	0.05-0.13
ECH160B32-6W16	16.00	16.00	32.00	92.00	6	45.0	W	●		0.05-0.13
ECH200B38-6C20	20.00	20.00	38.00	104.00	6	45.0	C	●	●	0.05-0.13
ECH200B38-6W20	20.00	20.00	38.00	104.00	6	45.0	W	●		0.05-0.13

• Use IC903 for machining hardened steel up to 65 HRc • For user guide, see pages 177-184

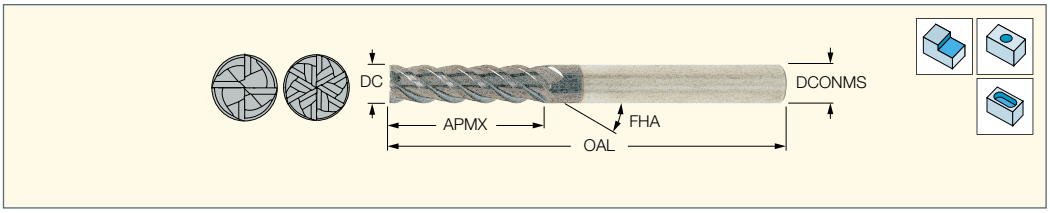
(1) Number of flutes

(2) C-Cylindrical, W-Weldon

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 177-184

(1) Cannot be used for plunging application

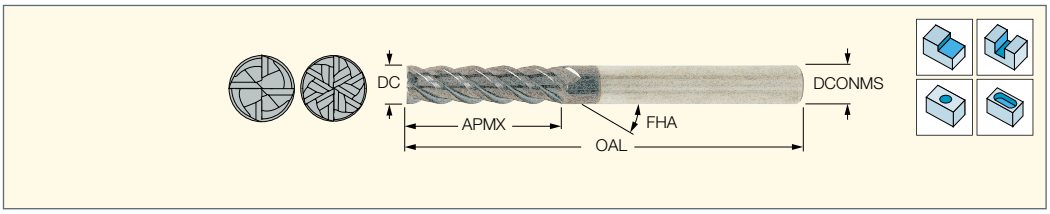
(2) Number of flutes

(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 177-184

(1) Cannot be used for plunging application

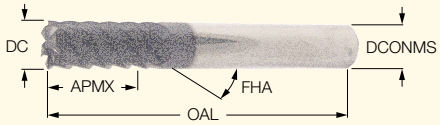
(2) Number of flutes

(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



HARD MATERIALS

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 177-184

(1) Number of flutes

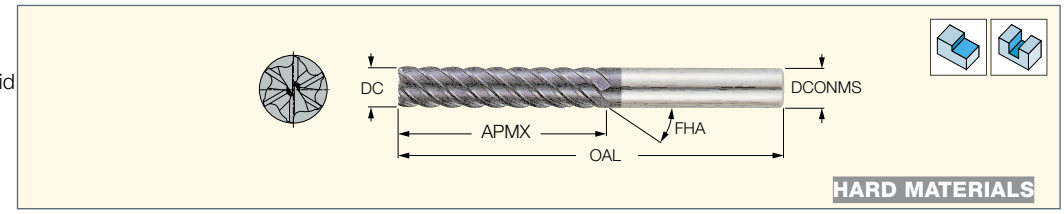
(2) C-Cylindrical, W-Weldon

(3) Maximum ramping angle

SOLIDMILL PREMIUM LINE

EC-B6

6 Flute, 45° Helix Extra Long Solid Carbide Endmills for Finishing of Hard Materials up to 65 HRC



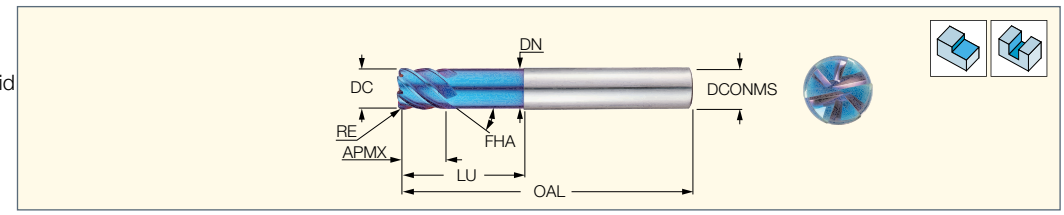
Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	IC903	Recommended Machining Data f_z (mm/t)
EC-B6 060-026C06-70	6.00	6.00	26.00	70.00	6	45.0	C	●	0.03-0.07
EC-B6 080-036C08-90	8.00	8.00	36.00	90.00	6	45.0	C	●	0.03-0.09
EC-B6 100-46C10-100	10.00	10.00	46.00	100.00	6	45.0	C	●	0.03-0.10
EC-B6 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 177-184
(1) Number of flutes
(2) C-Cylindrical

SOLIDMILL PREMIUM LINE

EC-B6-H

6 Flute, 45° Helix Extra Long Solid Carbide Endmills for Finishing of Hard Materials up to 65 HRC



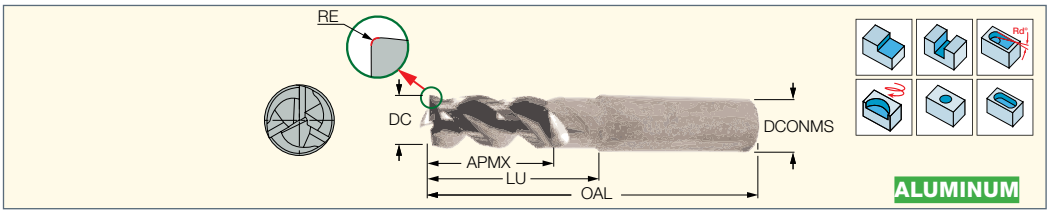
Designation	Dimensions DC	DCONMS	APMX	RE	DN	LU	OAL	NOF(1)	FHA	Shank(2)	IC702	Recommended Machining Data f_z (mm/t)
EC-B6 06-06/14C06R.25H50	6.00	6.00	6.00	0.25	5.85	14.00	50.00	6	45.0	C	●	0.03-0.07
EC-B6 06-06/14C06R.5H50	6.00	6.00	6.00	0.50	5.70	14.00	50.00	6	45.0	C	●	0.03-0.07
EC-B6 06-13C06R.5H70	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 177-184
(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)	RE	IC1508	IC08	f_z (mm/t)
ECA-H3 01-04C06CF-R.05	1.00	6.00	4.00	57.00	3	6.00	5.0	C	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	0.10		•	0.01-0.01
ECA-H3 02-05/08C06CF-R01	2.00	6.00	5.00	57.00	3	8.00	5.0	C	0.10		•	0.01-0.02
ECA-H3 025-05/08C06CF-R01	2.50	6.00	5.00	57.00	3	8.00	5.0	C	0.10		•	0.01-0.02
ECA-H3 03-07/12C06CF-R01	3.00	6.00	7.00	57.00	3	12.00	5.0	C	0.10		•	0.03-0.05
ECA-H3 04-10/16C06CF-R02	4.00	6.00	10.00	57.00	3	16.00	5.0	C	0.20		•	0.03-0.05
ECA-H3 05-12/20C06CF-R02	5.00	6.00	12.00	57.00	3	20.00	5.0	C	0.20		•	0.03-0.06
ECA-H3 06-09/18C06CF-R02	6.00	6.00	9.00	57.00	3	18.00	5.0	C	0.20		•	0.03-0.07
ECA-H3 06-09/18C06CF-R02D	6.00	6.00	9.00	57.00	3	18.00	5.0	C	0.20	•		0.03-0.07
ECA-H3 06-09/18C06CF-R04	6.00	6.00	9.00	57.00	3	18.00	5.0	C	0.40		•	0.03-0.07
ECA-H3 06-09/18C06CF-R08	6.00	6.00	9.00	57.00	3	18.00	5.0	C	0.80		•	0.03-0.07
ECA-H3 06-09/30C06CF-R02	6.00	6.00	9.00	65.00	3	30.00	5.0	C	0.20		•	0.03-0.07
ECA-H3 06-09/30C06CF-R02D	6.00	6.00	9.00	65.00	3	30.00	5.0	C	0.20	•		0.03-0.07
ECA-H3 06-09/30C06CF-R04	6.00	6.00	9.00	65.00	3	30.00	5.0	C	0.40		•	0.03-0.07
ECA-H3 06-09/30C06CF-R08	6.00	6.00	9.00	65.00	3	30.00	5.0	C	0.80		•	0.03-0.07
ECA-H3 06-12/18C06CF-R02C	6.00	6.00	12.00	57.00	3	18.00	5.0	C	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	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	0.20		•	0.03-0.07
ECA-H3 06-14/24C06CF-R02D	6.00	6.00	14.00	60.00	3	24.00	5.0	C	0.20	•		0.03-0.07
ECA-H3 08-12/24C08CF-R02	8.00	8.00	12.00	63.00	3	24.00	5.0	C	0.20		•	0.03-0.09
ECA-H3 08-12/24C08CF-R02D	8.00	8.00	12.00	63.00	3	24.00	5.0	C	0.20	•		0.03-0.09
ECA-H3 08-12/24C08CF-R04	8.00	8.00	12.00	63.00	3	24.00	5.0	C	0.40		•	0.03-0.09
ECA-H3 08-12/24C08CF-R08	8.00	8.00	12.00	63.00	3	24.00	5.0	C	0.80		•	0.03-0.09
ECA-H3 08-12/24C08CF-R30	8.00	8.00	12.00	63.00	3	24.00	5.0	C	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	0.20		•	0.03-0.09
ECA-H3 08-12/40C08CF-R02D	8.00	8.00	12.00	79.00	3	40.00	5.0	C	0.20	•		0.03-0.09
ECA-H3 08-12/40C08CF-R04	8.00	8.00	12.00	79.00	3	40.00	5.0	C	0.40		•	0.03-0.09
ECA-H3 08-12/40C08CF-R08	8.00	8.00	12.00	79.00	3	40.00	5.0	C	0.80		•	0.03-0.09
ECA-H3 08-16/24C08CF-R02C	8.00	8.00	16.00	63.00	3	24.00	5.0	C	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	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	0.20		•	0.03-0.09
ECA-H3 08-18/32C08CF-R02D	8.00	8.00	18.00	68.00	3	32.00	5.0	C	0.20	•		0.03-0.09
ECA-H3 10-15/30C10CF-R02	10.00	10.00	15.00	72.00	3	30.00	5.0	C	0.20		•	0.03-0.10
ECA-H3 10-15/30C10CF-R02D	10.00	10.00	15.00	72.00	3	30.00	5.0	C	0.20	•		0.03-0.10
ECA-H3 10-15/30C10CF-R04	10.00	10.00	15.00	72.00	3	30.00	5.0	C	0.40		•	0.03-0.10
ECA-H3 10-15/30C10CF-R08	10.00	10.00	15.00	72.00	3	30.00	5.0	C	0.80		•	0.03-0.10
ECA-H3 10-15/30C10CF-R16	10.00	10.00	15.00	72.00	3	30.00	5.0	C	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	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	0.20		•	0.03-0.10
ECA-H3 10-15/50C10CF-R02D	10.00	10.00	15.00	92.00	3	50.00	5.0	C	0.20	•		0.03-0.10
ECA-H3 10-15/50C10CF-R04	10.00	10.00	15.00	92.00	3	50.00	5.0	C	0.40		•	0.03-0.10
ECA-H3 10-15/50C10CF-R08	10.00	10.00	15.00	92.00	3	50.00	5.0	C	0.80		•	0.03-0.10
ECA-H3 10-15/50C10CF-R16	10.00	10.00	15.00	92.00	3	50.00	5.0	C	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	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	3.00		•	0.03-0.10
ECA-H3 10-20/30C10CF-R02C	10.00	10.00	20.00	72.00	3	30.00	5.0	C	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	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	0.20		•	0.03-0.10
ECA-H3 10-22/40C10CF-R02D	10.00	10.00	22.00	80.00	3	40.00	5.0	C	0.20	•		0.03-0.10
ECA-H3 10-22/40C10CF-R30	10.00	10.00	22.00	80.00	3	40.00	5.0	C	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	0.20		•	0.04-0.11
ECA-H3 12-18/36C12CF-R02D	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0.20	•		0.04-0.11
ECA-H3 12-18/36C12CF-R04	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0.40		•	0.04-0.11
ECA-H3 12-18/36C12CF-R08	12.00	12.00	18.00	83.00	3	36.00	5.0	C	0.80		•	0.04-0.11
ECA-H3 12-18/36C12CF-R16	12.00	12.00	18.00	83.00	3	36.00	5.0	C	1.60		•	0.04-0.11

• For user guide, see pages 177-184

(1) Number of flutes

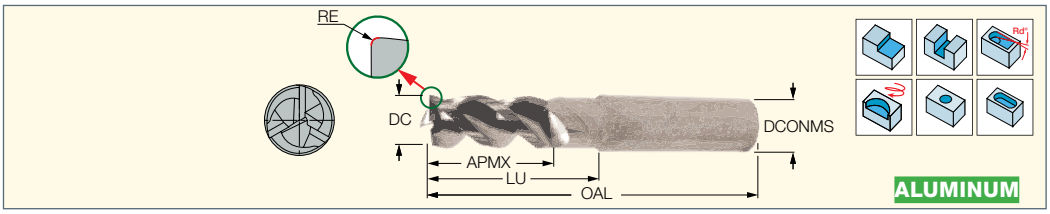
(2) Maximum ramping angle

(3) C-Cylindrical

CHATTERFREE SOLID MILL LINE

ECA-H3-CF (continued)

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]	RE	IC1508	IC08	f_z (mm/t)
ECA-H3 12-18/36C12CF-R20	12.00	12.00	18.00	83.00	3	36.00	5.0	C	2.00		•	0.04-0.11
ECA-H3 12-18/36C12CF-R25	12.00	12.00	18.00	83.00	3	36.00	5.0	C	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	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	0.20		•	0.04-0.11
ECA-H3 12-18/60C12CF-R02D	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0.20	•		0.04-0.11
ECA-H3 12-18/60C12CF-R04	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0.40		•	0.04-0.11
ECA-H3 12-18/60C12CF-R08	12.00	12.00	18.00	100.00	3	60.00	5.0	C	0.80		•	0.04-0.11
ECA-H3 12-18/60C12CF-R16	12.00	12.00	18.00	100.00	3	60.00	5.0	C	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	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	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	3.00		•	0.04-0.11
ECA-H3 12-24/36C12CF-R02C	12.00	12.00	24.00	83.00	3	36.00	5.0	C	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	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	0.20		•	0.04-0.11
ECA-H3 12-26/48C12CF-R02D	12.00	12.00	26.00	93.00	3	48.00	5.0	C	0.20	•		0.04-0.11
ECA-H3 16-24/48C16CF-R02	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0.20		•	0.05-0.13
ECA-H3 16-24/48C16CF-R02D	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0.20	•		0.05-0.13
ECA-H3 16-24/48C16CF-R04	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0.40		•	0.05-0.13
ECA-H3 16-24/48C16CF-R08	16.00	16.00	24.00	92.00	3	48.00	5.0	C	0.80		•	0.05-0.13
ECA-H3 16-24/48C16CF-R16	16.00	16.00	24.00	92.00	3	48.00	5.0	C	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	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	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	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	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	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	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	0.20		•	0.05-0.13
ECA-H3 16-24/80C16CF-R04	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0.40		•	0.05-0.13
ECA-H3 16-24/80C16CF-R08	16.00	16.00	24.00	128.00	3	80.00	5.0	C	0.80		•	0.05-0.13
ECA-H3 16-24/80C16CF-R16	16.00	16.00	24.00	128.00	3	80.00	5.0	C	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	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	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	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	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	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	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	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	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	0.20		•	0.05-0.13
ECA-H3 16-34/64C16CF-R02D	16.00	16.00	34.00	115.00	3	64.00	5.0	C	0.20	•		0.05-0.13
ECA-H3 20-30/100C20CF-R02	20.00	20.00	30.00	150.00	3	100.00	5.0	C	0.20		•	0.05-0.14
ECA-H3 20-30/100C20CF-R04	20.00	20.00	30.00	150.00	3	100.00	5.0	C	0.40		•	0.05-0.14
ECA-H3 20-30/100C20CF-R08	20.00	20.00	30.00	150.00	3	100.00	5.0	C	0.80		•	0.05-0.14
ECA-H3 20-30/100C20CF-R32	20.00	20.00	30.00	150.00	3	100.00	5.0	C	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	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	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	0.20		•	0.05-0.14
ECA-H3 20-30/60C20CF-R02D	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0.20	•		0.05-0.14
ECA-H3 20-30/60C20CF-R04	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0.40		•	0.05-0.14
ECA-H3 20-30/60C20CF-R08	20.00	20.00	30.00	110.00	3	60.00	5.0	C	0.80		•	0.05-0.14
ECA-H3 20-30/60C20CF-R16	20.00	20.00	30.00	110.00	3	60.00	5.0	C	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	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	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	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	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	0.20		•	0.05-0.14

• For user guide, see pages 177-184

(1) Number of flutes

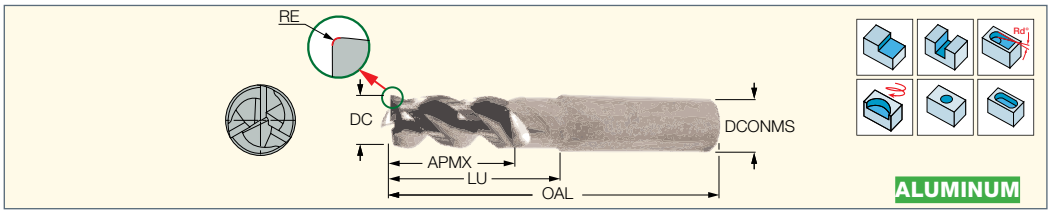
(2) Maximum ramping angle

(3) C-Cylindrical

CHATTERFREE SOLID MILL LINE

ECA-H3-CF (continued)

Solid Carbide Endmills with Different Helix, Variable Pitch and Relieved Neck for Machining Aluminum



Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	LU	RMPX°(2)	Shank(3)	RE	Tough ↔ Hard IC1508	IC08	Recommended Machining Data f_z (mm/t)
ECA-H3 20-42/80C20CF-R02	20.00	20.00	42.00	130.00	3	80.00	5.0	C	0.20		•	0.05-0.14
ECA-H3 20-42/80C20CF-R02D	20.00	20.00	42.00	130.00	3	80.00	5.0	C	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	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	0.20		•	0.05-0.15
ECA-H3 25-38/125C25CF-R08	25.00	25.00	38.00	185.00	3	125.00	5.0	C	0.80		•	0.05-0.15
ECA-H3 25-38/125C25CF-R16	25.00	25.00	38.00	185.00	3	125.00	5.0	C	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	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	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	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	0.20		•	0.05-0.15
ECA-H3 25-38/75C25CF-R04	25.00	25.00	38.00	130.00	3	75.00	5.0	C	0.40		•	0.05-0.15
ECA-H3 25-38/75C25CF-R16	25.00	25.00	38.00	130.00	3	75.00	5.0	C	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	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	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	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	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	0.20		•	0.05-0.15
ECA-H325-50/125C25CF-R02C	25.00	25.00	50.00	183.00	3	125.00	5.0	C	0.20		•	0.05-0.15

• For user guide, see pages 177-184

(1) Number of flutes

(2) Maximum ramping angle

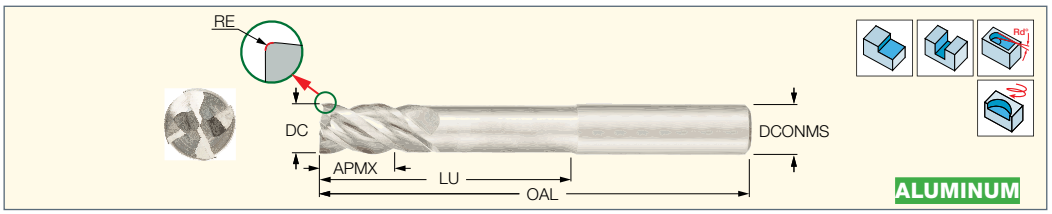
(3) C-Cylindrical

SOLIDMILL PREMIUM LINE

CHATTERFREE SOLID MILL LINE

ECA-H4-CF

Solid Carbide Endmills with Different Helix and Long Neck Relief 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)
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 177-184

(1) Number of flutes

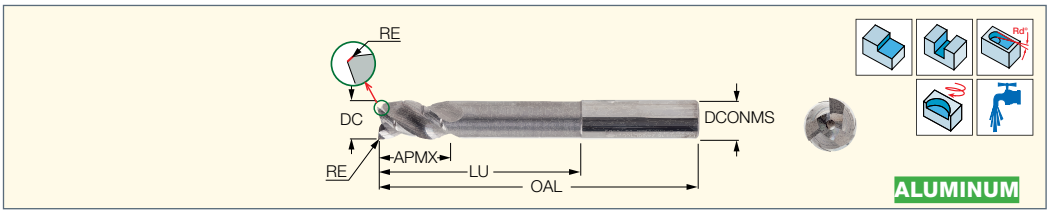
(2) Maximum ramping angle

(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



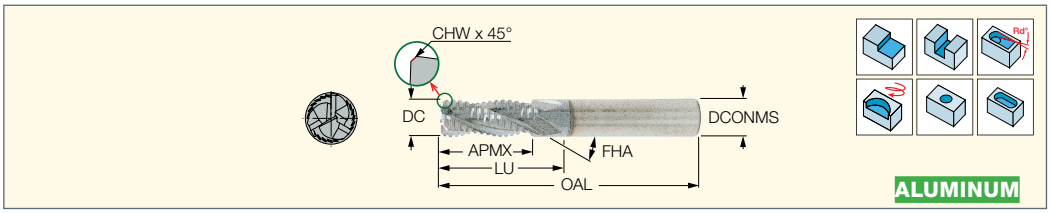
Designation	Dimensions DC	APMX	LU	OAL	DCONMS	RE	NOF(1)	RMPX°(2)	Shank(3)	IC08	Recommended Machining Data f_z (mm/t)
ECAP-H3 10-15/50C10CFR02C	10.00	15.00	50.0	92.00	10.00	0.20	3	5.0	C	•	0.03-0.10
ECAP-H3 10-22/40C10CFR02C	10.00	22.00	40.0	80.00	10.00	0.20	3	5.0	C	•	0.03-0.10
ECAP-H3 12-18/60C12CFR02C	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 177-184
(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



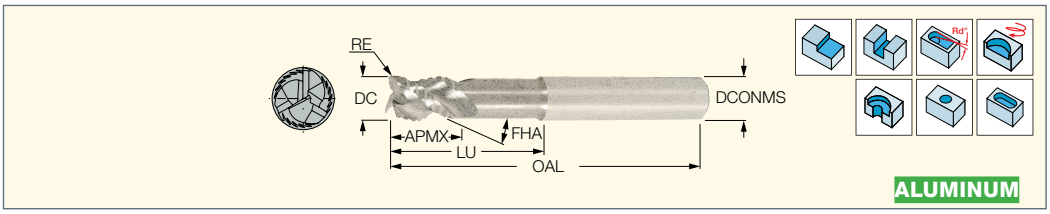
Designation	Dimensions DC	DCONMS	APMX	LU	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	CHW	KCH	Tough ↔ Hard IC1508	IC08	IC300	Recommended Machining Data f_z (mm/t)
ERC060E13-3C06	6.00	6.00	13.00	21.00	57.00	3	38.0	5.0	C	0.50	45.0		•		0.03-0.07
ERC060E13-3C06CH05DA57	6.00	6.00	13.00	21.00	57.00	3	38.0	5.0	C	0.50	45.0	•			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
ERC140E25-3W14	14.00	14.00	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
ERC180E32-3W18	18.00	18.00	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 177-184
(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 IC1508	IC08	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	78.00	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	78.00	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 177-184

(1) Number of flutes

(2) Maximum ramping angle

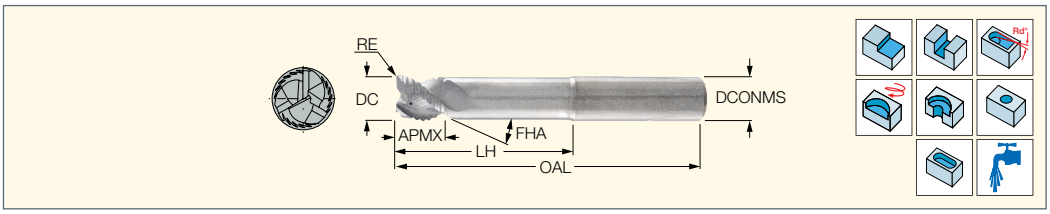
(3) C-Cylindrical, W-Weldon

SOLIDMILL PREMIUM LINE

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 177-184

(1) Number of flutes

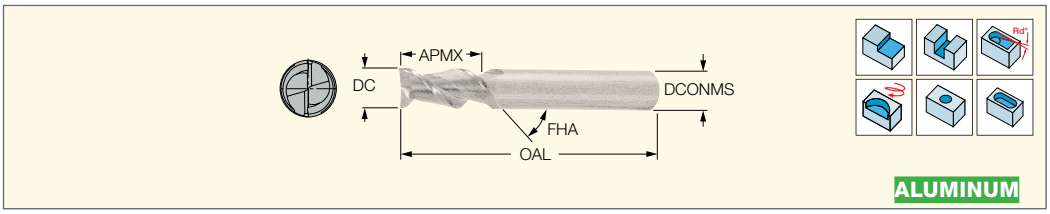
(2) Maximum ramping angle

(3) C-Cylindrical

SOLIDMILL PREMIUM LINE

ECA-B-2

2 Flute, 45° Helix Medium Length Solid Carbide Endmills for Machining Aluminum



Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	IC08	Recommended Machining Data 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 177-184

(1) Number of flutes

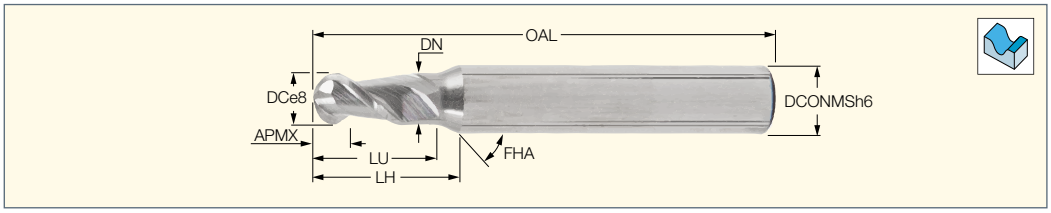
(2) Maximum ramping angle

(3) C-Cylindrical

SOLIDMILL PREMIUM LINE

EBA-B2

2 Flute High Precision Solid Carbide Ball Nose Endmills for Machining Aluminum



Designation	Dimensions DC	DCONMS	APMX	OAL	LU	LH	DN	NOF(1)	FHA	Shank(2)	RETOLL(3)	RETOLU(4)	IC08
EBA-B2 010-010/02C6-57	1.00	6.00	1.00	57.00	2.0	12.0	0.95	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	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	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	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	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	45.0	C	-0.010	0.010	●

- For user guide, see pages 177-184

(1) Number of flutes

(2) C-Cylindrical

(3) Corner radius tolerance lower

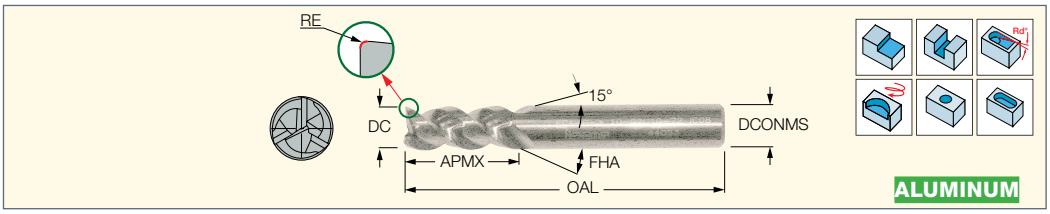
(4) Corner radius tolerance upper



SOLIDMILL PREMIUM LINE

ECA-B-3

3 Flute, 45° Helix Medium Length Solid Carbide Endmills for Machining Aluminum



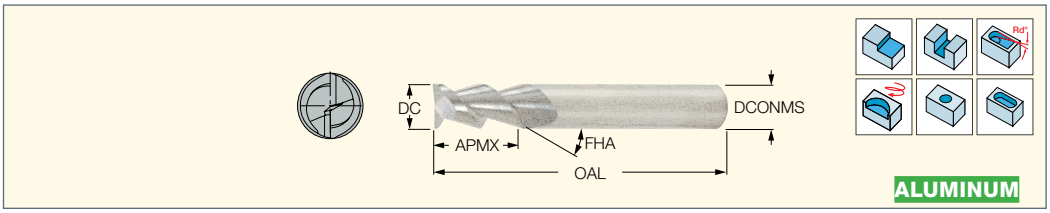
Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	RE	Tough ↔ Hard IC1508	IC08	Recommended Machining Data f_z (mm/t)
ECA-B-3 04-12C06-57	4.00	6.00	12.00	57.00	3	45.0	5.0	C	0.10		•	0.02-0.05
ECA-B-3 04-12C06-57 R02D	4.00	6.00	12.00	57.00	3	45.0	5.0	C	0.20	•		0.02-0.05
ECA-B-3 04-12W06-57	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 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 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 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 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 177-184
(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



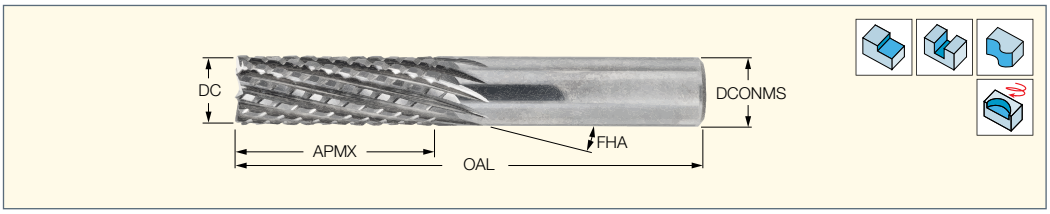
Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	FHA	RMPX°(2)	Shank(3)	IC08	Recommended Machining Data f_z (mm/t)
ECA040F11-2C04	4.00	4.00	11.00	50.00	2	55.0	5.0	C	•	0.02-0.05
ECA060F13-2C06	6.00	6.00	13.00	57.00	2	55.0	5.0	C	•	0.03-0.07
ECA080F20-2C08	8.00	8.00	20.00	63.00	2	55.0	5.0	C	•	0.03-0.09
ECA100F22-2C10	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 177-184
(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 177-184

(1) Deep chip gullets for eliminating chip jamming.

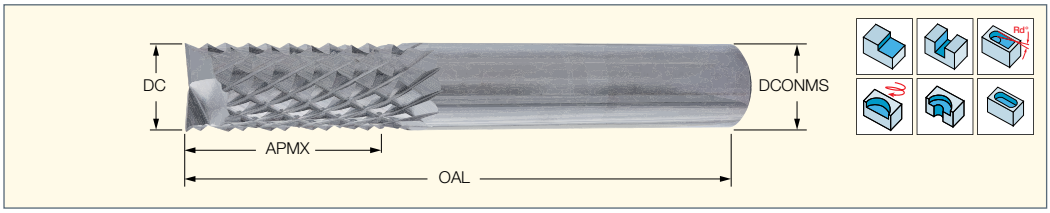
(2) Number of flutes

(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 177-184

(1) Number of flutes

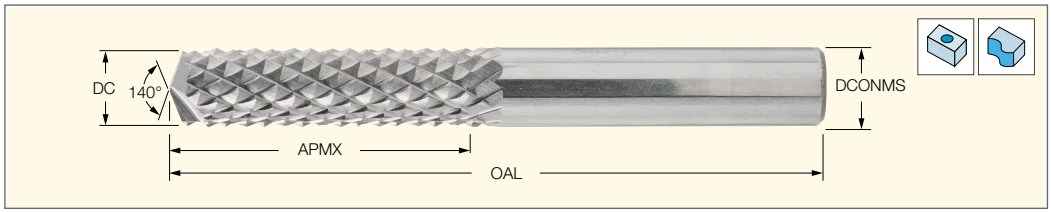
(2) Maximum ramping angle

(3) C-Cylindrical

SOLIDMILL PREMIUM LINE

EPND

Solid Carbide Endmills with Special Cutting Edges, also for Drill Mill Operation



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 177-184

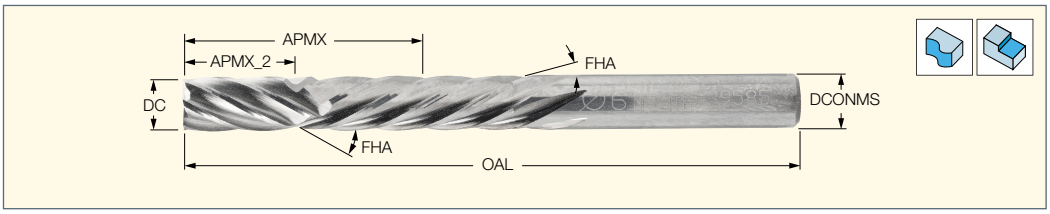
(1) Number of flutes

(2) C-Cylindrical

SOLIDMILL PREMIUM LINE

EPX

Solid Carbide Endmills with Right- and Left-Hand Helix Flutes Changing Direction at Mid Cutting Heights



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 177-184

(1) Number of flutes

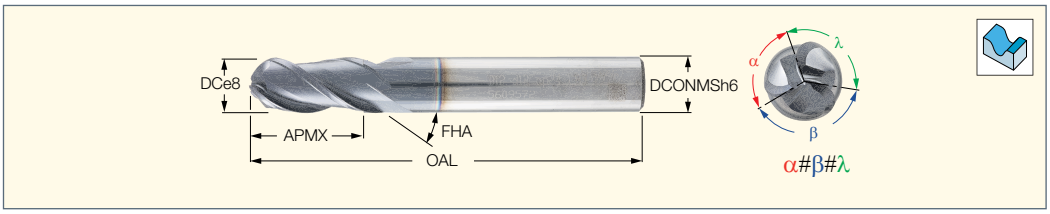
(2) C-Cylindrical



SOLIDMILL PREMIUM LINE
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	NOF(1)	FHA	Shank(2)	RETOL(3)	
EB-H3 06-12C06CFH57	6.00	6.00	12.00	57.00	3	38.0	C	0.010	•
EB-H3 08-16C08CFH63	8.00	8.00	16.00	63.00	3	38.0	C	0.010	•
EB-H3 10-20C10CFH72	10.00	10.00	20.00	72.00	3	38.0	C	0.010	•
EB-H3 12-24C12CFH83	12.00	12.00	24.00	83.00	3	38.0	C	0.012	•
EB-H5 16-32C16CFH92	16.00	16.00	32.00	92.00	5	38.0	C	0.012	•
EB-H5 20-40C20CFH104	20.00	20.00	40.00	104.00	5	38.0	C	0.012	•

• For user guide, see pages 177-184
(1) Number of flutes
(2) C-Cylindrical
(3) Corner radius tolerance (+/-)

Effective Cutting Diameter as a Function of Depth of Cut

Tool DC(mm) / a_p(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%

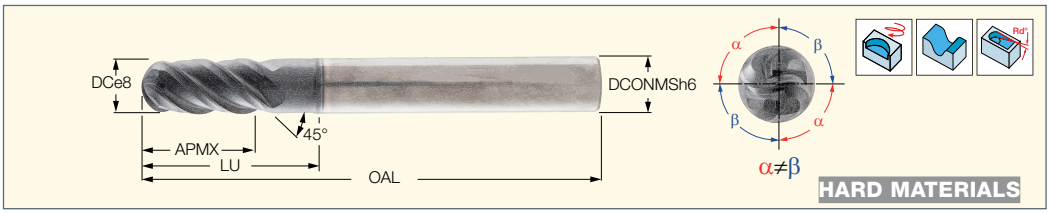
Cutting Speed Recommendations (IC902)

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

SOLIDMILL PREMIUM LINE
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



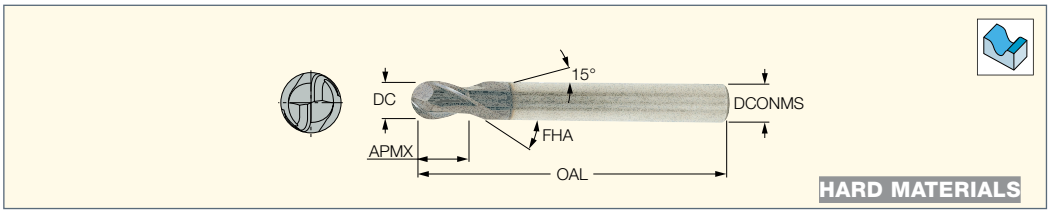
Designation	Dimensions DC	DCONMS	APMX	LU	OAL	RMPX°(1)	Shank(2)	IC902
EB-E4L 03-06/09C06CFH57	3.00	6.00	6.00	9.00	57.00	5.0	C	●
EB-E4L 04-08/12C06CFH57	4.00	6.00	8.00	12.00	57.00	5.0	C	●
EB-E4L 05-10/15C06CFH57	5.00	6.00	10.00	15.00	57.00	5.0	C	●
EB-E4L 06-12/18C06CFH57	6.00	6.00	12.00	18.00	57.00	5.0	C	●
EB-E4L 08-16/24C08CFH63	8.00	8.00	16.00	24.00	63.00	5.0	C	●
EB-E4L 10-20/30C10CFH72	10.00	10.00	20.00	30.00	72.00	5.0	C	●
EB-E4L 12-24/36C12CFH83	12.00	12.00	24.00	36.00	83.00	5.0	C	●
EB-E4L 16-32/48C16CFH92	16.00	16.00	32.00	48.00	92.00	5.0	C	●

• For user guide, see pages 177-184
(1) Maximum ramping angle
(2) C-Cylindrical

SOLIDMILL PREMIUM LINE

EB-A-2

2 Flute, 30° Helix Short Solid Carbide Ball Nose Endmills



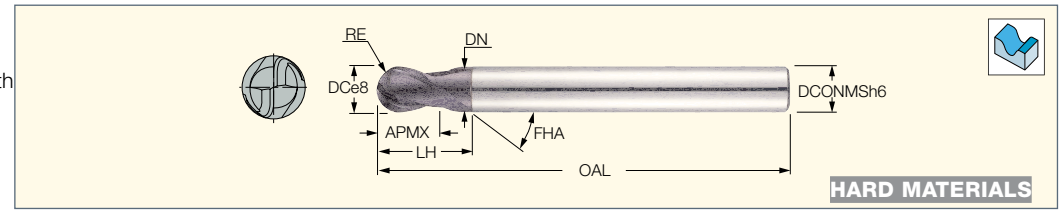
Designation	Dimensions DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RETOLL(3)	RETOLU(4)	Tough ↔ Hard IC08	IC300	IC900	IC903
EB020A04-2C03	2.00	3.00	4.00	38.00	2	30.0	C	0.000	0.005			●	●
EB030A05-2C03	3.00	3.00	5.00	38.00	2	30.0	C	-0.010	0.010		●	●	
EB030A05-2C06	3.00	6.00	5.00	57.00	2	30.0	C	-0.010	0.010	●		●	●
EB040A07-2C04	4.00	4.00	7.00	50.00	2	30.0	C	-0.010	0.010			●	
EB040A07-2C06	4.00	6.00	7.00	57.00	2	30.0	C	-0.010	0.010	●		●	●
EB050A08-2C05	5.00	5.00	8.00	50.00	2	30.0	C	-0.010	0.010			●	
EB050A08-2C06	5.00	6.00	8.00	57.00	2	30.0	C	-0.010	0.010	●	●	●	●
EB060A08-2C06	6.00	6.00	8.00	57.00	2	30.0	C	-0.010	0.010	●	●	●	●
EB080A11-2C08	8.00	8.00	11.00	63.00	2	30.0	C	-0.010	0.010	●	●	●	●
EB100A13-2C10	10.00	10.00	13.00	72.00	2	30.0	C	-0.010	0.010	●		●	●
EB120A14-2C12	12.00	12.00	14.00	83.00	2	30.0	C	-0.012	0.012		●	●	●
EB160A16-2C16	16.00	16.00	16.00	92.00	2	30.0	C	-0.012	0.012			●	●
EB200A20-2C20	20.00	20.00	20.00	104.00	2	30.0	C	-0.012	0.012			●	

• Short and stable design for profiling (roughing). • For user guide, see pages 177-184
(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[1]	DCONMS	APMX	OAL	LH	DN	NOF[2]	FHA	Shank[3]	RETOLL[4]	RETOLU[5]	
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 177-184

(1) ±0.01 tolerance

(2) Number of flutes

(3) C-Cylindrical

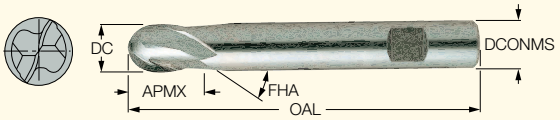
(4) Corner radius tolerance lower

(5) Corner radius tolerance upper

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]	IC08	IC900
EB-A2 02-06C03E38	2.00	3.00	6.00	38.00	2	30.0	C	•	•
EB-A2 02-04C06E48	2.00	6.00	4.00	48.00	2	30.0	C	•	•
EB-A2 025-04C06E48	2.50	6.00	4.00	48.00	2	30.0	C	•	•
EB-A2 03-04C06E48	3.00	6.00	4.00	48.00	2	30.0	C	•	•
EB-A2 03-07W06E57	3.00	6.00	7.00	57.00	2	30.0	W	•	•
EB-A2 04-06C06E50	4.00	6.00	6.00	50.00	2	30.0	C	•	•
EB-A2 04-08W06E57	4.00	6.00	8.00	57.00	2	30.0	W	•	•
EB-A2 05-07C06E51	5.00	6.00	7.00	51.00	2	30.0	C	•	
EB-A2 05-10W06E57	5.00	6.00	10.00	57.00	2	30.0	W	•	•
EB-A2 06-07C06E51	6.00	6.00	7.00	51.00	2	30.0	C	•	•
EB-A2 06-10W06E57	6.00	6.00	10.00	57.00	2	30.0	W	•	•
EB-A2 08-09C08E63	8.00	8.00	9.00	63.00	2	30.0	C	•	•
EB-A2 08-16W08E63	8.00	8.00	16.00	63.00	2	30.0	W	•	•
EB-A2 10-10C10E66	10.00	10.00	10.00	66.00	2	30.0	C	•	•
EB-A2 10-19W10E72	10.00	10.00	19.00	72.00	2	30.0	W	•	•
EB-A2 12-14C12E71	12.00	12.00	14.00	71.00	2	30.0	C	•	•
EB-A2 12-22W12E83	12.00	12.00	22.00	83.00	2	30.0	W	•	•
EB-A2 16-26W16E92	16.00	16.00	26.00	92.00	2	30.0	W	•	
EB-A2 18-26W18E92	18.00	18.00	26.00	92.00	2	30.0	W	•	
EB-A2 20-20C20E82	20.00	20.00	20.00	82.00	2	30.0	C	•	•
EB-A2 20-32W20E104	20.00	20.00	32.00	104.00	2	30.0	W	•	•

• For user guide, see pages 177-184

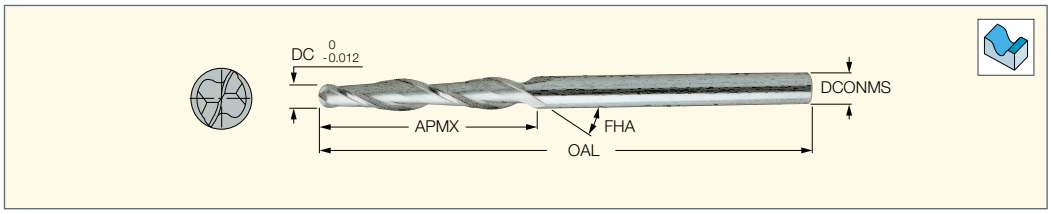
(1) Number of flutes

(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)	RETOL(3)	IC08	IC900
EB-A2 03-30C03E75	3.00	3.00	30.00	75.00	2	30.0	C	0.020	●	●
EB-A2 04-30C04E75	4.00	4.00	30.00	75.00	2	30.0	C	0.020	●	●
EB-A2 05-40C05E100	5.00	5.00	40.00	100.00	2	30.0	C	0.020	●	●
EB-A2 06-50C06E150	6.00	6.00	50.00	150.00	2	30.0	C	0.020	●	●
EB-A2 08-50C08E150	8.00	8.00	50.00	150.00	2	30.0	C	0.020	●	●
EB-A2 10-60C10E150	10.00	10.00	60.00	150.00	2	30.0	C	0.020	●	●
EB-A2 12-75C12E150	12.00	12.00	75.00	150.00	2	30.0	C	0.020	●	●
EB-A2 16-75C16E150	16.00	16.00	75.00	150.00	2	30.0	C	0.020	●	●

• For user guide, see pages 177-184

(1) Number of flutes

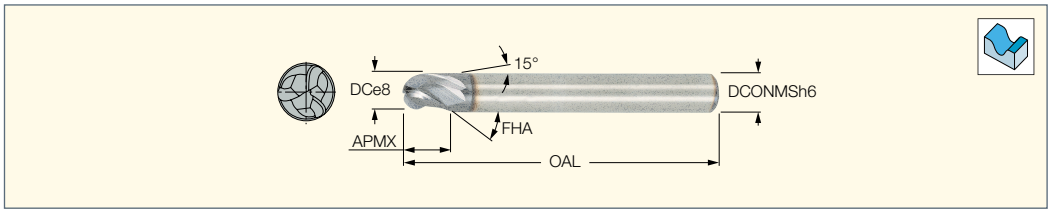
(2) C-Cylindrical

(3) Corner radius tolerance (+/-)

SOLIDMILL PREMIUM LINE

EB-A-3

3 Flute, 30° Helix Short Solid Carbide Ball Nose Endmills



Designation	Dimensions								
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RETOL(3)	IC900
EB016A020-3C03	1.60	3.00	2.00	38.00	3	30.0	C	0.006	●
EB030A05-3C03	3.00	3.00	5.00	38.00	3	30.0	C	0.010	●
EB030A05-3C06	3.00	6.00	5.00	57.00	3	30.0	C	0.010	●
EB040A07-3C04	4.00	4.00	7.00	50.00	3	30.0	C	0.010	●
EB040A07-3C06	4.00	6.00	7.00	57.00	3	30.0	C	0.010	●
EB050A08-3C05	5.00	5.00	8.00	50.00	3	30.0	C	0.010	●
EB050A08-3C06	5.00	6.00	8.00	57.00	3	30.0	C	0.010	●
EB060A08-3C06	6.00	6.00	8.00	57.00	3	30.0	C	0.010	●
EB080A11-3C08	8.00	8.00	11.00	63.00	3	30.0	C	0.010	●
EB100A13-3C10	10.00	10.00	13.00	72.00	3	30.0	C	0.010	●
EB120A14-3C12	12.00	12.00	14.00	83.00	3	30.0	C	0.012	●

• Short and stable design for profiling (roughing). • For user guide, see pages 177-184

(1) Number of flutes

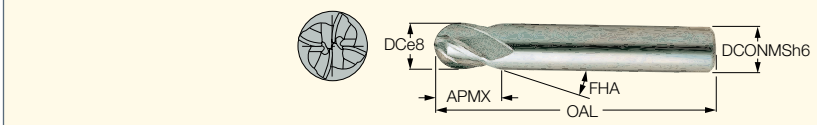
(2) C-Cylindrical

(3) Corner radius tolerance (+/-)

SOLIDMILL TEC LINE

EB-A4 (economical-short)

Economical Type 4 Flute,
30° Helix Ball Nose Short
Solid Carbide Endmills



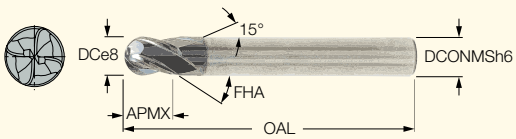
Designation	Dimensions									Tough ↔ Hard	
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RETOLL(3)	RETOLU	IC08	IC900
EB-A4 02-04C06E50	2.00	6.00	4.00	50.00	4	30.0	C	0.000	0.005	•	•
EB-A4 03-04C06E50	3.00	6.00	4.00	48.00	4	30.0	C	-0.010	0.010		•
EB-A4 04-06C06E50	4.00	6.00	6.00	50.00	4	30.0	C	-0.010	0.010		•
EB-A4 05-07C06E51	5.00	6.00	7.00	51.00	4	30.0	C	-0.010	0.010	•	•
EB-A4 06-07C06E50	6.00	6.00	7.00	50.00	4	30.0	C	-0.010	0.010	•	
EB-A4 06-07C06E51	6.00	6.00	7.00	51.00	4	30.0	C	-0.010	0.010		•
EB-A4 08-09C08E59	8.00	8.00	9.00	59.00	4	30.0	C	-0.010	0.010	•	•
EB-A4 10-10C10E66	10.00	10.00	10.00	66.00	4	30.0	C	-0.010	0.010	•	•
EB-A4 12-14C12E71	12.00	12.00	14.00	71.00	4	30.0	C	-0.012	0.012	•	•
EB-A4 16-16C16E76	16.00	16.00	16.00	76.00	4	30.0	C	-0.012	0.012	•	•
EB-A4 18-18C18E76	18.00	18.00	18.00	76.00	4	30.0	C	-0.012	0.012	•	•
EB-A4 20-20C20E82	20.00	20.00	20.00	82.00	4	30.0	C	-0.012	0.012	•	•

• For user guide, see pages 177-184
(1) Number of flutes
(2) C-Cylindrical
(3) Corner radius tolerance lower

SOLIDMILL PREMIUM LINE

EB-A-4 (short length)

4 Flute, 30° Helix Short Solid
Carbide Ball Nose Endmills



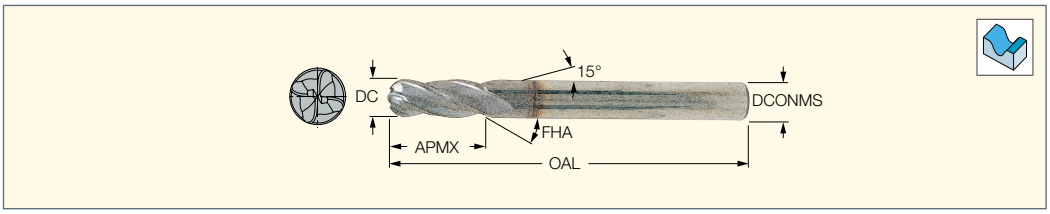
Designation	Dimensions								IC900
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RETOL(3)	
EB020A03/06-4C03L38	2.00	3.00	3.00	38.00	4	30.0	C	0.006	•
EB030A05-4C03	3.00	3.00	5.00	38.00	4	30.0	C	0.010	•
EB030A05-4C06	3.00	6.00	5.00	57.00	4	30.0	C	0.010	•
EB040A07-4C04	4.00	4.00	7.00	50.00	4	30.0	C	0.010	•
EB040A07-4C06	4.00	6.00	7.00	57.00	4	30.0	C	0.010	•
EB050A08-4C06	5.00	6.00	8.00	57.00	4	30.0	C	0.010	•
EB060A08-4C06	6.00	6.00	8.00	57.00	4	30.0	C	0.010	•
EB080A11-4C08	8.00	8.00	11.00	63.00	4	30.0	C	0.010	•
EB100A13-4C10	10.00	10.00	13.00	72.00	4	30.0	C	0.010	•
EB120A14-4C12	12.00	12.00	14.00	83.00	4	30.0	C	0.012	•
EB140A14-4C14	14.00	14.00	14.00	83.00	4	30.0	C	0.012	•
EB160A16-4C16	16.00	16.00	16.00	92.00	4	30.0	C	0.012	•
EB200A20-4C20	20.00	20.00	20.00	104.00	4	30.0	C	0.012	•

• Short and stable design for profiling (finishing). • For user guide, see pages 177-184
(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)	IC900	IC902
EB030A08-4C04	3.00	4.00	8.00	50.00	4	30.0	C	●	●
EB040A12-4C04	4.00	4.00	12.00	50.00	4	30.0	C	●	●
EB050A14-4C05	5.00	5.00	14.00	50.00	4	30.0	C	●	●
EB060A16-4C06	6.00	6.00	16.00	57.00	4	30.0	C	●	●
EB080A20-4C08	8.00	8.00	20.00	63.00	4	30.0	C	●	●
EB090A11-4C09	9.00	9.00	11.00	67.00	4	30.0	C	●	
EB100A22-4C10	10.00	10.00	22.00	72.00	4	30.0	C	●	
EB120A25-4C12	12.00	12.00	25.00	83.00	4	30.0	C	●	
EB160A32-4C16	16.00	16.00	32.00	92.00	4	30.0	C	●	
EB200A38-4C20	20.00	20.00	38.00	104.00	4	30.0	C	●	

• For user guide, see pages 177-184

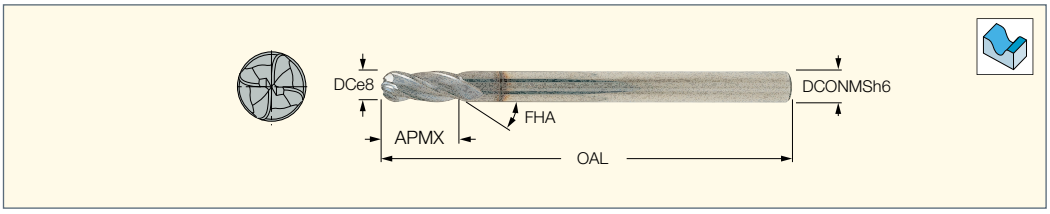
(1) Number of flutes

(2) C-Cylindrical

SOLIDMILL PREMIUM LINE

EBL-A-4

4 Flute, 30° Helix Long Solid Carbide Ball Nose Endmills



Designation	Dimensions								IC900
	DC	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RETOL(3)	
EBL040A12-4C04	4.00	4.00	12.00	80.00	4	30.0	C	0.010	●
EBL060A16-4C06	6.00	6.00	16.00	100.00	4	30.0	C	0.010	●
EBL070A16-4C07	7.00	7.00	16.00	100.00	4	30.0	C	0.010	●
EBL080A20-4C08	8.00	8.00	20.00	100.00	4	30.0	C	0.010	●
EBL090A20-4C09	9.00	9.00	20.00	100.00	4	30.0	C	0.010	●
EBL100A22-4C10	10.00	10.00	22.00	100.00	4	30.0	C	0.010	●
EBL120A25-4C12	12.00	12.00	25.00	100.00	4	30.0	C	0.012	●
EBL160A32-4C16	16.00	16.00	32.00	125.00	4	30.0	C	0.012	●

• Profiling in deep cavities • For user guide, see pages 177-184

(1) Number of flutes

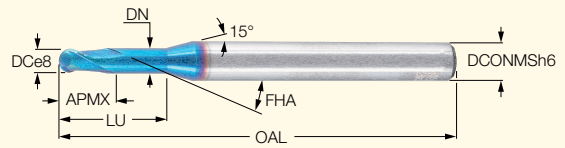
(2) C-Cylindrical

(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										IC702	Recommended Machining Data
	DC	DCONMS	APMX	OAL	LU	DN	NOF(1)	FHA	Shank(2)	RETOL(3)		f_z (mm/t)
EB-A2 004-004/03C4H45	0.40	4.00	0.40	45.00	3.0	0.37	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	30.0	C	0.005	•	0.0600-0.1500

• For user guide, see pages 177-184

(1) Number of flutes

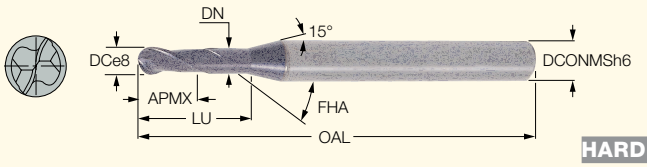
(2) C-Cylindrical

(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



HARD MATERIALS

Designation	Dimensions DC	DCONMS	APMX	OAL	LU	DN	NOF(1)	FHA	Shank(2)	RETOL(3)	IC903	Recommended Machining Data f_z (mm/t)
EB-A2 004-006/01C4M45	0.40	4.00	0.60	45.00	1.0	0.36	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	2	30.0	C	0.010	•	0.0120-0.0300

• For user guide, see pages 177-184

(1) Number of flutes

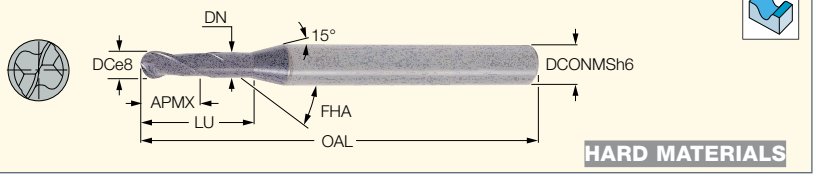
(2) C-Cylindrical

(3) Corner radius tolerance (+/-)

SOLIDMILL PREMIUM LINE

EB-A2 (rib processing) (continued)

2 Flute, 30° Helix Rib Processing Solid Carbide Ball Nose Endmills for Materials up to 55 HRc



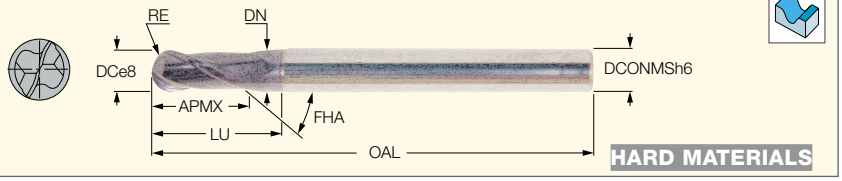
Designation	Dimensions DC	DCONMS	APMX	OAL	LU	DN	NOF(1)	FHA	Shank(2)	RETOL(3)	IC903	Recommended Machining Data f_z (mm/t)
EB-A2 030-045/35C6M80	3.00	6.00	4.50	80.00	35.0	2.85	2	30.0	C	0.010	•	0.0120-0.0300
EB-A2 040-060/10C6M60	4.00	6.00	6.00	60.00	10.0	3.80	2	30.0	C	0.010	•	0.0150-0.0350
EB-A2 040-060/12C6M60	4.00	6.00	6.00	60.00	12.0	3.80	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	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	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	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	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	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	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	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	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	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	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	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	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	2	30.0	C	0.010	•	0.0200-0.0500

• For user guide, see pages 177-184
(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



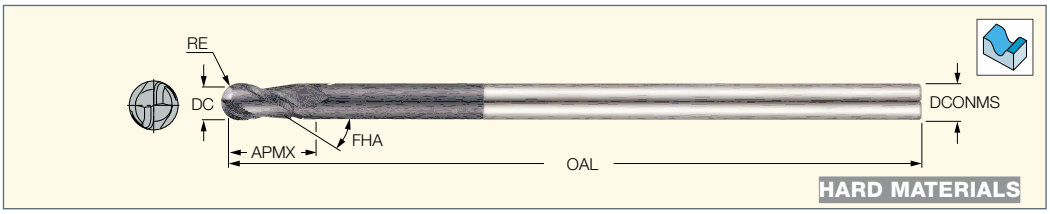
Designation	Dimensions DC	RE	DCONMS	APMX	OAL	LU	DN	NOF(1)	FHA	Shank(2)	RETOL(3)	IC903
EB-A2 03-08C06M70	3.00	1.50	6.00	8.00	70.00	-	-	2	30.0	C	0.010	•
EB-A2 04-08C06M70	4.00	2.00	6.00	8.00	70.00	-	-	2	30.0	C	0.010	•
EB-A2 05-12C06M80	5.00	2.50	6.00	12.00	80.00	-	-	2	30.0	C	0.010	•
EB-A2 06-12/22C06M80	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 177-184
(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 177-184

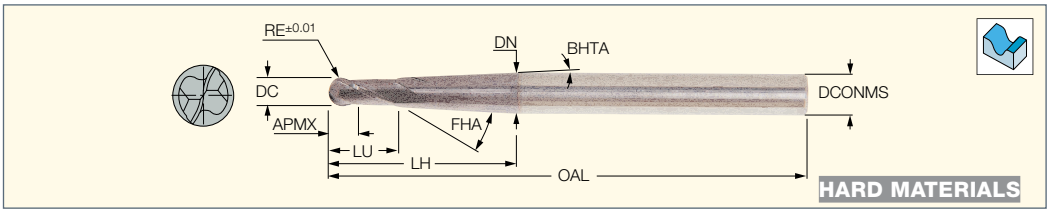
(1) Number of flutes

(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 177-184

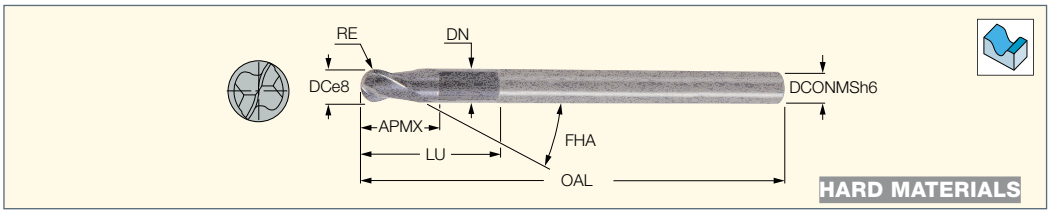
(1) Number of flutes

(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 DC	RE	DCONMS	APMX	LU	OAL	DN	NOF(1)	FHA	Shank(2)	RETOLL(3)	RETOLU(4)	IC903
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 177-184
(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 DC	RE	DCONMS	APMX	OAL	NOF(1)	FHA	Shank(2)	RETOLL(3)	RETOLU(4)	Tough ↔ Hard IC08	IC900	IC902
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	•	•	•

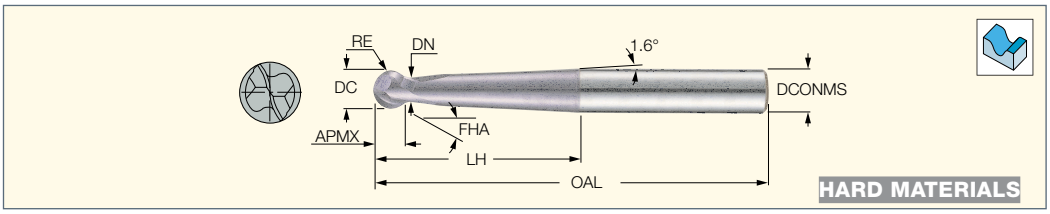
• Short and stable design for profiling (roughing). • For user guide, see pages 177-184
(1) Number of flutes
(2) C-Cylindrical
(3) Corner radius tolerance lower
(4) Corner radius tolerance upper

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



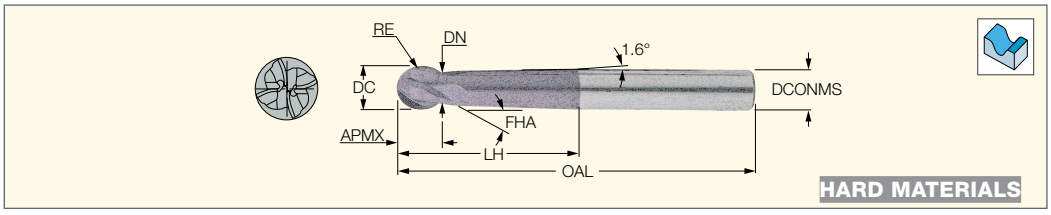
Designation	Dimensions										IC903
	DC	RE	DCONMS	APMX	LH	DN	OAL	NOF(1)	FHA	Shank(2)	
ESB-A2 03 02/30C06M80	3.00	1.50	6.00	2.30	30.0	2.50	80.00	2	30.0	C	•
ESB-A2 04 03/30C06M80	4.00	2.00	6.00	3.10	30.0	3.30	80.00	2	30.0	C	•
ESB-A2 05 03/38C06M80	5.00	2.50	6.00	3.90	38.0	4.10	80.00	2	30.0	C	•
ESB-A2 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 177-184
(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



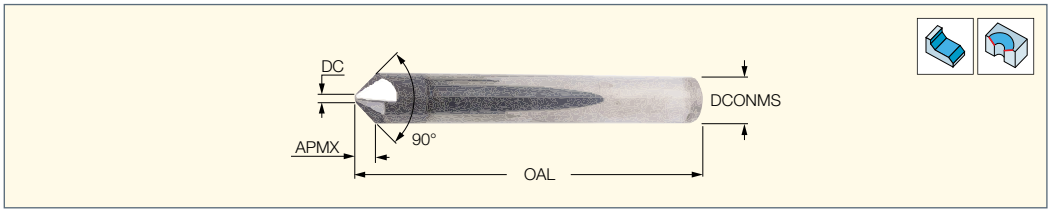
Designation	Dimensions										IC903
	DC	RE	DCONMS	APMX	LH	DN	OAL	NOF(1)	FHA	Shank(2)	
ESB-A4 05 3/38C06M80	5.00	2.50	6.00	3.90	38.0	4.10	80.00	4	30.0	C	•
ESB-A4 06 4/28C06M100	6.00	3.00	6.00	4.90	28.0	4.70	100.00	4	30.0	C	•
ESB-A4 08 6/33C08M100	8.00	4.00	8.00	6.30	33.0	6.30	100.00	4	30.0	C	•
ESB-A4 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 177-184
(1) Number of flutes
(2) C-Cylindrical

SOLIDMILL PREMIUM LINE

ECF../45

45° Chamfering and Countersinking Solid Carbide Endmills



Designation	Dimensions						IC900
	DC	DCX(1)	APMX	OAL	NOF(2)	Shank(3)	
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 177-184
(1) Cutting diameter maximum
(2) Number of flutes
(3) C-Cylindrical

SOLIDMILL PREMIUM LINE

ECD-S2

45° Chamfering and Spot Drilling Solid Carbide Tools



Designation	Dimensions						Tough ↔ Hard	
	DC	DCONMS	OAL	APMX	LU	Shank(1)	IC08	IC900
ECD-S2 030/90C03-38	3.00	3.00	38.00	1.37	6.00	C	•	•
ECD-S2 040/90C04-50	4.00	4.00	50.00	1.79	8.00	C	•	•
ECD-S2 050/90C05-50	5.00	5.00	50.00	2.24	10.00	C	•	•
ECD-S2 060/90C06-57	6.00	6.00	57.00	2.71	12.00	C	•	•
ECD-S2 080/90C08-63	8.00	8.00	63.00	3.63	16.00	C	•	•
ECD-S2 100/90C10-72	10.00	10.00	72.00	4.55	20.00	C	•	•
ECD-S2 120/90C12-73	12.00	12.00	73.00	5.47	24.00	C	•	•

• For user guide, see pages 177-184

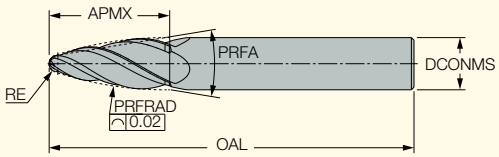
(1) C-Cylindrical

SOLIDMILL PREMIUM LINE

NEOBARREL PROFILE MILLING

SC EOB

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



Designation	Dimensions							Shank(2)	IC902
	PRFRAD	RE	APMX	PRFA	DCONMS	NOF(1)	OAL		
EOB-R1R90A24/7-4C08-63	90.00	1.00	24.80	14.88	8.00	4	63.00	C	•
EOB-R2R85A24/8-4C10-72	85.00	2.00	26.60	15.46	10.00	4	72.00	C	•
EOB-R2R80A27/9-4C12-83	80.00	2.00	27.10	18.38	12.00	4	83.00	C	•

• For user guide, see pages 177-184

(1) Number of flutes

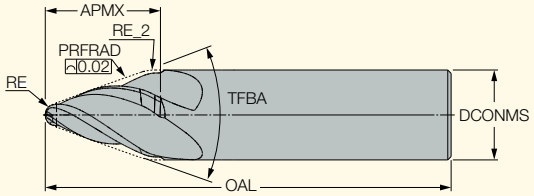
(2) C-Cylindrical

SOLIDMILL PREMIUM LINE

NEOBARREL PROFILE MILLING

SC ETB

Solid Carbide Tapered-Shaped (Barrel) Endmills for 3D Profiling



Designation	Dimensions								Shank(2)	IC902
	PRFRAD	RE_2	RE	APMX	TFBA	DCONMS	NOF(1)	OAL		
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 177-184

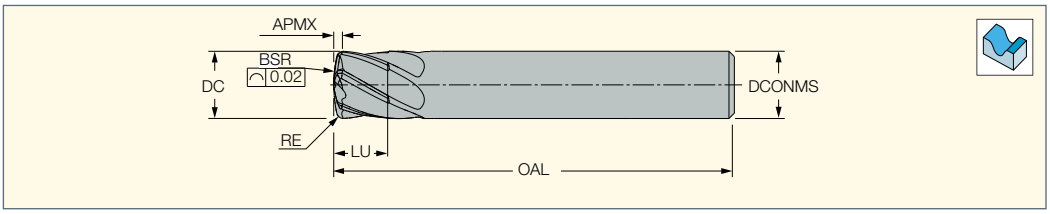
(1) Number of flutes

(2) C-Cylindrical

SOLIDMILL PREMIUM LINE
NEOBARREL PROFILE MILLING

SC ELB

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



Designation	Dimensions									IC902
	DC	BSR	RE	LU	APMX	DCONMS	NOF[1]	OAL	Shank	
ELB-R0.75R16A5-6C8-63	8.00	15.00	0.75	5.00	1.10	8.00	4	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	●

[1] 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)**		**IC300 (308)**	**IC900 (908)**
Roughing/ Semi-Finishing								
				IC300 (308)		**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	**IC300 (308)**	**IC903**		IC900 (908)	IC903
		IC608	IC608		IC608			IC608
		IC900 (908)	IC900 (908)	IC900 (908)	IC900 (908)			IC900 (908)
							IC08	
Finishing	Tougher					**IC08**		
Coolant		N	Y	Y	N	Y	Y	N

■ First choice
* SiAlON grade
** First choice for trochoidal milling

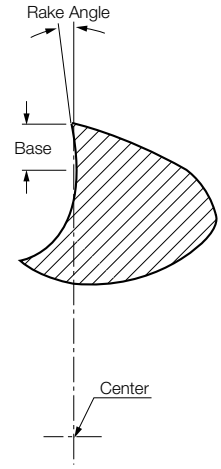


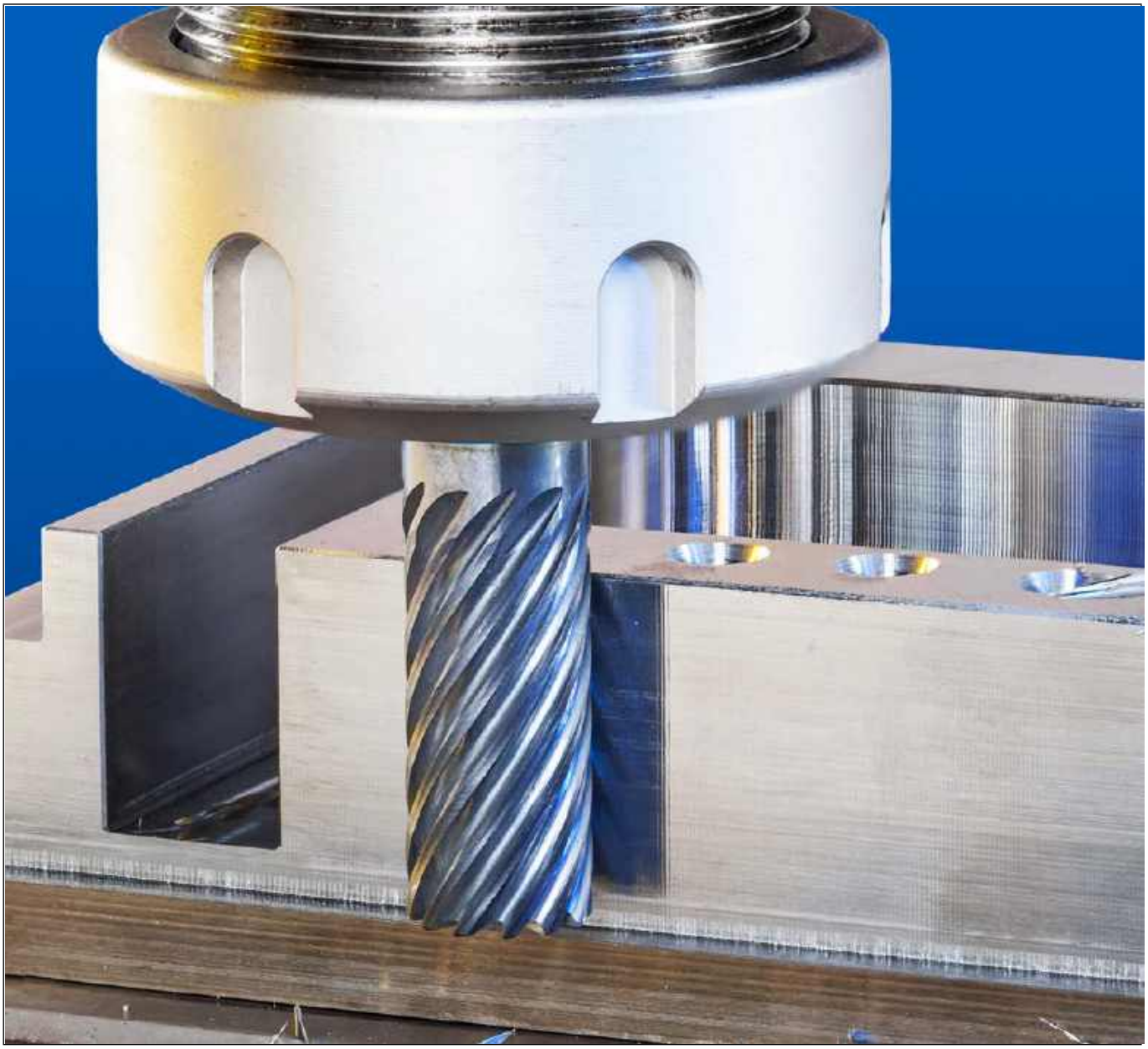
Machining Data for Solid Carbide and MULTI-MASTER Endmills

ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Material No.	Cutting Speed (m/min)			
							IC900/IC608	IC903	IC300	IC08
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1	260-280	260-280	210-220	180-200
		>= 0.25 %C	Annealed	650	190	2	200-230	200-230	160-180	140-160
		< 0.55 %C	Quenched and tempered	850	250	3	160-220	160-220	130-180	110-150
		>= 0.55 %C	Annealed	750	220	4	160-220	160-220	130-180	110-150
			Quenched and tempered	1000	300	5	140-180	140-180	110-140	100-130
	Low alloy and cast steel (less than 5% of alloying elements)		Annealed	600	200	6	160-220	160-220	130-180	110-150
			Quenched and tempered	930	275	7	120-180	120-180	100-140	80-130
				1000	300	8	130-180	130-180	100-140	90-130
				1200	350	9	140-180	140-180	110-140	100-130
	High alloyed steel, cast steel and tool steel		Annealed	680	200	10	130-180	130-180	100-140	90-130
			Quenched and tempered	1100	325	11	70-120	70-120	60-100	50-80
	Stainless steel and cast steel		Ferritic/martensitic.	680	200	12	80-160	80-160	60-130	60-110
			Martensitic	820	240	13	60-150	60-150	50-120	40-100
M	Stainless steel and cast steel		Austenitic	600	180	14	60-120	60-120	50-100	40-80
K	Grey cast iron (GG)		Ferritic/pearlitic		180	15	80-260	80-250	60-210	60-180
			Pearlitic/martensitic		260	16	130-240	130-240	100-190	90-170
	Cast iron nodular (GGG)		Ferritic		160	17	150-280	150-270	120-220	100-200
			Pearlitic		250	18	90-280	90-270	70-220	60-200
	Malleable cast iron		Ferritic		130	19	150-280	150-270	120-220	100-200
			Pearlitic		230	20	140-240	140-240	110-190	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	20-30	10-20
			Cured		280	32	20-40	20-30	20-20	10-20
		Ni or Co based	Annealed		250	33	20-50	20-30	20-20	20-50
			Cured		350	34	20-70	20-30	20-20	20-50
			Cast		320	35	30-70	30-80	20-60	20-50
	Titanium Ti alloys			RM 400		36	30-70	30-80	20-60	20-30
			Alpha+beta alloys cured	RM 1050		37	30-70	30-80	20-60	20-30
H	Hardened steel		Hardened		55 HRC	38	30-50	30-60	20-40	40-60
			Hardened		60 HRC	39	30-40	30-40	20-30	20-30
	Chilled cast iron		Cast		400	40	60-80	70-90	50-60	65-75
	Cast iron		Hardened		55 HRC	41	30-50	30-60	20-40	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

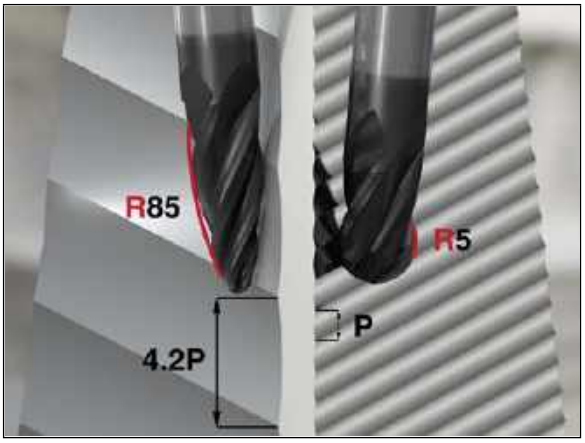
Oval Barrel – MM EOB
Lens Barrel – MM ELB

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.

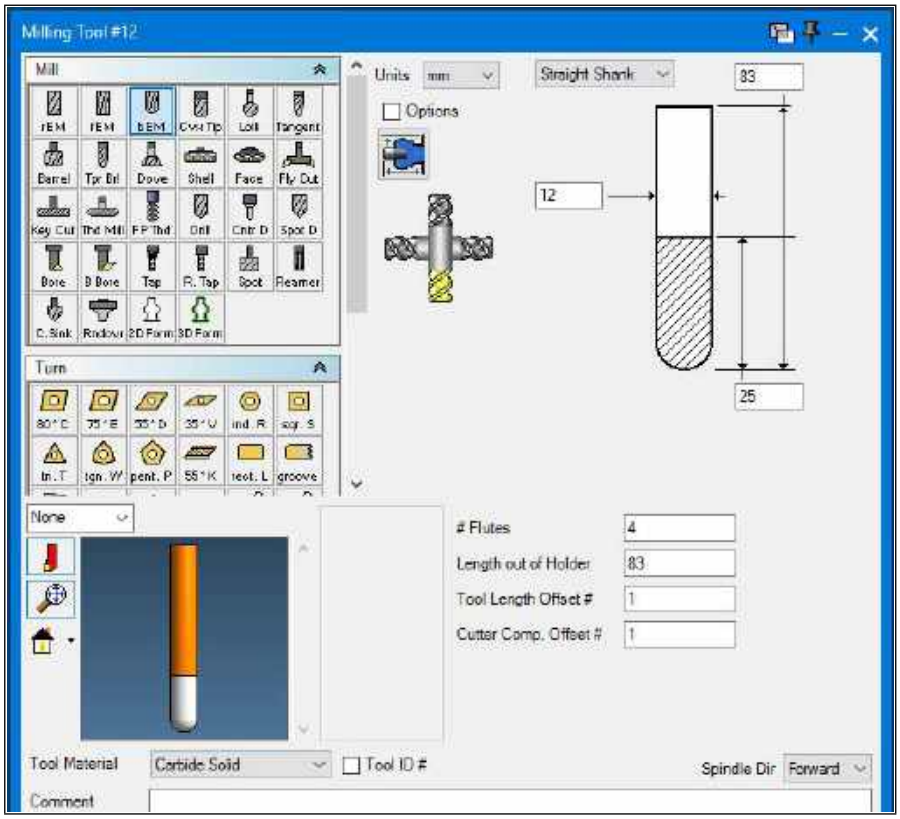


Machining Guidelines

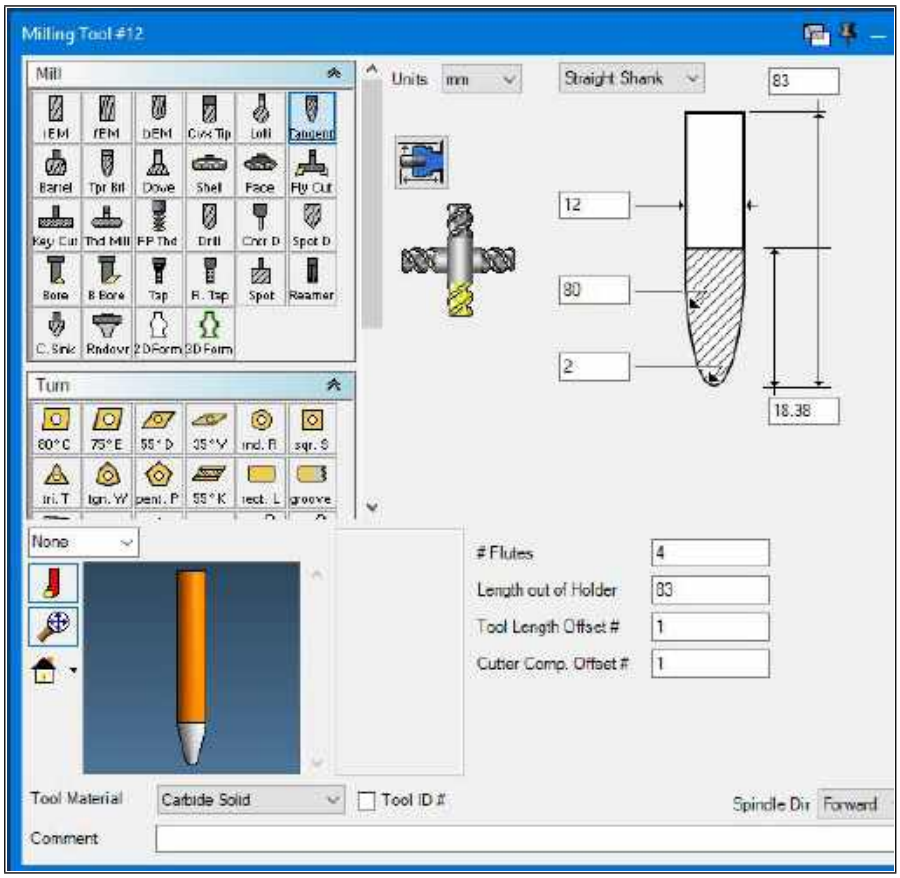
The Most Important Thing to Remember

Programming circle segment tooling requires a supporting CAM system

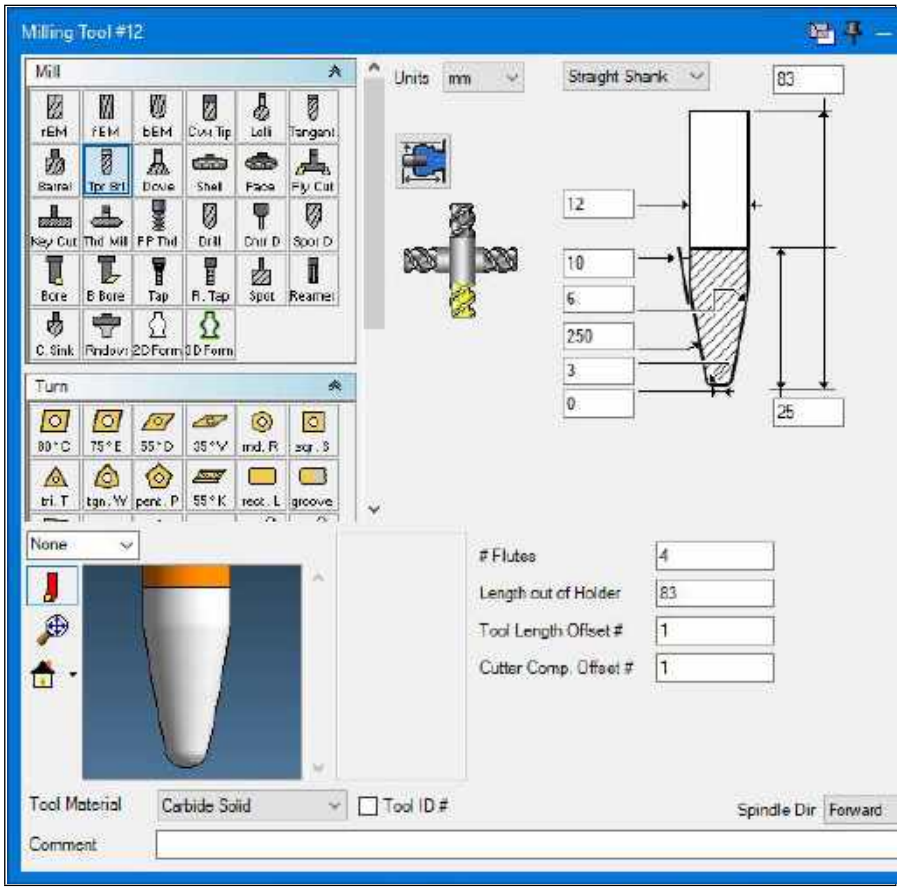
- **Step #1 – for Ball-Nose**
  Select a Ball-Nose tool configuration and define its parameters.



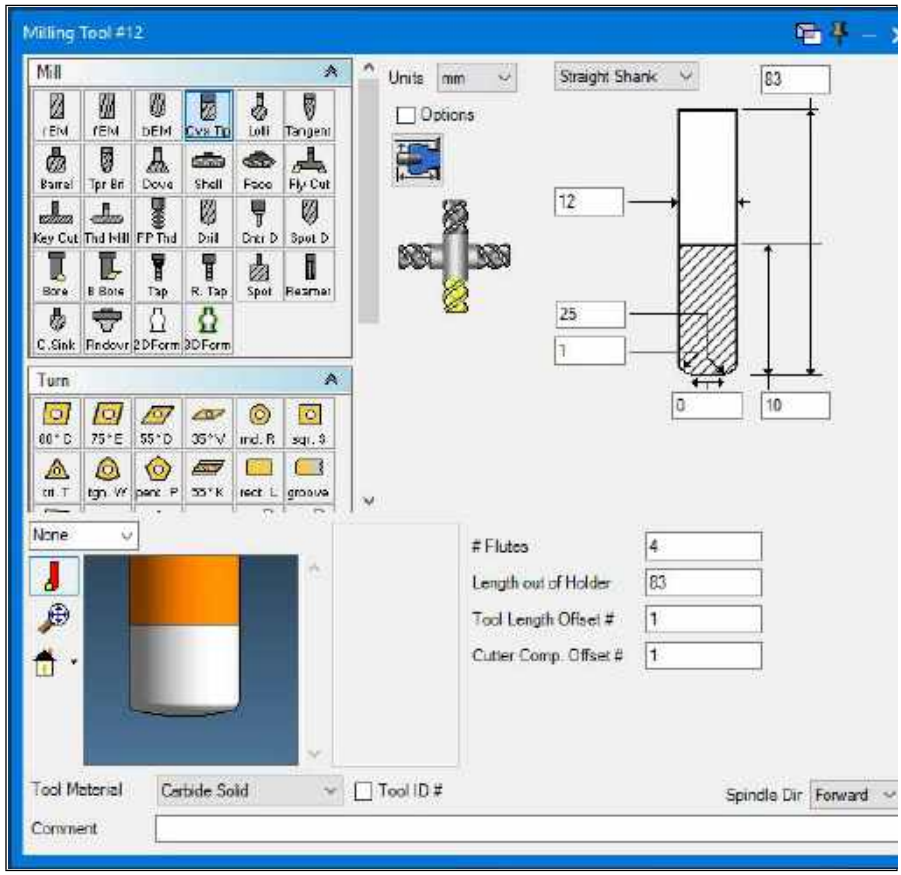
- **Step #1 – for Oval Shape**
  Select a Barrel tool configuration and define its parameters.



- **Step #1 – for Taper Shape**
  Select a Taper tool configuration and set its parameters.



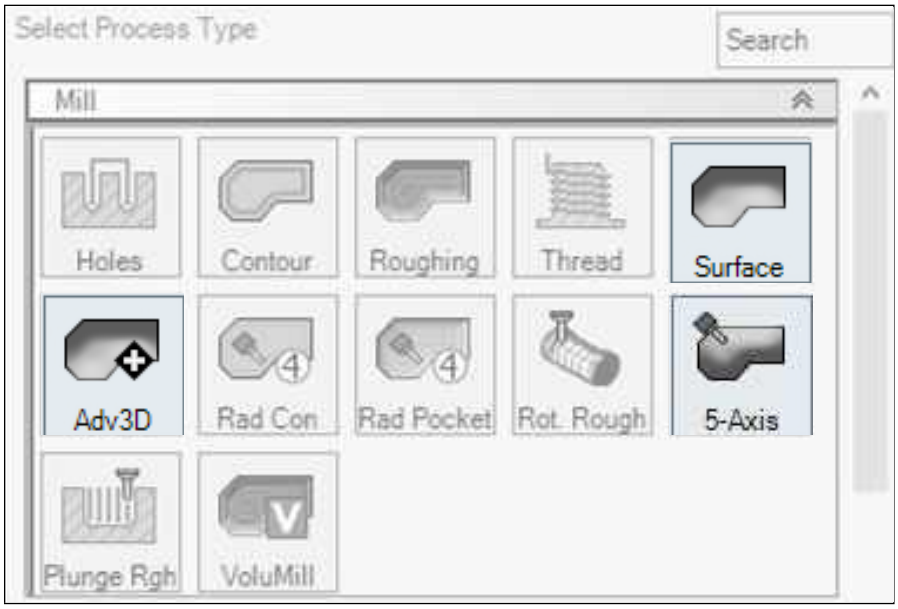
- **Step #1 – for Lens Shape**
  Select a Lens tool configuration and set its parameters.



- **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

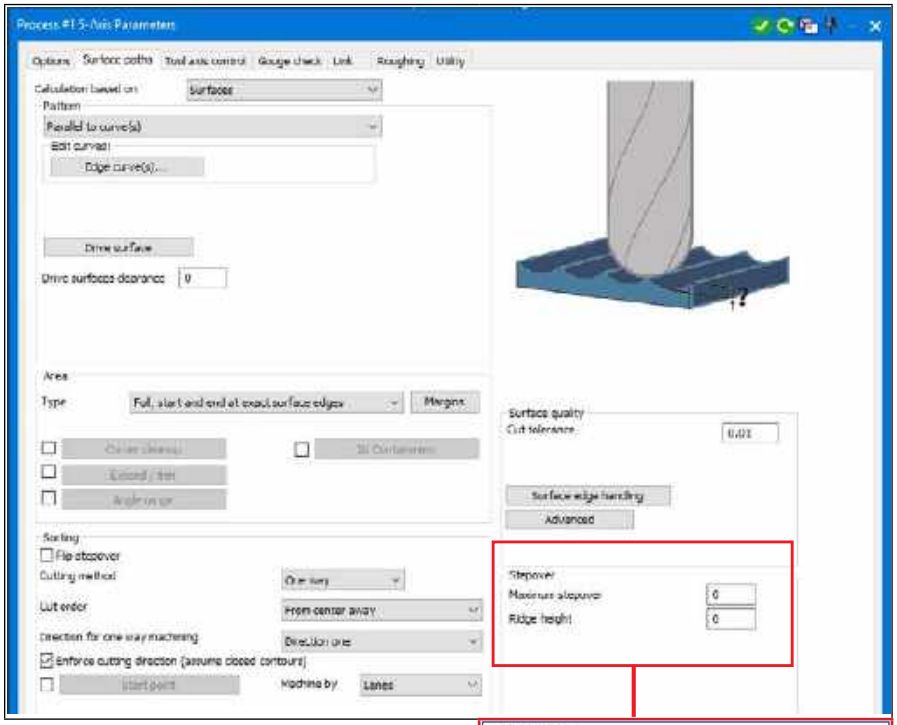
Each CAM software has its own features to configure the tools and their machining processes, but the definitions are similar.

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 with (Metric)

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°



HELIPLUS

HP F90AN-07

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HELITANG T490 LINE

T490 FLN

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HELIQUAD

F90SP-10

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HELI2000

HM90 F90AP

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TANGMILL TANGENTIAL LINE

F90LN-N11

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HELIQUAD

F90SD-12

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HELI3MILL HM390 LINE

HM390 FT

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HELIDO TRIGON LINE

H690 FWN

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HELIDO 690 LINE

H690 F90AX

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HELIDO 490 LINE

H490 F90A

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TANGMILL TANGENTIAL LINE

F90LN-N15

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SUMOMILL 290 LINE

T290 FLN

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MILLSHRED P290 LINE

P290 FPW/FCT

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LOGIQ8TANG T890 MILLING LINE

T890HT-R13

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NEODO S90° LINE

S890 FSZ-R08

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Face Mills 88°, 75°, 65°, 45°



HELIDO 890 LINE
S890 FSN-13
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ISCARMILL
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HELIDO 865 LINE
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ISCARMILL
F45ST
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HELIDO BAR LINE
S845 F45SX
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DOVEIQMILL 845 LINE
IQ845
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HELIDO 800 LINE
SOF45
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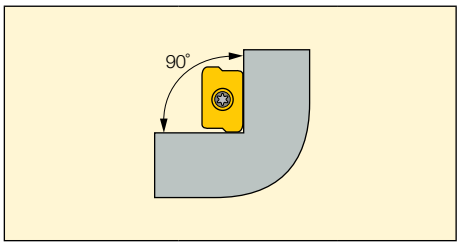


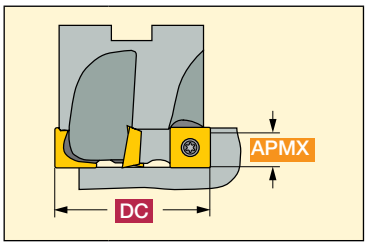
HELIDO 800 HD LINE
SOF45-R18
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HELIDO 800 HD LINE
SOF45-26
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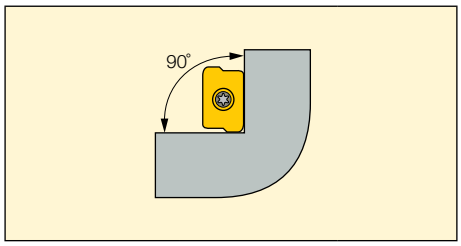
Face Mills 90° Selection Guide

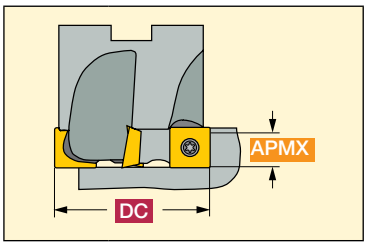




Tools	Pages	DC / APMX	25	32	40	50	63	80	100	125	160	200	250	315	Inserts
			Number of Teeth (Effective)												
H690 FWN	193 195	4 7		6	5 7	4 5 7 9	5 6 7 8 10	7 9	8 11	10					H690 WN..04../07..
S890 FSZ-R08	194	5			5 6	6 8	7 10	8 12	10 14	12 18					S890 SZMU-08...
HM390 FTC-07	193	5		4 5	5 6										HM390 TCKT 07..
HP F90AN-07	195	7.7		6	8 10										HP AN..0702..
T490 FLN-08	196	8		3 5	4 6	5 7 10	6 9	10							T490 LN..08..
H490 F90AX-09	197	8		4 5	5 6	6 7	8 9								H490 AN..09..
HM390 FTP-10	199	8			3 5	4 6	6 7	11	13						HM390 TP.. 10..
T290 FLN-10	198	9		5	6	7									T290 LNMT 10
F90SP-10	198	9.6			4	4 6	6 7	6 9							SPMT/R 10... QPMT/R 10.. XPMT 10.. SPCT 10...
HM90 F90AP-10	200	10		3 5	5 6	6 7	7 9	8	9						HM90 AP..10 AP...10
H690 F90AX-10	201	8		4 5	5 6	6 7	8								H690 TN.. 10..
F90LN-N11	203	10			4 6	5 7	6 9	8 11	9 14	10 18					LN.. 11...
T490 FLN-11	201	10			4 5	5 6	6 9	7 11	8 13						T490 LN.. 11...
F90SD-12	204	11.8				3 5	4 6	5	6 8	7 9	11	13			SDMT 12... SDMR 12... QDMT 12... QDCT 12...
H490 F90AX-12	206	12			4	3 5	4 6	5 7	6 9		9				H490 AN.. 12...

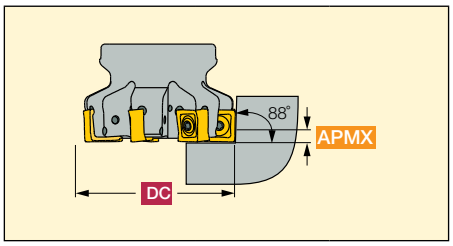
Face Mills 90° Selection Guide

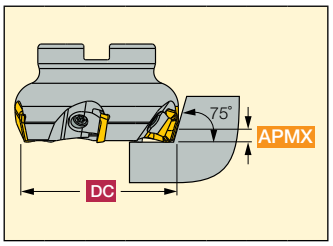


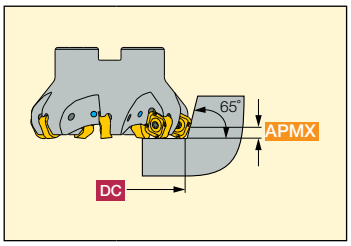


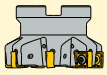
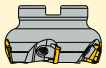
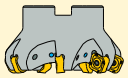
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			Number of Teeth (Effective)												
T490 FLN-13	207	12.5			4 5	5 6	6 8	7 10	8 13	9 17	12	15			T490 LNMT 13..
T290 FLN-15	207	14			4	5									T290 LN.. 15...
F90LN-N15	208	14				5	5 8	7 10	8 12	9 15	10 20	12	15 30		LN.. 15...
HM390 FTD-15	209	13			3 4	3 4 5	4 5 6	5 6 7	6 8	7 9	8 10	9			HM390 TDKT 1505..
HM90 F90A-15	210	14.3			3 4	3 5	4 6	5 7	6 8	9					HM90 AD.. 15...
T490FLN-16	212	16				3 4	6	5 7	6 8	7 10	12	12			T490 LNMT 16...
HM390 FTD-19	212	16					5				10				HM390 TDKT 1907
H490 F90AX-17	213	16.3			3	3 4	4 6	5 7	5 8	7 10	8 12	10	12		H490 AN.. 17...
H690 F90AX-16	214	13.5				3 4	4 5	5 6	6 8	7 9	8 10	11			HM690 TNKX 1606
F90	214	18						6	8	8	10	12			TPK...22
P290 FPW/FCT	215	12 18		4	4 5	5 6	6	8	9						P290 ACCT P290 ACKT
HP F90AT-19	215	18				4									HP AD.. 19...
HP F90AT-22	216	21				3 4									HP AD.. 22...

Endmills and Face Mills 88°, 75°, 65° Selection Guide

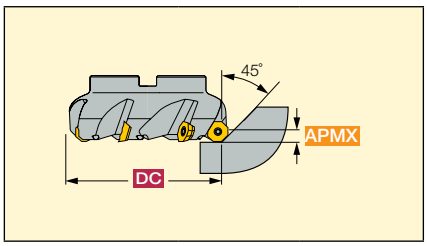


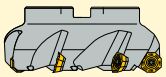
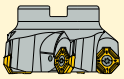
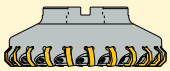
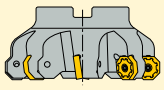
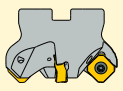




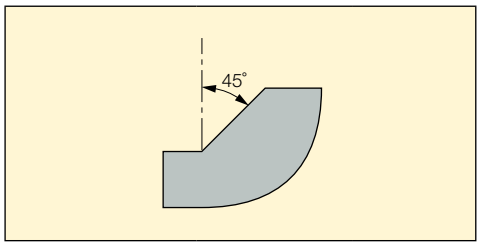
Tools		Pages	DC / APMX	25	32	40	50	63	80	100	125	160	200	250	315	Inserts
				Number of Teeth (Effective)												
	S890 FSN-13	205	10 88°			4	4 5	5 7	7 9	8 11	9 14	10				 S890 SN.. 13...
	F75-M	216	9.5 75°				4	5	6	7	8					 SPKN/SPKR 12...
	S865 FSN-13	217	6 65°				4 6	6 8	7 10	8 12	10 16					 S865 SNMU 13...

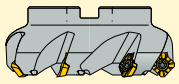
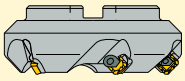
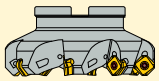
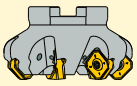
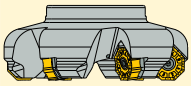
Endmills and Face Mills 45° Selection Guide



Tools		Pages	DC / APMX	25	32	40	50	63	80	100	125	160	200	250	315	Inserts
				Number of Teeth (Effective)												
	HOE / HOF	218 219	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	219 220 226	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	220	5.5						10	14	18	22				 ON.. 08...
	F45NM	221	5.5					5	6 8	7 10	8 12	10 15	12	14		 ON.. 08...
	SOF45	222	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...

Face Mills 45° Selection Guide



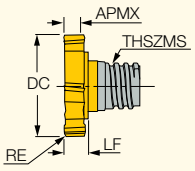
Tools	Pages	DC / APMX	25	32	40	50	63	80	100	125	160	200	250	315	Inserts
			Number of Teeth (Effective)												
 F45ST	225	6.5			3	4	5	6	6	7	7				 SE.T 12...
 F45E	225	6.5				4	5	6	6	6	8				 SE.. 12...
 S845 F45SX-16	227	7.1			4	4 5	5 7	9	7 11	8 14	10 18	12	15		 S845 SX.. 16...
 SOF45-R18	229	5 8				4	5	6 7	7 9	8 12	10 15	12 18	14 21	18 24	 SNMU 18 ONMU 07  S845
 SOF45-R26	228	7 11						4	5 6	6 8	8 10	10 12	12 14	14 16	 SNMU 26 ONMU 10  S845

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 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

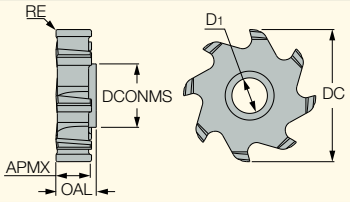
* Optional, should be ordered separately

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

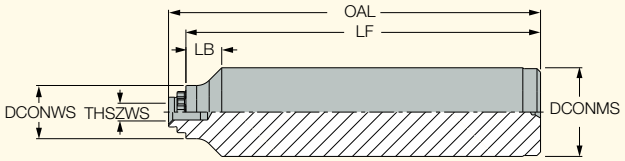
• For shanks, see page 192 • For user guide, see pages 542-547

(1) Number of flutes

T-FACE
FACEMILL

SD FM-S-A-SP

Stepped Cylindrical Shanks for Interchangeable Solid Carbide Face Milling Heads



Designation	DCONMS	DCONWS	THSZWS	LB	LF	OAL	Shank(1)	kg
SD FM-S-A-L100-C25-SP15	25.00	15.00	M5x0.5	10.10	104.90	104.90	C	0.37
SD FM-S-A-L120-W25-SP15	25.00	15.00	M5x0.5	10.10	92.90	124.90	W	0.44
SD FM-S-A-L125-W32-SP17	32.00	17.00	M6x0.5	12.50	95.00	131.00	W	0.75
SD FM-S-A-L140-C32 SP17	32.00	17.00	M6x0.5	12.50	146.00	146.00	C	0.85
SD FM-S-A-L140-C32-SP19	32.00	19.00	M6x0.5	10.00	148.50	148.50	C	1.41
SD FM-S-A-L130-W40-SP19	40.00	19.00	M6x0.5	14.00	98.50	138.50	W	1.21

• Apply lubricant to the clamping screw

(1) C-Cylindrical, W-Weldon

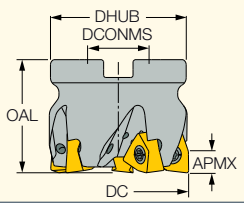
Spare Parts

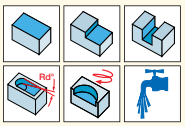
Designation			
SD FM-S-A-L100-C25-SP15	SR M5X0.5-SP15-IP20-HG	BLD IP20/S7	SW6-T-SH
SD FM-S-A-L120-W25-SP15	SR M5X0.5-SP15-IP20-HG	BLD IP20/S7	SW6-T-SH
SD FM-S-A-L125-W32-SP17	SR M6X0.5-SP17-IP20-HG	BLD IP20/S7	SW6-T-SH
SD FM-S-A-L140-C32 SP17	SR M6X0.5-SP17-IP20-HG	BLD IP20/S7	SW6-T-SH
SD FM-S-A-L140-C32-SP19	SR M6X0.5-SP17-IP20-HG	BLD IP20/S7	SW6-T-SH
SD FM-S-A-L130-W40-SP19	SR M6X0.5-SP17-IP20-HG	BLD IP20/S7	SW6-T-SH

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 542-547

(1) Number of inserts

(2) For adaptation options, see page 548

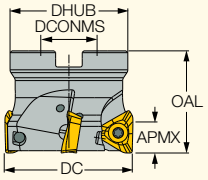
(3) Maximum ramping angle

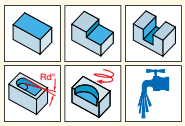
For inserts, see pages: H690 WNMU 0403 (468)

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 D032-04-16-07	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 D032-05-16-07	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 D040-05-16-07	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 D040-06-16-07	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 542-547

(1) Number of inserts

(2) For adaptation options, see page 548

(3) Maximum ramping angle

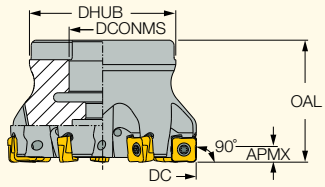
For inserts, see pages: HM390 TCKT/CT 0703 (446)



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 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 542-547

(1) Number of inserts

(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.

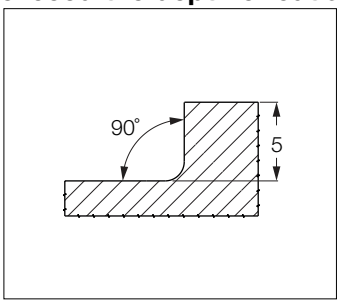


Fig. 1- Generated profile for a depth of cut of up to 5mm

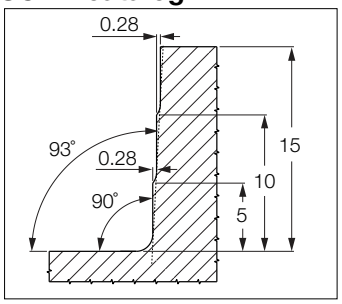


Fig. 2- Generated profile for a depth of cut in stepdown milling

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

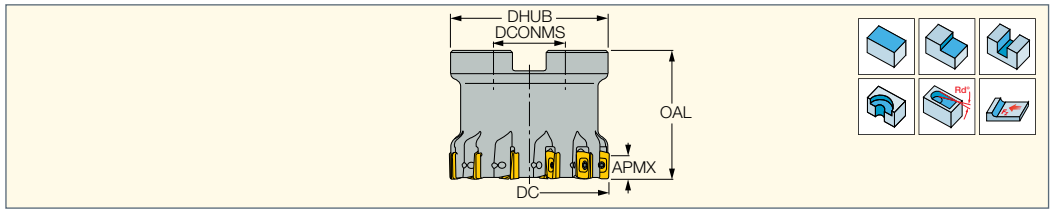
Designation			
S890 FSZ D040-05-16-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151	SR M8X25DIN912
S890 FSZ D040-06-16-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151	SR M8X25DIN912
S890 FSZ D050-06-22-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151	SR M10X25 DIN912
S890 FSZ D050-08-22-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151	SR M10X25 DIN912
S890 FSZ D063-07-22-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151	SR M10X25 DIN912
S890 FSZ D063-10-22-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151	SR M10X25 DIN912
S890 FSZ D080-08-27-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151	
S890 FSZ D080-12-27-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151	
S890 FSZ D100-10-32-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151	
S890 FSZ D100-14-32-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151	
S890 FSZ D125-12-40-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151	
S890 FSZ D125-18-40-R08	SR M3X0.5-L7.4 IP9(a)	IP-9/151	

(a) Recommended tightening torque:2 N*m (17.7 lbf*in)

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	26600	0.10
HP F90AN D40-08-22-07	40.00	8	7.70	40.00	38.00	22.00	1.0	B	23799	0.16
HP F90AN D40-10-22-07	40.00	10	7.70	40.00	38.00	22.00	1.0	B	23799	0.17

• Insert tightening torque: 0.62 Nxm • For user guide, see pages 542-547

(1) Number of inserts

(2) Maximum ramping angle

(3) For adaptation options, see page 548

(4) Maximum RPM

For inserts, see pages: HP ANCR 0702PNFR (444) • HP ANKT 0702...-FF (445) • HP ANKT/ANCT 0702..PN-R/PNTR (444) • HP ANKW 070204PNTR (444)

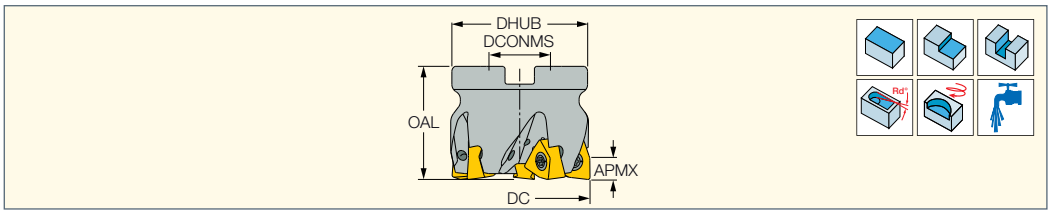
Spare Parts

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 542-547

(1) Number of inserts (2) For adaptation options, see page 548 (3) Maximum ramping angle **For inserts, see pages:** H690 WNHU/WNMU 0705 (469)

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
P	Alloy steel	8	4340	1.6582	260-300	150-200		130-180	130-180	120-170	100-140
P	Alloy steel	9	4340	1.6582	HRC 35-42**	100-170		100-150	100-150	100-130	100-120
P	High alloy steel	10	H13	1.2344	200-220	100-170		100-150	100-150	100-130	100-120
P	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	
K	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

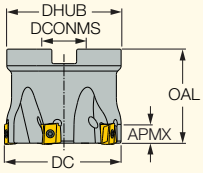
Spare Parts

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	
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[3]	APMX	OAL	DHUB	DCONMS	Arbor[4]	CSP[5]	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 [1]	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 [1]	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 [1]	50.00	7	8.00	40.00	48.00	22.00	A	1	0.37
T490 FLN D050-10-22-08 [2]	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 [1]	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 542-547

[1] Fine pitch

[2] Extra fine pitch

[3] Number of inserts

[4] For adaptation options, see page 548

[5] 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: T490 LNAR-P (480) • T490 LNMT/LNHT 0804 (476)

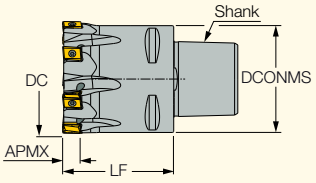
Spare Parts

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 DIN 912 M12X25
T490 FLN D063-09-27-08	SR 10502813-HG-M	IP-7/51	SR DIN 912 M12X25
T490 FLN D080-10-27-08	SR 10502813-HG-M	IP-7/51	

HELITANGCAMFIX T490 LINE

T490 FLN-C#-08

90° Face Mills with CAMFIX Shanks Carrying Tangentially Clamped Inserts



Designation	DC	DCONMS	APMX	LF	CICT[1]	Shank	CDI[2]	kg		
T490 FLN D44-06-C4-08	44.00	40.00	8.00	45.00	6	CAMFIX	1	0.23	SR 10502813-HG-M	IP-7/51
T490 FLN D54-07-C5-08	54.00	50.00	8.00	52.00	7	CAMFIX	1	1.58	SR 10502813-HG-M	IP-7/51

• For user guide, see pages 542-547

[1] Number of inserts

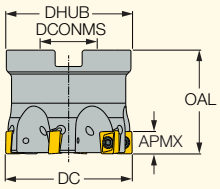
[2] 1 - Hole for data chip, 0 - Without hole for data chip

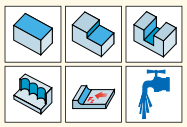
For inserts, see pages: T490 LNAR-P (480) • T490 LNMT/LNHT 0804 (476)

HELIDO 490 LINE

H490 F90AX-09

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





Designation	DC	CICT(1)	APMX	DHUB	DCONMS	OAL	Arbor(2)	kg
H490 F90AX D032-4-16-09	32.00	4	8.00	30.40	16.00	35.00	A	0.10
H490 F90AX D032-5-16-09	32.00	5	8.00	30.40	16.00	35.00	A	0.10
H490 F90AX D040-5-16-09	40.00	5	8.00	38.40	16.00	40.00	A	0.22
H490 F90AX D040-6-16-09	40.00	6	8.00	38.40	16.00	40.00	A	0.22
H490 F90AX D050-6-22-09	50.00	6	8.00	48.00	22.00	40.00	A	0.36
H490 F90AX D050-7-22-09	50.00	7	8.00	48.00	22.00	40.00	A	0.37
H490 F90AX D063-8-22-09	63.00	8	8.00	60.00	22.00	40.00	A	0.62
H490 F90AX D063-9-22-09	63.00	9	8.00	60.00	22.00	40.00	A	0.64

- For user guide, see pages 542-547

(1) Number of inserts

(2) For adaptation options, see page 548

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

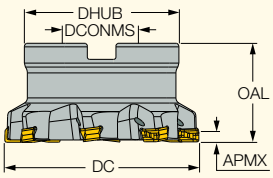
Spare Parts

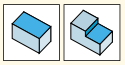
Designation				
H490 F90AX D032-4-16-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X20DIN912
H490 F90AX D032-5-16-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X20DIN912
H490 F90AX D040-5-16-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X30DIN912
H490 F90AX D040-6-16-09	SR 10508082-HG	BLD T08/M7	SW4-SD	SR M8X30DIN912
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 542-547

(1) Number of inserts

(2) For adaptation see page 548

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

For inserts, see pages: HTP LN.. 1006 (537)

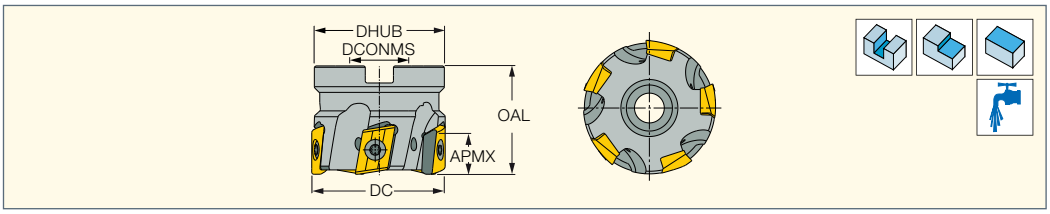
Spare Parts

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 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 542-547

(1) Number of inserts

(2) For adaptation options, see page 548

For inserts, see pages: T290 LNMT/LNHT 1004 (474)

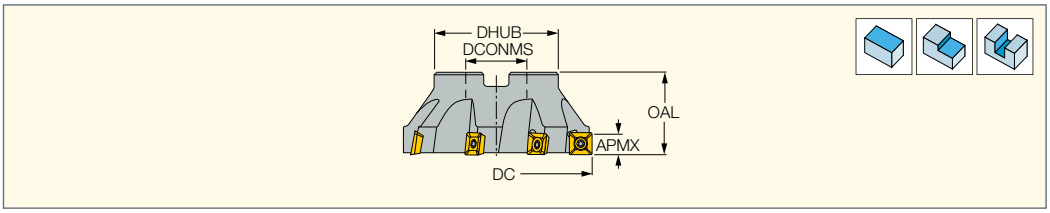
Spare Parts

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

90° Face Mills Carrying S/X/ QPMT 1004... Inserts



Designation	DC(1)	CICT(2)	APMX	OAL	DHUB	DCONMS	Arbor(3)	kg
F90SP D 40-04-16-10	40.00	4	9.60	40.00	38.00	16.00	A	0.42
F90SP D 50-04-22-10	50.00	4	9.60	40.00	48.00	22.00	A	0.37
F90SP D 50-06-22-10	50.00	6	9.60	40.00	48.00	22.00	A	0.39
F90SP D 63-06-22-10	63.00	6	9.60	40.00	48.00	22.00	A	0.48
F90SP D 63-07-22-10	63.00	7	9.60	40.00	48.00	22.00	A	0.42
F90SP D 80-06-27-10	80.00	6	9.60	50.00	60.00	27.00	B	0.88
F90SP D 80-09-27-10	80.00	9	9.60	50.00	60.00	27.00	B	1.50

- For user guide, see pages 542-547

(1) D is 0.2 mm larger when QPMT inserts are used

(2) Number of inserts

(3) For adaptation options, see page 548

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

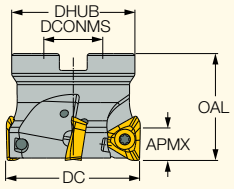
Spare Parts

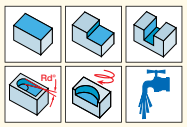
Designation				
F90SP D 40-04-16-10	SR 10514114	SW6-T-SH	BLD IP15/M7	SR M8X30DIN912
F90SP D 50-04-22-10	SR 10514114	SW6-T-SH	BLD IP15/M7	SR M10X25 DIN912
F90SP D 50-06-22-10	SR 10514114	SW6-T-SH	BLD IP15/M7	SR M10X25 DIN912
F90SP D 63-06-22-10	SR 10514114	SW6-T-SH	BLD IP15/M7	SR M10X25 DIN912
F90SP D 63-07-22-10	SR 10514114	SW6-T-SH	BLD IP15/M7	SR M10X25 DIN912
F90SP D 80-06-27-10	SR 10514114	SW6-T-SH	BLD IP15/M7	
F90SP D 80-09-27-10	SR 10514114	SW6-T-SH	BLD IP15/M7	

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 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 542-547

(1) Number of inserts

(2) For adaptation see page 548

(3) Maximum ramping angle

For inserts, see pages: HM390 TPKT/CT 1003 (447)

Spare Parts

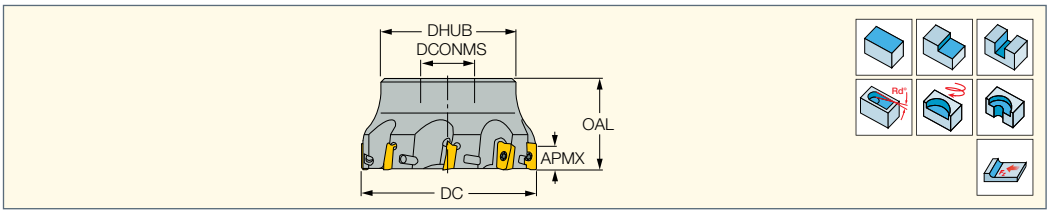
Designation				
HM390 FTP D040-3-16-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M8X25DIN912
HM390 FTP D040-5-16-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M8X25DIN912
HM390 FTP D050-4-22-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M10X25 DIN912
HM390 FTP D050-6-22-10	SR 14-562/S	BLD T10/S7	SW6-SD	SR M10X25 DIN912
HM390 FTP 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



HELI2000

HM90 F90AP-10

90° Face Mills Carrying HM90 APKT 1003... Inserts



Designation	DC	CICT[2]	APMX	OAL	DHUB	DCONMS	RMPX°[3]	RPMX[4]	Arbor[5]	kg
HM90 F90AP D32-3-16	32.00	3	10.00	35.00	30.40	16.00	2.2	35355	A	0.10
HM90 F90AP D32-5-16	32.00	5	10.00	35.00	30.40	16.00	2.2	35355	A	0.10
HM90 F90AP D40-5-22	40.00	5	10.00	40.00	38.40	22.00	1.9	31623	A	0.19
HM90 F90AP D40-6-22	40.00	6	10.00	40.00	38.40	22.00	1.9	31623	A	0.18
HM90 F90AP D50-6-22	50.00	6	10.00	40.00	48.40	22.00	1.4	28284	A	0.34
HM90 F90AP D50-7-22	50.00	7	10.00	40.00	48.40	22.00	1.4	28284	A	0.35
HM90 F90AP D63-7-22 [1]	63.00	7	10.00	40.00	59.00	22.00	1.0	25198	B	0.52
HM90 F90AP D63-9-22	63.00	9	10.00	40.00	59.00	22.00	1.0	25198	B	0.52
HM90 F90AP D80-8-27 [1]	80.00	8	10.00	50.00	70.00	27.00	0.9	22361	B	0.94
HM90 F90AP D100-9-32 [1]	100.00	9	10.00	50.00	78.00	32.00	0.7	20100	B	1.51

- For user guide, see pages 542-547

[1] For internal coolant through the holder, use a matching coolant set (should be ordered separately)
[2] Number of inserts
[3] Maximum ramping angle
[4] Maximum RPM
[5] For adaptation options, see page 548

For inserts, see pages: APCR 1003PDFR-P (450) • APCT 1003PDR-HM (450) • APKR 1003PDR-HM (451) • APKT 1003..R (453) • APKT 1003..TR-RM (452) • APKT 1003PDR-HM (451) • APKT 1003PDR-HM-CS (451) • APKT 1003PDTR-76 (452) • APKT 1003PDTR/L-RM (452) • APKT 1003R8T-FF (454) • APKW 100304 PDR (PCD) (450) • HM90 APCR 100304PDFR-P/DP (449) • HM90 APCT 1003 (448) • HM90 APKT 1003 (449) • HM90 APKT 1003PD-W (453) • HM90 APKW 1003PDR (453)

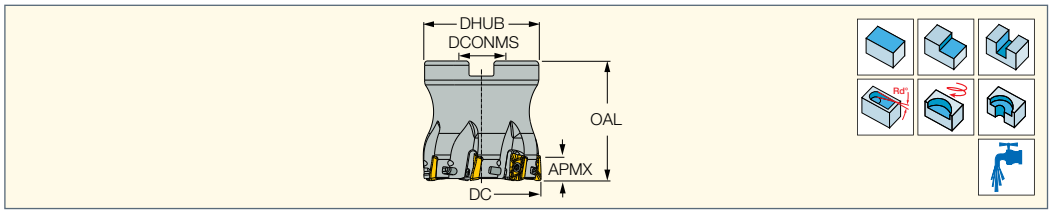
Spare Parts

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 JET LINE

HM90 F90AP-10-JHP

90° JHP Face Mills Carrying HELI2000 and HELIMILL Inserts



Designation	DC	CICT[1]	APMX	OAL	DHUB	DCONMS	RMPX°[2]	Arbor	MIID[3]	kg
HM90 F90AP D032-05-16-JHP	32.00	5	10.00	45.00	30.40	16.00	2.2	A	APKT 1003PDR-HM	0.17
HM90 F90AP D040-06-22-JHP	40.00	6	10.00	50.00	38.00	22.00	1.9	A	APKT 1003PDR-HM	0.27
HM90 F90AP D050-07-22-JHP	50.00	7	10.00	50.00	48.00	22.00	1.4	A	APKT 1003PDR-HM	0.49

- Use adaptation only with face coolant outlets • For user guide, see pages 542-547

[1] Number of inserts
[2] Maximum ramping angle
[3] Master insert identification

For inserts, see pages: APCR 1003PDFR-P (450) • APCT 1003PDR-HM (450) • APKR 1003PDR-HM (451) • APKT 1003..R (453) • APKT 1003..TR-RM (452) • APKT 1003PDR-HM (451) • APKT 1003PDR-HM-CS (451) • APKT 1003PDTR-76 (452) • APKT 1003PDTR/L-RM (452) • APKT 1003R8T-FF (454) • APKW 100304 PDR (PCD) (450) • HM90 APCR 100304PDFR-P/DP (449) • HM90 APCT 1003 (448) • HM90 APKT 1003 (449) • HM90 APKT 1003PD-W (453) • HM90 APKW 1003PDR (453)

Spare Parts

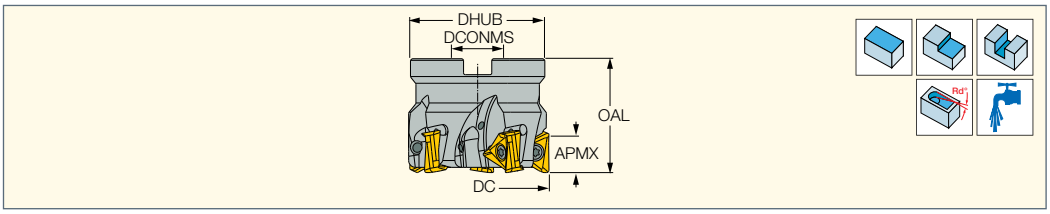
Designation				
HM90 F90AP D032-05-16-JHP	SR 34-505/HG[a]	SR PS 118-0416	BLD T08/M7	SW4-SD
HM90 F90AP D040-06-22-JHP	SR 34-505/HG[a]	SR PS 118-0273	BLD T08/M7	SW4-SD
HM90 F90AP D050-07-22-JHP	SR 34-505/HG[a]	SR PS 118-0271C	BLD T08/M7	SW4-SD

[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
(2) For adaptation options, see page 548
(3) Maximum ramping angle
For inserts, see pages: H690 TNKX/TNCX 1005 (472)

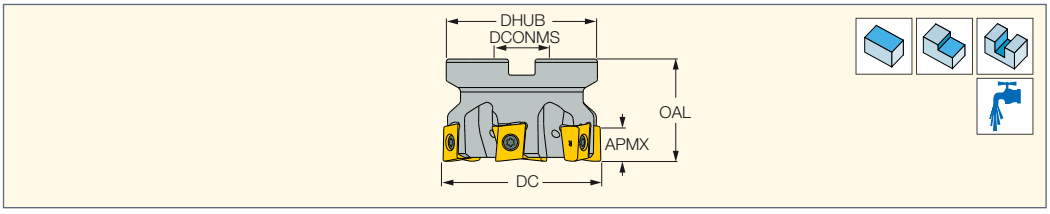
Spare Parts

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 LN#T 11... 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 542-547

(1) Number of inserts
(2) For adaptation options, see page 548
(3) Maximum ramping angle - valid only with T490 LNHT 1106PNTR-RD insert
For inserts, see pages: T490 LNMT/LNHT 1106 (477)

Spare Parts

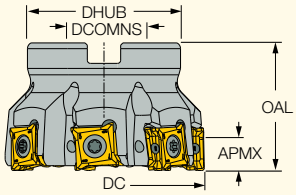
Designation				
T490 FLN D040-04-16-R-11	SR 34-535-SN	BLD T15/S7(a)	SW6-SD	SR M8X30DIN912
T490 FLN D040-05-16-R-11	SR 34-535-SN	BLD T15/S7(a)	SW6-SD	SR M8X30DIN912
T490 FLN D050-05-22-R-11	SR 34-535-SN	BLD T15/S7(a)	SW6-SD	SR M10X25 DIN912
T490 FLN D050-06-22-R-11	SR 34-535-SN	BLD T15/S7(a)	SW6-SD	SR 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 LN.T 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 542-547

[1] Number of inserts

For inserts, see pages: T890 LN.. 1306 (475)

Spare Parts

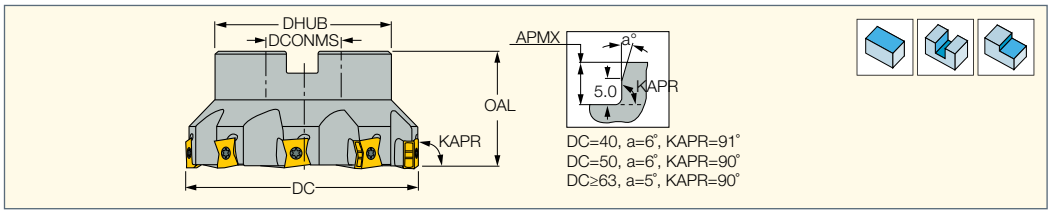
Designation				
T890HT FLN D040-03-16-R13	SR 10513105-L10.5[a]	BLD IP20/M7	SW6-T-SH	SR M8X30DIN912
T890HT FLN D040-04-16-R13	SR 10513105-L10.5[a]	BLD IP20/M7	SW6-T-SH	SR M8X30DIN912
T890HT FLN D040-05-16-R13	SR 10513105-L10.5[a]	BLD IP20/M7	SW6-T-SH	SR M8X30DIN912
T890HT FLN D050-04-22-R13	SR 10513105[a]	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D050-05-22-R13	SR 10513105[a]	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D050-06-22-R13	SR 10513105[a]	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D063-06-22-R13	SR 10513105[a]	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D063-07-22-R13	SR 10513105[a]	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D063-08-22-R13	SR 10513105[a]	BLD IP20/M7	SW6-T-SH	SR M10X25 DIN912
T890HT FLN D080-06-27-R13	SR 10513105[a]	BLD IP20/M7	SW6-T-SH	
T890HT FLN D080-07-27-R13	SR 10513105[a]	BLD IP20/M7	SW6-T-SH	
T890HT FLN D080-09-27-R13	SR 10513105[a]	BLD IP20/M7	SW6-T-SH	
T890HT FLN D100-08-32-R13	SR 10513105[a]	BLD IP20/M7	SW6-T-SH	
T890HT FLN D100-12-32-R13	SR 10513105[a]	BLD IP20/M7	SW6-T-SH	
T890HT FLN D125-09-40-R13	SR 10513105[a]	BLD IP20/M7	SW6-T-SH	
T890HT FLN D125-15-40-R13	SR 10513105[a]	BLD IP20/M7	SW6-T-SH	
T890HT FLN D160-12-40-R13	SR 10513105[a]	BLD IP20/M7	SW6-T-SH	
T890HT FLN D160-20-40-R13	SR 10513105[a]	BLD IP20/M7	SW6-T-SH	

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

TANGMILL TANGENTIAL LINE

F90LN-N11

90° Face Mills Carrying LN..1106... Tangentially Clamped Inserts



Designation	DC	CICT(3)	APMX	OAL	DHUB	DCONMS	Arbor(4)	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-R/L-N11 (1)	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 (1)	50.00	7	10.00	40.00	47.00	22.00	A	0.32
F90LN D050-07-22-R-N11 (1)	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 (1)	63.00	9	10.00	40.00	59.20	22.00	B	0.50
F90LN D080-08-27-R/L-N11 (2)	80.00	8	10.00	50.00	70.00	27.00	B	0.98
F90LN D080-11-27-R/L-N11 (2)	80.00	11	10.00	50.00	70.00	27.00	B	1.02
F90LN D100-09-32-L-N11 (2)	100.00	9	10.00	50.00	77.00	32.00	B	1.40
F90LN D100-09-32-R-N11 (2)	100.00	9	10.00	50.00	77.00	32.00	B	1.41
F90LN D100-14-32-R-N11 (2)	100.00	14	10.00	50.00	77.00	32.00	B	1.48
F90LN D125-10-40-L-N11 (2)	125.00	10	10.00	63.00	95.00	40.00	B	2.73
F90LN D125-10-40-R-N11 (2)	125.00	10	10.00	63.00	95.00	40.00	B	2.67
F90LN D125-18-40-R-N11 (2)	125.00	18	10.00	63.00	95.00	40.00	B	2.88

• For user guide, see pages 542-547

(1) Fine pitch

(2) For internal coolant through the holder, use a matching coolant set (should be ordered separately)

(3) Number of inserts

(4) For adaptation options, see page 548

For inserts, see pages: LNAR 1106 (482) • LNAR 1106 (PCD) (483) • LNAR 1106PN-R-S-W (PCD) (483) • LNAT 1106-W (482) • LNAW-11 (CBN) (484) • LNHT 1106 PN-N HT (482) • LNHT 1106 PN-R HT (481) • LNKX/LNMT 1106 (481)

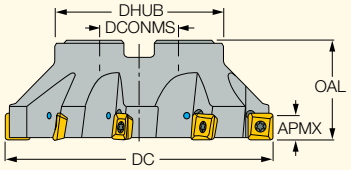
Spare Parts

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/L-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
90° Face Mills Carrying Square Inserts



Designation	DC	CICT[1]	APMX	OAL	DHUB	DCONMS	Arbor[2]	kg
F90SD D050-05-22-12	50.00	5	11.80	40.00	48.00	22.00	A	0.28
F90SD D063-04-22-12	63.00	4	11.80	40.00	48.00	22.00	A	0.41
F90SD D063-06-22-12	63.00	6	11.80	40.00	48.00	22.00	A	0.43
F90SD D080-05-27-12	80.00	5	11.80	50.00	60.00	27.00	B	0.79
F90SD D100-06-32-12	100.00	6	11.80	50.00	78.00	32.00	B	1.44
F90SD D100-08-32-12	100.00	8	11.80	50.00	78.00	32.00	B	1.43
F90SD D125-07-40-12	125.00	7	11.80	50.00	92.00	40.00	B	2.13
F90SD D125-09-40-12	125.00	9	11.80	50.00	92.00	40.00	B	2.16
F90SD D160-11-40-12	160.00	11	11.80	50.00	95.00	40.00	C	2.95
F90SD D200-13-60-12	200.00	13	11.80	55.00	135.00	60.00	C	5.40

- For user guide, see pages 542-547

(1) Number of inserts

(2) For adaptation options, see page 548

For inserts, see pages: QDCT-PDN (497) • QDMT 1205..PDTN-M (498) • SDMR-HQ (497) • SDMT-PDR-HQ (496) • SDMT-PDR-RM (497)

Spare Parts

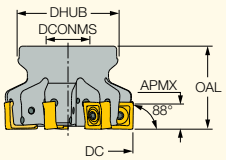
Designation				
F90SD D050-05-22-12	SR M4X0.7-L9.6 IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
F90SD D063-04-22-12	SR M4X0.7-L9.6 IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
F90SD D063-06-22-12	SR M4X0.7-L9.6 IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
F90SD D080-05-27-12	SR M4X0.7-L9.6 IP15	BLD IP15/M7	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	

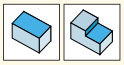


HELIDO 890 LINE

S890 FSN-13

Face Mills Carrying
Double-Sided Square Inserts
with 8 Cutting Edges





Designation	DC	APMX	OAL	CICT(2)	DCONMS	DHUB	Arbor(3)	CSP(4)	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 (1)	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 (1)	63.00	9.00	40.00	7	22.00	48.00	B	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 (1)	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 (1)	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 (1)	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 542-547
(1) Fine pitch
(2) Number of inserts
(3) For adaptation options, see page 548
(4) 0 - Without coolant supply, 1 - With coolant supply
For inserts, see pages: S890 SNMU 1305PN... (504)

Spare Parts

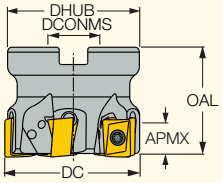
Designation				
S890 FSN D040-04-16-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M8X38-1515
S890 FSN D050-04-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
S890 FSN D050-05-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
S890 FSN D063-05-22-R13	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X25 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	

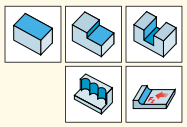


HELIDO 490 LINE

H490 F90AX-12

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





Designation	DC	CICT[1]	APMX	OAL	DHUB	DCONMS	Arbor[2]	RMPX°[3]	CSP[4]	kg
H490 F90AX D040-4-16-12	40.00	4	12.00	40.00	38.00	16.00	A	1.5	1	0.20
H490 F90AX D050-3-22-12	50.00	3	12.00	40.00	48.00	22.00	A	1.5	1	0.33
H490 F90AX D050-5-22-12	50.00	5	12.00	40.00	48.00	22.00	A	1.5	1	0.32
H490 F90AX D063-4-27-12	63.00	4	12.00	50.00	59.20	27.00	A	1.5	1	0.68
H490 F90AX D063-6-27-12	63.00	6	12.00	50.00	59.20	27.00	A	1.5	1	0.65
H490 F90AX D080-5-27-12	80.00	5	12.00	50.00	63.00	27.00	B	-	1	0.83
H490 F90AX D080-7-27-12	80.00	7	12.00	50.00	63.00	27.00	B	-	1	0.85
H490 F90AX D100-6-32-12	100.00	6	12.00	50.00	80.00	32.00	B	-	1	1.41
H490 F90AX D100-9-32-12	100.00	9	12.00	50.00	80.00	32.00	B	-	1	1.47
H490 F90AX D160-9-40-12	160.00	9	12.00	63.00	105.00	40.00	C	-	0	3.87

- For user guide, see pages 542-547

(1) Number of inserts

(2) For adaptation options, see page 548

(3) Maximum ramping angle - valid only when the H490 ANKX1205R 15T-FF insert is used

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

For inserts, see pages: H490 ANKX 1205-FF (471) • H490 ANKX/ANCX-12 (470)

Spare Parts

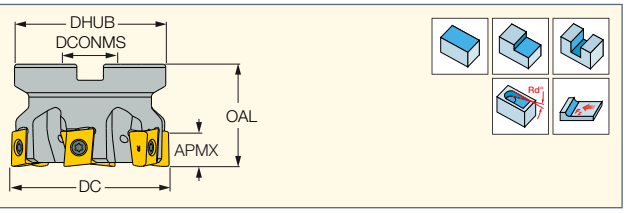
Designation				
H490 F90AX D040-4-16-12	SR 14-544	BLD T15/M7	SW6-T	SR M8X30DIN912
H490 F90AX D050-3-22-12	SR 14-544	BLD T15/M7	SW6-T	SR M10X30 DIN912
H490 F90AX D050-5-22-12	SR 14-544	BLD T15/M7	SW6-T	SR M10X30 DIN912
H490 F90AX D063-4-27-12	SR 14-544	BLD T15/M7	SW6-T	SR M12X35DIN912
H490 F90AX D063-6-27-12	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 13 mm 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	2.0	1	0.22
T490 FLN D040-05-16-R-13	40.00	5	12.50	40.00	38.00	16.00	A	2.0	1	0.22
T490 FLN D050-05-22-R-13	50.00	5	12.50	40.00	47.00	22.00	A	1.5	1	0.31
T490 FLN D050-06-22-R-13	50.00	6	12.50	40.00	47.00	22.00	A	1.5	1	0.31
T490 FLN D063-06-22-R-13	63.00	6	12.50	40.00	59.20	22.00	A	1.1	1	0.55
T490 FLN D063-08-22-R-13	63.00	8	12.50	40.00	59.20	22.00	A	1.1	1	0.56
T490 FLN D080-07-27-R-13	80.00	7	12.50	50.00	70.00	27.00	B	0.9	1	0.98
T490 FLN D080-10-27-R-13	80.00	10	12.50	50.00	70.00	27.00	B	0.9	1	1.00
T490 FLN D100-08-32-R-13	100.00	8	12.50	50.00	78.00	32.00	B	0.7	1	1.45
T490 FLN D100-13-32-R-13	100.00	13	12.50	50.00	78.00	32.00	B	0.7	1	1.49
T490 FLN D125-09-40-R-13	125.00	9	12.50	63.00	82.00	40.00	B	0.5	1	2.16
T490 FLN D125-17-40-R-13	125.00	17	12.50	63.00	82.00	40.00	B	0.5	1	2.30
T490 FLN D160-12-40-R-13	160.00	12	12.50	63.00	120.00	40.00	C	0.5	0	4.32
T490 FLN D200-15-60-R-13	200.00	15	12.50	63.00	135.00	60.00	C	0.5	0	5.84

• When machining slots, coarse pitch cutters should be used • For user guide, see pages 542-547

(1) Number of inserts

(2) For adaptation options, see page 548

(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 (480) • T490 LNMT 1306PNR-FF (479) • T490 LNMT 1306PNTR-FW (479) • T490 LNMT/LNHT/LNAR 1306 (478)

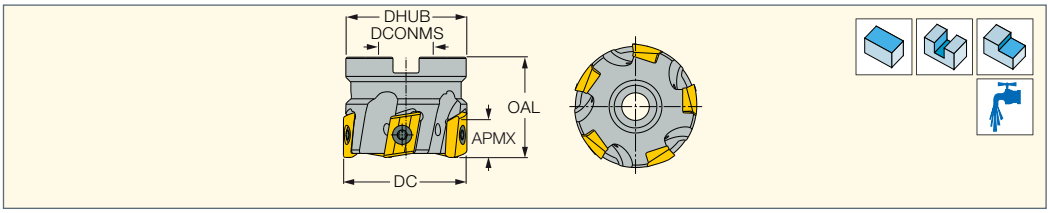
Spare Parts

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 290 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 542-547

(1) Number of inserts

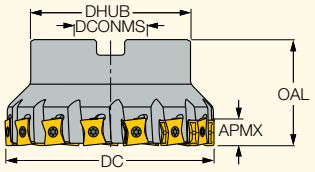
(2) For adaptation options, see page 548

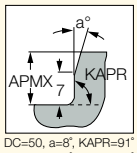
For inserts, see pages: T290 LNMT 1506 (475)

TANGMILL TANGENTIAL LINE

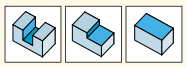
F90LN-N15

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 542-547

[1] For internal coolant through the holder, use a matching coolant set (should be ordered separately)

[2] Number of inserts

[3] For adaptation options, see page 548

For inserts, see pages: LNAR 1506 (488) • LNAR 1506 PN-R-S (PCD) (489) • LNAT 1506-W (489) • LNAT 1506..PN-N MM (489) • LNAW-15 (CBN) (485) • LNHW 1506 PNTN (ceramic) (488) • LNKX 1506 1.5X45 PN-N (487) • LNKX 1506PN-N PL (486) • LNKX/LNMT 1506PNTN/PN-N MM (486) • LNMT 1506PN-R-TS (485) • LNMT/LNHT 1506...-N HT (488) • LNMT/LNHT 1506PN-R HT (487) • LNMW 1506 PNTN (486)

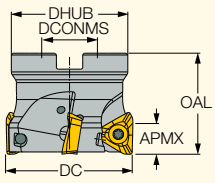
Spare Parts

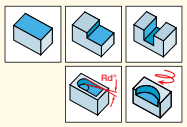
Designation				
F90LN D050-05-22-R/L-N15	SR 34-535	SW6-T	BLD T15/M7	SR M10X25 DIN912
F90LN D063-05-22-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D063-08-22-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D080-07-27-R/L-N15	SR 34-535	SW6-T-SH	BLD T15/M7	
F90LN D080-10-27-R/L-N15	SR 34-535	SW6-T-SH	BLD 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-L-N15	SR 34-535	SW6-T	BLD T15/M7	
F90LN D160-20-40-R-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	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 542-547

(1) For internal coolant through the holder, use a matching coolant set (should be ordered separately)

(2) Number of inserts

(3) For adaptation options, see page 548

(4) Maximum ramping angle

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

For inserts, see pages: HM390 TDCR 1505 (448) • HM390 TDKT/CT 1505 (447)

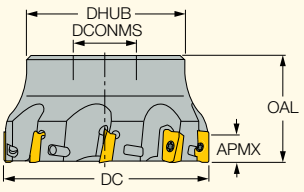
Spare Parts

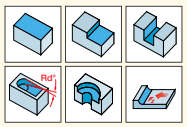
Designation				
HM390 FTD D040-3-16-15	SR 10511869	BLD IP20/S7	SW6-T	SR M8X37-1515
HM390 FTD D040-4-16-15	SR 10511869	BLD IP20/S7	SW6-T	SR M8X37-1515
HM390 FTD D050-3-22-15	SR 10505427	BLD IP20/S7	SW6-T	SR M10X30 DIN912
HM390 FTD D050-4-22-15	SR 10505427	BLD IP20/S7	SW6-T	SR M10X30 DIN912
HM390 FTD D050-5-22-15	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	CICT[2]	APMX	OAL	DHUB	DCONMS	RMPX°[3]	Arbor[4]	kg
HM90 F90A D 40-3-16	40.00	3	14.30	40.00	38.60	16.00	4.0	A	0.20
HM90 F90A D 40-4-16	40.00	4	14.30	40.00	38.60	16.00	4.0	A	0.19
HM90 F90A D 50-3-22	50.00	3	14.30	40.00	48.00	22.00	2.6	A	0.32
HM90 F90A D 50-5-22	50.00	5	14.30	40.00	48.00	22.00	2.6	A	0.30
HM90 F90A D 63-4-22	63.00	4	14.30	40.00	59.20	22.00	2.0	A	0.55
HM90 F90A D 63-6-22	63.00	6	14.30	40.00	59.20	22.00	2.0	A	0.52
HM90 F90A D 80-5-27 [1]	80.00	5	14.30	50.00	70.00	27.00	0.8	B	0.91
HM90 F90A D 80-7-27 [1]	80.00	7	14.30	50.00	70.00	27.00	0.8	B	0.88
HM90 F90A D100-6-32 [1]	100.00	6	14.30	50.00	78.00	32.00	0.7	B	1.54
HM90 F90A D100-8-32 [1]	100.00	8	14.30	50.00	78.00	32.00	0.7	B	1.49
HM90 F90A D125-9-40 [1]	125.00	9	14.30	63.00	90.00	40.00	0.5	B	2.95

• For user guide, see pages 542-547

[1] For internal coolant through the holder, use a matching coolant set (should be ordered separately)

[2] Number of inserts

[3] Maximum ramping angle

[4] For adaptation options, see page 548

For inserts, see pages: ADCR 1505PDFR (456) • ADCT 1505PDFR-HM (457) • ADKR 1505PDR/L-HM (456) • ADKT 1505-FF (459) • ADKT 1505..R/L-HM (459) • ADKT 1505PD-W (460) • ADKT 1505PDR/L-HM (458) • ADKT 1505PDTR-76 (459) • ADKT 1505PDTR/L-RM (458) • ADKW (CBN) (457) • ADKW (PCD) (457) • ADMT 1505PDR-HS (458) • HM90 ADCR 1505PDFR-P (456) • HM90 ADCT 1505 (455) • HM90 ADCT 1505PDR-CF (455) • HM90 ADKT 1505 (454) • HM90 ADKT 1505PD-W (460) • HM90 ADKW 1505PDR (462)

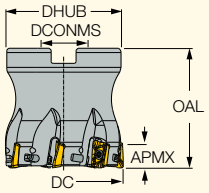
Spare Parts

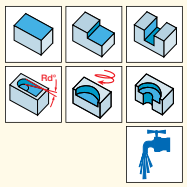
Designation				
HM90 F90A D 40-3-16	SR 14-544/S	BLD T15/M7	SW6-T-SH	SR M8X25DIN912
HM90 F90A D 40-4-16	SR 14-544/S	BLD T15/M7	SW6-T-SH	SR M8X25DIN912
HM90 F90A D 50-3-22	SR 14-544/S	BLD T15/M7	SW6-T-SH	SR M10X25 DIN912
HM90 F90A D 50-5-22	SR 14-544/S	BLD T15/M7	SW6-T-SH	SR M10X25 DIN912
HM90 F90A D 63-4-22	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 HELI2000 and HELIMILL Inserts





Designation	DC	CICT[1]	APMX	OAL	DHUB	DCONMS	RMPX°[2]	Arbor	MIID[3]	kg
HM90 F90A D050-05-22-JHP	50.00	5	14.30	50.00	48.00	22.00	2.6	A	ADKT 1505PDTR	0.50
HM90 F90A D063-06-22-JHP	63.00	6	14.30	50.00	48.00	22.00	2.0	A	ADKT 1505PDTR	0.76

• Use adaptation only with face coolant outlets • For user guide, see pages 542-547

[1] Number of inserts

[2] Maximum ramping angle

[3] Master insert identification

For inserts, see pages: ADCR 1505PDFR (456) • ADCT 1505PDFR-HM (457) • ADKR 1505PDR/L-HM (456) • ADKT 1505-FF (459) • ADKT 1505..R/L-HM (459) • ADKT 1505PD-W (460) • ADKT 1505PDR/L-HM (458) • ADKT 1505PDTR-76 (459) • ADKT 1505PDTR/L-RM (458) • ADKW (CBN) (457) • ADKW (PCD) (457) • ADMT 1505PDR-HS (458) • HM90 ADCR 1505PDFR-P (456) • HM90 ADCT 1505 (455) • HM90 ADCT 1505PDR-CF (455) • HM90 ADKT 1505 (454) • HM90 ADKT 1505PD-W (460) • HM90 ADKW 1505PDR (462)

Spare Parts

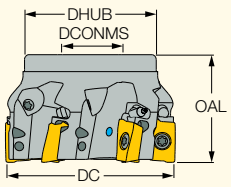
Designation				
HM90 F90A D050-05-22-JHP	SR 14-544/S[a]	SR PS 118-0273	BLD T15/M7	SW6-T-SH
HM90 F90A D063-06-22-JHP	SR 14-544[a]	SR PS 118-0273	BLD T15/M7	SW6-T-SH

[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 HELI2000 AD.. 1505... inserts, for applications that require precise frontal edge adjustment
- Thinner insert ADM. 1503.. mounted on TSP-15R seat • For user guide, see pages 542-547

(1) Number of inserts

(2) For adaptation options, see page 548

(3) Maximum RPM

For inserts, see pages: ADKW (CBN) (457) • ADKW (PCD) (457) • ADCR 1505PDFR (456) • ADCT 1505PDFR-HM (457) • ADKR 1505PDR/L-HM (456) • ADKT 1505-FF (459) • ADKT 1505..R/L-HM (459) • ADKT 1505PD-W (460) • ADKT 1505PDR/L-HM (458) • ADKT 1505PDTR-76 (459) • ADKT 1505PDTR/L-RM (458) • ADMT 1505PDR-HS (458) • HM90 ADCR 1505PDFR-P (456) • HM90 ADCT 1505 (455) • HM90 ADCT 1505PDR-CF (455) • HM90 ADKT 1505 (454) • HM90 ADKT 1505PD-W (460) • HM90 ADKW 1505PDR (462)







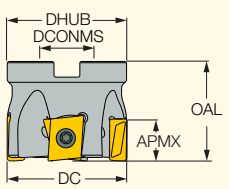
Spare Parts

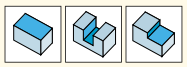
Designation					
F90AD D050-04-22-SFR	SR 14-544/S	SR 11800782	BLD T15/S7	SW6-T-SH	SR M10X20DIN912
F90AD D063-04-22-SFR	SR 14-544/S	SR 11800782	BLD T15/S7	SW6-T-SH	SR M10X20DIN912
F90AD D063-06-22-SFR	SR 14-544/S	SR 11800782	BLD T15/S7	SW6-T-SH	SR M10X20DIN912
F90AD D080-06-27-SFR	SR 14-544/S	SR 11800782	BLD T15/S7	SW6-T-SH	

HELITANG T490 LINE

T490 FLN-16

90° Face Mills Carrying Tangentially Clamped Inserts with 4 Helical 16 mm Long Cutting Edges





Designation	DC	CICT[2]	APMX	OAL	DHUB	DCONMS	Arbor[3]	CSP[4]	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 [1]	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 [1]	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 [1]	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 [1]	125.00	10	16.00	63.00	82.00	40.00	B	1	2.46
T490 FLN D160-12-40-16 [1]	160.00	12	16.00	63.00	105.00	40.00	C	0	4.28
T490 FLN D200-12-60-16 [1]	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 542-547

[1] Fine pitch

[2] Number of inserts

[3] For adaptation options, see page 548

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

For inserts, see pages: T490 LNAR-P (480) • T490 LNMT/LNHT 1607 (480)

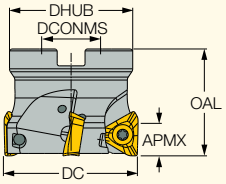
Spare Parts

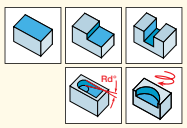
Designation				
T490 FLN D050-03-22-16	SR 14-591	BLD T20/M7	SW6-T	SR M10X25DIN7984
T490 FLN D050-04-22-16	SR 14-591	BLD T20/M7	SW6-T	SR M10X25DIN7984
T490 FLN D063-06-27-16	SR 14-591	BLD T20/M7	SW6-T	SR M12X30DIN912
T490 FLN D080-05-27-16	SR 14-591	BLD T20/M7	SW6-T	
T490 FLN D080-07-27-16	SR 14-591	BLD 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 D063-05-27-19	63.00	5	16.00	50.00	48.00	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 542-547

[1] Number of inserts

[2] For adaptation options, see page 548

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

[4] Maximum ramping angle

For inserts, see pages: HM390 TDKT 1907 (448)

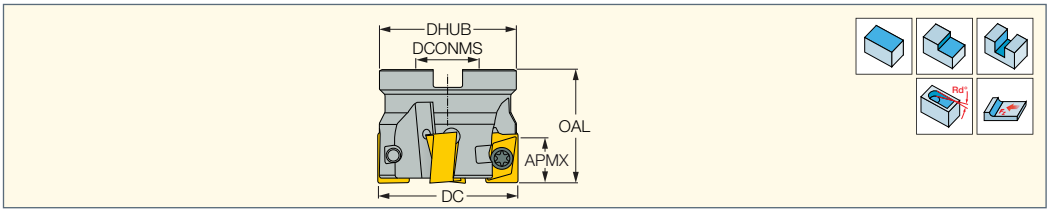
Spare Parts

Designation				
HM390 FTD D063-05-27-19	SR 14-591/H	BLD T20/S7	SW6-T	SR DIN 912 M12X25
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	CICT(2)	APMX	OAL	DHUB	DCONMS	Arbor(3)	RMPX°(4)	CSP(5)	kg
H490 F90AX D040-3-16-17	40.00	3	16.30	40.00	36.00	16.00	A	4.4	1	0.18
H490 F90AX D050-3-22-17	50.00	3	16.30	40.00	48.00	22.00	A	3.8	1	0.32
H490 F90AX D050-4-22-17	50.00	4	16.30	40.00	48.00	22.00	A	3.8	1	0.30
H490 F90AX D050-5-22-17	50.00	5	16.30	40.00	48.00	22.00	A	3.8	1	0.48
H490 F90AX D063-4-27-17	63.00	4	16.30	50.00	59.20	27.00	A	2.0	1	0.63
H490 F90AX D063-6-27-17	63.00	6	16.30	50.00	59.20	27.00	A	2.0	1	0.67
H490 F90AX D080-5-27-17	80.00	5	16.30	50.00	63.00	27.00	B	1.5	1	0.79
H490 F90AX D080-7-27-17	80.00	7	16.30	50.00	63.00	27.00	B	1.5	1	0.80
H490 F90AX D100-5-32-17	100.00	5	16.30	50.00	80.00	32.00	B	1.0	1	1.39
H490 F90AX D100-8-32-17	100.00	8	16.30	50.00	80.00	32.00	B	1.0	1	1.47
H490 F90AX D125-7-40-17	125.00	7	16.30	63.00	82.00	40.00	B	-	1	2.24
H490 F90AX D125-10-40-17	125.00	10	16.30	63.00	82.00	40.00	B	-	1	5.41
H490 F90AX D160-8-40-17 (1)	160.00	8	16.30	63.00	105.00	40.00	C	-	0	3.64
H490 F90AX D160-12-40-17 (1)	160.00	12	16.30	63.00	105.00	40.00	C	-	0	4.09
H490 F90AX D200-10-60-17	200.00	10	16.30	63.00	135.00	60.00	C	-	0	5.99
H490 F90AX D250-12-60-17	250.00	12	16.30	63.00	144.00	60.00	C	-	0	9.36

• Ramping angle is valid only when H490 ANKX 1706R15T-FF insert is used (tool diameter is then 1.5 mm larger) • For user guide, see pages 542-547

(1) For internal coolant through the holder, use a matching coolant set (should be ordered separately)

(2) Number of inserts

(3) For adaptation options, see page 548

(4) Maximum ramping angle

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

For inserts, see pages: H490 ANKX 1706-FF (472) • H490 ANKX/ANCX-17 (472)

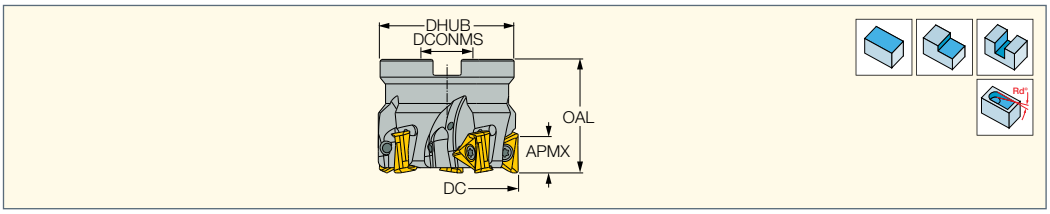
Spare Parts

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 D125-7-40-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D125-10-40-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D160-8-40-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX D160-12-40-17	SR 14-591	BLD T20/M7	SW6-T	
H490 F90AX 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 542-547

(1) Number of inserts

(2) For adaptation options, see page 548

(3) Maximum ramping angle

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

For inserts, see pages: H690 TNKX 1606 (474)

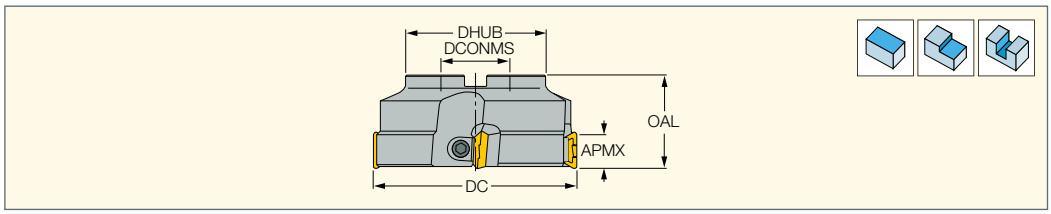
Spare Parts

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
F90 D160-40	160.00	10	63.00	18.00	110.00	40.00	B	5.13

- For user guide, see pages 542-547

(1) Number of inserts

(2) For adaptation options, see page 548

For inserts, see pages: TPKN/TPKR (468)

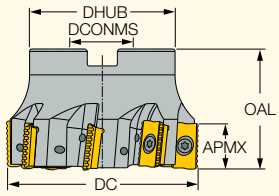
Spare Parts

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
F90 D160-40	NTP 43-R	SR 35-342.3	HW 4P	LW 35-342 T	SR 35-343.4	HW 2.0

MILLSHRED P290 LINE

P290 FPW/FCT

90° Face Mills Carrying 12 and 18 mm 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 542-547

(1) To be used only with P290 ACCT 1806PDR-HL/TL straight-edged inserts

(2) Number of inserts

(3) For adaptation options, see page 548

(4) Maximum ramping angle

For inserts, see pages: P290 ACCT/KT (461) • P290 ACKT (461)

Spare Parts

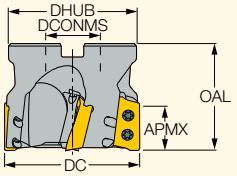
Designation					
P290 FPW D032-04-16-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151			SR M8X40-D11.5 DIN912
P290 FPW D040-05-16-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151			SR M8X25DIN912
P290 FPW D050-06-22-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151			SR M10X25 DIN912
P290 FPW D040-04-16-18	SR 14-544/S		BLD T15/M7	SW6-T	SR M8X30DIN912
P290 FPW D050-05-22-18	SR 14-544/S		BLD T15/M7	SW6-T	SR M10X25 DIN912
P290 FCT D050-05-22-18	SR 14-544/S		BLD T15/M7	SW6-T	SR M10X25 DIN912
P290 FPW D063-06-22-18	SR 14-544/S		BLD T15/M7	SW6-T	SR M10X25 DIN912
P290 FPW D080-08-27-18	SR 14-544/S		BLD T15/M7	SW6-T	SR M12X30DIN912
P290 FPW D100-09-32-18	SR 14-544/S		BLD T15/M7	SW6-T	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)	Arbor(3)	kg
HP F90AT D50-4-22-19	50.00	4	18.00	50.00	46.50	22.00	5.0	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 542-547

(1) Number of inserts

(2) Maximum ramping angle

(3) For adaptation options, see page 548

For inserts, see pages: HP ADCR 1906 (464) • HP ADKT/ADCT 1906 (464)

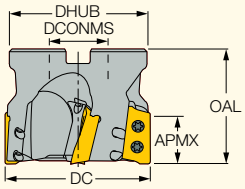
Spare Parts

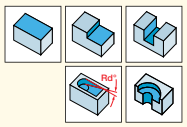
Designation				
HP F90AT-19	SR 14-571/L	BLD T10/S7	SW6-SD	SR M10X30 DIN912

HELIPLUS

HP F90AT-22

90° Face Mills Carrying HP AD.. 2207... Long Edged Inserts





Designation	DC	CICT(1)	APMX	OAL	DHUB	DCONMS	RMPX°(2)	Arbor(3)	CSP(4)	kg
HP F90AT D50-3-22-22	50.00	3	21.00	50.00	48.00	22.00	5.0	A	1	0.36
HP F90AT D50-4-22-22	50.00	4	21.00	50.00	48.00	22.00	5.0	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 542-547

(1) Number of inserts
(2) Maximum ramping angle
(3) For adaptation options, see page 548
(4) 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: HP ADCR 2207 (465) • HP ADKT/ADCT 2207 (464)

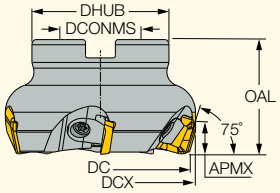
Spare Parts

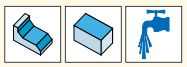
Designation				
HP F90AT-22	SR 14-544	BLD T15/M7	SW6-T-SH	SR M10X30 DIN912

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	85.70	6	9.50	50.00	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 542-547

(1) Cutting diameter maximum
(2) Cutting item count
(3) Master insert identification

For inserts, see pages: SPKN ED.. (513) • SPKR ED..-76 (513) • SPKR EDTR-HS (513)

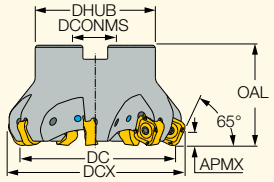
Spare Parts

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[2]	CICT[3]	OAL	DHUB	DCONMS	APMX[4]	Arbor[5]	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 [1]	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 [1]	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 [1]	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 [1]	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 [1]	125.00	134.70	16	63.00	82.00	40.00	6.00	B	2.59

- For user guide, see pages 542-547

[1] Fine pitch

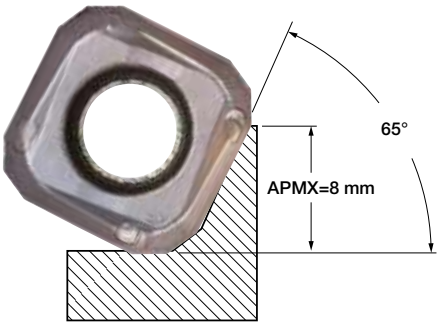
[2] Cutting diameter maximum

[3] Number of inserts

[4] Depth of cut on steel with coarse pitch cutters and on cast iron with fine pitch cutters may be increased to 8 mm.

[5] For adaptation options, see page 548

For inserts, see pages: S865 SNMU 1305ZNTR (503)



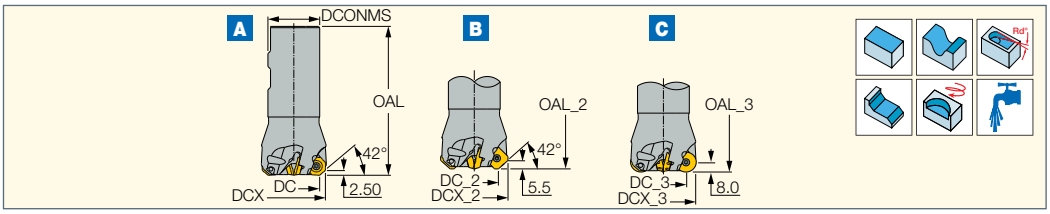
Spare Parts

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

For inserts, see pages: OECR (505) • OEMT/OEKT 060405 (506) • OEMW-AETN (506) • REMT-76 (527) • SECT/SEMT 1404 (512)

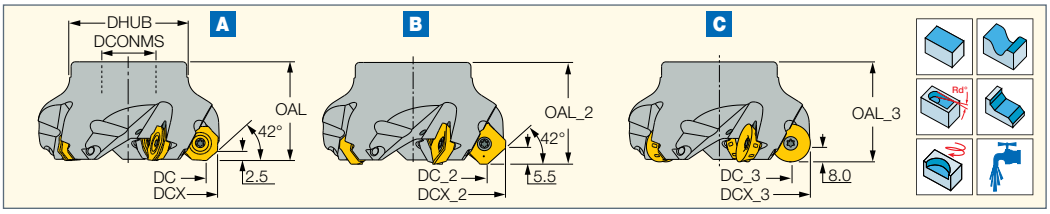
Spare Parts

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 or Square or 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

[4] For adaptation options, see page 548

For inserts, see pages: OECR (505) • OEMT/OEKT 060405 (506) • OEMW-AETN (506) • REMT-76 (527) • SECT/SEMT 1404 (512)

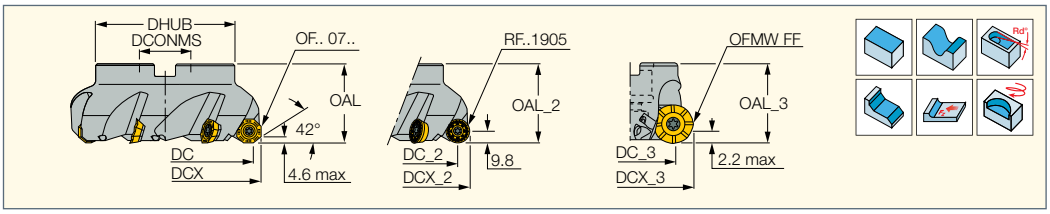
Spare Parts

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 Radius 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 542-547

[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
[7] For adaptation options, see page 548

For inserts, see pages: OFCR/OFCT-AEN/AETN (507) • OFCR/OFCT-RW/AER (wiper) (508) • OFMT 07 (506) • OFMW-AETN (507) • OFMW-FF (508)
- RFMT 1905-76 (529)

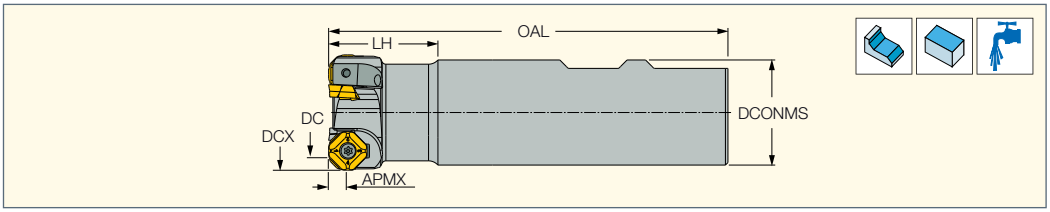
Spare Parts

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 542-547

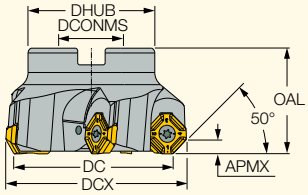
[1] Cutting diameter maximum
[2] Number of inserts
[3] W-Weldon

For inserts, see pages: IQ845 SYHU-05 (499)

DOVEIQMILL 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 542-547

(1) Cutting diameter maximum

(2) Number of inserts

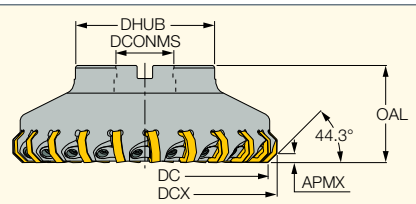
(3) For adaptation options, see page 548

For inserts, see pages: IQ845 SYHU-05 (499)

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 542-547

(1) For internal coolant through the holder, use a matching coolant set (should be ordered separately)

(2) Cutting diameter maximum

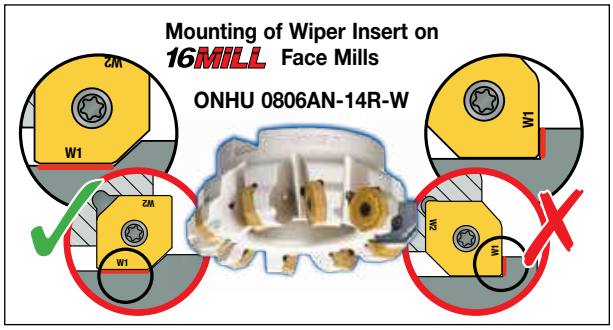
(3) Number of inserts

(4) For adaptation options, see page 548

For inserts, see pages: ONHQ-TN (498) • ONHU 0806-N-PL (499) • ONHU 0806AN-W (499) • ONHU/ONMU 080608 AN-N-HP (499) • ONHU/ONMU-08-TN-MM (498) • ONHU/ONMU-08-TN/HL (498)

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 in order to avoid incorrect clamping orientation.
Only correct mounting will provide high surface finish!

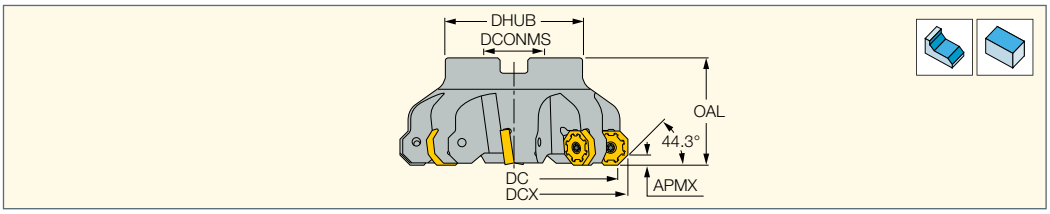
Spare Parts

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 542-547

[1] For internal coolant through the holder, use a matching coolant set (should be ordered separately)
[2] Cutting diameter maximum
[3] Number of inserts
[4] For adaptation options, see page 548

For inserts, see pages: ONHQ-TN (515) • ONHU 0806-N-PL (516) • ONHU 0806AN-W (516) • ONHU/ONMU 080608 AN-N-HP (516) • ONHU/ONMU-08-TN-MM (515) • ONHU/ONMU-08-TN/HL (515)

Spare Parts

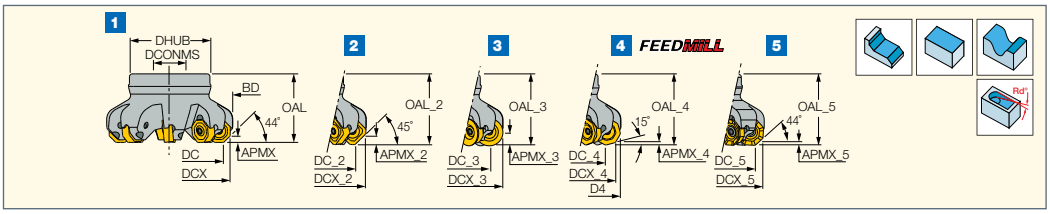
Designation				
F45NM D063-05-22-R08	SR 14-591/H	BLD T20/S7	SW6-T	SR M10X25 DIN912
F45NM D080-06-27-R08	SR 14-591/H	BLD T20/S7	SW6-T	
F45NM D080-08-27-R08	SR 11800771	BLD IP15/S7	SW6-T-SH	
F45NM D100-07-32-R08	SR 14-591/H	BLD T20/S7	SW6-T	
F45NM D100-10-32-R08	SR 11800771	BLD IP15/S7	SW6-T-SH	
F45NM 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	DC	DCX[1]	DC_2	DC_3	DCX_3	DC_4	DCX_4	BD_4	DC_5	APMX	APMX_2	APMX_3	APMX_4	APMX_5
SOF45 8/16-D040-04-22R	40.00	50.40	37.65	35.40	51.20	34.50	44.00	50.50	40.30	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D050-03-22R	50.00	60.40	47.65	45.40	61.20	44.50	54.00	60.50	50.30	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D050-04-22R	50.00	60.40	47.65	45.40	61.20	44.50	54.00	60.50	50.30	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D050-06-22R	50.00	60.40	47.65	45.40	61.20	44.50	54.00	60.50	50.30	3.50	6.00	7.90	1.20	2.90
SOF45 D050-04-22-R13	52.35	62.70	50.00	47.75	63.55	46.95	56.35	62.90	52.65	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D063-04-22R	63.00	73.40	60.65	58.40	74.20	57.50	67.00	73.50	63.30	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D063-06-22R	63.00	73.40	60.65	58.40	74.20	57.50	67.00	73.50	63.30	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D063-08-22R	63.00	73.40	60.65	58.40	74.20	57.50	67.00	73.50	63.30	3.50	6.00	7.90	1.20	2.90
SOF45 D063-06-22-R13	65.35	75.70	63.00	60.75	76.55	59.95	69.35	75.90	63.65	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D080-07-27R	80.00	90.40	77.65	65.40	91.20	74.50	84.00	90.50	80.30	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D080-10-27R	80.00	90.40	77.65	65.40	91.20	74.50	84.00	90.50	80.30	3.50	6.00	7.90	1.20	2.90
SOF45 D080-07-27-R13	82.35	92.70	80.00	77.60	93.40	76.95	86.35	92.90	82.65	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D100-08-32R	100.00	110.40	97.65	95.40	111.20	94.50	104.00	110.50	100.30	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D100-12-32R	100.00	110.40	97.65	95.40	111.20	94.50	104.00	110.50	100.30	3.50	6.00	7.90	1.20	2.90
SOF45 D100-08-32-R13	102.35	112.70	100.00	97.75	113.55	96.95	106.35	112.90	102.65	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D125-10-40R	125.00	135.40	122.65	120.40	136.20	119.50	129.00	135.50	125.30	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D125-16-40R	125.00	135.40	122.65	120.40	136.20	119.50	129.00	135.50	125.30	3.50	6.00	7.90	1.20	2.90
SOF45 D125-10-40-R13	127.35	137.70	125.00	122.75	138.55	121.95	131.35	137.90	127.65	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D160-12-40R	160.00	170.40	157.65	155.40	171.20	154.50	164.00	171.50	160.30	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D200-14-60R	200.00	210.40	197.65	195.40	211.20	194.50	204.00	211.50	200.50	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D250-16-60R	250.00	260.40	247.65	245.40	261.20	244.50	254.00	261.50	250.30	3.50	6.00	7.90	1.20	2.90
SOF45 8/16-D315-20-60R	315.00	329.40	312.65	310.40	326.20	309.50	319.00	326.50	315.30	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]	kg
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	0.29
SOF45 8/16-D050-03-22R	40.00	41.2	41.60	41.30	41.20	3	48.00	22.00	5.6	A	1	0.38
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	0.39
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	0.38
SOF45 D050-04-22-R13	38.80	40.0	40.40	40.10	40.20	4	48.00	22.00	5.4	A	1	0.38
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	0.54
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	0.47
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	0.46
SOF45 D063-06-22-R13	38.80	40.0	40.40	40.10	40.20	6	48.00	22.00	5.7	B	1	0.50
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	1.01
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	0.96
SOF45 D080-07-27-R13	48.80	50.0	50.40	50.10	50.20	7	60.00	27.00	6.0	B	1	1.00
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	1.39
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	1.35
SOF45 D100-08-32-R13	48.80	50.0	50.40	50.10	50.00	8	70.00	32.00	4.6	B	1	1.47
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	2.63
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	2.53
SOF45 D125-10-40-R13	61.80	63.0	63.40	63.10	63.20	10	82.00	40.00	3.5	B	1	2.63
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	3.35
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	5.77
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	7.98
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	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 542-547

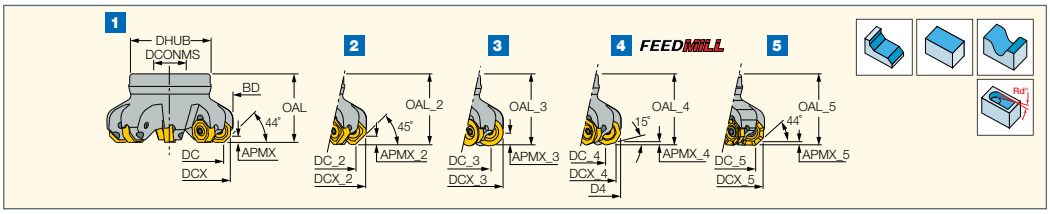
(1) Cutting diameter maximum
(2) Number of inserts
(3) Valid only with RXMT 1607N insert
(4) For adaptation options, see page 548
(5) 0 - Without coolant supply, 1 - With coolant supply
(6) Master insert identification
(7) Master insert identification 2
(8) Master insert identification 3
(9) Master insert identification 4
(10) Master insert identification 5

For inserts, see pages: ONHU 0505-W (505) • ONHU/ONMU-05 (504) • OXMT 0507 (505) • RXMT 1607 (527) • S845 SNHU 1305-W (501)
• S845 SNMU/SNHU-13 (500)

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]
SOF45 8/16-D040-04-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 8/16-D050-03-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 8/16-D050-04-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 8/16-D050-06-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 D050-04-22-R13	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 8/16-D063-04-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 8/16-D063-06-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 8/16-D063-08-22R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 D063-06-22-R13	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 8/16-D080-07-27R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 8/16-D080-10-27R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 D080-07-27-R13	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 8/16-D100-08-32R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 8/16-D100-12-32R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 D100-08-32-R13	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 8/16-D125-10-40R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 8/16-D125-16-40R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 D125-10-40-R13	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 8/16-D160-12-40R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 8/16-D200-14-60R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 8/16-D250-16-60R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP
SOF45 8/16-D315-20-60R	ONHU 050500-PL	S845 SNHU 1305ANR-M	RXMT 1607N	OXMT 0507R08-FF	OXMT 050705-R-HP

• 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 542-547

[1] Cutting diameter maximum
[2] Number of inserts
[3] Valid only with RXMT 1607N insert
[4] For adaptation options, see page 548
[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 (505) • ONHU/ONMU-05 (504) • OXMT 0507 (505) • RXMT 1607 (527) • S845 SNHU 1305-W (501) • S845 SNMU/SNHU-13 (500)

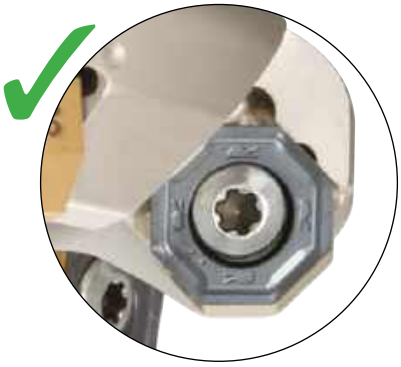
Spare Parts

Designation				
SOF45 8/16-D040-04-22R	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	SR M10X25 DIN912
SOF45 8/16-D050-03-22R	SR 11800745	BLD IP15/S7[a]	SW6-T-SH	SR M10X20DIN912
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	

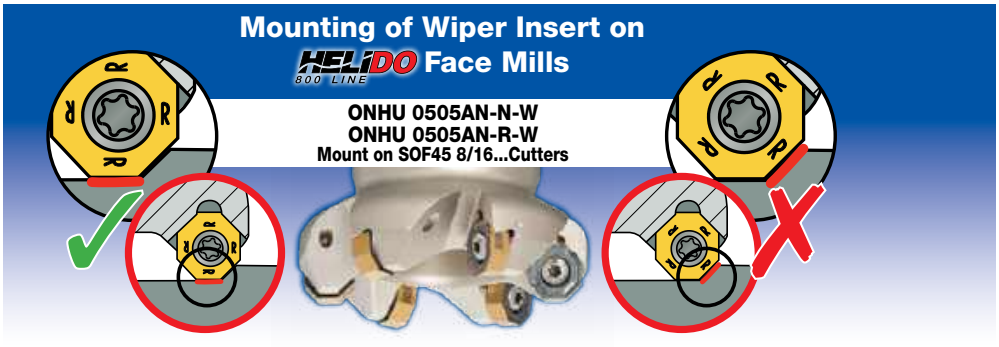
Wiper Inserts

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.







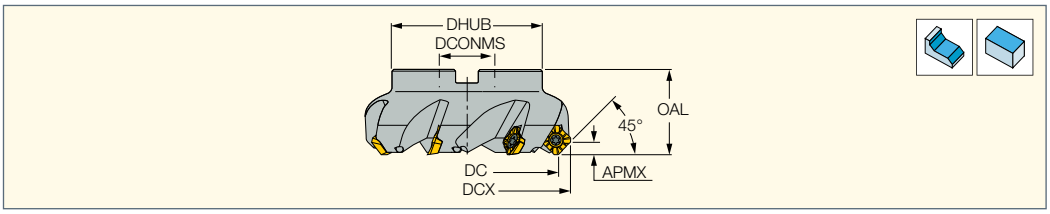
- S845 SNHU 1305AN-N-W mounted on SOF45 milling cutters when the square S845 SNMU/HU 1305AN... inserts are used. This insert provides 2 right-hand and 2 left-hand wiper edges.



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 542-547

[1] For internal coolant through the holder, use a matching coolant set (should be ordered separately)
[2] Cutting diameter maximum
[3] Number of inserts
[4] For adaptation options, see page 548

For inserts, see pages: SEHT-AFN (511) • SEHW-AFTN (510) • SEKT-AF-R (510) • SEKT-AFTN (510) • SEMT 12..AFTN-76 (511) • SEMT 1204AF-R-HS (510)

Spare Parts

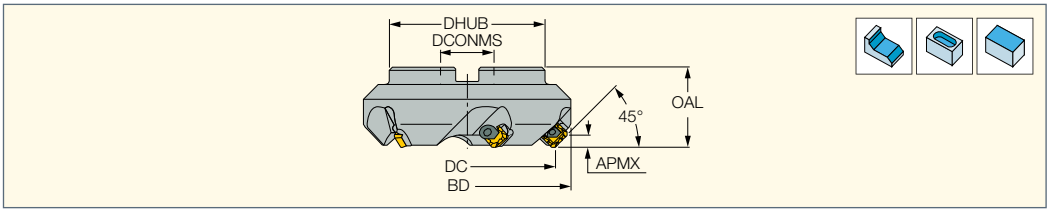
Designation									
F45ST D040-22	SR 14-536/S	BLD T20/M7	SW6-T	SR M10X25DIN7984	HW 7.0				
F45ST D050-22	SR 34-523	BLD T15/M7	SW6-T	SR M10X25DIN7984	HW 7.0	SR 14-601*	TSE 12T3-N[a]*	SR TC-606[a]*	HW 3.5[a]*
F45ST D063-22	SR 34-523	BLD T15/M7	SW6-T	SR M10X25DIN7984	HW 7.0	SR 14-601*	TSE 12T3-N[a]*	SR TC-606[a]*	HW 3.5[a]*
F45ST D080-27	SR 34-523	BLD T15/M7	SW6-T			SR 14-601*	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*	TSE 12T3-N[a]*	SR TC-606[a]*	
F45ST D125-40	SR 34-523	BLD T15/M7	SW6-T			SR 14-601*	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*	TSE 12T3-N[a]*	SR TC-606[a]*	HW 3.5[a]*

* Optional, should 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 542-547

[1] For internal coolant through the holder, use a matching coolant set (should be ordered separately)
[2] Number of inserts
[3] For adaptation options, see page 548

For inserts, see pages: SEKN-AF.. (511) • SEKR-AF-N-42 (512) • SEKR-AF..-76 (512) • SEKR-AFTR-HS (512)

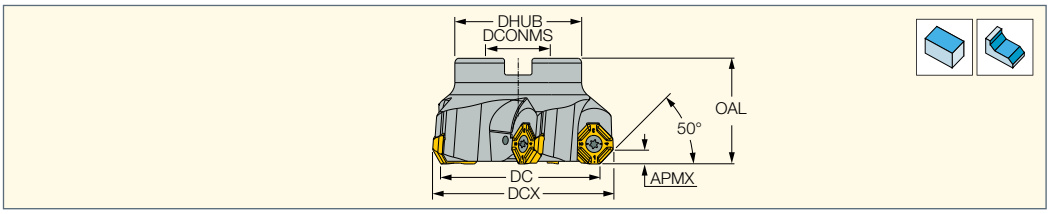
Spare Parts

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 542-547

(1) Cutting diameter maximum

(2) Number of inserts

(3) For adaptation options, see page 548

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

For inserts, see pages: IQ845 SYHU-07 (499)

Spare Parts

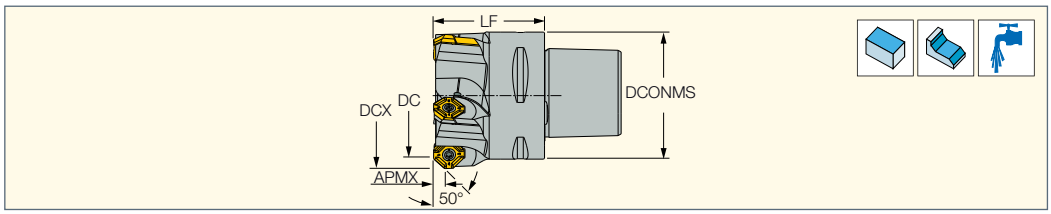
Designation				
IQ845 FSY D050-04-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X20DIN912
IQ845 FSY D050-05-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X20DIN912
IQ845 FSY D063-05-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
IQ845 FSY D063-07-22-R07	SR M4X0.7IP15	BLD IP15/S7	SW6-T-SH	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

CAMFIX

IQ845 FSY-C#-R07

50° Face Mills Carrying Square Inserts with 8 Cutting Edges



Designation	DC	DCX(1)	CICT(2)	APMX	LF	SS	CDI(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 542-547

(1) Cutting diameter maximum

(2) Number of inserts

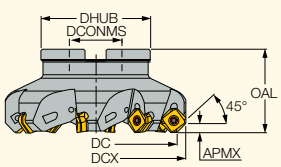
(3) 1 - Hole for data chip, 0 - Without hole for data chip

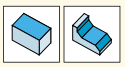
For inserts, see pages: IQ845 SYHU-07 (499)

HELIDO 845 LINE

S845 F45SX-16

45° Face Mills Carrying Economical Inserts with 8 Helical Right-Hand Cutting Edges



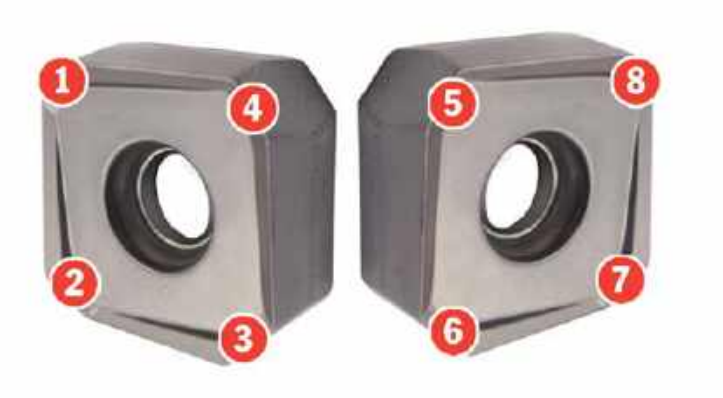


Designation	DC	DCX[2]	CICT[3]	APMX	OAL	DHUB	DCONMS	Arbor[4]	CSP[5]	kg
S845 F45SX D040-04-16-R16 [1]	40.00	54.80	4	7.15	45.00	48.00	16.00	A	1	0.39
S845 F45SX D050-04-22-R16	50.00	64.80	4	7.15	45.00	48.00	22.00	A	1	0.46
S845 F45SX D050-05-22-R16 [1]	50.00	64.80	5	7.15	45.00	48.00	22.00	A	1	0.44
S845 F45SX D063-05-22-R16	63.00	77.80	5	7.15	45.00	60.00	22.00	B	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, providing improved surface finish, thus eliminating the use of other finishing cutters.
- For user guide, see pages 542-547

[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
[4] For adaptation options, see page 548
[5] 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: S845 SXHU 1606-W (501) • S845 SXMU/SXCU-16 (501)



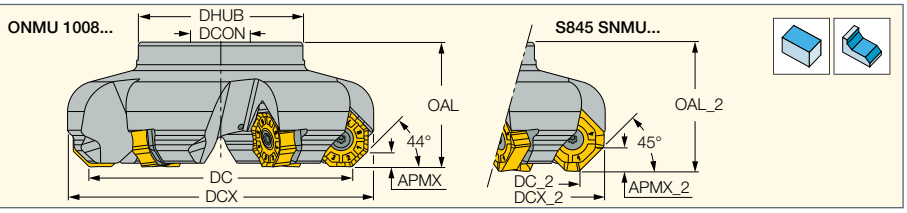
Spare Parts

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	6.52
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	9.48
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 542-547

(1) Cutting diameter maximum

(2) Number of inserts

(3) For adaptation options, see page 548

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

For inserts, see pages: ONMU 1008 (509) • S845 SNMU 2608 (502)

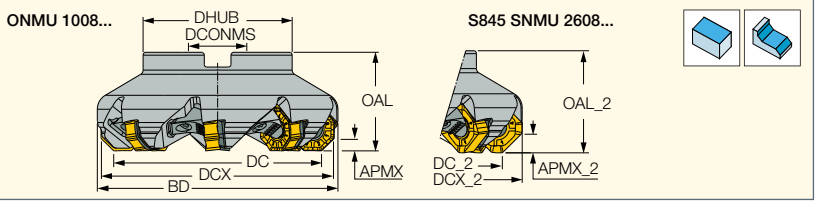
Spare Parts

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 D125-06-40-R26	129.10	148.50	143.80	7.00	60.80	125.00	148.50	11.00	63.00	40.00	92.00	B	3.67
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
SOF45WG D315-14-60-R26	319.10	338.50	333.80	7.00	77.80	315.00	338.50	11.00	80.00	60.00	230.00	C	22.43
SOF45WG D315-16-60-R26	319.10	338.50	333.80	7.00	77.80	315.00	338.50	11.00	80.00	60.00	230.00	C	22.22

- For user guide, see pages 542-547

(1) Cutting diameter maximum

For inserts, see pages: ONMU 1008 (509) • S845 SNMU 2608 (502)

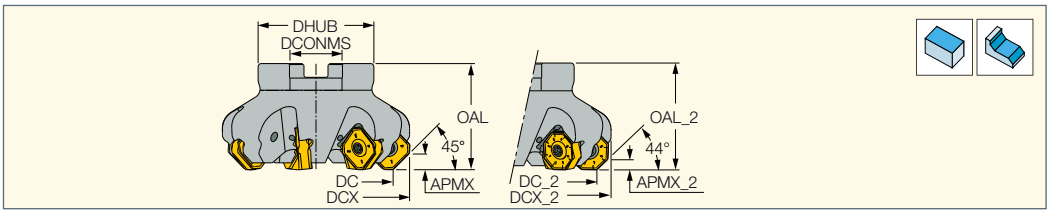
Spare Parts

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 542-547

(1) Cutting diameter maximum

(2) Number of inserts

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

For inserts, see pages: ONHU 0706AN-R-W (509) • ONMU/ONHU 0706 (509) • S845 SNHU 1806AN-N-W (502) • S845 SNMU/SNHU 1806 (502)

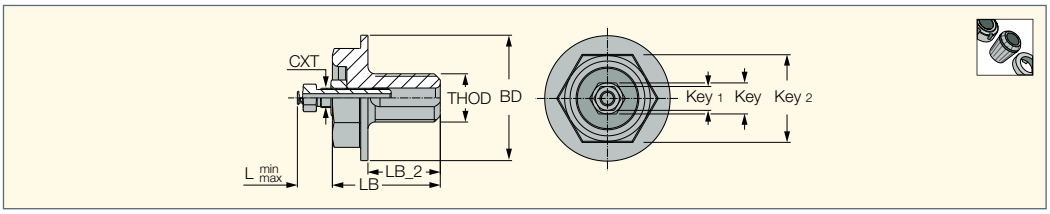
Spare Parts

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 DIN 912 M12X25
SOF45 D080-06-27-R18	SR M5X0.8 16 IP20(a)	BLD IP20/S7	SW6-T	SR DIN 912 M12X25
SOF45 D080-07-27-R18	SR M5X0.8 16 IP20(a)	BLD IP20/S7	SW6-T	SR DIN 912 M12X25
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 Protrusion 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.

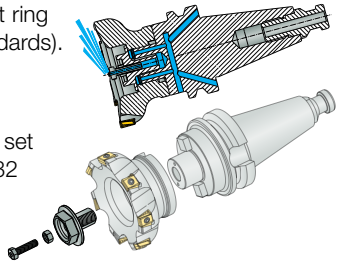
Tests show that cutting fluid supplied through the axis of a tool and directed radially at the bottom of the tool dramatically improves both the cooling effect and chip evacuation.

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 A4	NOZZLE M8	NUT M8 DIN 934 A2
COOLANT SET SR M20X2.5-40	WASHER M8 DIN 433 A4	NOZZLE M8	NUT M8 DIN 934 A2

EXTENDED FLUTE CUTTERS



Extended Flute Mills



HELIPLUS

HP ANK
page 235



HELIDO 490 LINE

H490 ANK
page 235



HELI3MILL HM390 LINE

HM390 TPK/SM
pages 235-236



HELITANG T490 LINE

T490 LNK/LNM
pages 236-238, 246-247



HELISLOT

XNK-XN13
page 239



HELIMILL

APK-FE
page 239



HELIQUAD

SPK
page 239



MILLSHRED P290 LINE

P290 ACK/SM
pages 240-242



HELITANG T490 LINE

T490 SM
pages 243-244, 248



HELIDO 845 LINE

H490 SM
pages 243,249



HELISLOT

SM-XN13
page 246



XQUAD EXTENDED FLUTE

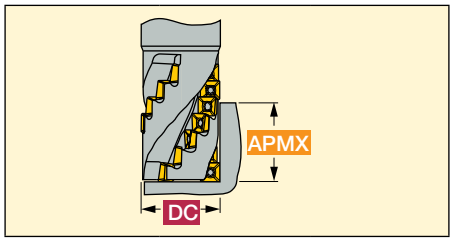
SDK-C/HP
pages 249-250

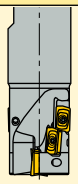
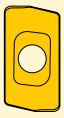
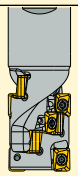
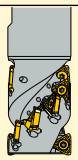
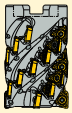
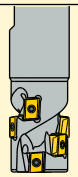
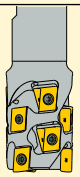
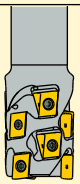
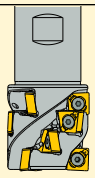


HELIMILL

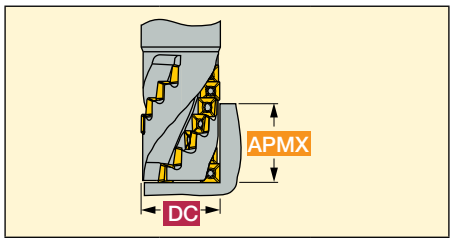
SM
page 250

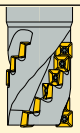
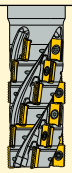
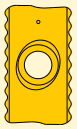
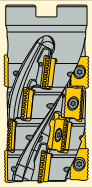
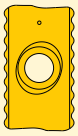
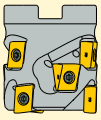
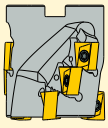
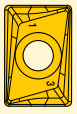
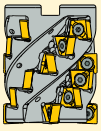
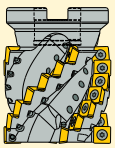
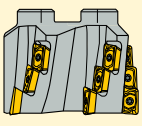
90° Extended Flute Mills Selection Guide



Tools	Pages	APMX / Flutes DC 20	25	32	40	50	63	80	100	Inserts
 HP ANK-07	235	28/2								 HP AN.. 07...
 H490 ANK-09	235		35/2	42/3						 H490 AN..09..
 HM390 TPK-10	235		28/2	42/2	49/4					 HM390 TP.. 10..
 HM390 SM-10	236				49/4	49/5				 HM390 TP.. 10..
 T490 LNM-08	236	15/2	30/2 30/3	36/3	44/4					 T490 LN.T 08...
 T490 LNK-11	237			34/2	51/3	51/4				 T490 LN..T1106
 T490 LNK-13	237				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...
 XNK-XN13	239					46/3				 XNMU 13...

90° Extended Flute Mills Selection Guide

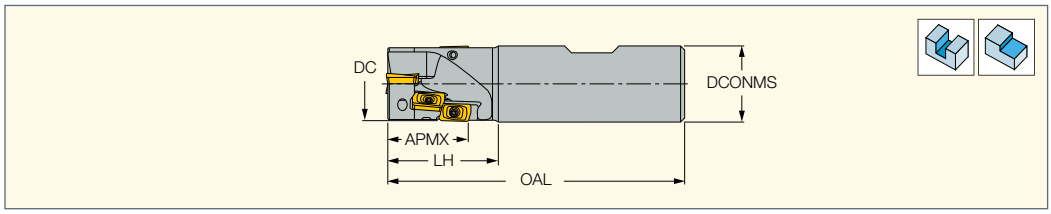


Tools	Pages	APMX / Flutes DC 20	25	32	40	50	63	80	100	Inserts
 APK-FE	239	29/1	37/2	46/2	55/3					 AP.. 10... FPKT 10...
 SPK	239				43/3					 SPMT 10... XPMT 10.. QPMT 10..
 P290 ACK	241		24/3 36/3	24/3 36/3 48/3 60/3 84/3	53/3 71/3 87/3 90/3 125/3	53/4 105/4 160/3	87/5			 P290 AC...T
 P290 SM	242			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
 T490 SM	243 244			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	243 249					35/3	46/3 47/4 58/3	46/4		 H490 AN..
 SM-XN13	246						69/3 69/4	69/5		 XNMU 13
 SDK-C/HP	249 250					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	250					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)	kg		
HP ANK D20-28-02-W20-7	20.00	28.60	2	8	40.0	90.00	20.00	W	0.18	SR 34-533/L/HG	T-6/51

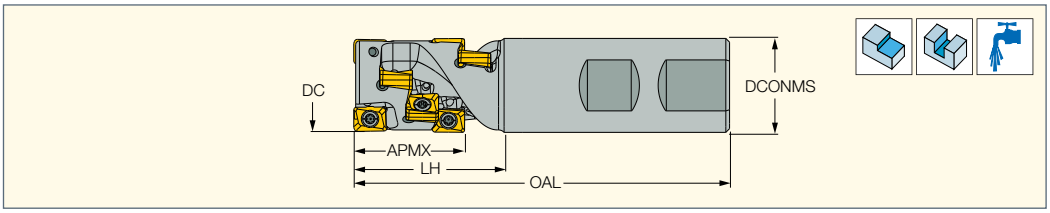
(1) Number of flutes
(2) Number of inserts
(3) W-Weldon

For inserts, see pages: HP ANCR 0702PNFR (444) • HP ANKT/ANCT 0702..PN-R/PNTR (444) • HP ANKW 070204PNTR (444)

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

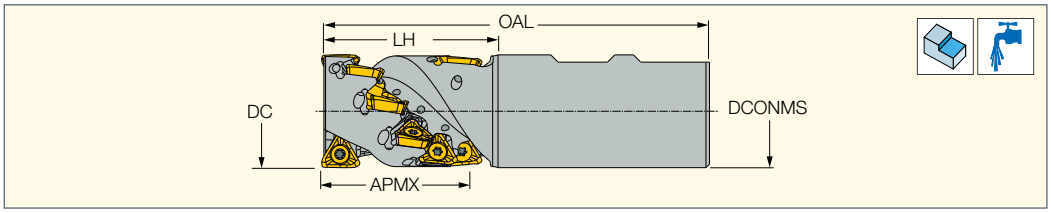
• AE(max)=0.25xDC
(1) Number of flutes
(2) Number of inserts
(3) W-Weldon

For inserts, see pages: H490 ANKX/ANCX-09 (469)

HELI3MILL HM390 LINE

HM390 TPK-10

Extended Flute Endmills
Carrying HM390 TPKT 1003
Triangular Inserts with 3
Helical Cutting Edges

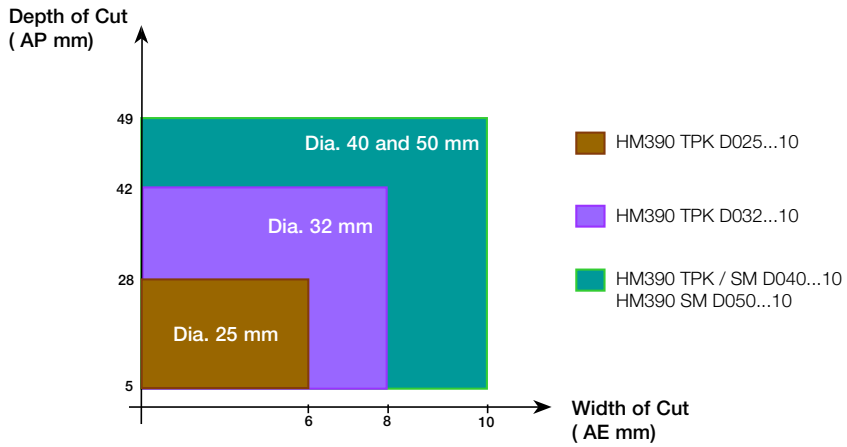


Designation	DC	APMX	NOF(1)	CICT(2)	LH	OAL	DCONMS	Shank(3)	kg			
HM390 TPK D25-28-2-W25-10	25.00	28.00	2	8	35.0	95.00	25.00	W	0.30	SR 14-562/S(a)	BLD T10/S7	SW6-SD
HM390 TPK D32-42-2-W32-10	32.00	42.00	2	12	50.0	110.00	32.00	W	0.53	SR 14-562/S(a)	BLD T10/S7	SW6-SD
HM390 TPK D40-49-4-W32-10	40.00	49.00	4	28	59.0	125.00	32.00	W	0.75	SR 14-562/S(a)	BLD T10/S7	SW6-SD

(1) Number of flutes
(2) Number of inserts
(3) W-Weldon
(a) Recommended tightening torque:3.2 Nxm

For inserts, see pages: HM390 TPKT/CT 1003 (447)

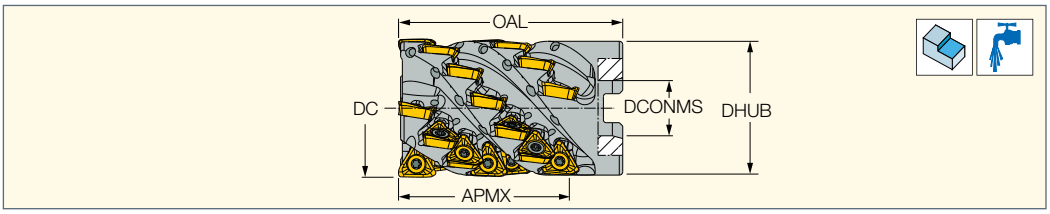
AP/AE Application Range for Extended Flute HELI-3-MILL HM390-10 Cutters with HM390 TPKT 1003... Inserts



HELI 3 MILL HM390 LINE

HM390 SM-10

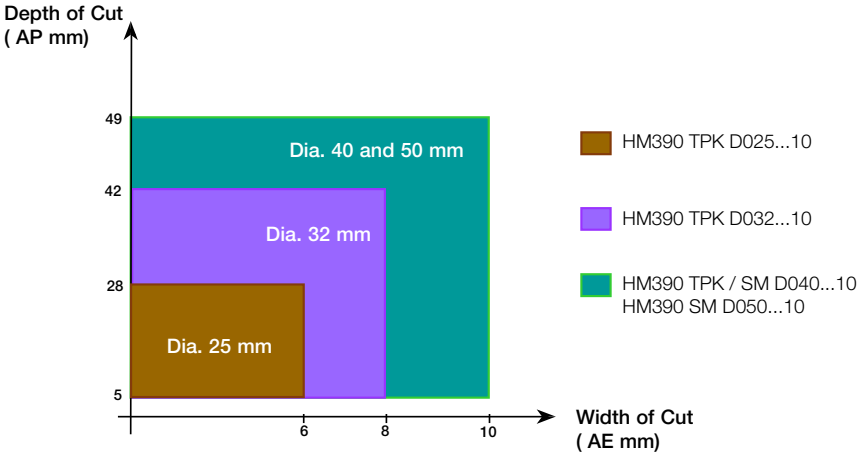
Extended Flute Shell Mills
Carrying HM390 TPKT 1003
Triangular Inserts with 3
Helical Cutting Edges



Designation	DC	APMX	NOF(1)	CICT(2)	OAL	DHUB	DCONMS	Arbor(3)	kg				
HM390 SM D040-49-4-16-10	40.00	49.00	4	28	65.00	38.80	16.00	A	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	0.58	SR 14-562/S(a)	SR M10X60DIN912	BLD T10/S7	SW6-SD

(1) Number of flutes
(2) Number of inserts
(3) For adaptation options, see page 548
(a) Recommended tightening torque:3.2 Nxm
For inserts, see pages: HM390 TPKT/CT 1003 (447)

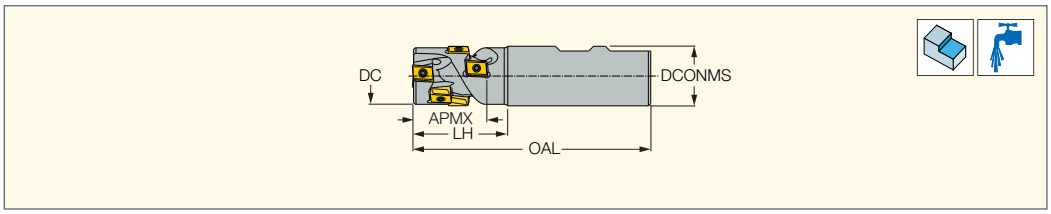
AP/AE Application Range for Extended Flute HELI 3 MILL HM390-10 Cutters with HM390 TPKT 1003... Inserts



HELITANG T490 LINE

T490 LNM-08

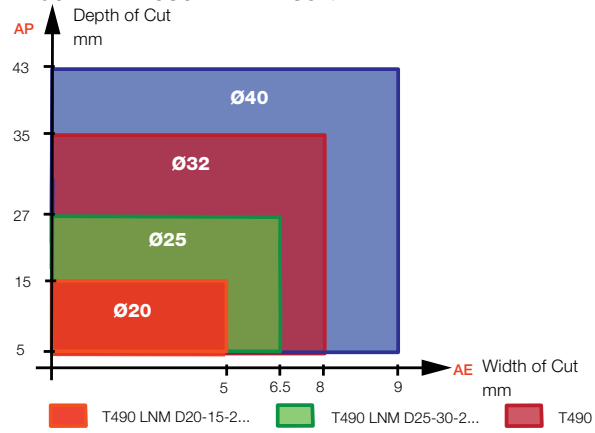
Extended Flute Endmills
Carrying T490 LNMT/HT 08...
Tangentially Clamped Inserts



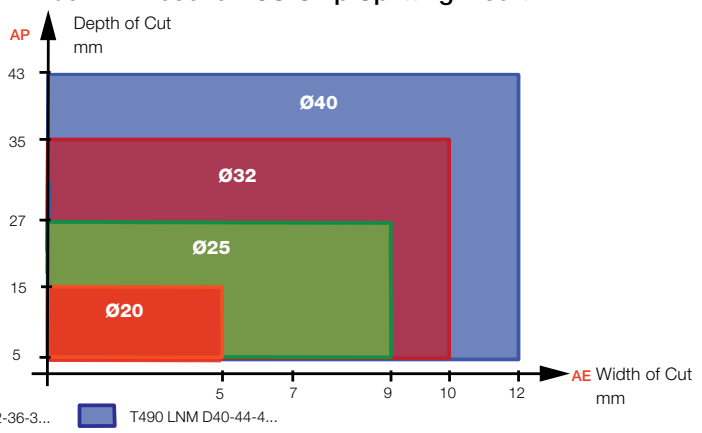
Designation	DC	APMX	NOF(1)	CICT(2)	LH	OAL	DCONMS	Shank(3)	kg		
T490 LNM D20-15-2-C20-08C	20.00	15.00	2	4	30.0	80.00	20.00	C	0.16	SR 10502813-HG-M	IP-7/51
T490 LNM D20-15-2-W20-08C	20.00	15.00	2	4	30.0	80.00	20.00	W	0.16	SR 10502813-HG-M	IP-7/51
T490 LNM D25-30-2-C25-08C	25.00	30.00	2	8	40.0	100.00	25.00	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
(3) W-Weldon, C-Cylindrical
For inserts, see pages: T490 LNAR-P (480) • T490 LNMT/LNHT 0804 (476)

AP/AE Application Range with T490 LNMT 0804PNR Insert



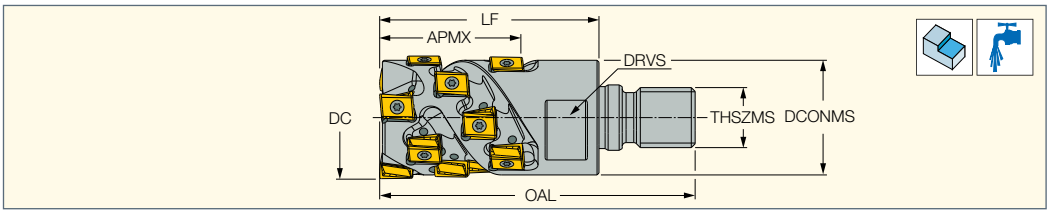
AP/AE Application Range with T490 LNMT080404-CS Chip Splitting Insert



HELITANG FLEXFIT T490 LINE

T490 LNM-M-08

Extended Flute Endmills with a FLEXFIT Threaded Adaptation Carrying Tangentially Clamped Inserts



Designation	DC	APMX	NOF(1)	CICT(2)	LF	OAL	DHUB	THSZMS	DRVS(3)	TQ_3(4)	kg		
T490 LNM D25-30-2-M12-08	25.00	30.00	2	8	52.00	74.00	21.00	M12	17.0	33	0.12	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	40	0.26	SR 10502813-HG-M	IP-7/51

• For adaptation options, see page 311 • For user guide see pages 542-547

(1) Number of flutes

(2) Number of inserts

(3) Clamping wrench size

(4) Tool tightening torque Nxm (lbfxin)

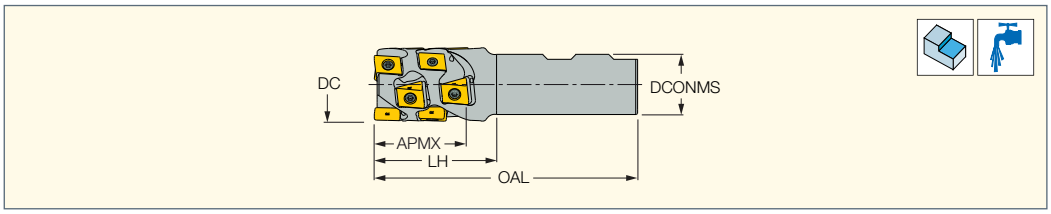
For inserts, see pages: T490 LNAR-P (480) • T490 LNMT/LNHT 0804 (476)

For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

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

(3) C-Cylindrical, W-Weldon

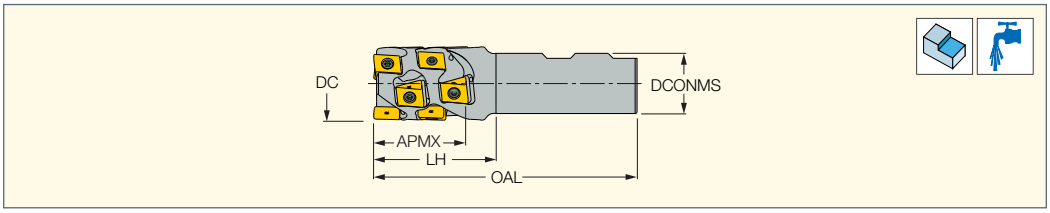
(a) Recommended key handle for limiting torque to 3.2 Nxm for this item is HSD 4-3.2NM (to be used with BLD 4 T15-4.8 blade)

For inserts, see pages: T490 LNMT/LNHT 1106 (461)

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

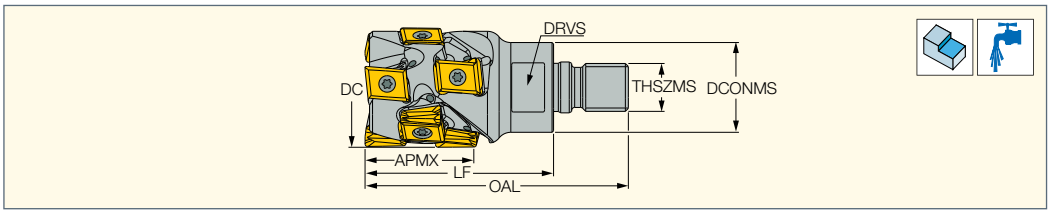
(3) C-Cylindrical, W-Weldon

For inserts, see pages: T490 LNAR-P (464) • T490 LNMT 1306PNTR-FW (463) • T490 LNMT/LNHT/LNAR 1306 (462)

HELITANGFLEXFIT T490 LINE

T490 LNK-M-13

Endmills with a FLEXFIT 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 311 • For user guide, see pages 542-547

(1) Number of flutes

(2) Number of inserts

(3) Clamping wrench size

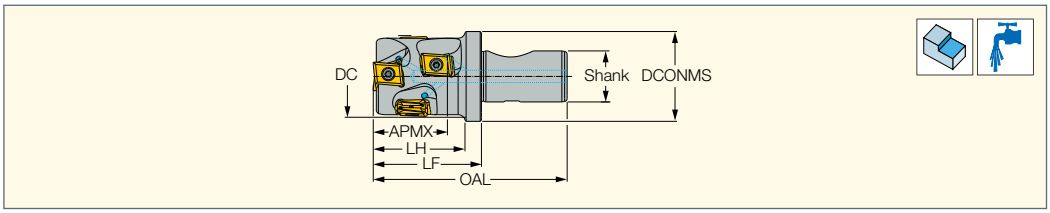
For inserts, see pages: T490 LNAR-P (480) • T490 LNMT 1306PNTR-FW (479) • T490 LNMT/LNHT/LNAR 1306 (478)

For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

HELITANG T490 LINE

T490 LNK-13-CF

Extended Flute Endmills with CLICKFIT 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

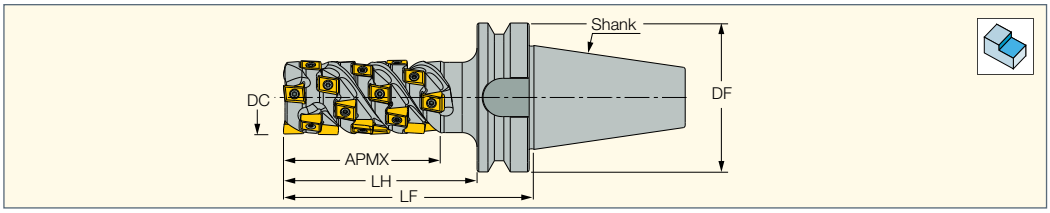
(2) Number of inserts

For inserts, see pages: T490 LNAR-P (480) • T490 LNMT 1306PNTR-FW (479) • T490 LNMT/LNHT/LNAR 1306 (478)

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	LPR	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-D50-082-3-BT50-13	50.00	82.00	3	21	107.0	145.00	BT MAS-403	100.00	1	4.57	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

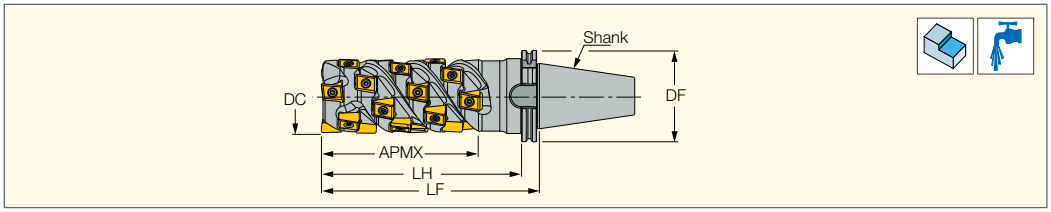
(3) 0 - Without coolant supply, 1 - With coolant supply

For inserts, see pages: T490 LNAR-P (480) • T490 LNMT 1306PNTR-FW (479) • T490 LNMT/LNHT/LNAR 1306 (478)

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
T490LNKD63-081-4-INT50-13	63.00	81.00	4	28	107.0	126.10	DIN 69871	97.50	4.34	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

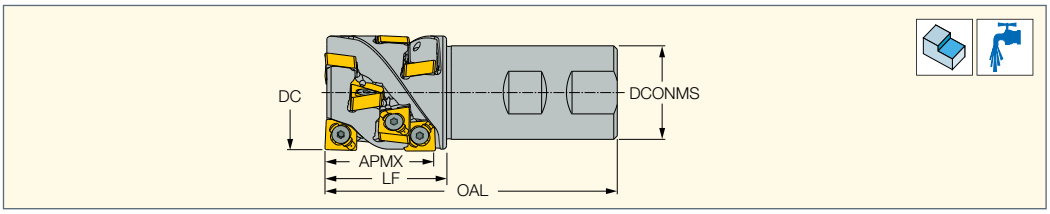
(2) Number of inserts

For inserts, see pages: T490 LNAR-P (480) • T490 LNMT 1306PNTR-FW (479) • T490 LNMT/LNHT/LNAR 1306 (478)

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

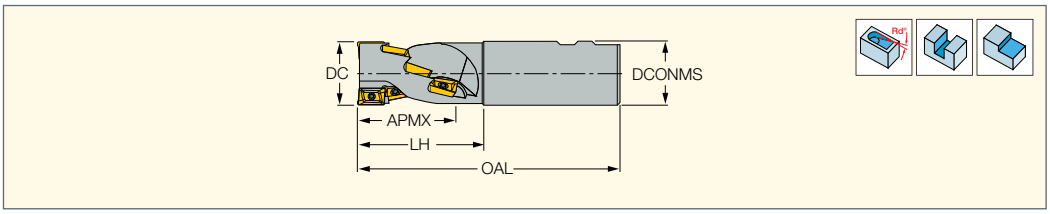
(1) Number of flutes
(2) Number of inserts
(3) W-Weldon

For inserts, see pages: XNMU 13 (514)

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	T-8/53
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

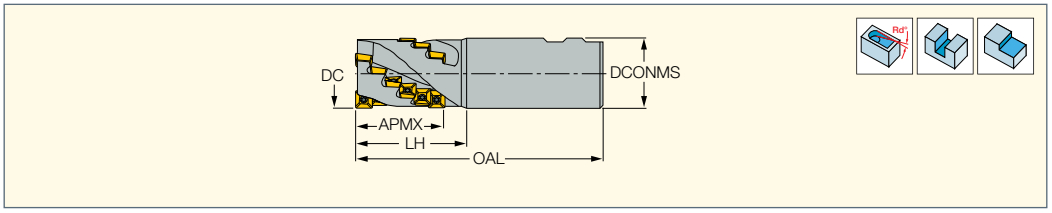
(1) Number of flutes
(2) Number of inserts
(3) W-Weldon
(4) Maximum ramping angle

For inserts, see pages: APCR 1003PDFR-P (450) • APCT 1003PDR-HM (450) • APKR 1003PDR-HM (451) • APKT 1003..R (453) • APKT 1003..TR-RM (452) • APKT 1003PDR-HM (451) • APKT 1003PDR-HM-CS (451) • APKT 1003PDTR-76 (452) • APKT 1003PDTR/L-RM (452) • HM90 APKW 1003PDR (453)

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

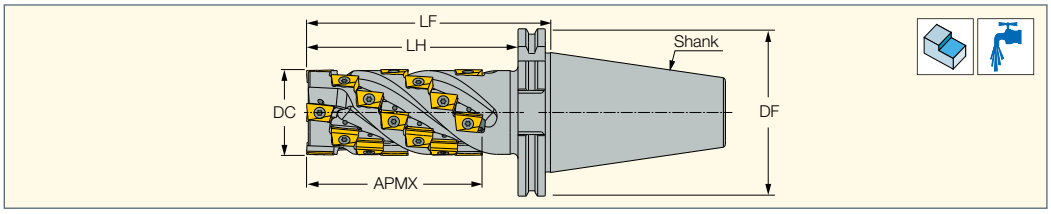
(1) Number of flutes
(2) Number of inserts
(3) W-Weldon
(4) Maximum ramping angle

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

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

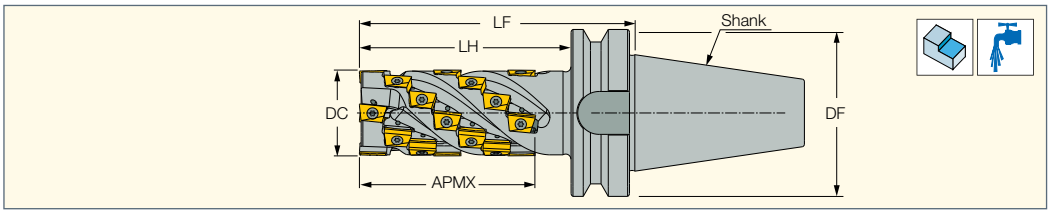
(1) Number of flutes
(2) Number of inserts

For inserts, see pages: FIN LNAT 1607PN-R (491)

HELITANG

FIN LNK-BT

Extended Flute Endmills with Tangentially Clamped Inserts and BT MAS-403 Shanks for Semi-Finishing Long Shoulders



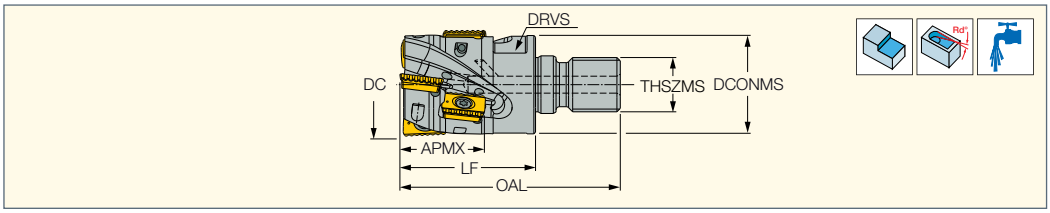
Designation	DC	APMX	NOF(1)	CICT(2)	LH	LPR	DF	Shank	kg			
FIN LNK D050-100-4-BT50	50.00	102.00	4	28	123.2	161.20	100.00	BT MAS-403	4.72	SR 34-535	BLD T15/M7	SW6-T

(1) Number of flutes
(2) Number of inserts
For inserts, see pages: FIN LNAT 1607PN-R (491)

MILLSHREDFLEXFIT P290 LINE

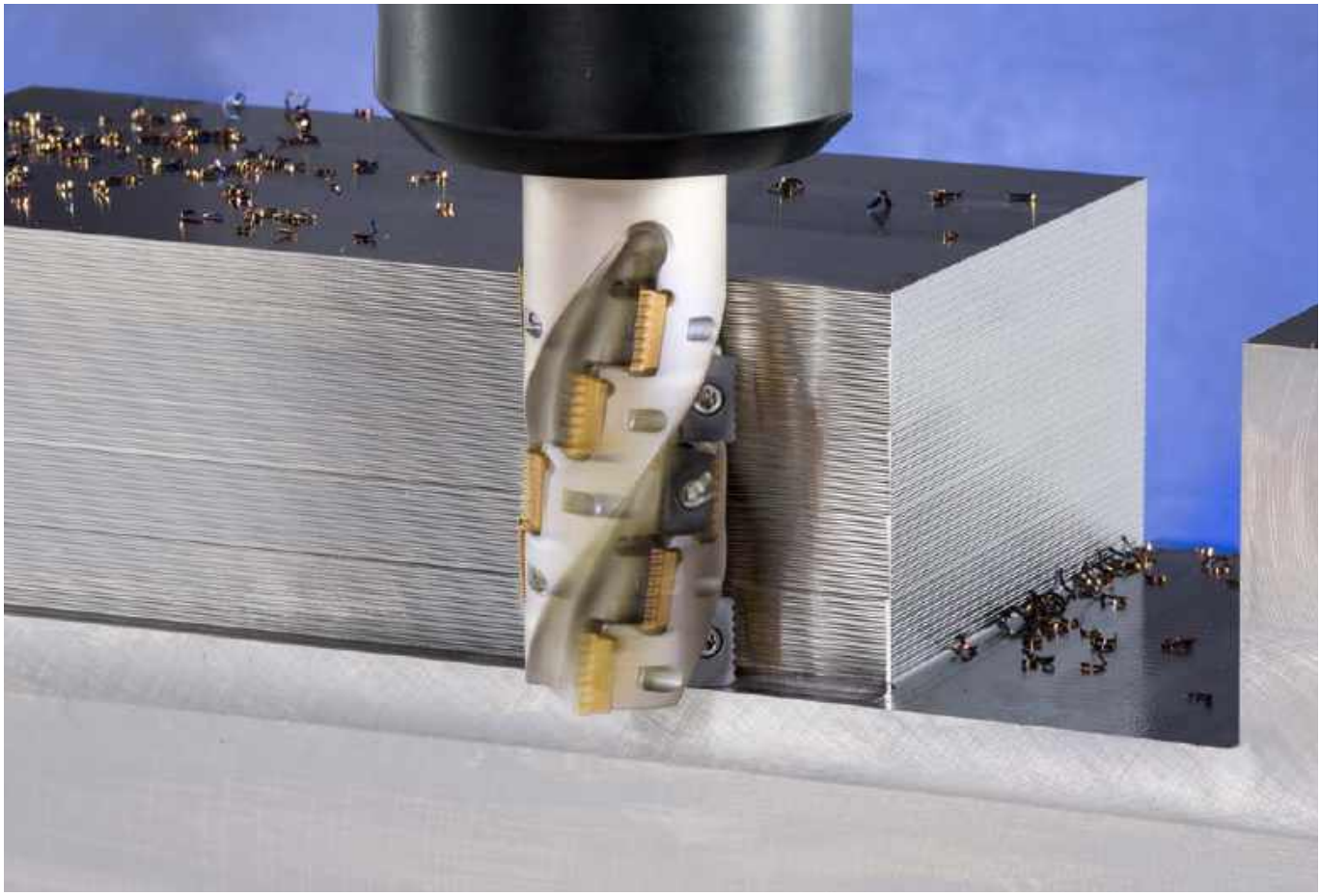
P290 ACK-M

Extended Flute Endmills with FLEXFIT 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	SR M3X0.5-L7.4 IP9(a)	IP-9/151

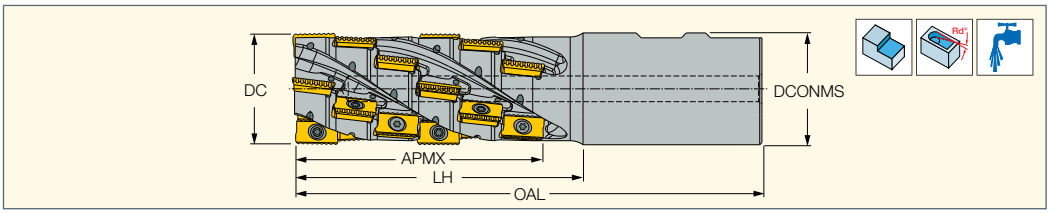
• Note: recommended a_e up to 0.2xDC • For adaptation options, see page 311 • For user guide, see pages 542-547 • When mounting items with FLEXFIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter
(1) Number of flutes
(2) Number of inserts
(3) Clamping wrench size
(4) Maximum ramping angle
(5) Tool tightening torque Nxm (lbfxin)
(a) Recommended tightening torque:2.0 N*m (20.0lbf*in)
For inserts, see pages: P290 ACCT/KT (461) • P290 ACKT (461)
For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)



MILLSHRED P290 LINE

P290 ACK

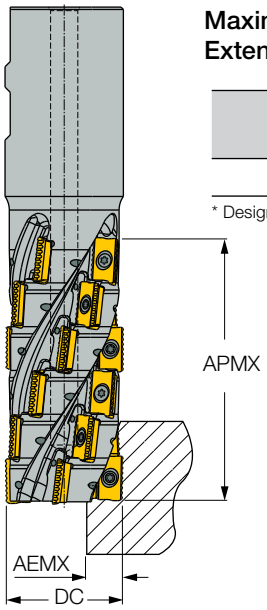
Extended Flute Endmills
Carrying 12 and 18 mm
Long Edged Inserts



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
(4) Maximum ramping angle
(5) W-Weldon

For inserts, see pages: P290 ACCT/KT (461) • P290 ACKT (461)



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

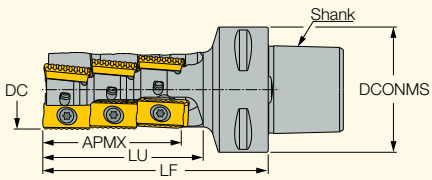
Designation				
P290 ACK D25-3-24-W20-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 ACK D25-3-36-W25-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 ACK D32-3-36-W32-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 ACK D32-3-48-W32-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
P290 ACK D32-3-60-W32-12	SR M3X0.5-L7.4 IP9(a)	IP-9/151		
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
P290 ACK D40-3-53-W32-18	SR 14-544/S		BLD T15/M7	SW6-T
P290 ACK D40-3-71-W40-18	SR 14-544/S		BLD T15/M7	SW6-T
P290 ACK D40-3-90-W40-18	SR 14-544/S		BLD T15/M7	SW6-T
P290 ACK D40-3-125-W40-18	SR 14-544/S		BLD T15/M7	SW6-T
P290 ACK D50-4-53-W40-18	SR 14-544/S		BLD T15/M7	SW6-T
P290 ACK D50-4-105-W50-18	SR 14-544/S		BLD T15/M7	SW6-T
P290 ACK D50-3-160-W50-18	SR 14-544/S		BLD T15/M7	SW6-T

(a) Recommended tightening torque:2.0 N*m

MILLSHREDCAMFIX 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	CDI[5]	kg			
P290 ACK D32-3-36-C5-18 [1]	32.00	36.00	3	9	64.0	90.00	2.0	50.00	CAMFIX	1	0.79	SR 14-544/S	BLD T15/M7	SW6-T
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
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

- Note: recommended a_e up to 0.2xDC

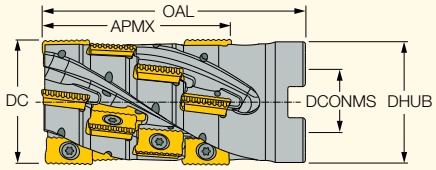
[1] Do not use with P290 ACKT...-FWR insert
[2] Number of flutes
[3] Number of inserts
[4] Maximum ramping angle
[5] 1 - Hole for data chip, 0 - Without hole for data chip

For inserts, see pages: P290 ACCT/KT (461) • P290 ACKT (461)

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
[3] Maximum ramping angle
[4] For adaptation options, see page 548

For inserts, see pages: P290 ACCT/KT (461) • P290 ACKT (461)

Spare Parts

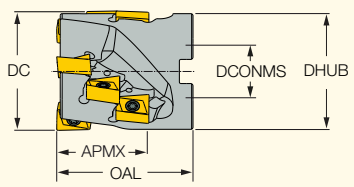
Designation					
P290 SM D032-03-24-16-12	SR M3X0.5-L7.4 IP9[a]	IP-9/151			SR M8X55-D11.5 DIN912
P290 SM D040-04-24-16-12	SR M3X0.5-L7.4 IP9[a]	IP-9/151			SR M8X35 DIN912
P290 SM D040-04-36-16-12	SR M3X0.5-L7.4 IP9[a]	IP-9/151			SR M8X45DIN912
P290 SM D040-04-48-22-12	SR M3X0.5-L7.4 IP9[a]	IP-9/151			SR M10X70DIN912
P290 SM D050-04-36-22-18	SR 14-544/S		BLD T15/M7	SW6-T	SR M10X50 DIN 912
P290 SM D050-04-53-22-18	SR 14-544/S		BLD T15/M7	SW6-T	SR M10X60DIN912
P290 SM D050-04-71-27-18	SR 14-544/S		BLD T15/M7	SW6-T	SR M12X70DIN912
P290 SM D063-05-53-27-18	SR 14-544/S		BLD T15/M7	SW6-T	SR M12X70DIN912
P290 SM D063-05-71-27-18	SR 14-544/S		BLD T15/M7	SW6-T	SR M12X70DIN912
P290 SM D080-06-71-32-18	SR 14-544/S		BLD T15/M7	SW6-T	SR M16X80 DIN 912
P290 SM D100-06-36-32-18	SR 14-544/S		BLD T15/M7	SW6-T	SR M16X50 DIN912
P290 SM D100-07-71-40-18	SR 14-544/S		BLD T15/M7	SW6-T	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



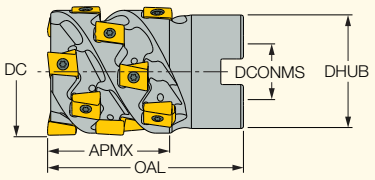
Designation	DC	CICT(1)	NOF(2)	APMX	OAL	DHUB	DCONMS	Arbor(3)	kg				
H490 SM D050-36-3-22-12	50.00	9	3	35.00	60.00	48.00	22.00	A	0.45	SR 14-544	BLD T15/M7	SW6-T	SR M10X40DIN912
H490 SM D063-48-4-27-12	63.00	16	4	47.00	70.00	60.00	27.00	A	0.89	SR 14-544	BLD T15/M7	SW6-T	SR M12X50DIN912

(1) Number of inserts
(2) Number of flutes
(3) For adaptation see page 548
For inserts, see pages: H490 ANKX/ANCX-12 (470)

HELITANG T490 LINE

T490 SM-08

Extended Flute Shell Mills
Carrying T490 LNMT/HT 0804...
Tangentially Clamped Inserts



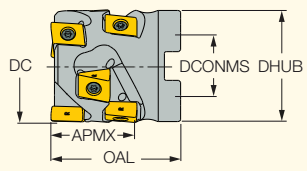
Designation	DC	APMX	NOF(1)	CICT(2)	OAL	DHUB	DCONMS	Arbor(3)	kg			
T490 SM D032-36-3-16-08	32.00	36.00	3	15	58.00	38.00	16.00	A	0.23	SR 10502813-HG-M	IP-7/51	SR M8X45DIN912
T490 SM D040-44-4-16-08	40.00	44.00	4	24	65.00	38.00	16.00	A	0.38	SR 10502813-HG-M	IP-7/51	SR M8X55DIN912
T490 SM D050-44-5-22-08	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
(3) For adaptation options, see page 548
For inserts, see pages: T490 LNAR-P (480) • T490 LNMT/LNHT 0804 (476)

HELITANG T490 LINE

T490 SM-11

Extended Flute Shell Mills
Carrying T490 LN#T 11...
Tangentially Clamped Inserts



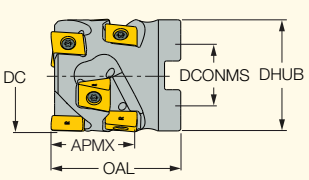
Designation	DC	APMX	NOF(1)	CICT(2)	OAL	DHUB	DCONMS	Arbor(3)	kg				
T490 SM-D40-51-3-22-11	40.00	51.00	3	18	72.00	38.00	22.00	A	0.31	SR 34-535/L10.5-SN	BLD T15/S7(a)	SW6-SD	SR M10X60DIN912
T490 SM-D50-51-3-22-11	50.00	51.00	3	18	71.00	48.00	22.00	A	0.59	SR 34-535-SN	BLD T15/S7(a)	SW6-SD	SR M10X60DIN912
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
(3) For adaptation see page 548
(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 (477)

HELITANG T490 LINE

T490 SM-13

Extended Flute Shell Mills
Carrying T490 LNMT/HT 1306...
Tangentially Clamped Inserts



Designation	DC	APMX	NOF(1)	CICT(2)	OAL	DHUB	DCONMS	Arbor(3)	kg
T490 SM-D40-24-2-22-13	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	50.00	36.00	2	6	56.00	48.00	27.00	A	0.38
T490 SM-D50-36-3-22-13	50.00	36.00	3	9	56.00	48.00	22.00	A	0.43
T490 SM-D50-36-3-27-13	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

(2) Number of flutes
(3) Number of inserts
(4) For adaptation options, see page 548

For inserts, see pages: T490 LNAR-P (480) • T490 LNMT 1306PNTR-FW (479) • T490 LNMT/LNHT/LNAR 1306 (478)

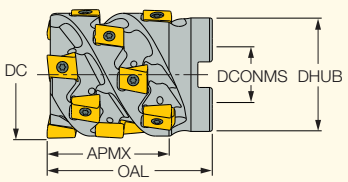
Spare Parts

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

(1) Number of flutes
(2) Number of inserts
(3) For adaptation options, see page 548

For inserts, see pages: T490 LNAR-P (480) • T490 LNMT 1306PNTR-FW (479) • T490 LNMT/LNHT/LNAR 1306 (478)

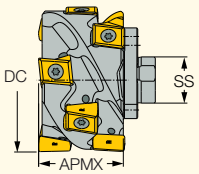
Spare Parts

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



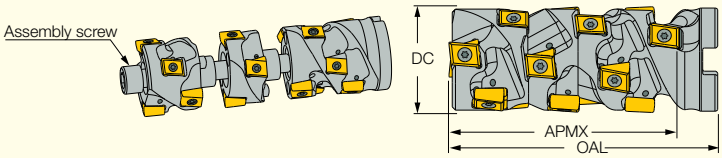
Designation	DC	APMX	NOF(1)	CICT(2)	SS	kg		
T490 CAP-D50-24-2-20-13FT	50.00	24.00	2	4	20	0.21	SR 34-535-SN	
T490 CAP-D50-36-2-20-13FT	50.00	36.00	2	6	20	0.32	SR 34-535-SN	
T490 CAP-D63-24-3-20-13FT	63.00	24.00	3	6	20	0.33	SR 34-535-SN	
T490 CAP-D63-24-4-2W0-13FT	63.00	24.00	4	8	20	0.34	SR 34-535-SN	SR 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

(1) Number of flutes

(2) Number of inserts

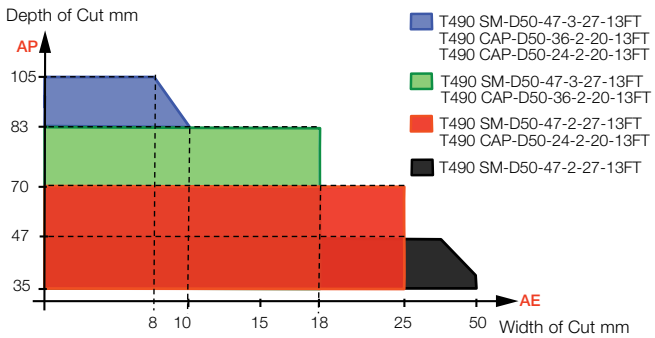
For inserts, see pages: T490 LNAR-P (480) • T490 LNMT 1306PNTR-FW (479) • T490 LNMT/LNHT/LNAR 1306 (478)

Modular Extended Flute Assembly

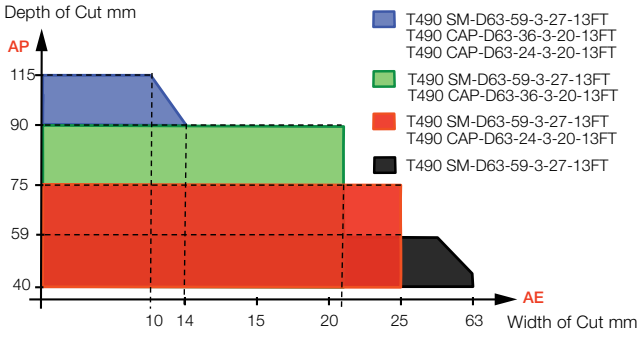


Shell Base Unit	Extension 1	Extension 2	DC	APMX	OAL	NOF	CICT	Assembly Screw
T490 SM-D50-47-2-27-13FT				47	66.5		8	SR M12x50 DIN912
	T490 CAP-D50-24-2-20-13FT		50	71	90		12	SR M12x70 DIN912
	T490 CAP-D50-36-2-20-13FT		50	83	102	2	14	SR M12x80 DIN912
	T490 CAP-D50-24-2-20-13FT	T490 CAP-D50-24-2-20-13FT	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		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	3	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

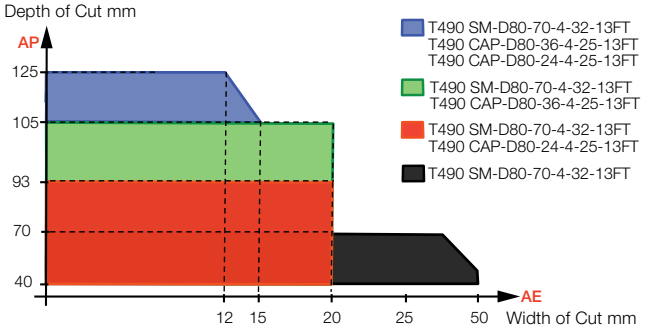
AP/AE Application Range for 50 mm Modular Extended Flute Cutters



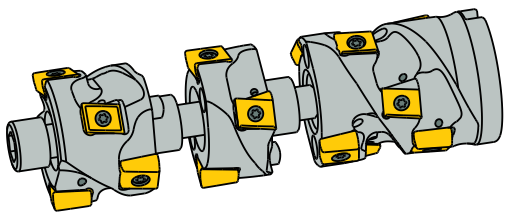
AP/AE Application Range for 63 mm Modular Extended Flute Cutters



AP/AE Application Range for 80 mm Modular Extended Flute Cutters



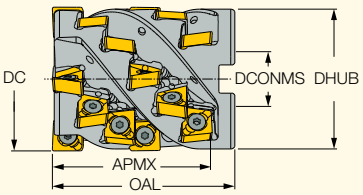
Workpiece: Alloy Steel



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	2.50	SR M4-L15-D4.5	BLD IP15/M7	SW6-T-SH	SR M16X70DIN912

- Radial W.O.C. < 0.3xDC

(1) Number of flutes

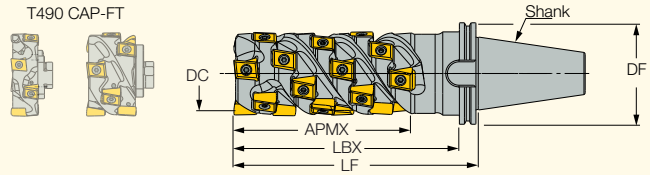
(2) Number of inserts

For inserts, see pages: XNMU 13 (514)

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

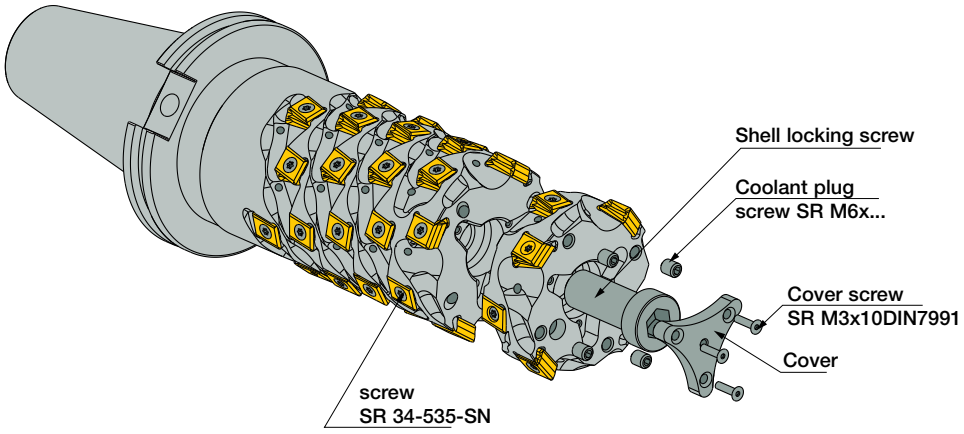
- Remove coolant plug screws (SR M6X..DIN916) prior to attaching extension units

(1) Number of flutes

(2) Number of inserts

For inserts, see pages: T490 LNAR-P (480) • T490 LNMT 1306PNTR-FW (479) • T490 LNMT/LNHT/LNAR 1306 (478)

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



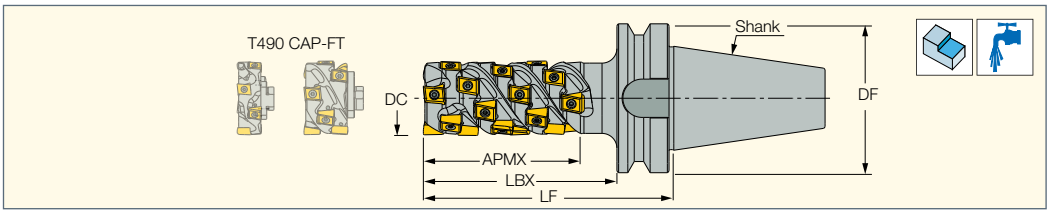
Spare Parts

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

For inserts, see pages: T490 LNAR-P (480) • T490 LNMT 1306PNTR-FW (479) • T490 LNMT/LNHT/LNAR 1306 (478)

Shell Base Unit	Extension	DC	APMX	OAL	NOF	CICT	NOFAssembly Screw
T490 LNK-D63-082-4-BT50-FT			82	107		28	
	T490 CAP-D63-24-4-20-13FT	63	106	131	4	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			105	135		36	
	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

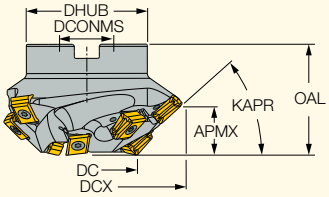
Spare Parts

Designation							
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 (1)	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 542-547

(1) On request

(2) Tool cutting edge angle

(3) Cutting diameter maximum

(4) Number of flutes

(5) Number of peripheral inserts

(6) For adaptation options, see page 548

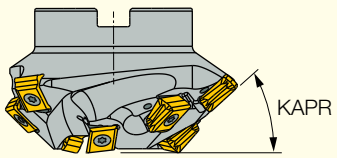
For inserts, see pages: T490 LNAR-P (464) • T490 LNMT 1306PNTR-FW (463) • T490 LNMT/LNHT/LNAR 1306 (462)

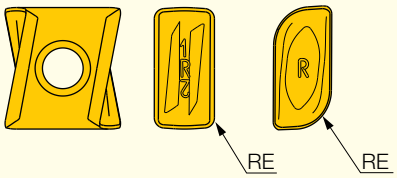
Spare Parts

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

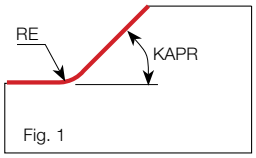


Fig. 1

Machined surface

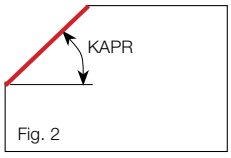


Fig. 2



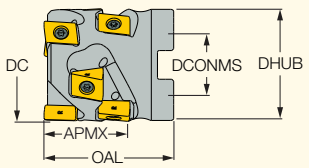
Fig. 3

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

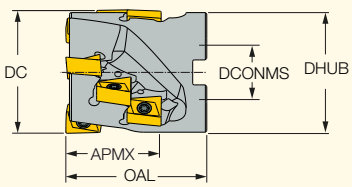
(3) For adaptation options, see page 548

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



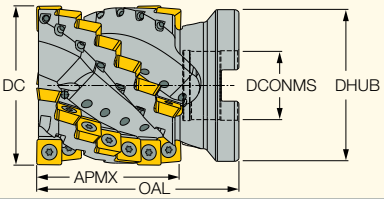
Designation	DC	APMX	NOF(1)	CICT(2)	OAL	DHUB	DCONMS	Arbor(3)	kg				
H490 SM D063-48-3-27-17C	63.00	46.50	3	9	70.00	59.40	27.00	A	1.93	SR 14-591	BLD T20/M7	SW6-T	SR M12X50DIN912
H490 SM D063-60-3-27-17C	63.00	58.50	3	12	85.00	59.40	27.00	A	1.13	SR 14-591	BLD T20/M7	SW6-T	SR M12X60DIN912
H490 SM D080-48-4-32-17C	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
(3) For adaptation options, see page 548
For inserts, see pages: H490 ANKX/ANCX-17 (472)

XQUAD EXTENDED FLUTE

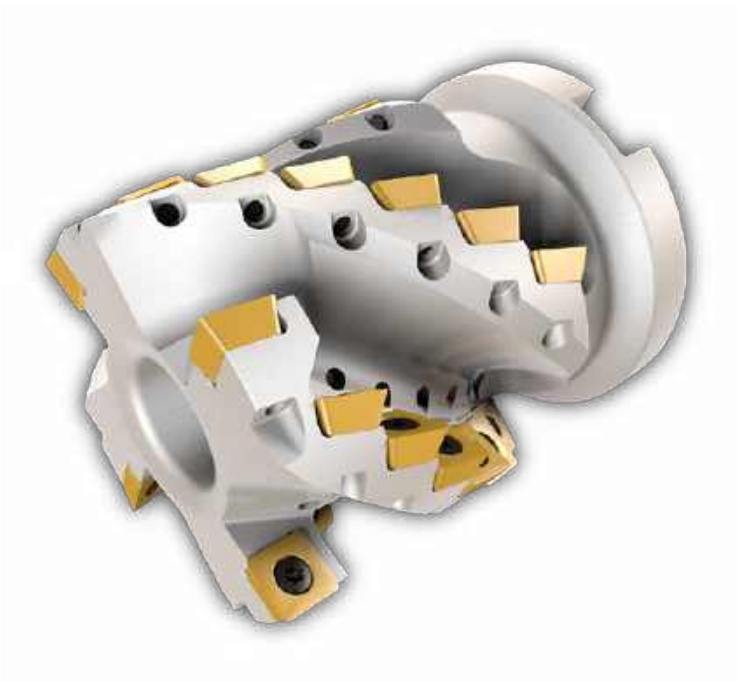
SDK-10-C/HP

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	80.00	49.00	A	0.56	SR M3.5X0.6-L8.5 IP10	BLD IP10/S7	SW6-SD	SR M12X65 DIN912
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

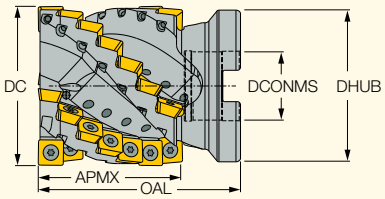
(1) Designed with coolant nozzles for high pressure coolant
(2) Number of flutes
(3) Number of inserts
(4) For adaptation see page 548
For inserts, see pages: SDHT/W 100408 (498)



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
[4] For adaptation see page 548

For inserts, see pages: QDCT-PDN (497) • QDMT 1205..PDTN-M (498) • SDHT/X 120508 (498)

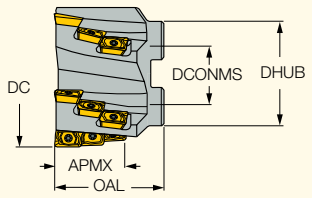
Spare Parts

Designation				
SDK D63-55-05-27-12-C	SR M4X0.7-L9.5 IP15-4623	BLD IP15/M7	SW6-T	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	SR M12X80DIN912
SDK D63-98-04-27-12-C	SR M4X0.7-L9.5 IP15-4623	BLD IP15/M7	SW6-T	SR M12X110DIN912
SDK D80-66-05-32-12-C	SR M4X0.7-L9.5 IP15-4623	BLD IP15/M7	SW6-T	SR M16X70DIN912
SDK D80-109-05-32-12-C	SR M4X0.7-L9.5 IP15-4623	BLD IP15/M7	SW6-T	SR M16X120 DIN912
SDK D100-76-06-40-12-C	SR M4X0.7-L9.5 IP15-4623	BLD IP15/M7	SW6-T	SR M20X85 DIN912
SDK D100-130-06-40-12-C	SR M4X0.7-L9.5 IP15-4623	BLD IP15/M7	SW6-T	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
[3] For adaptation options, see page 548
[4] Maximum ramping angle

For inserts, see pages: ADCR 1505PDFR (456) • ADCT 1505PDFR-HM (457) • ADKR 1505PDR/L-HM (456) • ADKT 1505..R/L-HM (459) • ADKT 1505PDR/L-HM (458) • ADKT 1505PDTR-76 (459) • ADKT 1505PDTR/L-RM (458) • ADMT 1505PDR-HS (458) • HM90 ADCT 1505 (455) • HM90 ADCT 1505PDR-CF (455) • HM90 ADKT 1505 (454) • HM90 ADKW 1505PDR (462)

Spare Parts

Designation				
SM D50-25-27-M	SR 14-544/S	BLD T15/M7	SW6-T	SR M12X50DIN912
SM D63-38-27-M	SR 14-544/S	BLD T15/M7	SW6-T	

PLUNGING CUTTERS

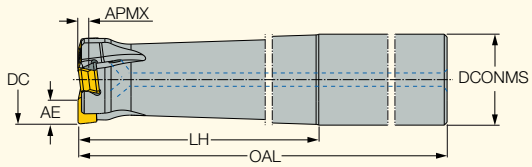


TANGPLUNGE PLUNGING LINE

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

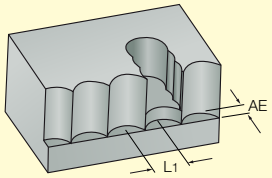
• 5 mm side plunging capacity and 2.5 mm maximum face milling DOC • For user guide, see pages 255-257

(1) Number of inserts

(2) C-Cylindrical

For inserts, see pages: HTP LN.. 0604 (536))

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



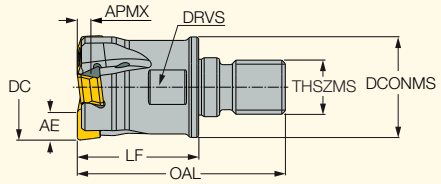
TANGPLUNGE PLUNGING LINE

FLEXFIT

HTP-M-LN06

Side Plungers with FLEXFIT 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 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

• For user guide, see pages 255-257

(1) Number of flutes

(2) Clamping wrench size

(3) Tool tightening torque Nxm (lbfxin)

For inserts, see pages: HTP LN.. 0604 (536)

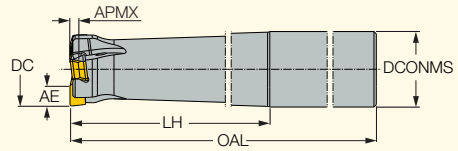
For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

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 255-257

(1) Number of inserts

(2) C-Cylindrical, W-Weldon

For inserts, see pages: HTP LN.. 1006 (537)

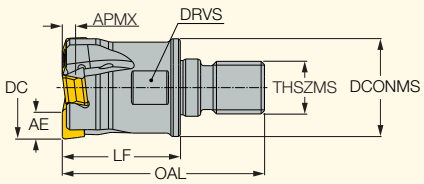
TANGPLUNGE PLUNGING LINE

FLEXFIT

HTP-M-LN10

Side Plungers with FLEXFIT 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 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

• For user guide, see pages 255-257

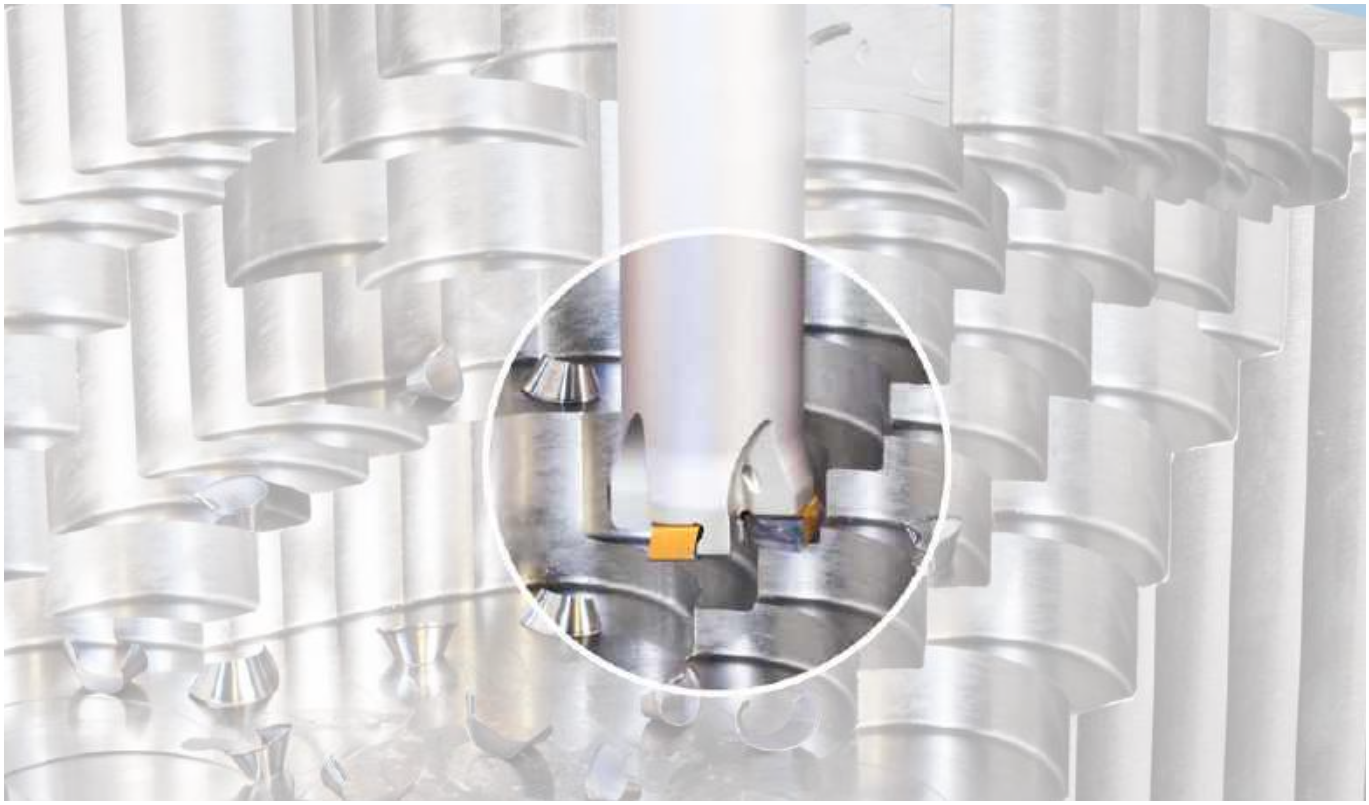
(1) Number of inserts

(2) Clamping wrench size

(3) Tool tightening torque Nxm (lbfxin)

For inserts, see pages: HTP LN.. 1006 (537)

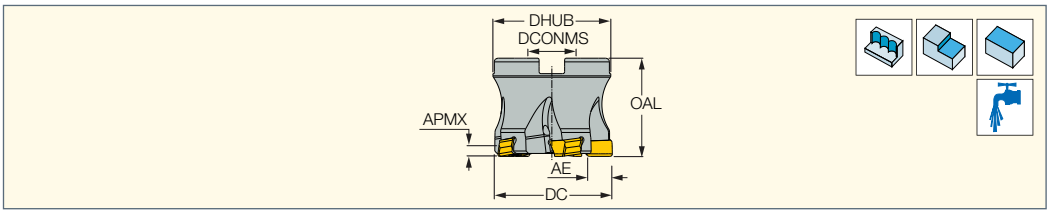
For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)



TANGPLUNGE PLUNGING LINE

HTP-R-LN10

Shell Mill Plungers Carrying Tangentially Clamped Inserts with 4 Cutting Edges



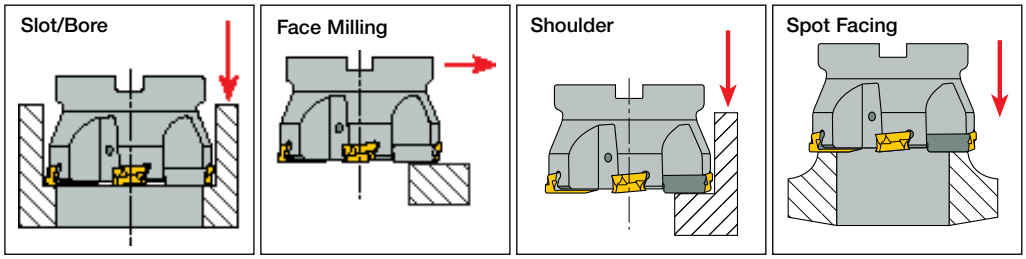
Designation	DC	APMX	AE	CICT(1)	OAL	DHUB	DCONMS	Arbor(2)	kg				
HTP D040-4-16-R-LN10	40.00	3.00	8.0	4	40.00	38.00	16.00	A	0.20	SR 34-550	BLD T10/S7	SW6-SD	SR M8X30DIN912
HTP D050-5-22-R-LN10	50.00	3.00	8.0	5	40.00	48.00	22.00	A	0.31	SR 34-550	BLD T10/S7	SW6-SD	SR M10X25C
HTP D052-5-22-R-LN10	52.00	3.00	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 255-257

(1) Number of inserts

(2) For adaptation see page 548

For inserts, see pages: HTP LN.. 1006 (537)

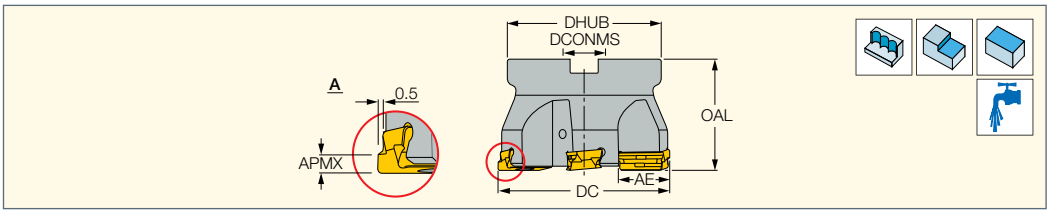




TANGPLUNGE PLUNGING LINE

HTP-R-LN16

Shell Mill Plungers Carrying Tangentially Clamped Inserts with 4 Cutting Edges



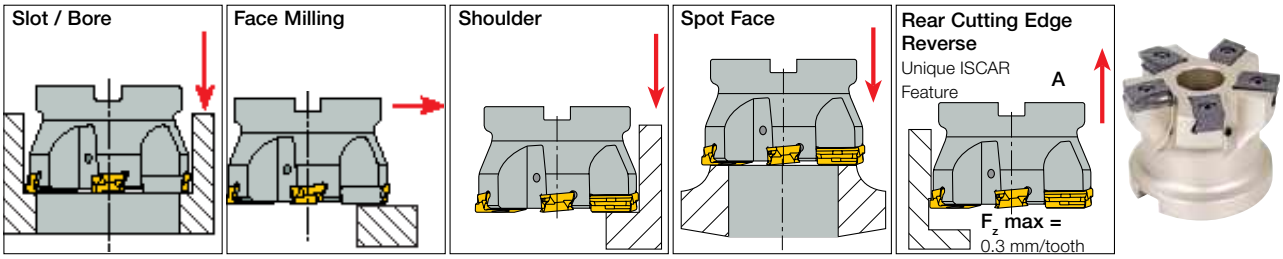
Designation	DC	AE	APMX	CICT(1)	OAL	DHUB	DCONMS	Arbor(2)	kg				
HTP D050-04-22-R-LN16	50.00	13.0	3.00	4	50.00	48.00	22.00	A	0.37	SR 34-535	BLD T15/S7	SW6-T-SH	SR PS 118-0271C
HTP D052-04-22-R-LN16	52.00	13.0	3.00	4	50.00	48.00	22.00	A	0.39	SR 34-535	BLD T15/S7	SW6-T-SH	SR PS 118-0271C
HTP D063-05-27-R-LN16	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 255-257

(1) Number of inserts

(2) For adaptation see page 548

For inserts, see pages: HTP LN.. 1606 (537)



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



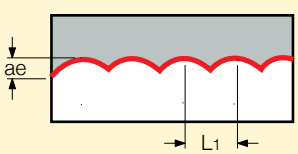
TANGPLUNGE - SIDE PLUNGING

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	80-130	0.12-0.15	Air blow
	Low alloy and cast steel (less than 5% of alloying elements)	8	4340	1.6582	260-300			80-120	0.1-0.15	
	Low alloy and cast steel (less than 5% of alloying elements)	9	3135	1.571	HRC 35-40**			80-120	0.08-0.15	
	High alloy steel	10	H13	1.2344	200-220			80-100	0.08-0.12	
	Martensitic s.s.	12	420	1.4021	200		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
	Nodular cast iron	17	Class 65-45-12	0.7050 (GGG50)	200			100-180	0.1-0.17	
S	Ni-based HTSA	34	Inconel 718	2.4668	350	...ER	IC328/ IC330	20-25	0.07-0.1	Wet (emulsion)
	Ti alloys	37	Ti6Al4V (Grade 5)	3.7164	HRC 34-36			35-40	0.07-0.1	
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

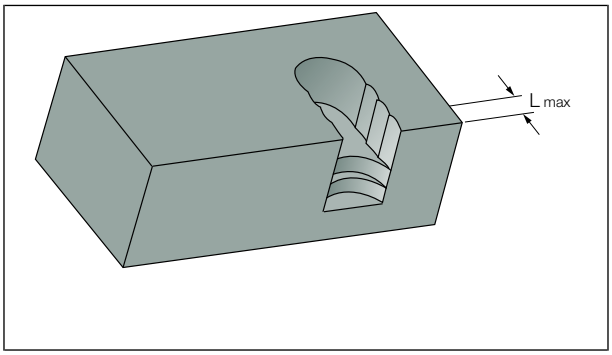
L1max = 2x Dxae-ae2	a_e - Width of Plunge (mm)	Cutter Diameter (mm) 50	52	63	66	80	100
		L1max - Step (effective diameter)					
	1	14.0	14.3	15.75	16.1	17.8	19.9
	3	23.8	24.3	26.8	27.5	30.4	34.1
	5	30.0	30.6	34.0	34.9	38.7	43.6
	6	32.5	33.2	37.0	37.9	42.1	47.5
	7	34.7	35.5	39.6	40.6	45.2	51.0
	8	36.6	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

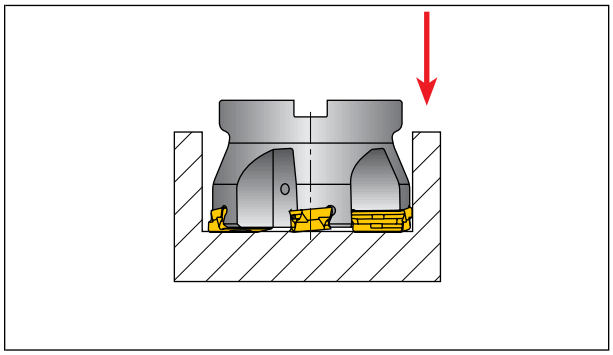


L1- Side step over
a_e- Width of plunge

TANGPLUNGE
PLUNGING LINE

Recommended Cutting Conditions for Slot Plunging





L- Width of Cut (mm)

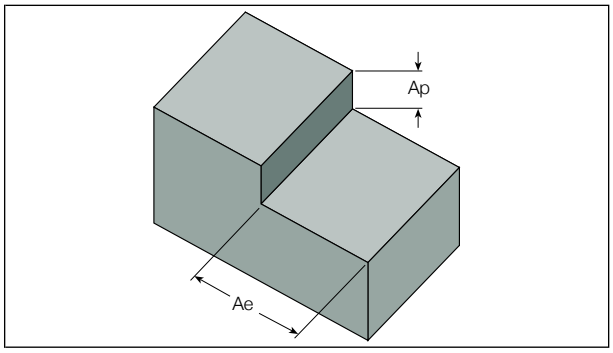
TANGPLUNGE - SLOT PLUNGING

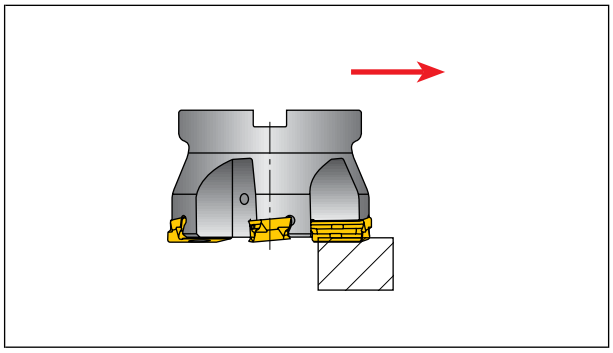
Workpiece Material						Insert HTP LN... type	Carbide grade for inserts	Cutting speed V_c, m/min	Feed F_z, mm/t	Coolant
ISO class / DIN/ ISO 513	Description	ISCAR mat. group*	Typical Representative AISI/SAE/ ASTM	Typical Representative DIN W.-Nr.	Hardness HB					
P	Non-alloy steel and cast steel, free cutting steel	4	1060	1.1221	180-200	...ER	IC830/ IC928	80-120	0.1-0.15	Air blow
P	Low alloy and cast steel (less than 5% of alloying elements)	8	4340	1.6582	260-300	...ER	IC830/ IC928	80-120	0.1-0.12	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	0.08-0.12	Air blow
P	High alloy steel	10	H13	1.2344	200-220	...ER	IC830/ IC928	80-100	0.08-0.1	Air blow
P	Martensitic s.s.	12	420	1.4021	200	...ER	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
K	Nodular cast iron	17	Class 65-45-12	0.7050 (GGG50)	200	...ER	IC810/ IC910	100-180	0.1-0.15	Air blow
S	Ni-based HTSA	34	Inconel 718	2.4668	350	...ER	IC328/ IC330	20-25	0.07-0.09	Wet (emulsion)
S	Ti alloys	37	Ti6Al4V (Grade 5)	3.7164	HRC 34-36	...ER	IC328/ IC330	35-40	0.07-0.09	Wet (emulsion)
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





TANGPLUNGE - FACE MILLING

ISO class			Workpiece Material							
			Typical Representative							
DIN/ ISO 513	Description	ISCAR mat. group*	AISI/SAE/ ASTM	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

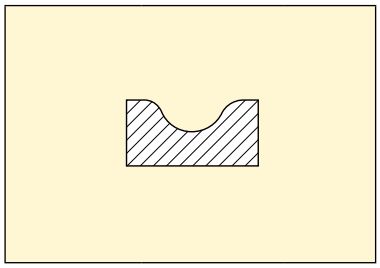
PROFILING TOOLS

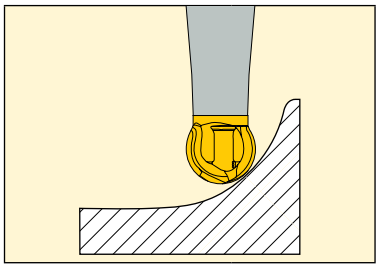


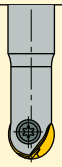
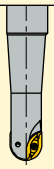
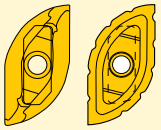
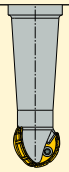
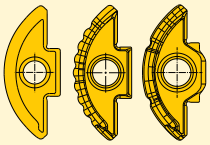
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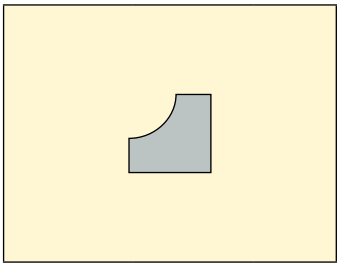
Ball Nose Selection Guide

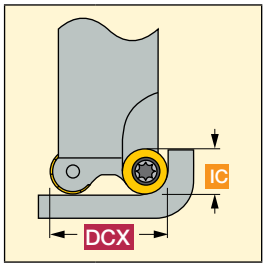


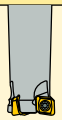
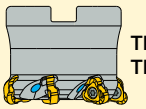
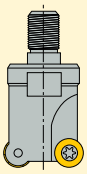
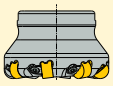
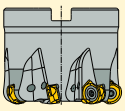
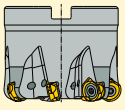
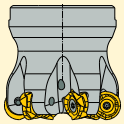
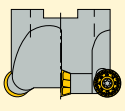
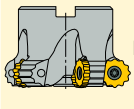


Tools	Pages	DCX												Inserts
		0.4-7	8	9	10	12	16	20	25	30	32	40	50	
 EB... Solid Carbide Multi-Master	163 70	•	•	•	•	•	•	•	•					
 HCM D.. HCM-M HCM-MM	262 264 265				•	•	•	•	•					 HBF-QF HBR-QF HCR-QF HCR-QP
 BCM	267					•	•	•	•	•	•	•	•	 BCR D...-QT BCR D...-CS
 BLP BLP -M	265 266						•	•	•	•	•	•	•	 BLR D...-QT BLR D...-MFW BLR D...-QCS

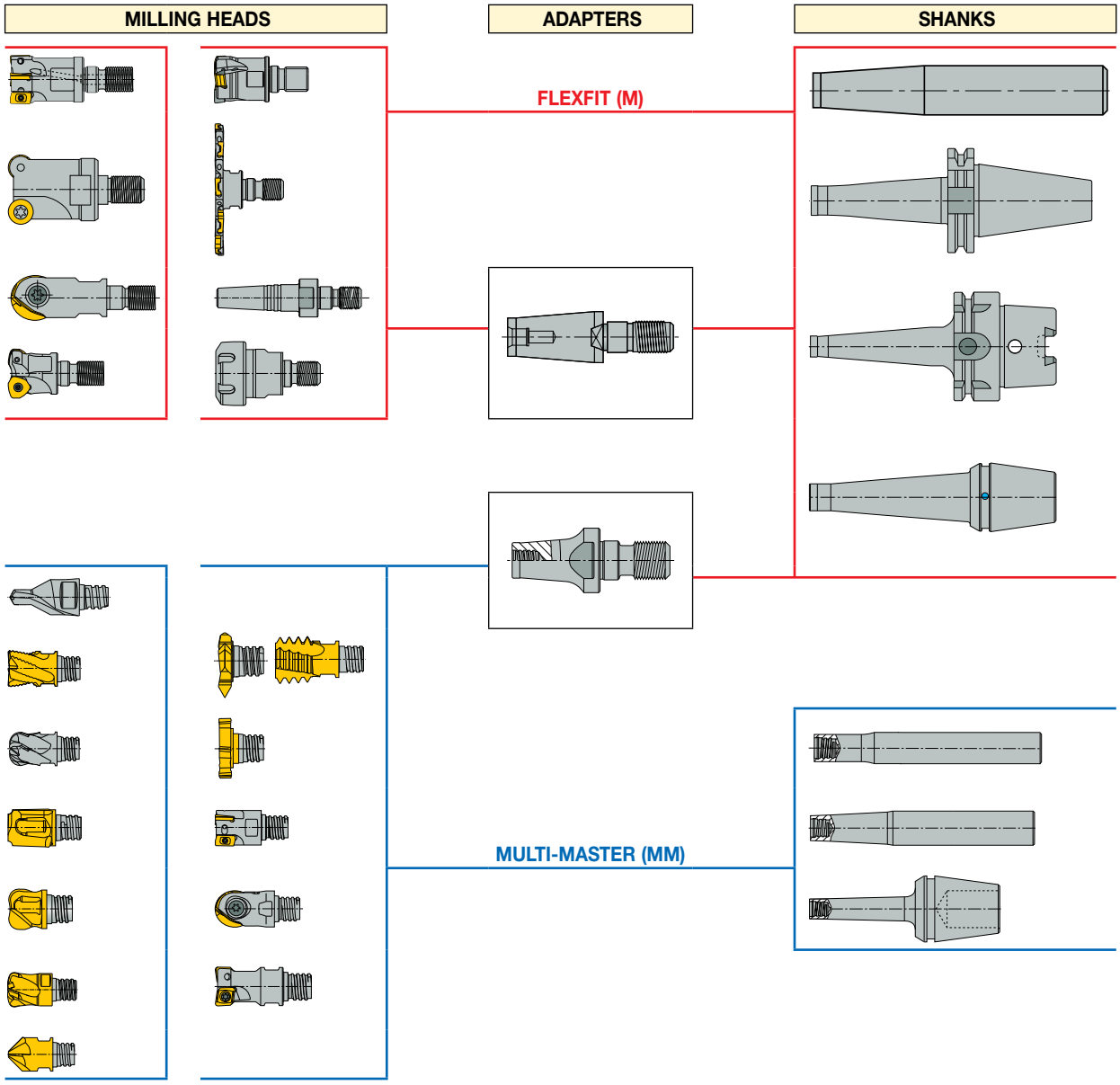
Face Mills 90° Selection Guide





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	269 271					•	•	•		•		•		•		•	•				 CNHT ENHT
 TR6 ER TR6 FR	272 275	5-7				•	•	•	•	•	•	•	•	•	•	•	•				 TR6 TNCU TR90 TXMT TRFF TXMT TR45 TXMT
 ER	277	5-8	•	•	•	•	•	•	•	•	•	•									 RXCR... RXCW...
 FRMT	278	10-12									•		•	•							 RPHX/RPMX
 FRN	278	12											•		•		•				 RNGN
 H400 ER-10 H400 FR-10 ER-10	282 283 277	10					•	•	•	•	•		•								 H400 RNHU 10... RXCW 10... RXCR 10... RXMT 10...
 H400 ER-12 H400 FR-12 ERW-12 FRW-12	282 284 279 281	12						•	•		•		•	•	•	•	•				 RCMT 12... RCCW 12... RCCT 12... R90MT 12... H400 RNHU 12...
 H606 ER-M H606 FR-12	285 286	12							•		•		•	•	•		•				 H606 RXCU 1206
 H400 FR-16 FRW-16 ER-16	285 281 277	16									•		•	•	•	•	•	•	•		 H400 RNHU 16... RCMW 16... RCCW 16...
 FRW-20	281	20															•	•	•	•	 RCCW 20... RCMW 20...

MULTI-MASTER and FLEXFIT Connection Options



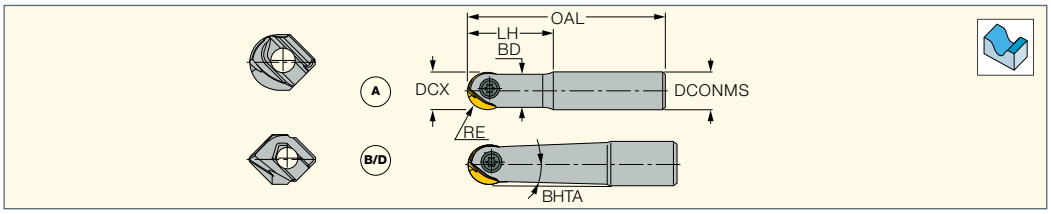
Features

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

BALLPLUS

HCM D10

Ball Nose Multifunction
Endmills D=10 mm



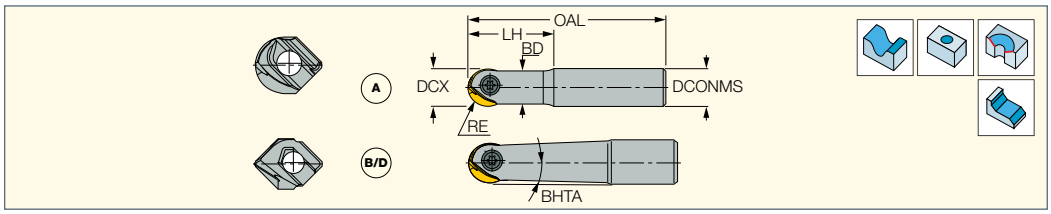
Designation	DCX(1)	RE	LH(2)	OAL(3)	DCONMS	Shank(4)	BHTA	BD	Type	kg			
HCM D10-A-L090-C10	10.00	5.00	25.0	90.00	10.00	C	-	9.20	A	0.05	SR 10504694	BLD T15/S7	SW6-T-SH
HCM D10-B-L125-C16	10.00	5.00	40.0	125.00	16.00	C	6.0	-	B	0.16	SR 10504694	BLD T15/S7	SW6-T-SH
HCM D10-D-L150-C12	10.00	5.00	50.0	150.00	12.00	C	1.8	-	D	0.12	SR 10504694	BLD T15/S7	SW6-T-SH

• The dimensions are for HBR inserts • For user guide, see pages 542-547
(1) Cutting diameter maximum
(2) Refers to HBR inserts
(3) Refers to HBR inserts
(4) C-Cylindrical
For inserts, see pages: HBR-QF (533) • HCR (533)

BALLPLUS

HCM D12

Ball Nose Multifunction
Endmills D=12 mm



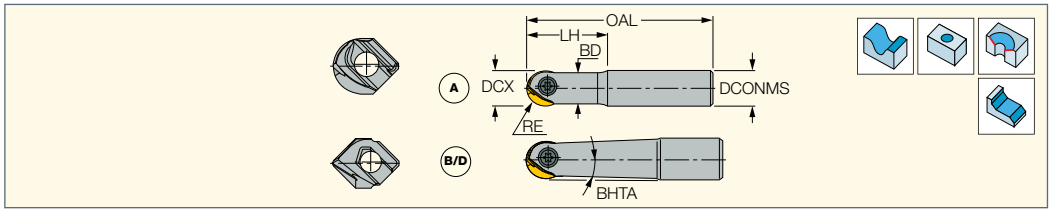
Designation	DCX(1)	RE	LH(2)	OAL(3)	DCONMS	Shank(4)	BHTA	BD	Type	kg			
HCM D12-A-L120-C12	12.00	6.00	30.0	120.00	12.00	C	-	10.60	A	0.10	SR 34-540	BLD T15/S7	SW6-T
HCM D12-B-L160-C20	12.00	6.00	50.0	160.00	20.00	C	5.0	-	B	0.32	SR 34-540	BLD T15/S7	SW6-T
HCM D12-D-L160-C16	12.00	6.00	60.0	160.00	16.00	C	1.0	-	D	0.21	SR 34-540	BLD T15/S7	SW6-T

• The dimensions are for HBR inserts • For user guide, see pages 542-547
(1) Cutting diameter maximum
(2) Refers to HBR inserts
(3) Refers to HBR inserts
(4) C-Cylindrical
For inserts, see pages: HBF-QF (533) • HBR-QF (533) • HCC-QF (534) • HCD-QF (534) • HCR (533)

BALLPLUS

HCM D16

Ball Nose Multifunction
Endmills D=16 mm



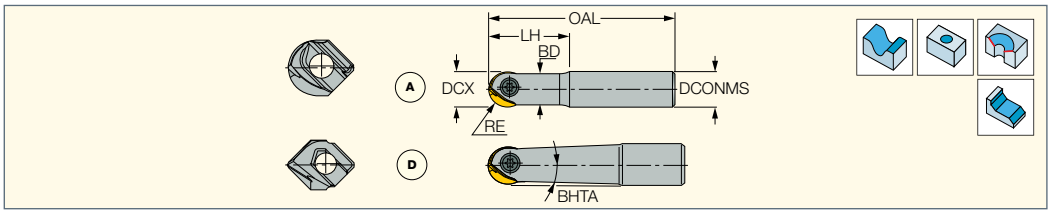
Designation	DCX(1)	LH(2)	OAL(3)	DCONMS	Shank(4)	BHTA	BD	Type	kg			
HCM D16-A-L130-C16	16.00	36.0	130.00	16.00	C	-	14.40	A	0.18	SR 10503579	BLD T20/S7	SW6-T
HCM D16-B-L160-C25	16.00	60.0	160.00	25.00	C	5.0	-	B	0.49	SR 10503579	BLD T20/S7	SW6-T
HCM D16-D-L160-C20	16.00	65.0	160.00	20.00	C	1.0	-	D	0.32	SR 10503579	BLD T20/S7	SW6-T

• The dimensions are for HBR inserts • For user guide, see pages 542-547
(1) Cutting diameter maximum
(2) Refers to HBR inserts
(3) Refers to HBR inserts
(4) C-Cylindrical
For inserts, see pages: HBF-QF (533) • HBR-QF (533) • HCC-QF (534) • HCD-QF (534) • HCR (533)

BALLPLUS

HCM D20

Ball Nose Multifunction
Endmills D=20 mm



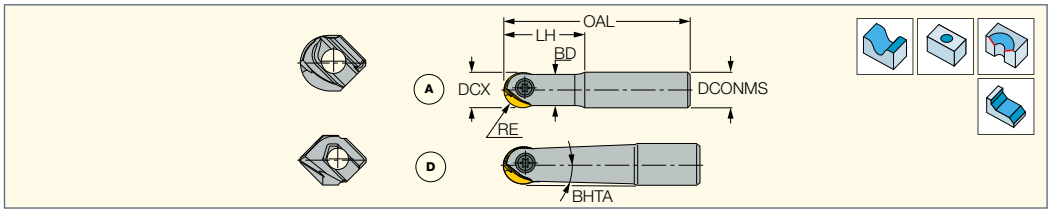
Designation	DCX(1)	LH(2)	OAL(3)	DCONMS	Shank(4)	BHTA	BD	Type	kg			
HCM D20-A-L150-C20	20.00	60.0	150.00	20.00	C	-	18.00	A	0.32	SR 1052964	BLD T25/S7	SW6-T
HCM D20-D-L200-C25	20.00	90.0	200.00	25.00	C	1.0	-	D	0.61	SR 1052964	BLD T25/S7	SW6-T

• The dimensions are for HBR inserts • For user guide, see pages 542-547
(1) Cutting diameter maximum
(2) Refers to HBR inserts
(3) Refers to HBR inserts
(4) C-Cylindrical
For inserts, see pages: HBF-QF (533) • HBR-QF (533) • HCC-QF (534) • HCD-QF (534) • HCR (533)

BALLPLUS

HCM D25

Ball Nose Multifunction
Endmills D=25 mm



Designation	DCX(1)	LH(2)	OAL(3)	DCONMS	Shank(4)	BHTA	BD	Type	kg			
HCM D25-A-L170-C25	25.00	70.0	170.00	25.00	C	-	22.00	A	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	1.20	SR 1051666	BLD T25/S7	SW6-T

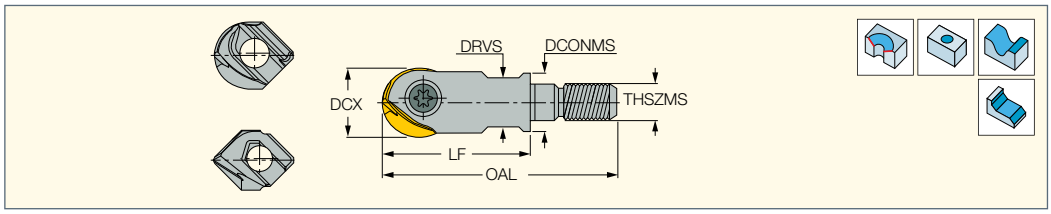
• The dimensions are for HBR inserts • For user guide, see pages 542-547
(1) Cutting diameter maximum
(2) Refers to HBR inserts
(3) Refers to HBR inserts
(4) C-Cylindrical
For inserts, see pages: HBF-QF (533) • HBR-QF (533) • HCC-QF (534) • HCD-QF (534) • HCR (533)



BALLPLUSFLEXFIT

HCM-M

Ball Nose Multifunction Endmills with FLEXFIT Threaded Adaptation



Designation	DCX(1)	LF(2)	OAL(3)	DCONMS	DRVS(4)	THSZMS	TQ_3(5)	kg
HCM D12/.50-M08	12.00	26.00	43.50	14.40	11.0	M08	20	0.03
HCM D16/.62-M08	16.00	30.00	47.50	14.40	11.0	M08	20	0.03
HCM D16/.62-M10	16.00	35.00	55.00	18.00	15.0	M10	29	0.05
HCM D20/.75-M10	20.00	37.00	57.00	18.00	15.0	M10	29	0.06
HCM D20/.75-M12	20.00	37.00	59.00	22.50	17.0	M12	33	0.07
HCM D25/1.0-M12	25.00	46.00	68.00	21.00	19.0	M12	33	0.11
HCM D25/1.0-M16	25.00	46.00	71.00	29.00	25.0	M16	40	0.16

• The dimensions are for HBR inserts • For user guide, see pages 542-547• 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) Cutting diameter maximum

(2) Refers to HBR inserts

(3) Refers to HBR inserts

(4) Clamping wrench size

(5) Tool tightening torque Nxm (lbfxin)

For inserts, see pages: HBF-QF (533) • HBR-QF (533) • HCC-QF (534) • HCD-QF (534) • HCR (533)

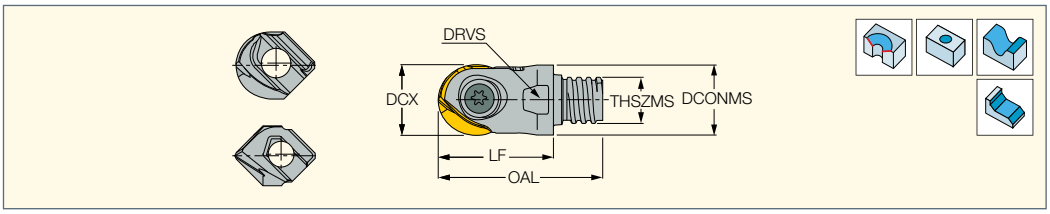
For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

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	HBR HBF HCR HCD HCC
		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	
		S M10-L200-C25	16	127	270	2.16	25	C	
HCM D16/.62-M10		S M10-L80-C20	16	60	110	2.5	20	C	
		S M10-L130-C20	16	110	160	2.5	20	C	
		S M10-L200-C25	16	87	230	3.26	25	C	
HCM D16/.62-M10	CAB M10M12	S M12-L86-C25	16	105	161	2.65	25	C	
		S M12-C32-L200	16	153	275	3.157	32	C	
HCM D20/.75-M10	—	S M10-L80-C20	20	67	117	–	20	C	
		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
MULTI-MASTER

HCM-MM
Ball Nose Multifunction
Endmills with MULTI-MASTER
Threaded Adaptation



Designation	DCX(1)	OAL(2)	LF(3)	DCONMS	THSZMS	DRVS(4)	TQ	TQ_3(5)	kg			
HCM D12/.50-MMT08	12.00	28.00	20.00	11.50	T08	10.0	15.0	20	0.01	SR 34-540	BLD T15/S7	SW6-T
HCM D16/.62-MMT10	16.00	36.75	25.00	15.20	T10	13.0	28.0	33	0.03	SR 10503579	BLD T20/S7	SW6-T
HCM D20/.75-MMT12	20.00	48.80	35.00	18.50	T12	15.0	28.0	20	0.06	SR 1052964	BLD T25/S7	SW6-T
HCM D25/1.0-MMT15	25.00	63.00	46.00	24.00	T15	20.0	40.0	33	0.13	SR 1051666	BLD T25/S7	SW6-T

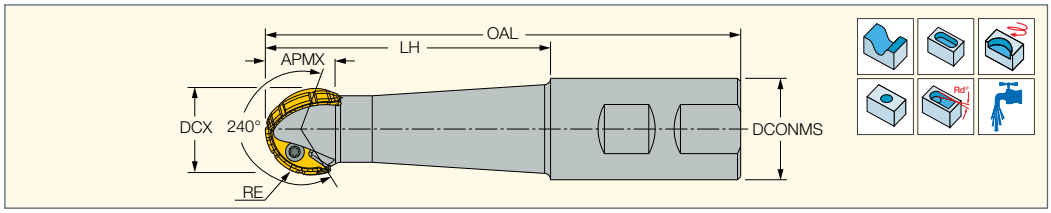
- The dimensions are for HBR inserts • Do not apply lubricant to the MULTI-MASTER threaded connection • For adaptation options, see page 261
- For user guide, see pages 542-547

(1) Cutting diameter maximum
(2) Refers to HBR inserts
(3) Refers to HBR inserts
(4) Width across flats (wrench should be ordered separately)
(5) Tool tightening torque Nxm (lbfxin)

For inserts, see pages: HBF-QF (533) • HBR-QF (533) • HCC-QF (534) • HCD-QF (534) • HCR (533)
For holders, see pages: MM CAB (667) • MM GRT (shanks) (86) • MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87)
• MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88)
• MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

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 D320-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 D400-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 542-547

(1) Cutting diameter maximum
(2) Number of flutes
(3) C-Cylindrical, W-Weldon
(4) Master insert identification

For inserts, see pages: BLR (535)

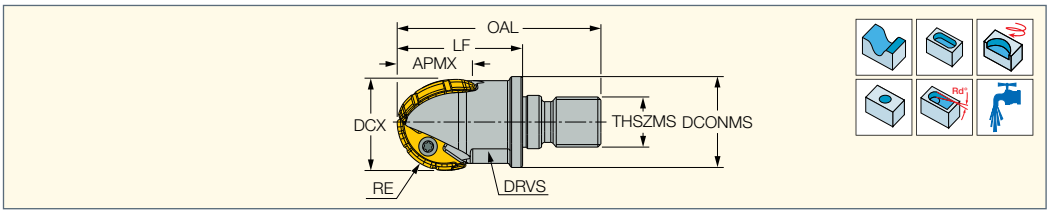
Spare Parts

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
BLP D32-80-160-W32	SR M4X0.7-L9.6 IP15		BLD IP15/S7	SW6-T
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 FLEXFIT
3 FLUTE BALL NOSE

BLP-M

Three Flute Fully Effective 240° Ball Nose Endmills with FLEXFIT Threaded Adaptation



Designation	DCX[1]	RE	NOF[2]	APMX	LF	OAL	THSZMS	DCONMS	DRVS[3]	MIID[4]	TQ_3[5]	kg
BLP D16-M08	16.00	8.00	3	12.00	23.00	40.50	M08	13.00	10.0	BLR D160-MFW	20	0.02
BLP D20-M08	20.00	10.00	3	15.00	28.00	45.50	M08	12.80	11.0	BLR D200-MFW	20	0.03
BLP D25-M12	25.00	12.50	3	18.75	35.00	57.00	M12	21.00	17.0	BLR D250-MFW	33	0.07
BLP D30-M12	30.00	15.00	3	22.50	40.00	62.00	M12	21.00	17.0	BLR D300-QCS	33	0.10
BLP D32-M12	32.00	16.00	3	24.00	40.00	62.00	M12	23.00	19.0	BLR D320-MFW	33	0.11
BLP D32-M16	32.00	16.00	3	24.00	40.00	65.00	M16	29.00	24.0	BLR D320-MFW	40	0.14
BLP D40-M16	40.00	20.00	3	30.00	53.00	78.00	M16	30.00	24.0	BLR D320-QCS	40	0.25

• For user guide, see pages 542-547• 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] Cutting diameter maximum

[2] Number of flutes

[3] Clamping wrench size

[4] Master insert identification

[5] Tool tightening torque Nxm (lbfxin)

For inserts, see pages: BLR (535)

For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

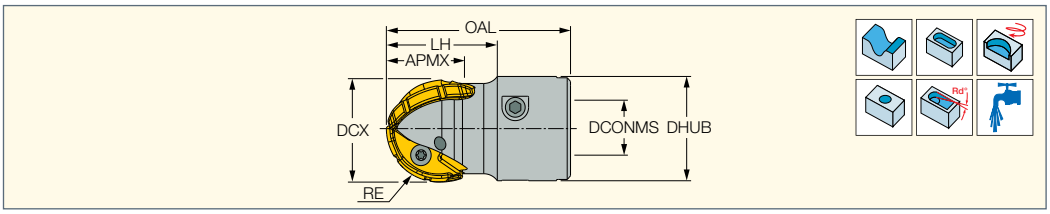
Spare Parts

Designation				
BLP D16-M08	SR M2.5X0.45-L6 IP7	IP-7/51		
BLP D20-M08	SR M3X0.5-L7.4 IP9	IP-9/151		
BLP D25-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	SW6-T
BLP D32-M12	SR M4X0.7-L9.6 IP15		BLD IP15/S7	SW6-T
BLP D32-M16	SR M4X0.7-L9.6 IP15		BLD IP15/S7	SW6-T
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 542-547

[1] Cutting diameter maximum

[2] Number of flutes

[3] Master insert identification

For inserts, see pages: BLR (535)

Spare Parts

Designation						
BLP D50-22	SR M6X1-L18 IP25	BLD IP25/S7	SW6-T	SR M10X1X14-10700[a]	SR M10X20-10600[b]	HW 5.0

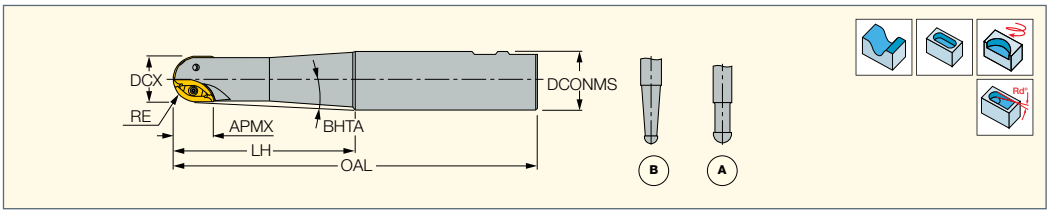
[a] Recommended tightening torque:22 Nxm

[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-C	20.00	10.00	17.00	2	160.00	65.0	20.00	-	-	C	A	1	BCR D200-QT	0.29
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-C	20.00	10.00	17.00	2	200.00	90.0	25.00	1.5	1.5	C	B	1	BCR D200-QT	0.55
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 542-547

[1] Center Cutting

[2] Cutting diameter maximum

[3] Number of inserts

[4] C-Cylindrical, W-Weldon

[5] 0 - Without coolant supply, 1 - With coolant supply

[6] Master insert identification

For inserts, see pages: BCR (535)

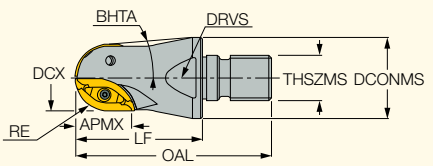
Spare Parts

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-C	SR 34-506/L			T-9/51
BCM D20-A-C20-CC	SR 34-506/L			T-9/51
BCM D20-B-C25-C	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	
BCM D25-B-C32-C	SR 14-601	BLD T15/S7	SW6-T	
BCM D30-A-W32-C	SR 14-544	BLD T15/S7	SW6-T	
BCM D32-A-W32-C	SR 14-544	BLD T15/S7	SW6-T	
BCM D32-B-W40-C	SR 14-544	BLD T15/S7	SW6-T	
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	

DROPMILLFLEXFIT

BCM-M

Ball Nose Endmills with FLEXFIT Threaded Adaptation Carrying Tangent Straight Edge Inserts for Finish Profiling



Designation	DCX(1)	RE	CICT(2)	APMX	LF	OAL	THSZMS	DCONMS	DRVS(3)	MIID(4)	TQ_3(5)	kg
BCM D25-M12	25.00	12.50	2	20.00	46.00	68.00	M12	23.00	19.0	BCR D250-QT	33	0.12
BCM D25-M16	25.00	12.50	2	20.00	46.00	71.00	M16	29.00	25.0	BCR D250-QT	40	0.16
BCM D32-M16	32.00	16.00	2	26.00	53.00	78.00	M16	29.00	25.0	BCR D320-CS	40	0.22

• For user guide, see pages 542-547 • 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) Cutting diameter maximum

(2) Number of inserts

(3) Clamping wrench size

(4) Master insert identification

(5) Tool tightening torque Nxm (lbfxin)

For inserts, see pages: BCR (535)

For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

Spare Parts

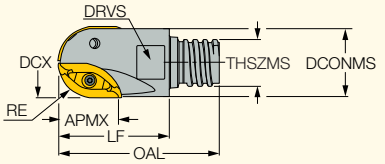
Designation			
BCM D25-M12	SR 14-601	BLD T15/S7	SW6-T
BCM D25-M16	SR 14-601	BLD T15/S7	SW6-T
BCM D32-M16	SR 14-544	BLD T15/S7	SW6-T

DROPMILL MULTI-MASTER

BCM-MM

Ball Nose Endmills with MULTI-MASTER Threaded Adaptation Carrying Tangent 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	20.00	10.00	17.00	2	35.00	48.80	15.0	18.50	T12	0	BCR D200..	0.06
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 261 • For user guide, see pages 542-547

(1) Center Cutting

(2) Cutting diameter maximum

(3) Number of inserts

(4) Clamping wrench size

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

(6) Master insert identification

For inserts, see pages: BCR (535)

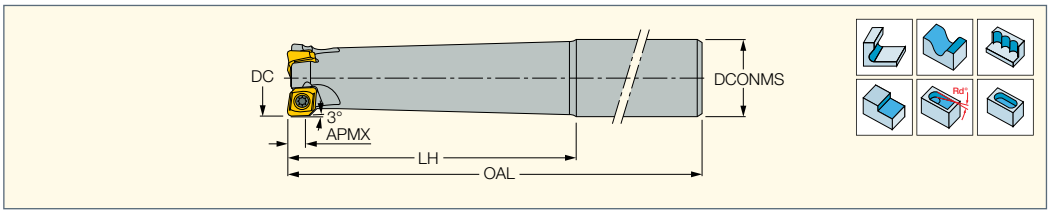
For holders, see pages: MM CAB (667) • MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

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	SR 34-506/L	T-9/51		
BCM D20-MMT12-CC	SR 34-506/L	T-9/51		
BCM D25-MMT15-C	SR 14-601		BLD T15/S7	SW6-T

TORMILL

E93CN-07
Toroidal Bull Nose Endmills
with CNHT...Inserts

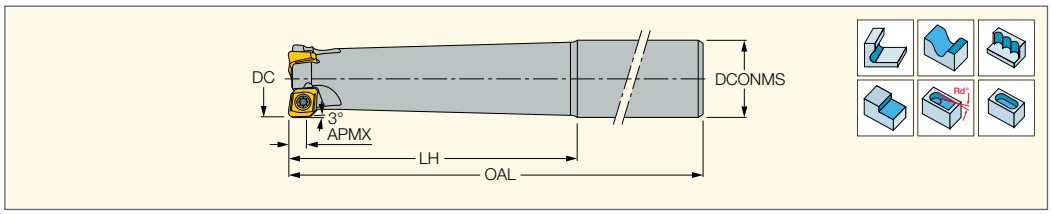


Designation	DC[1]	APMX	CICT[2]	LH	OAL	RMPX°[3]	DCONMS	Shank[4]	MIID[5]	kg
E93CN D16-2-L100-C15-07	16.00	5.00	2	20.0	100.00	4.0	15.00	C	CNHT 070315	0.13
E93CN D16-2-L110-C16-07	16.00	5.00	2	50.0	110.00	4.0	16.00	C	CNHT 070315	0.15
E93CN D20-3-L140-C19-07	20.00	5.00	3	20.0	140.00	3.0	19.00	C	CNHT 070315	0.29
E93CN D20-3-L160-C20-07	20.00	5.00	3	75.0	160.00	3.0	20.00	C	CNHT 070315	0.34
E93CN D25-4-L160-C24-07	25.00	5.00	4	20.0	160.00	2.0	24.00	C	CNHT 070315	0.54
E93CN D25-4-L180-C25-07	25.00	5.00	4	100.0	180.00	2.0	25.00	C	CNHT 070315	0.60

[1] The specified diameter is for inserts with a 1.0 mm radius.
[2] Number of inserts
[3] Maximum ramping angle
[4] C-Cylindrical
[5] Master insert identification
For inserts, see pages: CNHT/MT 07 (538)

TORMILL

E93CN-10
Toroidal Bull Nose Endmills
with ENHT... Inserts

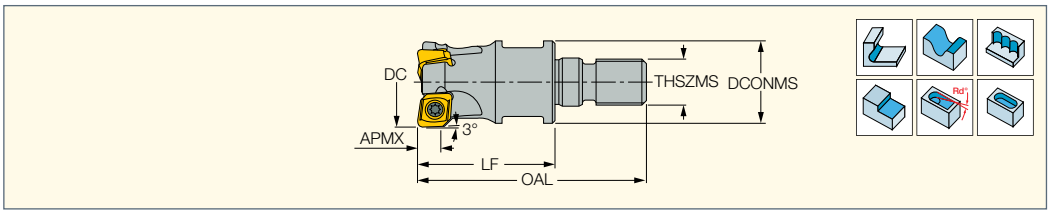


Designation	DC	APMX	CICT[1]	LH	OAL	RMPX°[2]	DCONMS	Shank	MIID[3]	kg		
E93CN D25-2-L180-C25-10	25.00	8.00	2	100.0	180.00	7.0	25.00	C	ENHT 100430	0.57	SR 34-506/L	T-9/51
E93CN D35-3-L200-C32-10	35.00	8.00	3	50.0	200.00	4.0	32.00	C	ENHT 100430	1.18	SR 34-506/L	T-9/51

[1] Number of inserts
[2] Maximum ramping angle
[3] Master insert identification
For inserts, see pages: ENHT (538)

TORMILLFLEXFIT

E93CN-M-07
Bull Nose Endmills with
FLEXFIT Threaded Adaptation
Carrying Toroidal Inserts



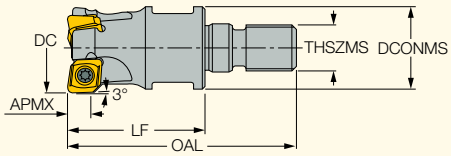
Designation	DC[1]	APMX	CICT[2]	LF	OAL	THSZMS	RMPX°[3]	DCONMS	DRVS[4]	MIID[5]	TQ_3[6]	kg
E93CN D16-2-M08-07	16.00	5.00	2	30.00	47.50	M08	4.0	13.00	10.0	CNHT 070315	20	0.03
E93CN D20-3-M10-07	20.00	5.00	3	30.00	50.00	M10	3.0	18.00	15.0	CNHT 070315	29	0.05
E93CN D25-4-M12-07	25.00	5.00	4	35.00	57.00	M12	2.0	21.00	17.0	CNHT 070315	33	0.09

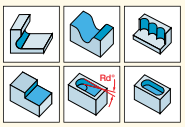
• When mounting items with FLEXFIT threaded adaptation to their holders, the mating surfaces and threaded areas must be thoroughly cleaned. Apply appropriate tightening torque to eliminate a gap between the mating faces. Estimated torque values are specified in the TQ_3 parameter
[1] The specified diameter is for inserts with a 1.0 mm radius.
[2] Number of inserts
[3] Maximum ramping angle
[4] Clamping wrench size
[5] Master insert identification
[6] Tool tightening torque Nxm (lbfxin)
For inserts, see pages: CNHT/MT 07 (538)
For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

TORMILLFLEXFIT

E93CN-M-10

Bull Nose Endmills with FLEXFIT 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 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) Number of inserts

(2) Maximum ramping angle

(3) Torque key size

(4) Master insert identification

(5) Tool tightening torque Nxm (lbfxin)

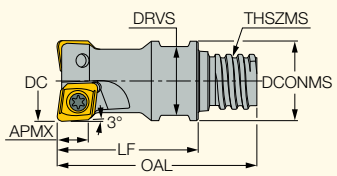
For inserts, see pages: ENHT (538)

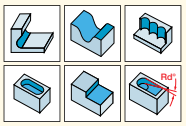
For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

TORMILL MULTI-MASTER

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	41.00	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 261 • For user guide, see pages 542-547

(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

(3) Maximum ramping angle

(4) Clamping wrench size

(5) Master insert identification

For inserts, see pages: CNHT/MT 07 (538)

For holders, see pages: MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

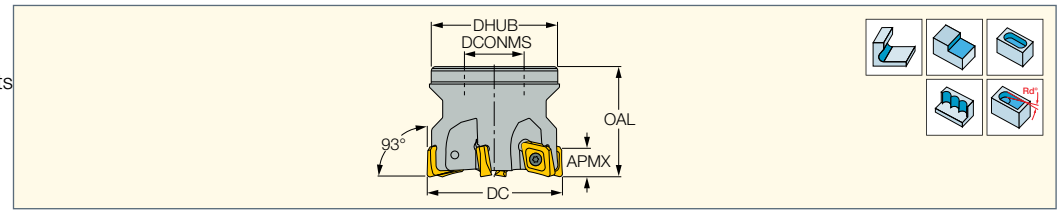
Diameter Change According to Insert Radius

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

TORMILL

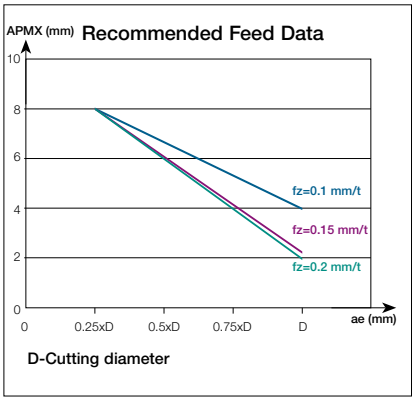
F93CN-10

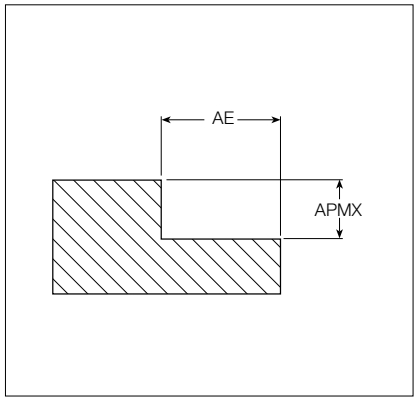
93° Face Mills with Toroidal Inserts



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
[3] Maximum ramping angle
[4] For adaptation options, see page 548
For inserts, see pages: ENHT (538)







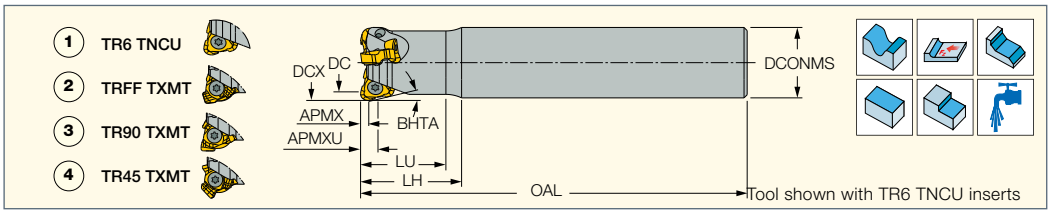
Diameter Change According to Insert Radius

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 Can 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	21.0	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	21.0	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	21.0	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	21.0	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	20.5	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	20.5	4	75.00	75.15	74.91	75.12

Designation	LH	LH_2	LH_3	LH_4	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	-	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	-	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	-	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	-	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	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	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
(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)

Tool	Insert	DCX	DC	APMX	LU	LH	OAL	RMPX[1]	For undercutting APMX_2	For undercutting 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

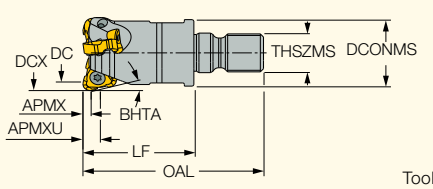
Designation		
TR6 ER D16-50-2-C16-07	SR M2.5X0.45-L6 IP7	IP-7/51
TR6 ER D20-60-4-C20-07	SR M2.5X0.45-L6 IP7	IP-7/51
TR6 ER D25-70-5-C25-07	SR M2.5X0.45-L6 IP7	IP-7/51
TR6 ER D32-80-6-C32-07	SR M2.5X0.45-L6 IP7	IP-7/51
TR6 ER D25-70-3-C25-10	SR 10508600	T-9/51
TR6 ER D32-80-4-C32-10	SR 10508600	T-9/51

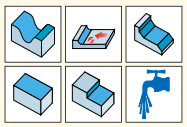
TOR6MILL FLEXFIT PROFILING

TR6 ER-M

Multifunction Endmills with FLEXFIT Threaded Adaptation That Can Carry Four Different Insert Geometries

1 TR6 TNCU
2 TRFF TXMT
3 TR90 TXMT
4 TR45 TXMT





Tool shown with TR6 TNCU inserts

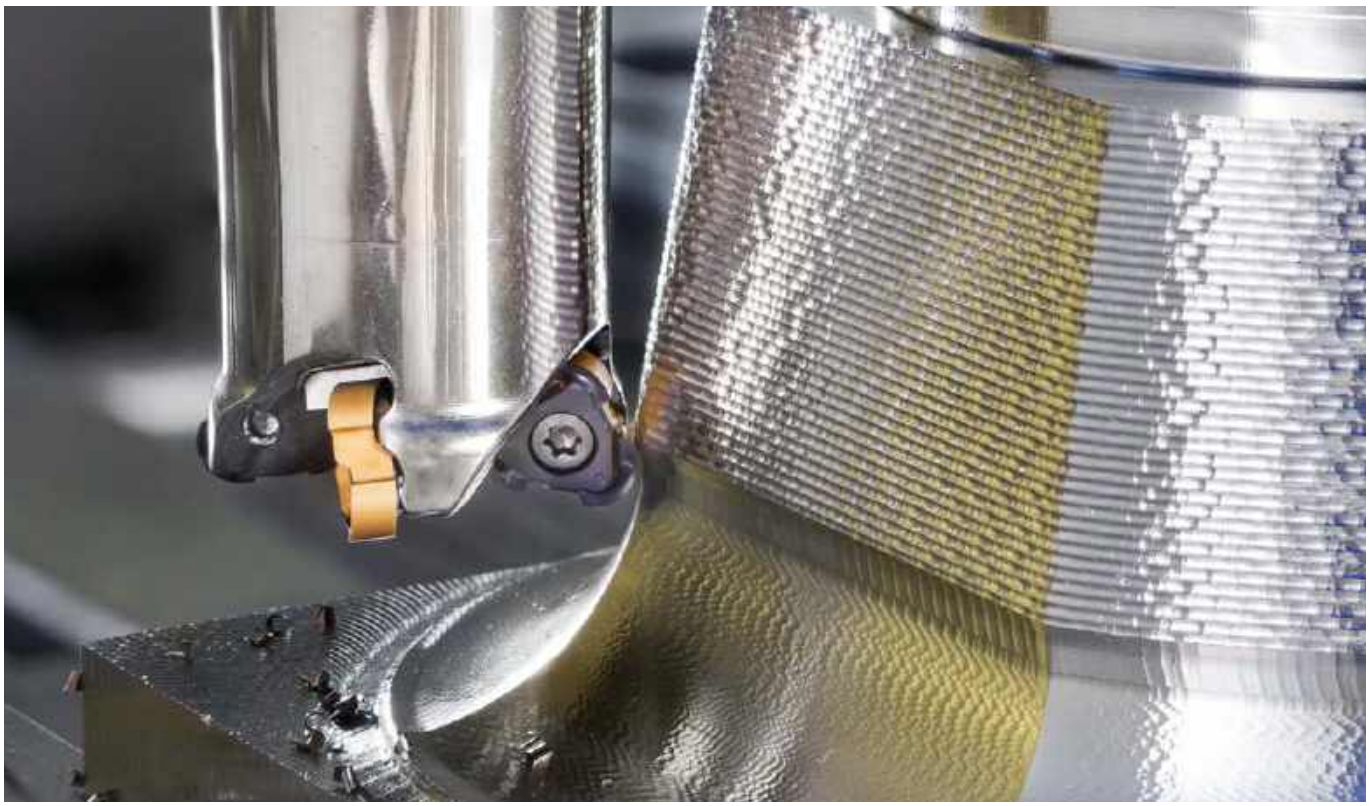
Designation	DCX[1]	DCX_2	DCX_3	DCX_4	DC	DC_2	DC_4	APMX	APMX_2	APMX_3	APMX_4	APMXU[2]	BHTA[3]	CICT[4]	LF	LF_2	LF_3	LF_4	OAL
TR6 ER D16/0.63-2-M08-07	16.00	16.00	16.00	-	14.00	12.10	-	1.00	0.60	2.50	-	2.00	21.0	2	24.64	24.90	25.00	-	42.20
TR6 ER D20/0.79-4-M10-07	20.00	20.00	20.00	-	18.00	16.10	-	1.00	0.60	2.50	-	2.00	21.0	4	24.64	24.90	25.00	-	44.70
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	21.0	5	29.64	29.90	30.00	-	51.70
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	21.0	6	34.64	34.90	35.00	-	59.70
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	21.0	6	34.64	34.90	35.00	-	59.70
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	20.5	3	24.97	25.15	25.12	25.12	47.00
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	20.5	4	34.97	35.15	35.12	35.12	60.00
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	20.5	5	34.97	35.15	35.12	35.12	60.00

Designation	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	42.40	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	44.90	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	51.90	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	59.90	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	59.90	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	47.15	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	60.15	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	60.15	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 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) Cutting diameter maximum
(10) Tool tightening torque Nxm (lbfxin)
(2) For undercutting with TR6 TNCU/TNMU inserts only
(3) For undercutting with TR6 TNCU/TNMU inserts only
(4) Number of inserts
(5) Master insert identification
(6) Master insert identification 2
(7) Master insert identification 3
(8) Master insert identification 4
(9) Torque key size

For inserts, see pages: TR45 TXMT (540) • TR6 TNCU/MU (539) • TR90 TXMT (539) • TRFF TXMT (539)
For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)



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	-	-

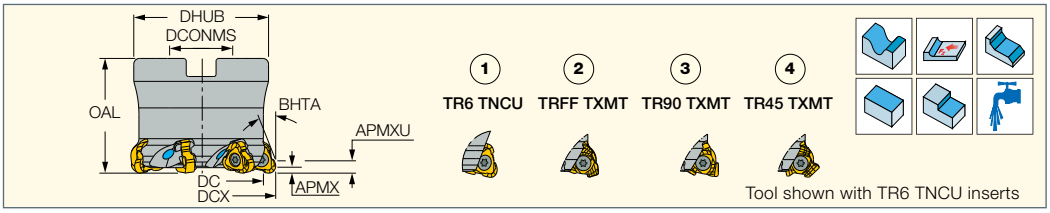
Spare Parts

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 Can 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]
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	20.5	6
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	20.5	6
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	20.5	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	20.5	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	20.5	8
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	20.5	8
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	20.5	10

Designation	OAL	OAL_2	OAL_3	OAL_4	DCONMS	DHUB	Arbor	MIID[5]	MIID_2[6]	MIID_3[7]	MIID_4[8]	kg
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
[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)

Spare Parts

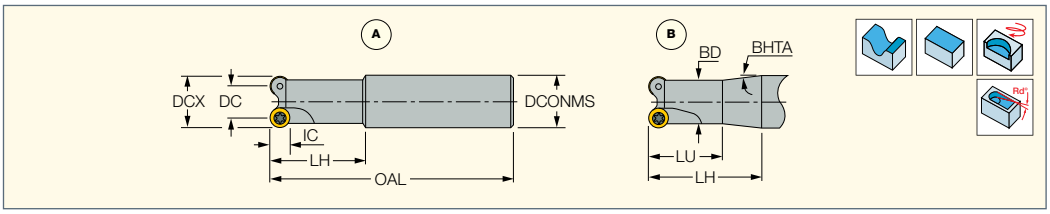
Designation			
TR6 FR D40-06-16-10	SR 10508600	T-9/51	SR M8X25DIN912
TR6 FR D42-06-16-10	SR 10508600	T-9/51	SR M8X25DIN912
TR6 FR D50-07-22-10	SR 10508600	T-9/51	SR M10X25 DIN912
TR6 FR D52-07-22-10	SR 10508600	T-9/51	SR M10X25 DIN912
TR6 FR D63-08-22-10	SR 10508600	T-9/51	SR M10X25 DIN912
TR6 FR D66-08-22-10	SR 10508600	T-9/51	SR M10X25 DIN912
TR6 FR D80-10-27-10	SR 10508600	T-9/51	SR M12X30DIN912

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	-	-

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
[3] C-Cylindrical
[4] Maximum ramping angle
[5] Master insert identification

For inserts, see pages: RXCR (526) • RXCW (526) • RXMT 10 (526)

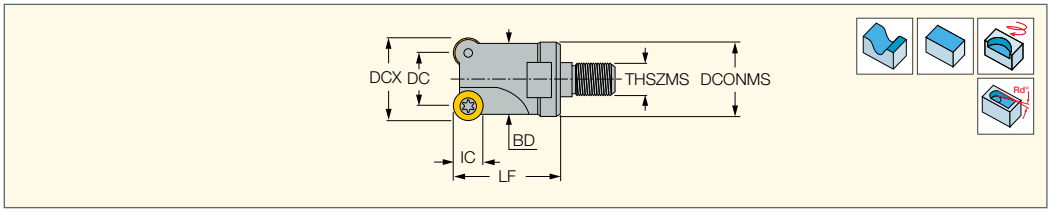
Spare Parts

Designation				
ER D07A12-3-C12-05	SR 34-533	T-6/51		
ER D08A15-2-C20-07	SR 14-560/S	T-8/53		
ER D08A16-2-C16-08	SR 14-560/S	T-8/53		
ER D17A25-3-C32-08		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

ROUNDMILLFLEXFIT

ER-M

Endmills with FLEXFIT Threaded Adaptation Carrying Round Inserts for Profiling and Milling Round Corners



Designation	DCX[1]	DC	IC	BD	CICT[2]	DCONMS	LF	THSZMS	RMPX°[3]	TQ_3[4]	kg		
ER D10A15-4-M08-05	15.00	10.00	5.00	13.00	4	13.00	23.00	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	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	M08	15.0	20	0.03	SR 14-560/S	T-8/53
ER D13A20-4-M10-07	20.00	13.00	7.00	18.00	4	18.00	30.00	M10	5.0	29	0.06	SR 14-560/S	T-8/53
ER D08A16-2-M08-08	16.00	8.00	8.00	13.50	2	13.00	25.00	M08	27.0	20	0.02	SR 14-560/S	T-8/53
ER D12A20-2-M10-08	20.00	12.00	8.00	17.20	2	18.00	32.00	M10	6.5	29	0.05	SR 14-560/S	T-8/53
ER D10A20-2-M10-10	20.00	10.00	10.00	18.00	2	18.00	30.00	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	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	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	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	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	M16	4.5	40	0.25	SR 14-562	T-10/51

• 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

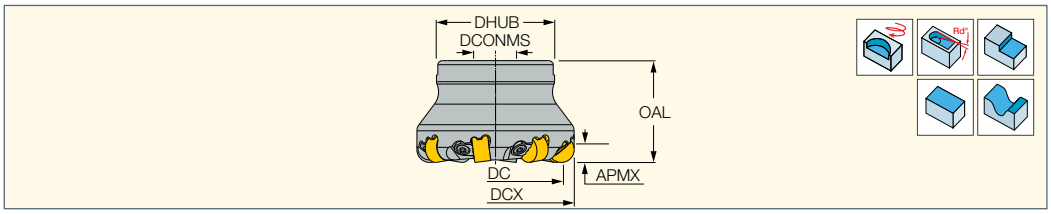
[1] Cutting diameter maximum
[2] Number of inserts
[3] Maximum ramping angle
[4] Tool tightening torque Nxm (lbfxin)

For inserts, see pages: R90CW (527) • RXCR (526) • RXCW (526) • RXMT 10 (526)
For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

ROUNDMILL

FRN

Face Mill for Wedge-Clamped Double-Sided Round Insert



Designation	DCX[1]	DC	APMX	OAL	DCONMS	DHUB	STDLET	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
(3) For interpolation
(4) For interpolation
(5) Maximum ramping angle

For inserts, see pages: RNGN-Ceramic (531)

Spare Parts

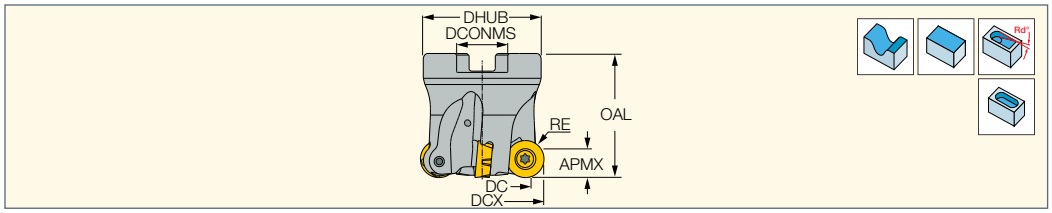
Designation			
FRN	WEDGE SCREW[a]	LW 1207C	T-W3

(a) Recommended tightening torque:4.8 Nm

ROUNDMILL

FRMT

Face Mills for Productive Machining of 3D Surfaces of Blades in Turbomachinery



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

(1) Cutting diameter maximum
(2) Number of inserts
(3) Maximum ramping angle
(4) For adaptation see page 548
(5) Insert identification

For inserts, see pages: RPHX/RPMX (530)

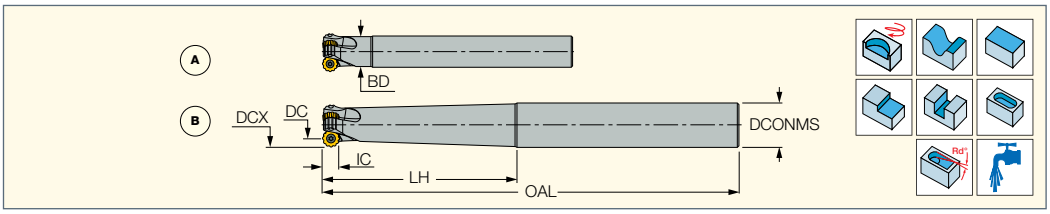
Spare Parts

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	BLD T15/S7
FRMT D038A050-06-22-12	SR 76-2067	SW6-T	BLD T15/S7
FRMT D040A052-05-22-12	SR 76-2067	SW6-T	BLD T15/S7
FRMT D040A052-06-22-12	SR 76-2067	SW6-T	BLD T15/S7

MILLSHRED ROUND LINE

ERW

Rough Profiling Endmills with Serrated or Regular Round Inserts



Designation	DCX[1]	DC	IC	CICT[2]	LH	OAL	DCONMS	Shank[3]	BD	RMPX°[4]	Type
ERW D015A025-B-3-C25-10	25.00	15.00	10.00	3	50.0	150.00	25.00	C	-	3.0	B
ERW D022A032-A-4-C25-10	32.00	22.00	10.00	4	-	170.00	25.00	C	-	4.0	A
ERW D030A040-A-5-C32-10	40.00	30.00	10.00	5	-	200.00	32.00	C	-	3.0	A
ERW D013A025-B-2-C25-12	25.00	13.00	12.00	2	50.0	180.00	25.00	C	-	2.0	B
ERW D020A032-A-3-C25-12	32.00	20.00	12.00	3	40.0	200.00	25.00	C	24.00	7.0	A
ERW D020A032-B-3-C32-12	32.00	20.00	12.00	3	140.0	300.00	32.00	C	-	7.0	B
ERW D028A040-A-4-C32-12	40.00	28.00	12.00	4	50.0	250.00	32.00	C	31.00	5.0	A

• For user guide, see pages 287-289

[1] Cutting diameter maximum

[2] Number of inserts

[3] C-Cylindrical

[4] Maximum ramping angle

For inserts, see pages: RCMT/RCCT-MO (528) • RCMT/RCMW/RCCW-FW (529) • RCMW/RCCW-MO (528)

Spare Parts

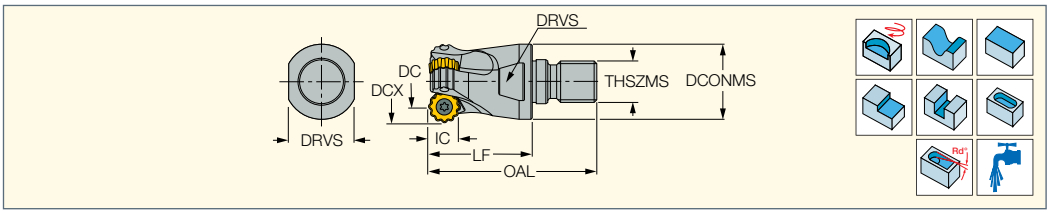
Designation				
ERW D015A025-B-3-C25-10	SR 34-506/L	T-9/51		
ERW D022A032-A-4-C25-10	SR 34-506/L	T-9/51		
ERW D030A040-A-5-C32-10	SR 34-506/L	T-9/51		
ERW D013A025-B-2-C25-12	SR 14-601		BLD T15/S7	SW6-T
ERW D020A032-A-3-C25-12	SR 14-601		BLD T15/S7	SW6-T
ERW D020A032-B-3-C32-12	SR 14-601		BLD T15/S7	SW6-T
ERW D028A040-A-4-C32-12	SR 14-601		BLD T15/S7	SW6-T



MILLSHREDFLEXFIT ROUND LINE

ERW-M

Rough Profiling Tools with a FLEXFIT 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 287-289 • 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) Cutting diameter maximum

(2) Number of inserts

(3) Clamping wrench size

(4) Maximum ramping angle

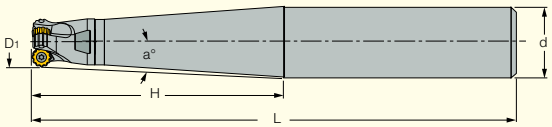
(5) Tool tightening torque Nxm (lbfxin)

For inserts, see pages: RCMT/RCCT-MO (528) • RCMT/RCMW/RCCW-FW (529) • RCMW/RCCW-MO (528)

For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

ERW-M

Assembly of Button and Shredding Insert Endmills with FLEXFIT 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	RCMT 1004... RCCT 1004...
	S M12-L200-C32	25	108	230	1.9	32	3	
ERW D022A032-4-M16-10	S M16-L95-C32	32	65	125	-	32	4	
	S M16-L230-C32	32	80	260	-	32	4	
ERW D013A025-2-M12-12	S M12-L086-C25	25	70	126	-	25	2	RCMT 1206... RCCW 1206... RCCT 1206...
	S M12-L200-C32	25	118	240	1.8	32	2	
ERW D020A032-3-M16-12	S M16-L95-C32	32	75	85	-	32	7	
	S M16-L230-C32	32	90	220	-	32	7	
ERW D028A040-4-M16-12	S M16-L95-C32	40	75	85	-	32	5	
	S M16-L230-C32	40	90	220	-	32	5	

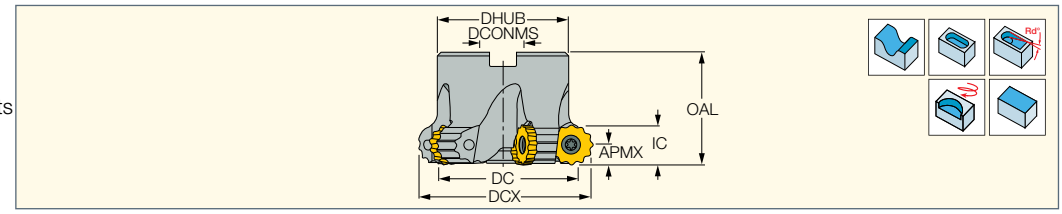
Spare Parts

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
ERW D020A032-3-M16-12	SR 14-601		BLD T15/S7	SW6-T
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 287-289

[1] Cutting diameter maximum
[2] Number of inserts
[3] Maximum ramping angle
[4] 0 - Without coolant supply, 1 - With coolant supply
[5] For adaptation options, see page 548
[6] Master insert identification

For inserts, see pages: RCMT/RCCT-MO (528) • RCMT/RCMW/RCCW-FW (529) • RCMW/RCCW-MO (528)

Spare Parts

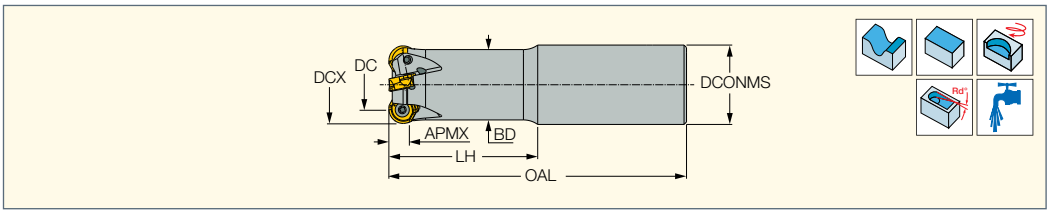
Designation					
FRW D030A040-05-16-10	SR 34-506/L			T-9/51	SR M8X25DIN912
FRW D028A040-04-16-12	SR 14-601	BLD T15/S7	SW6-T		SR M8X25DIN912
FRW D038A050-05-22-12	SR 14-601	BLD T15/S7	SW6-T		SR M10X25 DIN912
FRW D040A052-05-22-12	SR 14-601	BLD T15/M7	SW6-T		SR M10X25 DIN912
FRW D051A063-06-22-12	SR 14-601	BLD T15/M7	SW6-T		SR M10X25 DIN912
FRW D054A066-06-27-12	SR 14-601	BLD T15/M7	SW6-T		
FRW D068A080-07-27-12	SR 14-601	BLD T15/M7	SW6-T		
FRW D034A050-04-22-16	SR 14-536/M	BLD T20/M7	SW6-T		SR M10X30 DIN912
FRW D036A052-04-22-16	SR 14-536/M	BLD T20/M7	SW6-T		SR M10X30 DIN912
FRW D047A063-05-22-16	SR 14-536/M	BLD T20/M7	SW6-T		SR M10X25 DIN912
FRW D050A066-05-22-16	SR 14-536/M	BLD T20/M7	SW6-T		SR M10X25 DIN912
FRW D050A066-05-27-16	SR 14-536/M	BLD T20/M7	SW6-T		SR M12X30DIN912
FRW D064A080-06-27-16	SR 14-536/M	BLD T20/M7	SW6-T		
FRW D084A100-07-32-16	SR 14-536/M	BLD T20/M7	SW6-T		
FRW D109A125-07-40-16	SR 14-536/M	BLD T20/L7	SW6-T		
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

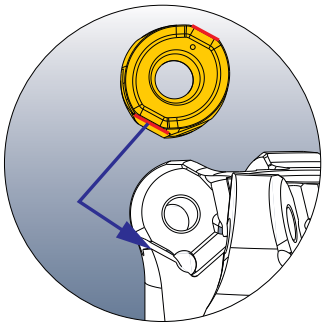


Designation	DCX(1)	DC	BD	CICT(2)	APMX	LH	OAL	DCONMS	Shank(3)	RMPX°(4)	MIID(5)	kg
H400 ER D20-2-060-C20-10	20.00	10.00	17.50	2	7.50	60.0	160.00	20.00	C	-	H400 RNHU 1004-ML	0.33
H400 ER D25-3-060-C25-10	25.00	15.00	21.60	3	7.50	60.0	120.00	25.00	C	5.8	H400 RNHU 1004-ML	0.35
H400 ER D32-5-060-C32-10	32.00	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
(3) C-Cylindrical
(4) Maximum ramping angle
(5) Master insert identification

For inserts, see pages: H400 RNHU (532)

Insert Clamping Orientation



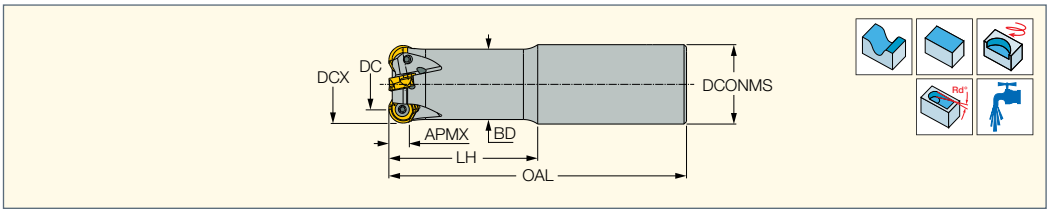
Spare Parts

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
(3) C-Cylindrical
(4) Maximum ramping angle
(5) Master insert identification

For inserts, see pages: H400 RNHU (532)

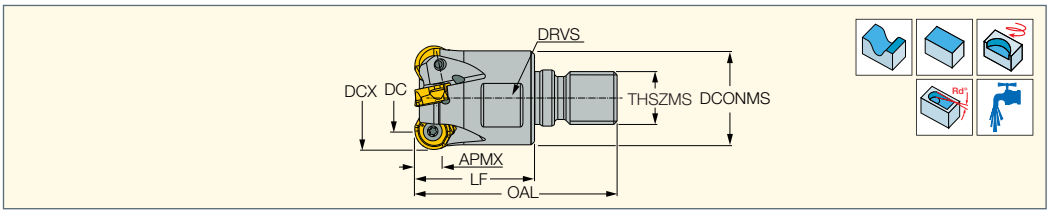
Spare Parts

Designation		
H400 ER-12	SR 14-571	T-10/51

HELIDO FLEXFIT
ROUND H400 LINE

H400 ER-M

Endmills with FLEXFIT 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 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] Cutting diameter maximum

[2] Number of inserts

[3] Clamping wrench size

[4] Maximum ramping angle

[5] Master insert identification

[6] Tool tightening torque Nxm (lbfxin)

For inserts, see pages: H400 RNHU (532)

For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314)• CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

Spare Parts

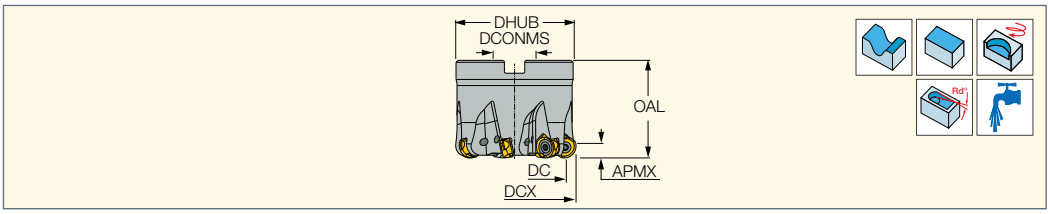
Designation		
H400 ER D20-2-M10-10	SR 10508600	T-9/51
H400 ER D25-3-M12-10	SR 10508600	T-9/51
H400 ER D32-5-M16-10	SR 10508600	T-9/51
H400 ER D25-2-M12-12	SR 14-571	T-10/51
H400 ER D32-4-M16-12	SR 14-571	T-10/51
H400 ER D40-5-M16-12	SR 14-571	T-10/51



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
[3] Maximum ramping angle
[4] For adaptation options, see page 548
[5] Master insert identification
For inserts, see pages: H400 RNHU (532)

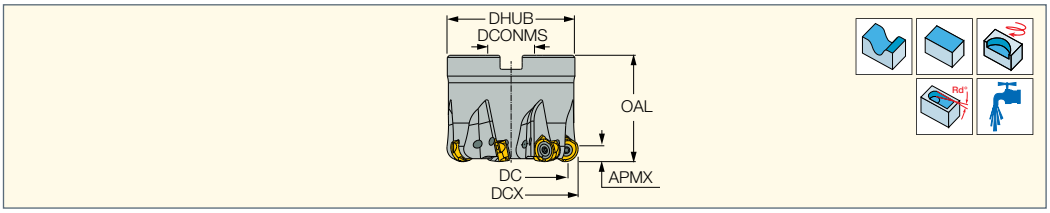
Spare Parts

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

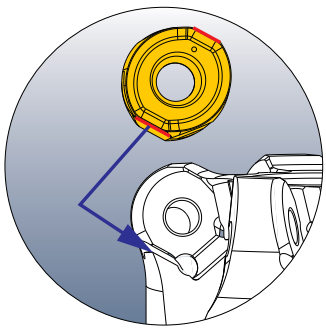
Face Mills Carrying Double-Sided Inserts with Four 6 mm Radius Cutting Edges



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
[3] Maximum ramping angle
[4] For adaptation options, see page 548
[5] Master insert identification
For inserts, see pages: H400 RNHU (532)

Insert Clamping Orientation



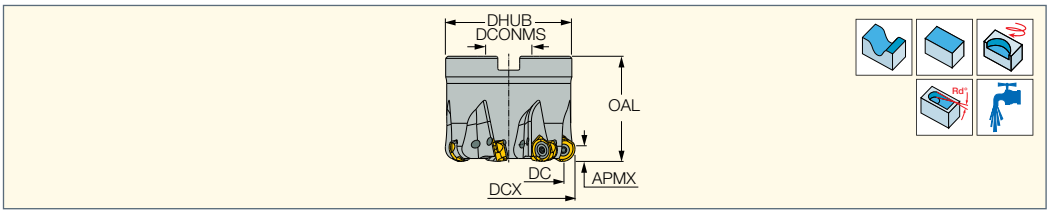
Spare Parts

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

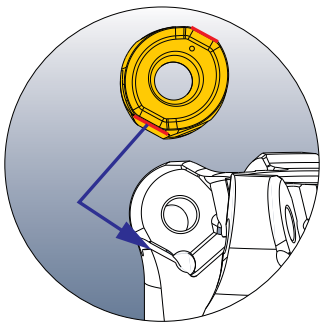


Designation	DCX(1)	DC	CICT(2)	APMX	OAL	DHUB	DCONMS	RMPX°(3)	Arbor(4)	kg	MIID(5)
H400 FR D050-05-22-16	50.00	34.00	5	12.00	50.00	47.00	22.00	3.3	A	0.41	H400 RNHU 1606-AX
H400 FR D063-06-22-16	63.00	47.00	6	12.00	50.00	48.00	22.00	2.5	A	0.74	H400 RNHU 1606-AX
H400 FR D066-06-27-16	66.00	50.00	6	12.00	50.00	60.60	27.00	2.3	A	0.79	H400 RNHU 1606-AX
H400 FR D080-07-27-16	80.00	64.00	7	12.00	50.00	63.60	27.00	1.8	A	1.09	H400 RNHU 1606-AX
H400 FR D100-09-32-16	100.00	84.00	9	12.00	49.60	84.00	32.00	1.3	A	0.00	H400 RNHU 1606-AX
H400 FR D125-11-40-16	125.00	109.00	11	12.00	55.00	84.00	40.00	1.0	A	3.02	H400 RNHU 1606-AX

(1) Cutting diameter maximum
(2) Number of inserts
(3) Maximum ramping angle
(4) For adaptation options, see page 548
(5) Master insert identification

For inserts, see pages: H400 RNHU (532)

Insert Clamping Orientation



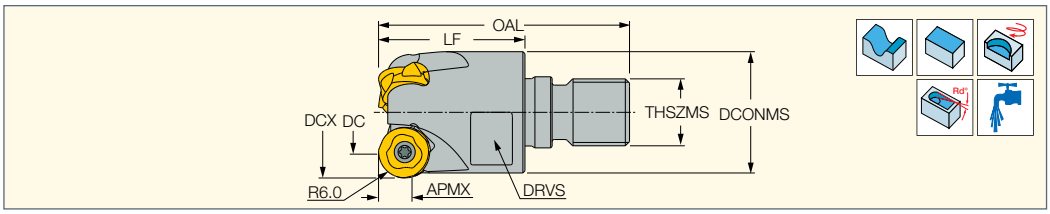
Spare Parts

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 FLEXFIT ROUND H606 LINE

H606 ER-M

Endmills with FLEXFIT Threaded Connection Carrying Double-Sided Inserts with Six 6 mm Radius 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 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) Cutting diameter maximum
(2) Number of inserts
(3) Clamping wrench size
(4) Maximum ramping angle
(5) Tool tightening torque Nxm (lbfxin)
(a) For limiting torque, use optional 7007383 BLD 4 T10-3.2NM blade & 7007321 HSD 4-3.2NM handle

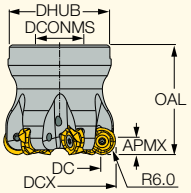
For inserts, see pages: H606 RXCU 1206 (532)

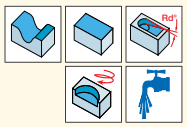
For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

HELIDO ROUND H606 LINE

H606 FR-12

Face Mills Carrying Double-Sided Inserts with Six 6 mm Radius 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
[3] Maximum ramping angle
[4] For adaptation options, see page 548
For inserts, see pages: H606 RXCU 1206 (532)

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

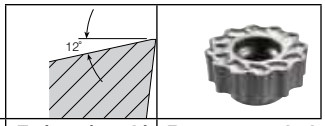
[a] For limiting torque, use optional 7007383 BLD 4 T10-3.2NM blade & 7007321 HSD 4-3.2NM handle



Machining Recommendations

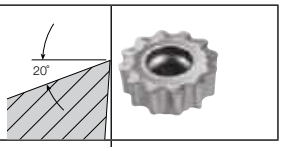
- Excellent tool stability
- Chips split into small pieces
- Optimal chip flow with easy evacuation, even from deep cavities
- High tooth load capability, up to 8 mm depth-of-cut, which will significantly reduce machining time
- Small cutting forces, therefore the required machining power is low

RCMT 1607-FW



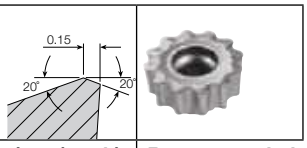
Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	V_c (m/min)	F_z (mm/tooth)	Recommended
Low carbon steel	125-180	C15, ST37, 1.0401	4	150	0.3	✓✓
Low alloy steel	170-220	CK45,1.1231,16MnCr5	4	150	0.3	✓✓
High alloy steel	200-260	X20Cr13,1.4923	4	150	0.3	✓✓
Tool & die steel	280-370	1.2379,1.2311	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	-	-	-	-

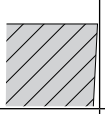
RCMT 1607 FW-T20



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

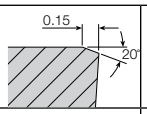
RCCW 1607-FW





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	-	-	-	-

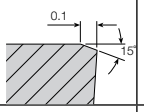
RCMW 1607-T-FW





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





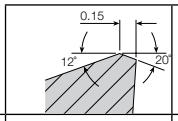
Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	V_c (m/min)	F_z (mm/tooth)	Recommended
Low carbon steel	125-180	C15,ST37,1.0401	4	150	0.3	✓
Low alloy steel	170-220	CK45,1.1231,16MnCr5	4	150	0.3	✓✓
High alloy steel	200-260	X20Cr13,1.4923	4	150	0.3	✓✓
Tool & die steel	280-370	1.2379,1.2311	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

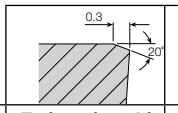
RCMT 1607MO





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



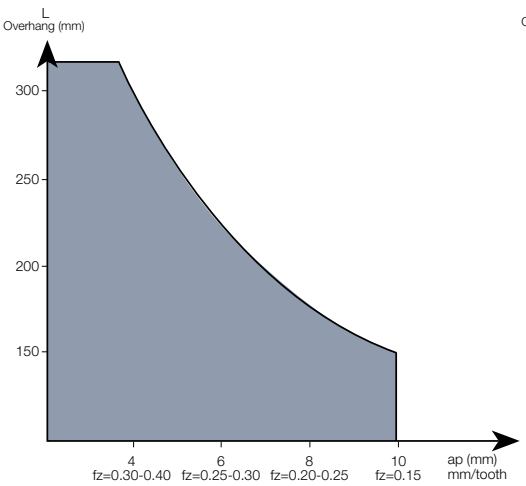


Material Group	Hardness (HB)	Typical Materials	Depth Ap (mm)	V_c (m/min)	F_z (mm/tooth)	Recommended
Low carbon steel	125-180	C15,ST37,1.0401	-	-	-	-
Low alloy steel	170-220	CK45,1.1231,16MnCr5	2	180	0.7	✓✓
High alloy steel	200-260	X20Cr13,1.4923	2	180	0.7	✓✓
Tool & die steel	280-370	1.2379,1.2311	2	150	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	-	-	-	-

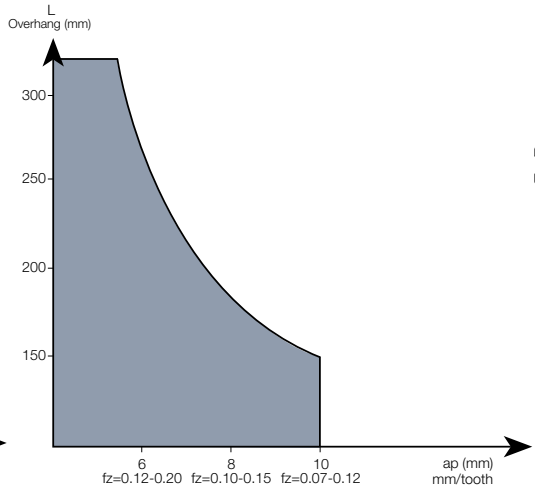
✓✓ Most Recommended
✓ Second option

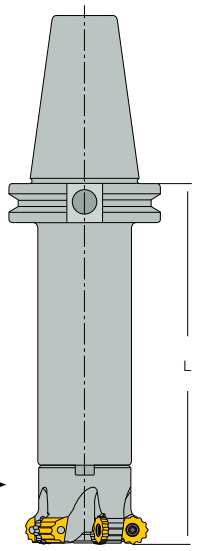
Feed Limit Recommendations as a Function of Overhang and Depth of Cut

Carbon and Alloy Steel

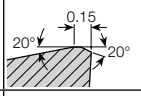
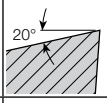
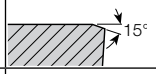


Stainless Steel





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	VV	V	V	V	VV
Mold steel	VV	V	V	V	VV
Stainless steel		VV(1)	VV(2)	VV	
Grey cast iron	V				VV
Aluminum			VV	V	
High temp. alloys	V		V	VV	
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

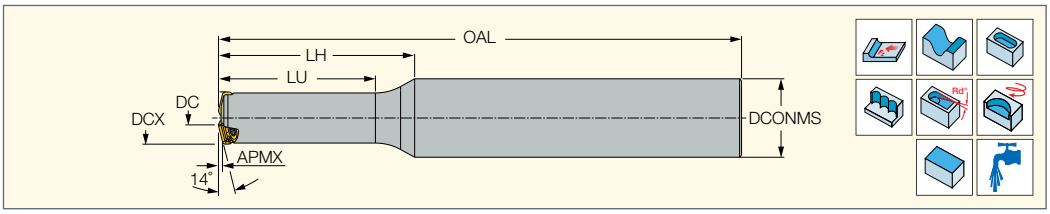
FAST FEED MILLING TOOLS



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
(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 (445)

Spare Parts

Designation		
FFT3 EFM-02	SR M2X0.4-2.9 T6-HG(a)	T-6/5 MAGNET 3X3

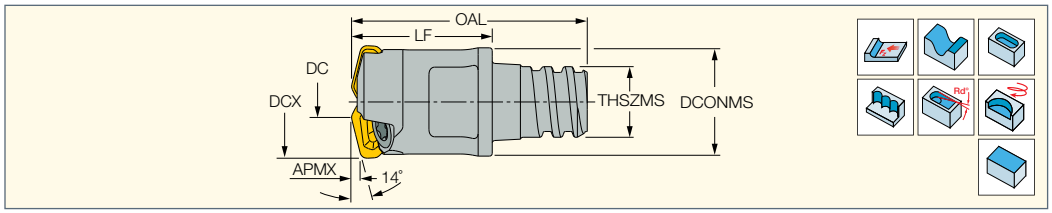
(a) Recommended tightening torque:0.5 N*m

NANO FEED MILL

MULTI-MASTER

FFT3 EFM-MM 02

Small Diameter Endmills with a MULTI-MASTER Threaded Adaptation Carrying 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 pages 261 • For user guide, see pages 542-547 • 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
(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 (445)

For holders, see pages: MM CAB (667) • MM CAB-T-T (91) • MM GRT (shanks) (86) • MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

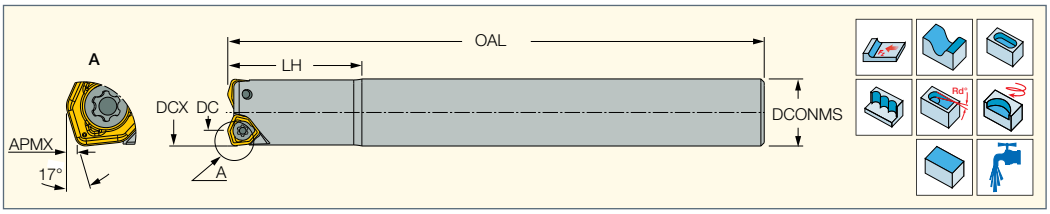
Spare Parts

Designation		
FFT3 EFM-MM 02	SR M2X0.4-2.9 T6-HG	T-6/5 MAGNET 3X3

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)	LH	OAL	DCONMS	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	20.0	80.00	12.00	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	20.0	80.00	10.00	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	25.0	120.00	12.00	C	4.7	19.60	23.00	FFT3 WXMT 030206T	0.14
FFT3 EFM D16-4-140-C16-03	16.00	11.60	0.60	2.2	4	35.0	140.00	16.00	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	43.0	160.00	20.00	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	53.0	180.00	25.00	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
(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 (521)

Spare Parts

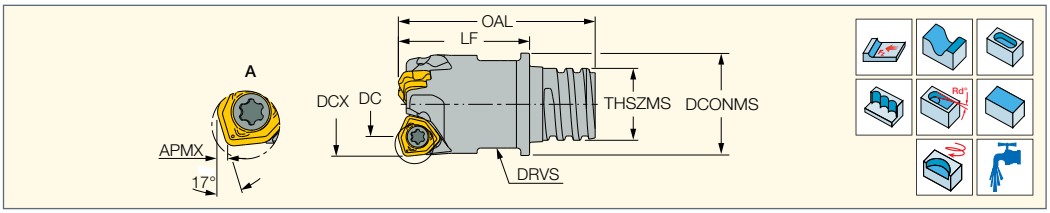
Designation		
FFT3 EFM-03	TS 18041I/HG(a)	T-6IP/51

(a) Recommended tightening torque:0.5 Nxm

MICRO 3 FEED
MF 300 ENDMILL
MULTI-MASTER

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	0.00

• 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
(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 (521)
For holders, see pages: MM CAB (667) • MM CAB-T-T (91) • MM GRT (shanks) (86) • MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

Spare Parts

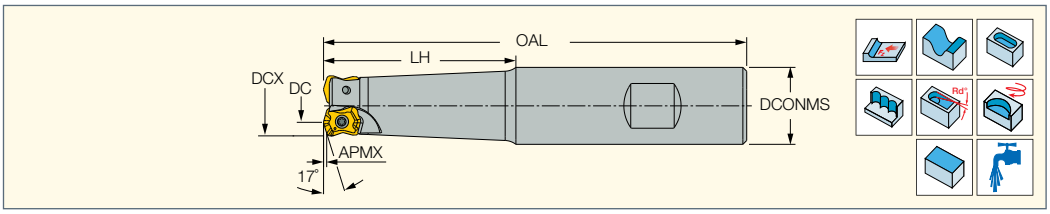
Designation		
FFT3 EFM-MM 03	TS 18041I/HG(a)	T-6IP/51

(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]	LH	KAPR[4]	OAL	DCONMS	RMPX°[5]	MDN[6]	MDX[7]	Shank[8]	Rg[9]	MIID[10]	TQ[11]	kg
FFX4 ED12-1-030-C12-04	12.00	4.60	0.80	3.7	1	30.0	17.0	90.00	12.00	3.6	16.60	23.00	C	1.80	FFX4 XNMU 040310T	0.9	0.07
FFX4 ED16-2-030-C16-04	16.00	8.60	0.80	3.7	2	30.0	17.0	120.00	16.00	4.3	24.60	31.00	C	1.80	FFX4 XNMU 040310T	0.9	0.16
FFX4 ED16-2-050-W20-04	16.00	8.60	0.80	3.7	2	50.0	17.0	110.00	20.00	4.3	24.60	31.00	W	1.80	FFX4 XNMU 040310T	0.9	0.20
FFX4 ED20-3-050-C20-04	20.00	12.60	0.80	3.7	3	50.0	17.0	140.00	20.00	2.7	32.60	39.00	C	1.80	FFX4 XNMU 040310T	0.9	0.29
FFX4 ED20-3-060-W20-04	20.00	12.60	0.80	3.7	3	60.0	17.0	120.00	20.00	2.7	32.60	39.00	W	1.80	FFX4 XNMU 040310T	0.9	0.24
FFX4 ED25-4-060-C25-04	25.00	17.60	0.80	3.7	4	60.0	17.0	150.00	25.00	1.8	42.60	49.00	C	1.80	FFX4 XNMU 040310T	0.9	0.50
FFX4 ED25-4-080-W25-04	25.00	17.60	0.80	3.7	4	80.0	17.0	140.00	25.00	1.8	42.60	49.00	W	1.80	FFX4 XNMU 040310T	0.9	0.45
FFX4 ED32-5-080-W32-04	32.00	24.60	0.80	3.7	5	80.0	17.0	150.00	32.00	1.2	56.60	63.00	W	1.80	FFX4 XNMU 040310T	0.9	0.80
FFX4 ED32-5-120-C32-04	32.00	24.60	0.80	3.7	5	120.0	17.0	205.00	32.00	1.2	56.60	63.00	C	1.80	FFX4 XNMU 040310T	0.9	1.02

- 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
[4] Tool cutting edge angle
[5] Maximum ramping angle
[6] Machinable diameter minimum for interpolation
[7] Machinable diameter maximum for interpolation
[8] C-Cylindrical, W-Weldon
[9] Radius for programming
[10] Master insert identification
[11] Recommended tightening torque (N*m) for insert screw

For inserts, see pages: FFX4 XNMU-04 (523)

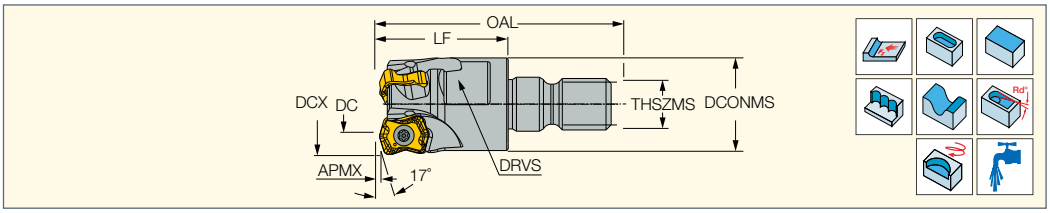
Spare Parts

Designation		
FFX4 ED	SR M2.5X6-T7-60	T-7/51

LOGIQ4FEED HIGH FEED MILLING
FLEXFIT

FFX4 ED-M

Endmills with FLEXFIT 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]	Rg[8]	MIID[9]	TQ[10]	TQ_3[11]	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	1.80	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	19.0	1.80	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	1.80	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	1.80	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	1.80	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 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] Cutting diameter maximum
[2] Number of inserts
[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] Radius for programming
[9] Master insert identification
[10] Recommended tightening torque (N*m) for insert screw
[11] Tool tightening torque Nxm (lbfxin)

For inserts, see pages: FFX4 XNMU-04 (523)
For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

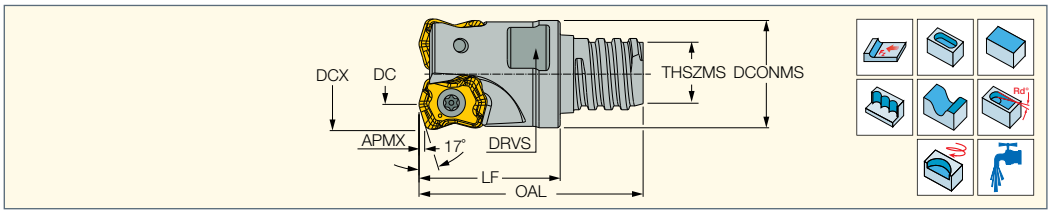
Spare Parts

Designation		
FFX4 ED-M	SR M2.5X6-T7-60	T-7/51

LOGIQ4FEED HIGH FEED MILLING
MULTI-MASTER

FFX4 ED-MM

Endmills with MULTI-MASTER 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)	Rg(10)	kg
FFX4 ED16/.63-2-MMT10-04	16.00	8.60	2	0.80	3.7	T10	20.00	31.75	15.20	4.3	24.60	31.00	13.0	FFX4 XNMU 040310T	0.9	1.80	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	1.80	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	1.80	0.14

- To generate a straight surface without cusps,the width of cut must not exceed DC

(1) Cutting diameter maximum
(2) Number of inserts
(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) Radius for programming

For inserts, see pages: FFX4 XNMU-04 (523)
For holders, see pages: MM CAB-T-T (91) • MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

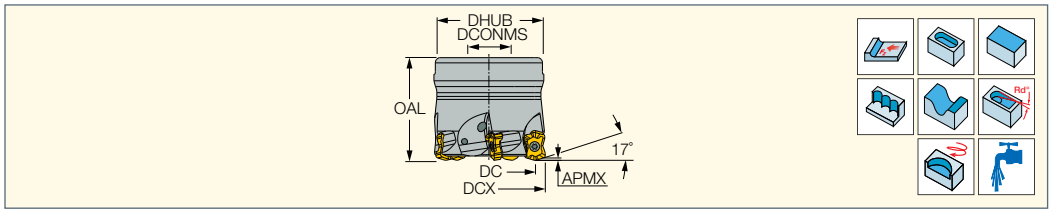
Spare Parts

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	Rg(7)	MIID(8)	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	1.80	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	1.80	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	1.80	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	1.80	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	1.80	FFX4 XNMU 040310T	0.44

- To generate a straight surface without cusps, the width of cut must not exceed DC

(1) Cutting diameter maximum
(2) Number of inserts
(3) Maximum plunging width
(4) Maximum ramping angle
(5) Machinable diameter minimum for interpolation
(6) Machinable diameter maximum for interpolation
(7) Radius for programming
(8) Master insert identification

For inserts, see pages: FFX4 XNMU-04 (523)

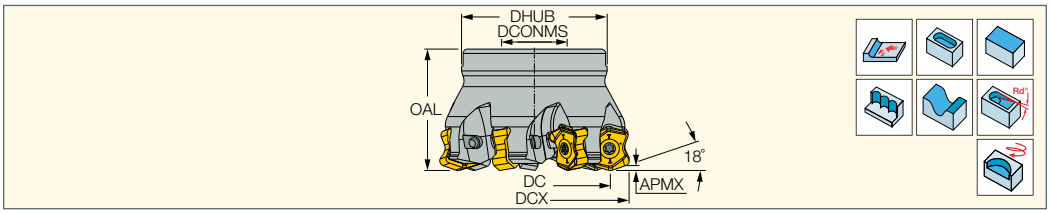
Spare Parts

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	Rg(5)	MIID(6)	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	4.00	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	4.00	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	4.00	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	4.00	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	4.00	FFX4 XNMU 080620T	2.40

- To generate a straight surface without cusps, the width of cut must not exceed DC

(1) Cutting diameter maximum
(2) Number of inserts
(3) For interpolation
(4) For interpolation
(5) Radius for programming
(6) Master insert identification

For inserts, see pages: FFX4 XNMU-08 (524)

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

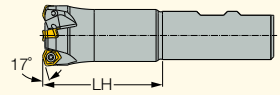
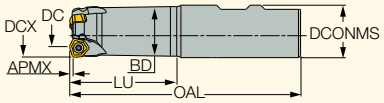
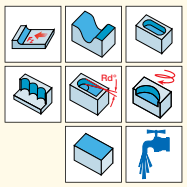


Fig. 2





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 522
- To generate a straight surface without cusps, the width of cut must not exceed DC
- For user guide, see pages 542-547

(1) Cutting diameter maximum
(2) Number of inserts
(3) C-Cylindrical, W-Weldon
(4) Maximum ramping angle
(5) For interpolation
(6) For interpolation
(8) Recommended tightening torque (N*m) for insert screw

For inserts, see pages: H600 WXCU (522)

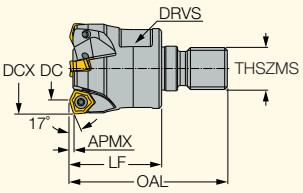
Spare Parts

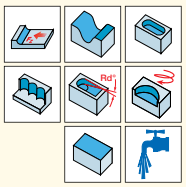
Designation				
FF EWX D...-04	SR M2.5X6-T7-60	T-7/51		
FF EWX D...-05	SR 10508600	T-9/51		
FF EWX D...-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH

HELI6FEED FLEXFIT UPFEED LINE

FF EWX-M

Fast Feed Endmills with FLEXFIT 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 522 • To generate a straight surface without cusps, the width of cut must not exceed DC
- For user guide, see pages 542-547

(1) Cutting diameter maximum
(2) Number of inserts
(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 (lbfxin)

For inserts, see pages: H600 WXCU (522)
For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

Spare Parts

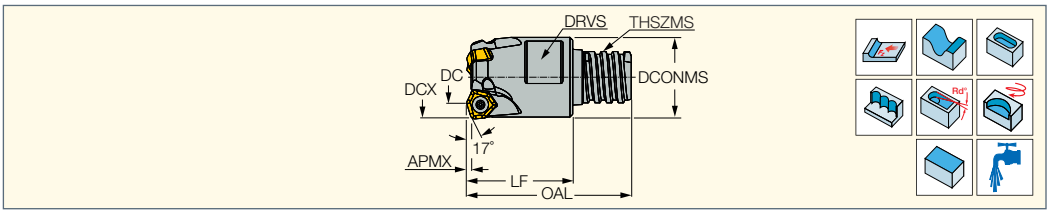
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FF EWX D25-4-M12-04	SR M2.5X6-T7-60	T-7/51		
FF EWX D25-3-M12-05	SR 10508600	T-9/51		
FF EWX D32-4-M16-05	SR 10508600	T-9/51		
FF EWX D35-4-M16-05	SR 10508600	T-9/51		
FF EWX D40-5-M16-05	SR 10508600	T-9/51		
FF EWX D32-3-M16-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH
FF EWX D40-4-M16-07	SR 34-535-SN		BLD T15/S7	SW6-T-SH



HELI6FEED UPFEED LINE
MULTI-MASTER

FF EWX-MM

Fast Feed Endmills with MULTI-MASTER Threaded Connection Carrying Double-Sided Inserts with 6 Cutting Edges



Designation	DCX(1)	DC	APMX	CICT(2)	THSZMS	LF	OAL	DCONMS	DRVS(3)	TQ(4)	RMPX°(5)	MDN(6)	MDX(7)	MIID(8)	kg
FF EWX D16-2-MMT10-04	16.00	8.60	0.80	2	T10	19.50	31.25	15.20	12.0	0.9	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	0.9	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	0.9	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	2.0	5.0	40.00	49.00	H600 WXCU 05T312T	0.09

- For machining recommendations and radius for programming, see table on page 522
- 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 261
- For user guide, see pages 542-547

(1) Cutting diameter maximum
(2) Number of inserts
(3) Width across flats (wrench should be ordered separately)
(4) Recommended tightening torque (N*m) for insert screw
(5) Maximum ramping angle
(6) For interpolation
(7) For interpolation
(8) Master insert identification

For inserts, see pages: H600 WXCU (522)
For holders, see pages: MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

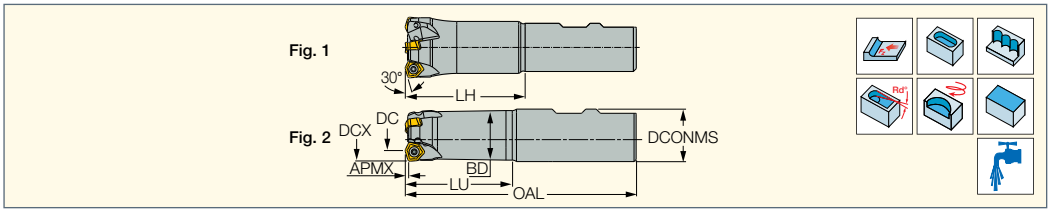
Spare Parts

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 522
- To generate a straight surface without cusps, the width of cut must not exceed DC
- For user guide, see pages 542-547

(1) Cutting diameter maximum
(2) Number of inserts
(3) C-Cylindrical, W-Weldon
(4) Maximum ramping angle
(5) For interpolation
(6) For interpolation
(7) Master insert identification
(8) Recommended tightening torque (N*m) for insert screw

For inserts, see pages: H600 WXCU (522)

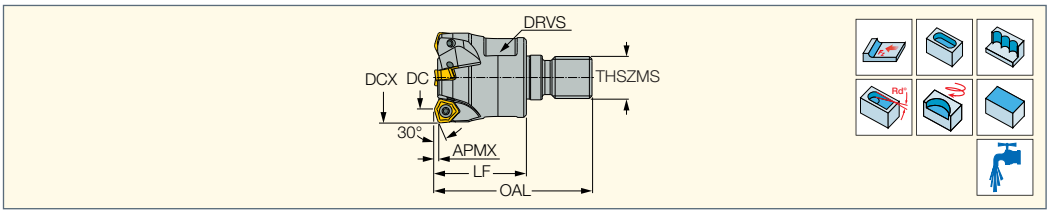
Spare Parts

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 FLEXFIT UPFEED LINE

MF EWX-M

Moderate Feed Endmills with FLEXFIT 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 522 • To generate a straight surface without cusps, the width of cut must not exceed DC
- For user guide, see pages 542-547

(1) Cutting diameter maximum
(2) Number of inserts
(3) Clamping wrench size
(4) Maximum ramping angle
(5) For interpolation
(6) For interpolation
(7) Master insert identification
(8) Recommended tightening torque (N*m) for insert screw
(9) Tool tightening torque Nxm (lbfxin)

For inserts, see pages: H600 WXCU (522)
For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

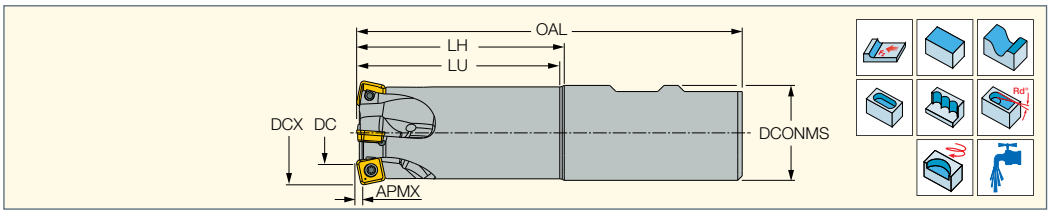
Spare Parts

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-W-09

Fast Feed Endmills Carrying Single-Sided Inserts with 4 Cutting Edges



Designation	DC	DCX(1)	APMX	AE(2)	CICT(3)	LU	LH	DCONMS	OAL	RMPX°(4)	MDN(5)	MDX(6)	MIID(7)	TQ(8)	kg
FFQ4 D022-2-044-W20-09	7.70	22.00	1.20	7.1	2	-	44.0	20.00	94.00	8.2	29.70	43.00	FFQ4 SOMT 090412T	2.0	0.19
FFQ4 D025-3-050-W25-09	10.70	25.00	1.20	7.1	3	-	50.0	25.00	110.00	5.5	35.70	49.00	FFQ4 SOMT 090412T	2.0	0.25
FFQ4 D032-4-064-W25-09	17.70	32.00	1.20	7.1	4	-	64.0	25.00	120.00	3.2	49.70	63.00	FFQ4 SOMT 090412T	2.0	0.50
FFQ4 D035-5-070-W32-09	20.70	35.00	1.20	7.1	5	68.50	70.0	32.00	130.00	2.7	55.70	69.00	FFQ4 SOMT 090412T	2.0	0.70

- 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 542-547

(1) Cutting diameter maximum
(2) Maximum plunging width
(3) Number of inserts
(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 (517)

Spare Parts

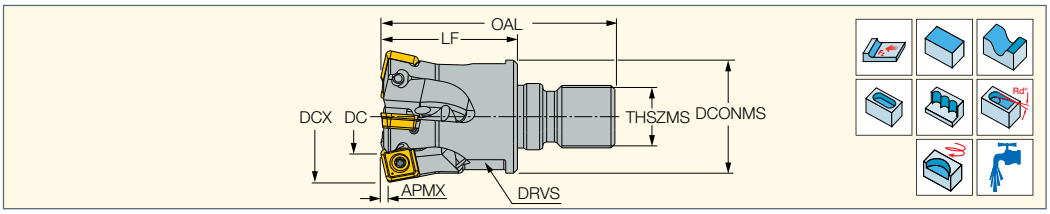
Designation		
FFQ4 D-W-09	SR M3X0.5-L7.4 IP9(a)	IP-9/151

(a) Recommended tightening torque:2.0 N*m

MILL4FEED

FFQ4 D-M-09

Fast Feed Endmills with FLEXFIT Threaded Adaptation Carrying Single-Sided 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 542-547

(1) Cutting diameter maximum
(2) Maximum plunging width
(3) Number of inserts
(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 (lbfxin)

For inserts, see pages: FFQ4 SOMT/W 0904 (517)
For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315)
• HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

Spare Parts

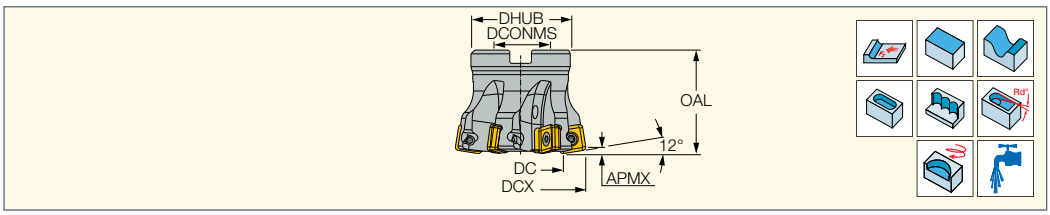
Designation		
FFQ4 D-M-09	SR M3X0.5-L7.4 IP9(a)	IP-9/151

(a) Recommended tightening torque:2.0 N*m

MILL4FEED

FFQ4 D-09

Fast Feed Face Mills Carrying Single-Sided Inserts with 4 Cutting Edges



Designation	DC	DCX(1)	APMX	AE(2)	CICT(3)	OAL	DCONMS	DHUB	RMPX°(4)	MDN(5)	MDX(6)	Arbor	MIID(7)	TQ(8)	kg
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	FFQ4 SOMT 090412T	2.0	0.17
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	FFQ4 SOMT 090412T	2.0	0.36
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	FFQ4 SOMT 090412T	2.0	0.34
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	FFQ4 SOMT 090412T	2.0	0.49

- 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 542-547

(1) Cutting diameter maximum
(2) Maximum plunging width
(3) Number of inserts
(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 (517)

Spare Parts

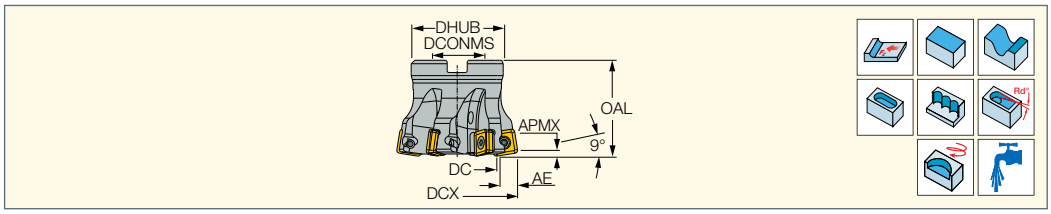
Designation			
FFQ4 D40-05-16-09	SR M3X0.5-L7.4 IP9(a)	IP-9/151	SR M8X25DIN912
FFQ4 D50-07-22-09	SR M3X0.5-L7.4 IP9(a)	IP-9/151	SR M10X25 DIN912
FFQ4 D52-07-22-09	SR M3X0.5-L7.4 IP9(a)	IP-9/151	SR M10X25 DIN912
FFQ4 D63-08-22-09	SR M3X0.5-L7.4 IP9(a)	IP-9/151	SR M10X30 DIN912

(a) Recommended tightening torque:2.0 N*m

MILL4FEED

FFQ4 D-12

Fast Feed Face Mills
Carrying Single-Sided 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 542-547

(1) Cutting diameter maximum
(2) Maximum plunging width
(3) Number of inserts
(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 (518)

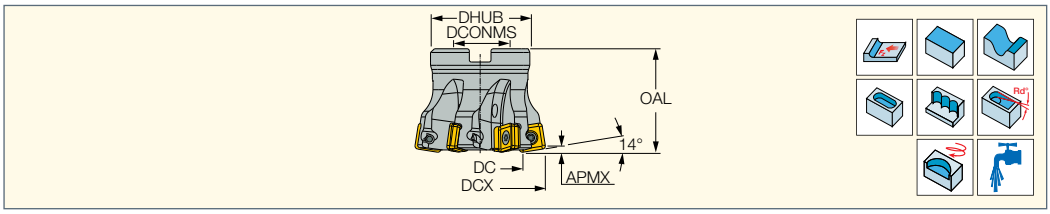
Spare Parts

Designation					
FFQ4 D040-3-16-12	SR M4X0.7-L9.6 IP15	SW6-T	BLD IP15/S7		SR PS 118-0416
FFQ4 D040-4-16-12	SR M4X0.7-L9.6 IP15	SW6-T	BLD IP15/S7		SR PS 118-0416
FFQ4 D050-4-22-12	SR M4X0.7-L9.6 IP15	SW6-T	BLD IP15/S7	SR M10X35 DIN912	
FFQ4 D050-5-22-12	SR M4X0.7-L9.6 IP15	SW6-T	BLD IP15/S7	SR M10X35 DIN912	
FFQ4 D052-5-22-12	SR M4X0.7-L9.6 IP15	SW6-T	BLD IP15/S7	SR M10X35 DIN912	
FFQ4 D063-6-22-12	SR M4X0.7-L9.6 IP15	SW6-T	BLD IP15/S7	SR M10X35 DIN912	
FFQ4 D066-6-27-12	SR M4X0.7-L9.6 IP15	SW6-T	BLD IP15/S7	SR M12X30DIN912	
FFQ4 D080-7-27-12	SR M4X0.7-L9.6 IP15	SW6-T	BLD IP15/S7	SR M12X30DIN912	
FFQ4 D100-8-32-12	SR M4X0.7-L9.6 IP15	SW6-T	BLD IP15/S7		
FFQ4 D125-10-40-12	SR M4X0.7-L9.6 IP15	SW6-T	BLD IP15/S7		

MILL4FEED

FFQ4 D-17

Fast Feed Face Mills
Carrying Single-Sided 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	50.00	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 542-547

(1) Cutting diameter maximum
(2) Maximum plunging width
(3) Number of inserts
(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 (519)

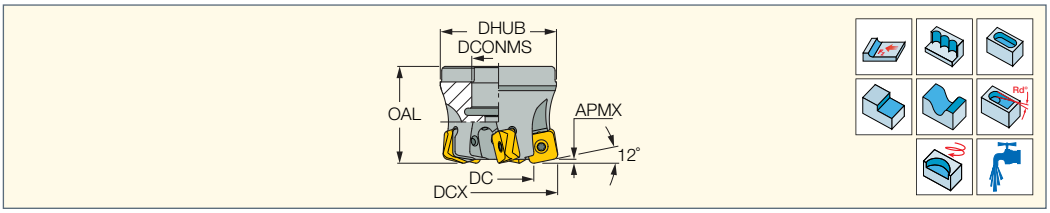
Spare Parts

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 Inserts
with 8 Cutting Edges



Designation	DC	DCX(1)	APMX	CICT(2)	OAL	DHUB	DCONMS	Arbor	RMPX°(3)	MDN(4)	MDX(5)	MIID(6)	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	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	FFQ8 SZMU 120520	0.94
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	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	FFQ8 SZMU 120520	3.03

- Radius for programming 3.6 mm • For user guide, see pages 542-547 • 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
(3) Maximum ramping angle
(4) Machinable diameter minimum for interpolation
(5) Machinable diameter maximum for interpolation
(6) Master insert identification

For inserts, see pages: FFQ8 SZMU (520)

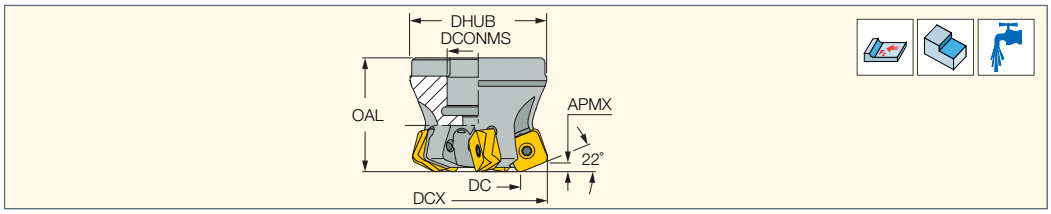
Spare Parts

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 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 Inserts with 8 Cutting Edges



Designation	DC	DCX(1)	APMX	CICT(2)	OAL	DHUB	DCONMS	Arbor	MIID(3)	kg
MFQ8 D050-05-22-12	31.60	50.00	3.00	5	40.00	48.00	22.00	A	FFQ8 SZMU 120520	0.44
MFQ8 D063-06-22-12	44.60	63.00	3.00	6	40.00	48.00	22.00	A	FFQ8 SZMU 120520	0.84
MFQ8 D080-07-27-12	61.60	80.00	3.00	7	50.00	60.00	27.00	A	FFQ8 SZMU 120520	1.84
MFQ8 D100-08-32-12	81.60	100.00	3.00	8	50.00	78.00	32.00	B	FFQ8 SZMU 120520	2.95

- Radius for programming 5.0 mm • For user guide, see pages 542-547 • 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
(3) Master insert identification

For inserts, see pages: FFQ8 SZMU (520)

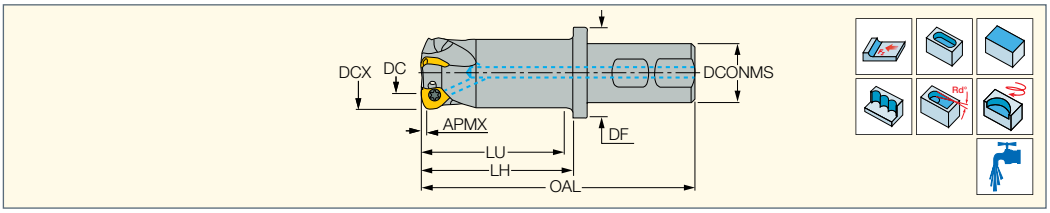
Spare Parts

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

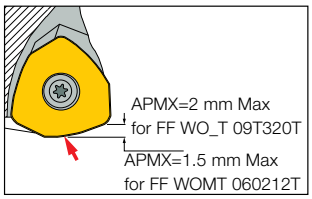


Designation	DCX(1)	DC	APMX	CICT(2)	LH	LU	OAL	DF	DCONMS	Shank(3)	RMPX°(4)	TQ(5)	MIID(6)	kg
FF EW D25-050-W25-06-C	25.00	11.00	1.30	2	53.0	-	118.00	-	25.00	W	5.0	2.0	FF WOMT0602	0.37
FF EW D25-080-C25-06-C	25.00	11.00	1.30	2	83.0	-	180.00	-	25.00	C	5.0	2.0	FF WOMT0602	0.58
FF EW D25-080-W25-06-C	25.00	11.00	1.30	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	1.30	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	1.30	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	1.30	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	1.30	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	5.0	FF WOMT09T3	1.56

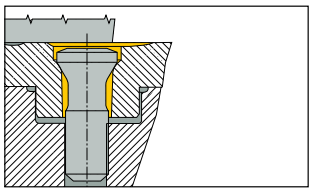
- For user guide, see pages 542-547

(1) Cutting diameter maximum
(2) Number of inserts
(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 (521)



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.

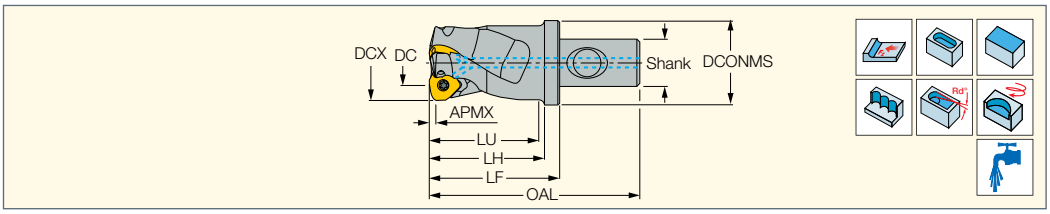
Spare Parts

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

FEEDMILLCLICKFIT

FF EW-CF

Fast Feed Endmills with
CLICKFIT 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	1.30	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	1.30	100.0	104.00	112.00	154.00	44.00	4.0	CF4	2.0	FF WOMT0602	0.74

• For user guide, see pages 542-547
(1) Cutting diameter maximum
(2) Number of inserts
(3) Maximum ramping angle
(4) Insert tightening torque
(5) Master insert identification
For inserts, see pages: FF WOCT/WOMT/WOMW (521)

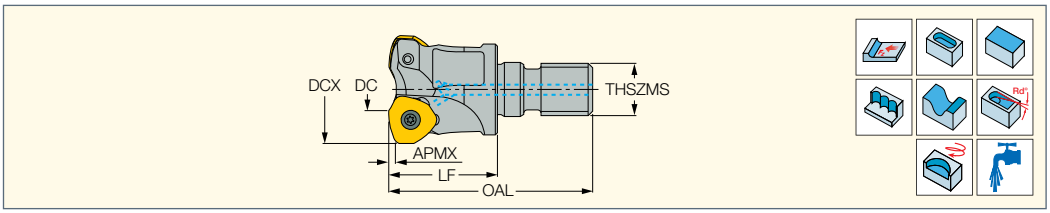
Spare Parts

Designation		
FF EW-CF	SR 34-506/M	T-9/51

FEEDMILLFLEXFIT

FF EW-M

Fast Feed Endmills with
FLEXFIT 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	1.30	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	1.30	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	1.30	M16	40.00	65.00	2.5	2.0	FF WOMT0602	40	0.23

• For user guide, see pages 542-547 • 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) Cutting diameter maximum
(2) Number of inserts
(3) Maximum ramping angle
(4) Insert tightening torque
(5) Master insert identification
(6) Tool tightening torque Nxm (lbfxin)
For inserts, see pages: FF WOCT/WOMT/WOMW (521)
For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

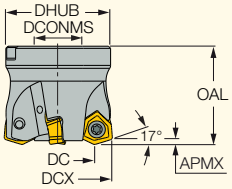
Spare Parts

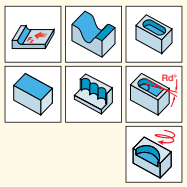
Designation		
FF EW-M	SR 34-506/M	T-9/51

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	0.00

- For machining recommendations and radius for programming, see table on page 522
- To generate a straight surface without cusps, the width of cut must not exceed DC
- For user guide, see pages 542-547

(1) Cutting diameter maximum
(2) Number of inserts
(3) For adaptation options, see page 548
(4) Maximum ramping angle
(5) For interpolation
(6) 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 (522)

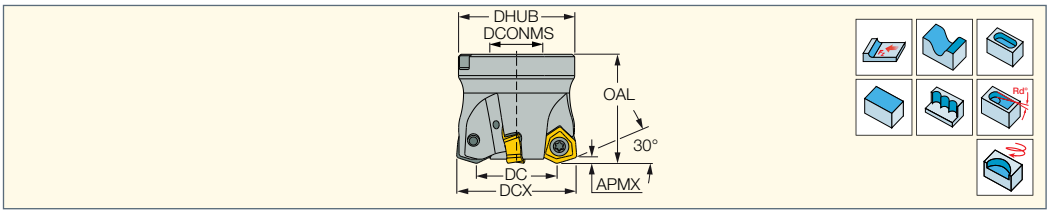
Spare Parts

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 522
- To generate a straight surface without cusps, the width of cut must not exceed DC
- For user guide, see pages 542-547

(1) Cutting diameter maximum
(2) Number of inserts
(3) For adaptation options, see page 548
(4) Maximum ramping angle
(5) For interpolation
(6) 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 (522)

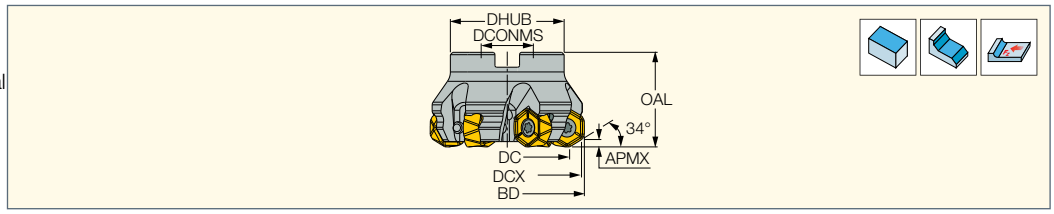
Spare Parts

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

- 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 542-547

(1) Cutting diameter maximum
(2) Number of inserts
(3) For adaptation options, see page 548
(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 (524)

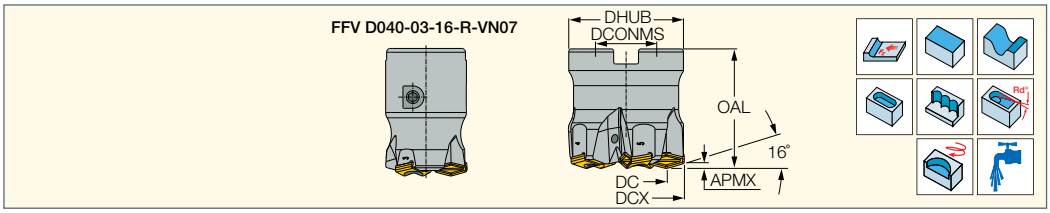
Spare Parts

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	

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
(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

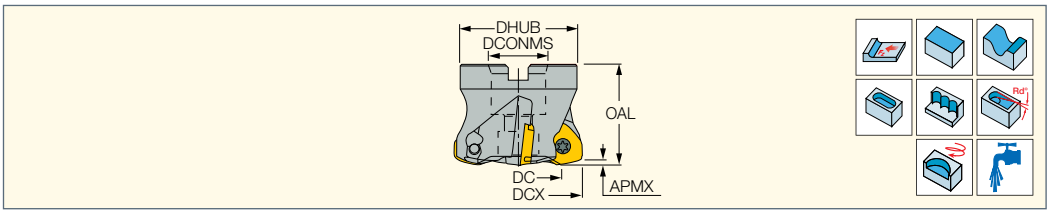
For inserts, see pages: FF VNMT 0706 (525)

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			

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	1.30	4	35.00	38.00	16.00	2.5	A	FF WOMT0602	0.17
FF FW D50-22-06-C	50.00	36.00	1.30	5	40.00	48.00	22.00	2.0	A	FF WOMT0602	0.31
FF FW D52-22-06-C	52.00	38.00	1.30	5	40.00	48.00	22.00	1.9	A	FF WOMT0602	0.34
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

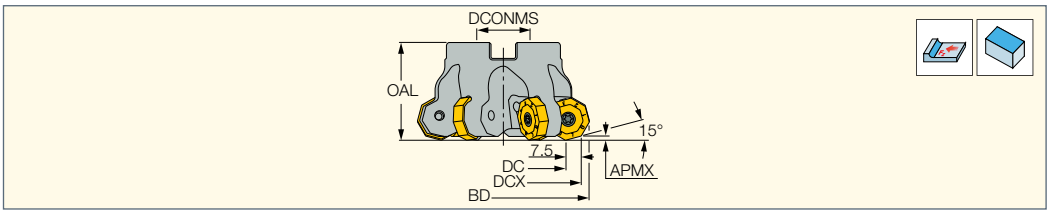
(1) Cutting diameter maximum
(2) Number of inserts
(3) Maximum ramping angle
(4) For adaptation options, see page 548
(5) Master insert identification
For inserts, see pages: FF WOCT/WOMT/WOMW (521)

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 D52-22-06-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		SR PS 118-0273
FF FW D52-22-09-C	SR 34-535	BLD T15/S7	SW6-T		SR M10X25 DIN912
FF FW D63-22-09-C	SR 34-535	BLD T15/S7	SW6-T		SR M10X25 DIN912
FF FW D63-27-09-C	SR 34-535	BLD T15/S7	SW6-T		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		SR M16X30 DIN912
FF FW D100-32-09-C	SR 34-535	BLD T15/M7	SW6-T		

16FEEDMILL

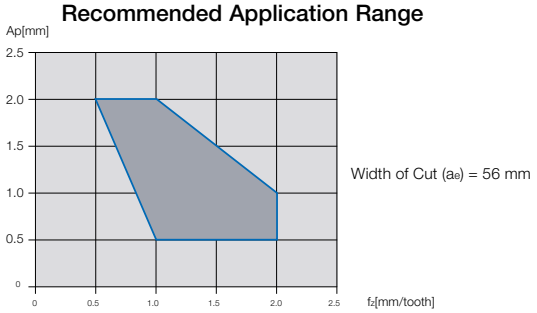
FF NM
Fast Feed Face Mills Carrying Octagonal ONHU/MU 0806... Inserts with 16 Cutting Edges



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
(3) Radius for programming
(4) For adaptation options, see page 548
(5) Master insert identification
For inserts, see pages: ONHU/ONMU-08-TN-MM (515) • ONHU/ONMU-08-TN/HL (515)

Recommended Application Range



Width of Cut (a_e) = 56 mm

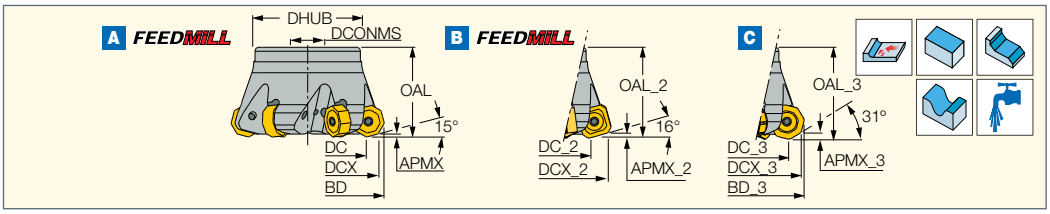
Cutting Data Recommendation

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	BD_3	APMX_3	OAL_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	70.40	2.70	40.90
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	87.40	2.70	40.90
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	107.40	2.70	50.90

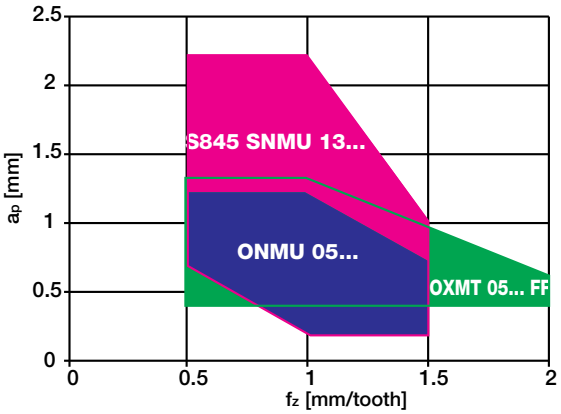
Designation	CICT[2]	DHUB	DCONMS	Arbor[3]	MIID[4]	kg				
FF SOF 8/16-D063-06-22R	6	65.60	22.00	B	ONHU 050500-N-HP	0.48	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M10X25 DIN912
FF SOF 8/16 D080-07-27R	7	82.60	27.00	B	ONHU 050500-N-HP	1.04	SR 11800745	BLD IP15/S7	SW6-T-SH	SR M12X30DIN912
FF SOF 8/16 D100-08-32R	8	102.60	32.00	B	ONHU 050500-N-HP	1.47	SR 11800745	BLD IP15/S7	SW6-T-SH	

- 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 542-547

(1) Cutting diameter maximum
(2) Number of inserts
(3) For adaptation options, see page 548
(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



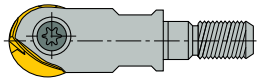
Material: SAE 4340
a_e: 0.7xD
V_c: 150-170 m/min



FLEXFIT

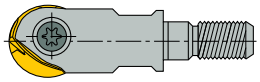
Milling Heads

M12



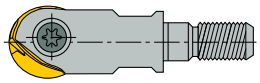
D20/.75

M12



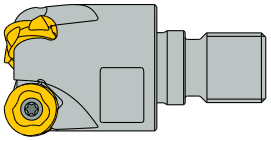
D25/1.00

M16



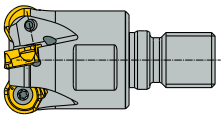
D25/1.00

M16



ERCM D32-...

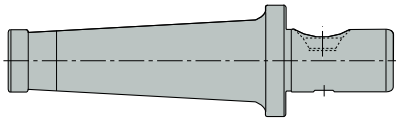
M16



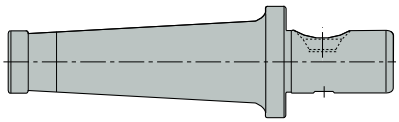
ERCM D40-...

Extensions

M12...CF4

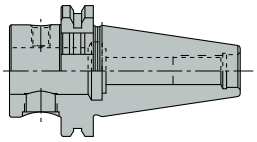


M16...CF4



CLICKFIT

Adapter

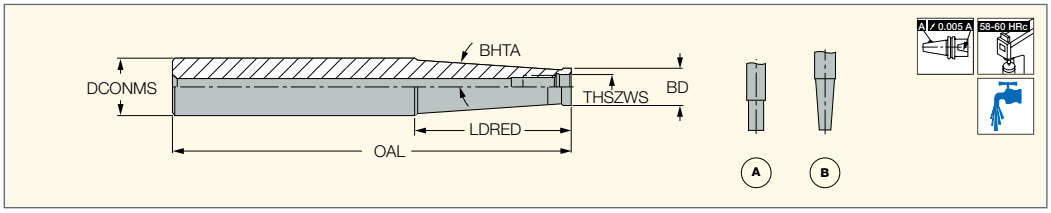




Straight Shank

FLEXFIT

S M
Shanks for Tools with FLEXFIT Threaded Connection

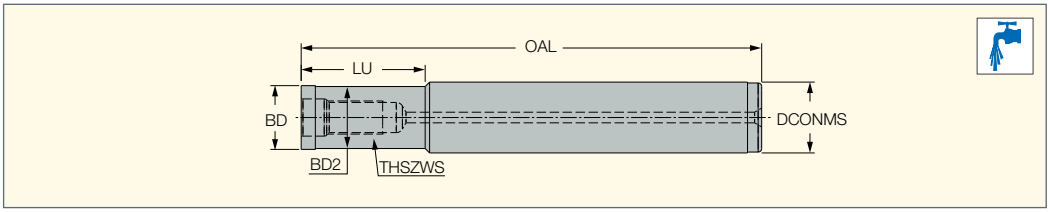


Designation	OAL	LDRED	DCONMS	Shank	BD	BHTA	THSZWS	Type	kg
S M06-L60 C10	60.00	20.0	10.00	C	9.70	-	M06	A	0.03
S M06-L105-C12	105.00	60.0	12.00	C	9.70	1.2	M06	B	0.06
S M06-L125-C16	125.00	60.0	16.00	C	9.70	3.3	M06	B	0.13
S M08-L73 C16	73.00	25.0	16.00	C	13.00	-	M08	A	0.09
S M08-L128-C16	128.00	80.0	16.00	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 FLEXFIT Threaded Connection

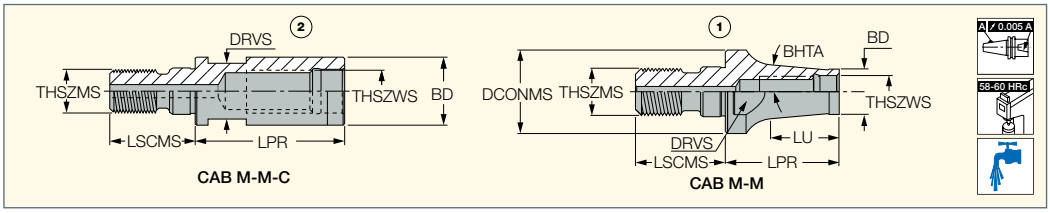


Designation	DCONMS	THSZWS	OAL	LU	BD	BD_2	kg
S M08-L150-C16-C-H	16.00	M08	150.00	80.0	15.30	15.30	0.39
S M08-L200-C16-C-H	16.00	M08	200.00	140.0	15.30	15.30	0.59
S M08-L250-C16-C-H	16.00	M08	250.00	180.0	15.30	15.30	0.84
S M10-L150-C20-C-H	20.00	M10	150.00	80.0	18.50	18.50	0.73
S M10-L200-C20-C-H	20.00	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 311

FLEXFIT

CAB M-M (FLEXFIT)
Reducers and Extensions with Coolant Holes for the Modular FLEXFIT 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

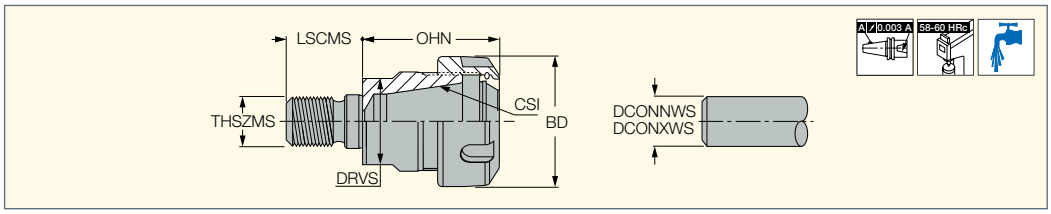
(1) Clamping wrench size



FLEXFIT

CDP ER-M

DIN 6499 ER Collet Chucks with Threaded FLEXFIT 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	29	0.03
CDP ER11 M12 M	ER11	M12	0.5	7.0	27.0	22.00	16.00	17.0	33	0.04
CDP ER16 M10 M	ER16	M10	0.5	10.0	38.1	20.00	22.00	17.0	29	0.05
CDP ER16 M12 M	ER16	M12	0.5	10.0	37.1	22.00	22.00	17.0	33	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 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) Minimum diameter

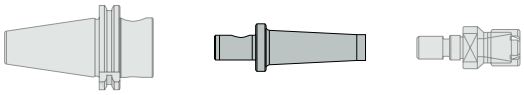
(2) Maximum diameter

(3) Minimum overhang

(4) Torque key size

(5) Tool tightening torque Nxm (lbfxin)

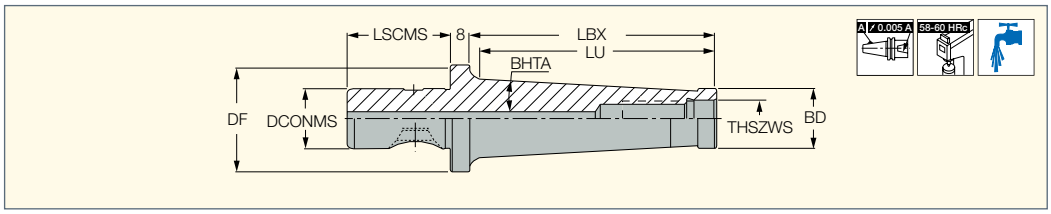
SHANK SM...CF4 CDP...



CLICKFIT FLEXFIT

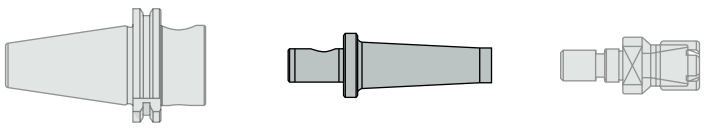
S M-CF

CLICKFIT to FLEXFIT Adapters



Designation	THSZWS	BD	LBX	LU	DF	LSCMS	BHTA	DCONMS	kg
S M12-L85/3.30-CF4	M12	21.00	85.0	81.30	44.00	42.00	4.4	25.00	0.23
S M12-L140/5.50-CF4	M12	21.00	140.0	139.10	44.00	42.00	4.4	25.00	0.98
S M16-L130/5.11-CF4	M16	29.00	130.0	126.80	44.00	42.00	2.6	25.00	0.23
S M16-L170/6.70-CF4	M16	29.00	170.0	168.60	44.00	42.00	2.0	25.00	1.30

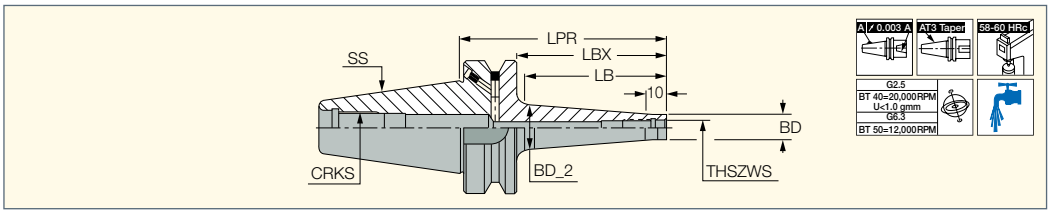
SHANK SM...CF4 CDP...



BT MASFLEXFIT

BT-ODP (FLEXFIT)

FLEXFIT Threaded Adaptation with Integral BT MAS-403 Tapered Shanks (ADB type)



Designation	SS	THSZWS	BD	BD_2	LPR	LBX	LB	CRKS	CDI(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	4.28
BT50 ODP 12X194	50	M12	23.00	40.00	194.00	156.0	150.00	M24	0	4.57
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	5.24
BT50 ODP 16X244	50	M16	29.00	60.00	244.00	206.0	200.00	M24	0	5.60

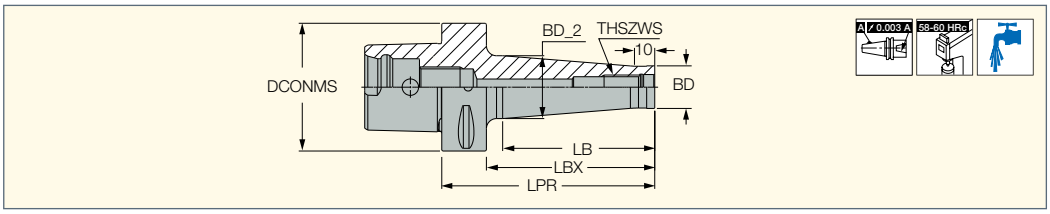
- The coolant passages in the B-type flange are blocked with screws which can be removed when required.

(1) 1 - Hole for data chip, 0 - Without hole for data chip

FLEXFITCAMFIX

C#-ODP (FLEXFIT)

FLEXFIT Threaded Connection Shanks with CAMFIX (ISO 26623-1) Adaptation



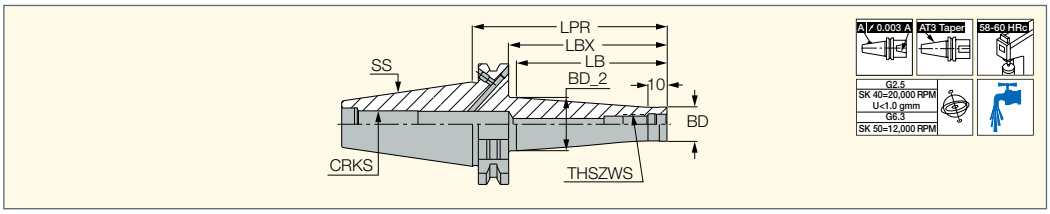
Designation	DCONMS	THSZWS	BD	BD_2	LPR	LBX	LB	CDI(1)	kg
C3 ODP 12X53	32.00	M12	21.00	26.00	53.00	38.0	23.00	0	0.32
C4 ODP 10X53	40.00	M10	18.00	23.00	53.00	33.0	23.00	1	0.33
C4 ODP 12X53	40.00	M12	21.00	26.00	53.00	33.0	23.00	1	0.33
C4 ODP 16X53	40.00	M16	29.00	34.00	53.00	33.0	23.00	1	0.40
C5 ODP 10X103	50.00	M10	18.00	28.00	103.00	83.0	75.00	1	0.10
C5 ODP 10X53	50.00	M10	18.00	19.50	53.00	33.0	25.00	1	0.49
C5 ODP 12X103	50.00	M12	21.00	31.00	103.00	83.0	75.00	1	0.72
C5 ODP 12X53	50.00	M12	21.00	23.50	53.00	33.0	25.00	1	0.50
C5 ODP 16X103	50.00	M16	29.00	36.00	103.00	83.0	75.00	1	0.85
C5 ODP 16X53	50.00	M16	29.00	34.00	53.00	33.0	25.00	1	0.65
C6 ODP 10X105	63.00	M10	18.00	28.00	105.00	83.0	75.00	1	1.00
C6 ODP 10X130	63.00	M10	18.00	32.00	130.00	108.0	100.00	1	0.00
C6 ODP 10X55	63.00	M10	18.00	19.50	55.00	33.0	25.00	1	0.82
C6 ODP 12X105	63.00	M12	21.00	31.00	105.00	83.0	75.00	1	1.07
C6 ODP 12X130	63.00	M12	21.00	36.00	130.00	108.0	100.00	1	1.26
C6 ODP 12X55	63.00	M12	21.00	23.50	55.00	33.0	25.00	1	0.84
C6 ODP 16X105	63.00	M16	29.00	34.00	105.00	83.0	75.00	1	1.20
C6 ODP 16X130	63.00	M16	29.00	41.00	130.00	108.0	100.00	1	1.49
C6 ODP 16X55	63.00	M16	29.00	34.00	55.00	33.0	25.00	1	0.89

(1) 1 - Hole for data chip, 0 - Without hole for data chip

DIN69871FLEXFIT

DIN69871-ODP

FLEXFIT Threaded Connection
Shanks with Integral DIN 69871
Form ADB Taper Adaptation



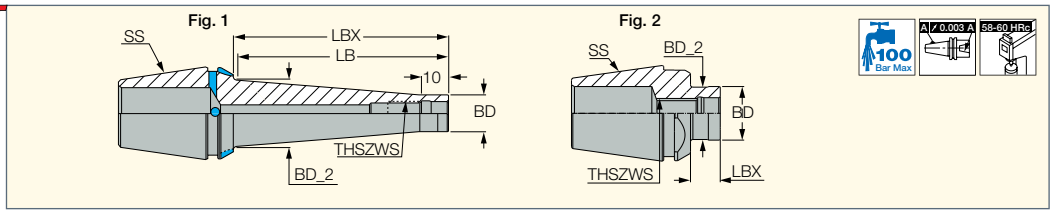
Designation	SS	THSZWS	BD	BD_2	LPR	LBX	LB	CRKS	CDI(1)	kg
DIN69871 40 ODP 6X58	40	M06	9.80	13.00	58.00	38.9	30.00	M16	0	0.82
DIN69871 40 ODP 6X98	40	M06	9.80	23.00	98.00	78.9	70.00	M16	0	0.91
DIN69871 40 ODP 8X58	40	M08	13.10	15.00	58.00	38.9	30.00	M16	0	0.82
DIN69871 40 ODP 8X98	40	M08	13.10	23.00	98.00	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	4.14
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 - Hole for data chip, 0 - Without hole for data chip

ERCOLLET FLEXFIT

ER-ODP

FLEXFIT Threaded Adaptation
with Integral ER Collet
for ER Collet Chucks

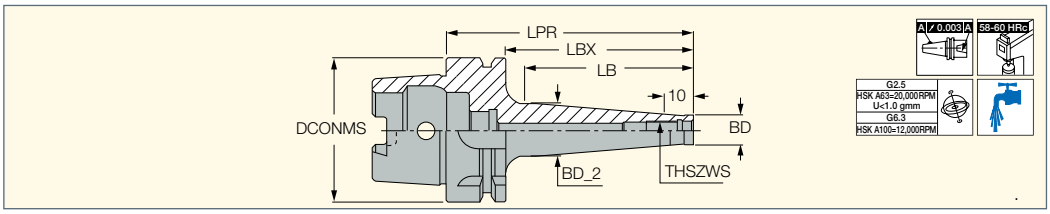


Designation	SS	THSZWS	LB	LBX	BD	BD_2	Fig.	kg
ER16 ODP M08X02	ER16	M08	2.50	2.50	12.00	12.00	2	0.04
ER16 ODP M08X10	ER16	M08	10.50	10.50	12.00	12.00	2	0.04
ER20 ODP M08X02	ER20	M08	2.00	2.00	13.00	13.00	2	0.05
ER20 ODP M08X10	ER20	M08	10.00	10.00	13.00	12.60	2	0.05
ER25 ODP M08X02	ER25	M08	2.00	2.00	13.00	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 M 8X25	ER32	M08	22.00	25.00	13.10	15.00	1	0.15
ER32 ODP M 8X50	ER32	M08	49.00	50.00	13.10	23.00	1	0.21
ER32 ODP M 8X75	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	1	0.20

FLEXFIT HSK

HSK A-ODP (FLEXFIT)

FLEXFIT Threaded Adaptation
with HSK DIN 69893/A
Tapered Shanks



Designation	DCONMS	THSZWS	BD	BD_2	LPR	LBX	LB	CDI[1]	kg
HSK A32 ODP12X42	32.00	M12	21.00	20.60	42.00	22.0	-	1	0.17
HSK A40 ODP12X30*	40.00	M12	21.00	20.60	30.00	10.0	-	1	0.21
HSK A50 ODP12X48	50.00	M12	21.00	20.60	48.00	22.0	-	1	0.46
HSK A63 ODP6X109	63.00	M06	9.80	23.00	109.00	83.0	75.00	1	0.74
HSK A63 ODP6X59	63.00	M06	9.80	11.50	59.00	33.0	25.00	1	0.66
HSK A63 ODP8X109	63.00	M08	13.10	23.00	109.00	83.0	75.00	1	0.77
HSK A63 ODP8X59	63.00	M08	13.10	15.00	59.00	33.0	25.00	1	0.68
HSK A63 ODP10X109	63.00	M10	18.00	28.00	109.00	83.0	75.00	1	0.87
HSK A63 ODP10X59	63.00	M10	18.00	20.00	59.00	33.0	25.00	1	0.70
HSK A63 ODP12X109	63.00	M12	21.00	31.00	109.00	83.0	75.00	1	0.93
HSK A63 ODP12X59	63.00	M12	21.00	23.50	59.00	33.0	25.00	1	0.71
HSK A63 ODP16X109	63.00	M16	29.00	34.00	109.00	83.0	75.00	1	1.05
HSK A63 ODP16X59	63.00	M16	29.00	34.60	59.00	33.0	25.00	1	0.79
HSK A100 ODP12X137	100.00	M12	23.00	30.00	137.00	108.0	100.00	1	2.58
HSK A100 ODP12X187	100.00	M12	23.00	40.00	187.00	158.0	150.00	1	2.86
HSK A100 ODP12X237	100.00	M12	23.00	46.00	237.00	208.0	200.00	1	3.40
HSK A100 ODP12X87	100.00	M12	23.00	30.00	87.00	58.0	50.00	1	2.23
HSK A100 ODP16X137	100.00	M16	29.00	41.50	137.00	108.0	100.00	1	2.68
HSK A100 ODP16X187	100.00	M16	29.00	55.00	187.00	158.0	150.00	1	3.58
HSK A100 ODP16X237	100.00	M16	29.00	55.00	237.00	208.0	200.00	1	4.07
HSK A100 ODP16X87	100.00	M16	29.00	31.50	87.00	58.0	50.00	1	2.20

- A cooling tube must be used with all coolant through HSK spindles (should be ordered separately).

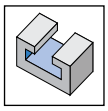
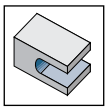
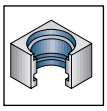
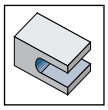
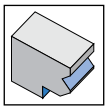
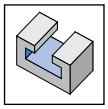
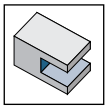
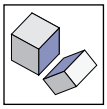
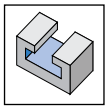
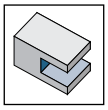
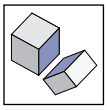
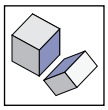
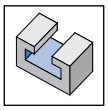
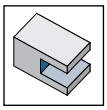
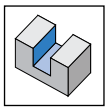
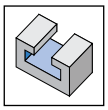
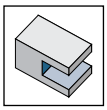
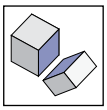
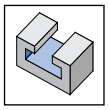
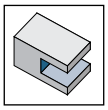
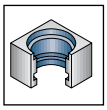
[1] 1 - Hole for data chip, 0 - Without hole for data chip



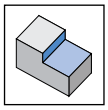
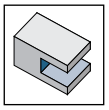
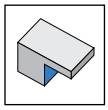
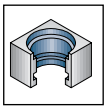
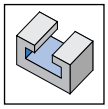
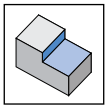
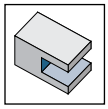
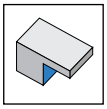
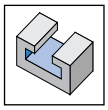
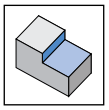
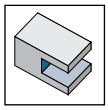
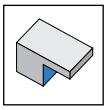
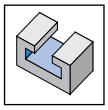
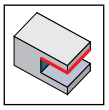
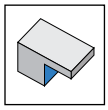
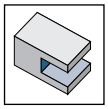
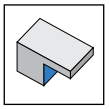
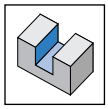
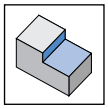
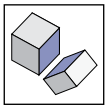
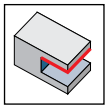
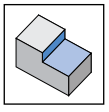
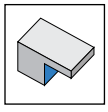
SLOTTING & SLITTING CUTTERS



Application Range

MM TS/GRIT- pages 321-326						
	↕	0.7-13.0				
	Ø	7.7-27.7				
MM GRIT Dovetail - page 327						
	↕	5.0-10.1				
	Ø	27.7				
DGSM-M/MM-JHP- page 333						
	↕	2.0-3.0				
	Ø	16.0-22.0				
TGSF-M/MM-JHP- pages 365-366						
	↕	2.0-3.0				
	Ø	50.0				
SGSF/A-M/MM-JHP- pages 371-372						
	↕	2.0-3.0				
	Ø	32.0-40.0				
SGSF-W- page 369						
	↕	1.5-2.7				
	Ø	32.0-40.00				
SD-SP- page 328						
	↕	1.0-12.0				
	Ø	31.7-49.7				

Application Range

TRIB- pages 331-332						
	↕	1.2-6.5				
	Ø	32.2-80				
ETS T-Slot - pages 334-341						
	↕	3.0-22				
	Ø	21-63				
FDN - pages 342-352						
	↕	3-25				
	Ø	50-250				
FST - page 361						
	↕	9.0				
	Ø	100-125				
SDN - pages 353-361						
	↕	3-25				
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SSB...R/L - page 362						
	↕	12-24				
	Ø	100-200				

Application Range

TGSF - pages 364-366



↕	1.6-4
Ø	50-160

SGSF - pages 370-372



↕	1.3-6.5
Ø	32-425

SGSA - page 372



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Ø	32-100

GM-DG - page 374



↕	2.7-4.35
Ø	100-200

SGSF with Drive Flange



↕	2.4-6.4
Ø	50-425

SGSF with Drive Shank S, SW

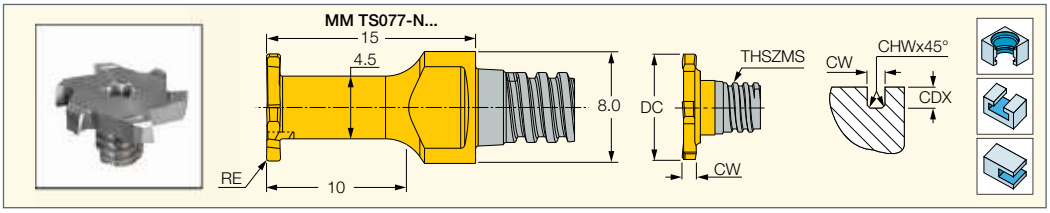


↕	1.5-6.4
Ø	50-125

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TS-N

Interchangeable Solid Carbide
T-Slot Milling Heads



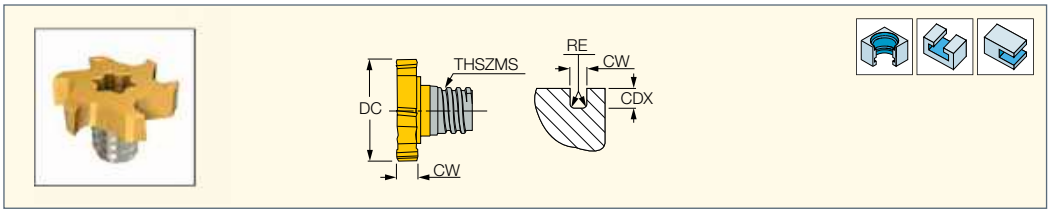
Designation	DC	DCTOLL	CW	NOF(1)	THSZMS	CDX(2)	RE	CHW			Tough ↔ Hard IC328	IC928	IC908
	Dimensions												
MM TS077-N07A-4T05	7.70	-0.0500	0.70	4	T05	1.20	0.20	-	MM KEY 6X4*				●
MM TS077-N08A-4T05	7.70	-0.0500	0.80	4	T05	1.20	0.20	-	MM KEY 6X4*				●
MM TS077-N09A-4T05	7.70	-0.0500	0.90	4	T05	1.20	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 84-91 • For tightening torques and clamping instructions, see pages 91-92 • Do not apply lubricant to the threaded connection
• For user guide, see pages 377-383
(1) Number of flutes
(2) Cutting depth maximum
* Optional, should be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TS-H

Interchangeable Solid Carbide
T-Slot Milling Heads with
Various Corner Radii



Designation	DC	DCTOLL	CW	CDX(1)	NOF(2)	RE	THSZMS		Tough ↔ Hard IC328	IC908
	Dimensions									
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	T-40/3 L*	●	●
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*	●	●

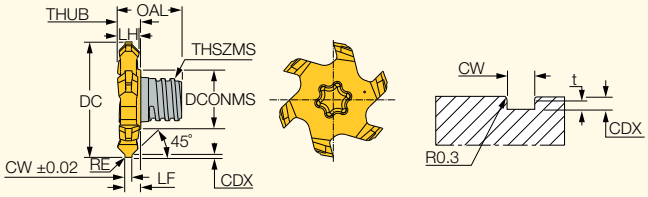
• Inserts in 5 mm and wider feature chip splitting edges • For tightening torques and clamping instructions, see pages 91-92
• Do not apply lubricant to the threaded connection • For shanks, see pages 84-91 • For user guide, see pages 377-383
(1) Cutting depth maximum
(2) Number of flutes
* Optional, should be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TS-C

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





Designation	Dimensions DC	CW	CDX	LF	t	RE	THUB	LH	OAL	DCONMS	NOF(1)	THSZMS		IC928
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		●

- For shanks, see pages 84-91 • For tightening torques and clamping instructions, see pages 91-92 • Do not apply lubricant to the threaded connection
- For user guide, see pages 377-383

(1) Number of flutes

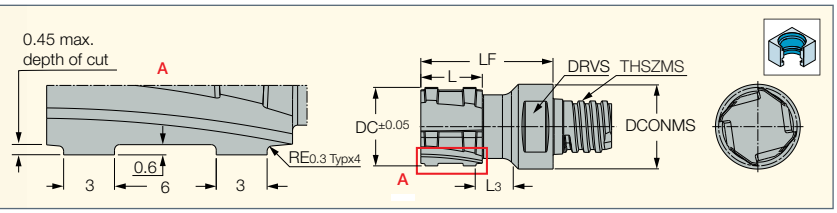
* Optional, should be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM TS-DG

Double-Groove Internal Grooving Heads with Threaded Connection for Tube Sheets of Heat Exchangers





Designation	Dimensions DC	DCONMS	PHD(1)	THSZMS	NOF(2)	LF	L3	L	DRVS(3)		IC908
MM TS155-04T10-8238	15.50	16.00	15.88	T10	4	34.00	18.10	14.10	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	23.90	25.40	T15	4	37.40	11.00	14.40	20.0	MM KEY 20*	●

- For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92
- Do not apply lubricant to the threaded connection • For user guide, see pages 377-383

(1) For minimum tube outer diameter

(2) Number of flutes

(3) Clamping wrench size

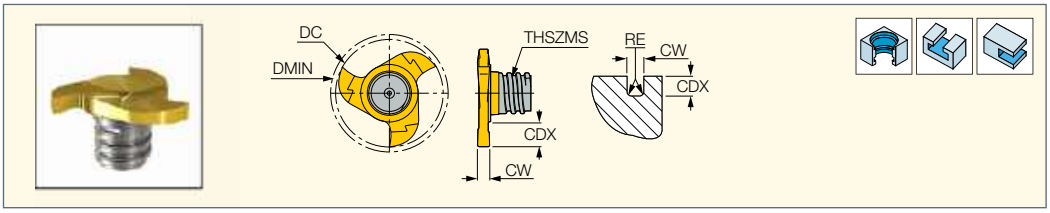
* Optional, should be ordered separately



MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM GRIT-16K/P,18K/P

Interchangeable Solid Carbide Small Diameter Groove Milling Heads

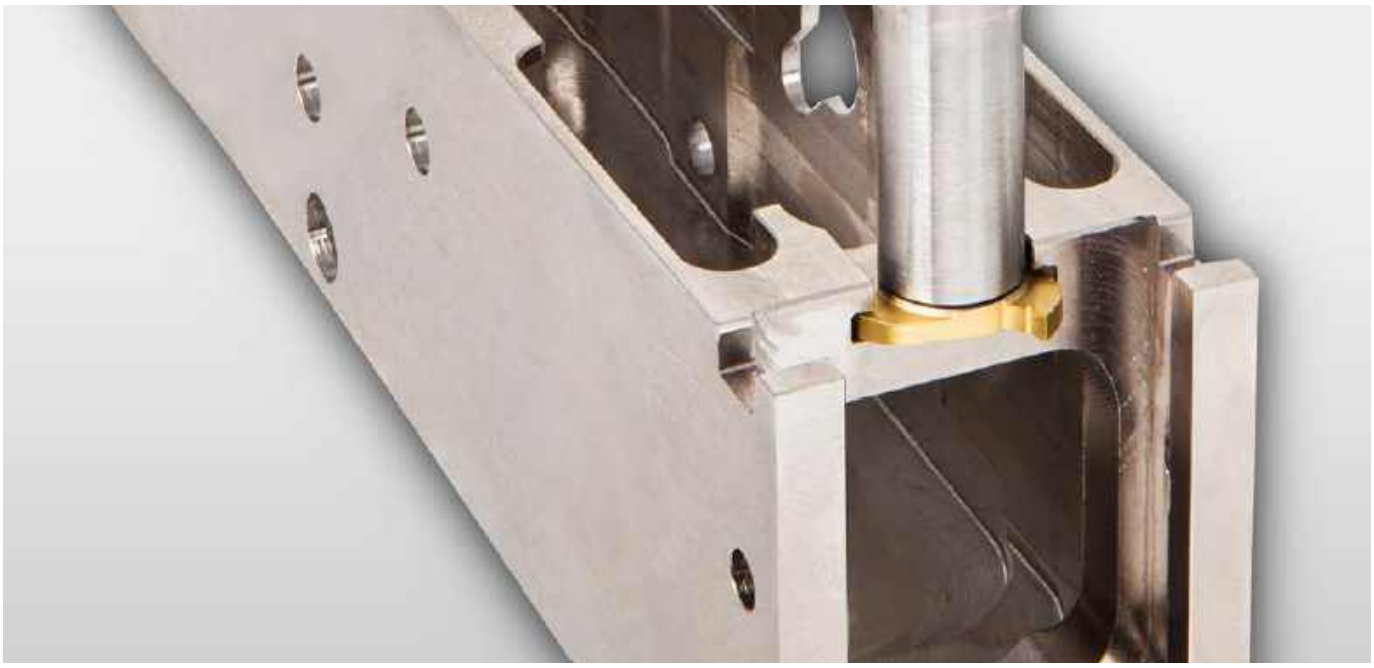


Designation	Dimensions								IC528
	DC	CW	CDX(2)	NOF(3)	RE	DMIN(4)	THSZMS		
MM GRIT 16K-1.50-0.10	15.70	1.50	2.80	3	0.10	16.00	T06	MM EGR 16-18*	●
MM GRIT 16P-1.50-0.10	15.70	1.50	2.80	3	0.10	16.00	T06	MM EGR 16-18*	●
MM GRIT 16K-1.57-0.20	15.70	1.57	2.80	3	0.20	16.00	T06	MM EGR 16-18*	●
MM GRIT 16K-2.00-0.20	15.70	2.00	2.80	3	0.20	16.00	T06	MM EGR 16-18*	●
MM GRIT 16P-2.20-1.10	15.70	2.20	2.80	3	1.10	16.00	T06	MM EGR 16-18*	●
MM GRIT 16K-2.39-0.20	15.70	2.39	2.80	3	0.20	16.00	T06	MM EGR 16-18*	●
MM GRIT 16K-2.50-0.20	15.70	2.50	2.80	3	0.20	16.00	T06	MM EGR 16-18*	●
MM GRIT 16K-3.00-0.20	15.70	3.00	2.80	3	0.20	16.00	T06	MM EGR 16-18*	●
MM GRIT 16P-3.00-0.20	15.70	3.00	2.80	3	0.20	16.00	T06	MM EGR 16-18*	●
MM GRIT 16K-3.17-0.20	15.70	3.17	2.80	3	0.20	16.00	T06	MM EGR 16-18*	●
MM GRIT 18K-1.20-0.05 (1)	17.70	1.20	3.80	3	0.05	18.00	T06	MM EGR 16-18*	●
MM GRIT 18P-1.20-0.60	17.70	1.20	3.80	3	0.60	18.00	T06	MM EGR 16-18*	●
MM GRIT 18K-1.40-0.05 (1)	17.70	1.40	3.80	3	0.05	18.00	T06	MM EGR 16-18*	●
MM GRIT 18K-1.50-0.10	17.70	1.50	3.80	3	0.10	18.00	T06	MM EGR 16-18*	●
MM GRIT 18K-1.57-0.20	17.70	1.57	3.80	3	0.20	18.00	T06	MM EGR 16-18*	●
MM GRIT 18K-1.70-0.05 (1)	17.70	1.70	3.80	3	0.05	18.00	T06	MM EGR 16-18*	●
MM GRIT 18K-2.00-0.20	17.70	2.00	3.80	3	0.20	18.00	T06	MM EGR 16-18*	●
MM GRIT 18P-2.00-1.00	17.70	2.00	3.80	3	1.00	18.00	T06	MM EGR 16-18*	●
MM GRIT 18P-2.20-1.10	17.70	2.20	3.80	3	1.10	18.00	T06	MM EGR 16-18*	●
MM GRIT 18K-2.39-0.20	17.70	2.39	3.80	3	0.20	18.00	T06	MM EGR 16-18*	●
MM GRIT 18K-2.50-0.20	17.70	2.50	3.80	3	0.20	18.00	T06	MM EGR 16-18*	●
MM GRIT 18K-3.00-0.20	17.70	3.00	3.80	3	0.20	18.00	T06	MM EGR 16-18*	●
MM GRIT 18P-3.00-1.50	17.70	3.00	3.80	3	1.50	18.00	T06	MM EGR 16-18*	●
MM GRIT 18K-3.17-0.20	17.70	3.17	3.80	3	0.20	18.00	T06	MM EGR 16-18*	●

- Recommended for O-rings and retaining rings • MM EGR clamping key is supplied with each MM GRT... shank • Modification options on request
- Do not apply lubricant to the threaded connection • For clamping instructions, see pages 91-92 • For user guide, see pages 377-383
- For shanks, see pages 84-91
- K - For general steel machining • P - Positive geometry for soft and gummy materials

(1) For circle clips according to DIN 471/472 and ANSI B27.7M
(2) Cutting depth maximum
(3) Number of flutes
(4) Minimum bore diameter
* Optional, should be ordered separately

K-Type - For general steel machining.
P-Type - Positive geometry for soft and gummy materials.

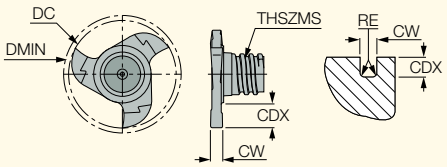


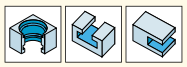
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM GRIT-16K/P,18K/P 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-25/3*	●
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 91-92 • For user guide, see pages 377-383 • For shanks, see pages 84-91 • K-Type - For general steel machining
- P-Type - Positive geometry for soft and gummy materials

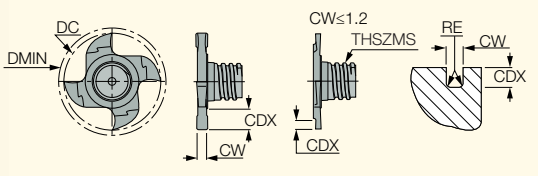
(1) Cutting depth maximum
(2) Number of flutes
(3) Minimum bore diameter
* Optional, should be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM GRIT-22K/P,28K/P 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	0.20	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*	●

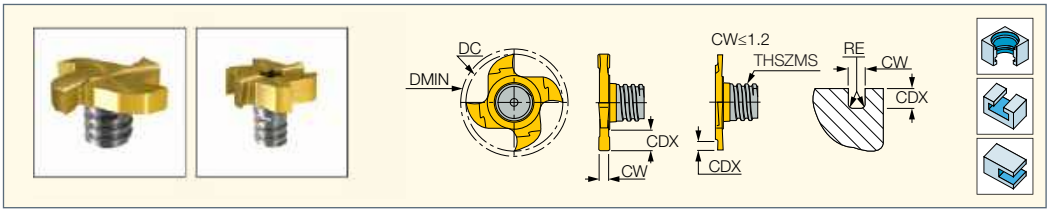
- Recommended for Orings and retaining rings • K - for general steel & cast iron machining P - for soft and gummy materials
- Modification options on request • Do not apply lubricant to the threaded connection • For clamping instructions, see pages 91-92
- For user guide, see pages 377-383 • For shanks, see pages 84-91

(1) Cutting depth maximum
(2) Number of flutes
(3) Minimum bore diameter
* Optional, should be ordered separately

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM GRIT-22K/P,28K/P

Interchangeable Solid Carbide Small Diameter Groove Milling Heads



Designation	Dimensions								IC528
	DC	CW	CDX[2]	NOF[3]	RE	DMIN[4]	THSZMS	∠	
MM GRIT 22K-0.76-0.00 [1]	21.70	0.76	1.50	4	0.00	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-0.86-0.00 [1]	21.70	0.86	1.70	4	0.00	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-0.96-0.00 [1]	21.70	0.96	1.90	4	0.00	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-1.00-0.05	21.70	1.00	2.00	4	0.05	22.00	T08	MM EGR 20-22*	●
MM GRIT 22P-1.00-0.05	21.70	1.00	2.00	4	0.05	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-1.20-0.05 [1]	21.70	1.20	4.50	4	0.05	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-1.40-0.05 [1]	21.70	1.40	4.50	4	0.05	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-1.57-0.00	21.70	1.57	4.50	4	0.00	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-1.70-0.10 [1]	21.70	1.70	4.50	4	0.10	22.00	T08	MM EGR 20-22*	●
MM GRIT 22P-1.70-0.10 [1]	21.70	1.70	4.50	4	0.10	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-1.95-0.20 [1]	21.70	1.95	4.50	4	0.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-2.00-0.20	21.70	2.00	4.50	4	0.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22P-2.00-0.20	21.70	2.00	4.50	4	0.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-2.25-0.20 [1]	21.70	2.25	4.50	4	0.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-2.39-0.20	21.70	2.39	4.50	4	0.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-2.50-0.20	21.70	2.50	4.50	4	0.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22P-2.50-0.20	21.70	2.50	4.50	4	0.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-2.75-0.20 [1]	21.70	2.75	4.50	4	0.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-3.00-0.20	21.70	3.00	4.50	4	0.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22P-3.00-0.20	21.70	3.00	4.50	4	0.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-3.17-0.20	21.70	3.17	4.50	4	0.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-3.25-0.20 [1]	21.70	3.25	4.50	4	0.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22P-3.81-0.20	21.70	3.81	4.50	4	0.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-4.00-0.20	21.70	4.00	4.50	4	0.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22P-4.00-0.20	21.70	4.00	4.50	4	0.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22P-4.00-2.00	21.70	4.00	4.50	4	2.00	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-4.25-0.20 [1]	21.70	4.25	4.50	4	0.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-4.25-1.20 [1]	21.70	4.25	4.50	4	1.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-4.75-0.20	21.70	4.75	4.50	4	0.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-5.25-0.20 [1]	21.70	5.25	4.50	4	0.20	22.00	T08	MM EGR 20-22*	●
MM GRIT 22K-6.00-3.00	21.70	6.00	4.50	4	3.00	22.00	T08	MM EGR 20-22*	●
MM GRIT 28K-2.50-0.2	27.70	2.50	6.00	6	0.20	28.00	T10	T-40/3 L*	●
MM GRIT 28K-5.25-0.2	27.70	5.25	6.00	6	0.20	28.00	T10	T-40/3 L*	●
MM GRIT 28P-7.0-3.5	27.70	7.00	5.70	6	3.50	28.00	T10	T-40/3 L*	●
MM GRIT 28K-10.0-0.2	27.70	10.00	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 91-92
- For user guide, see pages 377-383 • For shanks, see pages 84-91

[1] For circle clips according to DIN471/472 and ANSI B27.7M
[2] Cutting depth maximum
[3] Number of flutes
[4] Minimum bore diameter
* Optional, should be ordered separately

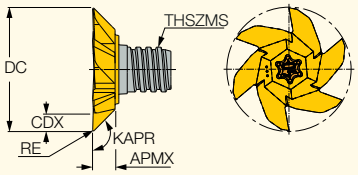
K-Type - For general steel and cast iron machining.
P-Type - Positive geometry for soft and gummy materials.

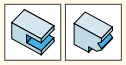
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM GRIT Dovetail

Interchangeable Solid Carbide Heads







Designation	Dimensions								Tough ↔ Hard	
	DC	KAPR(1)	CDX(2)	APMX	RE	THSZMS	NOF(3)		IC528	IC908
MM GRIT 28K-45D-6T10	27.70	135.0	4.00	5.00	0.20	T10	6	T-40/3 L*	●	●
MM GRIT 28K-60D-6T10	27.70	120.0	4.00	7.80	0.20	T10	6	T-40/3 L*	●	●
MM GRIT 28K-75D-6T10	27.70	105.0	2.20	10.10	0.20	T10	6	T-40/3 L*	●	●

• Use carbide shanks for groove milling heads • For user guide, see pages 377-383

(1) Tool cutting edge angle

(2) Cutting depth maximum

(3) Number of flutes

* Optional, should be ordered separately



MM GRIT 28K-45D-6T10



MM GRIT 28K-60D-6T10



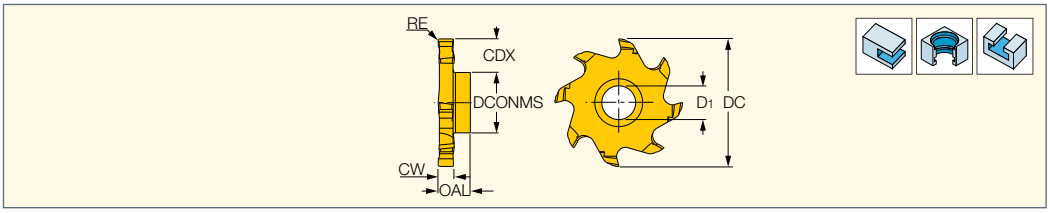
MM GRIT 28K-75D-6T10



T-SLOT

SD-SP

Interchangeable Solid Carbide
T-Slot Milling Heads



Designation	Dimensions								IC908
	DC	CW	CDX[2]	NOF[3]	RE	D1	DCONMS	OAL	
SD D32-2.0-R0.2-SP11	31.70	2.00	10.00	8	0.20	7.20	11.00	6.75	●
SD D32-3.0-R0.4-SP11	31.70	3.00	10.00	8	0.40	7.20	11.00	6.75	●
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-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-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-R0.2SP13	39.70	1.00	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 D40-3.0-R0.4SP13	39.70	3.00	13.00	10	0.40	7.50	13.00	7.30	●
SD D40-4.0-R0.4SP13 [1]	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-R0.4SP17	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	●
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 329-331 • For user guide, see pages 377-383

[1] Maximum feed: 0.1 mm/tooth
[2] Cutting depth maximum
[3] Number of flutes

Cutting Data for SD-SP Milling Heads

ISO class DIN/ ISO 513	Description	ISCAR mat. group*	Workpiece Material			Cutting Speed V_c m/min	Feed for SP11	Feed for SP13	Feed for SP15	Feed for SP17	Feed for SP19
			Typical Representative		Hardness HB						
			AISI/SAE/ ASTM	DIN W.-Nr.			f_z mm/tooth	f_z mm/tooth	f_z mm/tooth	f_z mm/tooth	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

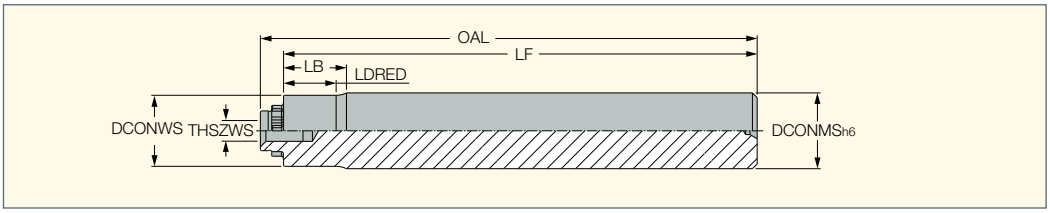
** Quenched and tempered

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	0.33
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

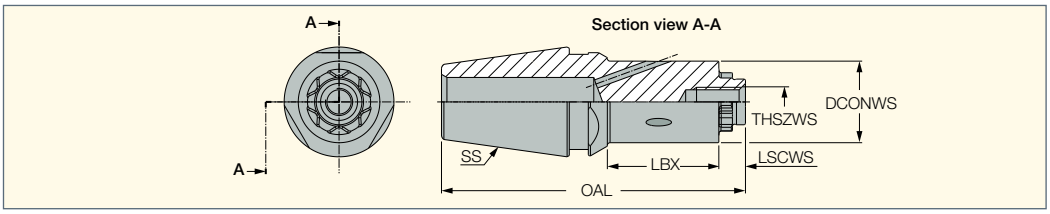
Designation			
SD S-A-L90-C12-SP11	SR M4X0.5-SP11 HG	BLD T15/S7	SW6-T-SH
SD S-A-L100-C16 SP13	SR M4X0.5-SP13-IP15-HG	BLD IP15/S7	SW6-T-SH
SD S-A-L100-C16-SP15	SR M5X0.5-SP15-IP20-HG	BLD IP20/S7	SW6-T-SH
SD S-A-L130-C16-SP15	SR M5X0.5-SP15-IP20-HG	BLD IP20/S7	SW6-T-SH
SD S-A-L130-C16-SP15-C	SR M5X0.5-SP15-IP20-HG	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-SP17-IP20-HG	BLD IP20/S7	SW6-T-SH
SD S-A-L150-C25-SP19	SR M6X0.5-SP17-IP20-HG	BLD IP20/S7	SW6-T-SH

* Optional, should be ordered separately

NEOCOLLET
INTEGRAL COLLET

SD-S-A-ER-SP

Solid ER Collets with SD Spline Connection (SP)



Designation	SS	LBX[1]	DCONWS	THSZWS	LSCWS	OAL	kg
SD-S-A-H05-ER16-SP11-C	ER16	5.00	11.00	M4X0.5	3.85	36.35	0.03
SD-S-A-H20-ER16-SP11-C	ER16	20.00	11.00	M4X0.5	3.85	51.35	0.04
SD-S-A-H05-ER20-SP11-C	ER20	5.00	11.00	M4X0.5	3.85	39.85	0.05
SD-S-A-H05-ER20-SP13-C	ER20	5.00	13.00	M4X0.5	4.35	40.35	0.05
SD-S-A-H05-ER20-SP15-C	ER20	5.00	15.00	M5X0.5	4.90	40.90	0.05
SD-S-A-H20-ER20-SP11-C	ER20	20.00	11.00	M4X0.5	3.85	54.85	0.06
SD-S-A-H20-ER20-SP13-C	ER20	20.00	13.00	M4X0.5	4.35	55.35	0.07
SD-S-A-H20-ER20-SP15-C	ER20	20.00	15.00	M5X0.5	4.90	55.90	0.08
SD-S-A-H05-ER25-SP11-C	ER25	5.00	11.00	M4X0.5	3.85	42.85	0.09
SD-S-A-H05-ER25-SP13-C	ER25	5.00	13.00	M4X0.5	4.35	43.35	0.09
SD-S-A-H05-ER25-SP15-C	ER25	5.00	15.00	M5X0.5	4.90	43.90	0.09
SD-S-A-H05-ER25-SP17-C	ER25	5.00	17.00	M6X0.5	6.00	45.00	0.09
SD-S-A-H05-ER25-SP19-C	ER25	5.00	19.00	M6X0.5	8.50	47.50	0.09
SD-S-A-H20-ER25-SP11-C	ER25	20.00	11.00	M4X0.5	3.85	57.85	0.10
SD-S-A-H20-ER25-SP13-C	ER25	20.00	13.00	M4X0.5	4.35	58.35	0.10
SD-S-A-H20-ER25-SP15-C	ER25	20.00	15.00	M5X0.5	4.90	58.90	0.11
SD-S-A-H20-ER25-SP17-C	ER25	20.00	17.00	M6X0.5	6.00	60.00	0.12
SD-S-A-H20-ER25-SP19-C	ER25	20.00	19.00	M6X0.5	8.50	62.50	0.13
SD-S-A-H05-ER32-SP13-C	ER32	5.00	13.00	M4X0.5	4.35	49.35	0.14
SD-S-A-H05-ER32-SP15-C	ER32	5.00	15.00	M5X0.5	4.90	49.90	0.15
SD-S-A-H05-ER32-SP17-C	ER32	5.00	17.00	M6X0.5	6.00	51.00	0.15
SD-S-A-H05-ER32-SP19-C	ER32	5.00	19.00	M6X0.5	8.50	53.50	0.15
SD-S-A-H20-ER32-SP13-C	ER32	20.00	13.00	M4X0.5	4.35	64.35	0.16
SD-S-A-H20-ER32-SP15-C	ER32	20.00	15.00	M5X0.5	4.90	64.90	0.16
SD-S-A-H20-ER32-SP17-C	ER32	20.00	17.00	M6X0.5	6.00	66.00	0.17
SD-S-A-H20-ER32-SP19-C	ER32	20.00	19.00	M6X0.5	8.50	68.50	0.18
SD-S-A-H05-ER40-SP17-C	ER40	5.00	17.00	M6X0.5	6.00	57.00	0.26
SD-S-A-H05-ER40-SP19-C	ER40	5.00	19.00	M6X0.5	8.50	59.20	0.27
SD-S-A-H20-ER40-SP17-C	ER40	20.00	17.00	M6X0.5	6.00	72.00	0.29
SD-S-A-H20-ER40-SP19-C	ER40	20.00	19.00	M6X0.5	8.50	74.50	0.30

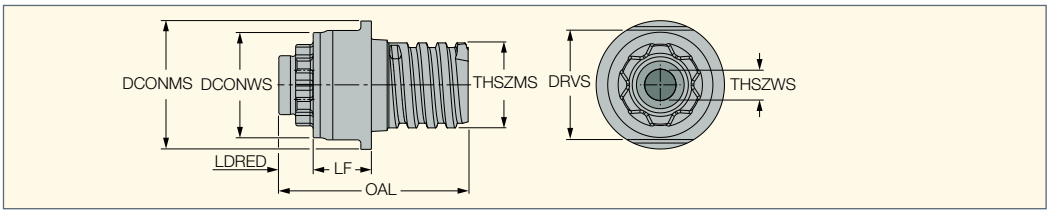
[1] After the nut is mounted

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-SP17-IP20-HG	SW6-T-SH	BLD IP20/S7
SD-S-A-H05-ER25-SP19-C	SR M6X0.5-SP17-IP20-HG	SW6-T-SH	BLD IP20/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-SP17-IP20-HG	SW6-T-SH	BLD IP20/S7
SD-S-A-H20-ER25-SP19-C	SR M6X0.5-SP17-IP20-HG	SW6-T-SH	BLD IP20/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-SP17-IP20-HG	SW6-T-SH	BLD IP20/S7
SD-S-A-H05-ER32-SP19-C	SR M6X0.5-SP17-IP20-HG	SW6-T-SH	BLD IP20/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-SP17-IP20-HG	SW6-T-SH	BLD IP20/S7
SD-S-A-H20-ER32-SP19-C	SR M6X0.5-SP17-IP20-HG	SW6-T-SH	BLD IP20/S7
SD-S-A-H05-ER40-SP17-C	SR M6X0.5-SP17-IP20-HG	SW6-T-SH	BLD IP20/S7
SD-S-A-H05-ER40-SP19-C	SR M6X0.5-SP17-IP20-HG	SW6-T-SH	BLD IP20/S7
SD-S-A-H20-ER40-SP17-C	SR M6X0.5-SP17-IP20-HG	SW6-T-SH	BLD IP20/S7
SD-S-A-H20-ER40-SP19-C	SR M6X0.5-SP17-IP20-HG	SW6-T-SH	BLD IP20/S7

T-SLOT 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	0.07
SD CAB T15-14/0.55-SP19	M6x0.5	T15	14.00	8.5	39.50	19.00	23.90	20.0	0.07

• Note: Apply lubricant to the MULTI-MASTER threaded connection and to the slotting head clamping screw
(1) Clamping wrench size

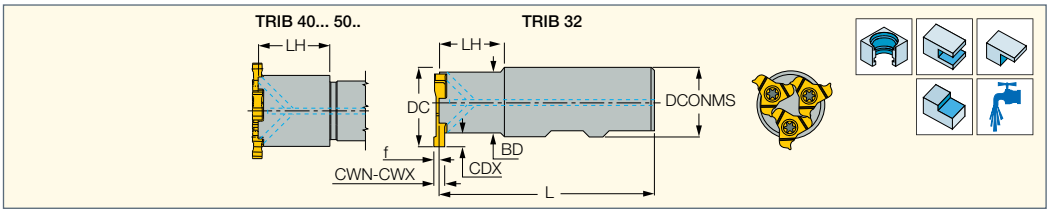
Spare Parts

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-SP17-IP20-HG	BLD IP20/S7	SW6-T-SH	
SD CAB T15-14/0.55-SP19	SR M6X0.5-SP17-IP20-HG	BLD IP20/S7	SW6-T-SH	

* Optional, should be ordered separately

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
(6) W-Weldon
For inserts, see pages: TRI (492)

Dimensions Related to Inserts

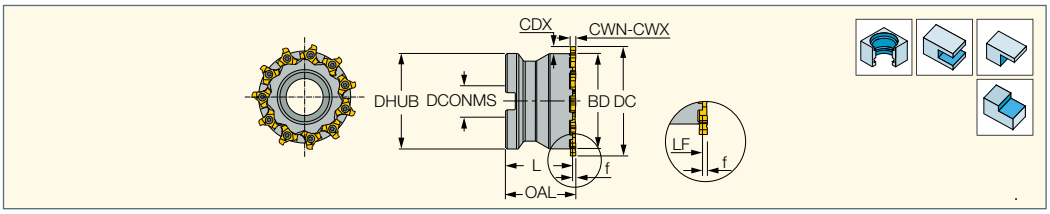
Insert	Tmax	TRIB ...Z f	TRIB ...Z-B f
TRI 16RK-1.2-0.05	4.6	0.5	
TRI 16RK-1.4-0.1	4.8	0.5	
TRI 16RK-1.5-0.1	4.8	0.5	
TRI 16RK-1.7-0.1	4.8	0.5	
TRI 16RK-1.95-0.15	4.8	0.5	
TRI 16RK-2.0-0.2	4.8	0.5	
TRI 16RK-2.25-0.15	4.8	0.75	
TRI 16RK-2.75-0.15	4.8	1.39	
TRI 16RK-3.0-0.2	4.8	1.39	
TRI 16RK-3.25-0.15	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
(5) For adaptation options, see page 548

For inserts, see pages: TRI (492)

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

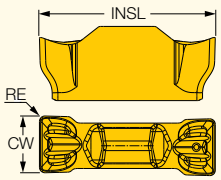
Spare Parts

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

DGM-V
Miniature Double-Sided Inserts with Ridged Positive Chipformer for Slitting and Grooving a Wide Range of Materials





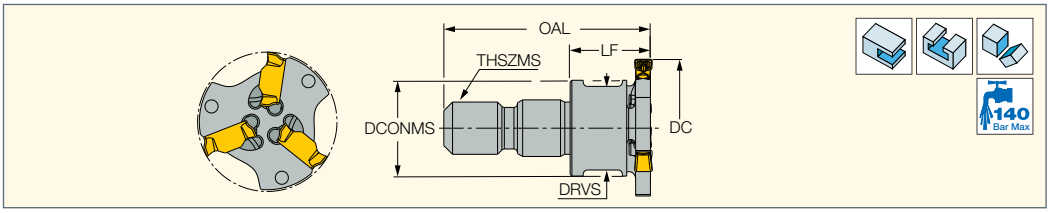
Designation	Dimensions CW	RE	INSL	IC1008	Recommended Machining Data f groove (mm/t)
DGM 2002V	2.00	0.20	6.20	•	0.03-0.10
DGM 3002V	3.00	0.20	6.20	•	0.04-0.15

For tools, see pages: DGSM-M-JHP (333) • DGSM-MM-JHP (333)

MINSLIT FLEXFIT
SMALL DIA SLIT

DGSM-M-JHP

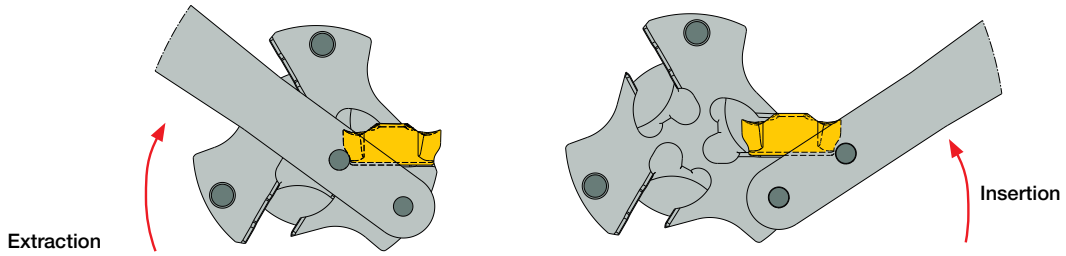
Groove Milling and Slitting
Small Diameter Cutters with
FLEXFIT Threaded Adaptation



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
(2) Torque key size

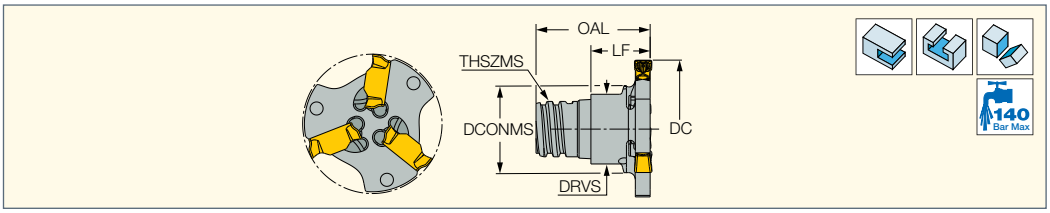
For inserts, see pages: DGM-V (332)
For holders, see pages: BT-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316)
• S M (312)
• S M-C-H (312)



MINSLIT
SMALL DIA SLIT
MULTI-MASTER

DGSM-MM-JHP

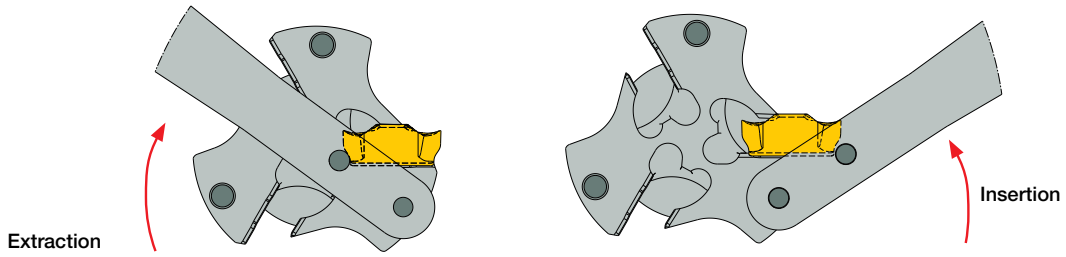
Groove Milling and Slitting
Small Diameter Cutters with
MULTI-MASTER
Threaded Adaptation



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
(2) Torque key size

For inserts, see pages: DGM-V (332)
For holders, see pages: MM CAB (667) • MM CAB-T-T (91) • MM GRT (shanks) (86) • MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87)
• MM S-A-C# (86)
• MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88)
• MM S-ER (89) • MM S-ER-H (89)
• MM TS-A (86)

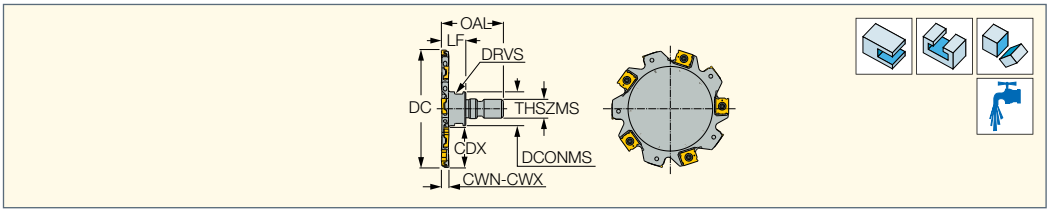


MINI-TANGSLOT

FLEXFIT

ETS-LN08-M

Grooving and Slitting Cutters with FLEXFIT 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 377-383 • 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) 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 (492)
For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

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*

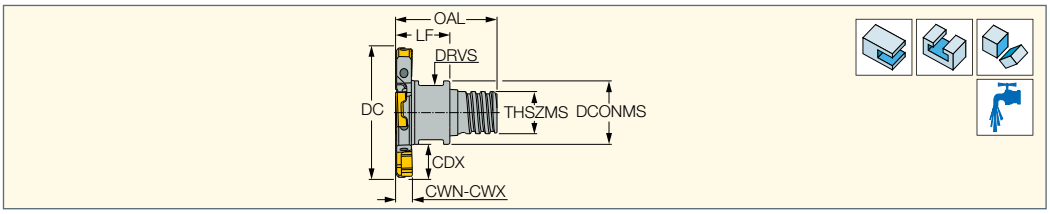
* Optional, should be ordered separately

MINI-TANGSLOT

MULTI-MASTER

ETS-LN08-MM

Grooving and Slitting Cutters
with MULTI-MASTER
Threaded Adaptation



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 377-383

[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 (492)

For holders, see pages: MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

Spare Parts

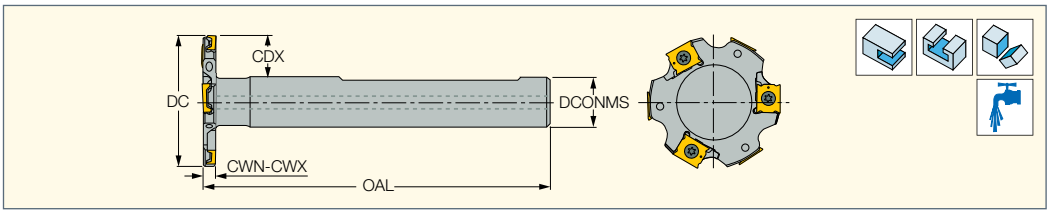
Designation			
ETS-LN08-MM	SR 114-018-L3.40	T-6/5	T-6/3-L



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 377-383

(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

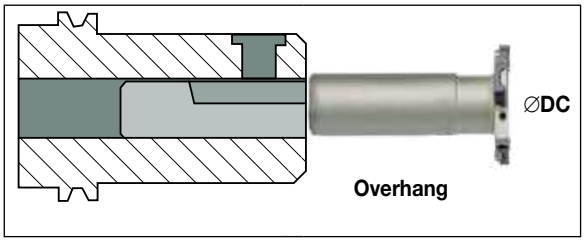
Cutter Designation	CWN-CWX	Insert
...D...-03-..-LN08	3	LNET 081804-TN-N
...D...-04-..-LN08	4	LNET 082604-TN-N
	4.5	LNET 082804-TN-N
...D...-05-..-LN08	5	LNET 083004-TN-N
	5.5	LNET 083204-TN-N
...D...-06-..-LN 08	6	LNET 083504-TN-N
	6.5	LNET 083704-TN-N
...D...-07..-LN08	7	LNET 084004-TN-N
	7.5	LNET 084204-TN-N
	8.0	LNET 084504-TN-N

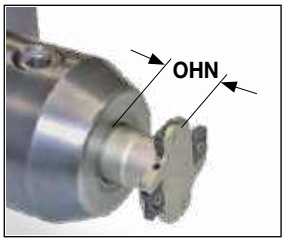
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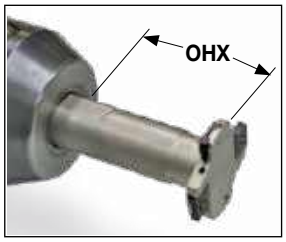


2 Setting the Overhang

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!

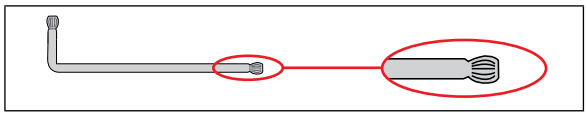
For every indexing, lubricate screws before mounting.
Grease should cover the screw's thread and cone head.



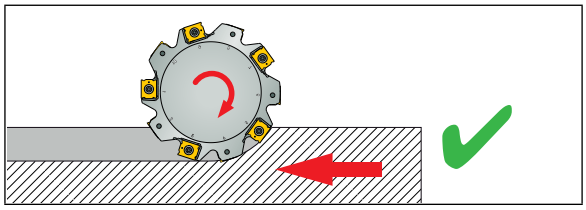
4 Indexing



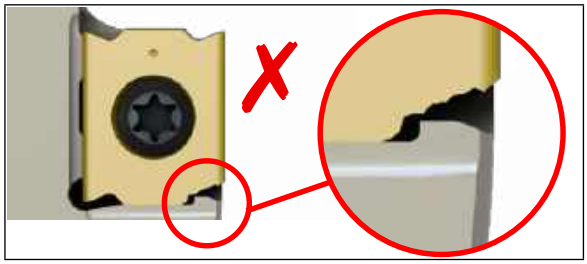
L -type key is added to the cutter package.
It has a ball shape on the end of its longer side.



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		

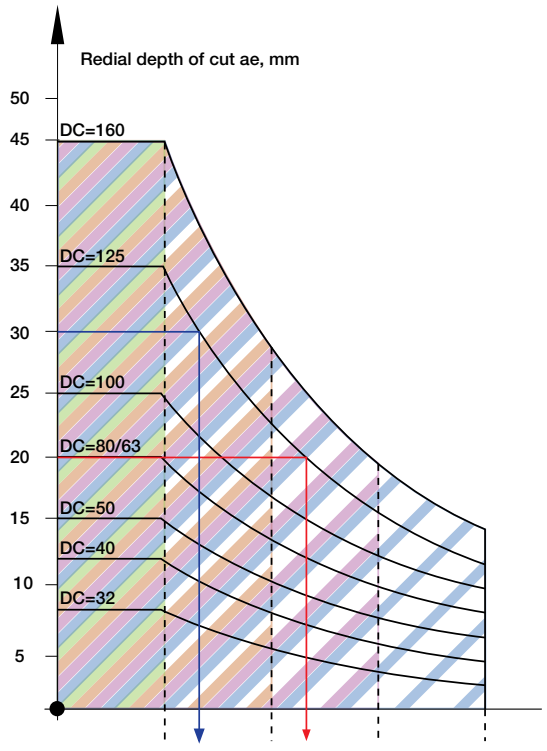
8 Recommended Cutting Speed

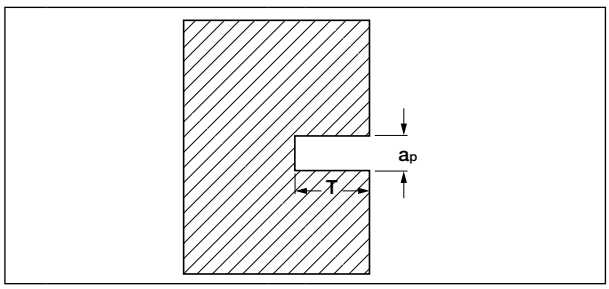
ISO class DIN/ISO 513	Description	Workpiece Material: Typical Example AISI/SAE/ASTM	DIN W.-Nr.	Hardness HB	ISCAR mat. group**	Cutting speed V_c, m/min	Insert	Grade	Coolant
P	Non-alloy steel and cast steel, free cutting steel	1020	1.0402	130-180	1	130-200	LN....08	IC928	Air blow
	Alloy steel	4340	1.6582	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-TANGSLOT cutters carrying LN..08... inserts for 3 mm ≤a_p<7 mm





Example

Material - Alloy steel DIN 40NiCrMo6, W.-Nr.16565

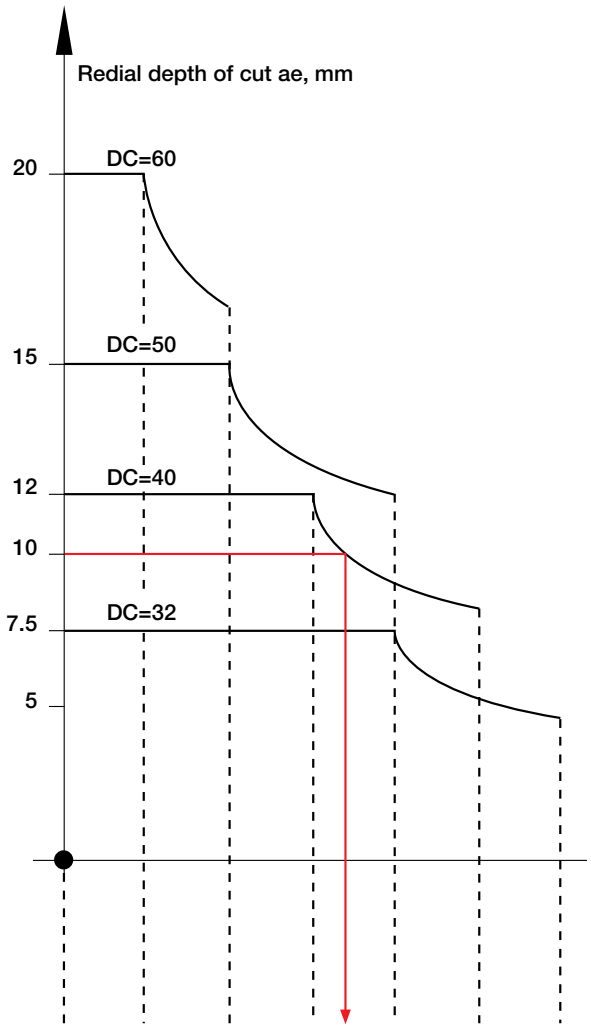
D = 125 mm	D = 125 mm
a_e = 30 mm	a_e = 20 mm
a_p = 4 mm	a_p = 6 mm
f_z = 0.2x0.75* = 0.15 mm/tooth	f_z = 0.25x1=0.25 mm/tooth

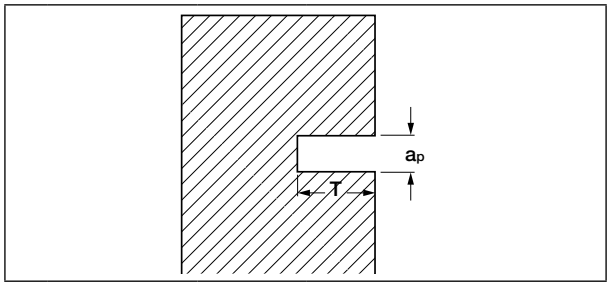
f_z= fz0xK

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: Workpiece Material	AISI / SAE / ASTM (DIN W.-Nr.)	ISCAR Mat. Group	DIN/ ISO
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-TANGSLOT 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

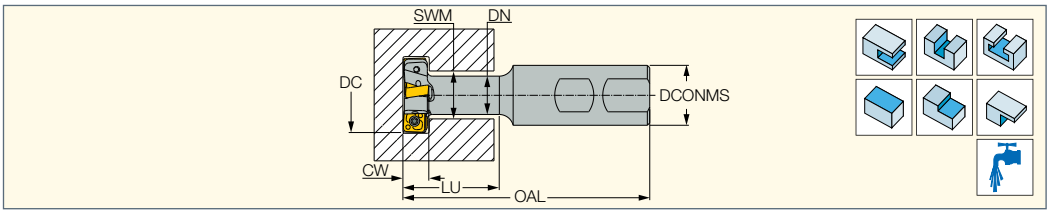
a_p mm	K
from 7 up to 7.5	1
over 7.5 up to 8	0.80

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-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	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 377-383

(1) Number of inserts

For inserts, see pages: XNMU 0904PN (514)

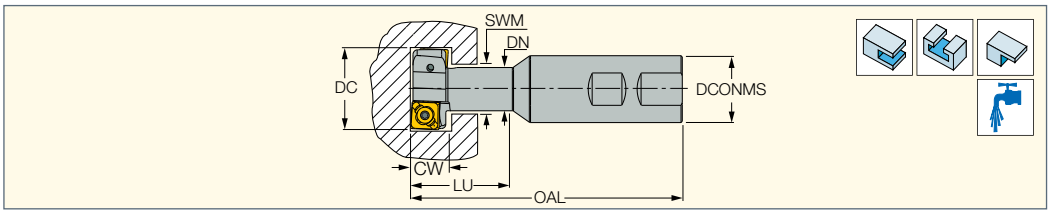
Spare Parts

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 377-383

(1) Number of flutes

(2) W-Weldon

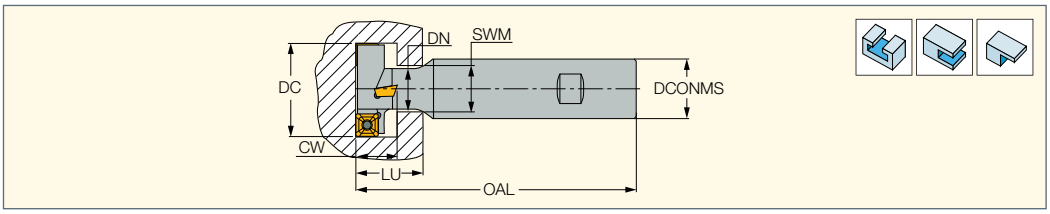
For inserts, see pages: XNMU 13 (514)

Spare Parts

Designation			
ETS-XN13	SR M4-L15-D4.5	BLD IP15/S7	SW6-T-SH

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	23.7	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 377-383
(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-HM (456) • ADKT 1505..R/L-HM (459) • ADKT 1505PDR/L-HM (458) • ADKT 1505PDTR/L-RM (458) • APKT 1003PDTR/L-RM (452) • QOMT-HQ (494) • XOMT-HQ (494) • XPMT-HQ (496)

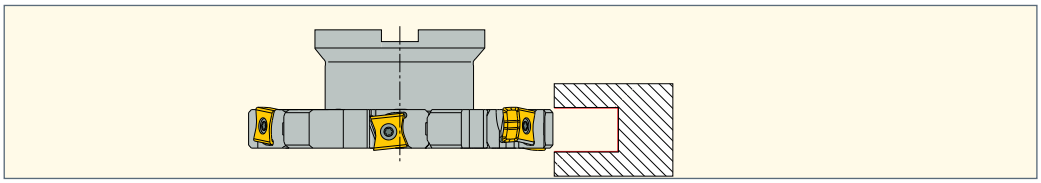
Spare Parts

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	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

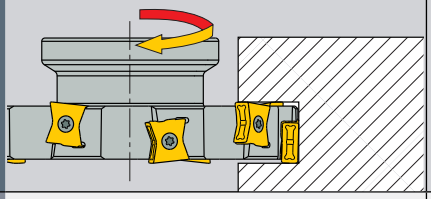
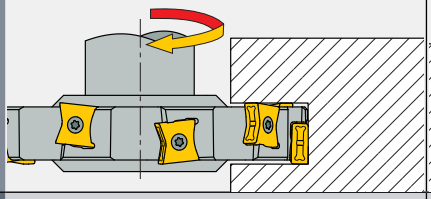
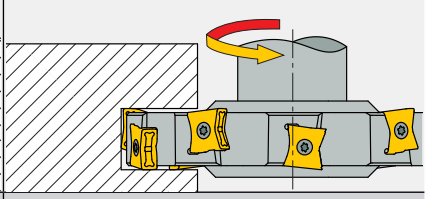
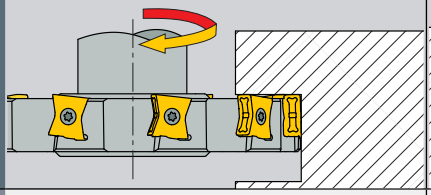
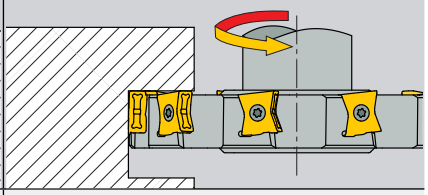
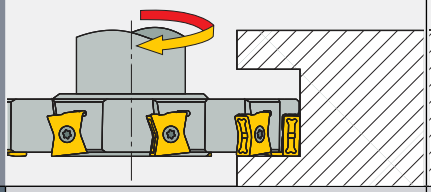
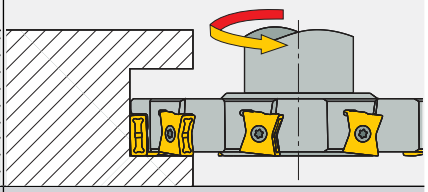
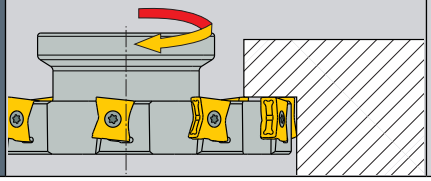


Tool Diameter							Width of Cutter																					Type of Insert	
63	80	100	125	160	200	250	3	4	4.5	5	5.5	6	6.5	7	8	8.5	9	10	10.5	12	13	14	14.6	16	17	18	19	20	23	25.6		
●	●	●					✓																							LNET 081804	
●	●	●						✓																						LNET 082604	
●	●	●							✓																					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

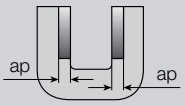
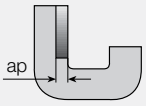
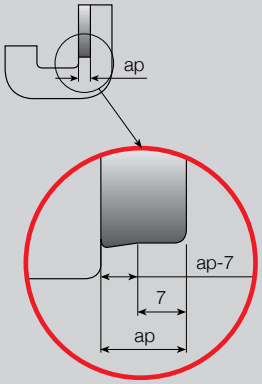
Cutter Types for Right and Left-Hand, Top and Bottom Milling

	Right-Hand Spindle Rotation	Left-Hand Spindle Rotation
Full Side - Flange Type (Pages 345-352)	FDN...-R 	
Full Side - Disk Type (Pages 354-361)	SDN 	SDN 
Half Side - Top Disk Type (Page 362)	SSB...-R 	SSB...-R 
Half Side - Bottom Disk Type (Page 362)	SSB...-L 	SSB...-L 
Half Side - Top Flange Type (Page 361)	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

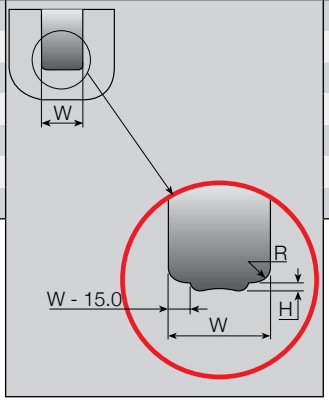
Configuration Guide for FDN/SDN/SSB/FST/FSB... CALN15 Cutters

Designation	Number of Cutting Edges(1)	Bottom Flatness a_p≤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 MIlling	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≤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

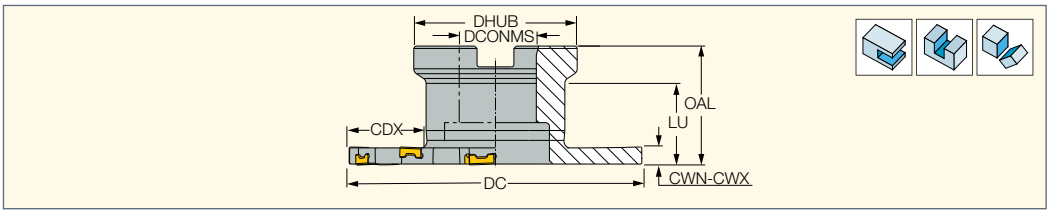
LNHT	1506...-N R.H./L.H	LNKX 1506... LNMT 1506... R.H./L.H.	LNHT 1506...-R R.H. only
			
Page 487		Pages 486-488	Page 487



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
(5) For adaptation options, see page 548
(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 (492)

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

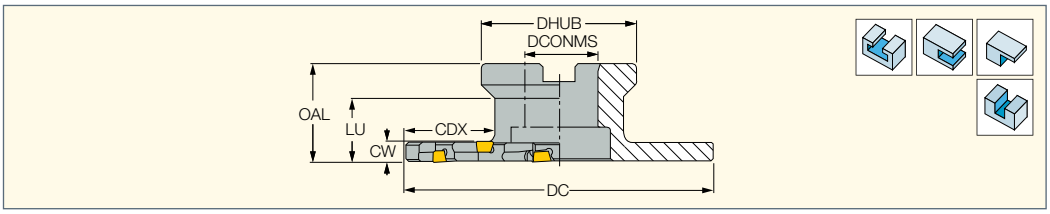
Spare Parts

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

(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

(5) Number of inserts

(6) For adaptation options, see page 548

For inserts, see pages: LNET 12-TN (493) • LNET 12-TN-MM (493)

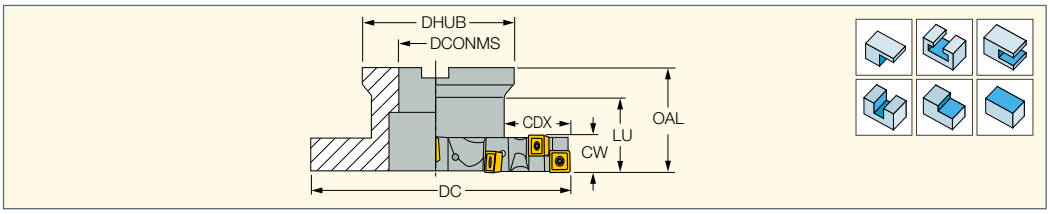
Spare Parts

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 377-383

(1) Cutting depth maximum

(2) Number of inserts

(3) For adaptation options, see page 548

(4) Master insert identification

For inserts, see pages: QDCT-PDN (497) • QDMT 1205..PDTN-M (498) • QOMT-HQ (494) • QPMT 100408PDTN (495) • XOMT-HQ (494)
• XPMT-HQ (496)

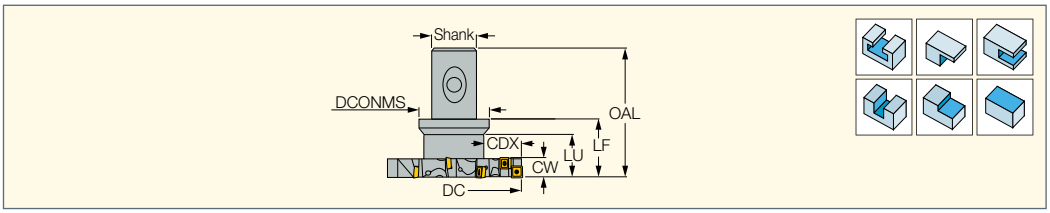
Spare Parts

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

HELIQUADCLICKFIT

FDN-CF4

Full Slot Flange-Type Slotting Cutters with CLICKFIT 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 377-383

(1) Number of inserts

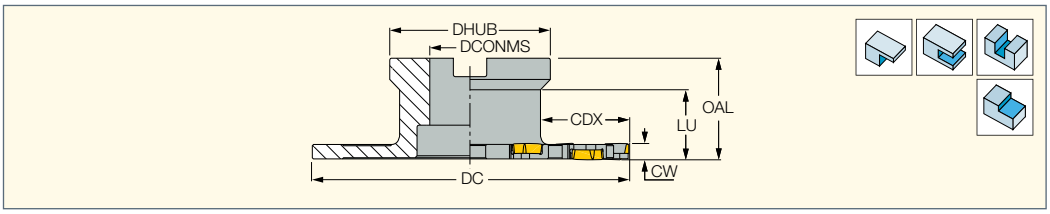
(2) Cutting depth maximum

For inserts, see pages: QOMT-HQ (494) • XOMT-HQ (494)

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 548
- For cartridges see page 363

(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

For inserts, see pages: LNET 12-TN (493) • LNET 12-TN-MM (493)

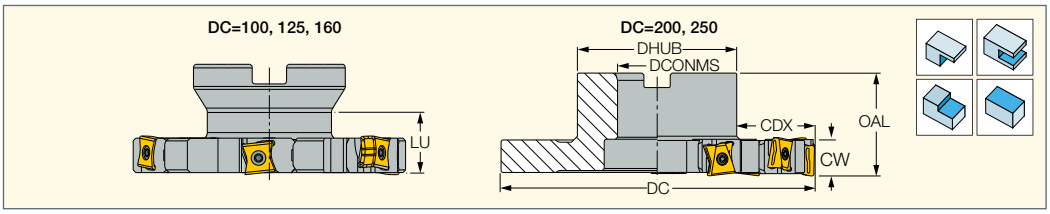
Spare Parts

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 363

(1) Minimum cutting width

(2) Maximum cutting width

(3) Cutting depth maximum

(4) Number of inserts

(5) For adaptation, see page 548

For inserts, see pages: LNAR 1106 (482) • LNHT 1106 PN-N HT (482) • LNHT 1106 PN-R HT (481) • LNKX/LNMT 1106 (481)

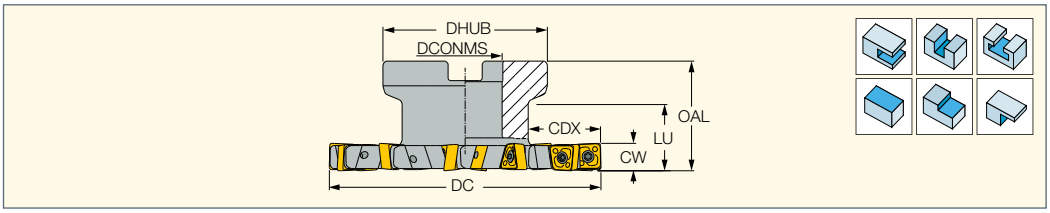
Spare Parts

Designation	
FDN-CALN11	CA90 1419-R/L-LN11

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[2]	DHUB	DCONMS	LU	OAL	Arbor[3]	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 377-383

(1) Number of inserts

(2) Cutting depth maximum

(3) For adaptation options, see page 548

For inserts, see pages: XNMU 0904PN (514)

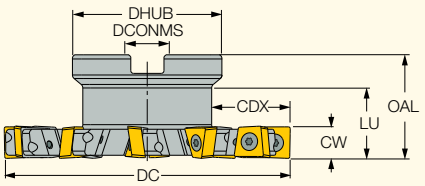
Spare Parts

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 377-383

(1) Number of inserts
(2) Cutting depth maximum
(3) For adaptation options, see page 548
For inserts, see pages: XNMU 13 (514)

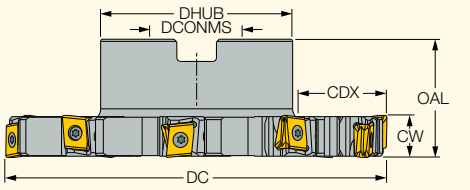
Spare Parts

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 363
- 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
(5) For adaptation options, see page 548
For inserts, see pages: T490 LNMT/LNHT/LNAR 1306 (478)

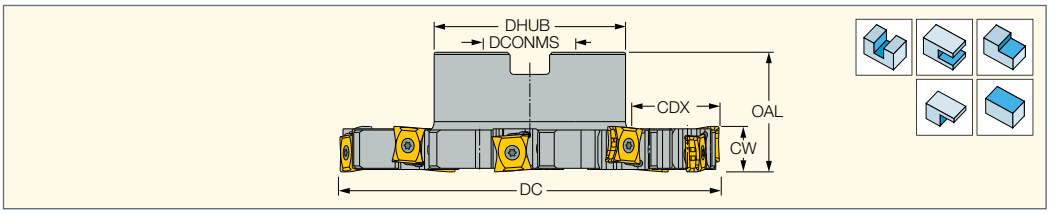
Spare Parts

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 363

[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
[5] For adaptation options, see page 548

For inserts, see pages: LNAT 1506-PM (490)

Spare Parts

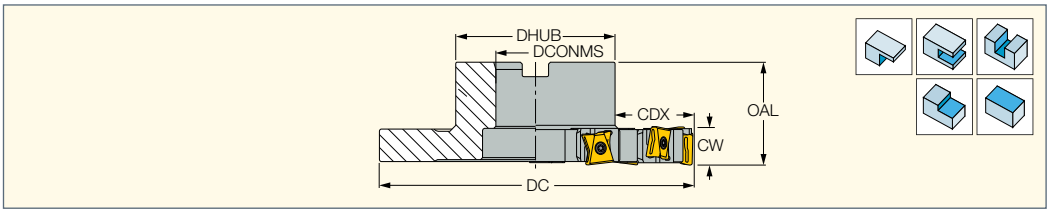
Designation			
FDN-CAPM15	CA90 1928-R/L-PM15-A	CA90 1928-R/L-PM15-B*	CA90 1928-R/L-PM15-C*

* Optional, should 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	6.56

- Each cutter body can be changed into full slot, bottom or top milling configuration by mounting the cartridges accordingly
- For cartridge details, see page 363

[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
[5] For adaptation options, see page 548

For inserts, see pages: LNKX 1506PN-N PL (486) • LNKX/LNMT 1506PNTN/PN-N MM (486) • LNMT/LNHT 1506...-N HT (488) • LNMW 1506 PNTN (486)

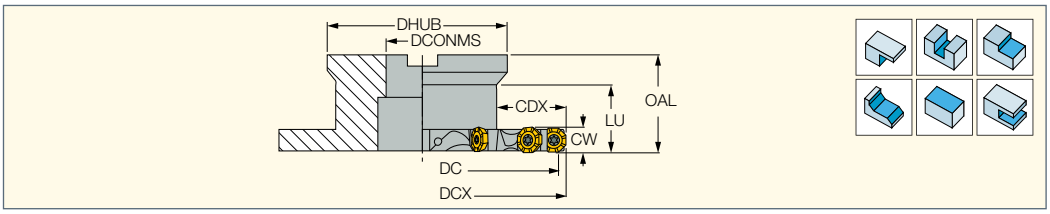
Spare Parts

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
(4) Number of inserts
(5) For adaptation options, see page 548

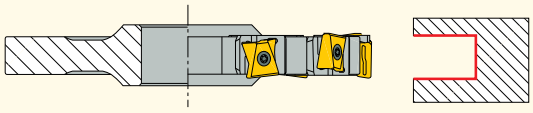
Spare Parts

Designation			
FDN-CM	SR 14-544/S	BLD T15/M7	SW6-T



TANGMILL TANGENTIAL LINE

SDN
Full Slot Disk Type



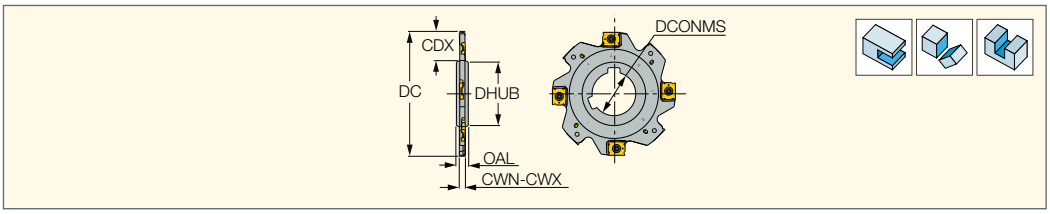
Tool Diameter							Width of Cutter																					Type of Insert	
63	80	100	125	160	200	250	3	4	4.5	5	5.5	6	6.5	7	8	8.5	9	10	10.5	12	13	14	14.6	16	17	18	19	20	23	25.6		
●	●	●	●				✓																							LNET 081804	
●	●	●	●	●				✓																						LNET 082604	
●	●	●	●	●					✓																					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 377-383

(1) Minimum cutting width
(2) Maximum cutting width
(3) Cutting depth maximum
(4) Number of inserts
(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 (492)

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

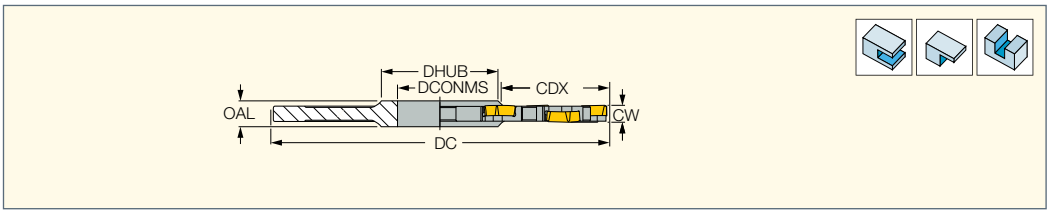
Spare Parts

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 377-383

(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
(5) Number of inserts

For inserts, see pages: LNET 12-TN (493) • LNET 12-TN-MM (493)

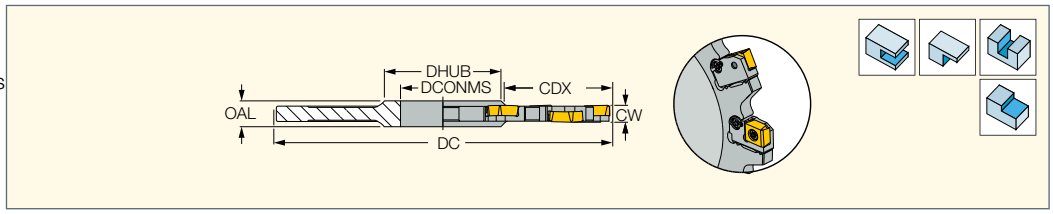
Designation	Insert			(1)
SDN-LN12	LNET 1240...	SR 14-500-L5.9	T-15/51-BE	ratchet wrench key
	LNET 1245 D=80-125	SR 14-500-L6.5	T-15/51-BE	
	LNET 1245 D=160-250	SR 14-500-L7.0	T-15/51-BE	
	LNET 1248...	SR 14-500-L7.0	T-15/51-BE	
	LNET 1250...	SR 14-500-L8.0	T-15/51-BE	
	LNET 1255...	SR 14-500-L8.5	T-15/51-BE	
	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 page 377-383 • For cartridge details, see page 363

(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

(6) Number of inserts

For inserts, see pages: LNET 12-TN (493) • LNET 12-TN-MM (493)

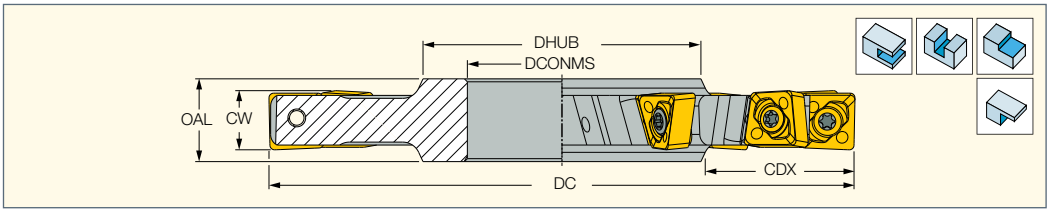
Spare Parts

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	

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 377-383

(1) Number of inserts

For inserts, see pages: XNMU 0904PN (514)

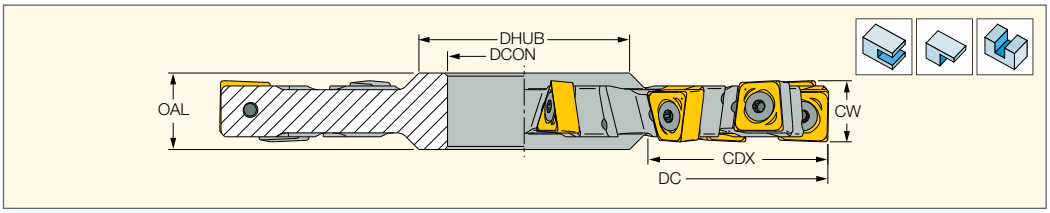
Spare Parts

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 377-383

(1) Number of inserts

(2) Cutting depth maximum

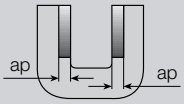
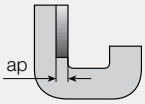
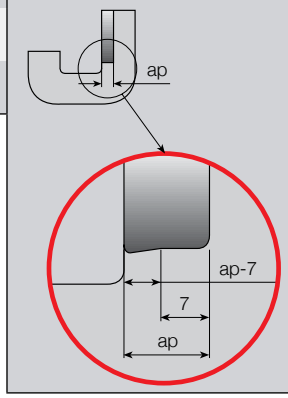
For inserts, see pages: XNMU 13 (514)

Inserts

LNHT 1106...HT inserts should be used if a straight groove or shoulder are needed.

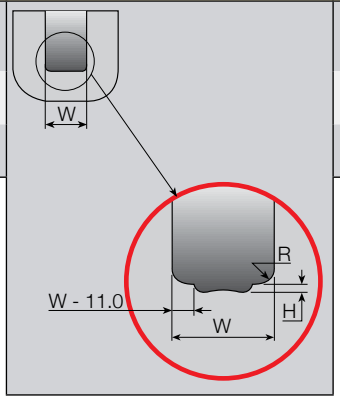
When using the other inserts, the machined surface is grooved due to the butterfly insert shape.

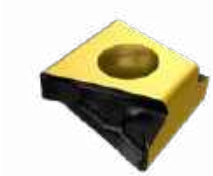
Side Wall Flatness Depending on the Inserts Being Used

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

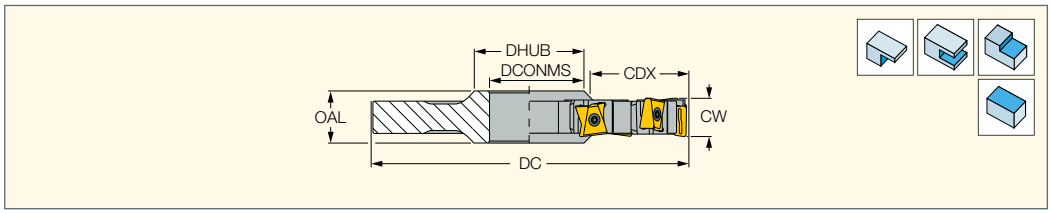
Designation	Number of Cutting Edges	Bottom Slot Flatness H (mm)	Insert Radius R (mm)	Application	Half Side Tools Axial Depth of Cut W (mm)
LNHT 1106... LNKX 1106...	2R+2L	0.45	0.8		W=14-19.5
LNMT 1106...	2R+2L	0.45	0.8		W=14-19.5
LNHT 1106 - N(1)	2R+2L	Flat	0.8		W=14-19.5

LNHT 1106... - N R.H./L.H.	LNKX 1106... LNMT 1106... R.H./L.H.	(LNHT 1106... - R R.H. only
		
Page 482	Page 481	Page 481

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 363

(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

For inserts, see pages: LNAR 1106 (482) • LNHT 1106 PN-N HT (482) • LNHT 1106 PN-R HT (481) • LNKX/LNMT 1106 (481)

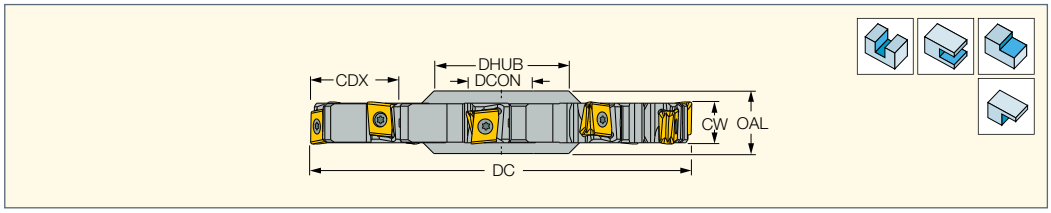
Spare Parts

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

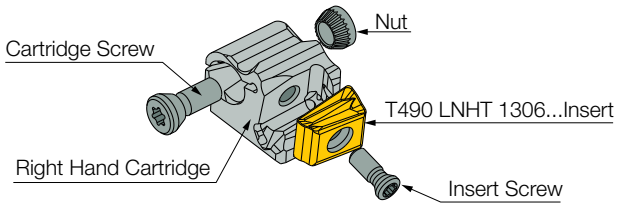


Designation	DC	OAL	CWN(1)	CWX(2)	CDX(3)	CICT(4)	ZEFP	DHUB	DCON	kg
SDN D125-1723-40-CALN13	126.00	26.00	17.50	23.00	32.00	8	4	56.00	40.00	1.13
SDN D160-1723-40-CALN13	161.00	26.00	17.50	23.00	49.50	10	5	56.00	40.00	1.90
SDN D200-1723-50-CALN13	201.00	26.00	17.50	23.00	61.00	14	7	70.00	50.00	3.01
SDN D250-1723-50-CALN13	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 363

(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

For inserts, see pages: T490 LNMT/LNHT/LNAR 1306 (478)



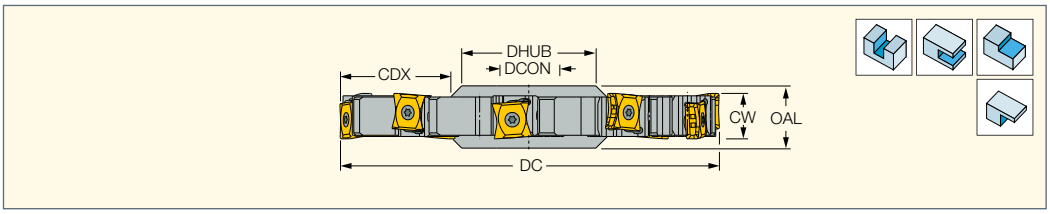
Spare Parts

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 363

(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

For inserts, see pages: LNAT 1506-PM (490)

Spare Parts

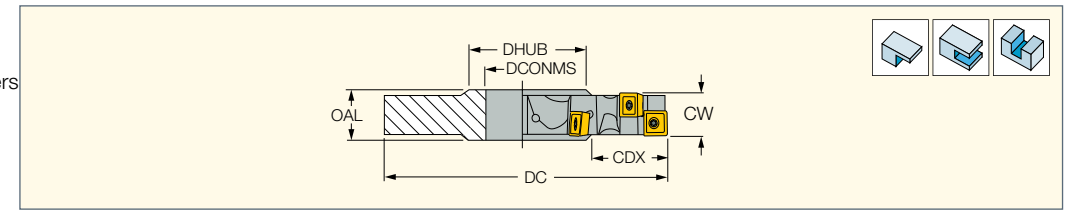
Designation			
SDN-CAPM15	CA90 1928-R/L-PM15-A	CA90 1928-R/L-PM15-B*	CA90 1928-R/L-PM15-C*

* Optional, should 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 377-383

(1) Number of inserts
(2) Cutting depth maximum

For inserts, see pages: QDCT-PDN (497) • QDMT 1205..PDTN-M (498) • QOMT-HQ (494) • QPMT 100408PDTN (495) • XOMT-HQ (494) • XPMT-HQ (496)

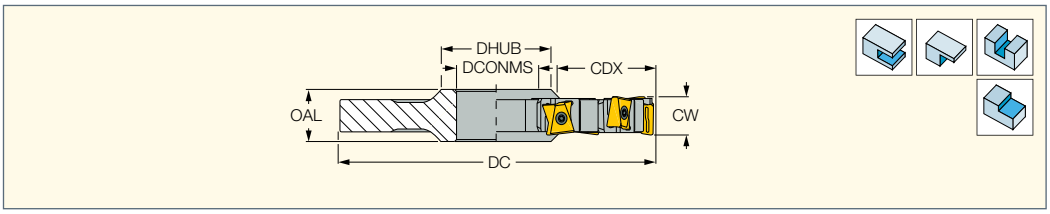
Spare Parts

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

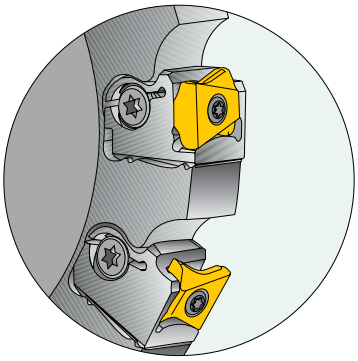


Designation	CWN(1)	CWX(2)	CDX(3)	CICT(4)	ZEFP	DC	DHUB	DCONMS	OAL	kg
SDN D125-1925-40-CALN15	18.90	25.60	32.50	8	4	125.00	56.00	40.00	26.00	0.39
SDN D160-1925-40-CALN15	18.90	25.60	48.50	10	5	160.00	56.00	40.00	26.00	0.00
SDN D200-1925-50-CALN15	18.90	25.60	61.50	14	7	200.00	70.00	50.00	26.00	3.03
SDN 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 363

(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

For inserts, see pages: LNKX 1506PN-N PL (486) • LNKX/LNMT 1506PNTN/PN-N MM (486) • LNMT/LNHT 1506...-N HT (488) • LNMW 1506 PNTN (486)



SDN-CALN

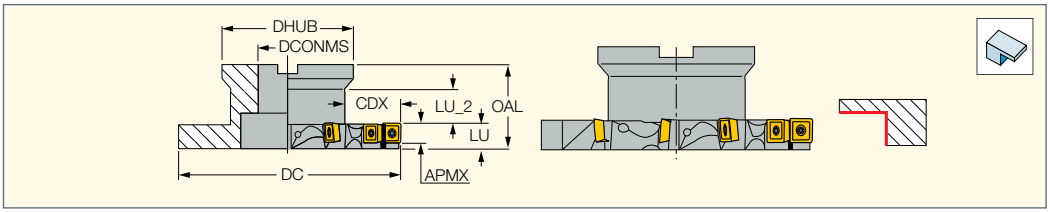
Spare Parts

Designation	
SDN-CALN15	CA90 1928-R/L-LN15

ISCARMILL

FST

Top-Side Cutting, Flanged Type Slotting Cutters



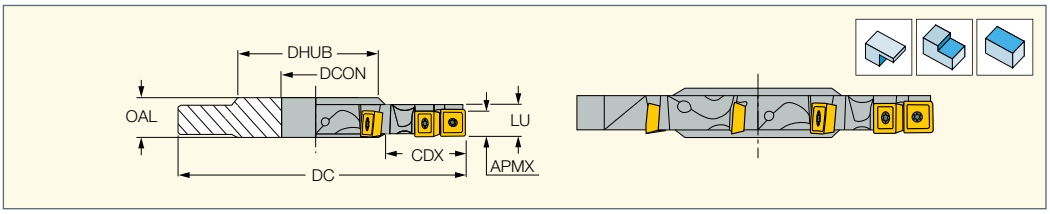
Designation	DC	APMX	CICT(1)	CDX(2)	DHUB	DCONMS	LU_2	LU	OAL	Arbor(3)		
FST D100-12-27-R10	100.00	9.00	11	25.00	55.00	27.00	17.5	12.00	40.00	B	SR 14-544/S	T-15/51
FST D125-12-32-R10	125.00	9.00	13	34.00	65.00	32.00	20.0	12.00	45.00	B	SR 14-544/S	T-15/51

(1) Number of inserts
(2) Cutting depth maximum
(3) For adaptation options, see page 548

For inserts, see pages: ADKR 1505PDR/L-HM (456) • ADKT 1505..R/L-HM (459) • ADKT 1505PDR/L-HM (458) • ADKT 1505PDTR/L-RM (458) • QDCT-PDN (497) • QDMT 1205..PDTN-M (498) • QPMT 100408PDTN (495) • XPMT-HQ (496)

ISCARMILL

SSB
Single-Side Cutting, Disk Type Slotting Cutters



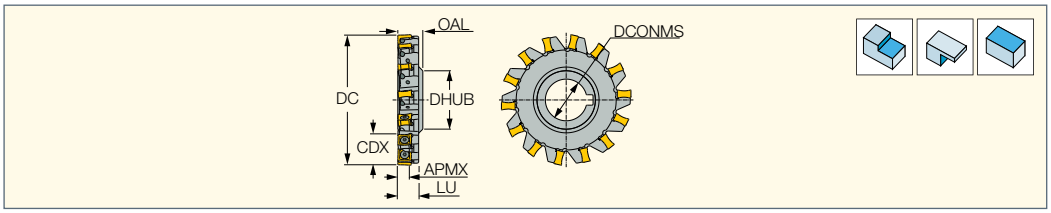
Designation	APMX	DC	CICT(1)	CDX(2)	DHUB	DCONMS	LU	OAL		
SSB D100-12-32-R/L10	9.00	100.00	9	26.00	47.00	32.00	12.00	16.00	SR 14-544/S	T-15/51
SSB D125-12-40-R/L10	9.00	125.00	11	35.00	55.00	40.00	12.00	16.00	SR 14-544/S	T-15/51
SSB D160-16-40-R/L10	9.00	160.00	13	52.00	55.00	40.00	16.00	20.00	SR 14-544/S	T-15/51

(1) Number of inserts
(2) Cutting depth maximum

For inserts, see pages: QDCT-PDN (497) • QDMT 1205..PDTN-M (498) • QPMT 100408PDTN (495) • SPCT/SPMR PDR (496) • SPMT-HQ (495) • XPMT-HQ (496)

HELIDO 890 LINE

S890 SSB-13
Half Side / Face Disk Milling Cutters Carrying HELIDO S890 SNMU 1305 Inserts



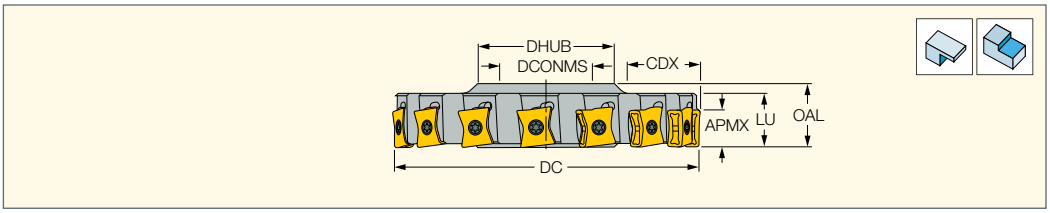
Designation	DC	APMX	NOF(1)	CDX(2)	DHUB	DCONMS	LU	OAL	kg			
S890 SSB D125-20-40-R/L13	125.00	9.00	14	33.00	56.00	40.00	20.00	24.00	1.20	SR 11800745	BLD IP15/S7	SW6-T-SH

(1) Number of flutes
(2) Cutting depth maximum

For inserts, see pages: S890 SNMU 1305PN... (504)

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
(2) Cutting depth maximum

For inserts, see pages: LNAT 1506-W (489) • LNAT 1506..PN-N MM (489) • LNAW-15 (CBN) (485) • LNHW 1506 PNTN (ceramic) (488) • LNKX 1506 1.5X45 PN-N (487) • LNKX 1506PN-N PL (486) • LNKX/LNMT 1506PNTN/PN-N MM (486) • LNMT/LNHT 1506...-N HT (488) • LNMT/LNHT 1506PN-R HT (487) • LNMW 1506 PNTN (486)



LNMT 1506PTNT-HT R.H./L.H.



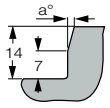
LNKX 1506... LNMT 1506... R.H./L.H.



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°



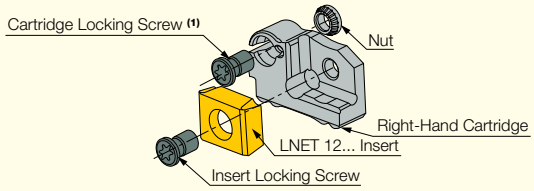
CA	08	10	R	LN	12

- CA - Cartridge
- Range of Adjustment
- Minimum Width of Cut
- Maximum Width of Cut
- R.H. / L.H.
- Type of Insert: LNET/R 12
- Insert Size

TANGSLOT

CA-R/L-LNET 12

Adjustable Cartridge for FDN/ SDN-CALN 12 Full Slot Adjustable Slotting Cutters



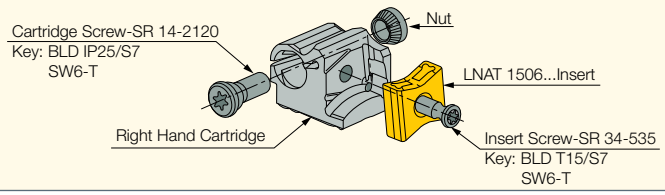
Cartridge	Cartridge Locking Screw	Nut	Width of Cut Min.	Insert Max.	Insert Designation	Clamping Screw
CA 0608-R/L-LNET 12	SR 14-500-L4.5	NUT M4-2.2	6.00	6.50	LNET 1235...	SR 14-500/L4.9
			6.50	7.20	LNET 1240...	SR 14-500/L5.3
			7.00	8.20	LNET 1245..	SR 14-500/L5.9
CA 0810-R/L-LNET 12	SR 14-500-L6.1	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



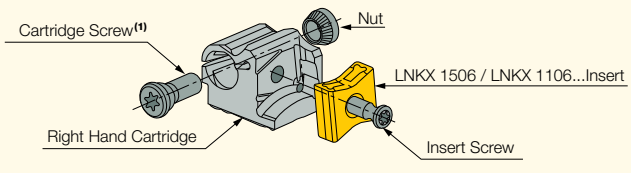
Designation	a_p min	a_p max			
CA90 1928-R/L-PM15-A (1)	18.90	25.60	SR 34-535	NUT M5-4.5	SR 14-2120
CA90 1928-R/L-PM15-B (2)	18.90	25.60	SR 34-535	NUT M5-4.5	SR 14-2120
CA90 1928-R/L-PM15-C (3)	18.90	25.60	SR 34-535	NUT M5-4.5	SR 14-2120

(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

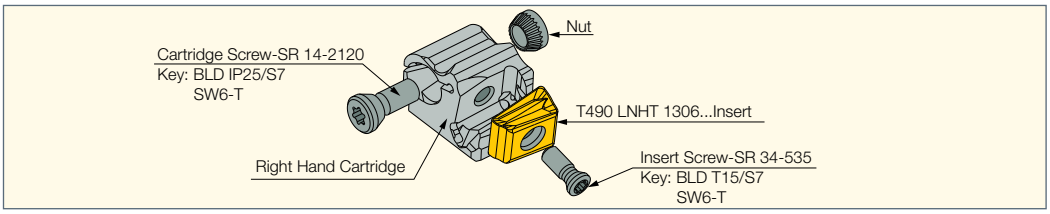


Designation	a_p min	a_p max			
CA90 1419-R/L-LN11	14.00	19.50	SR 34-550	SR 14-2120/L11.2	NUT M5-4.5
CA90 1928-R/L-LN15	18.90	25.60	SR 34-535	SR 14-2120	NUT M5-4.5

HELITANG T490 LINE

CA90 1723-R/L-T490-13

Adjustable Cartridge for SDN and FDN-CALN13

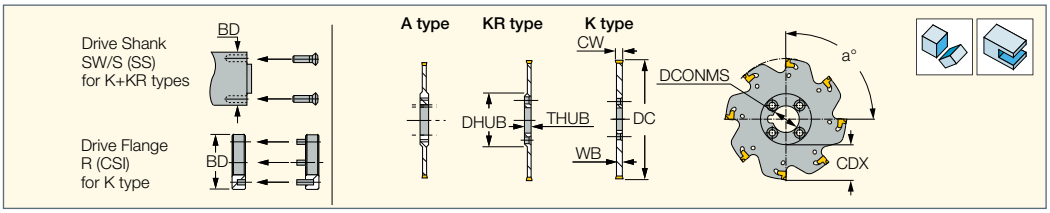


Designation	a_p min	a_p max			
CA90 1723-R/L-T490-13	17.50	23.00	SR 34-535-SN	SR 14-2120	NUT M5-4.5

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

(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

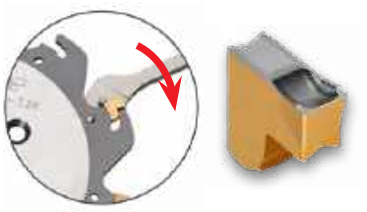
* Optional, should be ordered separately

For inserts, see pages: TAG N-A (367) • TAG N-C/W/M (366) • TAG N-J/JS/JT (367)

For holders, see pages: BT-SEMC (647) • C#-SEMC (623) • DIN2080-SEMC (655) • DIN69871-SEMC (578) • HSK A-SEMC (605) • SW/S (371)



Insert Insertion



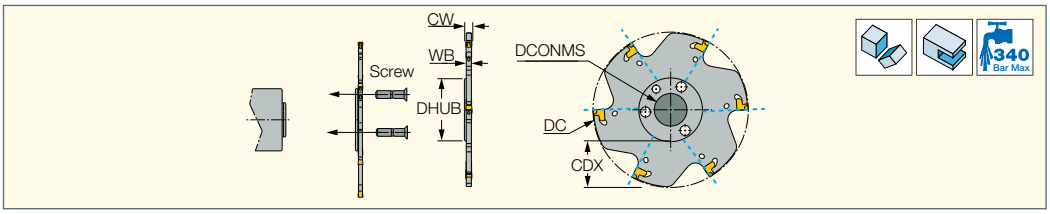
Insert Extraction



TANGSLIT JETCUT

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

(2) Maximum RPM

(3) Master insert identification

* Optional, should be ordered separately

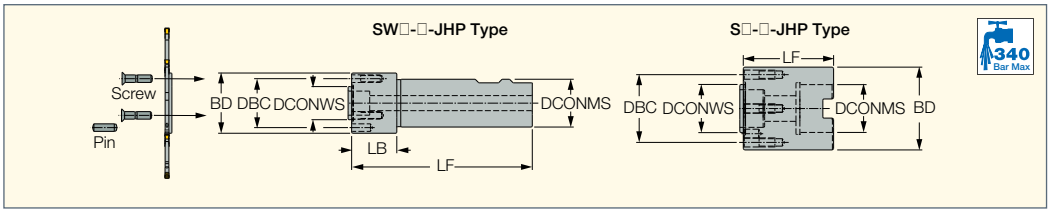
For inserts, see pages: TAG N-A (367) • TAG N-C/W/M (366) • TAG N-J/JS/JT (367)

For holders, see pages: SW/S-JHP (365)

TANGSLIT

SW/S-JHP

Drive Shanks with Coolant Channels for TANG-GRIP Slitting Cutters



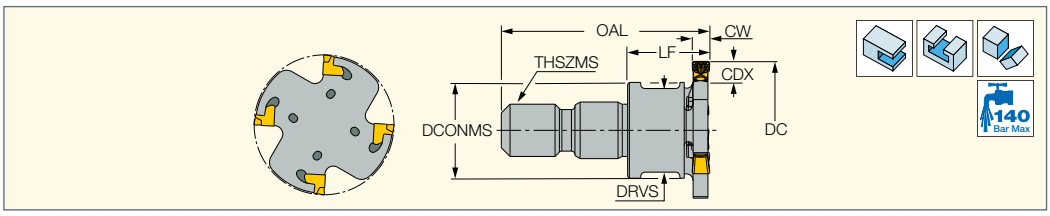
Designation	DCONMS	BD	DBC	DCONWS	LB	LF	kg			
SW 25-32-JHP	25.00	32.00	25.40	10.00	25.00	110.00	0.43	SR 76-961		T-15/5
SW 32-40-JHP	32.00	40.00	32.50	22.00	30.00	120.00	0.77	SR 76-963		T-15/5
S 32-55-JHP	32.00	55.00	45.00	32.00	-	60.00	0.83	SR 76-943	SR M16X40-JHP	T-20/5

For tools, see pages: TGSF-JHP (365)

TANGSLIT FLEXFIT

TGSF-M-JHP

Grooving and Slitting Small Diameter Cutters with FLEXFIT 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 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) Number of inserts

(2) Torque key size

(3) Tool tightening torque Nxm (lbfxin)

* Optional, should be ordered separately

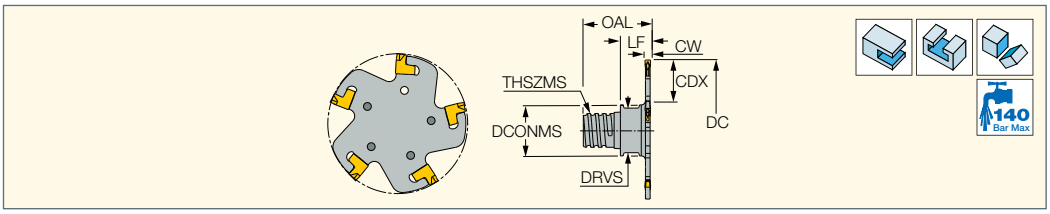
For inserts, see pages: TAG N-A (367) • TAG N-C/W/M (366) • TAG N-J/JS/JT (367)

For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312) • S M-CF (313)

TANGSLIT MULTI-MASTER

TGSF-MM-JHP

Grooving and Slitting Small Diameter Cutters with MULTI-MASTER Threaded Adaptation



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

(2) Torque key size

* Optional, should be ordered separately

For inserts, see pages: TAG N-A (367) • TAG N-C/W/M (366) • TAG N-J/JS/JT (367)

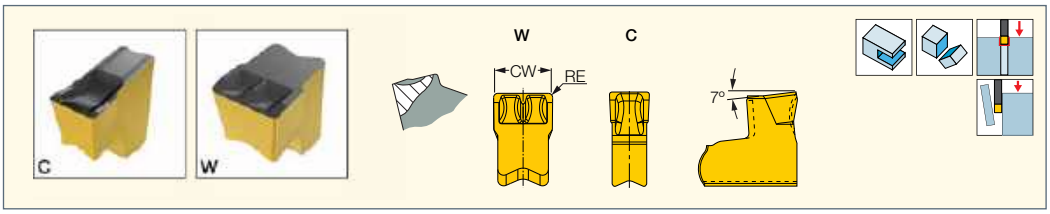
For holders, see pages: MM CAB-T-T (91) • MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609)

- MM S-A-SK (90)
- MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

TANG-GRIP 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	IC5400	IC1010	IC808	IC908	IC30N	IC20	IC807	f groove (mm/rev)
TAG N1.4C	1.40	0.04	0.16										●	0.04-0.10
TAG N1.6C	1.60	0.04	0.16	●					●					0.04-0.14
TAG N2C	2.00	0.04	0.20	●		●	●	●	●		●	●		0.05-0.16
TAG N2.4C	2.40	0.04	0.16	●					●					0.06-0.18
TAG N3CB [1]	3.00	0.04	0.35	●					●					0.12-0.30
TAG N3C	3.05	0.04	0.20	●	●	●	●	●	●	●	●	●	●	0.10-0.25
TAG N3M [2]	3.05	0.04	0.20	●						●				0.06-0.18
TAG N3W	3.05	0.04	0.20	●						●				0.10-0.25
TAG N4C	4.00	0.04	0.24	●	●	●	●	●	●	●		●	●	0.10-0.30
TAG N4CB [1]	4.00	0.04	0.40	●						●				0.10-0.33
TAG N4M [2]	4.00	0.04	0.24	●						●				0.06-0.20
TAG N4W	4.00	0.04	0.24	●						●				0.10-0.30

- Feed values for grade IC20 should be decreased by 50% • For cutting speed recommendations and user guide, see pages 542-547

(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

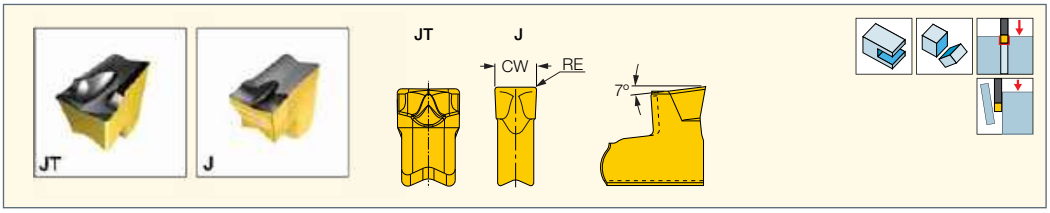
(3) Cutting width tolerance (+/-)

For tools, see pages: • TGSF (364) • TGSF-JHP (365) • TGSF-M-JHP (365) • TGSF-MM-JHP (366)

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	IC5400	IC1010	IC808	IC908	IC20	IC807	Recommended Machining Data f groove (mm/rev)
TAG N1.4J	1.40	0.16	0.04	0.030	●					●			●	0.03-0.10
TAG N1.6J	1.60	0.16	0.04	0.030	●					●				0.03-0.12
TAG N2JS [1]	2.00	0.02	0.04	0.020	●					●				0.03-0.08
TAG N2J	2.00	0.20	0.04	0.040	●		●	●	●	●		●		0.04-0.12
TAG N2JT	2.00	0.20	0.04	0.040	●	●		●		●	●			0.04-0.14
TAG N3JS [1]	3.05	0.02	0.04	0.020	●					●				0.04-0.10
TAG N3J	3.05	0.20	0.04	0.030	●	●	●	●	●	●	●	●	●	0.04-0.16
TAG N3JT	3.05	0.20	0.04	0.030	●			●		●	●			0.05-0.18
TAG N3.2JT	3.25	0.20	0.04	0.030	●					●				0.05-0.18
TAG N4J	4.00	0.24	0.04	0.030	●	●	●	●	●	●	●		●	0.04-0.18
TAG N4JT	4.05	0.24	0.04	0.030	●			●		●	●			0.06-0.20

- JT chipformer has the basic positive configuration of the J-type and a reinforced negative frontal edge; most suitable for soft materials at low to medium feeds.
- For cutting speed recommendations and user guide, see pages 542-547

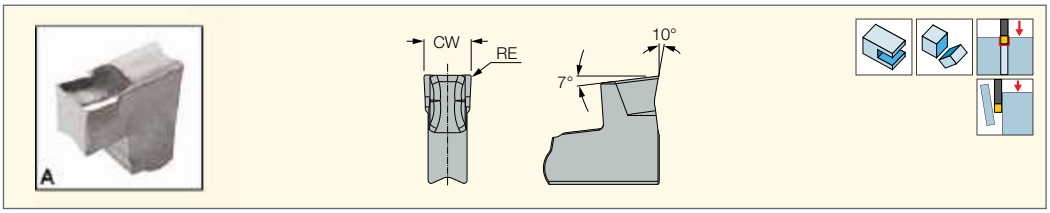
[1] Sharp corners cannot be used on TGSF slitting cutters
[2] Cutting width tolerance (+/-)
[3] Corner radius tolerance (+/-)

For tools, see pages: TGSF (364) • TGSF-JHP (365) • TGSF-M-JHP (365) • TGSF-MM-JHP (366)

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	0.04	0.040	●	0.02-0.10
TAG N3A	3.00	0.20	0.04	0.040	●	0.03-0.14
TAG N4A	4.00	0.24	0.04	0.030	●	0.03-0.16

- For cutting speed recommendations and user guide, see pages 542-547

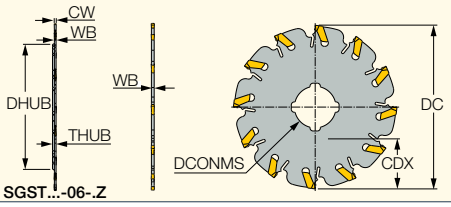
[1] Cutting width tolerance (+/-)
[2] Corner radius tolerance (+/-)

For tools, see pages: • TGSF (364) • TGSF-JHP (365) • TGSF-M-JHP (365) • TGSF-MM-JHP (366) • TGSF (364)

SLIMSLIT NARROW SLITTING

SGST

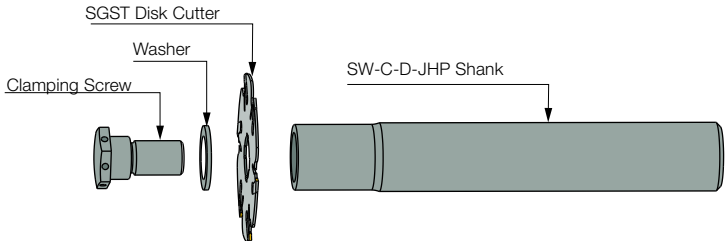
Thin Slitting Cutters Carrying SLIMGRIP Inserts



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
(2) Maximum RPM
(3) Master insert identification
* Optional, should be ordered separately

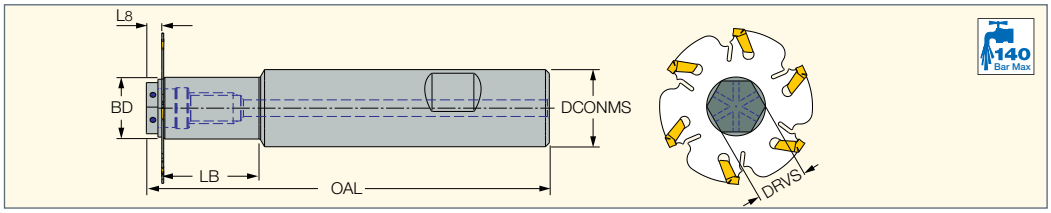
For inserts, see pages: GFT-J (369)
For holders, see pages: SW-C-D-JHP (368)



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

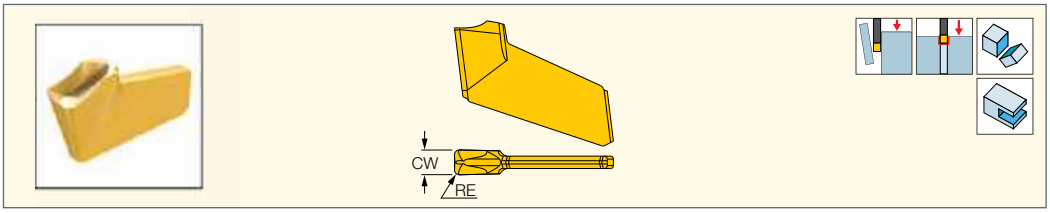
(1) Clamping wrench size
* Optional, should be ordered separately

For tools, see pages: SGST (368)

SLIMGRIP NARROW INSERTS

GFT-J

Thin Parting, Grooving and Slitting Single-Ended Inserts for Soft Materials



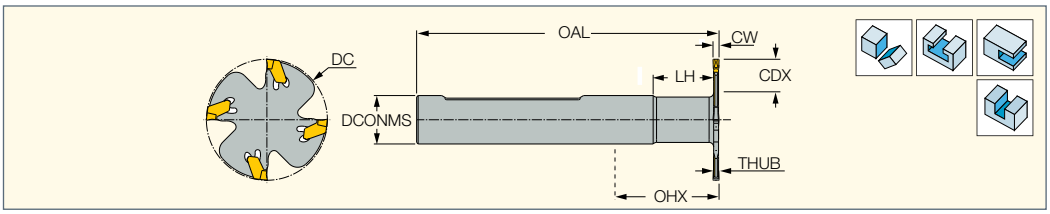
Designation	Dimensions CW	RE	Tough ↔ Hard IC1028	IC1008	Recommended Machining Data f groove (mm/rev)
GFT 0.6J-0.1	0.60	0.10	•	•	0.03-0.05
GFT 0.8J-0.1	0.80	0.10	•	•	0.03-0.07
GFT 1.0J-0.1	1.00	0.10	•	•	0.03-0.09
GFT 1.2J-0.14	1.20	0.14	•	•	0.03-0.10
GFT 1.6J-0.16	1.60	0.16	•	•	0.03-0.12

For tools, see pages: • SGST (368)

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 377-383

(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

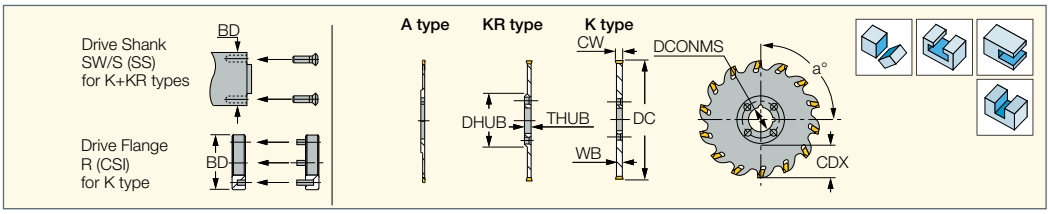
For inserts, see pages: GSFN (373) • GSFU (373)



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	SET 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; they 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 377-383

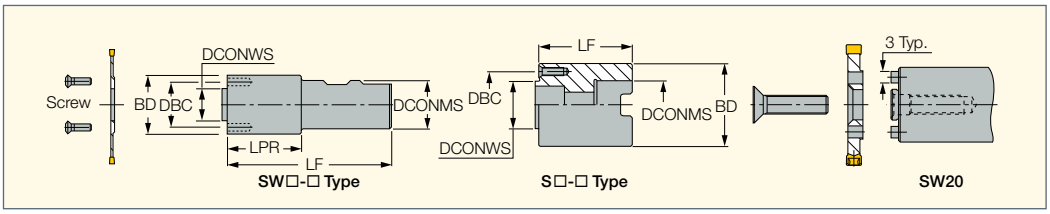
[1] Standard GSFN 2.4 inserts are not suitable for this tool; for suitable tool, see specific pocket size.
[2] CDX=16, DHUB=46 when used with drive flange
[3] CDX=26, DHUB=46 when used with drive flange
[4] Minimum cutting width
[5] Maximum cutting width
[6] Cutting depth maximum
[7] Number of inserts
[8] Maximum RPM
[9] Master insert identification

For inserts, see pages: GSFN (373) • GSFU (373)
For holders, see pages: BT-SEMC (647) • C#-SEMC (623) • DIN2080-SEMC (655) • DIN69871-SEMC (578) • HSK A-SEMC (605) • SW/S (371)

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	0.84
S 40-80	40.00	80.00	63.00	40.00	-	60.00	1.78

For tools, see pages: GM-DG (374) • SGSA (372) • SGSF (370) • TGSF (364)

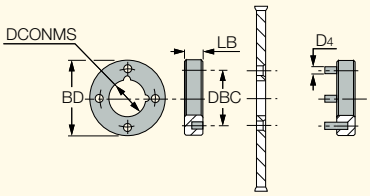
Spare Parts

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

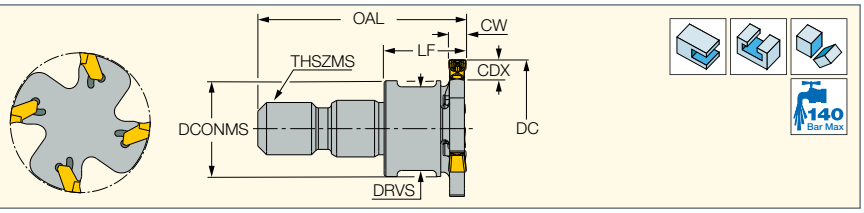


Designation	DCONMS	BD	DBC	D4	LB
R 22-46	22.00	46.00	32.00	5.00	10.00
R 32-55	32.00	55.00	45.00	6.00	10.00
R 40-80	40.00	80.00	63.00	11.00	12.00
R 50-110	50.00	110.00	80.00	14.00	14.00

SELF-GRIP FLEXFIT

SGSF/A-M-JHP

Grooving and Slitting Small Diameter Cutters with FLEXFIT 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	11.80	4	18.00	M10	12.00	29.50	15.0	GSFN 2/GSFU 2.2	29	ESG 1.4-2*
SGSA 40-3-M10-6Z-JHP	40.00	3.00	11.80	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 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) Number of inserts

(2) Torque key size

(3) Tool tightening torque Nxm (lbfxin)

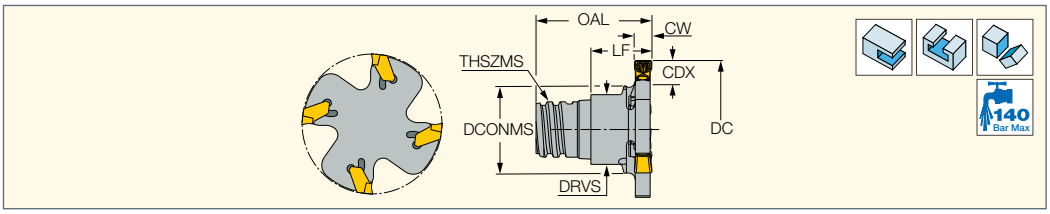
* Optional, should be ordered separately

For inserts, see pages: GSAN (372) • GSFN (373) • GSFU (373)

For holders, see pages: BT-ODP (FLEXFIT) (314) • C#-ODP (FLEXFIT) (314) • CAB M-M (FLEXFIT) (312) • DIN69871-ODP (315) • ER-ODP (315) • HSK A-ODP (FLEXFIT) (316) • S M (312) • S M-C-H (312)

SELF-GRIP
MULTI-MASTER

SGSF/A-MM-JHP
Grooving and Slitting Small Diameter Cutters with MULTI-MASTER Threaded Adaptation



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*

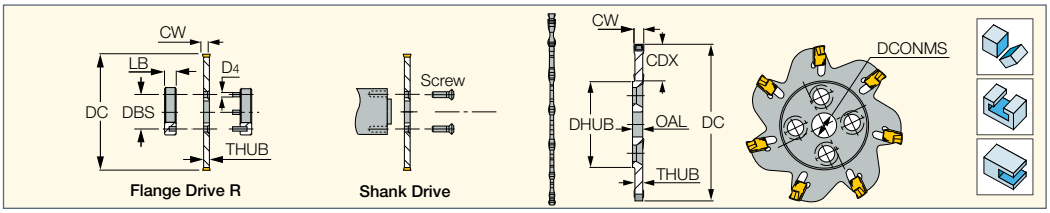
- For best performance use internal coolant with "CH" type shanks

(1) Number of inserts
(2) Torque key size
* Optional, should be ordered separately

For inserts, see pages: GSAN (372) • GSFN (373) • GSFU (373)
For holders, see pages: MM CAB (667) • MM CAB-T-T (91) • MM GRT (shanks) (86) • MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87)
- MM S-A-C# (86)
- MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88)
- MM S-ER (89) • MM S-ER-H (89)
- MM TS-A (86)

SELF-GRIP

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 80-3-22K-10Z-FP	2.70	3.53	80.00	10	-	22.00	2.4	2.40	16.00	995	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

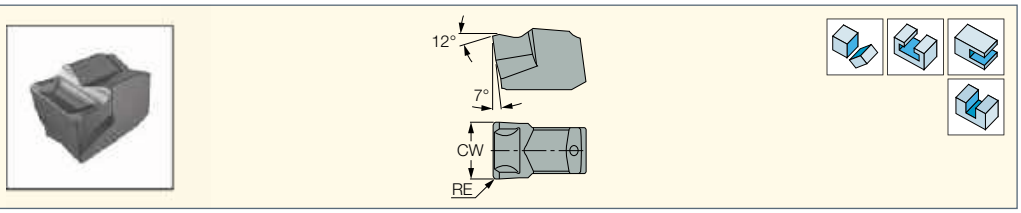
- For LB,DBS,D4 refer to SW/S drive shanks and R drive flange set • Maximum RPM may not be exceeded • For user guide, see pages 377-383

(1) Minimum cutting width
(2) Maximum cutting width
(3) Number of inserts
(4) Cutting depth maximum
(5) Maximum RPM
(6) Master insert identification

For inserts, see pages: GSAN (372)
For holders, see pages: SW/S (371)

SELF-GRIP

GSAN
SELF-GRIP Slitting Inserts



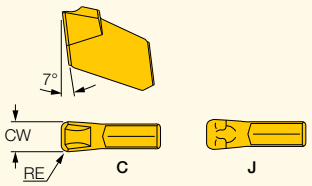
Designation	Dimensions CW	RE	Tough ↔ Hard IC328	IC908
GSAN 3	3.00	0.20	•	•
GSAN 4	4.00	0.24	•	

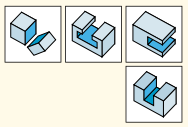
For tools, see pages: SGSA (372) • SGSF/A-M-JHP (371) • SGSF/A-MM-JHP (372)

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	•			•

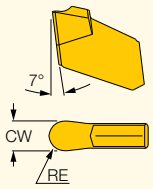
• Tolerance:W$^{\pm 0.05}$

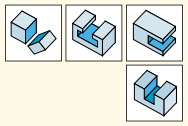
For tools, see pages: SGSF (370) • SGSF-W (369) • SGSF/A-M-JHP (371) • SGSF/A-MM-JHP (372)

SELF-GRIP

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$^{\pm 0.05}$

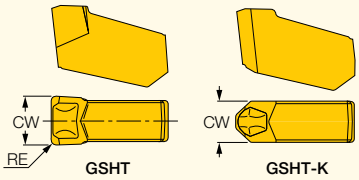
For tools, see pages: SGSF (370) • SGSF-W (369) • SGSF/A-M-JHP (371) • SGSF/A-MM-JHP (372)

SELFGRIP

GSHT

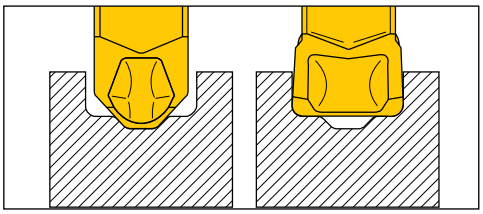
Slitting Inserts for Specially Tailored Heavy Duty Slitting Cutters





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

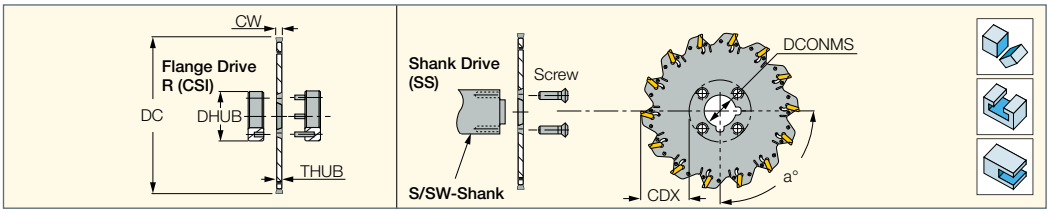


Inserts for **heavy duty** applications for use on **specially tailored** cutters, diameter range: **425-810 mm.** GSHT-6K chamfered inserts, can be used in a half-effective configuration to reduce overload, eliminate chatter, and improve chip flow.

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 377-383

(1) Only one key slot
(2) Minimum cutting width
(3) Maximum cutting width
(4) Number of inserts
(5) Cutting depth maximum
(6) Maximum RPM

For inserts, see pages: GIM-C (375) • GIM-J (375) • GIM-UT () • 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*

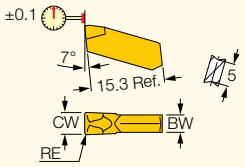
* Optional, should be ordered separately

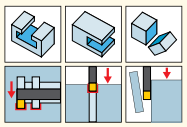
CUTGRIP

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	IC354	IC908	IC20	Recommended Machining Data f groove (mm/rev)
GIM 2.2J	2.20	0.17	0.05	1.70	●	●	●	●	●	0.06-0.13
GIM 3J	3.00	0.25	0.05	2.40	●	●	●	●	●	0.08-0.15
GIM 4J	4.00	0.25	0.05	3.20	●	●	●	●	●	0.08-0.18

- For cutting speed recommendations and user guide, see pages 542-547

(1) Cutting width tolerance (+/-)

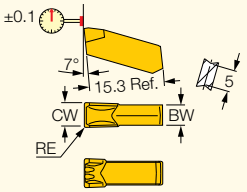
For tools, see pages: GM-DG (374)

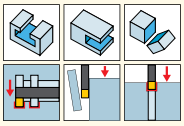
CUTGRIP

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	0.05	2.40	●	●	●	●	●	0.15-0.25
GIM 4C	4.00	0.25	0.05	3.40				●		0.15-0.25
GIM 5C	5.00	0.40	0.05	4.00	●	●	●	●	●	0.15-0.30
GIM 6C	6.00	0.40	0.05	4.80	●		●	●	●	0.15-0.30

- For cutting speed recommendations and user guide, see pages 542-547

(1) Cutting width tolerance (+/-)

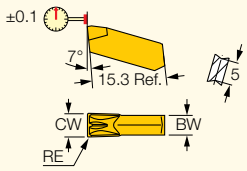
For tools, see pages: GM-DG (374)

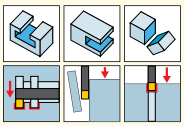
CUTGRIP

GIM-W

Single-Sided Inserts with Central Ridged Chipformer and Reinforced Edge for Parting and Grooving Alloy Steel







Designation	Dimensions CW	RE	CWTOL(1)	BW	Tough ↔ Hard IC328	IC830	IC354	IC908	IC20	Recommended Machining Data f groove (mm/rev)
GIM 2.4	2.40	0.18	0.05	2.40			●	●	●	0.10-0.18
GIM 3	3.00	0.22	0.05	2.40	●	●	●	●	●	0.10-0.18
GIM 3.2	3.20	0.22	0.05	2.40	●	●	●	●	●	0.10-0.20
GIM 4	4.00	0.25	0.05	3.20	●	●	●	●	●	0.15-0.20

- For cutting speed recommendations and user guide, see pages 542-547

(1) Cutting width tolerance (+/-)

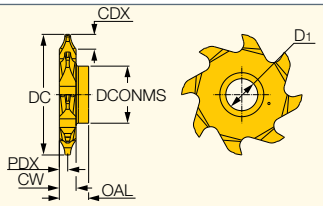
For tools, see pages: GM-DG (374)

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-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-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-M2.25-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	●

• Tightening torque 4 Nxm • For user guide, see pages 377-383 • For shanks, see pages 329-331

(1) Gear teeth range

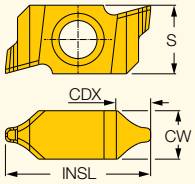
(2) Number of cutting edges

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

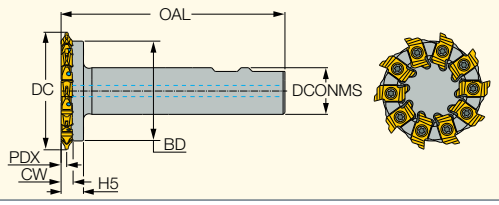
(1) Gear teeth range

For tools, see pages: ETS Gear Mill (376)

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

(2) Master insert identification

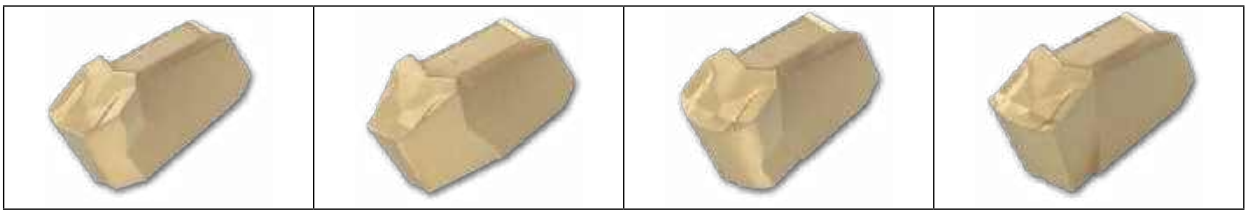
For inserts, see pages: LNET 18-M (376)

Spare Parts

Designation			
ETS Gear Mill	SR 14-500-L11.5	BLD T15/S7	SW6-T

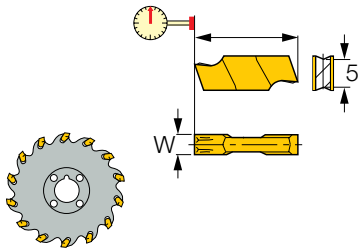
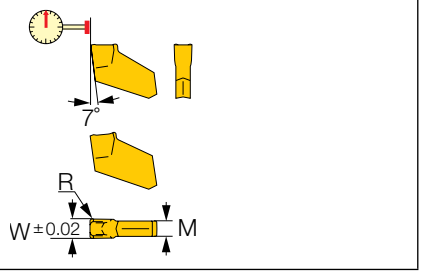
Specially Tailored Inserts for Grooving

Possible Insert Width for Each Cutter's Seat Size

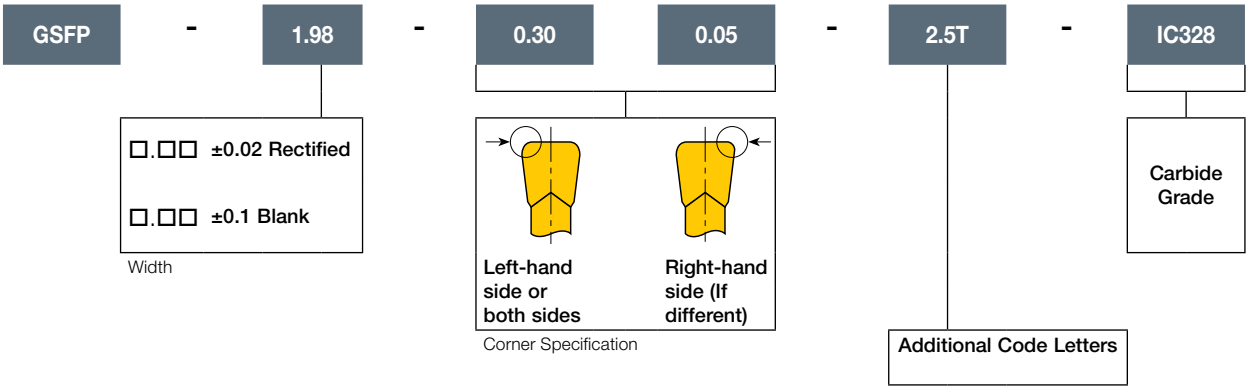


Possible Insert Width for Each Cutter's Seat Size

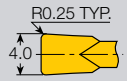
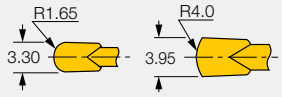
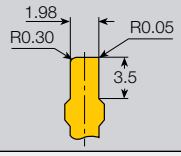
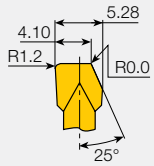
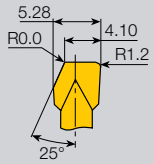
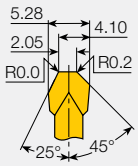
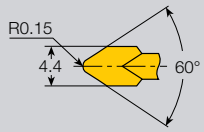
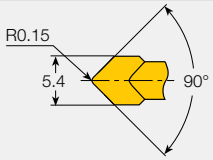
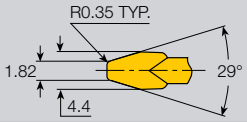
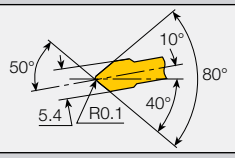
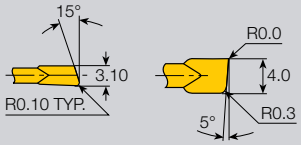
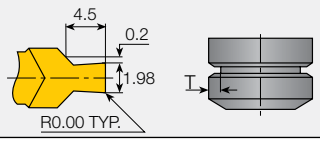
W±0.02 Range	Seat GSFN	M
1.50-1.79	1.6	1.1
1.80-2.69	2	1.6
2.70-3.53	3	2.4
3.54-4.52	4	3.2
4.53-5.50	5	4.1
5.51-6.50	6	5.2

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.)

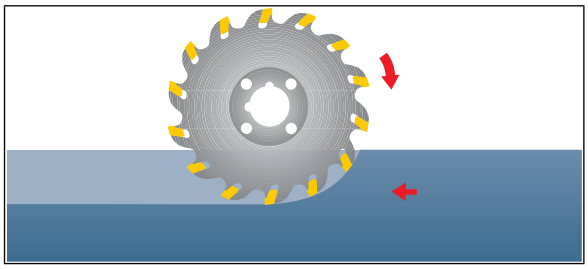
Defining Actual Feed

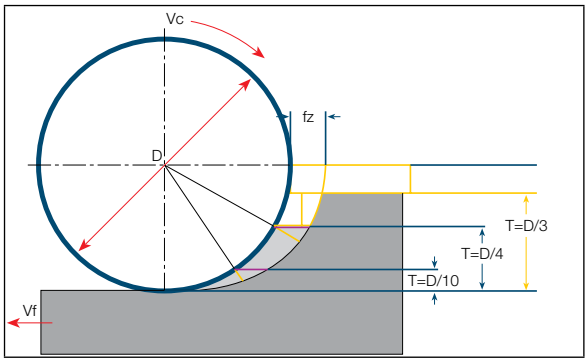
Chip thickness decreases as the depth of cut decreases. Therefore, recommended feed (f_z) can be increased as shown in the table.

T/D Increase		1/6	1/8	1/10	1/20
recommended feed by	15%	30%	45%	100%	

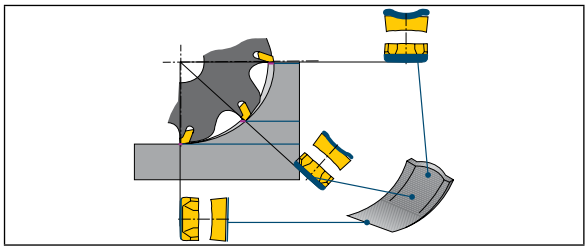
Chip Formation in Slot Milling

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

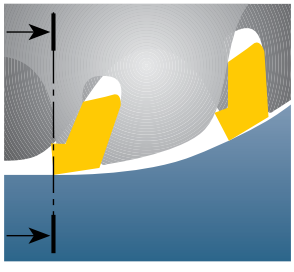
1 In accordance with the required width of cut (**W1+W2**), choose the recommended **SGSF** cutter combination (**A, B,** or **C**) from the table on the next page.
2 The diameters and coupling holes must fit properly.
3 All cutters (with the exception of ø125 mm type) have two key slots enabling staggered 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

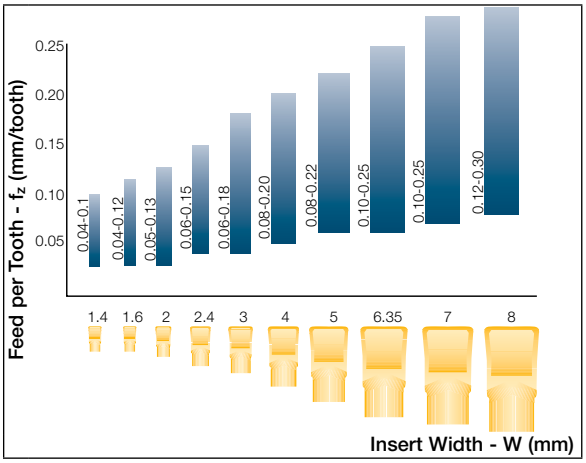
[1] Only cutters with 160-250 diameter sizes can be stacked.

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%.

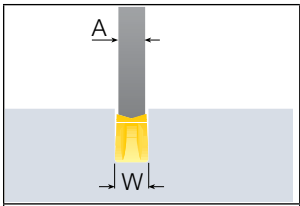
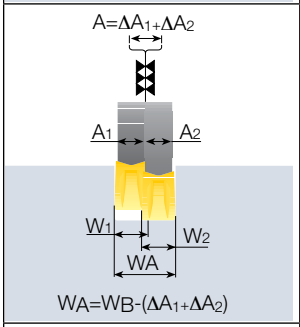
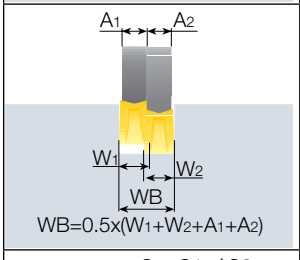
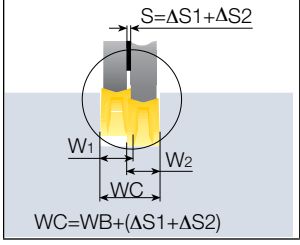
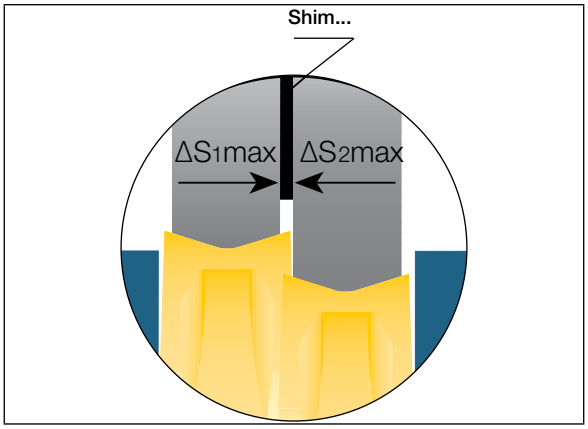
	**Single cutter, standard**
	**A - Double cutters with modified body thicknesses stacked for smaller widths**
	**B - Unmodified, stacked double cutters of nominal width**
	**C - Stacked, double cutters with spacer for larger widths**

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

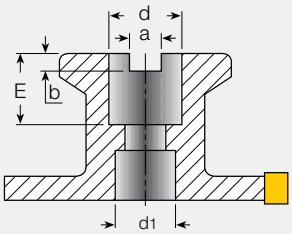
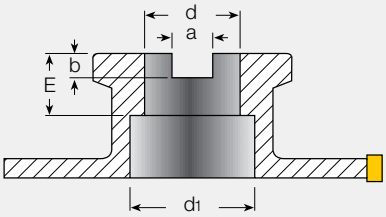
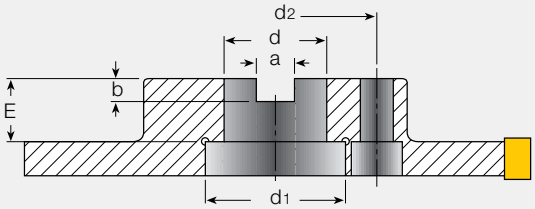
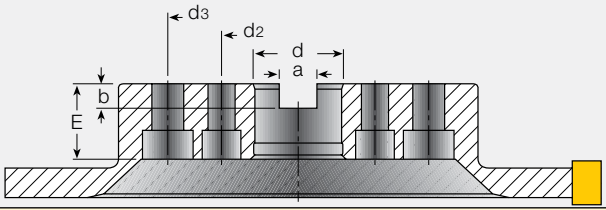
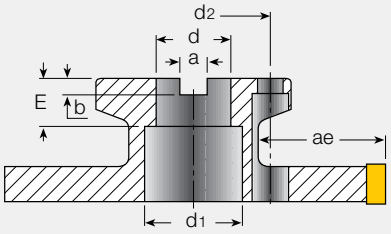
Machining Data for Slitting with SELF-GRIP and TANGSLIT Cutters & Recommended Cutting Speed (m/min)

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 728-757

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

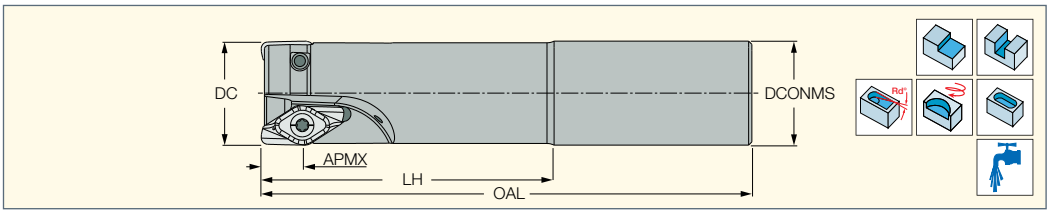
CUTTERS FOR ALUMINUM



HELIALU

HSM90S EAL-14

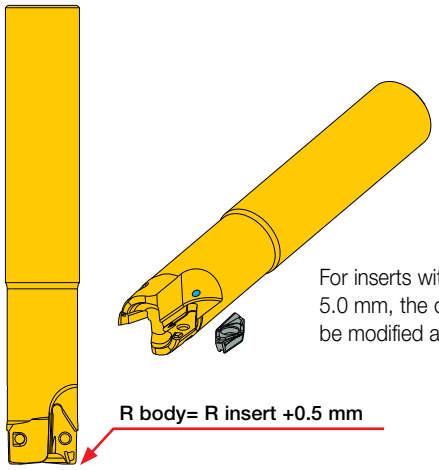
Long Reach Endmills Carrying HSM90S APCR 1405... Inserts for Machining Aluminum



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 and the insert needs replacing, it is also recommended to replace the screw
- 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



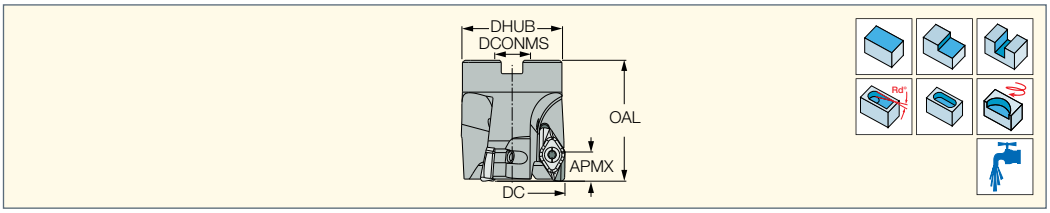
For inserts with a corner radius larger than 5.0 mm, the corner of the pocket must be modified according to the drawing.

R body= R insert +0.5 mm

HELIALU

HSM90S FAL-14

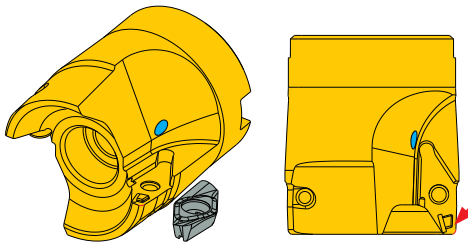
90° Face Mills Carrying Super Positive and Polished Rake Inserts for Machining Aluminum at High Rotation Speeds



Designation	DC	CICT(1)	APMX(2)	OAL	DHUB	DCONMS	Arbor(3)	RMPX°(4)	RPMX(5)	kg
HSM90S FAL-D050-2-22-14	50.00	2	13.50	57.00	47.00	22.00	A	8.0	38000	0.43
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 and the insert needs replacing, it is also recommended to replace the screw
- Insert tightening torque: 6 (Nxm)

(1) Number of inserts



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

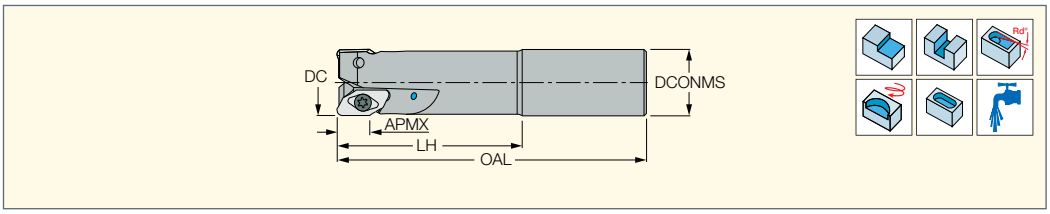
Spare Parts

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	7000	25.9	0.56
HM90 EAL-D25-C25L125-16	25.00	1	15.50	69.0	125.00	25.00	C	7000	25.9	0.38
HM90 EAL-D25-C25L200-16	25.00	1	15.50	65.0	200.00	25.00	C	7000	25.9	0.62
HM90 EAL-D32-C32L150-16	32.00	2	15.50	90.0	150.00	32.00	C	45643	22.4	0.74
HM90 EAL-D32-C32L200-16	32.00	2	15.50	80.0	200.00	32.00	C	45643	22.4	1.02
HM90 EAL-D40-C32L220-16	40.00	2	15.50	45.0	220.00	32.00	C	36809	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 542-547

(1) Number of inserts

(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 (466)

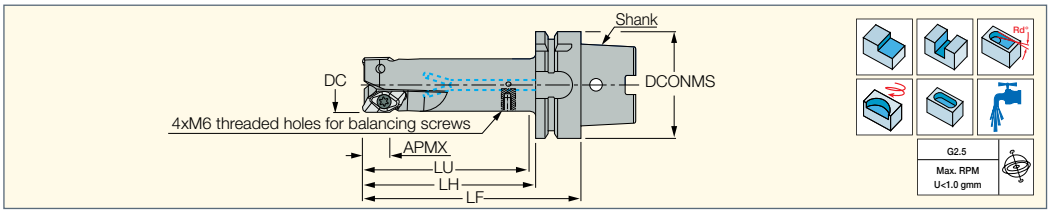
Spare Parts

Designation			
HM90 EAL-D25-C24L180-16	SR 14-592SM	BLD T20/S7	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/S7	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 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	CDI	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 542-547

(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

For inserts, see pages: HM90 APCR 1605..R-P (466)

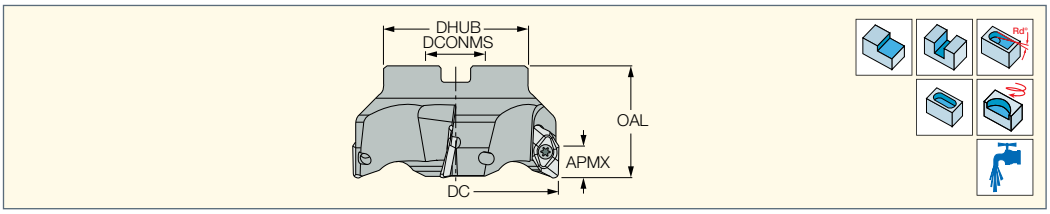
Spare Parts

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	30500	10.0	A	0.26
HM90 FAL-D063-27-16	63.00	3	15.50	50.00	58.00	27.00	22990	7.0	A	0.55
HM90 FAL-D080-27-16	80.00	3	15.50	50.00	60.00	27.00	18125	6.0	A	0.89
HM90 FAL-D100-32-16	100.00	4	15.50	55.00	70.00	32.00	14500	4.0	B	1.44
HM90 FAL-D125-40-16	125.00	5	15.50	63.00	84.00	40.00	11600	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 542-547

(1) Number of inserts

(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 548

For inserts, see pages: HM90 APCR 1605..R-P (466)

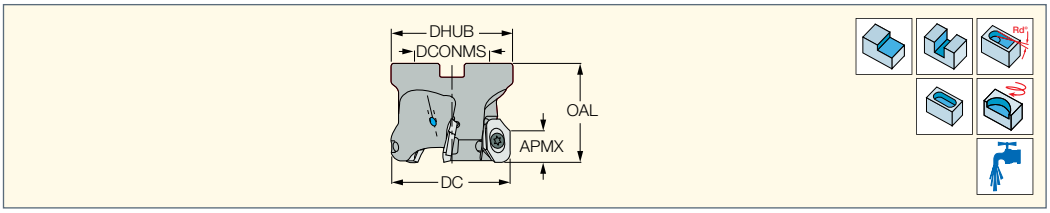
Spare Parts

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 DIN 912 M12X25
HM90 FAL-D080-27-16	SR 14-0180	BLD T20/M7	SW6-T	SR DIN 912 M12X25
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	30500	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

(2) Maximum RPM

(3) Maximum ramping angle

(4) For adaptation options, see page 548

For inserts, see pages: HM90 APCR 1605..R-P (466)

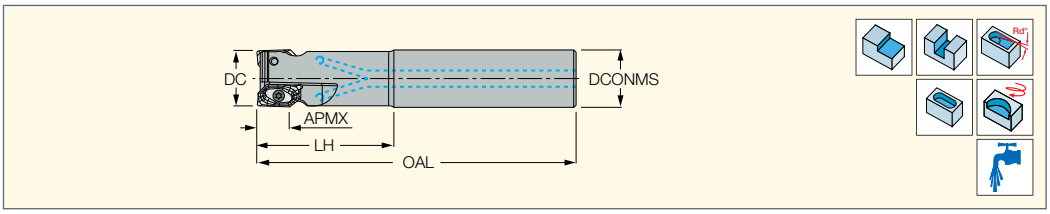
Spare Parts

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			T-10/51

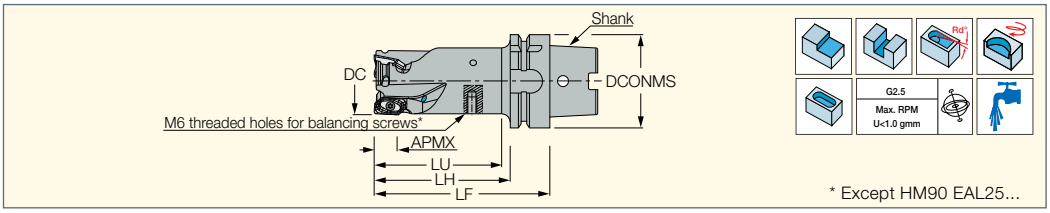
(1) Number of inserts
(2) C-Cylindrical
(3) Maximum RPM
(4) Maximum ramping angle

For inserts, see pages: HM90 AXCR 1505 (465)

HELIALU HSK

HM90 EAL-HSK63A-15

Long Reach Endmills with Integral HSK Adaptation Carrying HM90 AXCR 1505... Inserts for Machining Aluminum



Designation	DC	LDRED	ZEFP	APMX	LH	LF	RPMX(2)	RMPX°(3)	DCONMS	Shank	kg	CDI				
HM90 EAL25-L75-HSK63A-15 (1)	25.00	70.0	2	14.00	75.00	101.00	31250	21.0	63.00	HSK 63A	0.82	1	SR 14-562	T-10/51		
HM90 EAL32-L65-HSK63A-15	32.00	60.0	3	14.00	65.00	91.00	31250	13.0	63.00	HSK 63A	0.90	1	SR 14-562	T-10/51		
HM90 EAL32-L100-HSK63A-15	32.00	95.0	3	14.00	100.00	126.00	31250	13.0	63.00	HSK 63A	1.08	1	SR 14-562		SW6-SD	BLD T10/S7
HM90 EAL40-L80-HSK63A-15	40.00	75.0	3	14.00	80.00	106.00	26040	9.0	63.00	HSK 63A	1.17	1	SR 14-562	T-10/51		
HM90 EAL40-L120-HSK63A-15	40.00	115.0	3	14.00	120.00	146.00	26040	9.0	63.00	HSK 63A	1.52	1	SR 14-562	T-10/51		

- 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

(1) Without threaded holes for balancing screws
(2) Maximum RPM
(3) Maximum ramping angle

For inserts, see pages: HM90 AXCR 1505 (465)

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**).

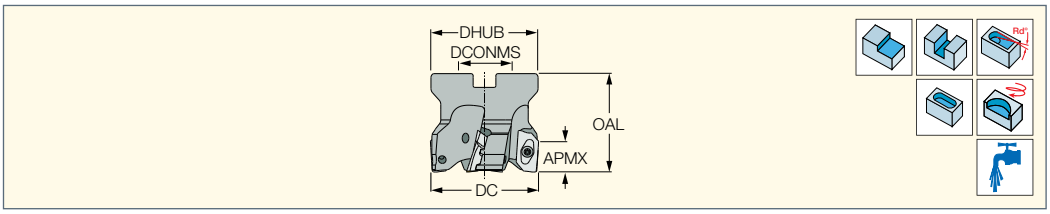


F - The cutting force in ramping applications

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

(1) Number of inserts
(2) For adaptation options, see page 548
(3) Maximum RPM
(4) Maximum ramping angle

For inserts, see pages: HM90 AXCR 1505 (465)

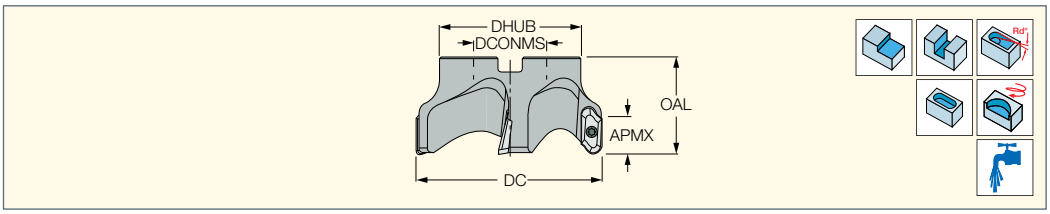
Spare Parts

Designation				
HM90 FAL-15	SR 14-562	BLD T10/S7	SW6-SD	SR M10X25 DIN912

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	22.00	3	50.00	62.00	27.00	A	7.0	16000	HM90 APCR 220605R-P	0.48
HM90 FAL-D080-27-22	80.00	22.00	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 542-547

(1) Number of inserts
(2) For adaptation options, see page 548
(3) Maximum ramping angle
(4) Maximum RPM
(5) Master insert identification

For inserts, see pages: HM90 APCR 2206..R-P (467) • HM90 APCR 220605-CS (467)

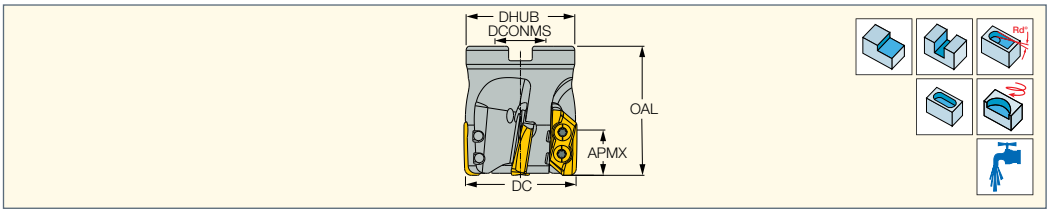
Spare Parts

Designation				
HM90 FAL-22	SR 14-0180	BLD T20/M7	SW6-T	SR DIN 912 M12X25

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 and the insert needs replacing, it is also recommended to replace the screws
- Insert tightening torque: 9 (Nxm)

(1) Number of inserts
(2) For adaptation options, see page 548
(3) Maximum ramping angle
(4) Maximum RPM
(5) Master insert identification

For inserts, see pages: HSM90S APCR 2207 (467)

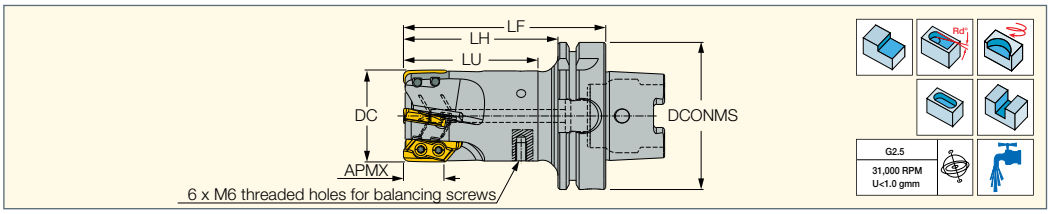
Spare Parts

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)	CDI(4)	kg
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	0.50
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	0.50

- A cooling tube must be used with all internal coolant HSK spindles (should be ordered 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 should be ordered separately • Insert tightening torque: 9 (Nxm)

(1) Number of inserts
(2) Maximum ramping angle
(3) Maximum RPM
(4) 1 - Hole for data chip, 0 - Without hole for data chip

For inserts, see pages: HSM90S APCR 2207 (467)

Spare Parts

Designation				
HSM90SFD-HSK A63/80-22	SR M5x0.8 20IP-13343	BLD IP20/M7	SW6-T-SH	COOLING TUBE HSK A63

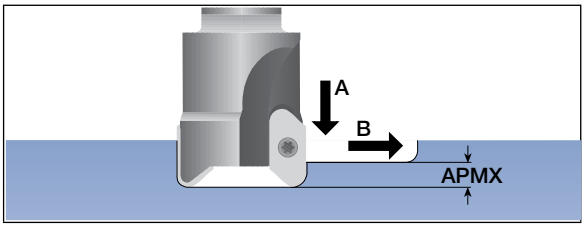


Following is a Reference List of Additional Inserts for Machining Aluminum Using General Use Milling Cutters

	Insert for Aluminum Designation	Insert Page	Milling Cutters Designation	Tool Page
	HP ANCR	444	HP E90AN HP F90AN HP ANK	17-18 195 235
	HM90 ADCR 1505PDFR-P ADCR 1505PDFR	456	E90AC HM90 F90A HM90 E90AD SM	36 210 31-32 250
	HM90 APCR 100304PDFR-P/DP APCR 1505PDFR-P	449 450	APK HM90 F90AP HM90 E90A	239 200 24-28
	HP ADCR 1906 HP ADCR 2207	464 465	HP E90AT HP F90AT	35 215
	HM390 TDCR 1505	448	HM390 ETD-15 HM390FTD-15	30-31 209
	LNAR 1106	482 483	F90LN-R/L-N11	203
	LNAR 1506	488 489	F90LN-R/L-N15	208
	T490 LNAR-P	480	T490 ELN T490 FLN T490 LNK T490 SM	30 196 201 207 212 236-238 243-247
	OECR 060405AER-P	505	HOE-R06 HOF-R06	218
	OFCR 07T3-AEN OFCR 07T3-AEN-P OFCR 07T3-RW-P	507 508	HOF-R07	219
	SEHT-AFN	511	F45ST	225
	SDMR 1205 PDR-HQ-M	497	F90SD	204
	RCMT ...-FW-F20 RCCT 1206 MO	529 528	ERW, FRW	279-281
MULTI-MASTER and Solid Carbide Endmills for Machining Aluminum				
	MM EA MM EA-CF MM EBA	81 82 72	MM S... MM TS-A MM GRT TS CAB MM CAB MM S-ER...	84-91
Solid Carbide Endmills for Aluminum				
	ECA-H3-CF ECA-B-2 ECA-B-3 ECA-F-2	154 159 160		
	ERC-E-3 ECR-B3-R	157 158		

E90AL - Details of Application

Milling and Plunging, Stroke Pattern



Maximum Plunging Capability

Inserts	APMX
HM90 AXCR 1505	4mm
HM90 APCR 1605...R-P (02R-40R)	7.7mm
HM90 APCR 1605...R-P (50R-64R)	6.0mm
HM90 APCR 2206...R-P (05R-50R)	5.8mm
HM90 APCR 2206...R-P (64R)	4.7mm

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. Packages with 5 HM90 APCR 1605..R-P IC28 or HM90 AXCR 1505..R-P IC28 inserts and 5 matching screws are available. These packages contain inserts with a weight tolerance of 0.02 gm. This tight tolerance ensures maintenance of the dynamic balance of the tool after insert indexing.

Note 1

The drilling and plunging strokes have to be at the same depth as the slotting stroke, otherwise the hole fills with chips that impair the next stroke.

Note 2

In order to shorten swarf during plunging and drilling, it is recommended to use peck feeding.

Note 3

The maximum recommended speed is 7,000 rpm. Higher speeds are possible after dynamic balancing to G2.5.
Ordering example for balanced tools:
E90AL D40-C40-L200-22-DB



HM90 SET APCR-P

Set Designation		5 Included Inserts		5 Included Screws
HM90 Set APCR 160502RP IC28	=	HM90 APCR 160502R-P IC28	+	SR 14-0180
HM90 Set APCR 160504RP IC28	=	HM90 APCR 160504R-P IC28	+	SR 14-0180
HM90 Set APCR 160508RP IC28	=	HM90 APCR 160508R-P IC28	+	SR 14-0180
HM90 Set APCR 160516RP IC28	=	HM90 APCR 160516R-P IC28	+	SR 14-0180
HM90 Set APCR 160520RP IC28	=	HM90 APCR 160520R-P IC28	+	SR 14-0180
HM90 Set APCR 160525RP IC28	=	HM90 APCR 160525R-P IC28	+	SR 14-0180
HM90 Set APCR 160532RP IC28	=	HM90 APCR 160532R-P IC28	+	SR 14-0180
HM90 Set APCR 160540RP IC28	=	HM90 APCR 160540R-P IC28	+	SR 14-0180
HM90 Set APCR 160564RP IC28	=	HM90 APCR 160564R-P IC28	+	SR 14-0180

HM90 SET AXCR-P

Set Designation		5 Included Inserts		5 Included Screws
HM90 Set AXCR 150504RP IC28	=	HM90 AXCR 150504R-P IC28	+	SR 14-562
HM90 Set AXCR 150520RP IC28	=	HM90 AXCR 150520R-P IC28	+	SR 14-562

THREAD MILLING TOOLS



ISCAR Thread



SOLIDTHREAD
MTEC, MTECB MTECZ, MTECQ
pages 395-397,400-401,404,406-408



SOLIDTHREAD
MTECS, MTECD, MTECSH
pages 398-399,402-403,405



SOLIDTHREAD
MTECI
pages 408-409



MULTI-MASTER
MM TRD
page 412



MULTI-MASTER
MM TRF
pages 410-411



MULTI-MASTER
MT-...-MM
pages 413-414



T-SLOT
SD TRD
page 409



MILLTHREAD endmill
MTE
pages 415-416



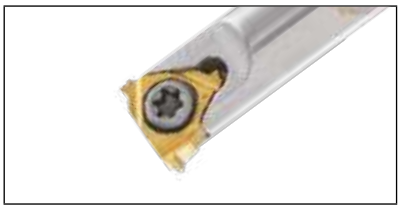
MILLTHREAD endmill
MTSRH
page 418



MILLTHREAD endmill
MTSR M.I. S.P
page 419



MILLTHREAD endmill
MTSR M.I. S.P.-U
page 419



MILLTHREAD endmill
MTET
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MILLTHREAD shell mill
MTF-MULTI
page 417



MILLTHREAD shell mill
MTSRH
page 418



MILLTHREAD shell mill
MTFLE
page 417

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

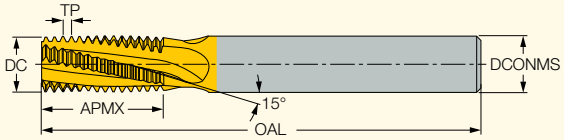
1.0 — Thread Pitch

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 435-442

(1) Thread pitch

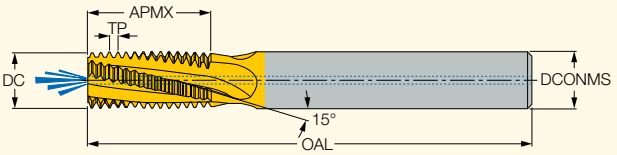
(2) Number of flutes

(3) C-Cylindrical

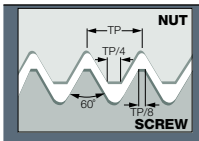
SOLIDTHREAD

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 435-442

(1) Thread pitch

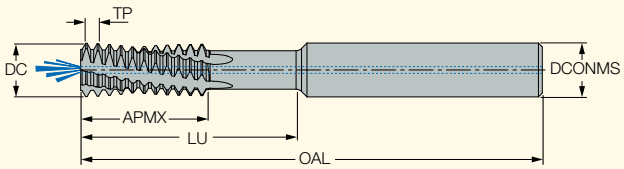
(2) Number of flutes

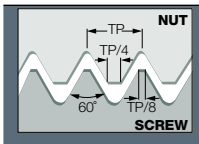
(3) C-Cylindrical

SOLIDTHREAD

MTECQ-ISO

Solid Carbide Threading Endmills with Internal Coolant Hole and a Reduced Diameter Neck for Deep Internal ISO Profile





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 435-442

(1) Thread pitch

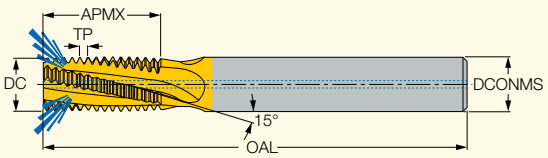
(2) Number of flutes

(3) C-Cylindrical

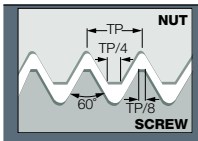
SOLIDTHREAD

MTECZ-ISO

Solid Carbide Internal Threading Endmills with Coolant Holes Located in the Flutes



Application: General engineering



Designation	Dimensions									IC908
	TP[1]	M Coarse	M Fine	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	
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 435-442

(1) Thread pitch

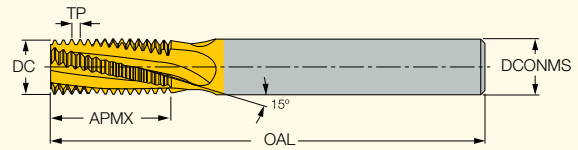
(2) Number of flutes

(3) C-Cylindrical

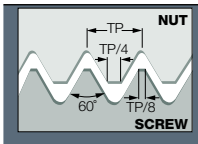
SOLIDTHREAD

MTEC E-ISO

Solid Carbide External Threading Endmills for ISO Thread Profile



Application: General engineering



Designation	Dimensions							IC908
	TP[1]	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	
MTEC E 1010D16 1.0ISO	1.000	10.00	10.00	4	16.50	73.00	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 435-442

(1) Thread pitch

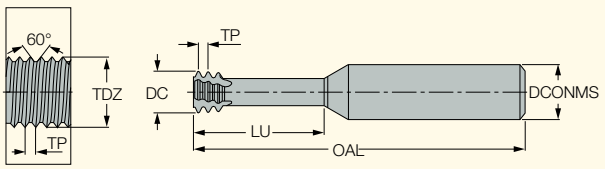
(2) Number of flutes

(3) C-Cylindrical

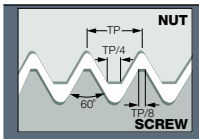
SOLIDTHREAD

MTECS-ISO

Small Diameter Solid Carbide Threading Endmills for Internal ISO Profile



Application: General engineering



Designation	Dimensions DC	TP[2]	LU	OAL	DCONMS	TDZ	NOF[3]	Shank[4]	IC908
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 435-442

[1] Specially designed for the production of dental implants

[2] Thread pitch

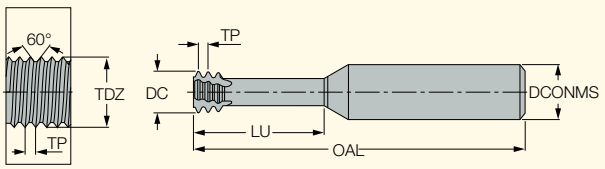
[3] Number of flutes

[4] C-Cylindrical

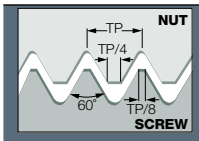
SOLIDTHREAD

MTECSH-ISO

Small Diameter Short Left-Hand Cut Solid Carbide Internal ISO Profile Threading Endmills for Hardened Steel



Left-hand tools (CNC code M04) • Application: General engineering



Designation	Dimensions								IC903
	DC	TP[1]	LU	OAL	DCONMS	TDZ	NOF[2]	Shank[3]	
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 435-442

(1) Thread pitch

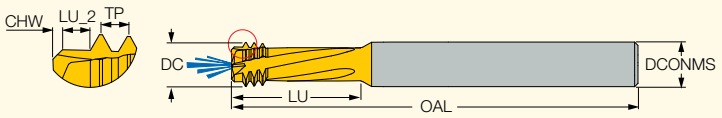
(2) Number of flutes

(3) C-Cylindrical

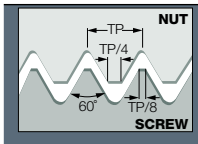
SOLIDTHREAD

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										IC908
	TP[1]	TDZ	DCONMS	DC	NOF[2]	LU	OAL	CHW	LU_2	Shank[3]	CSP[4]	
MTECD 06032C11 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 are made by circular interpolation • For user guide, see pages 435-442

(1) Thread pitch

(2) Number of flutes

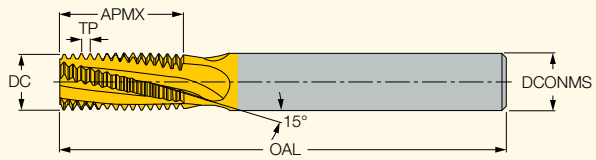
(3) C-Cylindrical

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

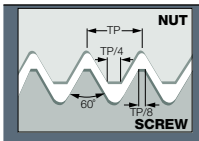
SOLIDTHREAD

MTEC-UN

Solid Carbide Threading Endmills for Internal UN Thread Profile



Application: General engineering



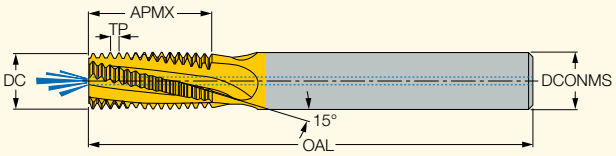
Designation	Dimensions											IC908
	TPI[1]	UNC	UNF	UNEF	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	TP[4]	
MTEC 06025C6 40UN	40.0	5	-	-	6.00	2.50	3	6.00	57.00	C	0.635	•
MTEC 06032C6 32UN	32.0	8	10	12	6.00	3.20	3	6.80	57.00	C	0.794	•
MTEC 0604C11 28UN	28.0	-	1/4	-	6.00	4.00	3	11.30	57.00	C	0.907	•
MTEC 0606C14 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 435-442
[1] Threads per inch
[2] Number of flutes
[3] C-Cylindrical
[4] Thread pitch

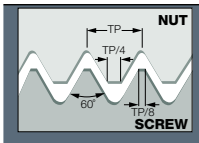
SOLIDTHREAD

MTECB-UN

Solid Carbide Threading Endmills with Coolant Hole for Internal UN Thread Profile



Application: General engineering



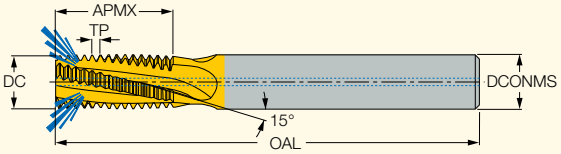
Designation	Dimensions											IC908
	TPI[1]	UNC	UNF	UNEF	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	TP[4]	
MTECB 06032C6 32UN	32.0	8	10	12	6.00	3.20	3	6.80	58.00	C	0.794	•
MTECB 0606C14 32UN	32.0	-	-	7/16-1/2	6.00	6.00	3	16.00	58.00	C	0.794	•
MTECB 0808D18 32UN	32.0	-	-	3/8	8.00	8.00	4	18.70	64.00	C	0.794	•
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 435-442
[1] Threads per inch
[2] Number of flutes
[3] C-Cylindrical
[4] Thread pitch

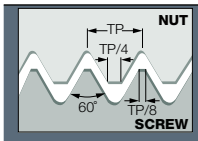
SOLIDTHREAD

MTECZ-UN

Solid Carbide Threading Endmills with Coolant Holes Located in the Flutes for Internal UN Thread Profile



Application: General engineering



Designation	TPI[1]	UNC	UNF	UNEF	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	TP[4]	IC908
	Dimensions											
MTECZ 1010D22 20UN	20.0	-	1/2	-	10.00	10.00	4	22.30	73.00	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 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 435-442

(1) Threads per inch

(2) Number of flutes

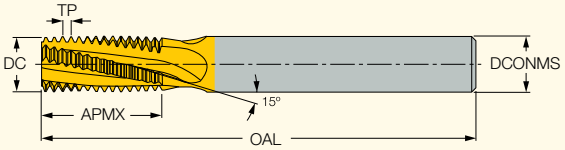
(3) C-Cylindrical

(4) Thread pitch

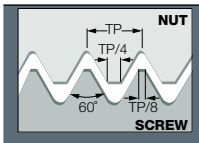
SOLIDTHREAD

MTEC E-UN

Solid Carbide Threading Endmills with UN Form for External Threading



Application: General engineering



Designation	TPI[1]	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	IC908
	Dimensions							
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 435-442

(1) Threads per inch

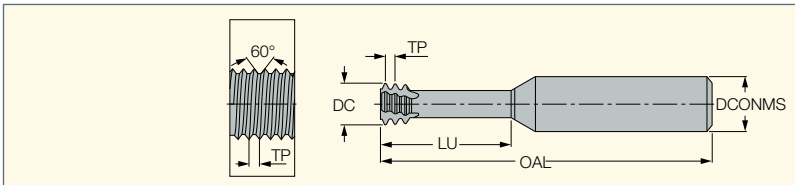
(2) Number of flutes

(3) C-Cylindrical

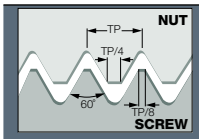
SOLIDTHREAD

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 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 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	105.00	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	100.00	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	●

• For user guide, see pages 435-442

[1] Specially designed for the production of dental implants

[2] Threads per inch

[3] Thread pitch

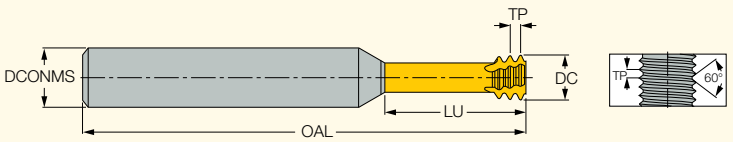
[4] Number of flutes

[5] C-Cylindrical

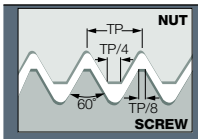
SOLIDTHREAD

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 DC	TPI(1)	UNC	UNF	LU	OAL	DCONMS	NOF(2)	Shank(3)	TP(4)	IC903
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 435-442
(1) Threads per inch
(2) Number of flutes
(3) C-Cylindrical
(4) Thread pitch

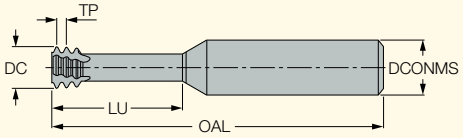
Cutting Data for Hardened Steel

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

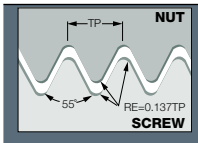
SOLIDTHREAD

MTECS-W

Short Solid Carbide Threading Endmills for Internal or External BSP and BSF Thread Profiles



Application: General engineering fittings and pipe couplings



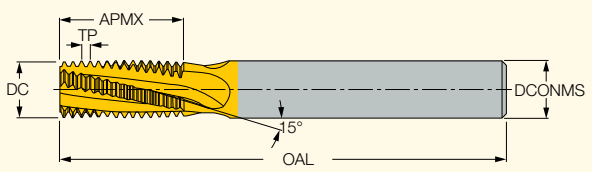
Designation	Dimensions DC	TPI(1)	LU	OAL	DCONMS	TDZ	NOF(2)	Shank(3)	IC908
MTECS 08078C19 28W	7.80	28.0	19.5	64.00	8.00	G 1/8	3	C	●
MTECS 1010D30 19W	10.00	19.0	30.0	73.00	10.00	G 1/4-3/8	4	C	●
MTECS 1212D37 14W	12.00	14.0	37.0	84.00	12.00	G 1/2-7/8	4	C	●
MTECS 1616D44 11W	16.00	11.0	44.0	105.00	16.00	G>1	4	C	●

• For user guide, see pages 435-442
(1) Threads per inch
(2) Number of flutes
(3) C-Cylindrical

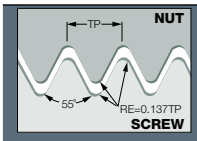
SOLIDTHREAD

MTEC-W

Solid Carbide Threading Endmills for Internal or External BSF/BSP Thread Profile



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 435-442

[1] Threads per inch

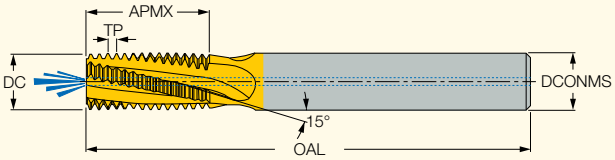
[2] Number of flutes

[3] C-Cylindrical

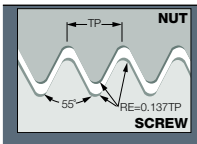
SOLIDTHREAD

MTECB-W

Solid Carbide Internal or External Threading Endmills with Coolant Hole for BSF/BSP Thread Profile



Application: General engineering fittings and pipe couplings



Designation	Dimensions								IC908
	TPI[1]	TDZ	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	
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 435-442

[1] Threads per inch

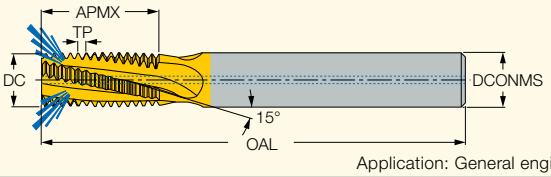
[2] Number of flutes

[3] C-Cylindrical

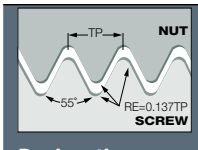
SOLIDTHREAD

MTECZ-BSF/BSP

Solid Carbide Threading Endmills with Coolant Holes Located in the Flutes 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 435-442

[1] Threads per inch

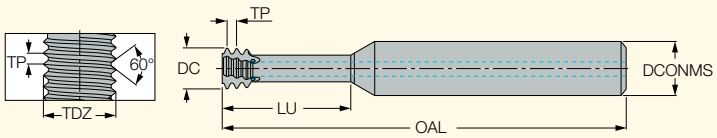
[2] Number of flutes

[3] C-Cylindrical

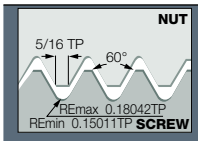
SOLIDTHREAD

MTECS-MJ

Small Diameter Short Solid Carbide MJ-Type Profile Threading Endmills



Aerospace and automotive industries, for applications requiring high fatigue strength



Designation	Dimensions DC	TP[2]	LU	OAL	DCONMS	TDZ	NOF[3]	Shank[4]	CSP[5]	IC908
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	●

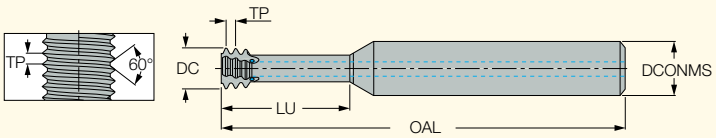
- For user guide, see pages 435-442

[1] Without coolant holes
[2] Thread pitch
[3] Number of flutes
[4] C-Cylindrical
[5] 0 - Without coolant supply, 1 - With coolant supply

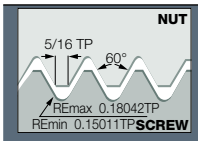
SOLIDTHREAD

MTECS-UNJ

Small Diameter Short Solid Carbide UNJ-Type Profile Threading Endmills



Aerospace and automotive industries, for applications requiring high fatigue strength



Designation	Dimensions DC	TPI[2]	UNJC	UNJF	LU	OAL	DCONMS	NOF[3]	Shank[4]	CSP[5]	IC908
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	●

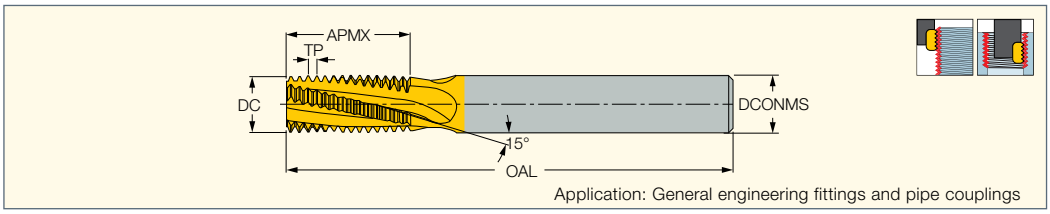
- For user guide, see pages 435-442

[1] Without coolant holes
[2] Threads per inch
[3] Number of flutes
[4] C-Cylindrical
[5] 0 - Without coolant supply, 1 - With coolant supply

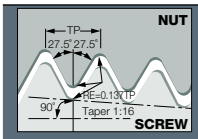
SOLIDTHREAD

MTEC-BSPT

Solid Carbide Threading Endmills for 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	●

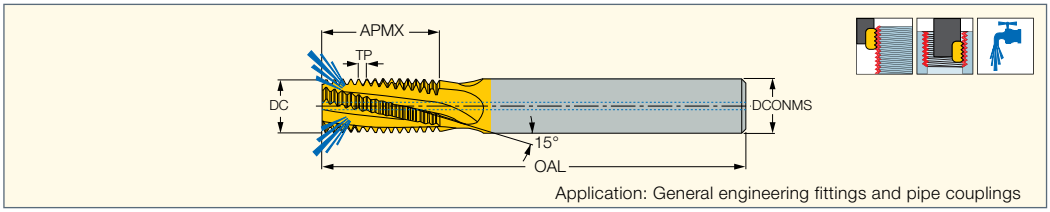
- For user guide, see pages 435-442

[1] Threads per inch
[2] Number of flutes
[3] C-Cylindrical

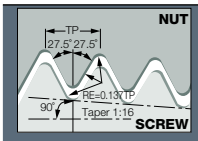
SOLIDTHREAD

MTECZ-BSPT

Solid Carbide Threading Endmills with Coolant Holes Located in the Flutes for Internal or External BSPT Thread Profile



Application: General engineering fittings and pipe couplings



Designation	TPI[1]	BSPT	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	TP[4]	IC908
	Dimensions									
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	●

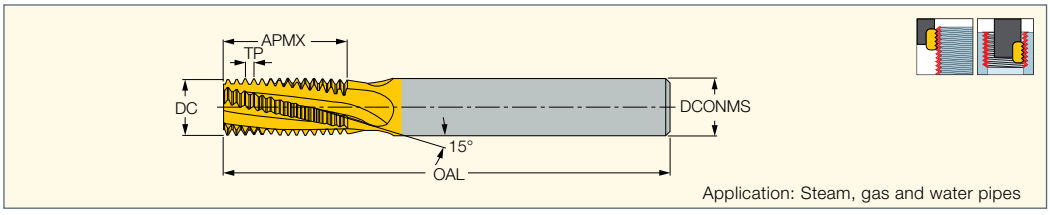
- With internal coolant hole
- For user guide, see pages 435-442

[1] Threads per inch
[2] Number of flutes
[3] C-Cylindrical
[4] Thread pitch

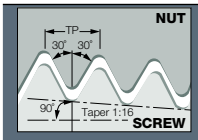
SOLIDTHREAD

MTEC-NPT

Solid Carbide Threading Endmills for 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	●

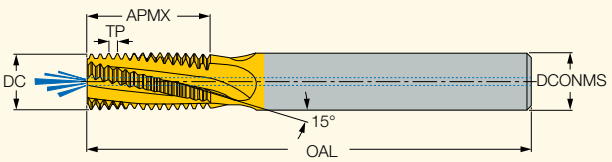
- For user guide, see pages 435-442

[1] Threads per inch
[2] Number of flutes
[3] C-Cylindrical

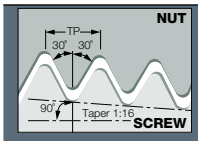
SOLIDTHREAD

MTECB-NPT

Solid Carbide Threading Endmills with Coolant Hole for External or Internal NPT Thread Profile



Application: Steam, gas and water pipes



Designation	Dimensions								IC908
	TPI[1]	TDZ	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	
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 435-442

[1] Threads per inch

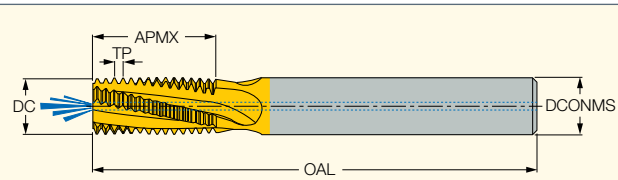
[2] Number of flutes

[3] C-Cylindrical

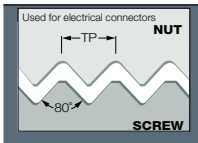
SOLIDTHREAD

MTECB-PG

Solid Carbide Threading Endmills with Coolant Hole for External and Internal PG Full Profile (DIN 40430)



Application: Electrical connectors



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 435-442

[1] Threads per inch

[2] Number of flutes

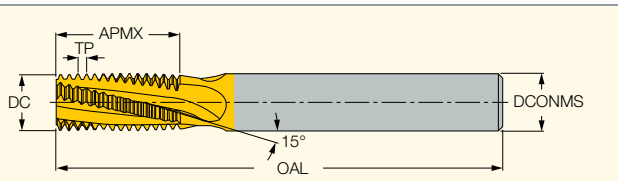
[3] C-Cylindrical

[4] Thread pitch

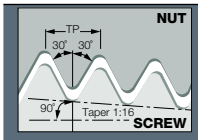
SOLIDTHREAD

MTEC-NPTF

Solid Carbide Threading Endmills for External or Internal NPTF Thread Profile



Application: Steam, gas and water pipes



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 435-442

[1] Threads per inch

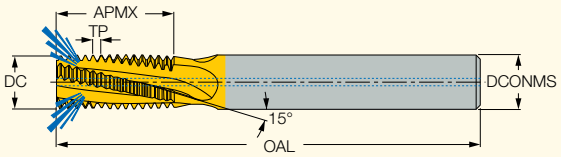
[2] Number of flutes

[3] C-Cylindrical

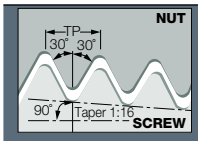
SOLIDTHREAD

MTECZ-NPTF

Solid Carbide Threading Endmills with Coolant Holes Located in the Flutes for Internal or External NPTF Thread Profile



Application: General engineering fittings and pipe couplings



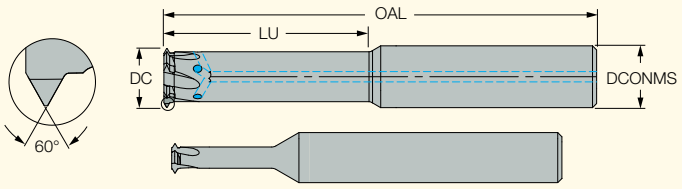
Designation	Dimensions								IC908
	TPI[1]	TDZ	DCONMS	DC	NOF[2]	APMX	OAL	Shank[3]	
MTECZ 08076C10 27NPTF	27.0	1/8	8.00	7.60	3	10.80	64.00	C	●
MTECZ 1010D16 18NPTF	18.0	1/4-3/8	10.00	10.00	4	16.20	73.00	C	●

• For user guide, see pages 435-442
[1] Threads per inch
[2] Number of flutes
[3] C-Cylindrical

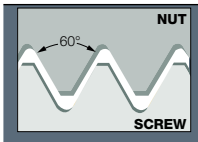
SOLIDTHREAD

MTECI-A60

60° Partial Profile Solid Carbide Thread Mills for Internal and External Threads



Application: General engineering



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]	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]	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]	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]	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	●	

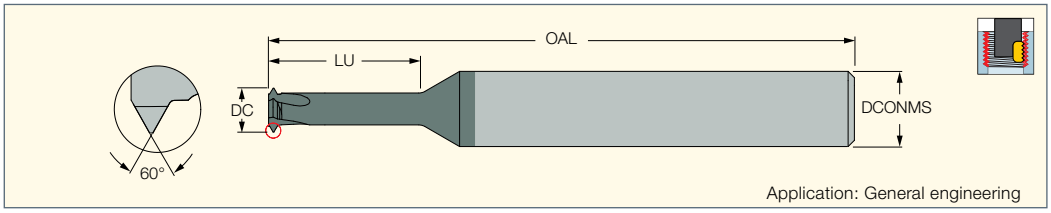
• [a]See table below • For user guide, see pages 435-442
[1] Internal thread pitch minimum
[10] C-Cylindrical
[11] 0 - Without coolant supply, 1 - With coolant supply
[2] Internal thread pitch maximum
[3] External thread pitch minimum
[4] External thread pitch maximum
[5] Internal threads per inch minimum
[6] Internal threads per inch maximum
[7] External threads per inch minimum
[8] External threads per inch maximum
[9] Number of flutes

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

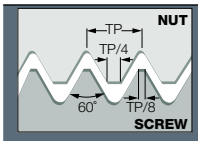
SOLIDTHREAD

MTECI-ISO

Small Diameter Single Point Internal ISO Profile Solid Carbide Thread Mills



Application: General engineering



Designation	Dimensions TP[1]	M Coarse	M Fine	DCONMS	DC	NOF[2]	LU	OAL	Shank[3]	IC902
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 435-442

(1) Thread pitch

(2) Number of flutes

(3) C-Cylindrical

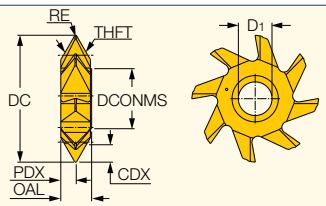
SOLIDTHREAD

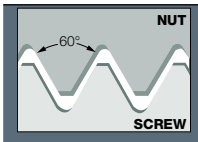
T-SLOT

SD TRD-M-SP

Interchangeable Solid Carbide Heads for 60° Partial Profile Thread Milling







Designation	Dimensions DC	DMIN	DIOUT[1]	THFT[2]	TPN[3]	TPX[4]	TPIN[5]	TPIX[6]	PDX	RE	D1	CDX	OAL	ZEFP[7]	DCONMS	IC908
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 329-331 • For user guide, see pages 435-442

(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

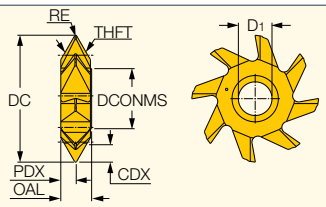
SOLIDTHREAD

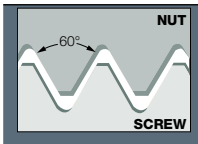
T-SLOT

SD TRD-W-SP

Interchangeable Solid Carbide Heads for 55° Partial Profile Thread Milling







Designation	Dimensions DC	DMIN	DIOUT[1]	THFT[2]	THFT_2	TPIN[3]	TPIX[4]	PDX	D1	CDX	OAL	ZEFP[5]	RE	DCONMS	IC908
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 329-331 • For user guide, see pages ..

(1) Minimum diameter for external threading

(2) VP55=55° partial thread forms

(3) Threads per inch minimum

(4) Threads per inch maximum

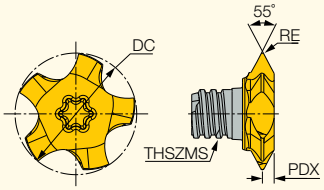
(5) Num. of cutting edges

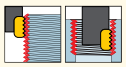
SOLIDTHREAD

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 84-91 • For clamping instructions, see pages 91-92 • 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, should be ordered separately



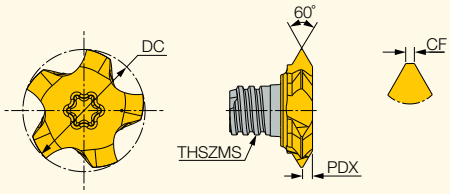
SOLIDTHREAD

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 84-91 • For clamping instructions, see pages 91-92 • Do not apply lubricant to the threaded connection.

(1) Number of flutes
(10) Smallest possible thread
(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

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 T25 3/8" DRIVE*
MM TRF20A60-P300-6T08	BIT SOCKET T40 3/8" DRIVE*
MM TRF20A60-P400-6T08	BIT SOCKET T25 3/8" DRIVE*
MM TRF28A60-P600-5T10	BIT SOCKET T40 3/8" DRIVE*
MM TRF28A60-P500-6T10	BIT SOCKET T40 3/8" DRIVE*

* Optional, should be ordered separately

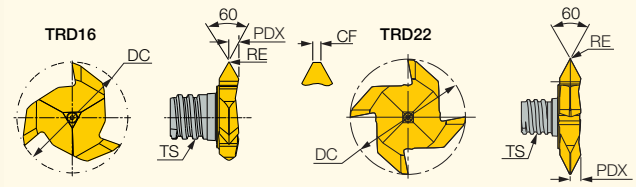
SOLIDTHREAD

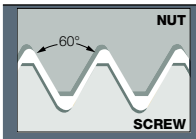
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

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)	RE	CF	PDX	THSZMS	TDZ(10)	DMIN	Standard		IC528
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	ISO 68, DIN 13	MM EGR 16-18*	●
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	ISO 68, DIN 13	MM EGR 16-18*	●
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	ISO 68, DIN 13	MM EGR 20-22*	●

• For ISO metric thread (ISO 68, DIN13, ANSI B 1.13M-1983) • For shanks, see pages 84-91 • For clamping instructions, see pages 91-92 • 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 (11) Flat
* Optional, should be ordered separately

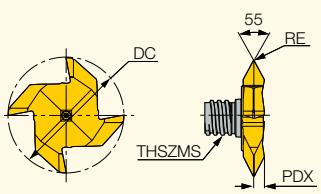
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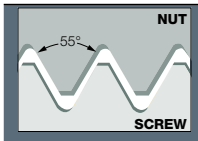
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

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		IC528
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	MM EGR 20-22*	●

• For shanks, see pages 84-91 • For clamping instructions, see pages 91-92 • Do not apply lubricant to the threaded connection.

(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
* Optional, should 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

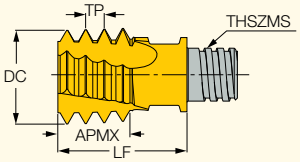
SOLIDTHREAD

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MT-ISO-MM

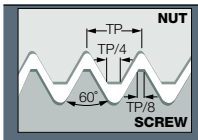
Carbide Milling Heads with a Threaded Connection for Internal ISO Metric Thread







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. There is a possibility that the customer will receive the old item (with TORX) until the stock is depleted. • For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page 91-92

• Do not apply lubricant to the threaded connection

[1] Thread pitch

[2] Number of flutes

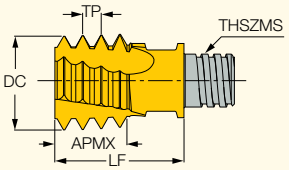
* Optional, should be ordered separately

SOLIDTHREAD
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MT-UN-MM

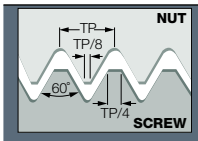
Carbide Milling Heads with a Threaded Connection for Internal UN Thread Profile







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. There is a possibility that the customer will receive the old item (with TORX) until the stock is depleted. • For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see page 91-92 • Do not apply lubricant to the threaded connection

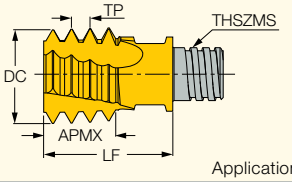
[1] Threads per inch
[2] Number of flutes
[3] Thread pitch

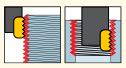
SOLIDTHREAD
MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MT-W-MM

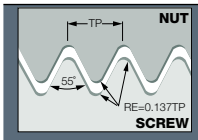
Carbide Milling Heads with a Threaded Connection for Internal and External 55° BSW Thread Profile







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. There is a possibility that the customer will receive the old item (with TORX) until the stock is depleted. • For shanks, see pages 84-91 • For clamping keys (should be ordered separately), tightening torques and clamping instructions, see pages 91-92 • Do not apply lubricant to the threaded connection

[1] Threads per inch
[2] Number of flutes
[3] Thread pitch







Thread Size	Key [1]	Torque Wrench [1]	Wrench [1]	Tightening Torque (Nxcm)
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

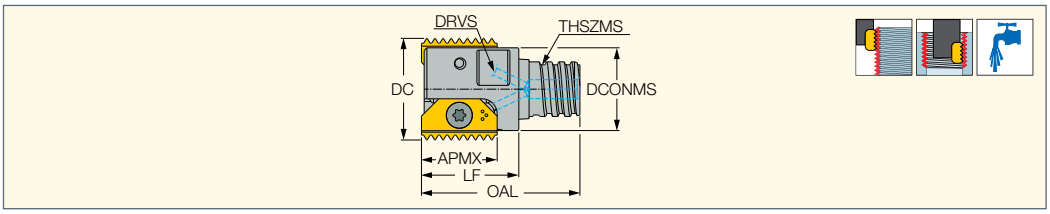
[1] Order separately

MILLTHREAD

MULTI-MASTER

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 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	0.13
MTE D27-1-MMT12-30	27.00	30.00	1	38.20	T12	18.30	52.00	16.0	9.0	0.10

• Tool cutting diameter should not exceed 2/3 of thread bore diameter • For user guide, see pages 435-442

(1) Number of inserts

(2) Torque key size

(3) Recommended clamping torque

For inserts, see pages: MT LNH#-ACME (Internal) (427) • MT LNH#-ISO (Internal) (420) • MT LNH#-NPS (426) • MT LNH#-NPSF (426) • MT LNH#-UN (Internal) (422) • MT LNH#-W (424) • MT LNHT-ABUT (427) • MT LNHT-BSPT (425) • MT LNHT-NPT (424) • MT LNHT-NPTF (425) • MT LNHU-ISO (External) (421) • MT LNHU-PG (428) • MT LNHU-UN (External) (423)

For holders, see pages: MM CAB (667) • MM GRT (shanks) (86) • MM S-A (stepped shanks) (84) • MM S-A (straight shanks) (87) • MM S-A-C# (86) • MM S-A-HSK (609) • MM S-A-N (85) • MM S-A-SK (90) • MM S-B (85° conical shanks) (87) • MM S-D (89° conical shanks) (88) • MM S-ER (89) • MM S-ER-H (89) • MM TS-A (86)

Spare Parts

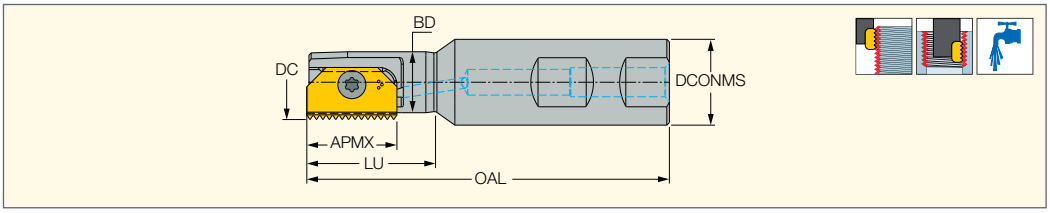
Designation				
MTE D13.7-1-MMT06-14	SR M2.6-L6.7-S11	BLD T08/M7	SW4-SD	MM KEY 8X5*
MTE D15.8-1-MMT08-14	SR M2.6-L6.7-S11	BLD T08/M7	SW4-SD	MM KEY 10X7*
MTE D20/D0.79-2-MMT10-14	SR M2.6-L6.7-S11	BLD T08/M7	SW4-SD	MM KEY 13X8*
MTE D20/D0.79-3-MMT10-14	SR M2.6-L6.7-S11	BLD T08/M7	SW4-SD	MM KEY 13X8*
MTE 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, should 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	0.16	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	0.20	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 435-442

(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

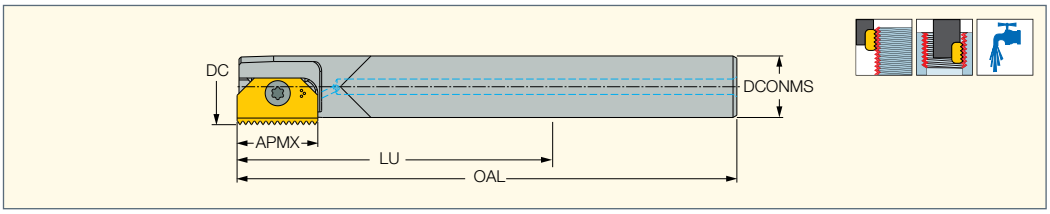
(6) Recommended clamping torque

For inserts, see pages: MT LNH#-ACME (Internal) (427) • MT LNH#-ISO (Internal) (420) • MT LNH#-NPS (426) • MT LNH#-NPSF (426) • MT LNH#-UN (Internal) (422) • MT LNH#-W (424) • MT LNHT-ABUT (427) • MT LNHT-BSPT (425) • MT LNHT-NPT (424) • MT LNHT-NPTF (425) • MT LNHU-ISO (External) (421) • MT LNHU-PG (428) • MT LNHU-UN (External) (423)

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	0.07	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	0.12	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	0.01	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 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 435-442

(1) C-Cylindrical

(2) Recommended clamping torque

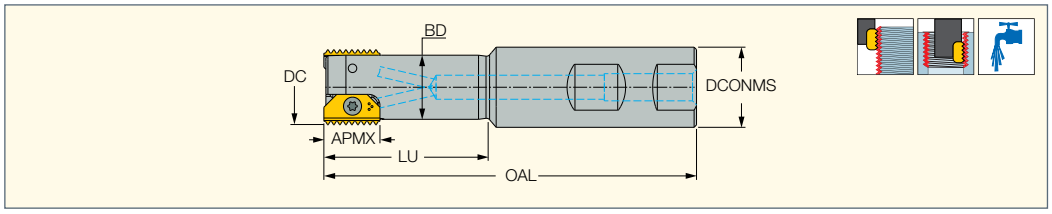
For inserts, see pages: MT LNH#-ACME (Internal) (427) • MT LNH#-ISO (Internal) (420) • MT LNH#-NPS (426) • MT LNH#-NPSF (426) • MT LNH#-UN (Internal) (422) • MT LNH#-W (424) • MT LNHT-ABUT (427) • MT LNHT-BSPT (425) • MT LNHT-NPT (424) • MT LNHT-NPTF (425) • MT LNHU-ISO (External) (421) • MT LNHU-PG (428) • MT LNHU-UN (External) (423)

For holders, see pages: BT-HYDRO HD (634) • C#-HYDRO HD (617) • DIN69871-HYDRO HD (569) • ER-SEAL-AA (687) • ER-SEAL-AA-JET (688) • HSK A-HYDRO HD (592)

MILLTHREAD

MTE D (Multi Insert)

Double Insert Threading Endmills with Weldon Shanks



Designation	APMX	DC	DCONMS	BD	LU	OAL	Shank(1)	TQ(2)	kg			
MTE D20.0-2-W20-14	14.00	20.00	20.00	16.00	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	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	-	-	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	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	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 435-442

(1) W-Weldon

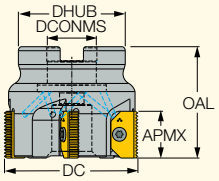
(2) Recommended clamping torque

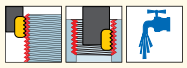
For inserts, see pages: MT LNH#-ACME (Internal) (427) • MT LNH#-ISO (Internal) (420) • MT LNH#-NPS (426) • MT LNH#-NPSF (426) • MT LNH#-UN (Internal) (422) • MT LNH#-W (424) • MT LNHT-ABUT (427) • MT LNHT-BSPT (425) • MT LNHT-NPT (424) • MT LNHT-NPTF (425) • MT LNHU-ISO (External) (421) • MT LNHU-PG (428) • MT LNHU-UN (External) (423)

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	0.10
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	0.15
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 435-442

(1) Number of inserts

(2) Recommended clamping moment

For inserts, see pages: MT LNH#-ACME (Internal) (427) • MT LNH#-ISO (Internal) (420) • MT LNH#-NPS (426) • MT LNH#-NPSF (426) • MT LNH#-UN (Internal) (422) • MT LNH#-W (424) • MT LNHT-ABUT (427) • MT LNHT-BSPT (425) • MT LNHT-NPT (424) • MT LNHT-NPTF (425) • MT LNHU-ISO (External) (421) • MT LNHU-PG (428) • MT LNHU-UN (External) (423)

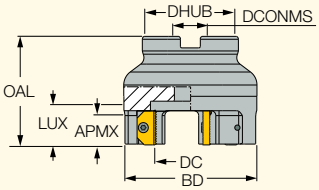
Spare Parts

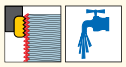
Designation				
MTF D063-5-22-21	SR M4-IP15-MT	SR M10X25 DIN912	BLD IP15/S7	SW6-SD
MTF D063-4-22-30	SR M5-IP25-MT	SR M10X25 DIN912	BLD IP25/S7	SW6-T
MTF D080-4-27-30	SR M5-IP25-MT	SR DIN 912 M12X25	BLD IP25/S7	SW6-T
MTF D080-4-27-40	SR M5-IP25-MT	SR DIN 912 M12X25	BLD IP25/S7	SW6-T
MTF D100-4-32-30	SR 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





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 435-442

(1) Number of inserts

(2) Recommended clamping torque

For inserts, see pages: MT LNH#-NPS (426) • MT LNH#-NPSF (426) • MT LNH#-W (424) • MT LNHT-ABUT (427) • MT LNHT-BSPT (425) • MT LNHT-NPT (424) • MT LNHT-NPTF (425) • MT LNHU-ISO (External) (421) • MT LNHU-PG (428) • MT LNHU-UN (External) (423)

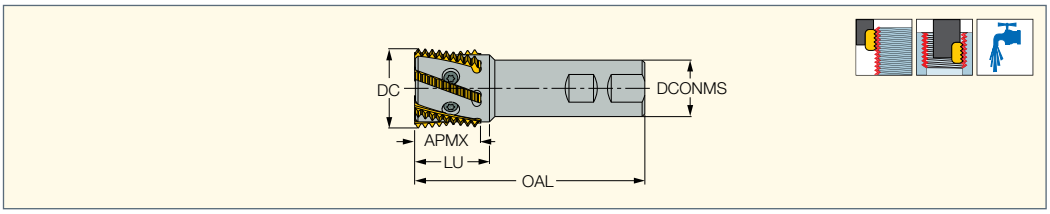
Spare Parts

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 DIN 912 M12X25	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	23.00	27.00	25.00	110.00	50.0	2	W	0.30	MTH 23 I 4.0 ISO	S23	K21
MTSRH 32-5	32.00	32.00	32.00	130.00	60.0	5	W	0.65	MTH 32 E 1.5 ISO	S32	
MTSRH 45-6	45.00	37.00	32.00	130.00	-	6	W	0.88	MTH 45 E 1.5 ISO	S45X	K40

• Note: ISCAR can provide special contour inserts on request

(1) Number of flutes

(2) W-Weldon

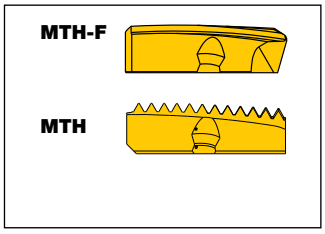
(3) Master insert identification

For inserts, see pages: MTH-BSPT (int. & ext.) (432) • MTH-F (433) • MTH-ISO (external) (428) • MTH-ISO (internal) (429) • MTH-NPT (int. & ext.) (432) • MTH-NPTF (int. & ext.) (432) • MTH-UN (external) (430) • MTH-UN (internal) (431) • MTH-W (int. & ext.) (431)





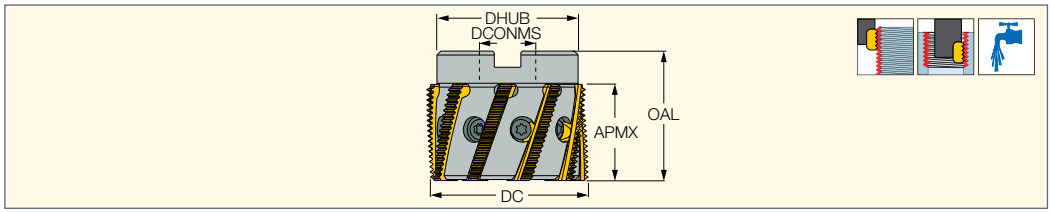
MTSRH with MTH-F Finishing Inserts



MILLTHREAD

MTSRH (helical shell mill)

Shell Mills with Coolant Holes
for Helical Threading Inserts



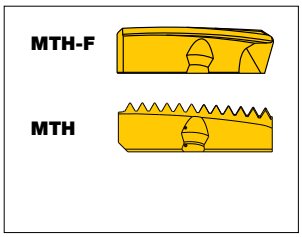
Designation	DC	APMX	DHUB	DCONMS	OAL	NOF(1)	kg	MIID(2)		
MTSRH 32-5M	32.00	32.00	26.00	16.00	52.00	5	0.00	MTH 32 E 1.5 ISO	S32S	
MTSRH 45-6M	45.00	37.00	38.00	22.00	60.00	6	0.30	MTH 45 E 1.5 ISO	S45S	K40
MTSRH 63-9	63.00	38.00	51.70	22.00	50.00	9	0.66	MTH 63 11 W		K40

• Note: ISCAR can provide special contour inserts on request • For user guide, see pages 435-442

(1) Number of flutes

(2) Master insert identification

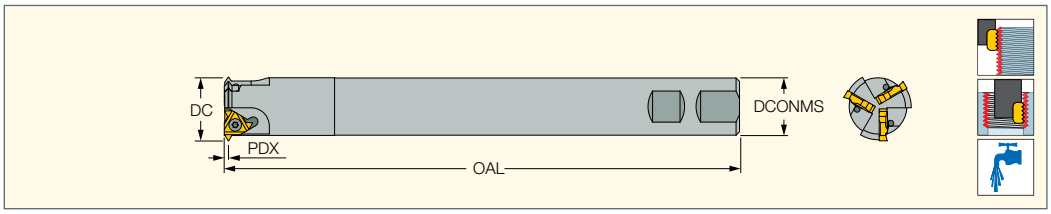




MILLTHREAD

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 435-442

(1) Number of flutes

(2) W-Weldon

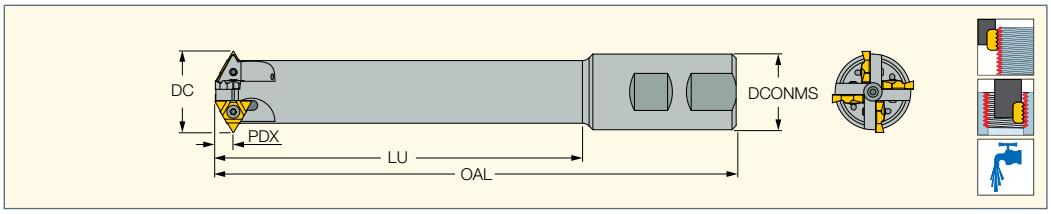
(3) S-Steel shanks

For inserts, see pages: MT3-55D (434) • MT3-60D (433)

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 435-442

(1) Number of flutes

(2) W-Weldon

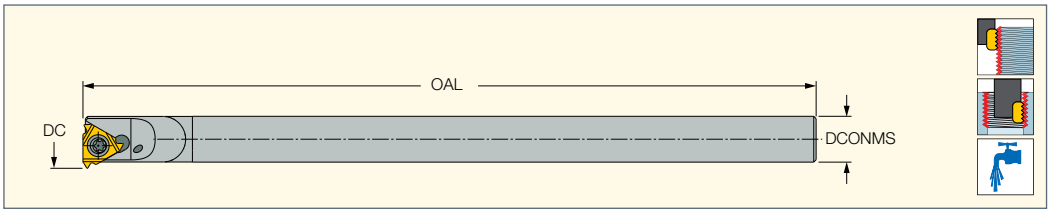
(3) S-Steel shanks

For inserts, see pages: MT3-U55D (434) • MT3-U60D (434)

MILLTHREAD

MTET Single Point

Indexable Threading Endmills with Cylindrical Shanks for Single Point Inserts



Designation	Dimensions												f_z
	TPN(2)	TPX(3)	TPIX(4)	TPIN(5)	DC	DCONMS	OAL	Shank(6)	Shank m.(7)	Insert	CSP(8)	kg	(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	0.06	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 435-442 • For inserts, refer to ISCAR Turning and Threading Tools 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

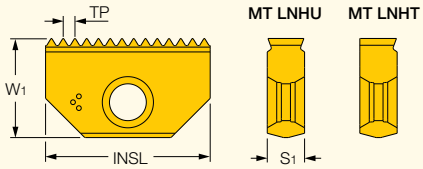
Designation		
MTET D7.0-1-C5C-06	SR 14-552	T-6/5
MTET D8.8-1-C6C-08	SR 14-558-S	T-6/5
MTET D13.2-1-C10C-11	SR M2.6-L6.7-S11	T-8/5

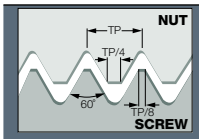
MILLTHREAD

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	5t.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 435

(1) Thread pitch

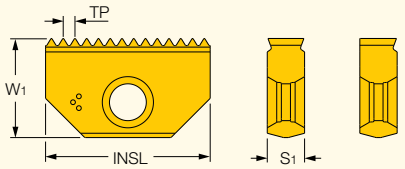
For tools, see pages: MTE D (415) • MTE D(Multi Insert) (416) • MTE D-C (416) • MTE-MM (415) • MTF D(Shell Mill) (417)

MILLTHREAD

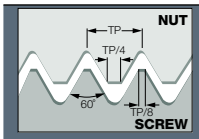
MT LNHU-ISO (External)

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 435

(1) Thread pitch

For tools, see pages: MTE D (415) • MTE D(Multi Insert) (416) • MTE D-C (416) • MTE-MM (415) • MTF D(Shell Mill) (417) • MTFLE (417)

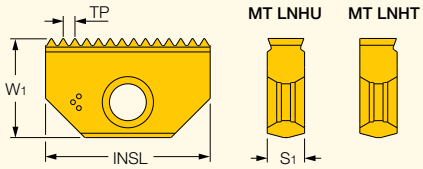


MILLTHREAD

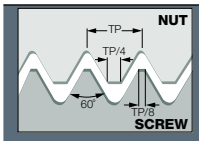
MT LNH#-UN (Internal)

Thread Milling Inserts for American (UN, UNC, UNF, UNEF, UNS) Full Profile Threads for General Applications









Designation	Dimensions					IC908
	TPI[1]	INSL	W1	S1	TP[2]	
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 435

(1) Threads per inch

(2) Thread pitch

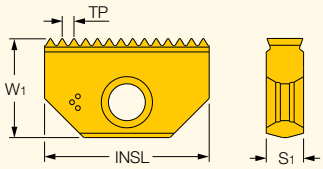
For tools, see pages: MTE D (415) • MTE D(Multi Insert) (416) • MTE D-C (416) • MTE-MM (415) • MTF D(Shell Mill) (417)

MILLTHREAD

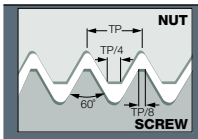
MT LNHU-UN (External)

External (UN, UNC, UNF, UNEF, UNS) Full Profile Thread Milling Inserts for General Industries









Designation	Dimensions TPI[1]	INSL	W1	S1	IC908
MT LNHU 1403 E32UN	32.0	14.00	7.90	3.20	•
MT LNHU 1403 E28UN	28.0	14.00	7.90	3.20	•
MT LNHU 1403 E24UN	24.0	14.00	7.90	3.20	•
MT LNHU 1403 E20UN	20.0	14.00	7.90	3.20	•
MT LNHU 1403 E18UN	18.0	14.00	7.90	3.20	•
MT LNHU 1403 E16UN	16.0	14.00	7.90	3.20	•
MT LNHU 1403 E14UN	14.0	14.00	7.90	3.20	•
MT LNHU 1403 E12UN	12.0	14.00	7.90	3.20	•
MT LNHU 2104 E24UN	24.0	21.00	12.60	4.80	•
MT LNHU 2104 E20UN	20.0	21.00	12.60	4.80	•
MT LNHU 2104 E18UN	18.0	21.00	12.60	4.80	•
MT LNHU 2104 E16UN	16.0	21.00	12.60	4.80	•
MT LNHU 2104 E14UN	14.0	21.00	12.60	4.80	•
MT LNHU 2104 E12UN	12.0	21.00	12.60	4.80	•
MT LNHU 2104 E10UN	10.0	21.00	12.60	4.80	•
MT LNHU 3005 E20UN	20.0	30.00	16.70	5.60	•
MT LNHU 3005 E18UN	18.0	30.00	16.70	5.60	•
MT LNHU 3005 E16UN	16.0	30.00	16.70	5.60	•
MT LNHU 3005 E14UN	14.0	30.00	16.70	5.60	•
MT LNHU 3005 E12UN	12.0	30.00	16.70	5.60	•
MT LNHU 3005 E10UN	10.0	30.00	16.70	5.60	•
MT LNHU 3005 E8UN	8.0	30.00	16.70	5.60	•
MT LNHU 3005 E6UN	6.0	30.00	16.70	5.60	•
MT LNHU 4006 E16UN	16.0	40.00	20.80	6.40	•
MT LNHU 4006 E14UN	14.0	40.00	20.80	6.40	•
MT LNHU 4006 E12UN	12.0	40.00	20.80	6.40	•
MT LNHU 4006 E10UN	10.0	40.00	20.80	6.40	•
MT LNHU 4006 E8UN	8.0	40.00	20.80	6.40	•
MT LNHU 4006 E6UN	6.0	40.00	20.80	6.40	•

• For cutting speed recommendations, see page 435

[1] Threads per inch

For tools, see pages: MTE D (415) • MTE D(Multi Insert) (416) • MTE D-C (416) • MTE-MM (415) • MTF D(Shell Mill) (417) • MTFLE (417)

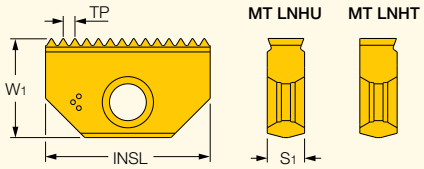


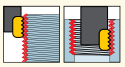
MILLTHREAD

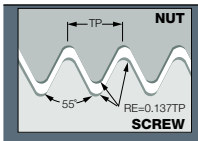
MT LNH#-W

External & Internal Whitworth (BSW, BSF, BSP) Full Profile Thread Milling Inserts for Fittings and Pipe Couplings









Designation	Dimensions TPI(1)	INSL	W1	S1	TP(2)	IC908
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 435

(1) Threads per inch

(2) Thread pitch

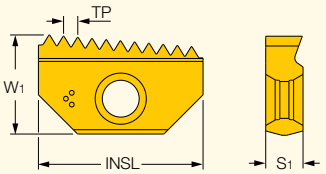
For tools, see pages: MTE D (415) • MTE D(Multi Insert) (416) • MTE D-C (416) • MTE-MM (415) • MTF D(Shell Mill) (417) • MTFLE (417)

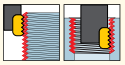
MILLTHREAD

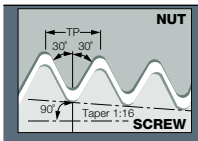
MT LNHT-NPT

External and Internal NPT Full Profile Thread Milling Inserts for Steam, Gas and Water Pipes









Designation	Dimensions TPI(1)	INSL	W1	S1	TP(2)	IC908
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 435

(1) Threads per inch

(2) Thread pitch

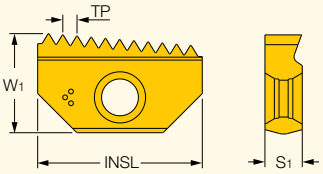
For tools, see pages: MTE D (415) • MTE D(Multi Insert) (416) • MTE D-C (416) • MTE-MM (415) • MTF D(Shell Mill) (417) • MTFLE (417)

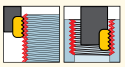
MILLTHREAD

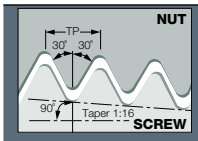
MT LNHT-NPTF

External and Internal NPTF Full Profile Thread Milling Inserts for Steam, Gas and Water Pipes









Designation	Dimensions					IC908
	TPI[1]	INSL	W1	S1	TP[2]	
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 435

[1] Threads per inch

[2] Thread pitch

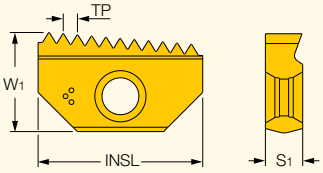
For tools, see pages: MTE D (415) • MTE D(Multi Insert) (416) • MTE D-C (416) • MTE-MM (415) • MTF D(Shell Mill) (417) • MTFLE (417)

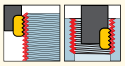
MILLTHREAD

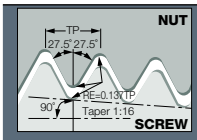
MT LNHT-BSPT

External and Internal Thread Milling Inserts for BSPT Full Profile









Designation	Dimensions					IC908
	TPI[1]	INSL	W1	S1	TP[2]	
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 435

[1] Threads per inch

[2] Thread pitch

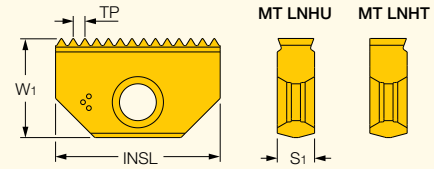
For tools, see pages: MTE D (415) • MTE D(Multi Insert) (416) • MTE D-C (416) • MTE-MM (415) • MTF D(Shell Mill) (417) • MTFLE (417)

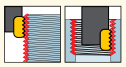
MILLTHREAD

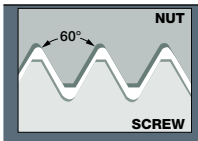
MT LNH#-NPS

External and Internal NPS Full Profile Thread Milling Inserts for Mechanical Joining and Pipe Fittings









Designation	Dimensions					IC908
	TPI[1]	INSL	W1	S1	TP[2]	
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 thread. • For cutting speed recommendations, see page 435

[1] Threads per inch

[2] Thread pitch

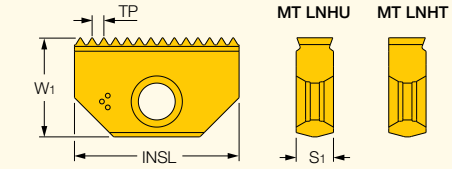
For tools, see pages: MTE D (415) • MTE D(Multi Insert) (416) • MTE D-C (416) • MTE-MM (415) • MTF D(Shell Mill) (417) • MTFLE (417)

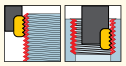
MILLTHREAD

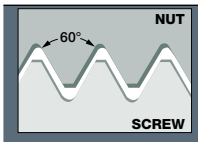
MT LNH#-NPSF

External and Internal NPSF Full Profile Thread Milling Inserts









Designation	Dimensions					IC908
	TPI[1]	INSL	W1	S1	TP[2]	
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 thread. • For cutting speed recommendations, see page 435

[1] Threads per inch

[2] Thread pitch

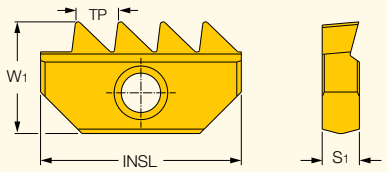
For tools, see pages: MTE D (415) • MTE D(Multi Insert) (416) • MTE D-C (416) • MTE-MM (415) • MTF D(Shell Mill) (417) • MTFLE (417)

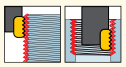
MILLTHREAD

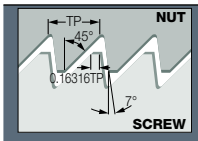
MT LNHT-ABUT

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 435

[1] Due to deep thread profile, the tool should be modified

[2] Threads per inch

[3] Thread pitch

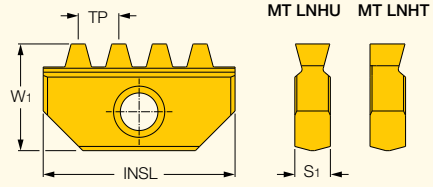
For tools, see pages: MTE D (415) • MTE D(Multi Insert) (416) • MTE D-C (416) • MTE-MM (415) • MTF D(Shell Mill) (417) • MTFLE (417)

MILLTHREAD

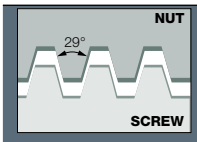
MT LNH#-ACME (Internal)

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	●
MT LNHT 4006 I3ACME	3.0	40.00	20.00	6.30	8.467	●

• For cutting speed recommendations, see page 435

[1] Threads per inch

[2] Thread pitch

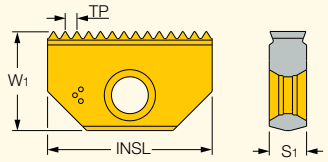
For tools, see pages: MTE D (415) • MTE D(Multi Insert) (416) • MTE D-C (416) • MTE-MM (415) • MTF D(Shell Mill) (417)

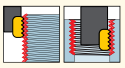
MILLTHREAD

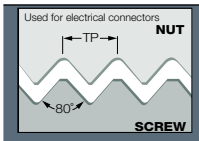
MT LNHU-PG

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 435

[1] Threads per inch

[2] Thread pitch

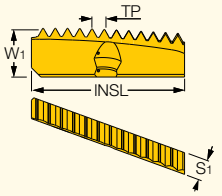
For tools, see pages: MTE D (415) • MTE D(Multi Insert) (416) • MTE D-C (416) • MTE-MM (415) • MTF D(Shell Mill) (417) • MTFLE (417)

MILLTHREAD

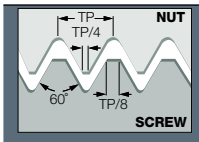
MTH-ISO (external)

Helical Thread Milling Inserts for ISO Metric External Threads









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 435

[1] Thread pitch

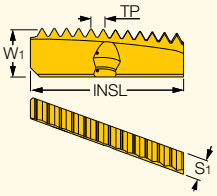
For tools, see pages: MTSRH (endmills) (418) • MTSRH (helical shell mill) (418)

MILLTHREAD

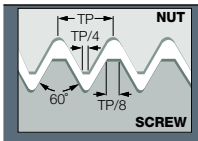
MTH-ISO (internal)

Helical Thread Milling Inserts for ISO Metric Internal Threads









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 435

[1] Thread pitch

[2] Internal thread designation

For tools, see pages: MTSRH (endmills) (418) • MTSRH (helical shell mill) (418)

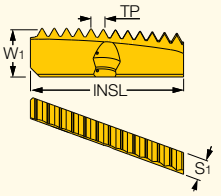


MILLTHREAD

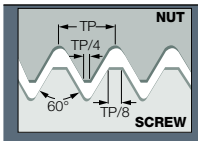
MTH-UN (external)

Helical Thread Milling Inserts for American Full Profile External Threads 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 435

[1] Threads per inch

For tools, see pages: MTSRH (endmills) (418) • MTSRH (helical shell mill) (418)

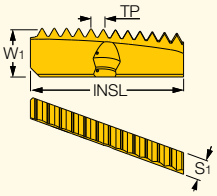


MILLTHREAD

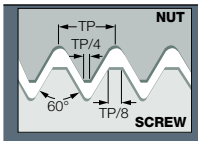
MTH-UN (internal)

Helical Thread Milling Inserts for American Full Profile Internal Threads for General Applications









Designation	TPI[1]	INSL	W1	S1	THID[2]	TP[3]	IC908
	Dimensions						
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 435

(1) Threads per inch

(2) Internal thread designation

(3) Thread pitch

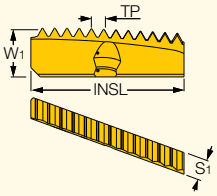
For tools, see pages: MTSRH (endmills) (418) • MTSRH (helical shell mill) (418)

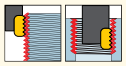
MILLTHREAD

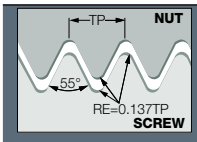
MTH-W (int. & ext.)

External & Internal Whitworth (BSW, BSF, BSP) Helical Thread Milling Inserts for Fittings and Pipe Couplings









Designation	TPI[1]	INSL	W1	S1	THID[2]	THOD[3]	TP[4]	IC908
	Dimensions							
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 435

(1) Threads per inch

(2) Internal thread designation

(3) External thread designation

(4) Thread pitch

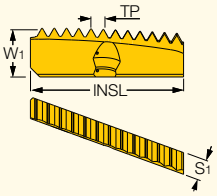
For tools, see pages: MTSRH (endmills) (418) • MTSRH (helical shell mill) (418)

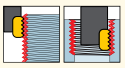
MILLTHREAD

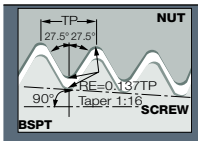
MTH-BSPT (int. & ext.)

Helical External & Internal Thread Milling Inserts for BSPT Thread for Steam, Gas and Water Pipes









Designation	TPI(1)	INSL	W1	S1	THID(2)	THOD(3)	TP(4)	IC908
	Dimensions							
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 435

(1) Threads per inch

(2) Internal thread designation

(3) External thread designation

(4) Thread pitch

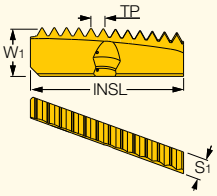
For tools, see pages: MTSRH (endmills) (418) • MTSRH (helical shell mill) (418)

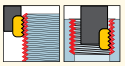
MILLTHREAD

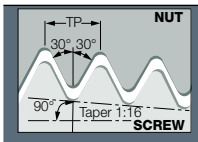
MTH-NPT (int. & ext.)

External & Internal NPT Helical Thread Milling Inserts for Steam, Gas and Water Pipes









Designation	TPI(1)	INSL	W1	S1	THID(2)	THOD(3)	TP(4)	IC908
	Dimensions							
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 435

(1) Threads per inch

(2) Internal thread designation

(3) External thread designation

(4) Thread pitch

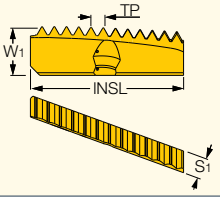
For tools, see pages: MTSRH (endmills) (418) • MTSRH (helical shell mill) (418)

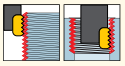
MILLTHREAD

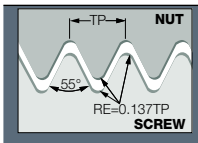
MTH-NPTF (int. & ext.)

External & Internal NPTF Helical Thread Milling Inserts for Steam, Gas and Water Pipes









Designation	TPI(1)	INSL	W1	S1	THID(2)	THOD(3)	TP(4)	IC908
	Dimensions							
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 435

(1) Threads per inch

(2) Internal thread designation

(3) External thread designation

(4) Thread pitch

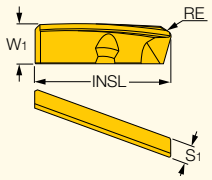
For tools, see pages: MTSRH (endmills) (418) • MTSRH (helical shell mill) (418)

ISCARMILL

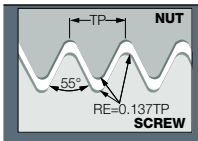
MTH-F

Helical Long Edge
Finishing Inserts









Designation	Dimensions L	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	●

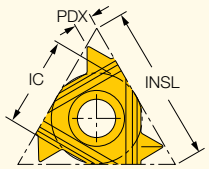
For tools, see pages: MTSRH (endmills) (418) • MTSRH (helical shell mill) (418)

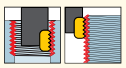
MILLTHREAD

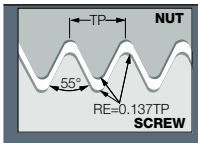
MT3-60D

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 435-442

(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

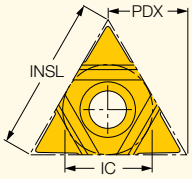
For tools, see pages: MTSR M.I. S.P. (419)

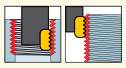
MILLTHREAD

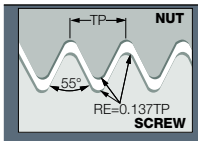
MT3-U60D

60° Partial Profile Laydown
U-Type 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 11U60D	6.35	2.500	4.000	2.000	3.000	6.00	10.00	8.00	12.00	11.00	5.0	●
MT3 16U60D	9.52	4.000	6.000	3.000	5.000	4.00	6.00	5.00	8.00	16.49	7.6	●

- For technical information and detailed cutting data, see pages 435-442

(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

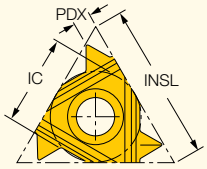
For tools, see pages: MTSR M.I. S.P.-U (419)

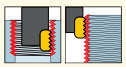
MILLTHREAD

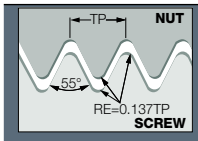
MT3-55D

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 435-442

(1) Threads per inch maximum
(2) Threads per inch minimum

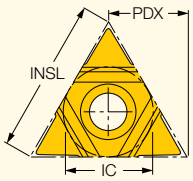
For tools, see pages: MTSR M.I. S.P. (419)

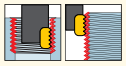
MILLTHREAD

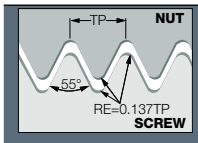
MT3-U55D

55° Partial Profile Laydown
U-Type Thread Milling Inserts
for General Industry









Designation	Dimensions IC	TPIX(1)	TPIN(2)	INSL	PDX	IC908
MT3 11U55D	6.35	12.00	7.00	11.00	5.0	●
MT3 16U55D	9.52	6.00	4.50	16.49	7.6	●

- For detailed cutting data, see pages 435-442

(1) Threads per inch maximum
(2) Threads per inch minimum

For tools, see pages: MTSR M.I. S.P.-U (419)

Machining Data for Indexable Insert 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

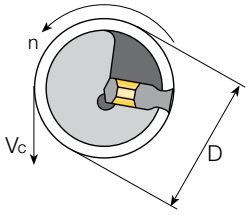
Calculating RPM:

Metric Example: V=120 m/min, D=30 mm

$$n = \frac{Vc \times 1000}{\pi x D} = \frac{120 \times 1000}{3.14 x 30} = 1274 \text{ RPM}$$

Inch Example: V= 410 SFM, D=1.5 inch

$$n = \frac{Vc \times 12}{\pi x D} = \frac{410 \times 12}{3.14 x 1.5} = 1045 \text{ RPM}$$



Feed:	0.05-0.15 mm/tooth 0.002-0.006 inch/tooth

Machining Data for Solid Carbide Threading Endmills

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%.

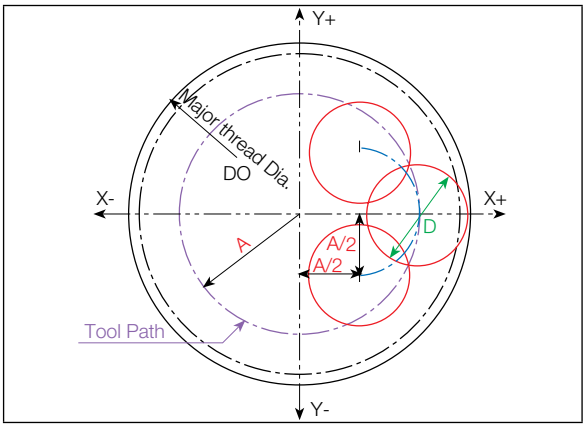
Thread Milling CNC Program for Internal Thread
Right-hand thread (climb milling) from bottom up.
Program is based on tool center.
This method of programming needs no tool radius compensation value other than an offset for wear.

$$A = \frac{Do - D}{2}$$

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.

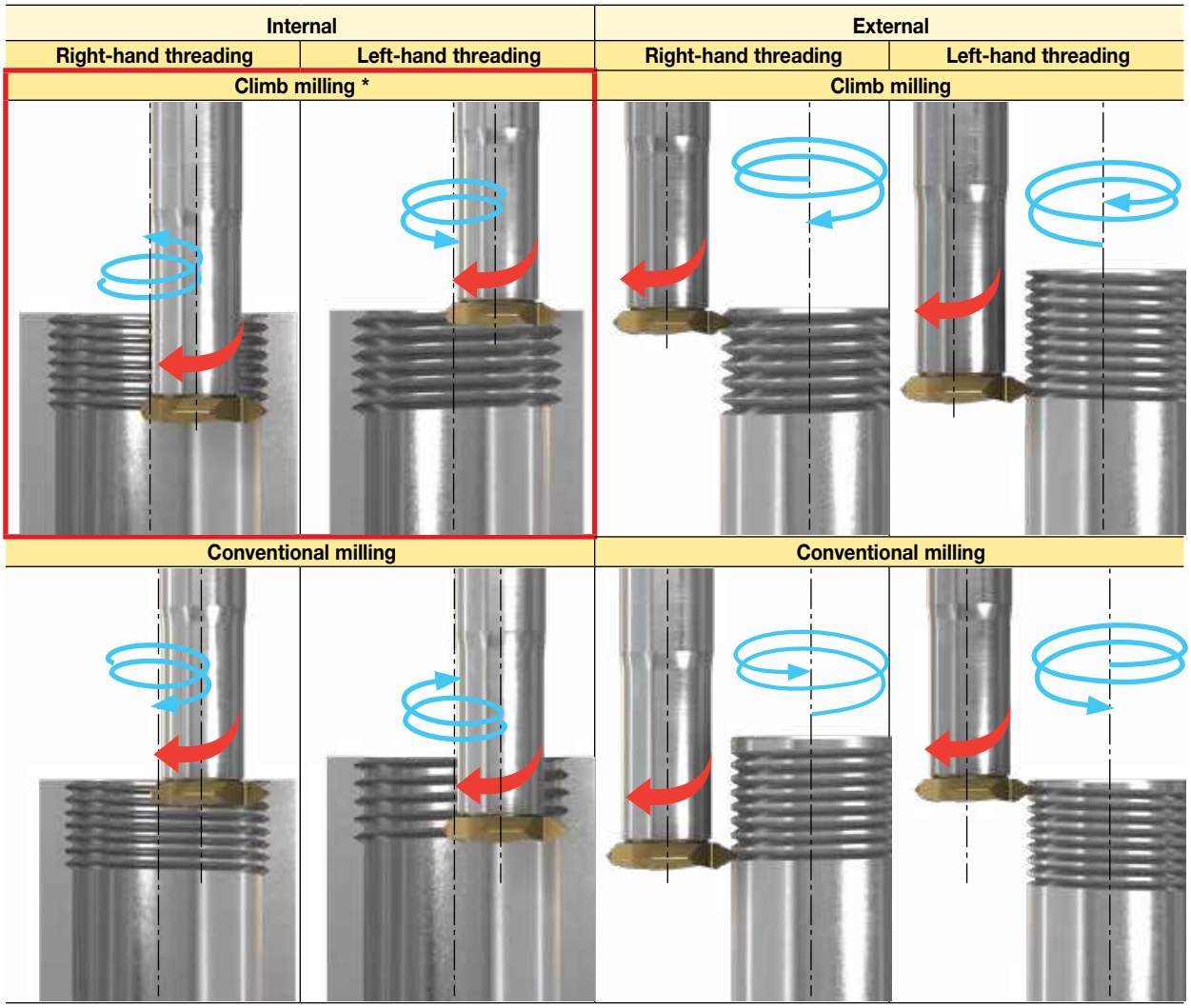
Number of Radial Passes

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

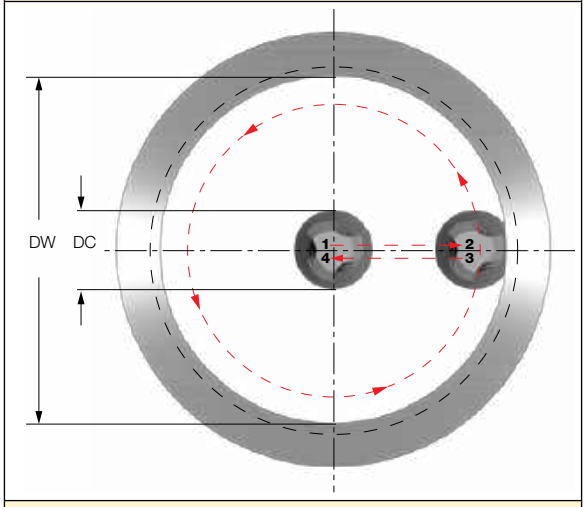
Entering the workpiece

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.

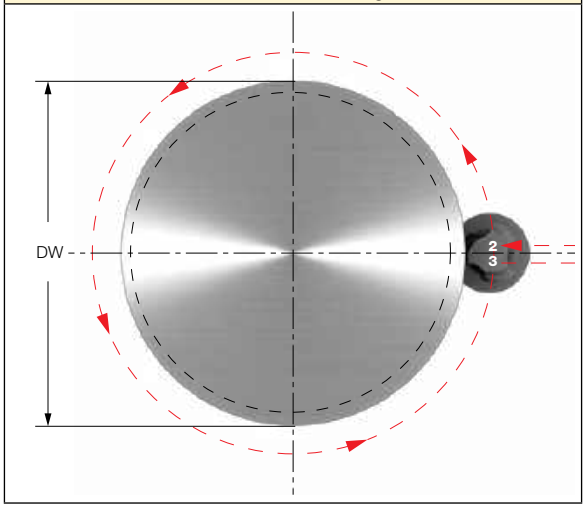
Radial entering

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



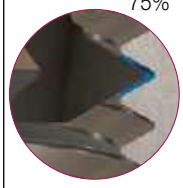
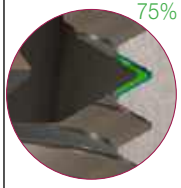
External Threading



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

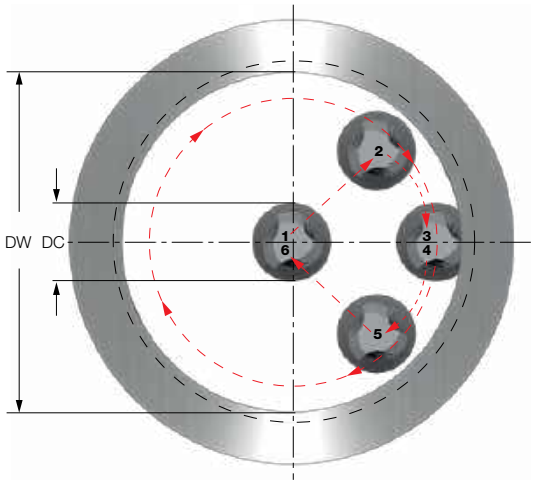
Based on the number of passes, the table below presents **ISCAR**'s recommendations for depth per pass, which is expressed as a percentage according to the total depth that is required to be removed.

Depth per pass	Number of radial passes		
	1 pass	2 passes	3 passes
	 100%	 75% 100%	 65% 75% 100%

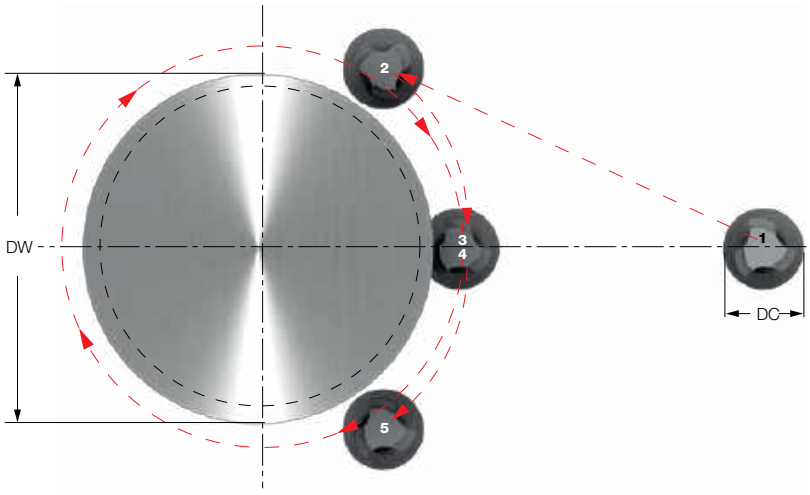
Tangential entering by arc (recommended)

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 **SOLIDTHREAD** 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

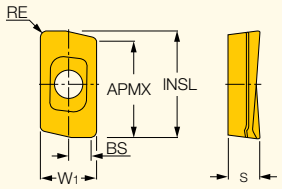


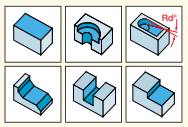
HELIPLUS

HP ANKT/ANCT 0702.. PN-R/PNTR

Inserts with a 7 mm Helical Edge and Various Corner Radii for General Use



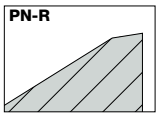


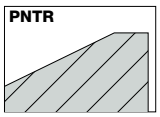


Designation	Dimensions W1	APMX	BS	RE	INSL	S	Tough ↔ Hard IC328	IC830	IC928	IC5400	IC950	IC808	IC908	IC30N	IC810	IC910	DT7150	Recommended Machining Data a_p (mm)	f_z (mm/t)
HP ANCT 070202 PN-R	4.50	7.70	1.50	0.20	8.70	2.60										●		0.60-7.70	0.05-0.10
HP ANCT 070204PN-R	4.50	7.70	1.40	0.40	8.70	2.60	●		●			●						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 542-547

For tools, see pages: HP ANK-07 (235) • HP E90AN-07 (17) • HP E90AN-M-07 (17) • HP E90AN-MM-07 (18) • HP F90AN-07 (195)



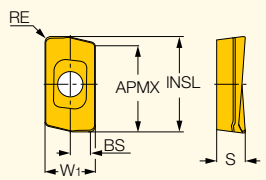


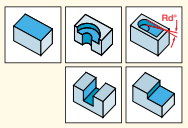
HELIPLUS

HP ANKW 070204PNTR

Insert with a 7 mm Helical Edge and Flat Rake for Rough Machining and Hardened Steel









Designation	Dimensions INSL	APMX	S	RE	BS	W1	Tough ↔ Hard IC928	IC910	Recommended Machining Data 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 542-547

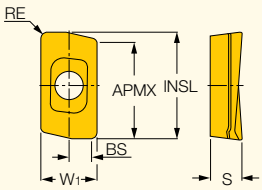
For tools, see pages: HP ANK-07 (235) • HP E90AN-07 (17) • HP E90AN-M-07 (17) • HP E90AN-MM-07 (18) • HP F90AN-07 (195)

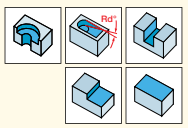
HELIPLUS

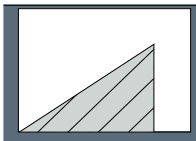
HP ANCR 0702PNFR

Peripherally Ground Inserts with a Super Positive Chipformer for Machining Aluminum, Titanium and Magnesium









Designation	Dimensions INSL	APMX	S	RE	BS	W1	Tough ↔ Hard IC28	IC328	IC928	IC908	Recommended Machining Data 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 542-547

(1) Polished rake

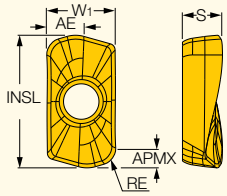
For tools, see pages: HP ANK-07 (235) • HP E90AN-07 (17) • HP E90AN-M-07 (17) • HP E90AN-MM-07 (18) • HP F90AN-07 (195)

HELIPLUS
FEEDMILL

HP ANKT 0702...-FF

Inserts for Fast Feed Milling



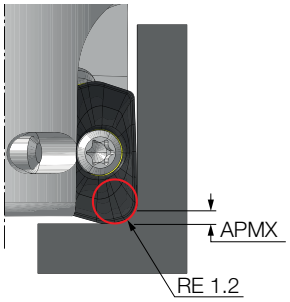


Designation	Dimensions W1	RE	S	INSL	APMX	AE	Tough ↔ Hard IC830	IC808	Recommended Machining Data f_z (mm/t)
HP ANKT 0702R12T-FF	4.40	1.20	2.60	8.55	0.70	1.9	●	●	0.70-1.00
HP ANKT 0702R12GTFF (1)	4.40	1.20	2.60	8.55	0.70	1.9		●	0.70-1.00

• Can be used on 12 mm and larger tools • For cutting speed recommendations, see pages 542-547

(1) Reinforced cutting-edge geometry for Fast Feed (FF) hardened materials up to 64 HRc

For tools, see pages: HP E90AN-07 (17) • HP E90AN-M-07 (17) • HP E90AN-MM-07 (18) • HP F90AN-07 (195)

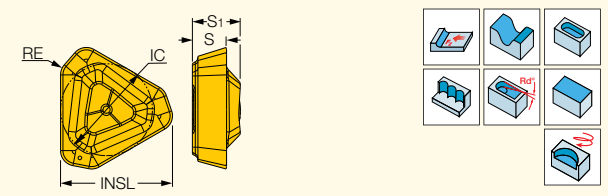


NAN3FEED
NANO FEED MILL

FFT3 TXMT 02

Triangular Miniature Inserts for Fast Feed Milling at Small Depths of Cut



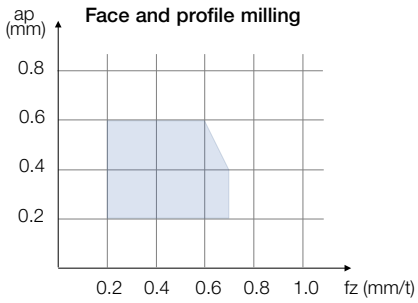


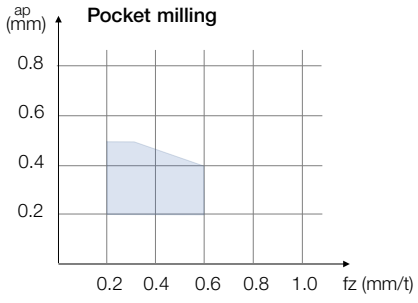
Designation	Dimensions INSL	IC	RE	S	S1	Tough ↔ Hard IC830	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
FFT3 TXMT 020105T	3.66	2.00	0.50	1.10	1.56	●	●	0.20-0.60	0.20-0.45

• For side plunging, the initial cutting feed is 0.06 mm/t • For cutting speed recommendations, see pages 542-547

For tools, see pages: FFT3 EFM-02 (292) • FFT3 EFM-MM 02 (292)

Application Range FFT3-02



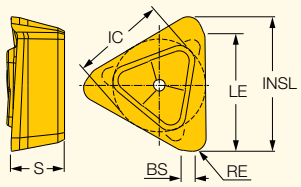


NANMILL NANO ENDMILL

HM390 TPKR 0401

Triangular Miniature Inserts with 3 Helical Cutting Edges for 90° Shoulders





Designation	Dimensions						Tough ↔ Hard		Recommended Machining Data	
	INSL	IC	S	LE	RE	BS	IC830	IC808	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 542-547

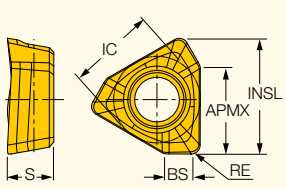
For tools, see pages: HM390 ETP-04 (13) • HM390 ETP-MM-04 (13)

HELI3MILL HM390 LINE

HM390 TPKT/CT 0502

Triangular Inserts with 3 Helical Cutting Edges for 90° Shoulder Accuracy





Designation	Dimensions						Tough ↔ Hard			Recommended Machining Data	
	INSL	IC	S	APMX	RE	BS	IC830	IC808	IC810	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

• For cutting speed recommendations, see pages 542-547

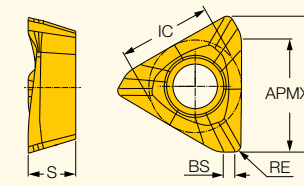
For tools, see pages: HM390 ETP-05 (14) • HM390 ETP-MM-05 (14)

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	IC5400	IC380	IC808	IC810	a_p (mm)	f_z (mm/t)
HM390 TCCT 0703PCR	7.80	5.80	3.15	5.00	0.50	0.80	●		●		●			0.90-5.00	0.08-0.15
HM390 TCKT 0703PCTR	7.80	5.80	3.15	5.00	0.50	0.80	●	●	●	●		●	●	0.90-5.00	0.08-0.15

• For cutting speed recommendations, see pages 542-547

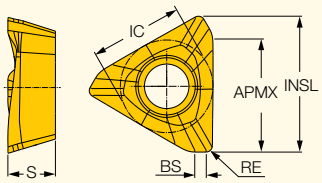
For tools, see pages: HM390 E10-80-07 (39) • HM390 ETC-07 (18) • HM390 ETC-MM (18) • HM390 FTC-07 (193)

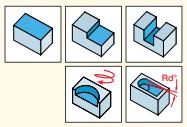
HELI3MILL HM390 LINE

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	IC28	IC882	IC330	IC845	IC830	IC5400	IC380	IC808	IC30N	IC810	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	0.08-0.25
HM390 TPCT 1003PDR	10.90	7.50	4.00	8.00	0.80	1.10					●			●		●	1.20-8.00	0.08-0.12
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

• For cutting speed recommendations, see pages 542-547

(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

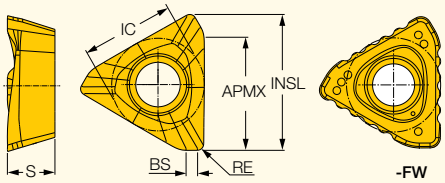
For tools, see pages: HM390 ETP-10 (22) • HM390 ETP-C#-10 (23) • HM390 ETP-M (22) • HM390 FTP-10 (199) • HM390 SM-10 (236) • HM390 TPK-10 (235)

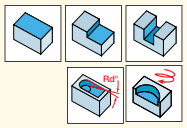
HELI3MILL HM390 LINE

HM390 TDKT/CT 1505

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	IC830	IC5400	IC380	IC808	IC30N	IC810	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 TDKT 150504PDR	16.34	11.40	5.77	13.00	0.40	1.40				●						1.20-13.00	0.08-0.15
HM390 TDKT 150512-PDR	16.20	11.40	5.85	12.70	1.20	1.00		●		●			●			1.60-13.00	0.08-0.15
HM390 TDKT 150516-PDR	16.40	11.40	5.85	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 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 542-547

(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 2.0 mm

(5) Tools should be modified by rounding the pocket corners to 4.0 mm

(6) Super positive inserts for machining aluminum, stainless steel and high temperature alloys

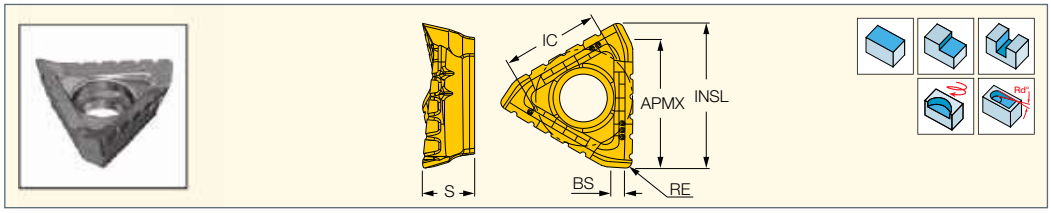
(7) Peripherally ground

For tools, see pages: HM390 ETD-15 (30) • HM390 ETD-M (31) • HM390 FTD-15 (209)

HELI3MILL HM390 LINE

HM390 TDCR 1505

Triangular Inserts with 3 Helical Cutting Edges for 90° Shoulder Accuracy



Designation	Dimensions						Tough ↔ Hard		Recommended Machining Data	
	INSL	IC	S	APMX	RE	BS	IC28	IC4	a_p (mm)	f_z (mm/t)
HM390 TDCR 1505PDFR-P (1)	16.70	11.40	6.00	13.00	0.80	1.60	•	•	1.20-13.00	0.08-0.20
HM390 TDCR 150520PDFR-P (1)	16.00	11.40	6.00	13.00	2.00	1.00	•		2.40-13.00	0.08-0.15
HM390 TDCR 150532PDFR-P (1)	15.00	11.40	6.00	13.00	3.20	0.50	•		3.60-13.00	0.08-0.15
HM390 TDCR 150540PDFR-P (1)	14.00	11.40	6.00	13.00	4.00	0.70	•		4.40-13.00	0.08-0.15
HM390 TDCR 150508 FW-P (2)	17.10	12.30	6.40	13.00	0.80	2.30	•		13.00-13.00 (3)	0.08-0.22
HM390 TDCR 150532 FW-P (2)	17.10	12.30	6.40	13.00	3.20	0.50	•		13.00-13.00 (3)	0.08-0.22

- For cutting speed recommendations, see pages 542-547

(1) Peripherally ground flank, super positive polished rake for milling aluminum, titanium and magnesium

(2) Super positive polished rake for milling aluminum, titanium and magnesium with serrated cutting edge

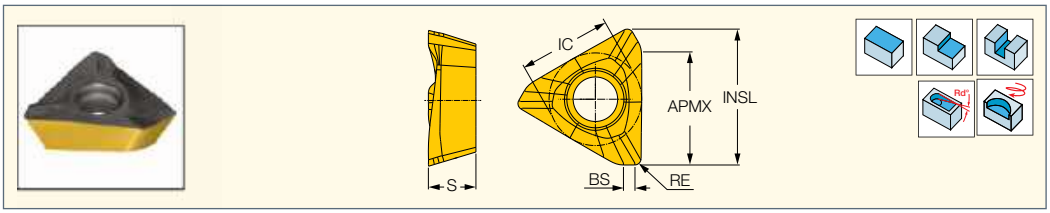
(3) Machine with maximum depth of cut

For tools, see pages: HM390 ETD-15 (30) • HM390 ETD-M (31) • HM390 FTD-15 (209)

HELI3MILL HM390 LINE

HM390 TDKT 1907

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	IC5400	IC808	IC810	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

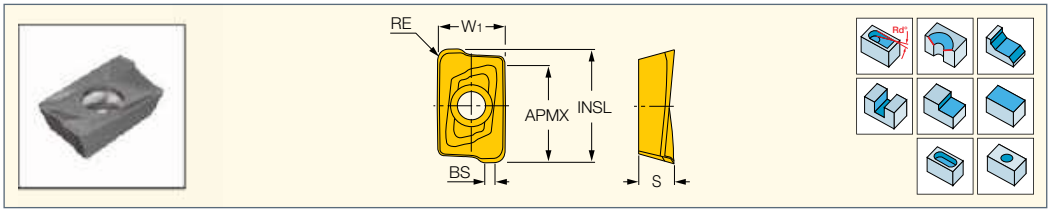
- For cutting speed recommendations, see pages 542-547

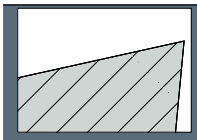
For tools, see pages: HM390 ETD-19 (33) • HM390 FTD-19 (212)

HELI2000

HM90 APCT 1003

Inserts with a Sharp Cutting Edge for Semi-Finish and Finishing





Designation	Dimensions						Tough ↔ Hard					Recommended Machining Data	
	W1	RE	INSL	S	BS	APMX	IC28	IC328	IC928	IC380	IC808	a_p (mm)	f_z (mm/t)
HM90 APCT 100302R-PDR	6.96	0.20	11.66	3.53	1.90	8.00	•	•	•		•	0.60-8.00	0.06-0.12
HM90 APCT 100308-HP (1)	6.80	0.80	11.46	3.53	1.40	8.00				•	•	1.20-8.00	0.06-0.12

- For cutting speed recommendations, see pages 542-547

(1) Sharp cutting edges, high positive rake angle, excellent for milling PH high temperature alloys

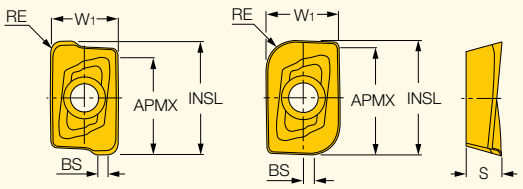
For tools, see pages: HM90 E90A-10 (24) • HM90 E90A-M-10 (28) • HM90 E90A-MM-10 (27) • HM90 E90A-MM-10-JHP (27) • HM90 F90AP-10 (200) • HM90 F90AP-10-JHP (200)

HELI2000

HM90 APKT 1003

General Use Inserts with 2 Helical Cutting Edges for High 90° Shoulder Accuracy



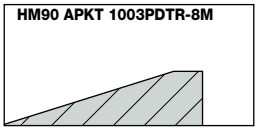


Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC28	IC882	IC330	IC328	IC830	IC928	IC5400	IC950	IC380	IC808	IC908	IC810	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 APKT 1003PDR	6.76	11.45	8.00	3.53	0.80	1.40		●	●	●	●	●	●	●	●	●	●	●	●	1.20-8.00	0.08-0.15
HM90 APKT 1003PDR-SC	6.80	11.60	8.00	4.00	0.40	1.80					●									0.80-8.00	0.08-0.15
HM90 APKT 1003PDR-MM	6.70	11.50	8.00	3.50	0.80	1.60					●									1.20-8.00	0.08-0.15
HM90 APKT 1003PDTR-8M	6.76	11.45	8.00	3.53	0.80	1.40						●							●	1.20-8.00	0.08-0.20
HM90 APKT 100304PDR	6.76	11.45	8.00	3.53	0.40	1.78	●			●		●					●			0.80-8.00	0.08-0.15
HM90 APKT 100308R	6.76	11.45	8.00	3.53	0.80	1.00					●									1.20-8.00	0.08-0.15
HM90 APKT 100312PDR	6.76	11.45	8.00	3.53	1.20	1.00				●		●					●			1.60-8.00	0.08-0.15
HM90 APKT 100316PDR	6.76	11.45	8.00	3.53	1.60	0.58				●		●					●			2.00-8.00	0.08-0.15
HM90 APKT 100325PDR	6.76	10.40	8.00	3.53	2.50	-				●		●					●			2.90-8.00	0.08-0.15
HM90 APKT 100330PDR	6.76	10.40	8.00	3.53	3.00	-				●		●					●			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 542-547

For tools, see pages: HM90 E90A-10 (24) • HM90 E90A-M-10 (28) • HM90 E90A-MM-10 (27) • HM90 E90A-MM-10-JHP (27) • HM90 F90AP-10 (200) • HM90 F90AP-10-JHP (200)

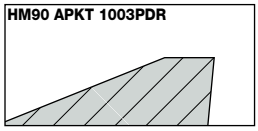
HM90 APKT 1003PDTR-8M



HM90 APKT 1003 - 8M

- Super reinforced helical cutting edge
- For interrupted cuts and heavy machining
- Use for long overhang and extended flute cutters with reduced chatter

HM90 APKT 1003PDR



HM90 APKT 1003

- Helical cutting edge with high 90˚ shoulder accuracy
- Reduced mismatch - improved surface quality
- For general use applications

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



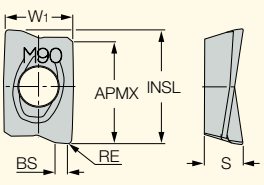
- Larger axial effective angle up to the middle of the insert length
- Reduced cutting forces, effective up to 5 mm – the middle of insert's cutting edge length
- Used for machining ductile high strength materials. Parts such as shafts, gears, crankshafts, connection rods, camshafts, etc.

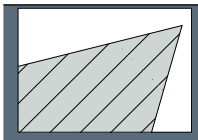
HELI2000

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	Tough ↔ Hard IC28	IC928	IC08	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 APCR 100304PDFR-P	6.52	11.25	8.00	3.85	0.40	1.52	●	●	●	●	0.80-8.00	0.07-0.25
HM90 APCR 100304PDFRDP	6.52	11.25	8.00	3.85	0.40	1.52	●				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 542-547

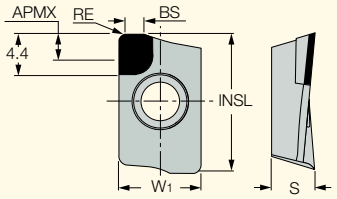
For tools, see pages: HM90 E90A-10 (24) • HM90 E90A-M-10 (28) • HM90 E90A-MM-10 (27) • HM90 E90A-MM-10-JHP (27) • HM90 F90AP-10 (200) • HM90 F90AP-10-JHP (200)

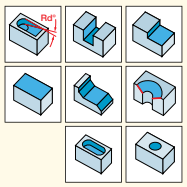
HELIMILL

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	2.00	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 20 mm and larger

For tools, see pages: HM90 E90A-10 (24) • HM90 E90A-M-10 (28) • HM90 E90A-MM-10 (27) • HM90 E90A-MM-10-JHP (27) • HM90 F90AP-10 (200) • HM90 F90AP-10-JHP (200)

PCD
Recommended Machining Conditions

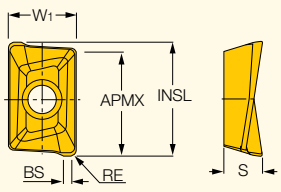
	Grade	D.O.C. (a_p) mm	Material	V_c m/min	Feed mm/tooth	Cutting Edge
N	ID5	<2.0	Aluminum alloys <12% silicon	300-3000	0.05-0.25	Sharp
		<2.0	Chipboard, fiberboard and plastics	2000-3000		
		<2.0	Copper alloys and brass	500-1500		
N	ID8	<2.0	Aluminum>12% silicon	250-1000		
		<2.0	Aluminum<12% silicon	300-3000		
		<2.0	Chipboard, fiberboard and plastics MMC	2000-3000 200-600		

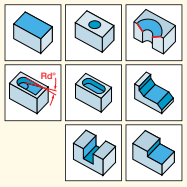
HELIMILL

APCT 1003PDR-HM

Inserts with 2 Helical Precision Ground Cutting Edges for High Accuracy Finishing







Designation	Dimensions W1	RE	INSL	S	APMX	BS	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	8.00	1.20		●		0.70-8.00	0.06-0.12
APCT 100304R-HM	6.70	0.45	10.95	3.51	8.00	1.20		●		0.90-8.00	0.07-0.12
APCT 1003PDR-HM	6.70	0.50	10.95	3.51	8.00	1.20	●		●	0.90-8.00	0.07-0.15

• For cutting speed recommendations, see pages 542-547

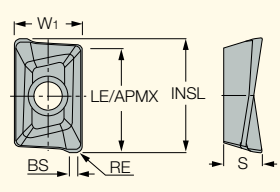
For tools, see pages: APK-FE (239) • HM90 E90A-10 (24) • HM90 E90A-M-10 (28) • HM90 E90A-MM-10 (27) • HM90 E90A-MM-10-JHP (27) • HM90 F90AP-10 (200) • HM90 F90AP-10-JHP (200)

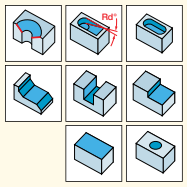
HELIMILL

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	8.00	●	●	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 542-547

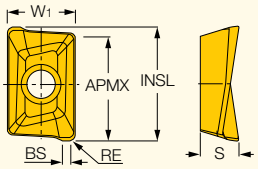
For tools, see pages: APK-FE (239) • HM90 E90A-10 (24) • HM90 E90A-M-10 (28) • HM90 E90A-MM-10 (27) • HM90 E90A-MM-10-JHP (27) • HM90 F90AP-10 (200) • HM90 F90AP-10-JHP (200)

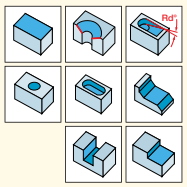
HELIMILL

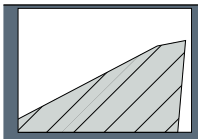
APKR 1003PDR-HM

Super Positive Inserts for Aluminum, Stainless Steel and High Temperature Alloys









Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC28	IC330	IC328	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKR 1003PDR-HM	6.70	11.20	8.00	3.76	0.50	1.20	●	●	●	●	0.90-8.00	0.07-0.15

• For cutting speed recommendations, see pages 542-547

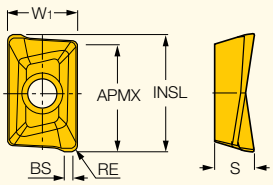
For tools, see pages: APK-FE (239) • HM90 E90A-10 (24) • HM90 E90A-M-10 (28) • HM90 E90A-MM-10 (27) • HM90 E90A-MM-10-JHP (27) • HM90 F90AP-10 (200) • HM90 F90AP-10-JHP (200)

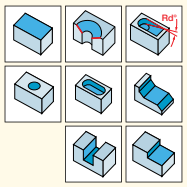
HELIMILL

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	IC950	IC30N	IC910	IC20	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKT 1003PDR-HM	6.70	10.95	3.55	8.00	0.50	1.20	●	●	●	●	●	●	●	●	●	0.90-8.00	0.08-0.15

• For cutting speed recommendations, see pages 542-547

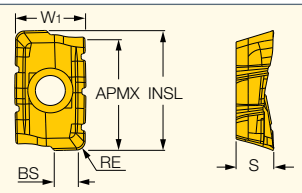
For tools, see pages: APK-FE (239) • E90AC (36) • HM90 E90A-10 (24) • HM90 E90A-M-10 (28) • HM90 E90A-MM-10 (27) • HM90 E90A-MM-10-JHP (27) • HM90 F90AP-10 (200) • HM90 F90AP-10-JHP (200)

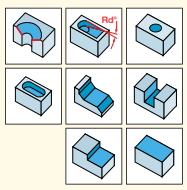
HELIMILL

APKT 1003PDR-HM-CS

Chip Splitting Insert for Rough Milling of Steel, Specially to be mounted with an Extended Flute Cutter







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	8.00	0.80	1.20	●	8.00-8.00 (1)	0.08-0.15

• For cutting speed recommendations, see pages 542-547

(1) Machine with maximum depth of cut

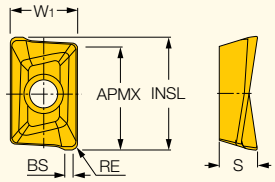
For tools, see pages: APK-FE (239) • E90AC (36) • HM90 E90A-10 (24) • HM90 E90A-M-10 (28) • HM90 E90A-MM-10 (27) • HM90 E90A-MM-10-JHP (27) • HM90 F90AP-10 (200) • HM90 F90AP-10-JHP (200)

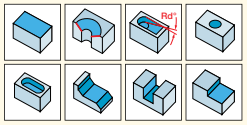
HELIMILL

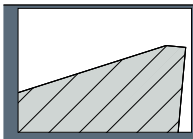
APKT 1003PDTR/L-RM

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	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKT 1003PDTL-RM (1)	6.70	11.00	8.00	3.47	0.50	1.20		●						0.90-8.00	0.10-0.20
APKT 1003PDTR-RM	6.70	11.00	8.00	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 542-547

(1) PDTL-Left-hand inserts are used only for special tools.

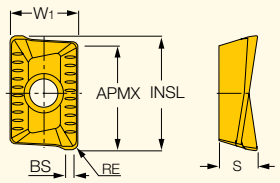
For tools, see pages: APK-FE (239) • ETS (341) • HM90 E90A-10 (24) • HM90 E90A-M-10 (28) • HM90 E90A-MM-10 (27) • HM90 E90A-MM-10-JHP (27) • HM90 F90AP-10 (200) • HM90 F90AP-10-JHP (200)

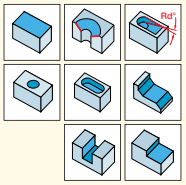
HELIMILL

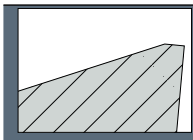
APKT 1003PDTR-76

Inserts with 2 Helical Cutting Edges with Ribs Along Edge for Interrupted Cut









Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC330	IC328	IC830	IC928	IC950	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKT 1003PDTR-76	6.70	11.00	8.00	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 542-547

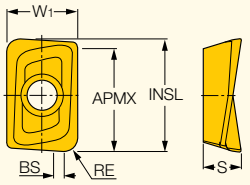
For tools, see pages: APK-FE (239) • E90AC (36) • HM90 E90A-10 (24) • HM90 E90A-M-10 (28) • HM90 E90A-MM-10 (27) • HM90 E90A-MM-10-JHP (27) • HM90 F90AP-10 (200) • HM90 F90AP-10-JHP (200)

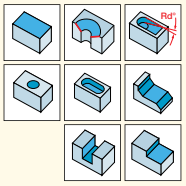
HELIMILL

APKT 1003..TR-RM

Inserts with Various Corner Radii and a Reinforced Cutting Edge for Interrupted Cut and Heavy Machining



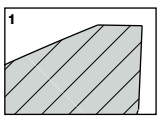


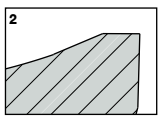


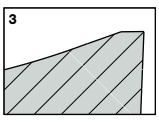
Designation	Dimensions RE	INSL	W1	APMX	S	BS	Tough ↔ Hard IC28	IC330	IC328	IC928	IC950	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKT 100308PDTR-RM	0.80	11.00	6.70	8.00	3.47	0.90		●	●	●		●	1.20-8.00	0.08-0.15
APKT 100310PDR-RM	1.00	10.75	6.70	8.00	3.47	0.60	●		●				1.40-8.00	0.08-0.15
APKT 100312TR-RM	1.20	10.50	6.70	8.00	3.47	-	●		●	●		●	1.60-8.00	0.08-0.15
APKT 100316PDTR-RM	1.60	10.90	6.70	8.00	3.47	0.80			●	●			2.00-8.00	0.08-0.15
APKT 100320PDTR-RM	2.00	10.90	6.70	8.00	3.47	0.80			●	●	●		2.40-8.00	0.08-0.15
APKT 100332TR-RM	3.20	10.70	6.70	8.00	3.47	-			●	●			3.60-8.00	0.08-0.15
APKT 100340TR-RM	4.00	10.55	6.70	8.00	3.47	-			●				4.40-8.00	0.08-0.15

• For cutting speed recommendations, see pages 542-547

For tools, see pages: APK-FE (239) • HM90 E90A-10 (24) • HM90 E90A-M-10 (28) • HM90 E90A-MM-10 (27) • HM90 E90A-MM-10-JHP (27) • HM90 F90AP-10 (200) • HM90 F90AP-10-JHP (200)





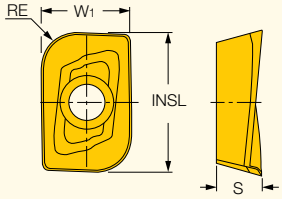


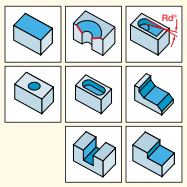
HELIMILL

APKT 1003..R

Inserts with Ground Large Corner Radii







Designation	Dimensions W1	INSL	S	RE	IC328	Recommended Machining Data a_p (mm)	f_z (mm/t)
APKT 100325R	6.70	10.10	3.50	2.50	●	2.90-8.00	0.08-0.15
APKT 100330R	6.70	10.10	3.50	3.00	●	3.40-8.00	0.08-0.15
APKT 100340R	6.75	10.65	3.40	4.00	●	4.40-8.00	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 542-547

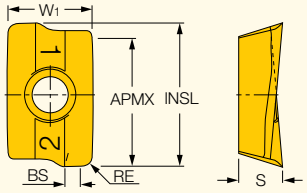
For tools, see pages: APK-FE (239) • HM90 E90A-10 (24) • HM90 E90A-M-10 (28) • HM90 E90A-MM-10 (27) • HM90 E90A-MM-10-JHP (27) • HM90 F90AP-10 (200) • HM90 F90AP-10-JHP (200)

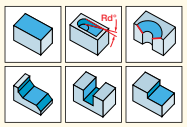
HELI2000

HM90 APKW 1003PDR

Inserts with a Reinforced Edge and Flat Rake for Hardened Steel and Milling at Heavy Interrupted Cut









Designation	Dimensions W1	INSL	S	RE	BS	APMX	Tough ↔ Hard IC928	IC908	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 APKW 1003PDR	6.76	11.47	3.50	0.80	1.40	8.00	●	●	●	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 542-547

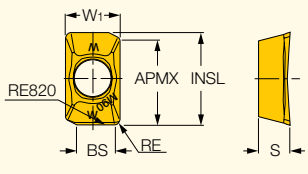
For tools, see pages: APK-FE (239) • HM90 E90A-10 (24) • HM90 E90A-M-10 (28) • HM90 E90A-MM-10 (27) • HM90 E90A-MM-10-JHP (27) • HM90 F90AP-10 (200) • HM90 F90AP-10-JHP (200)

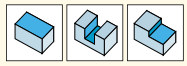
HELI2000

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	8.00	●	0.10-1.00	0.15-0.30

• Must be used together with HM90 APKT 1003PDR inserts • For cutting speed recommendations, see pages 542-547

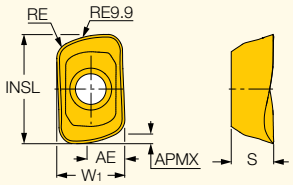
For tools, see pages: HM90 E90A-10 (24) • HM90 E90A-M-10 (28) • HM90 E90A-MM-10 (27) • HM90 E90A-MM-10-JHP (27) • HM90 F90AP-10 (200) • HM90 F90AP-10-JHP (200)

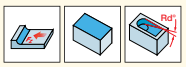
HELIMILL FEEDMILL

APKT 1003R8T-FF

Insert for Fast Feed Milling







Designation	Dimensions W1	INSL	APMX	AE	S	RE(2)	Tough ↔ Hard IC830	IC808	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	●	●	0.50-1.00	0.50-1.50
APKT 1003R8GT-FF (1)	6.60	10.80	0.70	4.5	3.50	1.90		●	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 542-547

(1) Reinforced cutting-edge geometry for Fast Feed (FF) hardened materials up to 64 HRc

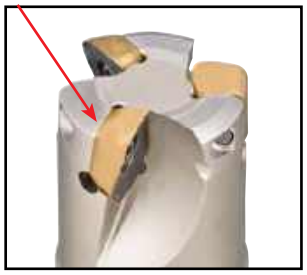
(2) Radius for CNC programming is considered as 1.8 mm

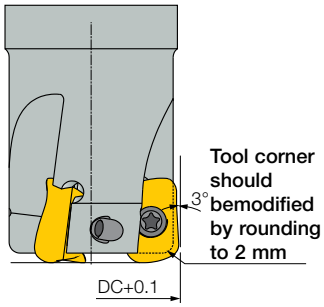
For tools, see pages: HM90 E90A-10 (24) • HM90 E90A-M-10 (28) • HM90 E90A-MM-10 (27) • HM90 E90A-MM-10-JHP (27) • HM90 F90AP-10 (200) • HM90 F90AP-10-JHP (200)

Standard Tool



Tool with a Modified Corner



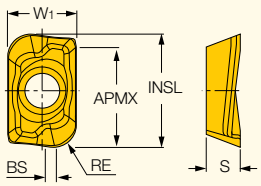


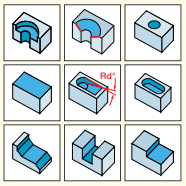
HELI2000

HM90 ADKT 1505

Inserts with 2 Helical Cutting Edges for General Use







Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC882	IC330	IC328	IC830	IC928	IC5400	IC950	IC380	IC808	IC908	IC810	IC910	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	●	●	●	●	●	●	●	●	●	●	●	●	1.20-12.00	0.08-0.15
HM90 ADKT 1505PDR-MM	9.60	16.00	12.00	5.80	0.80	2.70				●									1.20-12.00	0.08-0.15
HM90 ADKT 150516-PDR	9.65	15.60	12.00	5.92	1.60	1.37										●			2.00-12.00	0.08-0.15
HM90 ADKT 150520-PDR	9.65	15.60	12.00	5.90	2.00	0.79										●			2.40-12.00	0.08-0.15
HM90 ADKT 150524-PDR	9.65	15.60	12.00	5.80	2.40	0.52										●			2.80-12.00	0.08-0.15
HM90 ADKT 150532-PDR	9.65	15.20	12.00	5.85	3.20	-										●			3.60-12.00	0.08-0.15
HM90 ADKT 150540-PDR	9.65	14.83	12.00	5.80	4.00	-										●			4.40-12.00	0.08-0.15
HM90 ADKT 150550-PDR	9.65	14.85	12.00	5.75	5.00	-										●			5.40-12.00	0.08-0.15
HM90 ADKT 150564-PDR	9.65	14.85	12.00	5.65	6.40	-										●			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 542-547

For tools, see pages: F90AD-SFR (211) • HM90 E90AD-15 (31) • HM90 E90AD-M-15 (32) • HM90 E90AD-M-15-JHP (32) • HM90 F90A-15 (210) • HM90 F90A-15-JHP (210) • SM (250)

HM90 ADKT 1505PDR-MM

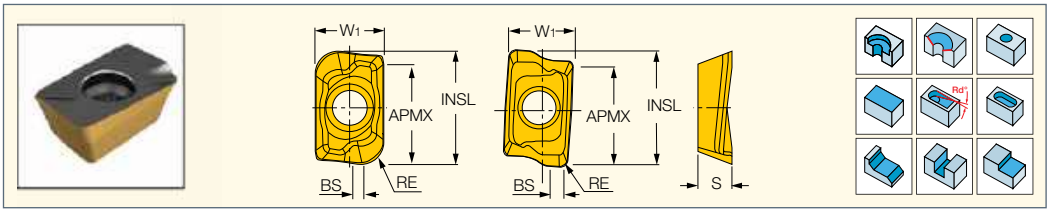


- Cutting edge geometry with low axial angle
- Reinforced cutting edge geometry, which provides better chipping resistance
- Wide frontal wiper that leaves excellent surface finish on the workpiece
- Used for unfavorable conditions and high feeds

HELI2000

HM90 ADCT 1505

General Use Inserts with 2 Helical Cutting Edges for High 90° Shoulder Accuracy

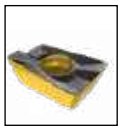


Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC882	IC330	IC830	IC380	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 ADCT 150508 PDTR	9.50	15.70	12.00	6.40	0.80	4.10		●	●			1.20-12.00	0.08-0.15
HM90 ADCT 1505PDR-PL	9.65	16.18	12.00	5.85	0.80	2.16			●		●	1.20-12.00	0.08-0.12
HM90 ADCT 150508R-T	9.65	16.18	12.00	5.85	0.80	2.16	●			●		1.20-12.00	0.08-0.10
HM90 ADCT 150516R-T	9.65	16.18	12.00	5.85	1.60	1.37				●		2.00-12.00	0.08-0.10
HM90 ADCT 150520R-T	9.65	16.18	12.00	5.85	2.00	0.79				●		2.40-12.00	0.08-0.10
HM90 ADCT 150532R-T	9.65	16.18	12.00	5.85	3.20	-				●		3.60-12.00	0.08-0.10
HM90 ADCT 150540R-T	9.65	16.18	12.00	5.85	4.00	-				●		4.40-12.00	0.08-0.10
HM90 ADCT 150550R-T	9.65	16.18	12.00	5.85	5.00	-				●		5.40-12.00	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 542-547

For tools, see pages: F90AD-SFR (211) • HM90 E90AD-15 (31) • HM90 E90AD-M-15 (32) • HM90 E90AD-M-15-JHP (32) • HM90 F90A-15 (210) • HM90 F90A-15-JHP (210) • SM (250)

HM90 ADCT 150508 PDTR



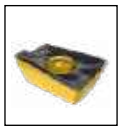
- Sharp ground cutting edge with a special edge preparation
- Ground all around, including clamping surfaces
- Low axial angle edge geometry
- Wide sharp-edged wiper for high surface finish
- High perpendicularity and mismatch accuracy when using tool diameters of up to 50 mm

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

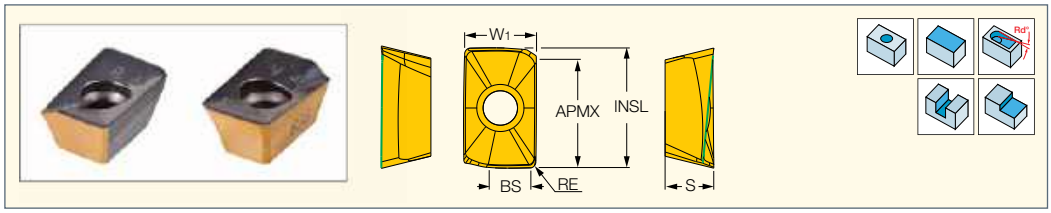


- Designed for optimal machining of stainless steel and high temperature alloys
- Sharp cutting edge and a positive rake geometry are optimized to avoid built-up edge
- Wiper bottom edge leaves an excellent surface finish
- Helical axial positive edge geometry

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HM90 ADCT 1505PDR-CF

Inserts with 2 Different Cutting Edge Configurations Designed for Chatter Dampening



Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC830	IC380	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 542-547

For tools, see pages: F90AD-SFR (211) • HM90 E90AD-15 (31) • HM90 E90AD-M-15 (32) • HM90 E90AD-M-15-JHP (32) • HM90 F90A-15 (210) • HM90 F90A-15-JHP (210) • SM (250)



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.



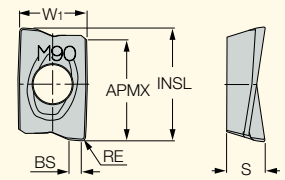
The inserts should be mounted in alternating edge configuration order (yellow followed by black) on the cutter.

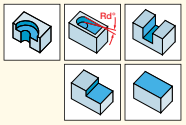
HELI2000

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	0.07-0.25

- Super positive chipformer peripherally ground (P - Polished rake) • Used for machining aluminum, titanium and magnesium
- For cutting speed recommendations, see pages 542-547

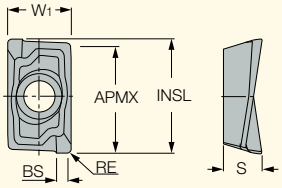
For tools, see pages: F90AD-SFR (211) • HM90 E90AD-15 (31) • HM90 E90AD-M-15 (32) • HM90 E90AD-M-15-JHP (32) • HM90 F90A-15 (210) • HM90 F90A-15-JHP (210)

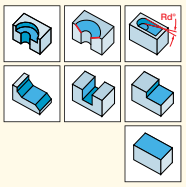
HELIMILL

ADCR 1505PDFR

Super Positive Precision Inserts for Aluminum, Stainless Steel and High Temperature Alloys







Designation	Dimensions W1	INSL	APMX	S	RE	BS	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		●	1.20-12.00	0.15-0.25
ADCR 1505PDFR-P (1)	9.50	15.95	12.00	5.64	0.80	1.60	●		1.20-12.00	0.07-0.25

- For cutting speed recommendations, see pages 542-547

(1) Polished rake, used on titanium magnesium and aluminum

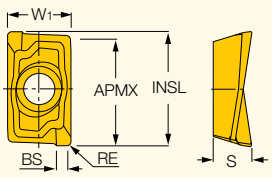
For tools, see pages: F90AD-SFR (211) • HM90 E90AD-15 (31) • HM90 E90AD-M-15 (32) • HM90 E90AD-M-15-JHP (32) • HM90 F90A-15 (210) • HM90 F90A-15-JHP (210) • SM (250)

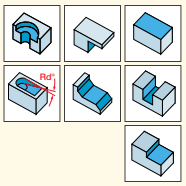
HELIMILL

ADKR 1505PDR/L-HM

Super Positive Inserts for Machining Aluminum, Stainless Steel and High Temperature Alloys







Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC28	IC328	IC928	IC950	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADKR 1505PDL-HM (1)	9.60	15.95	12.00	6.00	0.80	1.60		●			1.20-12.00	0.07-0.15
ADKR 1505PDR-HM	9.60	15.95	12.00	6.00	0.80	1.60	●	●	●		1.20-12.00	0.07-0.15
ADKR 150504PDR-HM	9.92	16.30	12.00	5.63	0.40	1.60	●	●		●	0.80-12.00	0.07-0.15

- For cutting speed recommendations, see pages 542-547

(1) PDL - Left-hand inserts are used only for special tools.

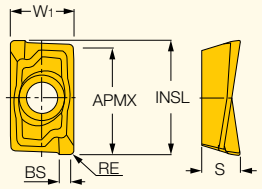
For tools, see pages: ETS (341) • F90AD-SFR (211) • FST (361) • HM90 E90AD-15 (31) • HM90 E90AD-M-15 (32) • HM90 E90AD-M-15-JHP (32) • HM90 F90A-15 (210) • HM90 F90A-15-JHP (210) • SM (250)

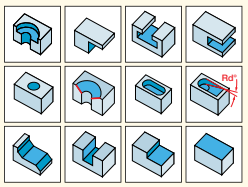
HELIMILL

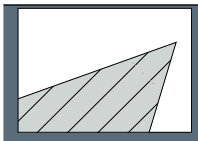
ADCT 1505PDFR-HM

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

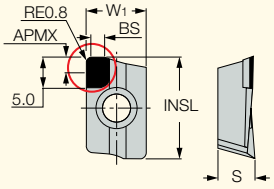
For tools, see pages: E90AC (36) • F90AD-SFR (211) • HM90 E90AD-15 (31) • HM90 E90AD-M-15 (32) • HM90 E90AD-M-15-JHP (32) • HM90 F90A-15 (210) • HM90 F90A-15-JHP (210) • SM (250)

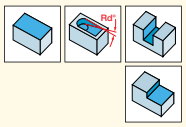
HELI2000

ADKW (CBN)

Single Corner R.H. Inserts with an IB85 PCBN Brazed Tip for Machining Hard Materials







Designation	Dimensions W1	INSL	S	BS	APMX	IB85	Recommended Machining Data a_p (mm)	f_z (mm/t)
ADKW 1505 PDER	9.60	16.18	5.83	1.45	2.00	●	0.10-2.00	0.10-0.25
ADKW 1505 PDTR	9.60	16.18	5.83	1.45	2.00	●	0.10-2.00	0.10-0.25

• Inserts are supplied with spare screws. • For cutting speed recommendations, see pages 542-547

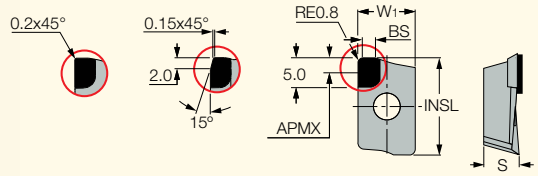
For tools, see pages: F90AD-SFR (211) • HM90 E90AD-15 (31) • HM90 E90AD-M-15 (32) • HM90 E90AD-M-15-JHP (32) • HM90 F90A-15 (210) • HM90 F90A-15-JHP (210)

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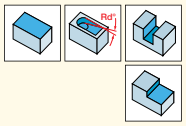
ADKW (PCD)

Single Corner R.H. PCD Tipped Inserts for Milling Aluminum





150502x45PDR 1505-75RM PDR 150508PDR



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	2.00	2.00		●	0.10-2.00	0.10-0.25
ADKW 150502X45 PDR	9.60	16.18	5.83	2.00	2.00		●	0.10-2.00	0.10-0.25
ADKW 150508 PDR	9.60	16.18	5.83	2.00	1.52	●	●	0.10-2.00	0.10-0.25

• The inserts are supplied with spare screws. • For cutting speed recommendations, see pages 542-547

For tools, see pages: F90AD-SFR (211) • HM90 E90AD-15 (31) • HM90 E90AD-M-15 (32) • HM90 E90AD-M-15-JHP (32) • HM90 F90A-15 (210) • HM90 F90A-15-JHP (210)

PCD
Recommended Machining Conditions

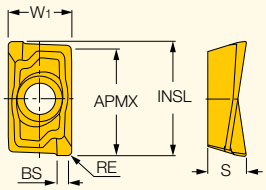
	Grade	D.O.C. (a_p) mm	Material	V_c m/min	Feed mm/tooth	Cutting Edge
N	ID5	<2.0	Aluminum alloys <12% silicon	300-3000	0.05-0.25	Sharp
		<2.0	Chipboard, fiberboard and plastics	2000-3000		
		<2.0	Copper alloys and brass	500-1500		
N	ID8	<2.0	Aluminum>12% silicon	250-1000		
		<2.0	Aluminum<12% silicon	300-3000		
		<2.0	Chipboard, fiberboard and plastics	2000-3000		
			MMC	200-600		

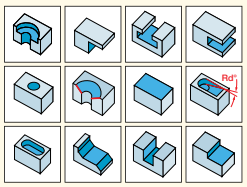
HELIMILL

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	IC250	IC950	IC908	IC30N	IC910	IC520M	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 542-547

(1) PDL - Left-hand inserts are used only for special tools.

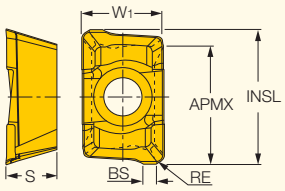
For tools, see pages: E90AC (36) • ETS (341) • F90AD-SFR (211) • FST (361) • HM90 E90AD-15 (31) • HM90 E90AD-M-15 (32) • HM90 E90AD-M-15-JHP (32) • HM90 F90A-15 (210) • HM90 F90A-15-JHP (210) • SM (250)

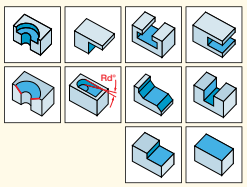
HELISHRED

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 542-547

(1) Machine with maximum depth of cut

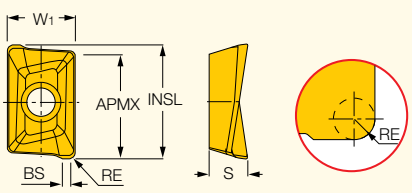
For tools, see pages: F90AD-SFR (211) • HM90 E90AD-15 (31) • HM90 E90AD-M-15 (32) • HM90 E90AD-M-15-JHP (32) • HM90 F90A-15 (210) • HM90 F90A-15-JHP (210) • SM (250)

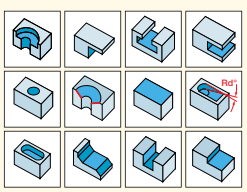
HELIMILL

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	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 542-547

(1) PDTL-Left-hand inserts are used only for special tools.

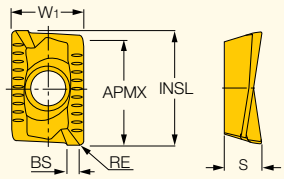
For tools, see pages: ETS (341) • F90AD-SFR (211) • FST (361) • HM90 E90AD-15 (31) • HM90 E90AD-M-15 (32) • HM90 E90AD-M-15-JHP (32) • HM90 F90A-15 (210) • HM90 F90A-15-JHP (210) • SM (250)

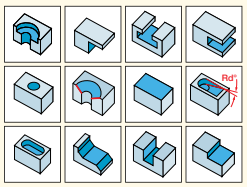
HELIMILL

ADKT 1505PDTR-76

Insert with 2 Helical Cutting Edges with Ribs Along Edge for Interrupted Cut







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 542-547

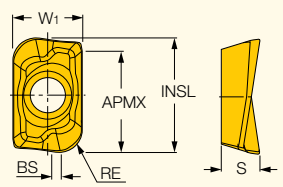
For tools, see pages: E90AC (36) • F90AD-SFR (211) • HM90 E90AD-15 (31) • HM90 E90AD-M-15 (32) • HM90 E90AD-M-15-JHP (32) • HM90 F90A-15 (210) • HM90 F90A-15-JHP (210) • SM (250)

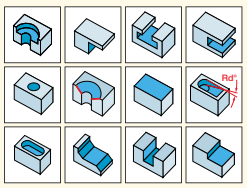
HELIMILL

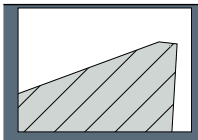
ADKT 1505..R/L-HM

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	-	14.80	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		●									3.00-12.00	0.08-0.15
ADKT 150524R-HM	2.50	9.57	0.52	15.60	12.00	5.60		●	●	●				●			3.00-12.00	0.08-0.15
ADKT 150532L-HM [1]	3.20	9.57	-	15.50	12.00	5.60		●									3.00-12.00	0.08-0.15
ADKT 150532R-HM	3.20	9.57	-	15.50	12.00	5.60	●	●	●	●	●	●	●	●	●	●	3.50-12.00	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	12.00	5.30		●									6.50-12.00	0.08-0.15
ADKT 150564R-HM	6.20	9.57	-	14.80	12.00	5.30			●	●	●						6.50-12.00	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 542-547

[1] L - Left-hand inserts are used only for special tools.

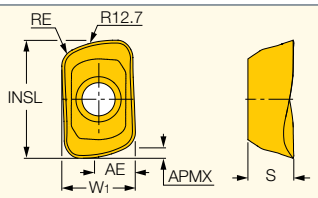
For tools, see pages: E90AC (36) • ETS (341) • F90AD-SFR (211) • FST (361) • HM90 E90AD-15 (31) • HM90 E90AD-M-15 (32) • HM90 E90AD-M-15-JHP (32) • HM90 F90A-15 (210) • HM90 F90A-15-JHP (210) • SM (250)

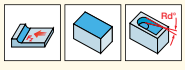
HELIMILL FEEDMILL

ADKT 1505-FF

Inserts for Fast Feed Milling







Designation	Dimensions W1	INSL	APMX	AE	S	RE	Rg[1]	Tough ↔ Hard IC330	IC928	IC808	Recommended Machining Data 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

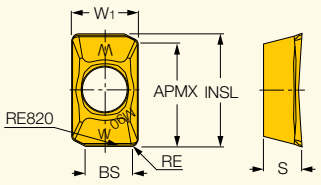
For tools, see pages: F90AD-SFR (211) • HM90 E90AD-15 (31) • HM90 E90AD-M-15 (32) • HM90 E90AD-M-15-JHP (32) • HM90 F90A-15 (210) • HM90 F90A-15-JHP (210)

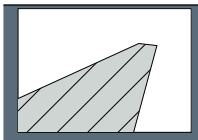
HELI2000

HM90 ADKT 1505PD-W

Wiper Insert for High Surface Finish







Designation	Dimensions W1	INSL	APMX	S	BS	RE	IC908	Recommended Machining Data 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 542-547.

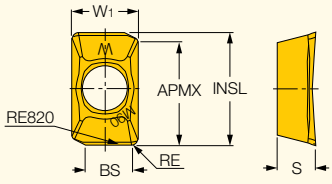
For tools, see pages: F90AD-SFR (211) • HM90 E90AD-15 (31) • HM90 E90AD-M-15 (32) • HM90 E90AD-M-15-JHP (32) • HM90 F90A-15 (210) • HM90 F90A-15-JHP (210)

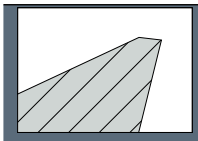
HELIMILL

ADKT 1505PD-W

Wiper Insert for High Surface Finish







Designation	Dimensions W1	INSL	APMX	S	BS	RE	Tough ↔ Hard IC328	IC928	Recommended Machining Data 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 542-547.

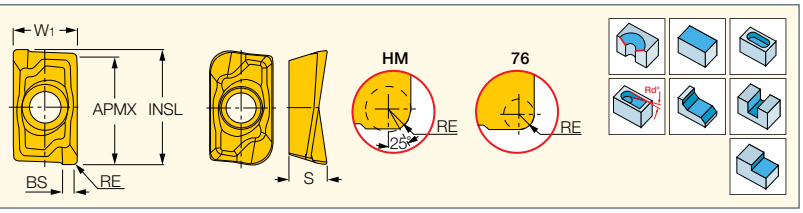
For tools, see pages: F90AD-SFR (211) • HM90 E90AD-15 (31) • HM90 E90AD-M-15 (32) • HM90 E90AD-M-15-JHP (32) • HM90 F90A-15 (210) • HM90 F90A-15-JHP (210)

HELIMILL

APKT 1604

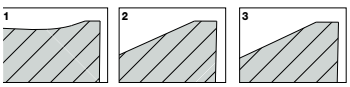
Milling Inserts with a 16 mm Cutting Edge Length and Positive Rake Angle for General Use





Designation	Dimensions RE	W1	INSL	S	BS	APMX	Tough ↔ Hard IC328	IC928	IC250	IC950	IC30N	IC910	IC520M	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	●				●	●			1.20-14.00	0.08-0.15
APKT 1604PDR-HM	0.80	9.45	17.20	5.25	1.78	14.00	●		●		●	●		●	1.20-14.00	0.08-0.15
APKT 1604PDR-76	0.80	9.45	17.30	5.30	1.80	14.00	●	●		●					1.20-14.00	0.10-0.20
APKT 160416R-HM	1.60	9.45	16.70	5.30	0.00	14.00	●			●					2.00-14.00	0.08-0.15
APKT 160424R-HM	2.40	9.45	16.70	5.30	0.00	14.00							●		2.80-14.00	0.08-0.15
APKT 160432L-HM	3.10	9.45	16.60	5.30	0.00	14.00	●								3.60-14.00	0.08-0.15
APKT 160432R-HM	3.20	9.45	16.60	5.30	0.00	14.00	●								3.60-14.00	0.08-0.15
APKT 160448R-HM	4.80	9.45	16.40	5.20	0.00	14.00			●						5.20-14.00	0.08-0.15

• For cutting speed recommendations, see pages 542-547

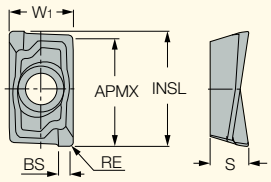


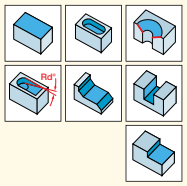
HELIMILL

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

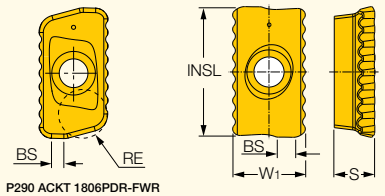
- For cutting speed recommendations, see pages 542-547

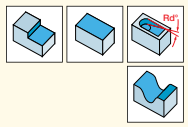
MILLSHRED P290 LINE

P290 ACKT

Single-Sided Rectangular Inserts with 2 Serrated Cutting Edges







Designation	Dimensions W1	INSL	S	RE[5]	BS	Tough ↔ Hard IC28	IC882	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

- For cutting speed recommendations, see pages 542-547

[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

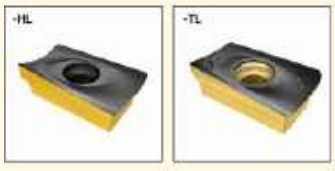
[5] Radius for programming

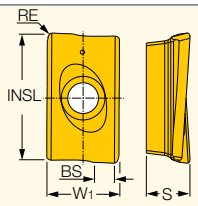
For tools, see pages: P290 ACK (241) • P290 ACK-C#-18 (242) • P290 ACK-M (240) • P290 EPW (34) • P290 EPW-M (35) • P290 FPW/FCT (215) • P290 SM (242)

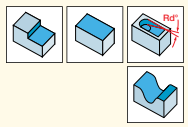
MILLSHRED P290 LINE

P290 ACCT/KT

Single-Sided Rectangular Inserts with Two 12 and 18 mm 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 542-547

[1] Economic insert

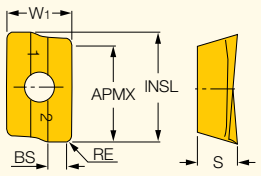
For tools, see pages: P290 ACK (241) • P290 ACK-C#-18 (242) • P290 ACK-M (240) • P290 EPW (34) • P290 EPW-M (35) • P290 FPW/FCT (215) • P290 SM (242)

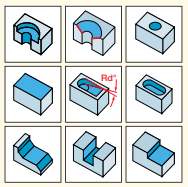
HELI2000

HM90 ADKW 1505PDR

Milling Inserts for Unfavorable Conditions and Heavy Interrupted Cut on Hardened Steel





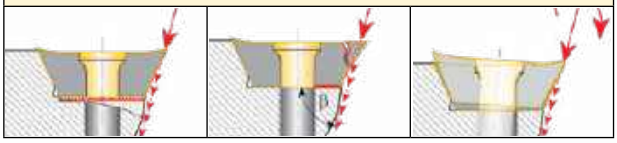


Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC928	IC908	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 ADKW 1505PDR	9.59	16.15	12.00	5.83	0.80	2.45	●	●	●	1.20-12.00	0.08-0.15

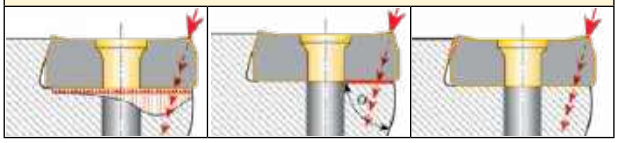
• Reinforced cutting edge, resistant to edge breakage and chipping • Recommended for milling at unfavorable conditions and heavy interrupted cut • Different corner radii can be ground • For cutting speed recommendations, see pages 542-547

For tools, see pages: F90AD-SFR (211) • HM90 E90AD-15 (31) • HM90 E90AD-M-15 (32) • HM90 E90AD-M-15-JHP (32) • HM90 F90A-15 (210) • HM90 F90A-15-JHP (210) • SM (250)

Conventional



MILL2000





Helical cutting edge for a smooth cut

Dovetail side shape gives better support, eliminates possible pullout from seat

Thick insert for improved strength and rigidity

Positive rake angle for low cutting forces

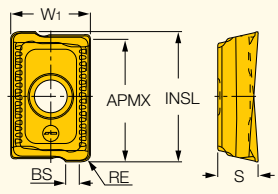
Ground wiper controls surface finish at high feeds

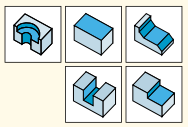
MILL2000

3M AXKT 1304

High Durability Inserts for Heavy Milling



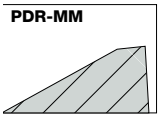




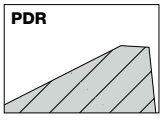
Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC330	IC328	IC830	IC928	IC950	IC808	IC908	IC810	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
3M AXKT 1304PDR	8.40	14.12	12.00	4.55	0.60	2.10	●	●	●		●	●	●	●		1.00-12.00	0.15-0.35
3M AXKT 1304PDR-MM	8.40	14.12	12.00	4.55	0.60	2.10		●		●	●		●		●	1.00-12.00	0.10-0.22

• For cutting speed recommendations, see pages 542-547

PDR-MM



PDR

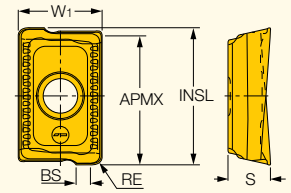


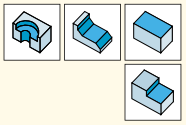
MILL2000

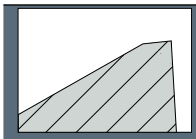
3M AXKT 1304..R-PDRMM

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

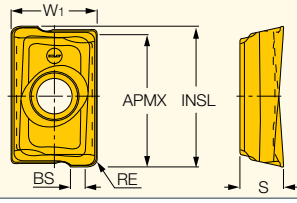
• Reduce feed by 50% during engagement and exit from the workpiece; this practice will substantially increase insert life • Inserts with corner radii larger than 0.8 mm should be used on 3M SM-13 and 3M AXK tools only on the face of the cutter • For cutting speed recommendations, see pages 542-547.

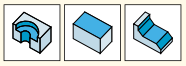
MILL2000

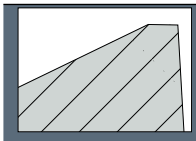
3M AXKT 2006..R-PDR

High Durability Inserts with a Variety of Corner Radii for Heavy Milling









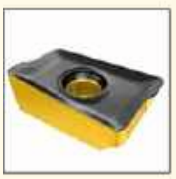
Designation	Dimensions W1	RE	INSL	APMX	S	BS	Tough ↔ Hard IC328	IC928	Recommended Machining Data a_p (mm)	f_z (mm/t)
3M AXKT 200612R-PDR	13.50	1.20	22.00	20.00	6.75	2.20	●	●	1.60-20.00	0.15-0.30
3M AXKT 200616R-PDR	13.50	1.60	21.80	20.00	6.62	2.00		●	2.00-20.00	0.15-0.30
3M AXKT 200624R-PDR	13.50	2.40	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
3M AXKT 200640R-PDR	13.50	4.00	21.90	20.00	6.26	-	●	●	4.40-20.00	0.15-0.30

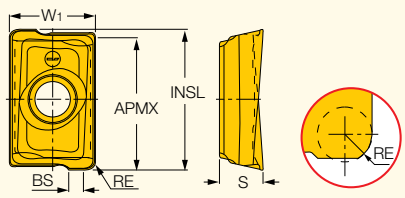
• Reduce feed by 50% during engagement and exit from the workpiece. This practice will substantially increase insert life. • Inserts with corner radii larger than 0.8 mm should be used on 3M SM-20 tools only on the face of the cutter. • For cutting speed recommendations, see pages 542-547

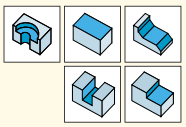
MILL2000

3M AXKT-2006

High Durability Inserts for Heavy Milling Applications

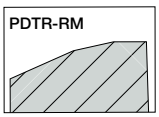


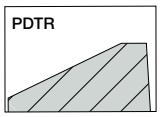




Designation	Dimensions W1	INSL	APMX	S	RE	BS	Tough ↔ Hard IC330	IC328	IC830	IC928	IC950	IC808	IC908	IC810	IC910	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
3M AXKT 2006PDTR-RM	13.50	22.40	20.00	6.80	1.00	3.34		●		●	●						1.40-20.00	0.20-0.40
3M AXKT 2006PDTR	13.50	22.50	20.00	6.80	1.00	3.05	●	●	●	●	●	●	●	●	●	●	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 542-547



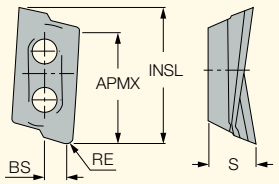


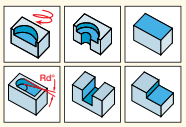
HELIPLUS

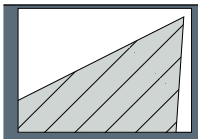
HP ADCR 1906

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 542-547

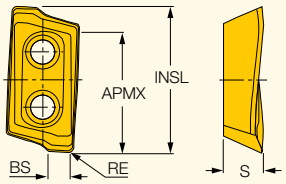
For tools, see pages: HP E90AT-19 (35) • HP F90AT-19 (215)

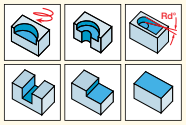
HELIPLUS

HP ADKT/ADCT 1906

Milling Inserts with 19 mm Cutting Edge for General Use



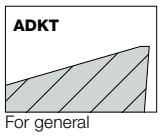




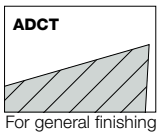
Designation	Dimensions INSL	APMX	RE	S	BS	Tough ↔ Hard IC328	IC928	IC950	IC908	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
HP ADCT 1906PDR	22.30	18.10	1.00	6.83	2.70	●	●		●		1.40-18.10	0.08-0.15
HP ADKT 190608PDTR	22.30	18.10	0.80	6.85	2.60	●	●		●	●	1.20-18.10	0.08-0.15
HP ADKT 190610PDTR	22.30	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 542-547

For tools, see pages: HP E90AT-19 (35) • HP F90AT-19 (215)



For general applications



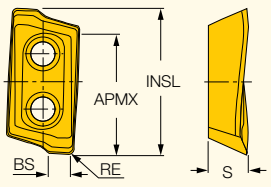
For general finishing and high temp. alloys

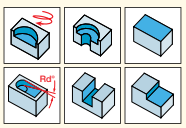
HELIPLUS

HP ADKT/ADCT 2207

Inserts with Two 22 mm Long Cutting Edges for General High Shoulder Milling



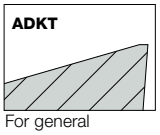




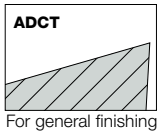
Designation	Dimensions INSL	APMX	S	RE	BS	Tough ↔ Hard IC328	IC928	IC950	IC908	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
HP ADCT 2207PDR	25.73	22.60	7.50	1.00	3.43	●	●		●		1.40-22.60	0.07-0.15
HP ADKT 2207PDTR	25.73	22.60	7.50	0.80	3.43	●	●	●	●	●	1.20-22.60	0.10-0.20

• For cutting speed recommendations, see pages 542-547

For tools, see pages: HP F90AT-22 (216)



For general applications



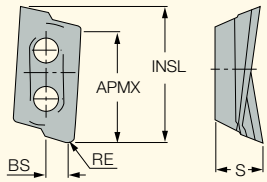
For general finishing and high temp. alloys

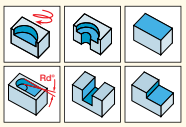
HELIPLUS

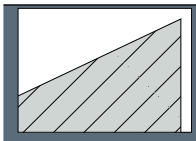
HP ADCR 2207

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 542-547

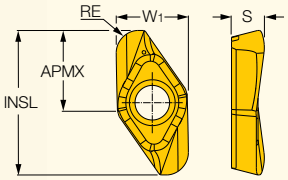
For tools, see pages: HP F90AT-22 (216)

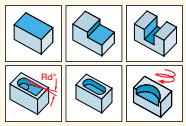
HELIALU

HSM90S APCR 1405

Super Positive Inserts with a Polished Rake for Machining Aluminum at High Rotation Speed







Designation	Dimensions W1	RE(2)	APMX	INSL	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	6.05	●		1.20-13.50	0.10-0.30
HSM90S APCR 140508R-P	12.50	0.80	13.50	25.00	6.05		●	1.20-13.50	0.10-0.30
HSM90S APCR 140516R-P	12.50	1.60	13.50	25.00	6.00	●		2.00-13.50	0.10-0.30
HSM90S APCR 140520R-P	12.50	2.00	13.50	25.00	5.95	●	●	2.40-13.50	0.10-0.30
HSM90S APCR 140530R-P	12.50	3.00	13.50	25.00	5.85	●	●	3.40-13.50	0.10-0.30
HSM90S APCR 140532R-P	12.50	3.20	13.50	25.00	5.80	●	●	3.60-13.50	0.10-0.30
HSM90S APCR 140540R-P	12.50	4.00	13.50	25.00	5.70	●	●	4.40-13.50	0.10-0.30
HSM90S APCR 140550R-P (1)	12.50	5.00	13.50	25.00	5.50	●	●	5.40-13.50	0.10-0.30
HSM90S APCR 140564R-P (1)	12.50	6.40	11.00	25.00	5.50	●		6.80-11.00	0.10-0.30

• When machining at very high cutting speed and replacing the insert, it is also recommended to replace the screw • For cutting speed recommendations, see pages 542-547

(1) Tool's pocket should be modified by rounding its corners to R=2.5 mm

(2) Measured on the cutter

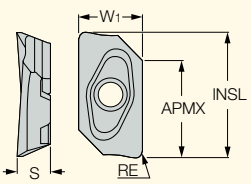
For tools, see pages: HSM90S EAL-14 (385) • HSM90S FAL-14 (385)

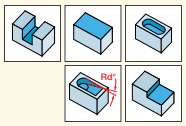
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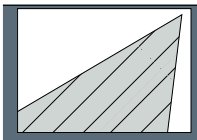
HM90 AXCR 1505

Super Positive Inserts with a Polished Rake for Machining Aluminum









Designation	Dimensions W1	S	APMX	INSL	RE	Tough ↔ Hard IC28	IC08	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 AXCR 150502R-P	10.00	5.00	14.00	19.20	0.20	●	●	0.60-14.00	0.10-0.20
HM90 AXCR 150504R-P	10.00	5.00	14.00	19.20	0.40	●	●	0.80-14.00	0.10-0.20
HM90 AXCR 150508R-P	10.00	5.00	14.00	19.20	0.80	●	●	1.20-14.00	0.10-0.20
HM90 AXCR 150520R-P	10.00	5.00	14.00	19.20	2.00	●	●	2.40-14.00	0.10-0.20
HM90 AXCR 150525R-P	10.00	5.00	14.00	19.20	2.50	●	●	2.90-14.00	0.10-0.20
HM90 AXCR 150530R-P	10.00	5.00	14.00	19.20	3.00	●	●	3.40-14.00	0.10-0.20
HM90 AXCR 150532R-P	10.00	5.00	14.00	19.20	3.20	●	●	3.60-14.00	0.10-0.20
HM90 AXCR 150540R-P	10.00	5.00	14.00	19.20	4.00	●	●	4.40-14.00	0.10-0.20

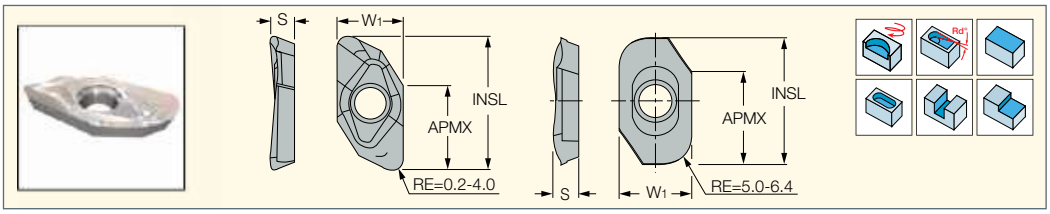
• Note: It is recommended to use the insert and screw set when machining at very high cutting speed. • For cutting speed recommendations, see pages 542-547

For tools, see pages: HM90 EAL-15 (388) • HM90 EAL-HSK63A-15 (388) • HM90 FAL-15 (389)

HELiALU

HM90 APCR 1605..R-P

Super Positive Inserts with a Polished Rake for Machining Aluminum



Designation	Dimensions W1	RE[2]	APMX	INSL	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	25.50	4.80	●	●	0.60-15.50	0.15-0.25
HM90 APCR 160504R-P	12.80	0.40	15.50	25.50	4.80	●	●	0.80-15.50	0.15-0.25
HM90 APCR 160505R-P	12.80	0.50	15.50	25.50	4.80	●	●	0.90-15.50	0.15-0.25
HM90 APCR 160508R-P	12.80	0.80	15.50	25.50	4.80	●	●	1.20-15.50	0.15-0.25
HM90 APCR 160516R-P	12.80	1.60	15.50	25.50	4.80	●	●	2.00-15.50	0.15-0.25
HM90 APCR 160520R-P	12.80	2.00	15.50	25.40	4.80	●	●	2.40-15.50	0.15-0.25
HM90 APCR 160525R-P	12.80	2.50	15.50	25.40	4.80	●	●	2.90-15.50	0.15-0.25
HM90 APCR 160530R-P	12.80	3.00	15.50	24.40	4.80	●	●	3.40-15.50	0.15-0.25
HM90 APCR 160532R-P	12.80	3.20	15.50	24.40	4.80	●	●	3.60-15.50	0.15-0.25
HM90 APCR 160540R-P	12.80	4.00	15.50	23.40	4.80	●	●	4.40-15.50	0.15-0.25
HM90 APCR 160550R-P [1]	12.70	5.00	16.00	22.70	4.80	●	●	5.40-16.00	0.15-0.25
HM90 APCR 160560R-P [1]	12.70	6.00	16.00	22.70	4.80	●		6.40-16.00	0.15-0.25
HM90 APCR 160564R-P [1]	12.70	6.40	16.00	22.70	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 542-547

[1] Use with HM90 ....16BR tools only.

[2] Measured on the cutter

For tools, see pages: HM90 EAL-16 (386) • HM90 EAL-HSK63A-16 (386) • HM90 FAL-16 (387) • HM90 FAL-16BR (387)

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 be replaced as well.
Available are packages with 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 maintenance of the dynamic balance of the tool after insert indexing.



HSM90 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 160505RP IC28		HM90 APCR 160505R-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 IC08		HM90 APCR 160520R-P IC08		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 160530RP IC28		HM90 APCR 160530R-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 160550RP IC28		HM90 APCR 160550R-P IC28		SR 14-0180
HSM90 Set APCR 160560RP IC28		HM90 APCR 160560R-P IC28		SR 14-0180
HSM90 Set APCR 160564RP IC28		HM90 APCR 160564R-P IC28		SR 14-0180

HSM90 SET AXCR-P

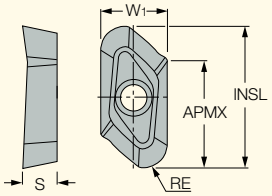
Set Designation		5 Included Inserts		5 Included Screws
HSM90 Set AXCR 150504RP IC28	=	HM90 AXCR 150504R-P IC28	+	SR 14-562
HSM90 Set AXCR 150508RP IC28		HM90 AXCR 150508R-P IC28		SR 14-562
HSM90 Set AXCR 150520RP IC28		HM90 AXCR 150520R-P IC28		SR 14-562
HSM90 Set AXCR 150530RP IC28		HM90 AXCR 150530R-P IC28		SR 14-562
HSM90 Set AXCR 150532RP IC28		HM90 AXCR 150532R-P IC28		SR 14-562

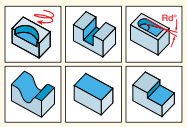
HELIALU

HM90 APCR 2206..R-P

Super Positive Inserts with a Polished Rake for Machining Aluminum







Designation	Dimensions W1	RE	APMX	INSL	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	6.90	●	●	0.90-22.00	0.07-0.30
HM90 APCR 220608R-P	13.72	0.80	22.00	29.70	6.90	●	●	1.20-22.00	0.07-0.30
HM90 APCR 220616R-P	13.72	1.60	22.00	29.70	6.90	●	●	2.00-22.00	0.07-0.30
HM90 APCR 220620R-P	13.72	2.00	22.00	29.70	6.60		●	2.40-22.00	0.07-0.30
HM90 APCR 220623R-P	13.72	2.30	22.00	29.70	6.60	●	●	2.70-22.00	0.07-0.30
HM90 APCR 220632R-P	13.72	3.20	22.00	29.40	6.60	●	●	3.60-22.00	0.07-0.30
HM90 APCR 220640R-P	13.72	4.00	22.00	29.00	6.60	●	●	4.40-22.00	0.07-0.30
HM90 APCR 220650R-P	13.72	5.00	22.00	28.20	6.10	●	●	5.40-22.00	0.07-0.30
HM90 APCR 220664R-P	13.72	6.40	22.00	26.80	6.00	●	●	6.80-22.00	0.07-0.30

• For cutting speed recommendations, see pages 542-547

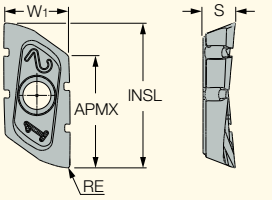
For tools, see pages: HM90 FAL-22 (389)

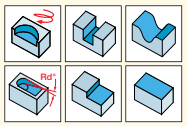
HELIALU

HM90 APCR 220605-CS

Chip Splitting Insert for Rough Milling of Aluminum







Designation	Dimensions W1	RE	APMX	INSL	S	IC28	Recommended Machining Data a_p (mm)	f_z (mm/t)
HM90 APCR 220605-CS	14.60	0.50	22.00	30.90	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 542-547

(1) Machine with maximum depth of cut

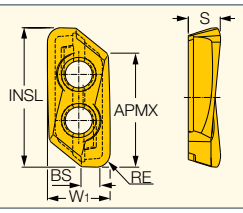
For tools, see pages: HM90 FAL-22 (389)

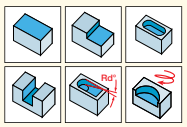
HELIALU

HSM90S APCR 2207

Super Positive Inserts with a Polished Rake for Machining Aluminum at High Rotation 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	●	3.50-22.00	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 and replacing the insert, it is also recommended to replace the screw

• For cutting speed recommendations, see pages 542-547

(1) Measured on the cutter

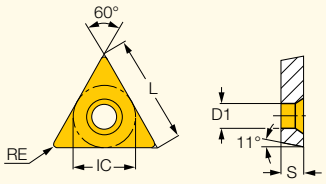
For tools, see pages: HSM90S FAL-22 (389) • HSM90SFD-HSK A63/80-22 (390)

ISOTURN

TPMT

Triangular 11° Positive Inserts with a Positive Chipformer Exerting Low Cutting Forces for Internal Finish Turning





Designation	Dimensions L	IC	S	RE	D1	Tough ↔ Hard IC830	IC635	IC50M	IC8350	IC8250	IC8150	IC520M	IC20	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 542-547

(1) For turning

(2) For turning

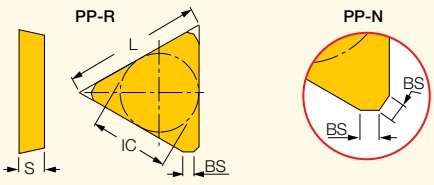
For tools, see pages: E30 / T230 (36) • E45 / T245 (38) • E60 / T260 (39)

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 542-547

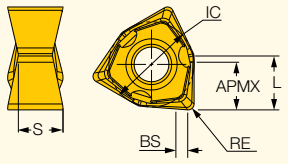
For tools, see pages: F90 (214)

HELIDO TRIGON LINE

H690 WNMU 0403

Trigonal Inserts with 6 Helical Cutting Edges for 90° Shoulder Milling

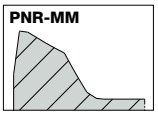


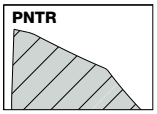


Designation	Dimensions L	APMX	IC	S	RE	BS	Tough ↔ Hard IC830	IC5400	IC808	IC810	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
H690 WNMU 0403-PNTR	4.20	4.00	6.70	3.50	0.40	0.80				●	●	0.80-4.00	0.08-0.18
H690 WNMU 0403PNR-MM	4.20	4.00	6.70	3.50	0.40	0.80	●		●			0.80-4.00	0.08-0.15
H690 WNMU040308PNR-MM	4.20	4.00	6.70	3.50	0.80	0.40	●	●	●			1.20-4.00	0.08-0.15

• For cutting speed recommendations, see pages 542-547

For tools, see pages: H690 EWN-04 (12) • H690 EWN-MM-04 (12) • H690 FWN-04 (193)



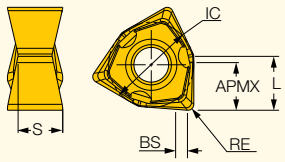


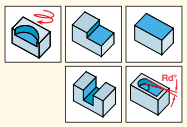
HELIDO TRIGON LINE

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	IC5400	IC808	IC810	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 WNMU070512PNN-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 WNMU070520PNN-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 542-547

(1) Peripherally ground

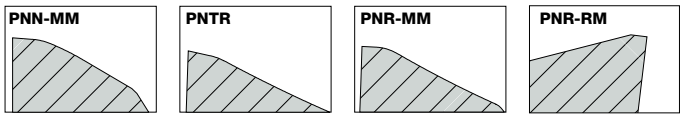
(2) General use insert with 6 right-hand cutting edges for milling a variety of cast iron and steel grades.

(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 (16) • H690 FWN-07 (195)

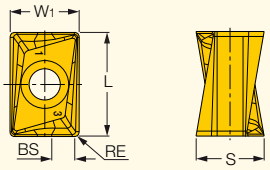


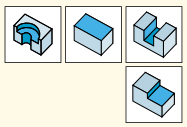
HELIDO 490 LINE

H490 ANKX/ANCX-09

Double-Sided Rectangular Inserts with 4 Helical Cutting Edges







Designation	Dimensions W1	L	S	RE	BS	Tough ↔ Hard IC330	IC830	IC5400	IC380	IC808	IC810	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
H490 ANCX 090404PDR	6.50	8.52	5.20	0.40	4.80		●			●			0.80-8.00	0.08-0.15
H490 ANCX 090408PDR	6.50	8.52	5.20	0.80	4.40	●	●		●	●	●		1.20-8.00	0.08-0.15
H490 ANCX 090412PDR	6.50	8.52	4.80	1.20	4.20		●			●	●		1.60-8.00	0.08-0.15
H490 ANCX 090416PDR	6.50	8.52	4.70	1.60	3.60		●			●	●		2.00-8.00	0.08-0.15
H490 ANKX 090408PNTR	6.50	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 542-547

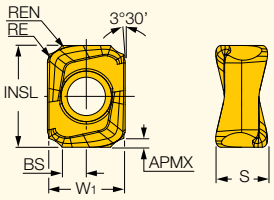
For tools, see pages: H490 ANK-09 (235) • H490 E90AX-09 (20) • H490 E90AX-M (20) • H490 E90AX-MM (21) • H490 F90AX-09 (197)

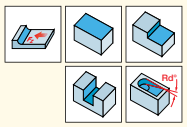
HELIDO FEEDMILL 490 LINE

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[1]	INSL	S	RE	Rg[2]	REN	Tough ↔ Hard IC830	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
H490 ANKX 0904R12T-FF	6.20	2.30	1.00	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] For fast feed

[2] Radius for programming

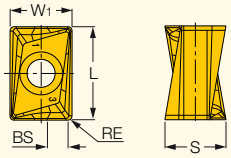
For tools, see pages: H490 E90AX-09 (20) • H490 E90AX-M (20) • H490 E90AX-MM (21) • H490 F90AX-09 (197)

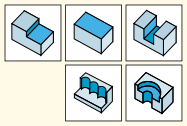
HELIDO 490 LINE

H490 ANKX/ANCX-12

Double-Sided Rectangular Inserts with 4 Helical Cutting Edges







Designation	Dimensions W1	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	0.80	9.45	13.67	3.50		●		●			1.20-11.00	0.08-0.15
H490 ANKX 120504PNTR	10.00	0.40	9.15	13.70	3.80		●					0.80-11.00	0.10-0.30
H490 ANKX 120508PNTR	10.00	0.80	9.15	13.67	3.50	●	●	●	●	●	●	1.20-11.00	0.10-0.30
H490 ANKX 120510PNTR	10.00	1.00	8.90	13.70	3.40		●					1.40-11.00	0.10-0.30
H490 ANKX 120512PNTR	10.00	1.20	8.90	13.70	3.20		●					1.60-11.00	0.10-0.30
H490 ANKX 120516PNTR	10.00	1.60	8.60	13.70	2.80		●					2.00-11.00	0.10-0.30
H490 ANKX 120520PNTR	10.00	2.00	8.70	13.60	2.80		●					2.40-11.00	0.10-0.30
H490 ANKX 120524PNTR	10.00	2.40	8.60	13.70	2.80		●					2.80-11.00	0.10-0.30
H490 ANKX 1205PNTR-CS [1]	10.00	0.80	9.15	13.70	3.50		●					1.20-11.00	0.15-0.20
H490 ANKX 1205PNTR-RM	10.00	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 542-547

[1] The maximum feed per tooth for chip splitting effect is up to 0.20 mm/t.

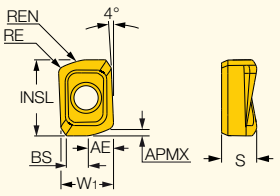
For tools, see pages: H490 E90AX-12 (30) • H490 F90AX-12 (206) • H490 SM-12 (243)

HELIDO FEEDMILL 490 LINE

H490 ANKX 1205-FF

Single-Sided Rectangular Inserts with 2 Helical Cutting Edges for Fast Feed Milling at Small Depths of Cut





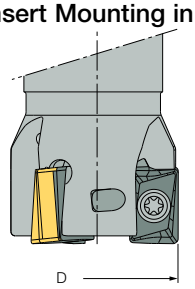
Designation	Dimensions									IC830	Recommended Machining Data	
	INSL	S	W1	BS	RE	Rg(1)	REN	APMX	AE		a_p (mm)	f_z (mm/t)
H490 ANKX 1205R15T-FF	13.50	6.40	10.20	3.50	1.50	2.50	6.00	2.00	5.1	●	0.50-2.00	1.00-2.00

- 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 542-547

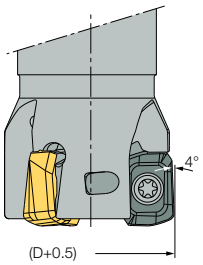
(1) Radius for programming

For tools, see pages: H490 E90AX-12 (30) • H490 F90AX-12 (206)

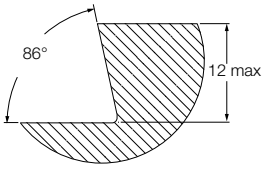
Insert Mounting in a Standard Tool



Tool with regular inserts



Tool with H490 ANKX 1205... FF inserts



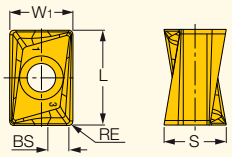
Shoulder angle when H490 ANKX 1205...-FF inserts are used

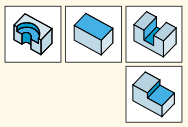
HELIDO 490 LINE

H490 ANKX/ANCX-17

Double-Sided Rectangular Inserts with 4 Helical Cutting Edges







Designation	Dimensions L	RE	S	W1	BS	Tough ↔ Hard IC330	IC845	IC830	IC5400	IC380	IC808	IC810	DT7150	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
H490 ANKX 170604PNTR	16.70	0.40	10.40	11.20	4.70			●							0.80-15.00	0.15-0.30
H490 ANCX 170608PDR	16.70	0.80	10.40	11.20	4.70	●		●		●	●	●			1.20-15.00	0.10-0.18
H490 ANKX 1706PNTR-CS (1)	16.70	0.80	10.40	11.20	4.70			●							1.20-15.00	0.15-0.22
H490 ANKX 1706PNTR-RM	16.70	0.80	10.40	11.20	4.70			●			●	●			1.20-15.00	0.20-0.40
H490 ANKX 170608PNTR	16.70	0.80	10.40	11.20	4.70	●	●	●	●		●	●	●	●	1.20-15.00	0.15-0.30
H490 ANKX 170612PNTR	16.90	1.20	10.50	11.00	3.50			●			●				1.60-15.00	0.15-0.30
H490 ANKX 170616PNTR	16.90	1.60	10.50	11.00	3.10			●			●				2.00-15.00	0.15-0.30
H490 ANKX 170620PNTR	16.90	2.00	10.50	11.00	2.70			●			●				2.40-15.00	0.15-0.30
H490 ANKX 170624PNTR	16.90	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 542-547

(1) The maximum feed per tooth for chip splitting effect is up to 0.22 mm/t.

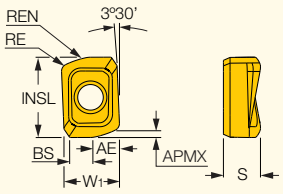
For tools, see pages: H490 E90AX-17 (33) • H490 F90AX-17 (213) • H490 SM-17 (249)

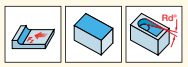
FEEDMILL HELIDO 490 LINE

H490 ANKX 1706-FF

Single-Sided Rectangular Inserts with 2 Helical Cutting Edges for Fast Feed Milling at Small Depths of Cut







Designation	Dimensions INSL	S	W1	BS	RE	Rg(1)	REN	APMX	AE	IC830	Recommended Machining Data 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	2.00	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 542-547

(1) Radius for programming

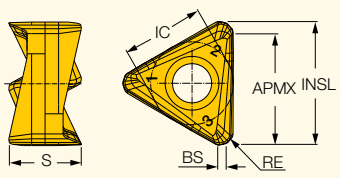
For tools, see pages: H490 E90AX-17 (33) • H490 F90AX-17 (213)

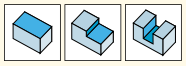
HELIDO 690 LINE

H690 TNKX/TNCX 1005

Triangular Inserts with 6 Helical Cutting Edges for 90° Shoulder Accuracy







Designation	Dimensions INSL	APMX	IC	S	RE	BS	Tough ↔ Hard IC330	IC830	IC5400	IC808	IC810	Recommended Machining Data 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 page 473

(1) Peripherally ground

For tools, see pages: H690 E90AX-10 (28) • H690 F90AX-10 (201)

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				

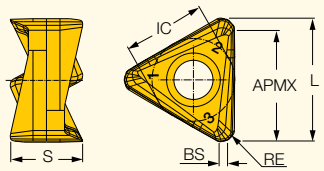
* Quenched and tempered
** ISCAR material group in accordance with VDI 3323 standard

HELIDO 690 LINE

H690 TNKX 1606

Triangular Inserts with 6 Helical Cutting Edges for 90° Shoulders





Designation	Dimensions L	APMX	IC	S	RE	BS	Tough ↔ Hard IC330	IC845	IC830	IC808	IC810	IC5100	Recommended Machining Data 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 542-547 ..

(1) The maximum feed per tooth for chip splitting effect is up to 0.22 mm/t

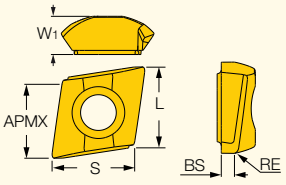
For tools, see pages: H690 F90AX-16 (214)

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	IC5400	IC808	IC810	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 542-547

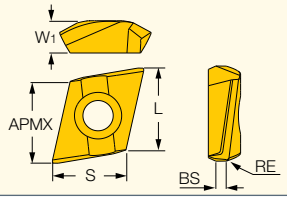
For tools, see pages: E30 / T230 (36) • E45 / T245 (38) • E60 / T260 (39) • T290 ELN-05 (15) • T290 ELN-MM-05 (15)

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	IC5400	IC808	IC810	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 542-547

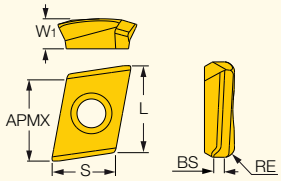
For tools, see pages: T290 ELN-10 (21) • T290 FLN-10 (198)

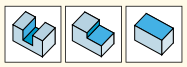
SUMOMILL 290 LINE

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 542-547

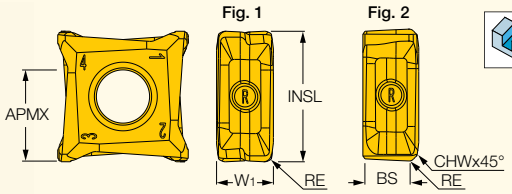
For tools, see pages: T290 FLN-15 (207)

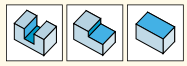
LOGIQ8TANG T890 MILLING LINE

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	IC5400	IC5500	IC808	IC810	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
T890 LNHT 1306PNTR	9.50	13.78	6.00	-	0.80	-	8	1	●	●	●	●	●	●	●	1.00-9.50	0.10-0.20
T890 LNMT 1306PNTR	9.50	13.75	6.00	-	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 (29) • T890HT FLN-R13 (202)

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

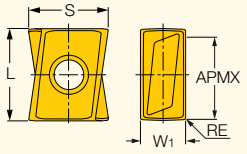
IC5500 is intended mainly for milling ferritic and martensitic stainless steel at increased speed

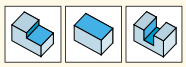
HELITANG T490 LINE

T490 LNMT/LNHT 0804

Tangentially Clamped Inserts with 4 Helical Cutting Edges







Designation	Dimensions W1	L	APMX	RE(4)	S	Tough ↔ Hard IC330	IC845	IC830	IC5400	IC808	IC810	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 542-547

(1) Chip splitting cutting edge

(2) Used for ramping down applications on 16-40 mm diameter tools

(3) Positive rake angle for soft and gummy materials

(4) Radius obtained on workpiece

For tools, see pages: T490 ELN-08 (19) • T490 ELN-M-08 (19) • T490 ELN-MM-08 (20) • T490 FLN-08 (196) • T490 FLN-C#-08 (196) • T490 LNM-08 (236) • T490 LNM-M-08 (237) • T490 SM-08 (243)

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°

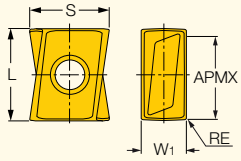


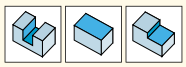
HELITANG T490 LINE

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 542-547

[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 temperaturealloys
[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] Chip splitting cutting edges

For tools, see pages: T490 ELN-11 (29) • T490 FLN-11 (201) • T490 LNK-11 (237) • T490 SM-11 (243)

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

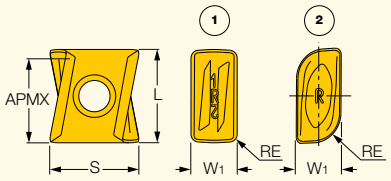


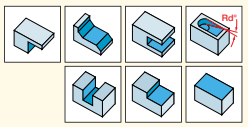
HELITANG T490 LINE

T490 LNMT/LNHT/LNAR 1306

Tangentially Clamped Inserts with 4 Helical Cutting Edges







Right-hand shown

Designation	Dimensions W1	L	APMX	RE[12]	S	Fig.	Tough ↔ Hard IC882	IC330	IC845	IC840	IC830	IC5820	IC5400	IC5500	IC380	IC808	IC810	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	13.10	1.										●				0.50-0.50	0.12-0.18
T490 LNAR 1306PN-R [2]	6.65	13.81	12.77	0.80	13.00	1.		●												4.00-12.00	0.08-0.20
T490 LNMT 1306PNTR	6.65	13.74	12.50	0.80	13.05	1.		●	●	●	●		●	●	●	●	●	●	●	4.00-12.00	0.10-0.25
T490 LNHT 1306PNTR	6.65	13.80	12.50	0.85	13.05	1.		●			●					●	●	●	●	4.00-12.00	0.10-0.20
T490 LNHT 1306PNTL [3]	6.65	13.81	12.50	0.85	13.05	1.					●					●	●			4.00-12.00	0.10-0.20
T490 LNMT 1306PNTL [3]	6.65	13.80	12.50	0.85	13.05	1.					●									4.00-12.00	0.10-0.20
T490 LNMT 1306PNTR-CS [4]	6.65	13.74	12.50	0.85	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	13.05	1.	●	●			●	●				●				4.00-12.00	0.10-0.20
T490 LNHT 1306PNR-PLS [6]	6.65	13.81	12.50	0.85	13.05	1.					●									4.00-12.00	0.10-0.20
T490 LNHT 1306PNTR-RD [7]	6.65	13.81	12.50	0.85	13.05	1.					●						●			4.00-12.00	0.10-0.20
T490 LNMT1306PNR-RD-CS [8]	6.65	13.74	12.50	0.85	13.05	1.					●									4.00-12.00	0.10-0.20
T490 LNMT1306PNR-RDPCS [9]	6.65	13.75	12.50	0.85	13.05	1.				●										4.00-12.00	0.10-0.20
T490 LNMT1306PNR-RDPL [10]	6.44	13.74	12.50	0.85	13.05	1.				●										1.00-12.50	0.10-0.20
T490 LNHT 130604PNTR	6.65	13.81	12.50	0.40	12.88	1.					●									4.00-12.00	0.10-0.20
T490 LNHT 130612PNTR	6.65	13.81	12.50	1.20	13.00	1.											●			4.00-12.00	0.10-0.20
T490 LNHT 130616PNTL [3]	6.65	13.81	12.50	1.60	12.88	1.					●									4.00-12.00	0.10-0.20
T490 LNHT 130616PNTR	6.65	13.81	12.50	1.60	12.88	1.		●			●					●				4.00-12.00	0.10-0.20
T490 LNMT 130616PNTR	6.65	13.75	12.50	1.60	12.88	1.					●						●			4.00-12.00	0.10-0.25
T490 LNHT 130624PNTL [3]	6.65	13.80	12.50	2.40	12.50	1.					●									4.00-12.00	0.10-0.20
T490 LNHT 130624PNTR	6.65	13.80	12.50	2.40	12.50	1.		●			●					●	●			4.00-12.00	0.10-0.20
T490 LNMT 130624PNTR	6.65	13.74	12.50	2.40	12.66	1.					●						●			4.00-12.00	0.10-0.20
T490 LNHT 130631PNTL [3]	6.65	13.81	12.50	3.10	12.37	1.					●									4.00-12.00	0.10-0.20
T490 LNHT 130631PNTR	6.65	13.81	12.50	3.10	12.37	1.		●			●					●				4.00-12.00	0.10-0.20
T490 LNMT 130631PNTR	6.65	13.75	12.50	3.10	12.45	1.		●			●									4.00-12.00	0.10-0.25
T490 LNHT 130640PNTR [11]	6.65	13.63	12.50	4.00	12.60	2.		●			●					●				4.00-12.00	0.10-0.20
T490 LNMT 130640PNTR [11]	6.65	13.63	12.50	4.00	12.60	2.					●									4.00-12.00	0.10-0.20
T490 LNHT 130650PNTR [11]	6.65	13.63	12.50	5.00	12.45	2.		●			●						●			4.00-12.00	0.10-0.20
T490 LNMT 130650PNTR [11]	6.65	13.63	12.50	5.00	12.36	2.					●									4.00-12.00	0.10-0.20
T490 LNHT 130660PNTR [11]	6.65	13.63	12.50	6.00	12.30	2.					●					●				4.00-12.00	0.10-0.25
T490 LNHT 130664PNTR [11]	6.65	13.63	12.50	6.35	12.28	2.		●			●					●				4.00-12.00	0.10-0.20
T490 LNMT 130664PNTR [11]	6.65	13.63	12.50	6.40	12.28	2.					●									4.00-12.00	0.10-0.20

• LNMT-utility inserts, LNHT-precision inserts • For cutting speed recommendations, see pages 542-547

[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

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 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)

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

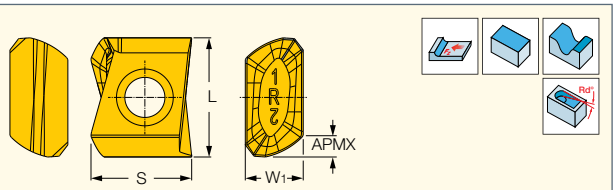
Tool Diameter	a - Rampdown
40	0.9°
50	0.7°
63	0.5°

HELITANG T490 LINE
FEEDMILL

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 a_p (mm)	f_z (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 542-547

(1) Corner radius for CNC programming
(2) For possible ramping angle vs. tool diameter, see table below.

For tools, see pages: T490 ELN-13 (30) • T490 FLN-13 (207)

Ramp Down Application as Function of Cutter Diameter

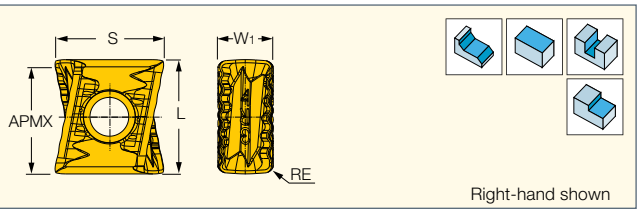
Tool Diameter	a° - Rampdown
25	4.8°
32	3.3°
40	2.5°
50	1.8°
63	1.3°
80	1.0°
100	0.8°

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 a_p (mm)	f_z (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 542-547

(1) Positive rake face, to be used in long overhang applications and low power machines
(2) Radius obtained on workpiece

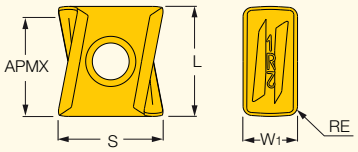
For tools, see pages: T4..-SM Conical Shell Mills (247) • T490 CAP-13FT (245) • T490 ELN-13 (30) • T490 FLN-13 (207) • T490 LNK-13 (237) • T490 LNK-13-BT (238) • T490 LNK-13-CF (238) • T490 LNK-13-INT (238) • T490 LNK-BT-FT (247) • T490 LNK-INT50-FT (246) • T490 LNK-M-13 (238) • T490 SM-13 (244) • T490 SM-13FT (244)

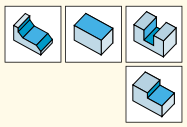
HELITANG T490 LINE

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 542-547

(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 (247) • T490 CAP-13FT (245) • T490 ELN-08 (19) • T490 ELN-13 (30) • T490 ELN-16 (33) • T490 ELN-M-08 (19) • T490 ELN-MM-08 (20) • T490 FLN-08 (196) • T490 FLN-13 (207) • T490 FLN-16 (212) • T490 FLN-C#-08 (196) • 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 LNM-08 (236) • T490 LNM-M-08 (237) • T490 SM-08 (243) • T490 SM-13 (244) • T490 SM-13FT (244) • T490 SM-16 (248)

T490 LNAR 1306PNR-P-RD

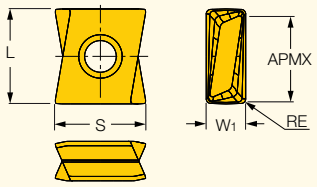
Tool Diameter	a - Rampdown
32	2.8°
40	2.0°
50	1.5°
63	1.1°
80	0.9°
100	0.7°

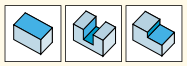
HELITANG T490 LINE

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 542-547

(1) Chip splitting insert

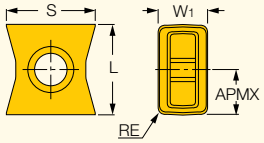
For tools, see pages: T490 ELN-16 (33) • T490 FLN-16 (212) • T490 SM-16 (248)

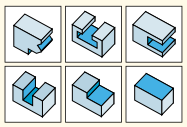
TANGMILL TANGENTIAL LINE

LNKX/LNMT 1106

Tangentially Clamped Inserts with a Very Positive Chipformer and Reinforced Cutting Edge





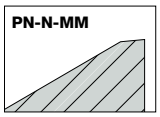


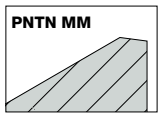
Designation	Dimensions W1	L	S	RE	APMX(1)	Tough ↔ Hard IC328	IC928	IC950	IC808	IC908	IC910	DT7150	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNKX 1106PN-N MM	6.00	11.16	11.00	0.80	5.00	●	●	●			●	●	●	1.50-5.00	0.15-0.20
LNKX 1106PNTN MM	6.00	11.16	11.00	0.80	5.00		●				●		●	1.50-5.00	0.17-0.25
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 542-547

(1) DOC when the insert is on the cutter

For tools, see pages: F90LN-N11 (203) • FDN-CALN11 (349) • SDN-CALN11 (359)



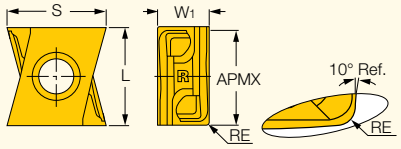


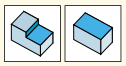
TANGMILL TANGENTIAL LINE

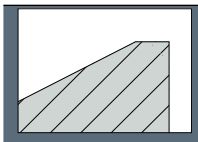
LNHT 1106 PN-R HT

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 542-547

(1) APMX=10 mm for cast iron applications (for each pass), APMX=8 mm for steel applications

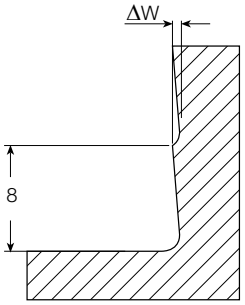
For tools, see pages: F90LN-N11 (203) • FDN-CALN11 (349) • SDN-CALN11 (359)

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

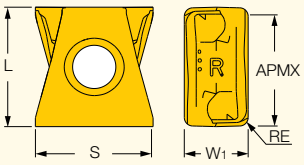


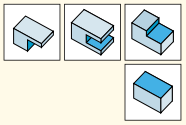
TANGMILL TANGENTIAL LINE

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 542-547

(1) APMX=10 mm for cast iron applications (for each pass), APMX=8 mm for steel applications

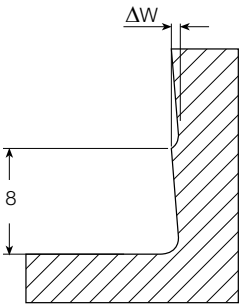
For tools, see pages: F90LN-N11 (203) • FDN-CALN11 (349) • SDN-CALN11 (359)

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

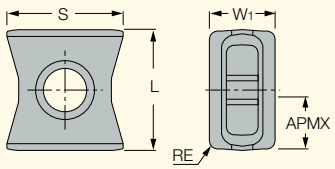


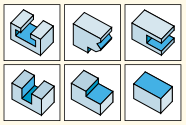
TANGMILL TANGENTIAL LINE

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 542-547

(1) D.O.C. when the insert is on the cutter

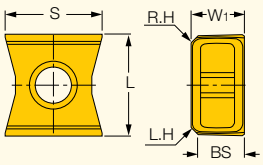
For tools, see pages: F90LN-N11 (203) • FDN-CALN11 (349) • SDN-CALN11 (359)

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 542-547

(1) Wiper insert with two right- and two left-hand cutting edges, for 90° lead angle in F90LN cutters.

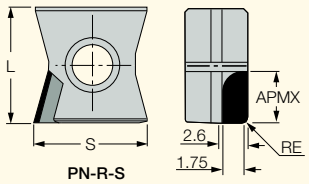
For tools, see pages: F90LN-N11 (203)

TANGMILL TANGENTIAL LINE

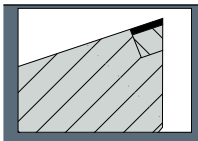
LNAR 1106 (PCD)

Tangentially Clamped Milling Inserts with a Brazed PCD Tip for Machining Aluminum





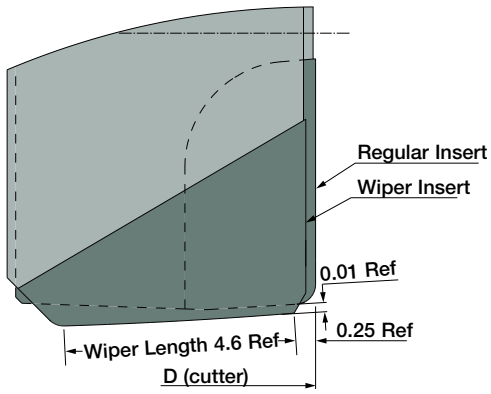
Single R.H. cutting edge PCD insert



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 542-547

For tools, see pages: F90LN-N11 (203)

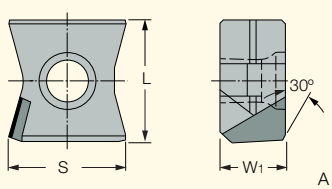


TANGMILL TANGENTIAL LINE

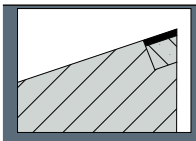
LNAR 1106PN-R-S-W (PCD)

Tangentially Clamped Wiper Milling Inserts with a Brazed PCD Tip for Machining Aluminum





A single R.H. cutting edge PCD insert

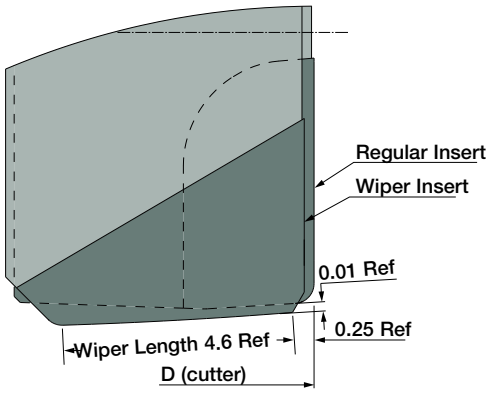


Designation	Dimensions W1	L	S	ID5	Recommended Machining Data f_z (mm/t)
LNAR 1106PN-R-S-W	5.98	11.26	10.75	●	0.10-0.25

• 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 542-547

For tools, see pages: F90LN-N11 (203)

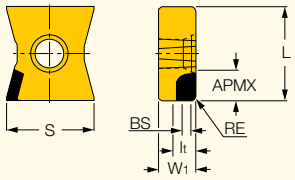


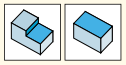
TANGMILL TANGENTIAL LINE

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

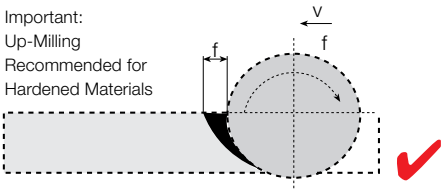
- LNAW PN-R.. is 0.03 mm edge-honed for finishing applications, while the LNAW PNTR... has a chamfered edge for rough milling applications.
- The inserts are supplied with spare screws.

For tools, see pages: F90LN-N11 (203)

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



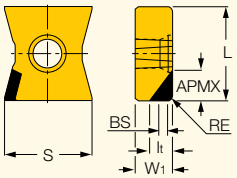


TANGMILL TANGENTIAL LINE

LNAW-15 (CBN)

Tangentially Clamped Inserts with a PCBN Brazed Tip for Machining Hard Materials



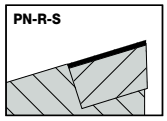


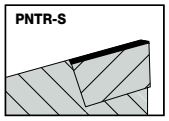
Single R.H. cutting edge insert

Designation	Dimensions W1	S	RE	L	APMX	BS	lt	Tough ↔ Hard IB85	IB55	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

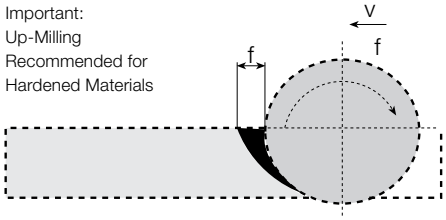
- LNAW PN-R.. is 0.03 mm edge-honed for finishing applications, while the LNAW PNTR... has a chamfered edge for rough milling applications.
- The inserts are supplied with spare screws.

For tools, see pages: F90LN-N15 (208) • SSB-LN15-R/L (362)





Important:
Up-Milling
Recommended for
Hardened Materials





CBN
Recommended Machining Conditions

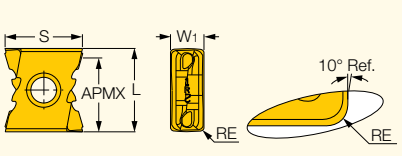
Grade	DOC mm	Material	IB85 Vc m/min	IB85 Feed mm/tooth	IB85 Cutting Edge	IB55 Vc m/min	IB55 Feed mm/tooth	IB55 Cutting Edge
K	<0.5	Grey cast iron 200-280 HBN	500-1500	0.1-0.3	Chamfer Hone			
	0.5-2.0		500-1100	0.1-0.25	Chamfer			
	<0.5	CGI	400-600	0.1-0.2	Hone			
S	0.5-2.0	Co based > 35 HRc Ni based > 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	80-220	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	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

TANGMILL TANGENTIAL LINE

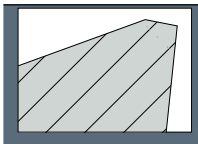
LNMT 1506PN-R-TS

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 542-547

(1) apmax=8 mm for steel and 12 mm for cast iron

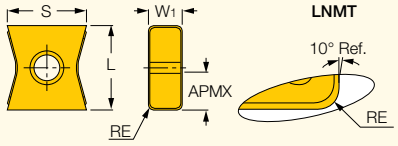
For tools, see pages: F90LN-N15 (208)

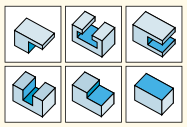
TANGMILL TANGENTIAL LINE

LNKX/LNMT 1506PNTN/ PN-N MM

Tangentially Clamped Inserts with a Reinforced Negative Land for Unfavorable Conditions





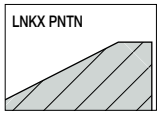


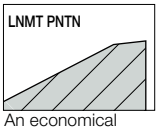
Designation	Dimensions W1	L	S	RE	APMX(1)	Tough ↔ Hard IC328	IC928	IC5400	IC908	IC810	IC910	DT7150	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNKX 1506PN-N MM	6.00	15.00	13.88	0.80	7.00	●	●	●	●					2.00-7.00	0.10-0.20
LNKX 1506PNTN	6.00	15.00	13.88	0.80	7.00					●	●		●	2.00-7.00	0.10-0.20
LNKX 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 542-547

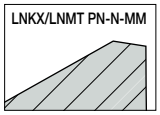
(1) D.O.C. when the insert is on the cutter.

For tools, see pages: F90LN-N15 (208) • FDN-CALN15 (351) • SDN-CALN15 (361) • SSB-LN15-R/L (362)





An economical class insert

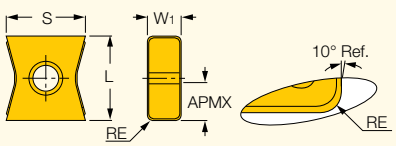


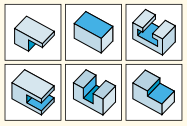
TANGMILL TANGENTIAL LINE

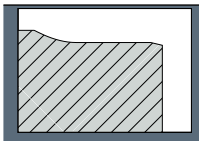
LNMW 1506 PNTN

Tangentially Clamped Insert for Machining Grey 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 542-547

(1) DOC when the insert is on the cutter.

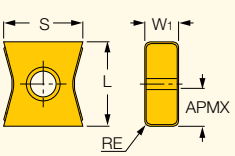
For tools, see pages: F90LN-N15 (208) • FDN-CALN15 (351) • SDN-CALN15 (361) • SSB-LN15-R/L (362)

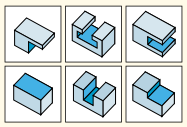
TANGMILL TANGENTIAL LINE

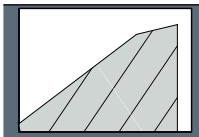
LNKX 1506PN-N PL

Tangentially Clamped Inserts with a Positive Land for Alloyed and 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 542-547

(1) D.O.C. when the insert is on the cutter.

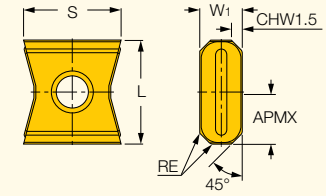
For tools, see pages: F90LN-N15 (208) • FDN-CALN15 (351) • SDN-CALN15 (361) • SSB-LN15-R/L (362)

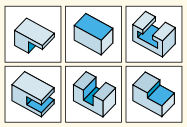
TANGMILL TANGENTIAL LINE

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 542-547

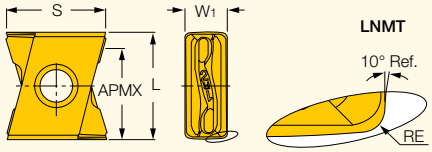
For tools, see pages: F90LN-N15 (208) • SSB-LN15-R/L (362)

TANGMILL TANGENTIAL LINE

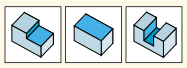
LNMT/LNHT 1506PN-R HT

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 542-547

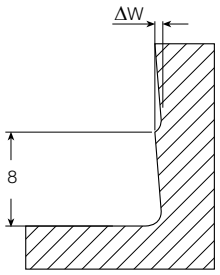
(1) APMX=9 mm for steel and 12 mm for cast iron

For tools, see pages: F90LN-N15 (208) • SSB-LN15-R/L (362)

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

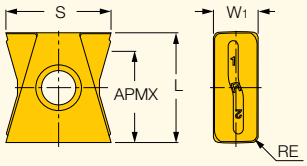


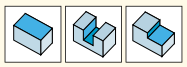
TANGMILL TANGENTIAL LINE

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 542-547

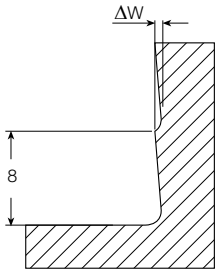
(1) APMX=9 mm for steel and 14 mm for cast iron

For tools, see pages: F90LN-N15 (208) • FDN-CALN15 (351) • SDN-CALN15 (361) • SSB-LN15-R/L (362)

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

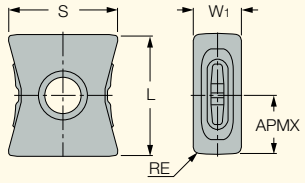


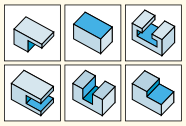
TANGMILL TANGENTIAL LINE

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 542-547

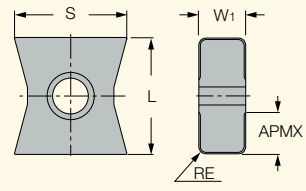
For tools, see pages: F90LN-N15 (208)

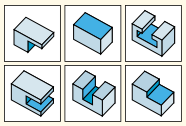
TANGMILL TANGENTIAL LINE

LNHW 1506 PNTN (ceramic)

Tangentially Clamped Ceramic Insert for High Speed Machining of Grey and Nodular Cast Iron







Designation	W1	L	S	RE	APMX[1]	IS8	Recommended Machining Data a_p (mm)	Recommended Machining Data 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 542-547

(1) D.O.C. when the insert is on the cutter

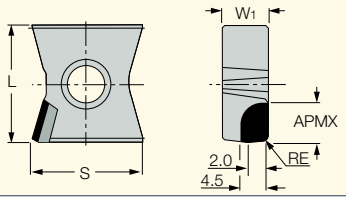
For tools, see pages: F90LN-N15 (208) • SSB-LN15-R/L (362)

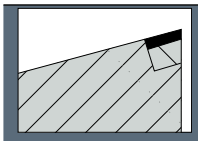
TANGMILL TANGENTIAL LINE

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 ..

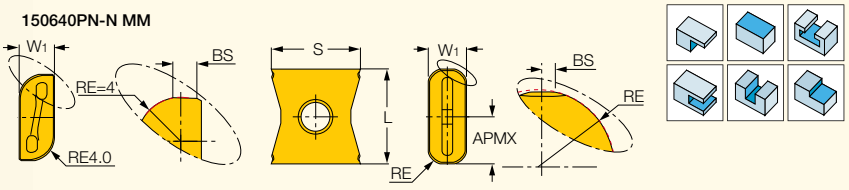
For tools, see pages: F90LN-N15 (208)

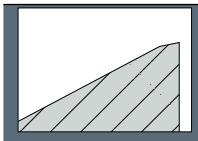
TANGMILL TANGENTIAL LINE

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 542-547

(1) Insert has 2 R.H. and 2 L.H. cutting edges.

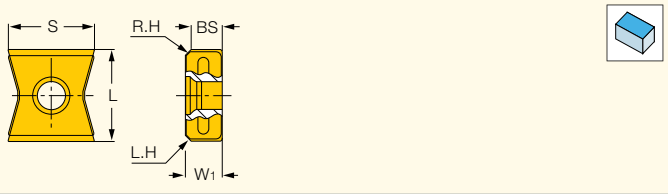
For tools, see pages: F90LN-N15 (208) • SSB-LN15-R/L (362)

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 542-547

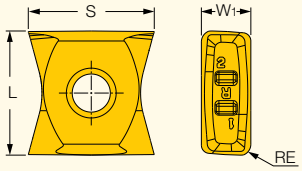
For tools, see pages: F90LN-N15 (208) • SSB-LN15-R/L (362)

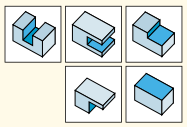
TANGMILL TANGENTIAL LINE

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 542-547

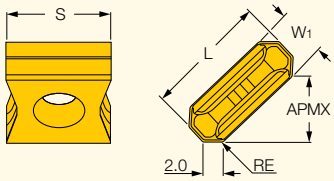
For tools, see pages: FDN-CAPM15 (351) • SDN-CAPM15 (360)

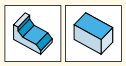
TANGMILL TANGENTIAL LINE

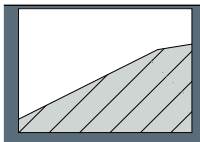
LNKX 150608AN-N PL

Tangentially Clamped Inserts with a Positive Rake Angle for Cast Iron









Designation	Dimensions W1	L	S	RE	APMX(1)	Tough ↔ Hard IC328	IC908	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNKX 150608AN-N PL	6.00	15.30	12.90	0.80	7.50	●	●	●	2.00-7.00	0.10-0.20

• Positive land (PL) leaves sharp edges without chipping on cast iron components • High shear rake for light machining of steel, stainless steel and cast iron

• For cutting speed recommendations, see pages 542-547

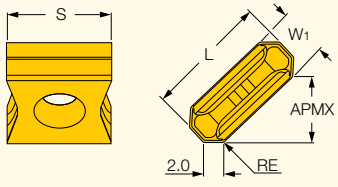
(1) D.O.C when the insert is on the cutter.

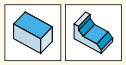
TANGMILL TANGENTIAL LINE

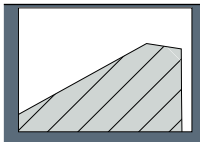
LNKX/LNMT 150608ANTN MM

Tangentially Clamped Inserts with a Negative Land and Reinforced Chipformer for Unfavorable Cutting Conditions









Designation	Dimensions W1	L	S	RE	APMX(1)	Tough ↔ Hard IC328	IC928	IC950	IC908	IC910	DT7150	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNKX 150608ANTN MM	6.00	15.30	12.90	0.80	7.50	●	●		●	●	●	●	2.00-7.00	0.30-0.40
LNMT 150608ANTN MM	6.00	15.30	12.90	0.80	7.50	●	●	●	●	●		●	2.00-7.00	0.30-0.40

• Molded chipformer with reinforced negative land for unfavorable cutting conditions • Enables higher feed rates • 4 R.H. and 4 L.H. cutting edges when used on F45LN... cutters

• For cutting speed recommendations, see pages 542-547

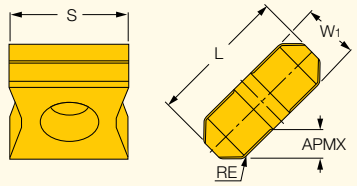
(1) D.O.C when the insert is on the cutter

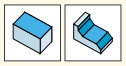
TANGMILL TANGENTIAL LINE

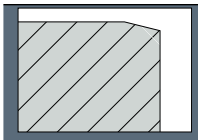
LNHW 1506 ANTN (ceramic)

Tangentially Clamped Ceramic Inserts for High Speed Machining of Cast Iron









Designation	Dimensions W1	L	S	RE	APMX	IS8	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNHW 1506 ANTN	6.00	15.30	12.90	0.80	3.00	●	1.00-3.00	0.15-0.25

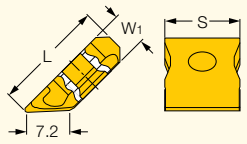
• Provides high surface finish • Feature 4 R.H. and 4 L.H. cutting edges when used on F45LN.. cutters • Important: Tightening torque 3.5-4 Nxm
• For cutting speed recommendations, see pages 542-547

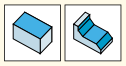
TANGMILL TANGENTIAL LINE

LNAT 1506AN-W

Tangentially Clamped Wiper Inserts for 45° Lead Angle on F45LN Cutters







Designation	Dimensions L	S	W1	Tough ↔ Hard IC908	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
LNAT 1506AN-W	19.33	12.90	5.98	●	●	0.50-2.00	0.10-0.15

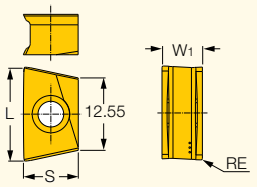
• The insert has one right- and one left-hand wiper • When feed per revolution is less than 7 mm, it is recommended to use only one wiper insert. When it is greater than 7 mm, use two wiper inserts. • For cutting speed recommendations, see pages 542-547

HELITANG

FIN LNAT 1607PN-R

Tangentially Clamped Peripherally Ground Inserts with 2 Positive Rake Cutting Edges for Finishing Applications







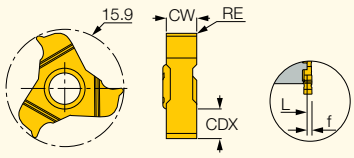
Designation	Dimensions W1	L	S	RE	Tough ↔ Hard IC830	IC808	Recommended Machining Data f_z (mm/t)
FIN LNAT 1607 PN-R	7.00	16.10	9.50	0.30	●	●	0.08-0.15

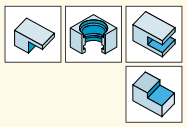
• For cutting speed recommendations, see pages 542-547
For tools, see pages: FIN LNK-BT (240) • FIN LNK-INT (239)

CHAMSLIT

TRI
Triple-Edged Groove Milling Inserts







Designation	Dimensions CW	RE	CDX(1)	f	IC908	Recommended Machining Data f_z (mm/t)
TRI 16RK-1.2-0.05	1.20	0.05	4.60	0.50	●	0.02-0.08
TRI 16RK-1.4-0.1	1.40	0.10	4.80	0.50	●	0.02-0.10
TRI 16RK-1.5-0.1	1.50	0.10	4.80	0.50	●	0.03-0.12
TRI 16RK-1.7-0.1	1.70	0.10	4.80	0.50	●	0.03-0.12
TRI 16RK-1.95-0.15	1.95	0.15	4.80	0.50	●	0.04-0.15
TRI 16RK-2.0-0.2	2.00	0.20	4.80	0.50	●	0.04-0.15
TRI 16RK-2.25-0.15	2.25	0.15	4.80	0.75	●	0.04-0.15
TRI 16RK-2.75-0.15	2.75	0.15	4.80	1.39	●	0.04-0.20
TRI 16RK-3.0-0.2	3.00	0.20	4.80	1.39	●	0.04-0.20
TRI 16RK-3.25-0.15	3.25	0.15	4.80	1.39	●	0.04-0.20
TRI 16RK-4.0-0.2	4.00	0.20	4.80	2.43	●	0.05-0.25
TRI 16RK-4.25-0.15	4.25	0.15	4.80	0.95	●	0.05-0.25
TRI 16RK-5.0-0.2	5.00	0.20	4.80	2.15	●	0.05-0.30
TRI 16RK-5.25-0.15	5.25	0.15	4.80	2.15	●	0.05-0.30
TRI 16RK-6.0-0.2	6.00	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 542-547

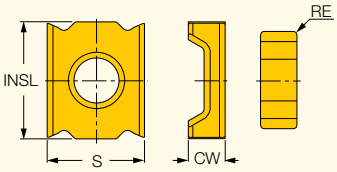
(1) Cutting depth maximum

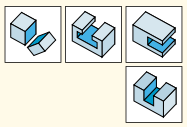
For tools, see pages: TRIB (331) • TRIB-SM (332)

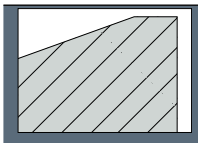
MINI-TANGSLOT

LNET 08
Tangentially Clamped Inserts with 4 Cutting Edges for Slotting and Grooving Cutters







 Designation	Dimensions INSL	S	CW	RE	Tough ↔ Hard IC928	IC910	Recommended Machining Data f_z (mm/t)
LNET 081804-TN-N	8.40	6.85	1.80	0.40	●	●	0.08-0.12
LNET 082604-TN-N	8.40	6.85	2.60	0.40	●	●	0.08-0.12
LNET 082804-TN-N	8.40	6.85	2.85	0.40	●		0.08-0.12
LNET 083004-TN-N	8.40	6.85	3.00	0.40	●	●	0.08-0.12
LNET 083204-TN-N	8.40	6.85	3.25	0.40	●		0.08-0.12
LNET 083504-TN-N	8.40	6.85	3.50	0.40	●	●	0.08-0.12
LNET 083704-TN-N	8.40	6.85	3.75	0.40	●		0.08-0.12
LNET 084004-TN-N	8.40	6.85	4.00	0.40	●		0.08-0.12
LNET 084204-TN-N	8.40	6.85	4.20	0.40	●		0.08-0.12
LNET 084504-TN-N	8.40	6.85	4.50	0.40	●	●	0.08-0.12

• The insert has 2 right- and 2 left-hand cutting edges • For cutting speed recommendations, see pages 542-547

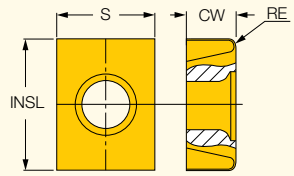
For tools, see pages: ETS-LN08 (336) • ETS-LN08-M (334) • ETS-LN08-MM (335) • FDN-LN08 (345) • SDN-LN08 (354)

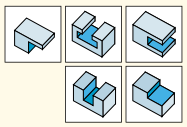
TANGSLOT

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 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 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 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 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 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 125708-TN	5.75	0.80	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 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

• For cutting speed recommendations, see pages 542-547

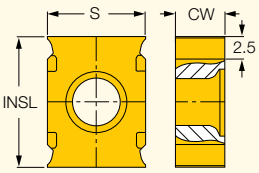
For tools, see pages: FDN-CALN12 (348) • FDN-LN12 (346) • SDN-CALN12 (356) • SDN-LN12 (355)

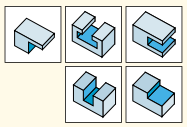
TANGSLOT

LNET 12-TN-MM

Tangentially Clamped Inserts with 4 Cutting Edges for Milling Deep and Long Steel Slots







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

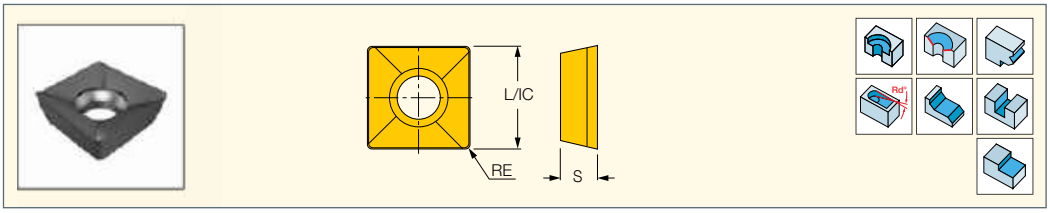
• Excellent chip evacuation • For cutting speed recommendations, see pages 542-547

For tools, see pages: FDN-CALN12 (348) • FDN-LN12 (346) • SDN-CALN12 (356) • SDN-LN12 (355)

HELIQUAD

SOMT-HQ

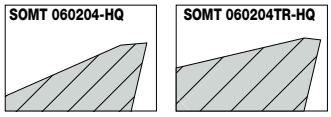
Square Milling Inserts for General Use



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 542-547

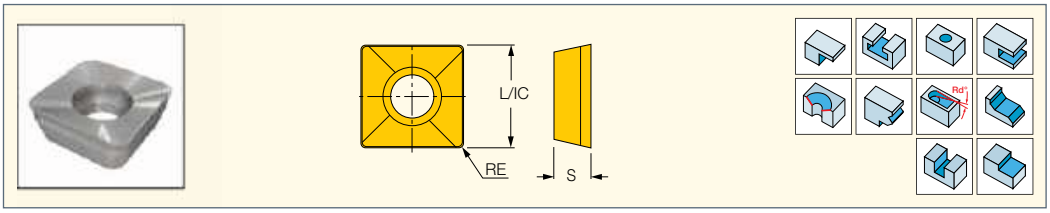
For tools, see pages: E45X (38) • E90X (16) • E90XC (36)



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

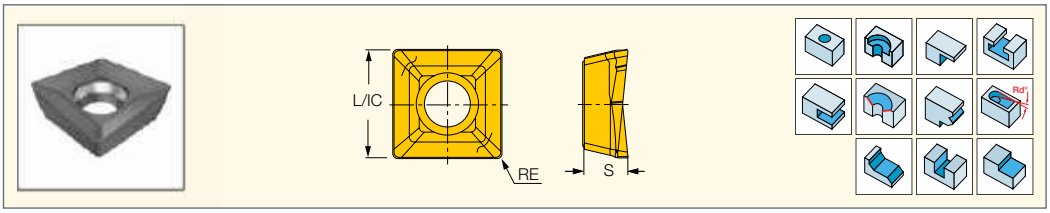
- For cutting speed recommendations, see pages 542-547

For tools, see pages: E45X (38) • E90X (16) • ETS (341) • FDN (342) • FDN-CF4 (347) • SDN (353)

HELIQUAD

XOMT-HQ

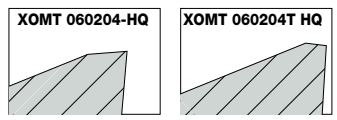
Square Inserts for Milling, Drilling and Boring with 2 Right- and 2 Left-Hand Cutting Edges for General Use



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 542-547

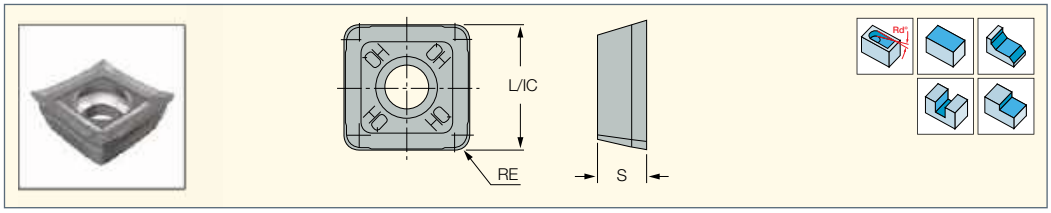
For tools, see pages: E45X (38) • E90X (16) • E90XC (36) • ETS (341) • FDN (342) • FDN-CF4 (347) • SDN (353)



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

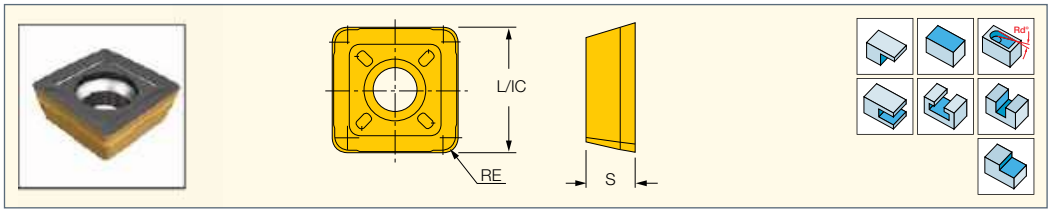
• For cutting speed recommendations, see pages 542-547

For tools, see pages: E90SP (21) • FF90SP-10 (198) • SPK (239)

QUAD2000

QPMT 100408PDTN

Neutral Insert with Reinforced Land for Slotting



Designation	Dimensions L	S	RE	Tough ↔ Hard IC330	IC328	IC830	IC928	IC5400	IC950	IC810	IC910	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

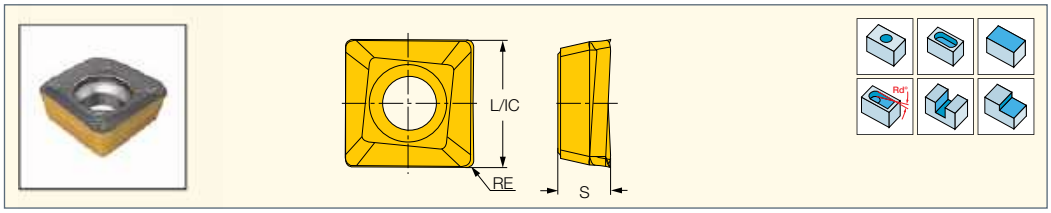
• For cutting speed recommendations, see pages 542-547

For tools, see pages: E90SP (21) • FF90SP-10 (198) • FDN (342) • FST (361) • SDN (353) • SPK (239) • SSB (362)

HELIQUAD

SPMT-HQ

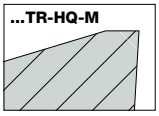
Square Positive Inserts for Right-Hand Tools for General Use

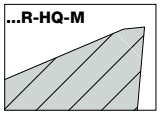


Designation	Dimensions L	S	RE	Tough ↔ Hard IC330	IC328	IC830	IC928	IC5400	IC950	IC808	IC810	IC910	DT7150	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
SPMT 100404R-HQ-M	10.20	4.23	0.40	●	●	●	●				●	●			0.80-9.60	0.08-0.15
SPMT 100408R-HQ-M	10.20	4.23	0.60	●	●	●	●		●		●	●			1.00-9.60	0.08-0.15
SPMT 100408TR-HQ-M	10.20	4.23	0.80	●		●		●	●	●	●		●	●	1.20-9.60	0.10-0.20
SPMT 100416R-HQ-M	10.20	4.23	1.60		●	●									2.00-9.60	0.10-0.20

• For cutting speed recommendations, see pages 542-547

For tools, see pages: E90SP (21) • F90SP-10 (198) • SPK (239) • SSB (362)



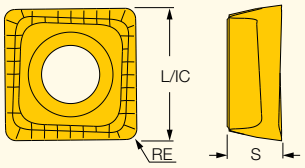


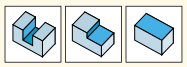
HELIQUAD

SPCT/SPMR PDR

Precision Ground Insert
Used for Semi-Finish 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 542-547

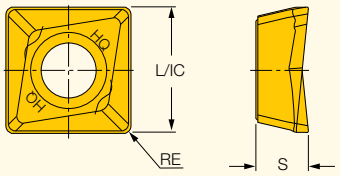
For tools, see pages: E90SP (21) • F90SP-10 (198) • SPK (239) • SSB (362)

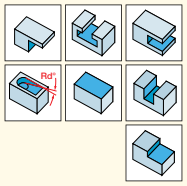
HELIQUAD

XPMT-HQ

Insert with 2 Right- or
Left-Hand Cutting Edges with
Positive or Reinforced Land



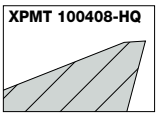


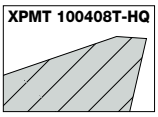


Designation	Dimensions L	S	RE	Tough ↔ Hard IC28	IC328	IC928	IC950	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
XPMT 100408-HQ	10.20	4.12	0.60	●	●	●			1.00-9.60	0.07-0.12
XPMT 100408T-HQ	10.20	4.12	0.60				●	●	1.00-9.60	0.08-0.15

• For cutting speed recommendations, see pages 542-547

For tools, see pages: E90AC (36) • E90SP (21) • ETS (341) • F90SP-10 (198) • FDN (342) • FST (361) • SDN (353) • SPK (239) • SSB (362)



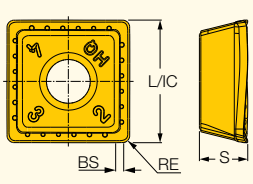


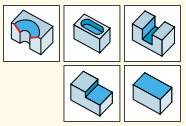
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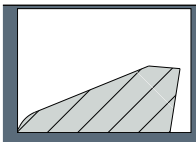
SDMT-PDR-HQ

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	IC5400	IC5500	IC950	IC808	IC908	IC810	IC910	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	12.75	5.00	0.80	0.80	●	●	●			●	●				●			1.20-11.80	0.07-0.20

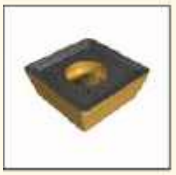
• For cutting speed recommendations, see pages 542-547

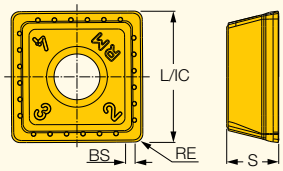
For tools, see pages: F90SD-12 (204)

HELiQUAD

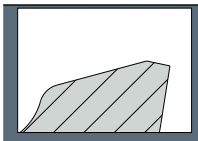
SDMT-PDR-RM

Insert with Helical Cutting Edges for 90° Shoulder Milling









Designation	Dimensions L	S	RE	BS	Tough ↔ Hard IC328	IC830	IC928	IC5400	IC808	IC910	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	12.75	5.00	0.80	1.60	●		●	●			1.20-11.80	0.07-0.20
SDMT 120516PDR-RM-MM	12.75	5.00	1.60	0.80		●			●		2.00-11.80	0.07-0.20

• For cutting speed recommendations, see pages 542-547

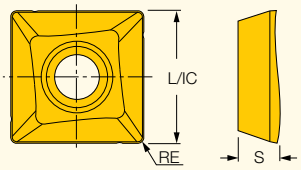
For tools, see pages: F90SD-12 (204)

HELiQUAD

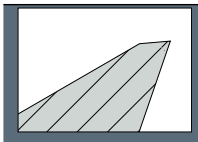
SDMR-HQ

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 542-547

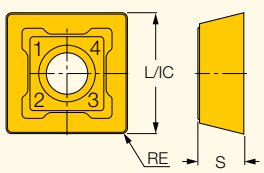
For tools, see pages: F90SD-12 (204)

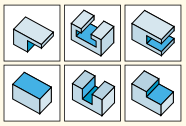
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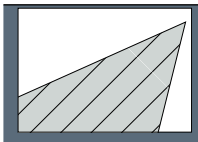
QDCT-PDN

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 542-547

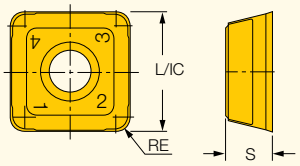
For tools, see pages: F90SD-12 (204) • FDN (342) • FST (361) • SDK-12-C/HP (250) • SDN (353) • SSB (362)

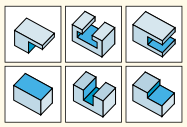
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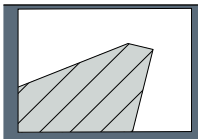
QDMT 1205..PDTN-M

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 542-547

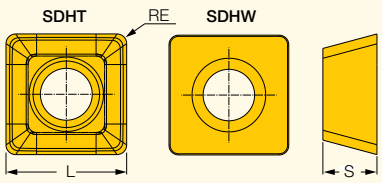
For tools, see pages: F90SD-12 (204) • FDN (342) • FST (361) • SDK-12-C/HP (250) • SDN (353) • SSB (362)

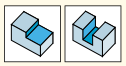
XQUAD EXTENDED FLUTE

SDHT/W 100408

Square Inserts for Machining Titanium, High Temperature Alloys and Stainless Steel







Designation	Dimensions L	S	RE	Tough ↔ Hard IC882	IC5820	IC380	Recommended Machining Data f_z (mm/t)
SDHT 100408-PDEN (1)	10.00	4.50	0.80	•	•		0.05-0.10
SDHW 100408-TN (2)	10.00	4.50	0.80	•	•	•	0.05-0.12
SDHW 100408-TN-CS (3)	10.00	4.50	0.80		•		0.05-0.12

• For cutting speed recommendations, see pages 542-547

(1) First choice for machining stainless steel

(2) First choice for machining titanium.

(3) Chip splitting cutting edge

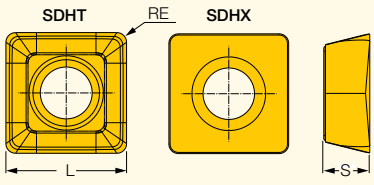
For tools, see pages: SDK-10-C/HP (249)

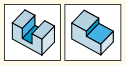
XQUAD EXTENDED FLUTE

SDHT/X 120508

Square Inserts for Machining Titanium, High Temperature Alloys and Stainless Steel







Designation	Dimensions L	S	RE	Tough ↔ Hard IC882	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 542-547

(1) First choice for machining stainless steel

(2) First choice for machining titanium

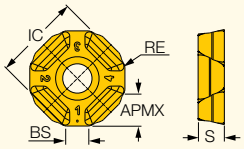
For tools, see pages: SDK-12-C/HP (250)

DOVEIQMILL 845 LINE

IQ845 SYHU-05

Square Inserts with 8 Cutting Edges





Designation	Dimensions APMX	BS	RE	IC	S	Tough ↔ Hard IC330	IC830	IC5400	IC808	IC810	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
IQ845 SYHU 0503ADN-ML (1)	2.60	2.00	0.50	8.30	3.00	●	●					0.10-2.60	0.08-0.25
IQ845 SYHU 0503ADN-MM (2)	2.60	2.00	0.50	8.30	3.00		●	●	●			0.10-2.60	0.08-0.25
IQ845 SYHU 0503ADTN (3)	2.60	2.00	0.50	8.30	3.00					●	●	0.10-2.60	0.08-0.25

- For cutting recommendations, see pages 542-547

(1) For soft non-alloy and low-alloy steel

(2) For general applications

(3) For cast iron

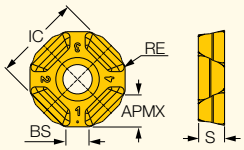
For tools, see pages: IQ845 ESY-R05 (219) • IQ845 FSY-R05 (220)

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	IC5400	IC5500	IC808	IC810	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	0.80	13.80	4.20					●						0.20-2.00	0.10-0.20
IQ845 SYHU 070400AD	4.60	3.40	0.80	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 542-547

(1) For stainless steel and high temperature alloys

(2) For general applications

(3) For cast iron

(4) For aluminum

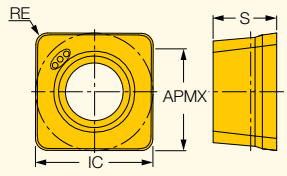
For tools, see pages: IQ845 FSY-C#-R07 (226) • IQ845 FSY-R07 (226)

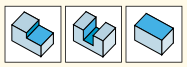
HELI4MILL HM490 LINE

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	●	●		0.80-3.50	0.04-0.10
SOMT 040204 PNTR	3.50	0.40	4.07	2.20	●	●	●	0.80-3.50	0.04-0.10
SOMT 040208 PNTR	3.50	0.80	4.07	2.20		●		1.20-3.50	0.04-0.10
SOMT 040212 PNTR	3.50	1.20	4.07	2.20		●		1.60-3.50	0.04-0.10

• For cutting speed recommendations, see pages 542-547 • For left or right hand machining

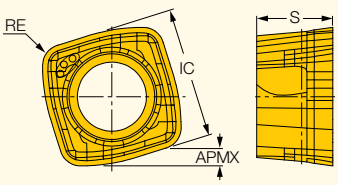
For tools, see pages: E90SO-04 (11) • E90SO-MM-04 (11)

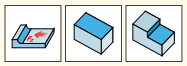
HELI4MILL HM490 LINE
FEEDMILL

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	●	●	0.20-0.50	0.10-0.50

• For cutting speed recommendations, see pages 542-547

(1) Radius for programming

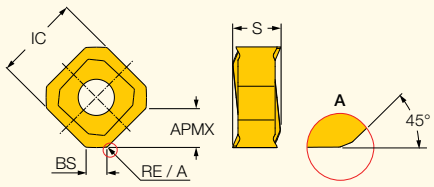
For tools, see pages: E90SO-04 (11) • E90SO-MM-04 (11)

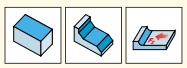
HELIDO 800 LINE

S845 SNMU/SNHU-13

Double-Sided Square Inserts
with 8 Cutting Edges







Designation	Dimensions L	APMX	S	BS	RE	KCH	Tough ↔ Hard IC330	IC830	IC5400	IC5500	IC808	IC810	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

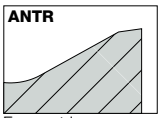
• S845 SNHU - Precision ground • S845 SNMU - Utility • For cutting speed recommendations, see pages 542-547

(1) For cast iron

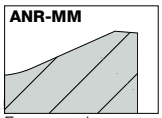
(2) For high temperature alloys and stainless steel

(3) See drawing A

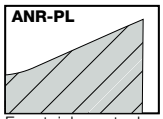
For tools, see pages: FF SOF (310) • SOE45 8/16 (38) • SOF45 (222)



For cast iron



For general applications



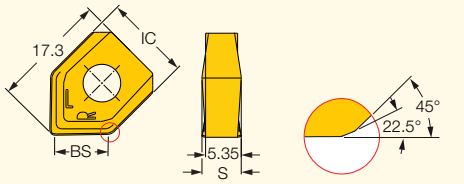
For stainless steel and high temperature alloys

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 542-547

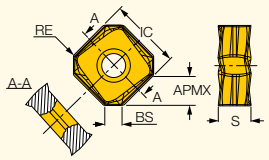
For tools, see pages: SOE45 8/16 (38) • SOF45 (222)

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	IC5400	IC808	IC908	IC810	IC910	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

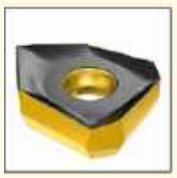
• When a wiper insert is being used, recommended a_p=0.8-3.0 mm, f_z=0.1-0.25 mm/t . • For cutting speed recommendations, see pages 542-547

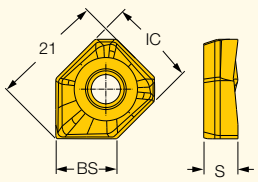
For tools, see pages: S845 F45SX-16 (227)

HELIDO 845 LINE

S845 SXHU 1606-W

HELIDO 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 542-547

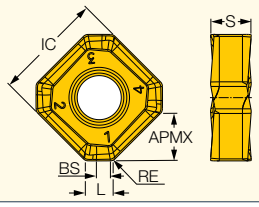
For tools, see pages: S845 F45SX-16 (227)

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	IC5400	IC808	IC810	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

• For cutting speed recommendations, see pages 542-547

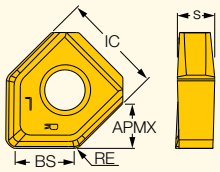
For tools, see pages: SOF45-R18 (229)

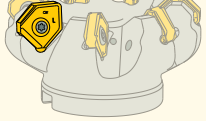
HELIDO 845 LINE

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

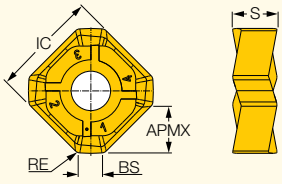
For tools, see pages: SOF45-R18 (229)

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	IC5400	IC808	IC810	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 542-547

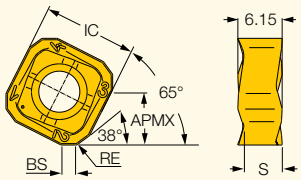
For tools, see pages: SOF45-26 (228) • SOF45WG-R26 (228)

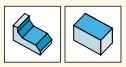
HELIDO 865 LINE

S865 SNMU 1305ZNTR

Double-Sided Square Inserts
with 8 Cutting Edges



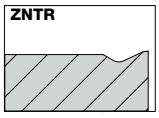


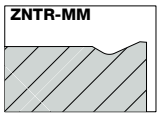


Designation	Dimensions L	S	APMX	BS	RE	Tough ↔ Hard IC330	IC830	IC5400	IC808	IC810	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
S865 SNMU 1305ZNTR	13.00	5.50	8.00	2.00	0.50					●	●	2.00-6.00	0.15-0.25
S865 SNMU 1305ZNTR-MM	13.00	5.50	8.00	2.00	0.50	●	●	●	●	●		2.00-6.00	0.15-0.25

- Recommended a_p max on steel applications with coarse pitch cutters and on cast iron with fine pitch cutters may be increased up to 8 mm
- For cutting speed recommendations, see pages 542-547

For tools, see pages: S865 FSN-13 (217)



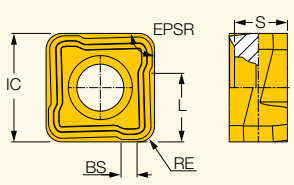


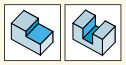
NEODO S90° LINE

S890 SZMU-0804PN

Double-Sided Square Inserts
with 8 Cutting Edges







Designation	Dimensions IC	S	L	APMX	BS	RE	EPSR	Tough ↔ Hard IC845	IC5400	IC808	IC810	IC5100	Recommended Machining Data f_z (mm/t)
S890 SZMU 080412PNTR	8.20	4.00	5.20	5.00	1.20	1.20	88.4				●	●	0.12-0.25
S890 SZMU 080412PNRMM	8.20	4.00	5.20	5.00	1.20	1.20	88.4	●	●	●			0.08-0.25

- For cutting speed recommendations, see pages 542-547

For tools, see pages: S890 FSZ-R08 (194)

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 5 mm

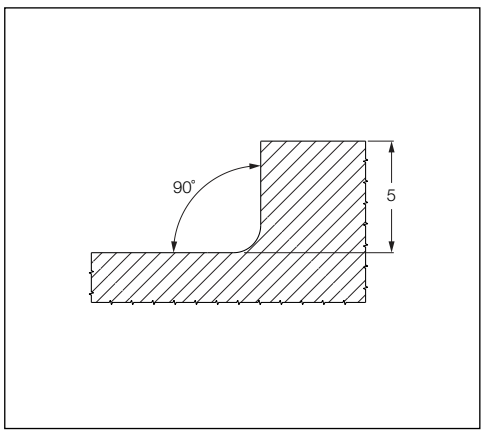
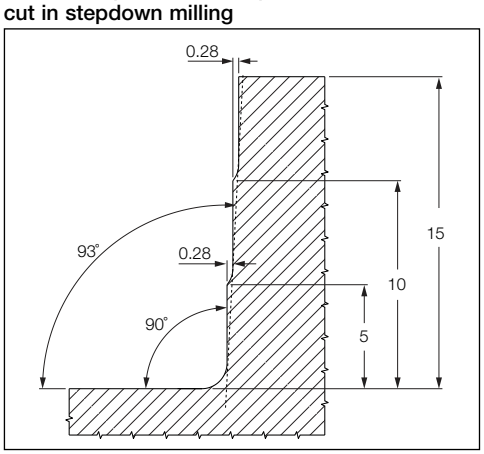


Fig. 2-
Generated profile for a depth of cut in stepdown milling

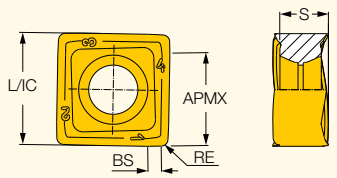


HELIDO 890 LINE

S890 SNMU 1305PN...

Double-Sided Square Inserts
with 8 Cutting Edges



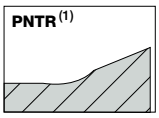


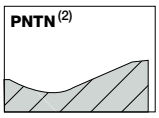
Designation	Dimensions L	S	APMX	BS	RE[5]	Tough ↔ Hard IC330	IC830	IC5400	IC808	IC810	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
S890 SNMU 1305PNTR [1]	13.00	5.60	9.00	1.80	0.80	●	●	●	●	●	●	2.00-9.00	0.10-0.20
S890 SNMU 1305PNTN [2]	13.00	5.70	9.00	1.80	0.80				●	●		2.00-9.00	0.10-0.20
S890 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

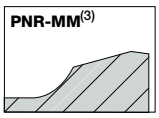
- For cutting speed recommendations, see pages 542-547

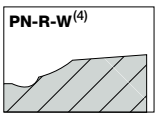
[1] General use, 8 right-hand cutting edges, for milling a variety of cast iron and steel workpiece materials.
[2] 8 neutral cutting edges, used for machining cast iron. Can be used for left-hand specially tailored milling cutters.
[3] 8 right-hand cutting edges, used mainly for milling steel (R.H. helix).
[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 (205) • S890 SSB-13 (362)







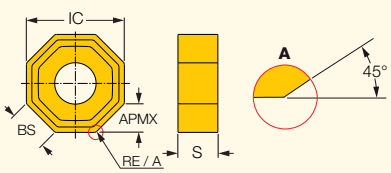


HELIDO 800 LINE

ONHU/ONMU-05

Double-Sided Octagonal Inserts
with 16 Cutting Edges



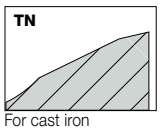


Designation	Dimensions BS	IC	APMX	S	RE	Tough ↔ Hard IC330	IC830	IC5400	IC808	IC810	DT7150	IC5100	Recommended Machining Data a_p (mm)	f_z (mm/t)
ONHU 050500-PL [1]	4.50	13.00	3.50	5.08	-	●	●						1.50-3.00	0.15-0.20
ONHU 050500-R-HP	4.50	13.00	3.50	5.08	-		●						1.50-3.00	0.20-0.25
ONHU 050505-TN [2]	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

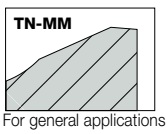
- ONHU - Precision ground • ONMU - Utility • For cutting speed recommendations, see pages 542-547

[1] For stainless steel and high temperature alloys
[2] For cast iron
[3] For general applications

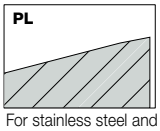
For tools, see pages: FF SOF (310) • SOE45 8/16 (38) • SOF45 (222)



For cast iron



For general applications



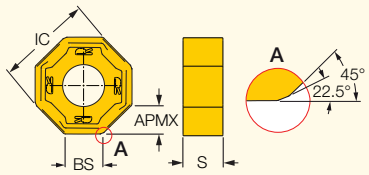
For stainless steel and high temperature alloys

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 542-547

(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 (38) • SOF45 (222)

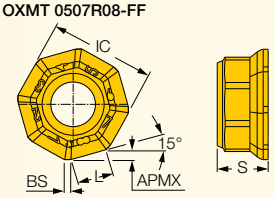
HELIDO 800 LINE FEEDMILL

OXMT 0507

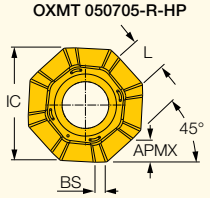
Octagonal High Feed 45° Inserts



OXMT 0507R08-FF



OXMT 050705-R-HP



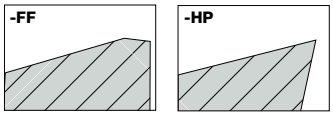
Designation	Dimensions APMX	IC	BS	S	L	Tough ↔ Hard IC830	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
OXMT 0507R08-FF (1)	1.20	14.50	0.80	7.00	5.00		●	0.50-1.20	0.50-1.80
OXMT 050705-R-HP (2)	2.70	15.10	1.24	7.00	4.30	●		0.50-2.50	0.12-0.30

• To be used without a seat • For cutting speed recommendations, see pages 542-547

(1) For high feed milling

(2) 45° edges for austenitic stainless steel and high temperature alloys

For tools, see pages: FF SOF (310) • SOE45 8/16 (38) • SOF45 (222)

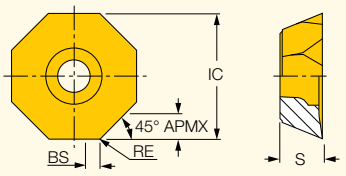


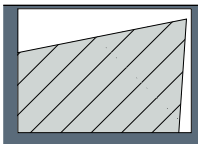
HELIOCTO

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 542-547

(1) Polished rake used for aluminum and titanium

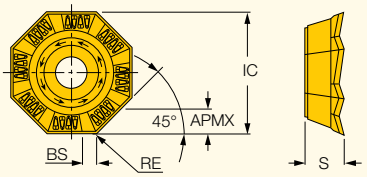
For tools, see pages: HOE-R06 (218) • HOF-R06 (218)

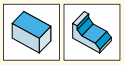
HELIOCTO

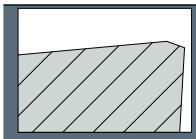
OEMT/OEKT 060405

Octagonal Milling Inserts for General Use









Designation	Dimensions IC	APMX	BS	RE	S	Tough ↔ Hard IC28	IC330	IC830	IC5400	IC808	IC810	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 542-547

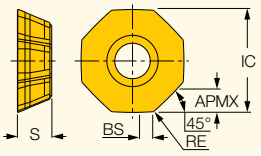
For tools, see pages: HOE-R06 (218) • HOF-R06 (218)

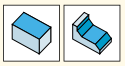
HELIOCTO

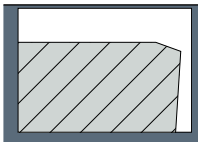
OEMW-AETN

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 542-547

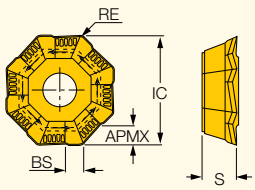
For tools, see pages: HOE-R06 (218) • HOF-R06 (218)

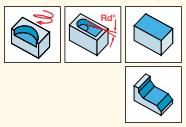
HELIOCTO

OFMT 07

Octagonal Milling Inserts for General Use







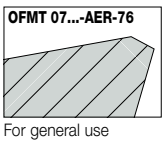
Economical solution

Designation	Dimensions IC	APMX	BS	RE	S	Tough ↔ Hard IC28	IC330	IC328	IC830	IC928	IC910	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

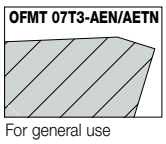
• For cutting speed recommendations, see pages 542-547

(1) Reinforced cutting edge

For tools, see pages: HOF-R07 (219)



For general use



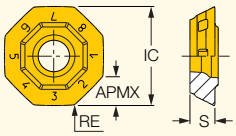
For general use
Reinforced cutting edge

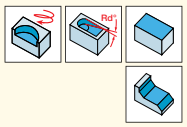
HELIOCTO

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 542-547

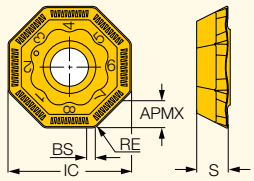
For tools, see pages: HOF-R07 (219)

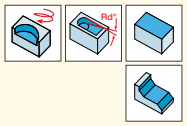
HELIOCTO

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 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

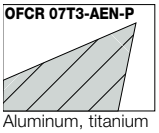
• For cutting speed recommendations, see pages 542-547

(1) For aluminum, titanium and stainless steel

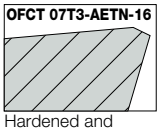
(2) For aluminum, titanium and stainless steel, polished rake.

(3) For hardened and molded steel.

For tools, see pages: HOF-R07 (219)



Aluminum, titanium and stainless steel



Hardened and molded steel

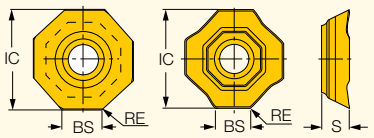


HELIOCTO

OFCR/OFCT-RW/AER (wiper)

Octagonal Milling Inserts with Four Wiper Cutting Edges





OFCT 07T3-RW-16
OFCR 07T3-RW-P

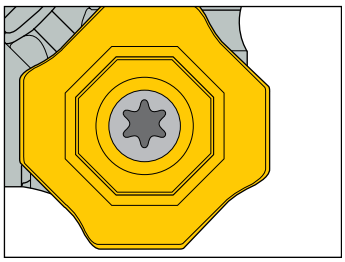
OFCT 07T3-AER

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 542-547

For tools, see pages: HOF-R07 (219)

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

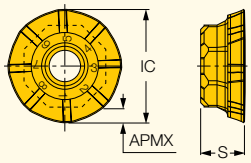


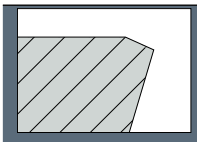
HELIOCTO FEEDMILL

OFMW-FF

Inserts with 8 FEEDMILL Large Radii Segmented Cutting Edges for Fast Feed on HELIOCTO Cutters



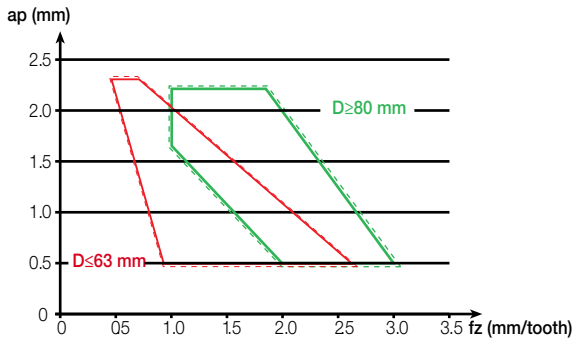




Designation	Dimensions APMX	IC	S	Tough ↔ Hard IC928	IC908	IC910	Recommended Machining Data a_p (mm)	f_z (mm/t)
OFMW 0706R10-FF	2.20	20.40	8.00	●	●	●	1.00-2.20	0.40-1.50

• To be used without a seat • For cutting speed recommendations, see pages 542-547

For tools, see pages: HOF-R07 (219)

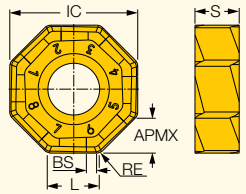


HELIDO 800 LINE

ONMU/ONHU 0706

Double-Sided Octagonal Inserts with 16 Cutting Edges





Designation	Dimensions IC	BS	L	APMX	S	RE	Tough ↔ Hard IC330	IC845	IC830	IC5400	IC808	IC810	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 542-547

(1) For cast iron (left-hand)

(2) For cast iron

(3) Reinforced land for heavy machining

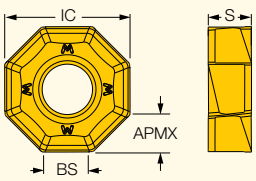
For tools, see pages: SOF45-R18 (229)

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 for mounting on a cutter carrying inserts ONHU 070600-PL-R • For cutting speed recommendations, see pages 542-547

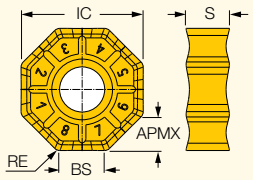
For tools, see pages: SOF45-R18 (229)

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	IC5400	IC808	IC810	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 542-547

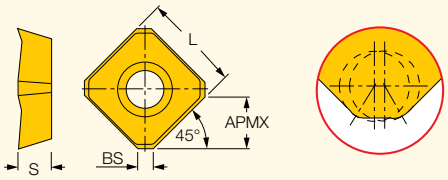
For tools, see pages: SOF45-26 (228) • SOF45WG-R26 (228)

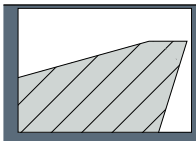
ISCARMILL

SEKT-AF-R

Super Positive Square Milling Inserts for 45° Finishing and Medium Machining of 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 542-547

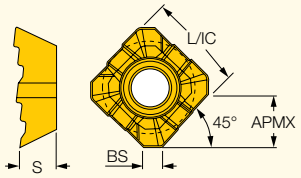
For tools, see pages: F45ST (225)

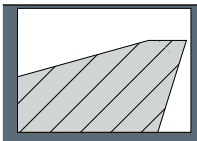
ISOSHRED

SEMT 1204AF-R-HS

Square Milling Inserts with 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 542-547

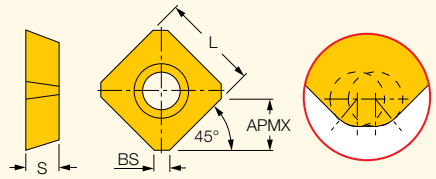
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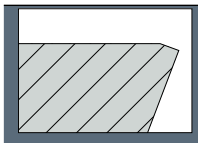
ISCARMILL

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 542-547

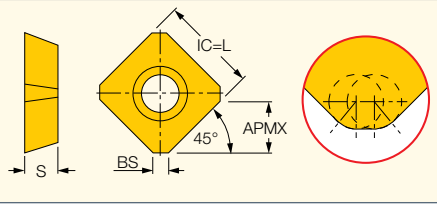
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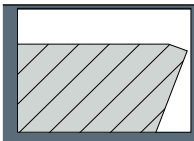
ISCARMILL

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 542-547

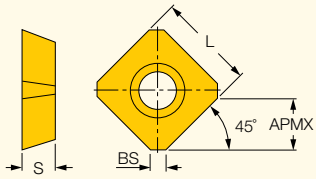
For tools, see pages: F45ST (225)

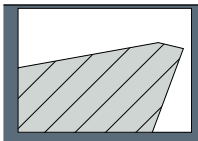
ISCARMILL

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 542-547

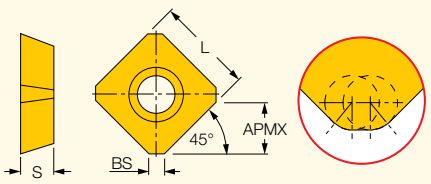
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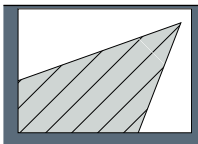
ISCARMILL

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 542-547

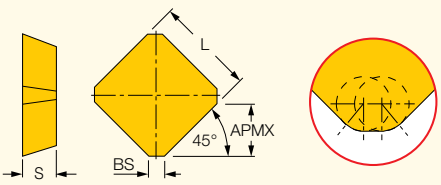
For tools, see pages: F45ST (225)

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 542-547

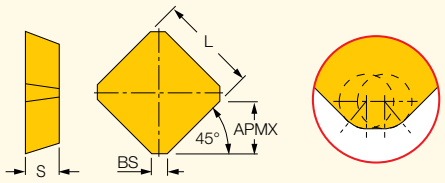
For tools, see pages: F45E (225)

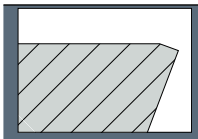
ISCARMILL

SEKR-AF-N-42

Super Positive Square Milling Inserts for 45° Finishing and Medium Machining on 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 542-547

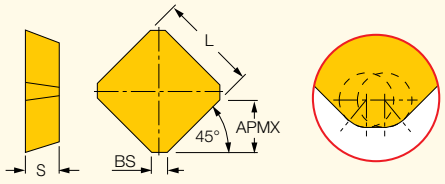
For tools, see pages: F45E (225)

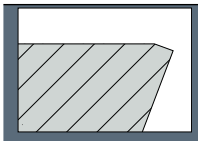
ISCARMILL

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 542-547

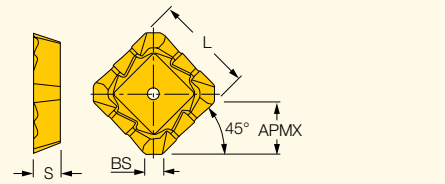
For tools, see pages: F45E (225)

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 542-547

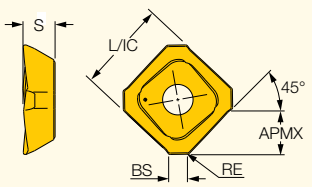
For tools, see pages: F45E (225)

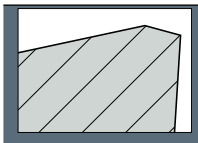
HELIOCTO

SECT/SEMT 1404

Positive Square Inserts for General Soft and Clean Cutting







Designation	Dimensions L	S	BS	APMX	RE	Tough ↔ Hard IC330	IC840	IC830	IC5400	IC808	IC810	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 542-547

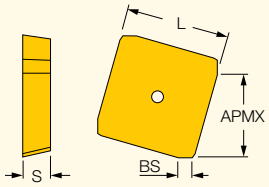
For tools, see pages: HOE-R06 (218) • HOF-R06 (218)

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	1.40	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 542-547

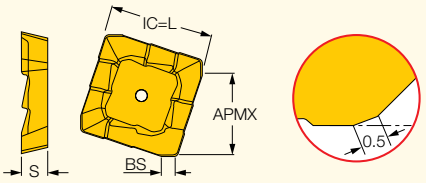
For tools, see pages: F75-M (216)

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 542-547

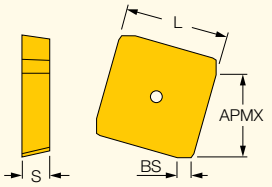
For tools, see pages: F75-M (216)

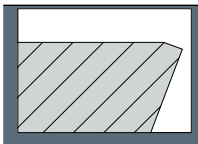
ISCARMILL

SPKR ED..-76

Square Milling Inserts with Ribs
Along 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 542-547

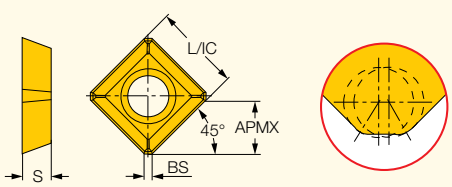
For tools, see pages: F75-M (216)

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 542-547

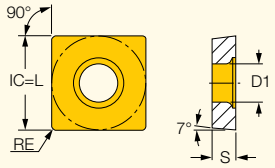
For tools, see pages: E45 / T245 (38)

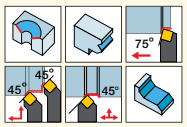
ISOTURN

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 cutting speed recommendations, see pages 542-547

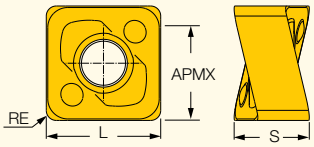
For tools, see pages: E45 / T245 (38)

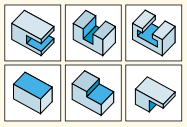
HELISLOT

XNMU 0904PN

Square Inserts with 4 Right- and 4 Left-Hand Cutting Edges







Designation	Dimensions APMX	L	S	RE	Tough ↔ Hard IC830	IC5400	IC808	Recommended Machining Data f_z (mm/t)
XNMU 090408-PNTN	8.20	9.10	5.95	0.80	•	•	•	0.05-0.15

• For cutting speed recommendations, see pages 542-547

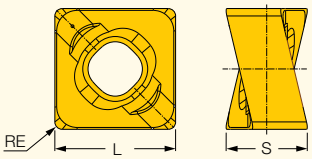
For tools, see pages: ETS-XN09 (340) • FDN-XN09 (349) • SDN-XN09 (357)

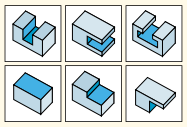
HELISLOT

XNMU 13

Square Inserts with 4 Right- and 4 Left-Hand Cutting Edges







Designation	Dimensions L	S	RE	Tough ↔ Hard IC330	IC845	IC830	IC5400	IC380	IC808	IC810	IC5100	Recommended Machining Data 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 542-547

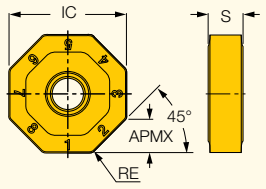
For tools, see pages: ETS-XN13 (340) • FDN-XN13 (350) • SDN-XN13 (357) • SM-XN13 (246) • XNK-XN13 (239)

16MILL

ONHU/ONMU-08-TN/HL

Double-Sided Octagonal Face Milling Inserts for Cast Iron and Rough Applications



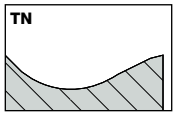


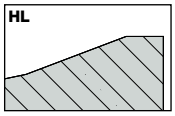
Designation	Dimensions IC	RE	S	APMX	Tough ↔ Hard IC908	IC810	IC910	DT7150	IC5100	IC4100	Recommended Machining Data a_p (mm)	f_z (mm/t)(1)
ONHU 080608-TN	20.20	0.80	6.00	5.50			●	●		●	2.00-5.50	0.20-0.30
ONMU 080608-TN	20.20	0.80	6.00	5.50		●	●	●	●	●	2.00-5.50	0.20-0.30
ONMU 080612-HL	20.20	1.20	6.00	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 542-547

(1) For FEEDMILL tools, see the feed conditions for the FF NM tools

For tools, see pages: F45NM (221) • F45WG (220) • FF NM (309)



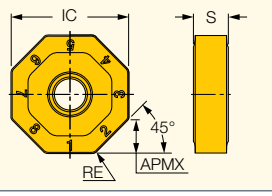


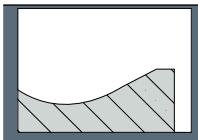
16MILL

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	IC5400	IC808	IC908	IC910	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 542-547

(1) For FEEDMILL tools, see the feed conditions for the FF NM tools

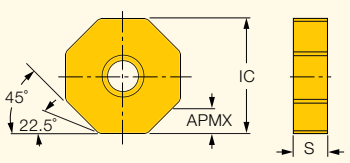
For tools, see pages: F45NM (221) • F45WG (220) • FF NM (309)

16MILL

ONHQ-TN

16MILL Octagonal Double-Sided Ceramic Face Milling Inserts





Designation	Dimensions IC	S	APMX	IS8	Recommended Machining Data a_p (mm)
ONHQ 0806-TN	20.20	6.00	5.50	●	2.00-5.50

• For cutting speed recommendations, see pages 542-547

For tools, see pages: F45NM (221) • F45WG (220)

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 542-547

For tools, see pages: F45NM (221) • F45WG (220)

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 542-547

For tools, see pages: F45NM (221) • F45WG (220)

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 542-547

(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

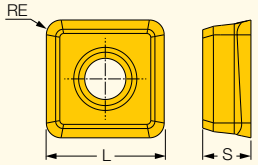
For tools, see pages: F45NM (221) • F45WG (220)

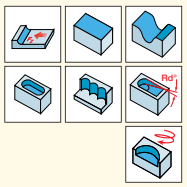
MILL4FEED

FFQ4 SOMT/W 0904

Single-Sided Square Inserts with 4 Cutting Edges for Fast Feed Milling



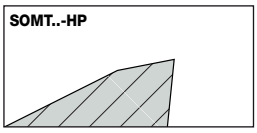


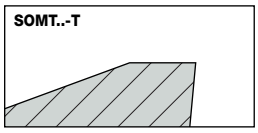


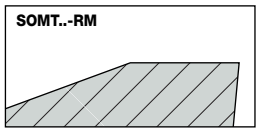
Designation	Dimensions L	S	RE	Tough ↔ Hard IC882	IC830	IC5820	IC808	IC810
FFQ4 SOMT 090412T	8.50	3.90	1.20		•		•	•
FFQ4 SOMT 0904RM-T	8.60	3.80	1.20				•	
FFQ4 SOMT 0904RM-HP	8.60	3.80	1.20	•				
FFQ4 SOMT 090412HP	8.50	3.80	1.20	•	•	•	•	
FFQ4 SOMW 090420T	8.80	3.90	2.00				•	

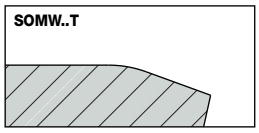
• For side plunging, the initial cutting feed is 0.1 mm/t • T type for steel, ferritic and martensitic stainless steel, cast iron • RM-.. reinforced radius type for machining near straight shoulders wall • HP type for austenitic stainless steel and high temperature alloys • SOMW-T flat insert for interrupted and hard material up to 60 HRC

For tools, see pages: FFQ4 D-09 (301) • FFQ4 D-M-09 (301) • FFQ4 D-W-09 (300)









Averaged Cutting Data for FFQ4-09 Fast Feed Cutters

Workpiece Material: ISO class DIN/ ISO 513	Description	ISCAR mat. group*	Hardness HB	Typical Representstive: AISI/SAE/ ASTM	DIN W.-Nr.	Insert type	Carbide grade	D.O.C. Ap [mm]: Recom-mended	Range	Cutting speed Vc, [m/ min]	Feed fz [mm/tooth]: Recom-mended	Range	Coolant
P	Non-alloysteel	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 alloysteel	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 alloysteel	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 stainless steel	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	IC830	1.0	0.4-1.2	80-140	1.0	0.5-1.2	Wet
							IC808			100-160	1.0	0.5-1.2	
							IC5820			100-160	1.0	0.5-1.3	
							IC882			80-130	1.0	0.5-1.4	
K	Grey cast iron	15-16	250	Class 40	0.6025 (GG25)	T20 / 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	1.2	0.5-1.5	
S	High temperature alloys and titanium	33-35	340	Inconel 718	2.4668	HP	IC830	1.0	0.4-1.2	25-35	0.5	0.5-1.0	Wet
							IC808			25-36	0.5	0.5-1.0	
							IC5820			25-40	0.5	0.5-1.0	
							IC882			25-35	0.5	0.5-1.0	
		36-37	HRC 35-40	AMS R56400	3.7165 (Ti6Al4V ELI)		IC830			40-55	0.6	0.5-1.0	
							IC808			40-55	0.6	0.5-1.0	
							IC5820			30-60	0.6	0.5-1.0	
							IC882			35-55	0.6	0.5-1.0	
H	Hardened steel	38	HRC 45-49	HARDOX 450 plate		SOMW	IC808	1	0.3-1.0	55-75	0.5	0.3-1.0	Dry
			HRC 58-62	D2	1.2379			0.3**	0.3-1.0	50-70	0.3	0.3-0.5	

* ISCAR material group in accordance with VDI 3323 standard

** For better performance it recommended to machine with a width of cut up to 0.4*DC

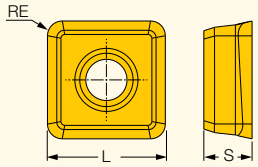
For machining in unstable conditions, the recommended cutting data should be reduced by 20-30%

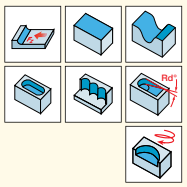
MILL4FEED

FFQ4 SOMT/W 1205

Single-Sided Square Inserts with 4 Cutting Edges for Fast Feed Milling



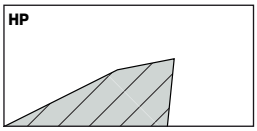


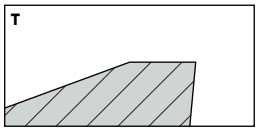


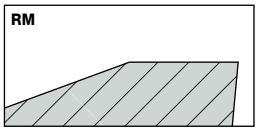
Designation	Dimensions L	S	RE	Tough ↔ Hard IC882	IC830	IC5820	IC808	IC810
FFQ4 SOMT 1205RM-HP	12.70	5.20	1.60	•	•			
FFQ4 SOMT 1205RM-T	12.70	5.20	1.60				•	
FFQ4 SOMT 120516HP	12.70	5.20	1.60	•	•	•	•	
FFQ4 SOMT 120516T	12.70	5.20	1.60		•		•	
FFQ4 SOMT 120516T20	12.70	5.20	1.60					•
FFQ4 SOMW 120530T	13.00	5.30	3.00				•	

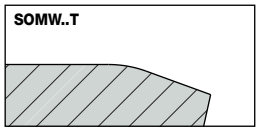
• For side plunging, the initial cutting feed is 0.1 mm/t • T- for steel, ferritic and martensitic stainless steel, cast iron and hardened steel • RM-.. type for interrupted cut and machining near straight shoulders wall • HP- for austenitic stainless steel and high temperature alloys • T20- for grey and nodular cast iron • SOMW-T flat insert for interrupted and hard material up to 60 HRC

For tools, see pages: FFQ4 D-12 (302)









Averaged Cutting Data for FFQ4-12 Fast Feed Cutters

Workpiece Material						Insert type	Carbide grade	D.O.C. Ap [mm]		Cutting speed V_c, [m/min]	Feed f_z [mm/tooth]		Coolant
ISO class DIN/ ISO 513	Description	ISCAR mat. group*	Hardness HB	Typical representstive AISI/SAE/ ASTM	DIN W.-Nr.			Recom-mended	Range		Recom-mended	Range	
P	Non-alloysteel	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 alloysteel	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 alloysteel	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
	Ferritic/ martensitic stainless 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	Austenitic stainless steel	14	200	304L	1.4306	HP	IC830	1.0	0.4-1.5	80-140	1.0	0.5-1.5	Wet
							IC808			100-160	1.0	0.5-1.5	
							IC5820			100-160	1.0	0.5-1.6	
							IC882			80-130	1.0	0.5-1.8	
K	Grey cast iron	15-16	250	Class 40	0.6025 (GG25)	T20 / RM-T	IC810	1.5	0.4-1.5	150-220	1.5	0.5-2.0	Dry
	Nodular cast iron	17-18	200	Class 65-45-12	0.7050 (GGG50)		IC810			120-200	1.5	0.5-2.0	
S	High temperature alloys and titanium	33-35	340	Inconel 718	2.4668	HP	IC830	1.0	0.4-1.5	25-35	0.5	0.5-1.0	Wet
							IC808			25-36	0.5	0.5-1.0	
							IC5820			25-40	0.5	0.5-1.0	
							IC882			25-35	0.5	0.5-1.0	
		36-37	HRC 35-40	AMS R56400	3.7165 (Ti6Al4V ELI)		IC830			40-55	0.6	0.5-1.0	
							IC808			40-55	0.6	0.5-1.0	
							IC5820			30-60	0.6	0.5-1.0	
							IC882			35-55	0.6	0.5-1.0	
H	Hardened steel	38	HRC 45-49	HARDOX 450 plate		SOMW	IC808	1.0	0.3-1.2	55-75	0.5	0.3-1.0	Dry
			HRC 58-62	D2	1.2379			0.5**	0.3-1.2	50-70	0.3	0.3-0.5	

* ISCAR material group in accordance with VDI 3323 standard

** For better performance it recommended to machine with a width of cut up to 0.4*DC

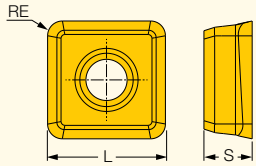
For machining in unstable conditions, the recommended cutting data should be reduced by 20-30%

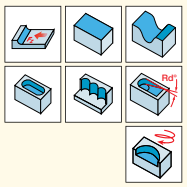
MILL4FEED

FFQ4 SOMT/W 1706

Single-Sided Square Inserts with 4 Cutting Edges for Fast Feed Milling



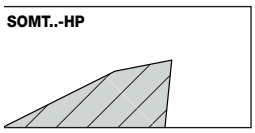


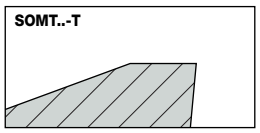


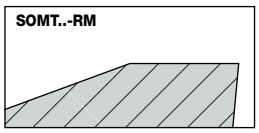
Designation	Dimensions L	S	RE	Tough ↔ Hard IC882	IC830	IC808	IC810
FFQ4 SOMT 1706RM-HP	17.50	6.00	2.50		•		
FFQ4 SOMT 1706RM-T	17.50	6.00	2.50			•	
FFQ4 SOMT 170625HP	17.50	6.00	2.50	•	•	•	
FFQ4 SOMT 170625T	17.50	6.00	2.50		•	•	•
FFQ4 SOMW 170640T	18.00	6.10	4.00			•	

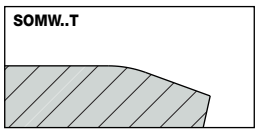
• For side plunging, the initial cutting feed is 0.1 mm/t • T type for steel, ferritic and martensitic stainless steel, cast iron and hardened steel • RM-.. type for interrupted cut and machining near straight shoulders wall • HP type for austenitic stainless steel and high temperature alloys
•SOMW-T flat insert for interrupted and hard material up to 60 HRC

For tools, see pages: FFQ4 D-17 (303)









Averaged Cutting Data for FFQ4-17 Fast Feed Cutters

ISO class DIN/ ISO 513	Workpiece Material: 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]: Recom-mended	D.O.C. Ap [mm]: Range	Cutting speed V_c, [m/min]	Feed f_z [mm/tooth]: Recom-mended	Feed f_z [mm/tooth]: Range	Coolant
P	Non-alloysteel	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 alloysteel	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 alloysteel	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
	Ferritic/ martensitic stainless 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	Austenitic stainless steel	14	200	304L	1.4306	HP	IC830	2.0	0.4-3.0	80-140	1.0	0.5-1.5	Wet
							IC808			100-160	1.0	0.5-1.5	
							IC5820			100-160	1.0	0.5-1.6	
							IC882			80-130	1.0	0.5-1.8	
K	Grey cast iron	15-16	250	Class 40	0.6025 (GG25)	T20 / RM-T	IC810	3.0	0.4-3.0	150-220	1.5	0.5-2.0	Dry
	Nodular cast iron	17-18	200	Class 65-45-12	0.7050 (GGG50)		IC810			120-200	1.5	0.5-2.0	
S	High temperature alloys and titanium	33-35	340	Inconel 718	2.4668	HP	IC830	1.5	0.4-3.0	25-35	0.5	0.5-1.0	Wet
							IC808			25-36	0.5	0.5-1.0	
							IC5820			25-40	0.5	0.5-1.0	
							IC882			25-35	0.5	0.5-1.0	
		36-37	HRC 35-40	AMS R56400	3.7165 (Ti6Al4V ELI)		IC830			40-55	0.6	0.5-1.0	
							IC808			40-55	0.6	0.5-1.0	
							IC5820			30-60	0.6	0.5-1.0	
							IC882			35-55	0.6	0.5-1.0	
H	Hardened steel	38	HRC 45-49	HARDOX 450 plate		SOMW	IC808	1	0.3-2.5	55-75	0.5	0.3-1.0	Dry
			HRC 58-62	D2	1.2379			0.5**	0.3-2.5	50-70	0.3	0.3-0.5	

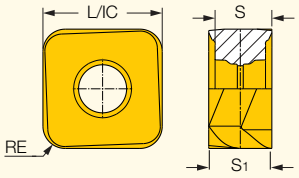
* ISCAR material group in accordance with VDI 3323 standard
** For better performance it recommended to machine with a width of cut up to 0.4*DC
For machining in unstable conditions, the recommended cutting data should be reduced by 20-30%

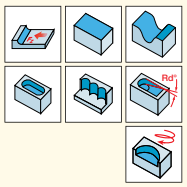
NEOFEED HIGH FEED LINE

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
FFQ8 SZMU 120520HP	12.00	5.85	6.50	2.00	•	•	•	
FFQ8 SZMU 120520T	12.00	5.85	6.50	2.00		•	•	•

- 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 (303) • MFQ8-12 (304)

Averaged Cutting Data for FFQ8 Fast Feed Cutters

Workpiece material						Insert type	Carbide grade	Cutting speed v_c [m/min]	Fast feed cutters (FF)		Moderate feed (MF)		Coolant
ISO class DIN/ ISO 513	Description	ISCAR mat. group*	Hardness HB	Typical representstive AISI/SAE/ ASTM	Typical representstive DIN W.-Nr.				D.O.C a_p [mm]	Feed f_z [mm/tooth]	D.O.C a_p [mm]	Feed f_z [mm/tooth]	
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	Grey 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	0.20-0.50	0.5-3.0	0.20-0.50	Dry

* ISCAR material group in accordance with VDI 3323 standard

** Quenched and tempered

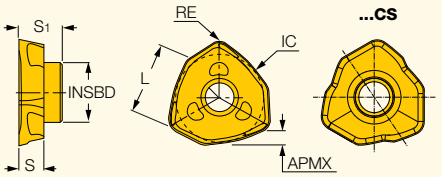
For machining in unstable conditions, the recommended cutting data should be reduced by 20-30%

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	1.00		●	●	●		0.30-1.00	0.30-1.00
FF WOMT 060212T-M	9.86	7.00	2.70	4.20	5.60	2.00	3.00	1.00			●	●		0.30-1.00	0.70-1.50
FF WOMW 060212T-M (1)	9.86	7.00	2.70	4.70	5.60	2.00	3.00	1.00			●			0.50-1.00	0.50-3.50
FF WOCT 09T320T	14.50	10.60	3.95	6.50	9.30	2.00	4.00	1.50	●	●	●			0.70-1.50	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				●		1.50-2.00	0.70-1.20
FF WOMT 09T320T	14.50	10.60	3.95	6.50	9.30	2.00	4.00	1.50			●	●	●	0.70-1.50	0.70-2.00
FF WOMW 09T320T (1)	14.50	10.60	4.00	6.50	9.30	2.00	4.00	1.50			●			0.80-1.50	0.50-3.50

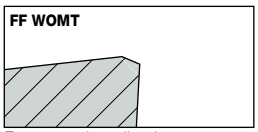
- For cutting speed recommendations, see pages 542-547

(1) Used for heavy machining, interrupted cuts and for hardened steel.

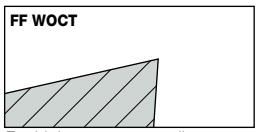
(2) Chip splitting insert - effective at depths of cut larger than 0.75 mm.

(3) Radius for programming

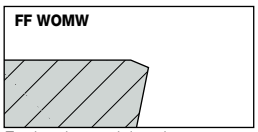
For tools, see pages: FF EW (304) • FF EW-CF (305) • FF EW-M (305) • FF FW (309)



For general applications



For high temperature alloys
and stainless steel



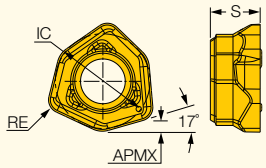
For hard material and
interrupted cut

MICRO3FEED
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 cutting speed recommendations, see pages 542-547

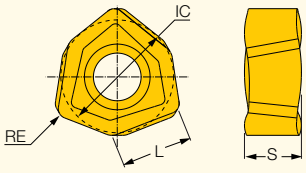
For tools, see pages: FFT3 EFM-03 (293) • FFT3 EFM-MM 03 (293)

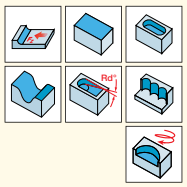
HELI6FEED UPFEED LINE
FEEDMILL

H600 WXCU

Double-Sided Inserts with 6 Cutting Edges for Fast Feed Machining



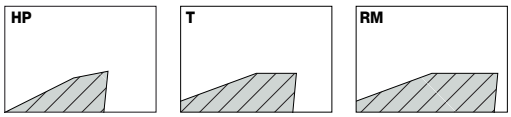




Designation	Dimensions IC	L	S	RE(4)	Tough ↔ Hard IC882	IC330	IC830	IC5820	IC380	IC808	IC810
H600 WXCU 040310HP (1)	6.25	4.13	3.10	0.96		●	●				
H600 WXCU 040310T (2)	6.25	4.13	3.10	0.96			●			●	
H600 WXCU 05T312HP (1)	8.33	5.50	4.20	1.20	●	●	●	●			
H600 WXCU 05T312T (2)	8.33	5.50	4.20	1.20			●			●	●
H600 WXCU 070515HP (1)	11.14	7.16	5.90	1.50	●	●	●	●	●		
H600 WXCU 070515T (2)	11.14	7.16	5.90	1.50			●			●	●
H600 WXCU 080612HP (1)	13.65	8.80	6.80	1.20	●	●	●		●	●	
H600 WXCU 080612T (2)	13.65	8.80	6.80	1.20			●			●	●
H600 WXCU 080616RM (3)	13.65	8.80	6.80	1.60			●			●	

(1) For stainless steel and high temperature alloys
(2) For alloy steel and cast iron, "I" mark on top rake face for identification
(3) For interrupted cut and hard materials
(4) For insert radius for programming see table below

For tools, see pages: FF EWX (297) • FF EWX-M (298) • FF EWX-MM (299) • FF FWX (306) • MF EWX (299) • MF EWX-M (300) • MF FWX (307)





Inserts	Cutting Recommendations for FF Tools ap (mm)	fz (mm/t)	Radius for Programming on FF Tools	Cutting Recommendations for MF Tools ap (mm)	fz (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



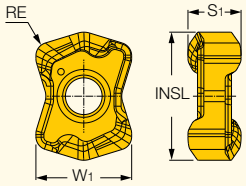
Inserts	Cutting Recommendations for FF Tools in plunging ae (mm)	fz (mm/t)	Radius for Programming on FF Tools	Cutting Recommendations for MF Tools in plunging ae (mm)	fz (mm/t)	Radius for Programming on MF Tools
H600 WXCU 040310HP	3.7	0.04-0.08	1.9	3.5	0.04-0.08	2.6
H600 WXCU 040310T	3.7	0.04-0.10	1.9	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

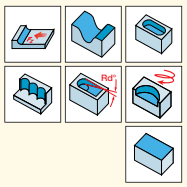
LOGIQ4FEED HIGH FEED MILLING

FFX4 XNMU-04

"Bone Shaped" Inserts with 4 Cutting Edges for Fast Feed Milling







Designation	Dimensions INSL	S1	RE	W1	Tough ↔ Hard IC882	IC840	IC830	IC5820	IC808	IC810	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	0.20-0.90
FFX4 XNMU 040310RM-HP	9.58	3.97	1.00	7.16	●				●		0.20-0.80	0.20-0.90
FFX4 XNMU 040310T	9.58	3.95	1.00	7.16			●		●	●	0.20-0.80	0.40-1.20
FFX4 XNMU 040310RM-T	9.58	3.95	1.00	7.16					●		0.20-0.80	0.40-1.20

• For side plunging, the initial cutting feed is 0.1 mm/t • HP- for austenitic stainless steel, titanium and high temperature alloys • T- for steel, ferritic and martensitic stainless steel, cast iron and hardened steel • RM-reinforced type insert

For tools, see pages: FFX4 ED (294) • FFX4 ED-M (294) • FFX4 ED-MM (295) • FFX4 FD-04 (295)

Averaged 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	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	1.0402	T	IC808	0.2-0.8	150-220	0.2-1.0	Dry
							IC830		140-200	0.2-1.2	Dry/Wet
	Low alloy steel	6-8	260-300	4340	1.6582		IC808		140-200	0.2-0.9	Dry/Wet
							IC830		120-180	0.2-1.1	Dry/Wet
		9	HRC 35-42**	3135	1.5710		IC808		130-180	0.2-0.8	Dry
							IC830		120-160	0.2-1.0	Dry/Wet
	High alloy steel	10-11	200-220	H13	1.2344		IC808		120-170	0.2-0.8	Dry
							IC830		100-150	0.2-0.9	Dry/Wet
	Ferritic/ martensitic stainless steel	12-13	200	420	1.4021		IC808		110-160	0.2-0.8	Dry
							IC830		100-150	0.2-0.9	Dry/Wet
M	Austenitic stainless steel	14	200	304L	1.4306	HP	IC830	0.2-0.8	80-120	0.2-0.9	Wet
							IC840		80-140	0.2-0.8	
							IC5820		100-160	0.2-0.7	
							IC882		80-130	0.2-0.8	
K	Grey cast iron	15-16	250	Class 40	0.6025 (GG25)	T	IC810	0.2-0.8	150-220	0.4-1.2	Dry
	Nodular cast iron	17-18	200	Class 65-45-12	0.7050 (GGG50)		IC810		120-200	0.4-1.2	
S	High temperature alloys	33-35	340	Inconel 718	2.4668	HP	IC882	0.2-0.8	20-30	0.2-0.7	Wet
							IC5820		25-35	0.2-0.6	
							IC840		25-35	0.2-0.6	
							IC830		25-30	0.2-0.7	
		36-37	HRC 30-32	AMS R56400	3.7165 (Ti6Al4V ELI)		IC882		25-35	0.2-0.7	
							IC5820		25-40	0.2-0.6	
							IC840		25-35	0.2-0.6	
							IC830		20-30	0.2-0.7	
H	Hardened steel	38	HRC 45-49	HARDOX 450 plate		T	IC808	0.2-0.8	50-75	0.2-0.5	Dry

* ISCAR material group in accordance with VDI 3323 standard

** Quenched and tempered

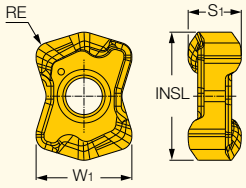
For machining in unstable conditions, the recommended cutting data should be reduced by 20-30%

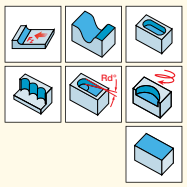
LOGIQ4FEED HIGH FEED MILLING

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	0.20-0.60
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 (296)

Averaged Cutting Data for FFX4 Fast Feed Cutters Size 08

ISO class DIN/ISO 513	Workpiece material Description	ISCAR mat. group*	Hardness HB	Typical representstive 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/Wet
							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	Grey 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	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	(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

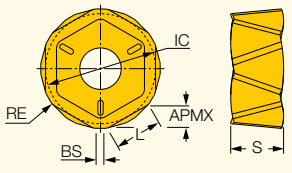
For machining in unstable conditions, the recommended cutting data should be reduced by 20-30%

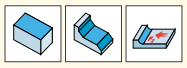
HELI12FEED UPFEED LINE

H1200 HXCU 0606

Double-Sided Hexagonal Inserts with 12 Cutting Edges







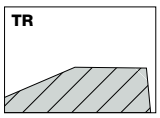
Designation	Dimensions APMX	L	BS	RE	IC	S	Tough ↔ Hard IC845	IC840	IC830	IC5500	IC808	IC810	Recommended Machining Data a_p (mm)	f_z (mm/t)
H1200 HXCU 0606-HPR (1)	3.00	6.43	1.06	1.60	14.88	7.15		●	●				0.20-3.00	0.08-0.40
H1200 HXCU 0606-TR (2)	3.00	6.43	1.06	1.60	14.88	7.15	●		●	●	●	●	0.20-3.00	0.25-0.65

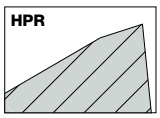
- For cutting speed recommendations, see pages 542-547

(1) HPR - for stainless steel and high temperature alloys

(2) TR - for steel and cast iron

For tools, see pages: MF FHX-R06 (308)



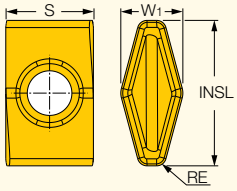


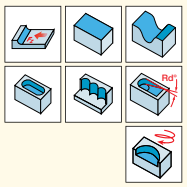
TANG4FEED HI-FEED MILLING

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	IC5400	IC5500	IC808	IC810	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 (308)

Averaged Cutting Data for FFV-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	Grey 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	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

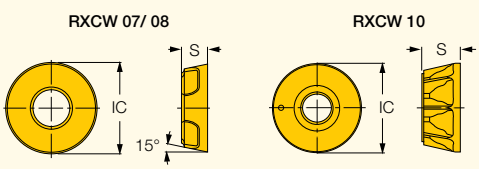
** Quenched and tempered

For machining in unstable conditions, the recommended cutting data should be reduced by 20-30%

ISCARMILL

RXCW
Precision Ground Flat Rake Round Milling Inserts

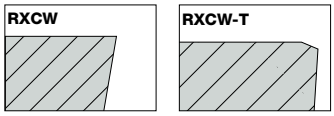




Designation	Dimensions IC	S	Tough ↔ Hard IC328	IC928	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
RXCW 0702	7.00	2.40	•	•	•	1.00-2.50	0.05-0.20
RXCW 0702-T	7.00	2.40			•	1.00-2.50	0.05-0.20
RXCW 0802	8.00	2.40	•	•	•	1.00-2.50	0.05-0.20
RXCW 0802-T	8.00	2.40			•	1.00-2.50	0.05-0.20
RXCW 10T3	10.00	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 542-547

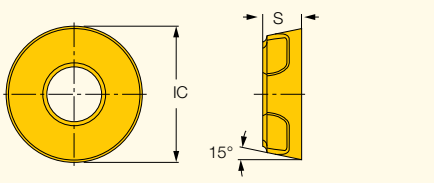
For tools, see pages: ER (277) • ER-M (277)



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

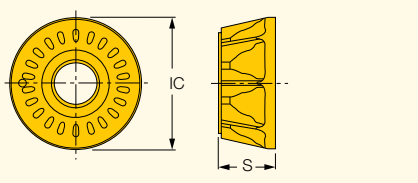
• For cutting speed recommendations, see pages 542-547

For tools, see pages: ER (277) • ER-M (277)

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

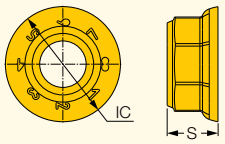
• Star-shaped bottom for indexing and to prevent insert rotation • For cutting speed recommendations, see pages 542-547

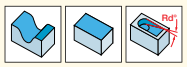
For tools, see pages: ER (277) • ER-M (277)

HELIDO ROUNDMILL 800 LINE

RXMT 1607
Round Milling Inserts



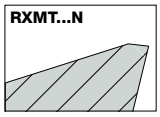


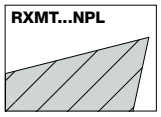


Designation	Dimensions IC	S	IC830	Recommended Machining Data a_p (mm)	f_z (mm/t)
RXMT 1607N	16.00	7.00	•	0.50-8.00	0.08-0.30
RXMT 1607NPL	16.00	7.00	•	0.50-8.00	0.08-0.30

• For cutting speed recommendations, see pages 542-547

For tools, see pages: SOE45 8/16 (38) • SOF45 (222)

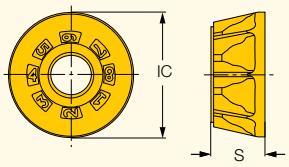


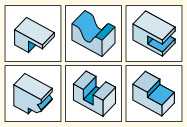


CHAMMILL

R90CW
Round Flat Rake Inserts
for Profile Milling









Designation	Dimensions IC	S	IC908	Recommended Machining Data a_p (mm)	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

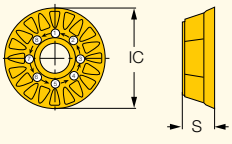
• For cutting speed recommendations, see pages 542-547

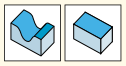
For tools, see pages: ER-M (277)

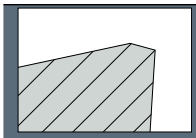
HELIOCTO

REMT-76
Round Milling Inserts with
Ribs on the Rake Face









Designation	Dimensions IC	S	Tough ↔ Hard IC330	IC830	Recommended Machining Data a_p (mm)	f_z (mm/t)
REMT 1505-LM-76	15.87	5.24	•	•	3.00-7.00	0.12-0.20

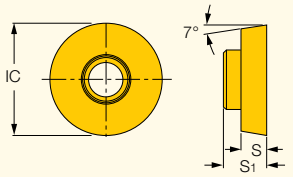
• For cutting speed recommendations, see pages 542-547

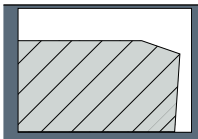
For tools, see pages: HOE-R06 (218) • HOF-R06 (218)

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

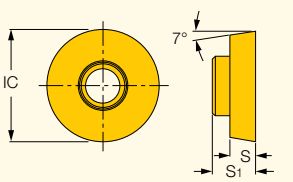
• For cutting speed recommendations, see pages 542-547

For tools, see pages: ERW (279) • ERW-M (280) • FRW (281)

MILLSHRED ROUND LINE

RCMT/RCCT-MO
Round Positive Rake Milling Inserts

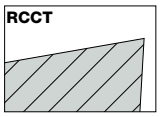


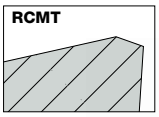


Designation	Dimensions IC	S	S1	Tough ↔ Hard IC882	IC328	IC928	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
RCCT 1206MO	12.00	4.00	6.40	●	●	●	●	2.50-5.00	0.15-0.40
RCCT 1206MO-T	12.00	4.00	6.40	●		●		2.50-5.00	0.15-0.40
RCMT 1607MO	16.00	5.00	7.90			●	●	3.00-6.00	0.15-0.40
RCMT 2009MO	20.00	6.00	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 542-547

For tools, see pages: ERW (279) • ERW-M (280) • FRW (281)





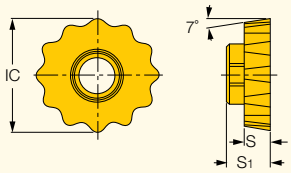


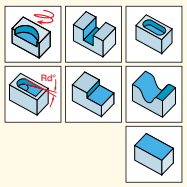
MILLSHRED ROUND LINE

RCMT/RCMW/RCCW-FW

Fully Effective Serrated Inserts with Four Indexing Orientation Options







Designation	Dimensions IC	S	S1	Tough ↔ Hard 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 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-T20 (3)	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-T20 (3)	16.00	5.00	7.90		●		●		3.00-6.00	0.20-0.35
RCMW 1607-T-FPW (4)	16.00	5.00	7.90				●		3.00-6.00	0.20-0.35
RCMW 1607-T-FW (5)	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-T20 (3)	20.00	6.00	9.40		●				4.00-8.00	0.20-0.35
RCMW 2009-T-FW (5)	20.00	6.00	9.40		●				4.00-8.00	0.20-0.35

- For cutting speed recommendations, see pages 542-547

(1) For alloyed and stainless steel and exotic materials.

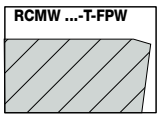
(2) For austenitic stainless steel, exotic materials and aluminum.

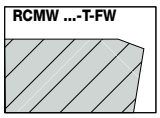
(3) For martensitic stainless steel

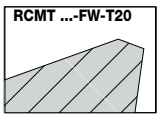
(4) For hardened steel

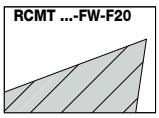
(5) For tool and die steel and for cast iron

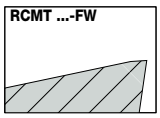
For tools, see pages: ERW (279) • ERW-M (280) • FRW (281)









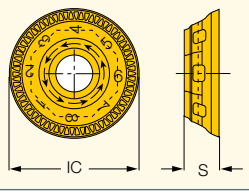


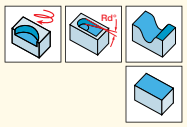
HELIOCTO

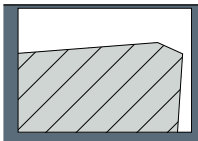
RFMT 1905-76

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

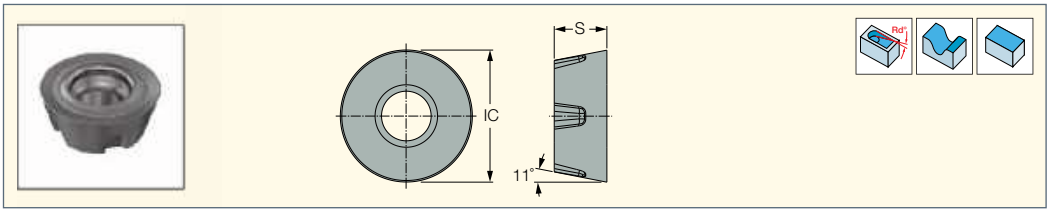
- For cutting speed recommendations, see pages 542-547

For tools, see pages: HOF-R07 (219)

ROUNDMILL

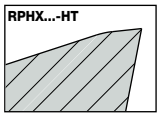
RPHX/RPMX

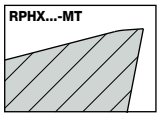
Round Milling Inserts with Specially Shaped Indexing Grooves



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-MT5	10.00	3.30		●	0.50-3.10	0.15-0.25
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

For tools, see pages: FRMT (278)



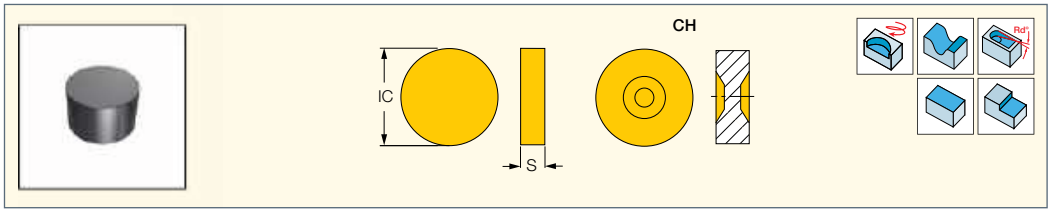




ISOTURN

RNGN-Ceramic

Double-Sided Round Ceramic Inserts for Machining Cast Iron, Nickel Based Alloys and Hardened Steel



Designation	Dimensions IC	S	Tough ↔ Hard IW7	IS35	IS25	IN23	IN22	IN420	Recommended Machining Data a_p (mm)	f (mm/rev)
RNGN 090300T	9.52	3.18	●				●		0.10-2.00	0.07-0.20
RNGN 090400T	9.52	4.76	●						0.10-2.00	0.07-0.20
RNGN 120400T	12.70	4.76	●				●	●	0.10-3.50	0.07-0.50
RNGN 120700 S6 (1)	12.70	7.94	●						0.10-2.00	---
RNGN 120700E	12.70	7.94	●	●	●				0.10-2.00	0.07-0.20
RNGN 120700E-CH (2)	12.70	7.94		●	●				0.10-2.00	0.07-0.20
RNGN 120700T	12.70	7.94	●	●	●	●	●	●	0.10-4.50	0.07-0.50
RNGN 120700T-CH (2)	12.70	7.94		●	●				0.10-4.50	0.07-0.50
RNGN 120700TE	12.70	7.94		●	●				0.10-4.50	0.07-0.50
RNGN 120700T02020	12.70	7.94	●						0.10-2.00	0.07-0.20
RNGN 150700T	15.88	7.94	●						0.10-3.00	0.07-0.20
RNGN 190700T	19.05	7.94	●						0.10-3.00	0.07-0.20
RNGN 190700TE	19.05	7.94		●	●				0.10-3.00	0.07-0.20

(1) For milling nickel based superalloys; reference recommendations for milling Inconel 718: 0.12 mm/t 900-1000 m/min

(2) Insert with a dimple

For tools, see pages: FRN (278)

Recommended Ceramic Grade and Machining Data for Milling

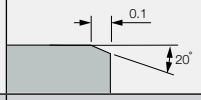
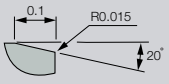
ISO class DIN/ISO 513	Workpiece material Description	ISCAR mat group	Grade	Cutting Speed & Feed Cutting speed V_c (m/min)	Feed per tooth f_z (mm/t)	Coolant
P	Steel	1-13	IN23	300-600	0.05-0.15	Dry
K	Cast iron	15-18	IN22	700-1200	0.05-0.15	Dry
S	Ni or Co high temperature alloys	33-35	IS35	400-1000	0.05-0.2	Dry
			IS25	600-1300	0.05-0.2	Dry
			IW7	1000-1500	0.05-0.2	Dry

*According to VDI 3323 standard.

Recommended range of depth of cut is 0.5-3 mm.

The attached table provides recommended machining data. For milling is unstable conditions the limit values in the table data should be reduced by 20-30%.

Edge preparation types

Type	Figure	Cutting Condition Normal	Unfavorable
E		●	○
T		◐	◐
TE		○	●

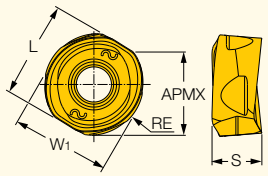
● - Most recommended
◐ - Second choice
○ - May be used

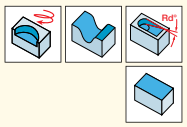
HELIDO ROUND H400 LINE

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

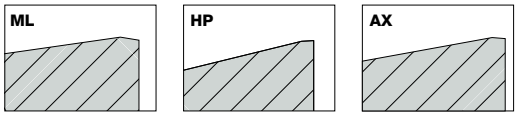
- For cutting speed recommendations, see pages 542-547

(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 (282) • H400 ER-12 (282) • H400 ER-M (283) • H400 FR-10 (283) • H400 FR-12 (284) • H400 FR-16 (285)

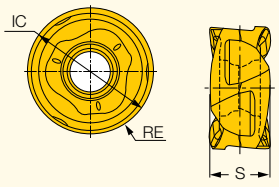


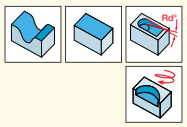
HELIDO ROUND H606 LINE

H606 RXCU 1206

Double-Sided Inserts with Six 6 mm Radius Cutting Edges for Profile Milling







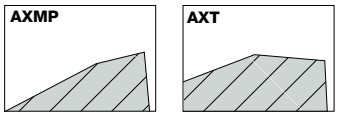
Designation	Dimensions IC	RE	S	Tough ↔ Hard IC330	IC830	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
H606 RXCU 1206-AXMP (1)	12.20	6.00	5.90	●	●	●	2.00-6.00	0.10-0.40
H606 RXCU 1206-AXT (2)	12.20	6.00	5.90		●	●	2.00-6.00	0.10-0.40

- For cutting speed recommendations, see pages 542-547

(1) For stainless steel and high temperature alloys

(2) For steel and cast iron applications

For tools, see pages: H606 ER-M (285) • H606 FR-12 (286)

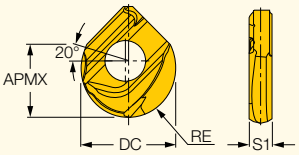


BALLPLUS

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 542-547

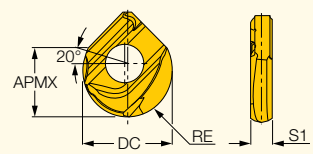
For tools, see pages: HCM D10 (262) • HCM D12 (262) • HCM D16 (262) • HCM D20 (263) • HCM D25 (263) • HCM-M (264) • HCM-MM (265)

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 542-547

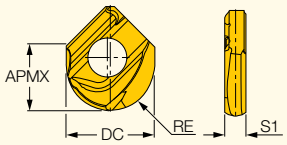
For tools, see pages: HCM D12 (262) • HCM D16 (262) • HCM D20 (263) • HCM D25 (263) • HCM-M (264) • HCM-MM (265)

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 542-547

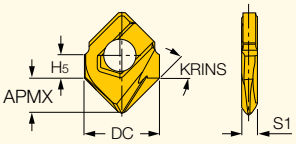
For tools, see pages: HCM D10 (262) • HCM D12 (262) • HCM D16 (262) • HCM D20 (263) • HCM D25 (263) • HCM-M (264) • HCM-MM (265)

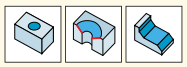
BALLPLUS

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 542-547

(1) Edge angle related to the wiper

For tools, see pages: HCM D12 (262) • HCM D16 (262) • HCM D20 (263) • HCM D25 (263) • HCM-M (264) • HCM-MM (265)



Chamfering and Deburring



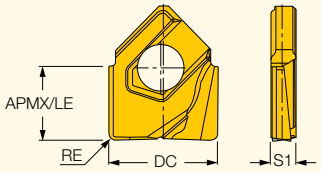
Countersinking

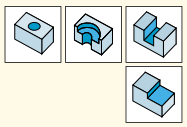
BALLPLUS

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 542-547

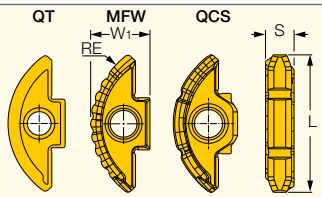
For tools, see pages: HCE (23) • HCE-MM (23) • HCM D12 (262) • HCM D16 (262) • HCM D20 (263) • HCM D25 (263) • HCM-M (264) • HCM-MM (265)

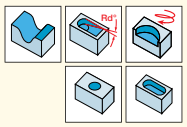
DROPMILL
3 FLUTE BALL NOSE

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 and finish applications • QT - Round edge for finishing applications • For cutting speed recommendations, see pages 542-547

[1] Radius generated on workpiece

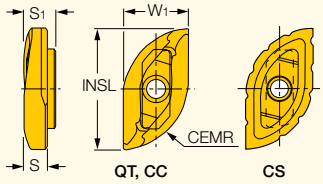
For tools, see pages: BLP Endmills (265) • BLP Shell Mill (266) • BLP-M (266)

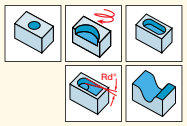
DROPMILL

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	9.60	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 542-547

[1] Center Cutting

[2] Not recommended for stainless steel and high temperature alloys

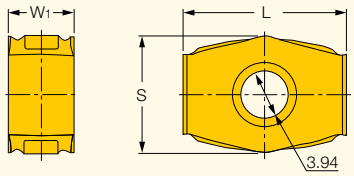
[3] Radius generated on workpiece

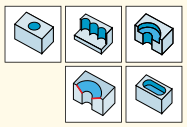
For tools, see pages: BCM (267) • BCM-M (268) • BCM-MM (268)

ISCARPLUNGER

PLHT
Tangentially Clamped Inserts with 4 Cutting Edges for Plungers





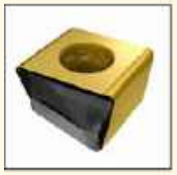


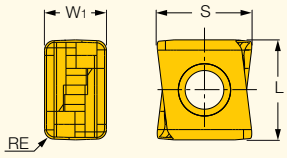
Designation	Dimensions W1	L	S	Tough ↔ Hard IC328	IC908	Recommended Machining Data f_z (mm/t)
PLHT 1305-PDX	5.45	13.70	9.95	●	●	0.12-0.12

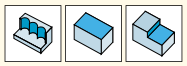
• For cutting speed recommendations, see pages 542-547

TANGPLUNGE
PLUNGING LINE

HTP LN.. 0604
Tangentially Clamped Inserts with 4 Cutting Edges for Plungers





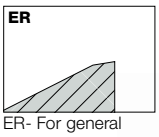


Designation	Dimensions W1	L	S	RE	Tough ↔ Hard IC330	IC830	IC808	IC810	IC07	Recommended Machining Data f_z (mm/t)
HTP LNAR 0604 FR-P	4.06	6.50	6.77	0.80					●	0.05-0.15
HTP LNHT 0604 ER	4.06	6.50	6.77	1.00	●	●	●	●		0.08-0.12
HTP LNHT 0604 ETR	4.06	6.50	6.77	1.00	●	●	●			0.08-0.12
HTP LNMT 0604 ER (1)	4.06	6.50	6.84	0.60		●	●			0.08-0.15

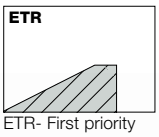
• FR-P-For machining aluminum, ER- For general applications, ETR- First priority for hardened steel • For cutting speed recommendations, see pages 542-547

(1) Mounting this insert increases tool diameter by 0.2 mm

For tools, see pages: HTP-LN06 (252) • HTP-M-LN06 (252)



ER- For general applications



ETR- First priority for hardened steel

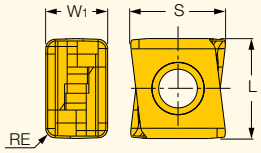


TANGPLUNGE PLUNGING LINE

HTP LN.. 1006

Tangentially Clamped Inserts with 4 Cutting Edges for Plungers





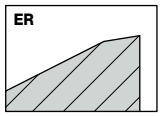
Designation	Dimensions W1	L	S	RE	Tough ↔ Hard IC330	IC830	IC808	IC810	IC07	Recommended Machining Data f_z (mm/t)
HTP LNAR 1006 FR (1)	6.50	10.50	10.13	1.00			●			0.05-0.15
HTP LNAR 1006 FR-P	6.50	10.50	10.13	1.00					●	0.05-0.15
HTP LNHT 1006 ER	6.50	10.50	9.93	1.00	●	●	●	●		0.10-0.15
HTP LNHT 1006 ETR	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 542-547

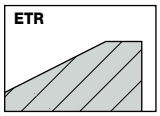
(1) FR - Sharp cutting edge for unstable conditions and for ISO S material

(2) Mounting this insert increases tool diameter by 0.1 mm

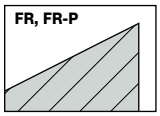
For tools, see pages: HTF-R-LN10 (197) • HTP-LN10 (253) • HTP-M-LN10 (253) • HTP-R-LN10 (254)



ER- For general applications



ETR- First priority for hardened steel



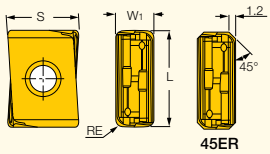
FR-P- For machining aluminum

TANGPLUNGE PLUNGING LINE

HTP LN.. 1606

Tangentially Clamped Inserts with 4 Cutting Edges for Plungers



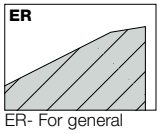


45ER

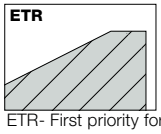
Designation	Dimensions W1	L	S	RE	Tough ↔ Hard IC328	IC928	IC908	IC810	IC910	IC07	Recommended Machining Data f_z (mm/t)
HTP LNAR 1606 FR-P	6.50	16.50	12.28	1.20						●	0.05-0.15
HTP LNHT 1606 ER	6.50	16.50	12.07	1.20	●	●	●		●		0.10-0.20
HTP LNHT 1606 ETR	6.50	16.50	12.03	1.20		●	●				0.10-0.20
HTP LNHT 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 542-547

For tools, see pages: HTP-R-LN16 (254)



ER- For general applications



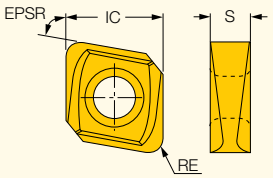
ETR- First priority for hardened steel

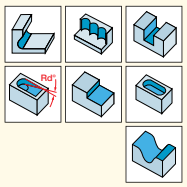
TORMILL

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)
CNMT 070308-MM (1)	7.00	0.80	4.00	80.0	•		0.80-4.00	0.12-0.30
CNHT 070305	7.00	0.50	3.60	80.0		•	0.10-1.50	0.10-0.25
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 542-547

(1) Do not use on E93CN tools

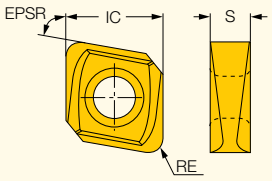
For tools, see pages: E90CN (16) • E90CN-M (15) • E93CN-07 (269) • E93CN-M-07 (269) • E93CN-MM-07 (270)

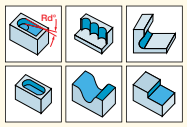
TORMILL

ENHT

Toroidal Bull Nose
Peripherally Ground Inserts
with 4 Cutting Edges







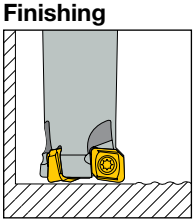
Designation	Dimensions IC	RE	S	EPSR	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
ENHT 100408	10.50	0.80	4.20	75.0	•	0.10-1.50	0.10-0.25
ENHT 100410	10.50	1.00	4.20	75.0	•	0.10-1.50	0.10-0.25
ENHT 100415	10.50	1.50	4.20	75.0	•	0.10-1.50	0.10-0.25
ENHT 100420	10.50	2.00	4.20	75.0	•	0.10-1.50	0.10-0.25
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 542-547

For tools, see pages: E93CN-10 (269) • E93CN-M-10 (270) • F93CN-10 (271)

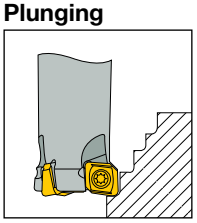
Machining Recommendations

Finishing



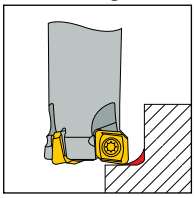
	Light	Medium	Heavy
a_p	0.1	0.5	1-1.5
f mm/t	0.25	0.15	0.1

Plunging



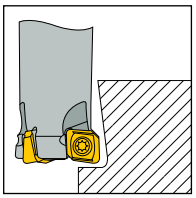
		Light	Medium	Heavy
a_e	CNHT	1	3	4.5
	ENHT	1	4	8.5
f mm/t		0.12	0.1	0.08

Machining Small Corner Radii



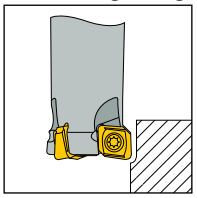
	Light	Medium	Heavy
a_p	0.1	0.5	1-2
a_e	0.1	0.5	1-2
f mm/t	0.25	0.15	0.1

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

Machining Long Unsupported Parts

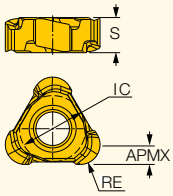


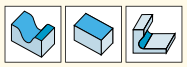
	Light	Medium	Heavy
a_p	0.1	0.5	2
a_e	0.1	0.5	0.5
f mm/t	0.25	0.15	0.1

TR6 TNCU/MU

Double-Sided Inserts with Six Round Cutting Edges, Available in 0.5 up to 3.0 mm Corner Radii







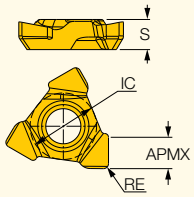
Designation	Dimensions RE	APMX	IC	S	Tough ↔ Hard IC882	IC830	IC808	IC908	Recommended Machining Data a_p (mm)	f_z (mm/t)
TR6 TNCU 070205	0.50	0.50	5.30	2.50		●	●		0.20-0.50	0.10-0.30
TR6 TNCU 070210	1.00	1.00	5.30	2.50		●	●		0.20-1.00	0.10-0.30
TR6 TNMU 070215	1.50	1.50	5.30	2.50		●	●		0.20-1.50	0.10-0.30
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

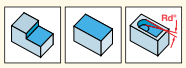
• For cutting speed recommendations, see pages 542-547
For tools, see pages: TR6 ER (272) • TR6 ER-M (273) • TR6 FR (275)

TR90 TXMT

Single-Sided Inserts with Three Cutting Edges for 90° Shoulder and Face Milling







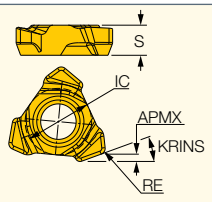
Designation	Dimensions APMX	RE	IC	S	Tough ↔ Hard IC830	IC808	Recommended Machining Data a_p (mm)	f_z (mm/t)
TR90 TXMT 070204	2.50	0.40	5.30	2.40	●	●	0.50-2.50	0.10-0.20
TR90 TXMT 100408	4.00	0.80	7.30	3.90	●	●	0.90-4.00	0.10-0.20

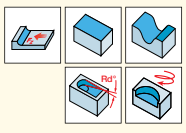
• For cutting speed recommendations, see pages 542-547
For tools, see pages: TR6 ER (272) • TR6 ER-M (273) • TR6 FR (275)

TRFF TXMT

Single-Sided Inserts 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

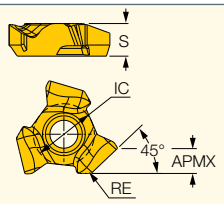
For tools, see pages: TR6 ER (272) • TR6 ER-M (273) • TR6 FR (275)

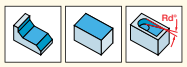
TOR6MILL PROFILING

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

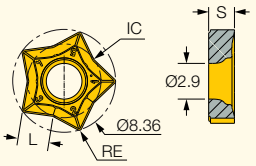
For tools, see pages: TR6 ER (272) • TR6 ER-M (273) • TR6 FR (275)

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

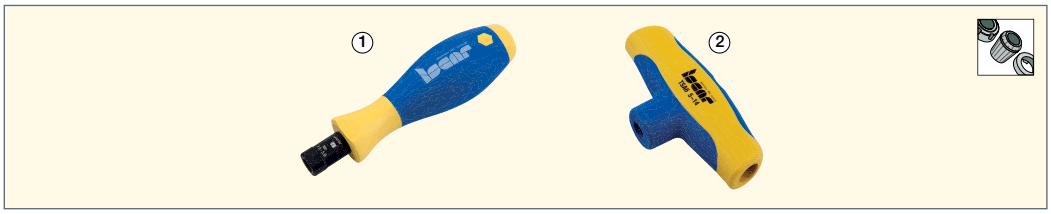
• For cutting speed recommendations, see pages 542-547

For tools, see pages: CH45-MM-PN06 (37) • CH45-PN06 (37)



Accessories

Adjustable Torque Handles
Adjustable Torque Handles
for Screw Drivers

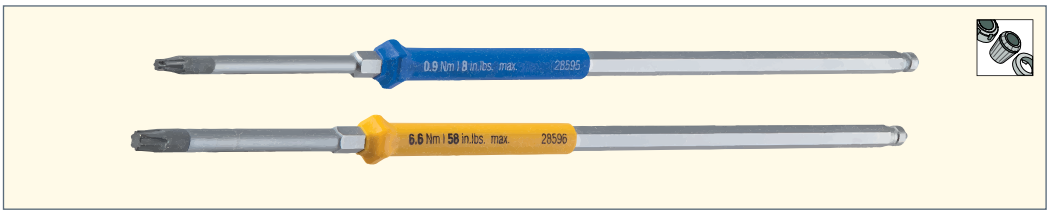


Designation	Range[1]	SSC[2]	Fig.
HSA 4 0.8-2NM	0.8-2	4.0	1.
HSA 4 1-5NM	1-5	4.0	1.
TSA 6 5-14NM	5-14	6.0	2.

[1] Torque range N*m
[2] Blade's hexagonal driving size

Accessories

Torx/Hex Blades
Blades for Adjustable
Torque Handles

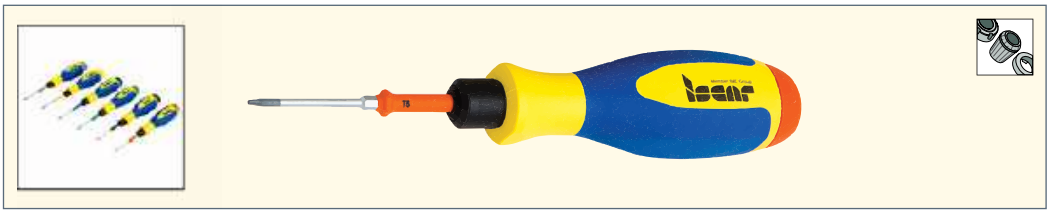


Designation	TQ[1]	SSC[2]	Key[3]
BLD 4 HEX4	8.0	4.0	HEX4
BLD 6 T20	10.0	6.0	T20
BLD 6 T20IP	13.0	6.0	IP20
BLD 6 HEX4	15.0	6.0	HEX4
BLD 6 HEX5	15.0	6.0	HEX5
BLD 6 HEX6	15.0	6.0	HEX6
BLD 6 T25	15.0	6.0	T25
BLD 6 T25IP	15.0	6.0	IP25

[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

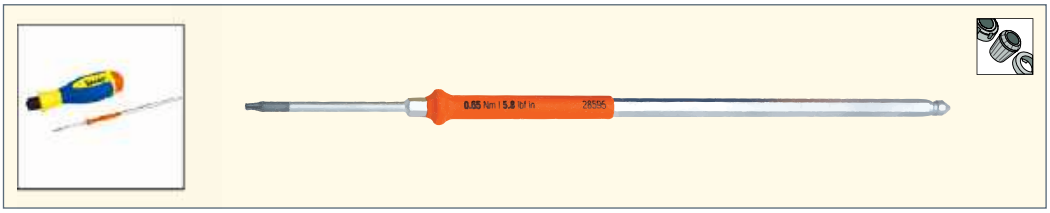


Designation	TQ[1]	Color
HSD 4-0.65NM	0.6	Orange
HSD 4-0.9NM	0.9	Black
HSD 4-1.2NM	1.2	Green
HSD 4-2.0NM	2.0	Blue
HSD 4-3.2NM	3.2	Yellow
HSD 4-4.8NM	4.8	Grey

• For tightening torque of insert clamping screws, refer to a table on page 547
[1] Torque N*m

Accessories

Key Blades
Key Blades for Fixed
Torque Handles



Designation	TQ[1]	Color
BLD 4 T06-0.65NM	0.7	Orange
BLD 4 IP06-0.65NM	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 IP15-4.8NM	4.8	Grey
BLD 4 T15-4.8NM	4.8	Grey

• For tightening torque of insert clamping screws, refer to a table on page 457
[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 728-757

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	Class 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 HELIQUAD-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

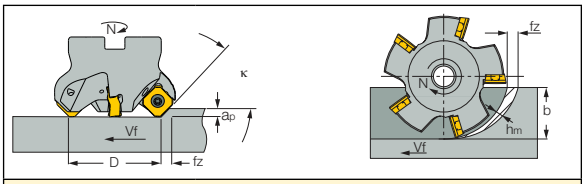
Material groups		ISO P		ISO M	ISO K	ISO N	ISO S	ISO H
		1 - 11	12 - 13	14	15 - 20	21 - 28	31 - 37	38 - 41
		Steel	Stainless Steel Ferritic & Martensitic	Stainless Steel Austenitic & Duplex (Ferritic-Austenitic)	Cast Iron	Nonferrous	High Temp. Alloys	Hard Steel & Hardened Cast Iron
MILLING Indexable	Harder	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)

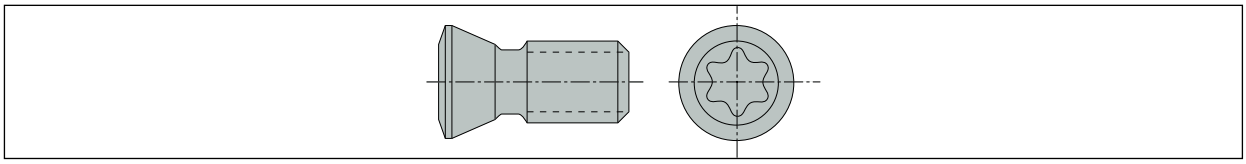
(1) See page 726

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

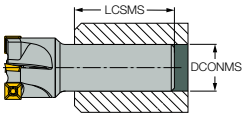
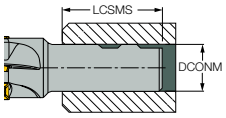
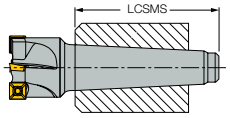


Screw	Thread	Overall Length [mm]	TORX Recess	Tightening Torque [Nxm]	Tightening Torque [lbfxin]
TS 18041I/HG	M1.8	4.1	IP 6	0.5	4.4
SR M2X0.4-2.9 T6-HG	M2	2.9	T 6	0.5	4.4
SR M2X0.4-3 T6	M2	2.9	T 6	0.5	4.4
SR M2X0.4-3.5 T6	M2	3.55	T 6	0.5	4.4
SR 34-533/L	M2	4.8	T 6	0.6	5.3
SR 34-533/L/HG	M2	4.8	T 6	0.6	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

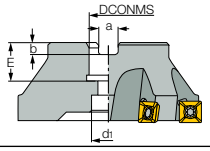
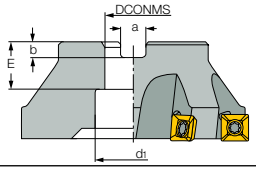
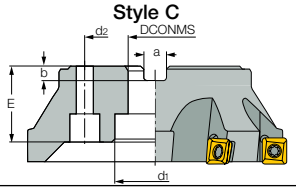
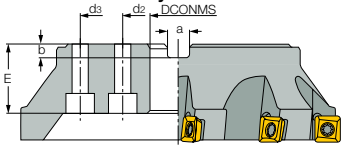
Screw	Thread	Overall Length [mm]	TORX Recess	Tightening Torque [Nxm]	Tightening Torque [lbfxin]
SR 16-236	M4	9.7	T15	5.3	47
SR 16-236/P	M4	11.3	T15	5.3	47
SR M4x0.7IP15	M4	10.5	IP15	4.8	42.5
SR 34-535	M4	11.5	T15	4.8	42,5
SR 34-535-SN	M4	11.5	T15	4.8 (3.2*)	42.5 (28.3*)
SR 34-535/L9.5-SN	M4	9.5	T15	4.8 (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



Member IMC Group

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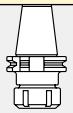
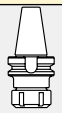
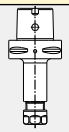
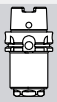
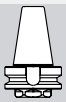
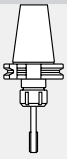
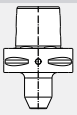
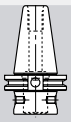
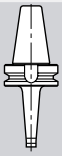
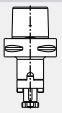
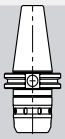
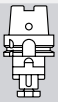
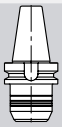
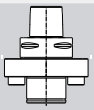
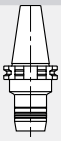
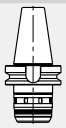
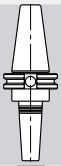
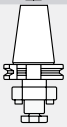
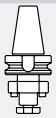
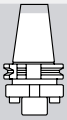
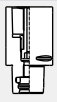
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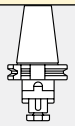
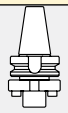
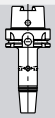
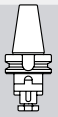
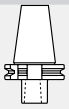
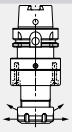
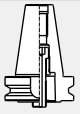
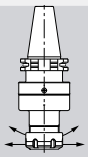
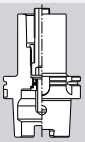
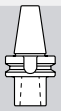
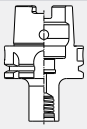
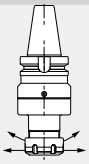
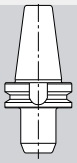
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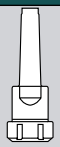
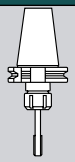
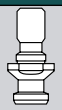
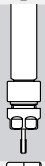
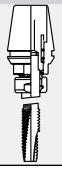
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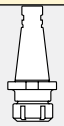
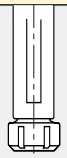
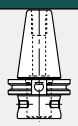
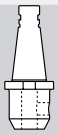
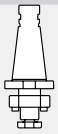
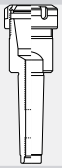
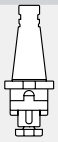
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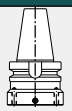
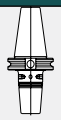
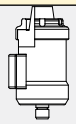
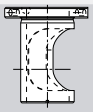
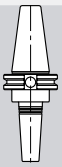
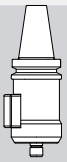
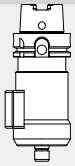
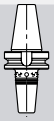
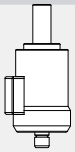
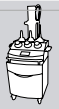
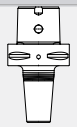
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CAMFIX  page 579	THERMAL CHUCK  page 597-602	SHELL COMBI  page 647
MORSE TAPER  page 579	ADJ FINEFIT  page 608	CAMFIX  page 648
ADJ FINEFIT  page 580	CAMFIX  page 606	MORSE TAPER  page 648
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Balancing 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.

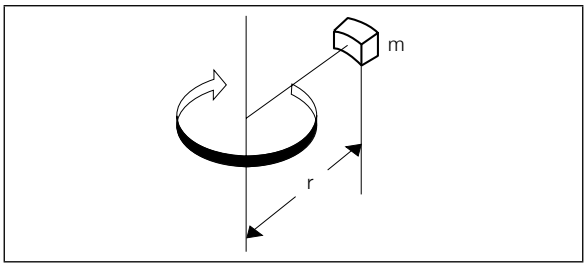
It is defined as the distance from the tool's center of the rotation to its true center of mass.
If eccentricity is measured in microns and tool mass is measured in kilograms, this unit yields residual unbalance in gram-millimeters.

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.

$$U = m \cdot r = >m = \frac{U}{r} = \frac{4}{20} = 0.2g$$

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

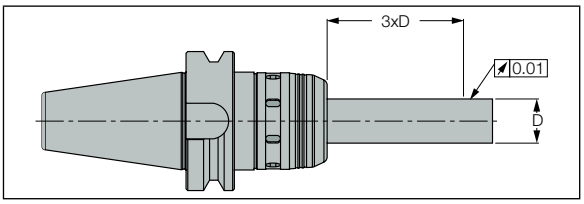
- The clamping nut is not threaded (as in ER collet chucks)
- Designed for direct chucking of the tool shank – no need for intermediate collet for maximum gripping force
- Sealed nut construction
- No axial drawback of the tool shank as chuck is tightened
- Thick wall construction to withstand greater side loading forces

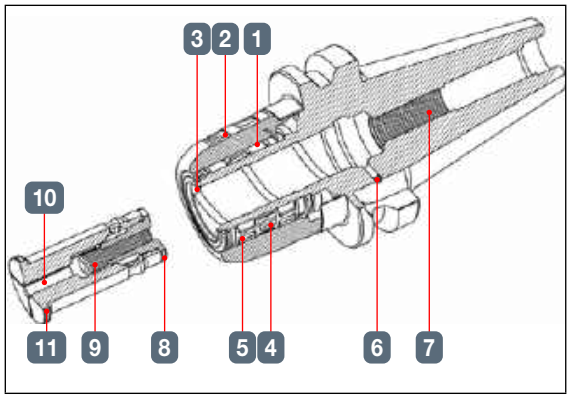
The high gripping force achieved by the **MAXIN** POWER CHUCK results from the shallow nose tapered cone (1) with helical slot (3) inside the internal chuck bore. It exerts a very high clamping force when the clamping nut (2) is rotated in the axial direction.The shallow taper of the tool nose (1) and 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)

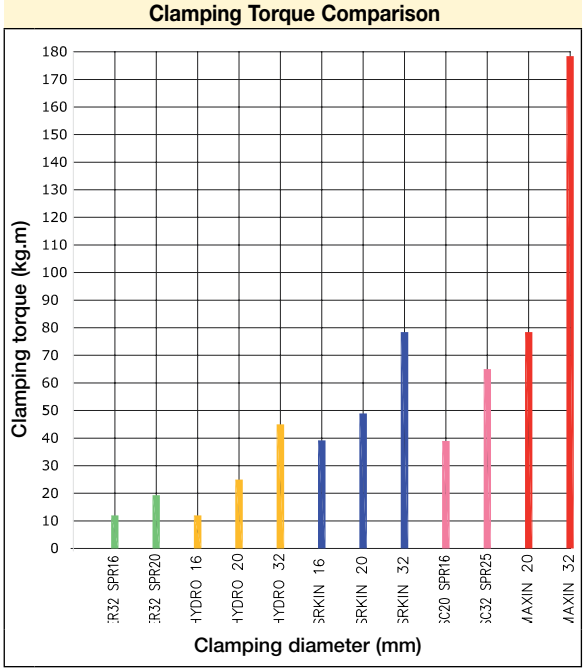


Power Chucks

Assembly and Disassembly of Shank Cutter with Wrench

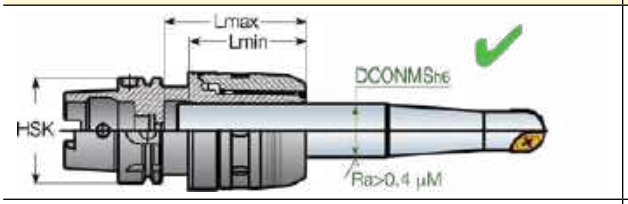
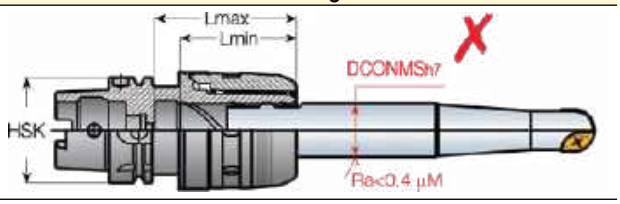
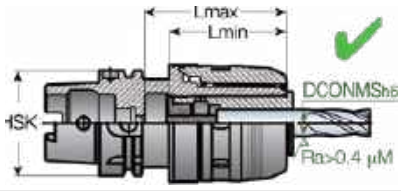
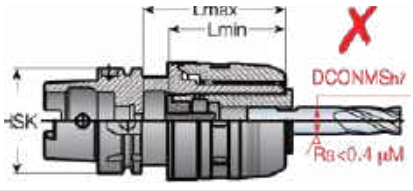
- Tighten the nut with the spanner wrench until clamping is achieved. Loosen the nut with the spanner wrench to remove the cutting tool.
- Instructions for proper use to avoid damage to the **MAXIN** mechanism, never tighten the clamping nut unless there is a shank inside the bore. After removing the 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

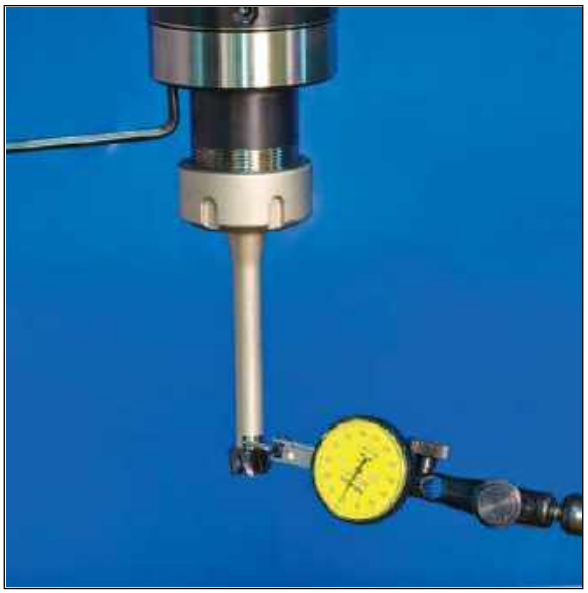


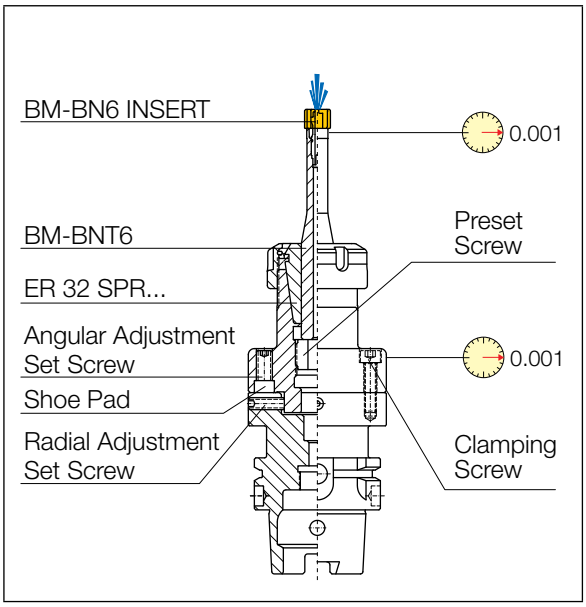
Correct	Wrong
	
	

1 Do not use Weldon type shanks.
2 Insert shank at least Lmin into the chuck.
3 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

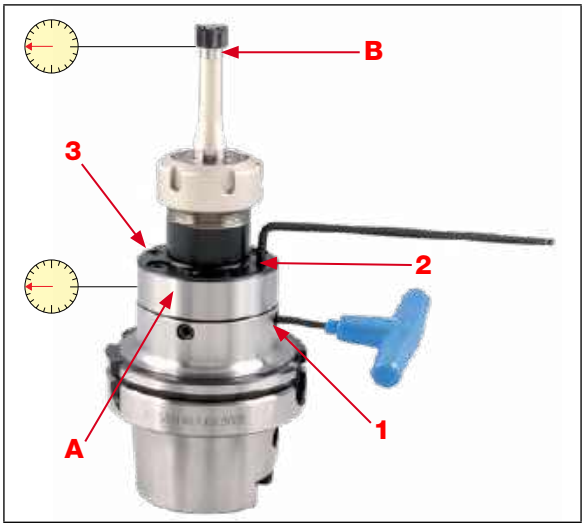




Tighten the Cutting Tool
Clamp the cutting tool into the chuck and make sure that screws no. **1** & **3** are tightened until a slight resistance is felt.

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.

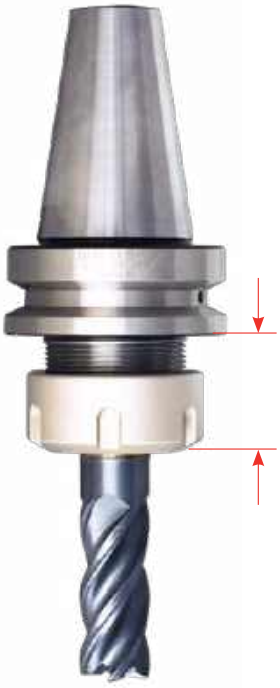
Angular Adjustment
Place the dial indicator on the ground area **B**. Adjust the axial runout to 0.001 mm with 4 adjustment screws (no. 2) located on the face of the chuck.



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 631	Page 590	Page 566

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

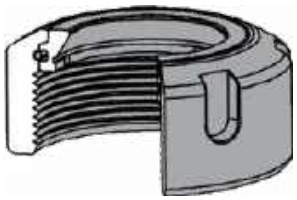
Exclusive anti-friction mechanism

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

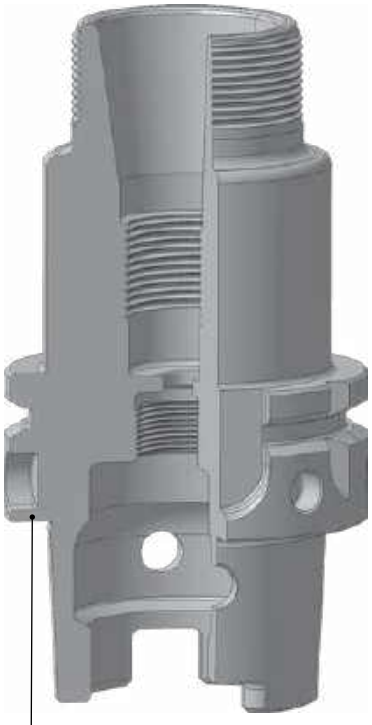
Runout O.D. - I.D. Max. 0.003

Two hole for symmetrical design for high spindle speed from 20, 000 RPM

Superior surface finish Ra 0.4

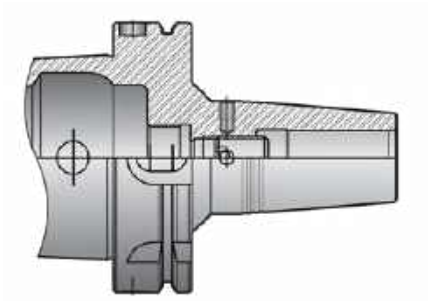
Taper accuracy DIN standard

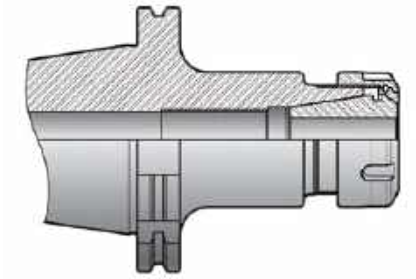


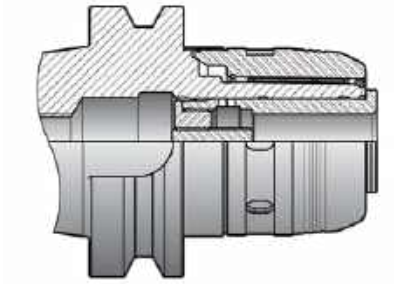


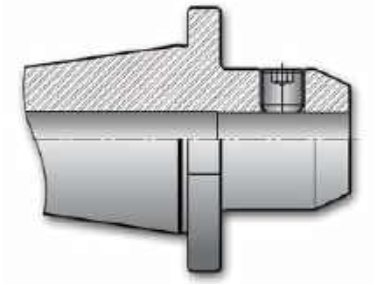
Hole for DATA chip

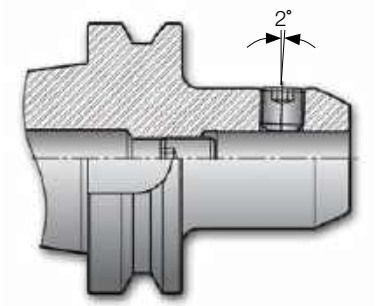
Recommmended Toolholder for Different Shank Types

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



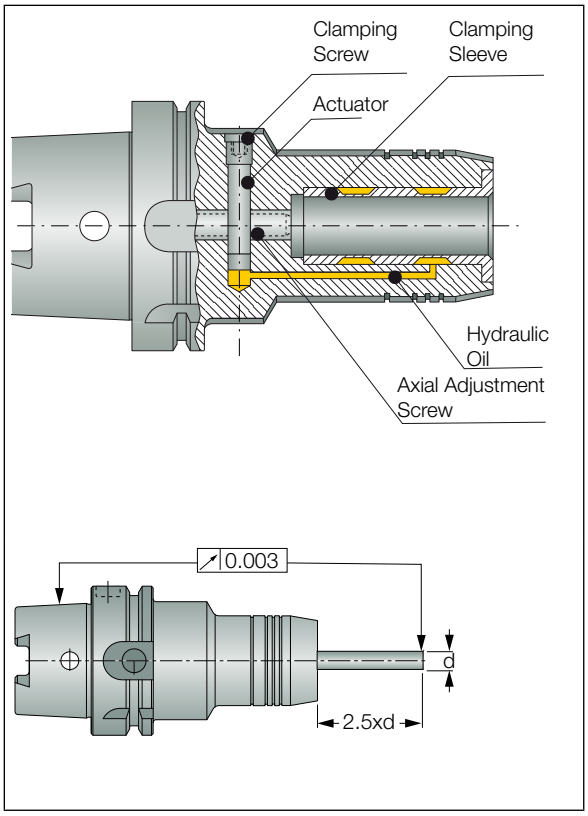
Features

- 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 HYDROFIT 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!

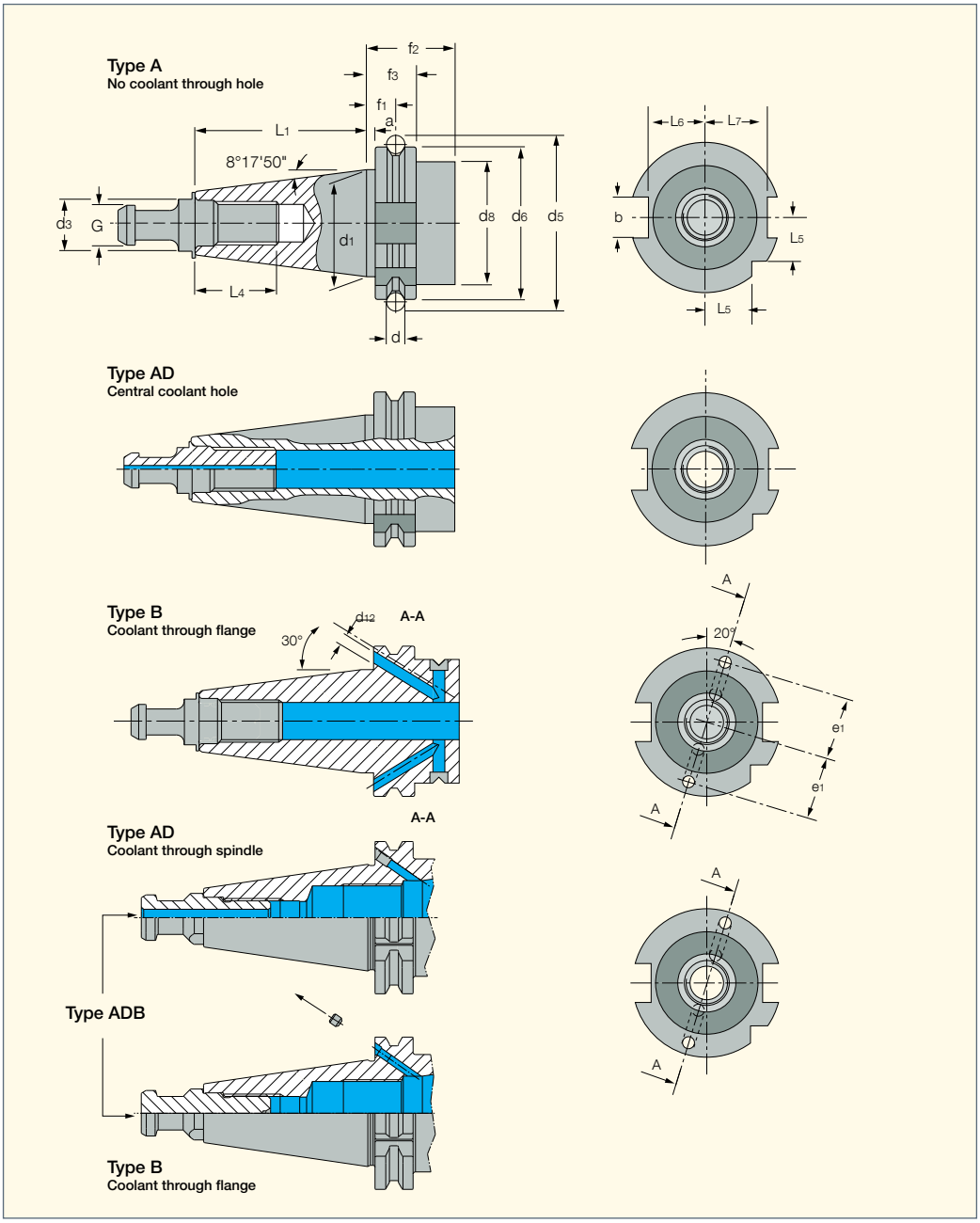
DIN69871-A/B



DIN69871

Toolholder Standard

DIN69871 Form A/AD/B/ADB

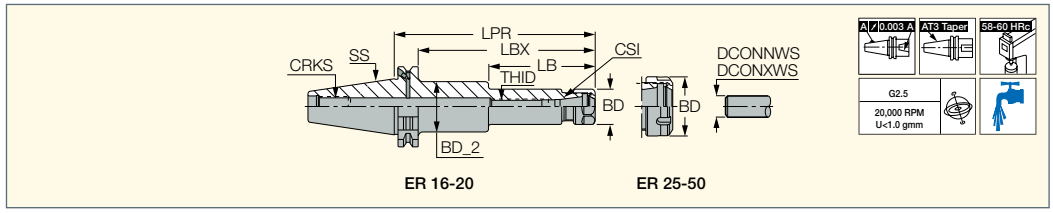


Shank	a±0.1	b (H12)	d	d1	G	d3 (H7)	d5 ±0.05	d6	d8 max	f1 ±0.1
SK 30	3.2	16.1	7	31.75	M12	13	59.30	50	45	11.1
SK 40	3.2	16.1	7	44.45	M16	17	72.30	63.55	50	11.1
SK 50	3.2	25.7	7	69.85	M24	25	107.25	97.50	80	11.1

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

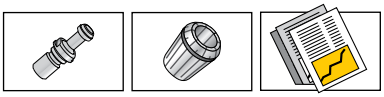
DIN69871-ER (form ADB)
DIN 6499 ER Collet Chucks
with a DIN 69871 Form
ADB Taper Shanks



ER 16-20 ER 25-50

Designation	SS	CSI	DCONNWS[2]	DCONXWS[3]	LPR	LBX	LB	BD	BD_2	CRKS	THID	CDI[4]	kg
DIN69871 30 ER16X 63	30	ER16	0.5	10.0	63.00	43.9	28.00	28.00	-	M12	M10	0	0.46
DIN69871 40 ER16X 63	40	ER16	0.5	10.0	63.00	43.9	-	28.00	-	M16	M12	0	0.86
DIN69871 40 ER16X100	40	ER16	0.5	10.0	100.00	80.9	-	28.00	-	M16	M12	0	1.05
DIN69871 40 ER16X160 [1]	40	ER16	0.5	10.0	160.00	140.9	85.00	28.00	40.00	M16	M12	0	1.52
DIN69871 40 ER20X 63	40	ER20	1.0	13.0	63.00	43.9	-	34.00	-	M16	M12	0	0.91
DIN69871 40 ER20X100	40	ER20	1.0	13.0	100.00	80.9	-	34.00	-	M16	M12	0	1.16
DIN69871 40 ER20X160 [1]	40	ER20	1.0	13.0	160.00	140.9	91.00	34.00	44.00	M16	M12	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	M12	0	2.76
DIN69871 50 ER16X160 [1]	50	ER16	0.5	10.0	160.00	140.9	85.00	28.00	40.00	M24	M12	0	3.29
DIN69871 50 ER16X200 [1]	50	ER16	0.5	10.0	200.00	180.9	110.00	28.00	40.00	M24	M10	0	3.52
DIN69871 50 ER20X100	50	ER20	1.0	13.0	100.00	80.9	-	34.00	-	M24	M12	0	2.86
DIN69871 50 ER20X160 [1]	50	ER20	1.0	13.0	160.00	140.9	86.00	34.00	45.00	M24	M12	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


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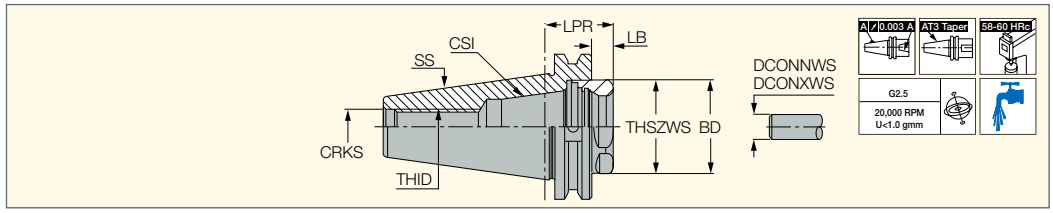


Spare Parts

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 10X1.5*	
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*		

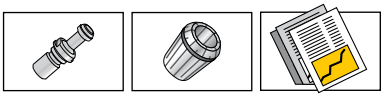
DIN69871 SHORTIN

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	CDI(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


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Spare Parts

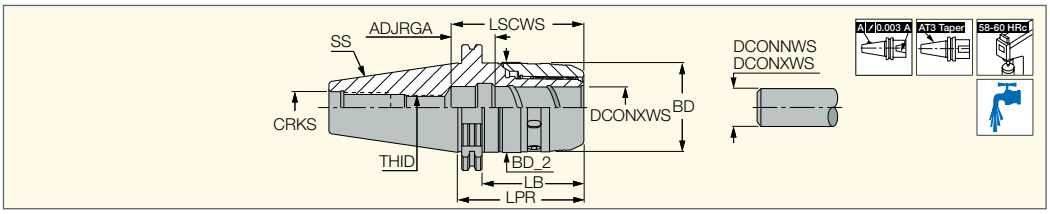
Designation				
DIN69871 40 ER32 SHORT	NUT ER32 SHORT	WRENCH ER32 SHORT*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
DIN69871 50 ER32 SHORT	NUT ER32 SHORT	WRENCH ER32 SHORT*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*
DIN69871 50 ER40 SHORT	NUT ER40 SHORT	WRENCH ER40 SHORT*	PRESET ER-JET 28X1.5*	

* Optional, should be ordered separately

DIN69871 MAXIN

DIN69871-MAXIN

Power Chucks with DIN 69871
Form AD/B Taper Shanks

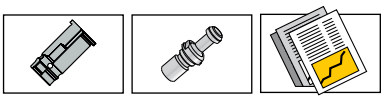


Designation	SS	DCONNWS(1)	DCONXWS(2)	BD	BD_2	LPR	LB	ADJRGA	LSCWS	THID	CRKS	CDI(3)	kg
DIN69871 40 MAXIN 20X 95	40	6.0	20.0	51.00	53.00	95.00	76.0	13.00	69.0	M16	M16	0	1.20
DIN69871 40 MAXIN 32X106	40	6.0	32.0	69.00	70.00	106.00	87.0	13.00	83.0	M16	M16	0	1.42
DIN69871 50 MAXIN 20X105	50	6.0	20.0	51.00	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) Maximum diameter



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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*

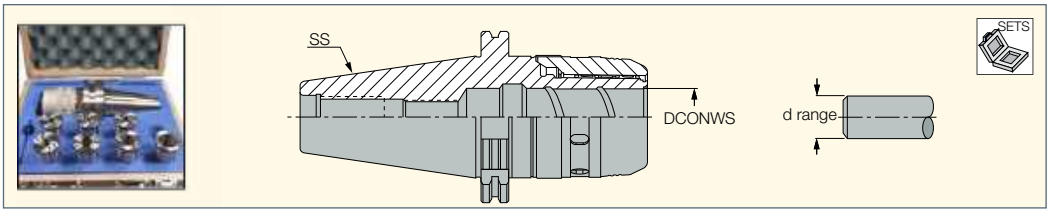
* Optional, should be ordered separately

DIN69871

MAXIN KIT

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

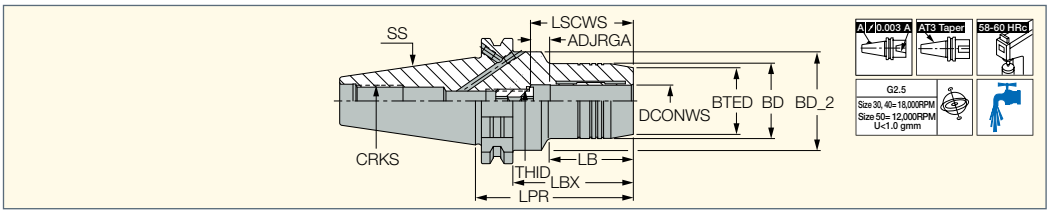
• Each kit contains one power chuck, a set of SC-SPR collets, extraction hook and wrench.

DIN69871

HYDROFIT HOLDING LINE

DIN69871-HYDRO

Hydraulic Chucks with
DIN69871 Form ADB Shanks



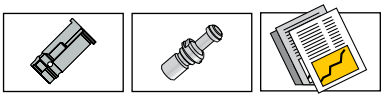
Designation	SS	DCONWS	BTED	BD	BD_2	LPR	LBX	LB	ADJRGA	LSCWS	THID	CRKS	CDI(3)	kg
DIN69871 30 HYDRO 6X60 (1)	30	6.00	23.00	26.00	45.00	60.00	41.0	25.00	10.00	37.0	M5	M12	1	0.63
DIN69871 30 HYDRO 16X90 (1)	30	16.00	34.00	38.00	45.00	90.00	71.0	43.00	10.00	52.0	M12X1	M12	1	0.96
DIN69871 30 HYDRO 20X90 (1)	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) Maximum diameter



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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*

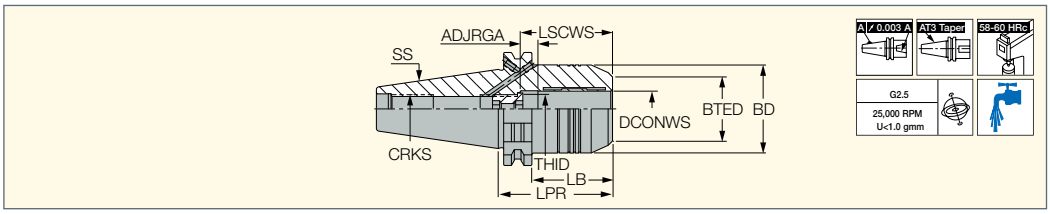
* Optional, should be ordered separately

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	CDI(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 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

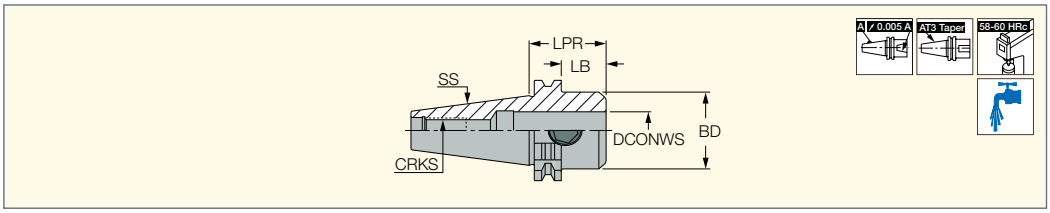
Designation	
SK40 HYDRO 12X50 HD	ALLEN KEY SW5X100*
SK40 HYDRO 16X64.5 HD	ALLEN KEY SW5X100*
SK40 HYDRO 20X64.5 HD	ALLEN KEY SW5X100*
SK50 HYDRO 20X64.5 HD	ALLEN KEY SW5X100*
SK50 HYDRO 32X81 HD	ALLEN KEY SW6X100*

* Optional, should be ordered separately

DIN69871

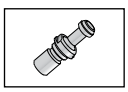
DIN69871-EM (DIN 6359 short)

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	CDI(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 - Hole for data chip, 0 - Without hole for data chip

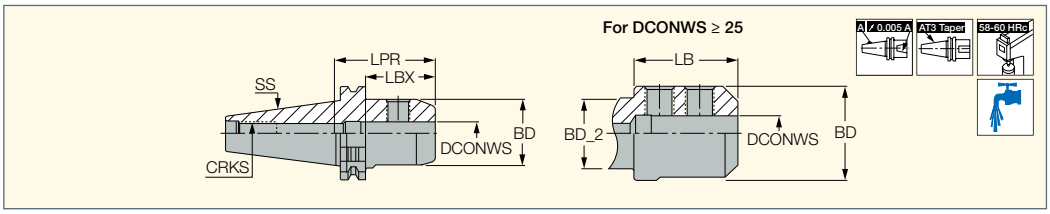


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DIN69871

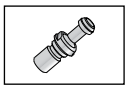
DIN69871-EM (DIN 6359-HB)

DIN 69871 Form AD/B Taper Shanks Holders with DIN 6359-HB for DIN 1835 Form B Weldon Shanks



Designation	SS	DCONWS	BD	BD_2	LPR	LBX	LB	CRKS	CDI[1]	kg	
DIN69871 30 EM 6X 50	30	6.00	25.00	-	50.00	30.9	-	M12	0	0.45	SR M6X10 DIN1835B
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 EM20X72	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 - Hole for data chip, 0 - Without hole for data chip



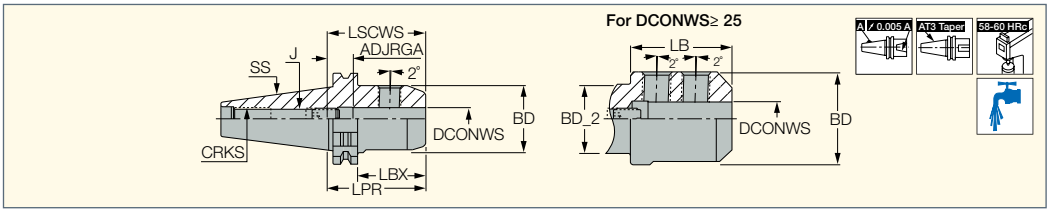
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DIN69871

DIN69871-EM (DIN 6359-HE)

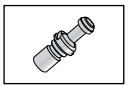
DIN 69871 Form ADB Taper Shank Drill Holders with DIN 6359-HE for DIN 1835 Form E Whistle Notch Shanks



Designation	SS	DCONWS	BD	BD_2	LPR	LBX	LB	LSCWS	ADJRGA	THID[1]	Key[2]	CRKS	CDI[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 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. [1] 1 - Hole for data chip, 0 - Without hole for data chip



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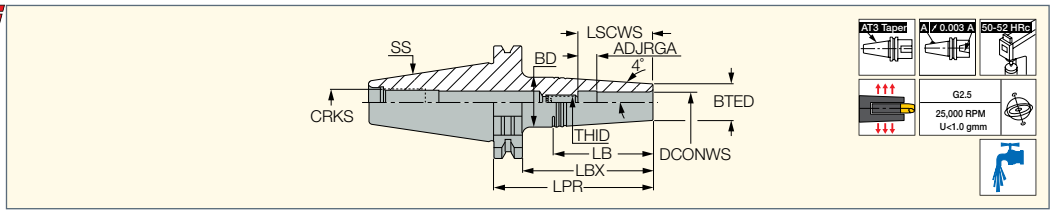
Spare Parts

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 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-SRK

Thermal Shrinking Chucks
with DIN 69871 Form
AD Taper Shanks



Designation	SS	DCONWS	BTED	BD	LPR	LBX	LB	ADJRGA	LSCWS	THID	Key(1)	CRKS	CDI(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 (1) 1 - Hole for data chip, 0 - Without hole for data chip



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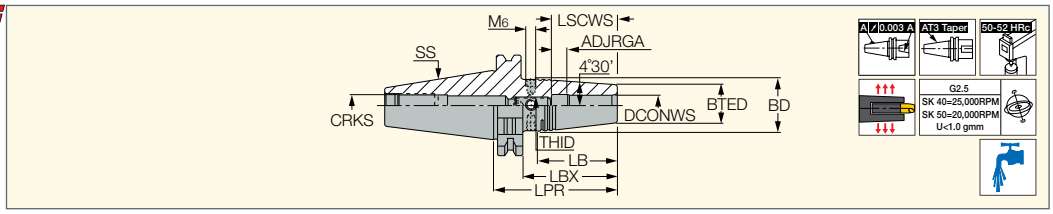
Spare Parts

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 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	CDI(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	M20	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 • B is the designation for coolant through flange

(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 (1) 1 - Hole for data chip, 0 - Without hole for data chip



712-713 689-691 694-695

Spare Parts

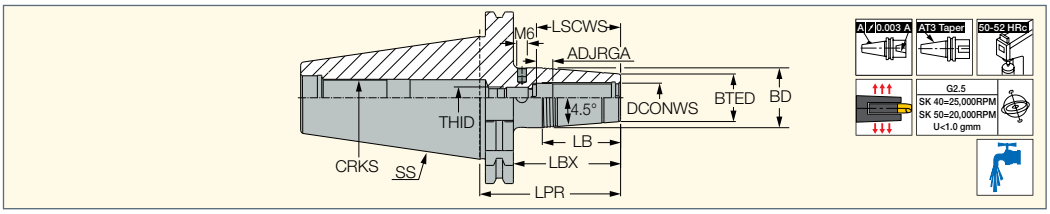
Designation	
DIN69871 40 SRKIN 6X80	PRESET M5X18B
DIN69871 40 SRKIN 8X80	PRESET M6X20B
DIN69871 40 SRKIN 10X80	PRESET M8X20B
DIN69871 40 SRKIN 12X80	PRESET M10X18B
DIN69871 40 SRKIN 14X80	PRESET M10X18B
DIN69871 40 SRKIN 16X80	PRESET M12X18B
DIN69871 40 SRKIN 18X80	PRESET M12X18B
DIN69871 40 SRKIN 20X80	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 Coolant Jet Channels along the Shank Bore



Designation	SS	DCONWS	BTED	BD	LPR	LBX	LB	LSCWS	ADJRGA	THID	Key[1]	CRKS	CDI[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

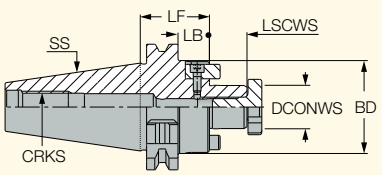
[1] Hex key size for the rear stopper screw [2] 1 - Hole for data chip, 0 - Without hole for data chip

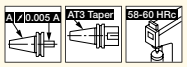
Spare Parts

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

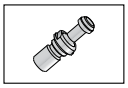
DIN69871-SEM
ISO 3937 Shell Mill Holders
with DIN 69871 Form
AD Taper Shanks





Designation	SS	DCONWS	BD	LF	LSCWS	LB	CRKS	CDI(1)	kg
DIN69871 30 SEM16X 35	30	16.00	38.00	35.00	17.00	15.9	M12	0	0.52
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 - Hole for data chip, 0 - Without hole for data chip



712-713

Spare Parts

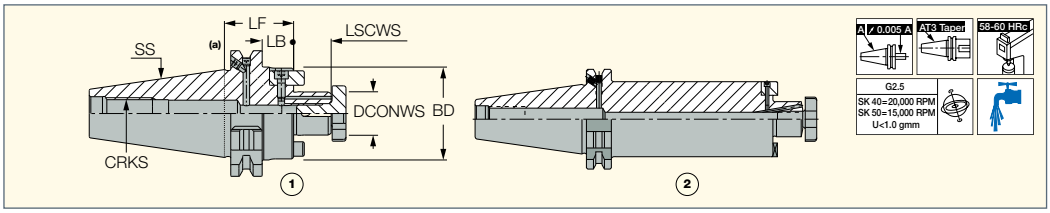
Designation				
DIN69871 30 SEM16X 35	M8 CLAMP SCREW SEM16	SR M3X10DIN912	DR.DOG 8S	WRENCH M8 SEMC16*
DIN69871 30 SEM22X 50	M10 CLAMP SCREW SEM22	SR M4X10DIN912	DR.DOG 10S	WRENCH M10 SEMC 22*
DIN69871 30 SEM27X 50	M12 CLAMP SCREW SEM27	SR M5X14DIN912	DR.DOG 12S	WRENCH M12 SEMC 27*
DIN69871 40 SEM16X35	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, should be ordered separately

DIN69871

DIN69871-SEM-C

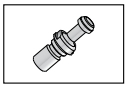
ISO 3937 Shell Mill Holders with Coolant Holes and DIN 69871 Form ADB Tapered Shanks



Designation	SS	DCONWS	BD	LF	LSCWS	LB	CRKS	Fig.	CDI[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 [1] 1 - Hole for data chip, 0 - Without hole for data chip



712-713

Spare Parts

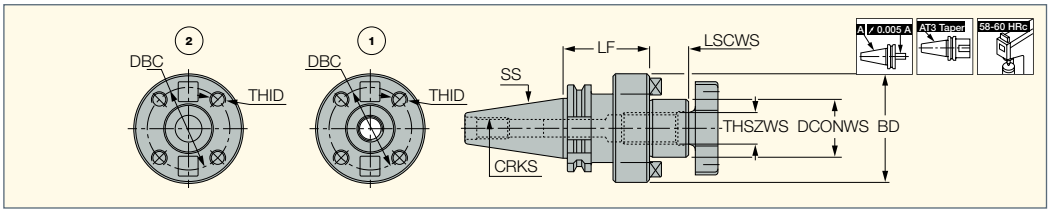
Designation				
DIN69871 40 SEM16X 35 C	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	DR.DOG 8S	SR M3X10DIN912
DIN69871 40 SEM16X100 C	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	DR.DOG 8S	SR M3X10DIN912
DIN69871 40 SEM22X 35 C	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912
DIN69871 40 SEM22X100 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, should be ordered separately

DIN69871

DIN69871-FM

DIN 6357 Face Mill Holders
with DIN 69871 Form A/
AD Taper Shanks



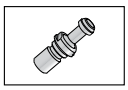
Designation	SS	DCONWS	BD	DBC	LF	LSCWS	THID	THSZWS	CRKS	Fig.	CDI[3]	kg
DIN69871 40 FM 40 [1]	40	40.00	88.00	66.70	60.00	27.00	M12	M20	M16	1.	0	2.25
DIN69871 50 FM 40X70 [1]	50	40.00	88.00	66.70	70.00	27.00	M12	M20	M24	1.	0	4.87
DIN69871 50 FM 60 [2]	50	60.00	128.00	101.60	70.00	40.00	M16	-	M24	2.	0	7.32

- Peripheral clamping screws are not supplied.

[1] Form AD

[2] Form A

[3] 1 - Hole for data chip, 0 - Without hole for data chip



712-713

Spare Parts

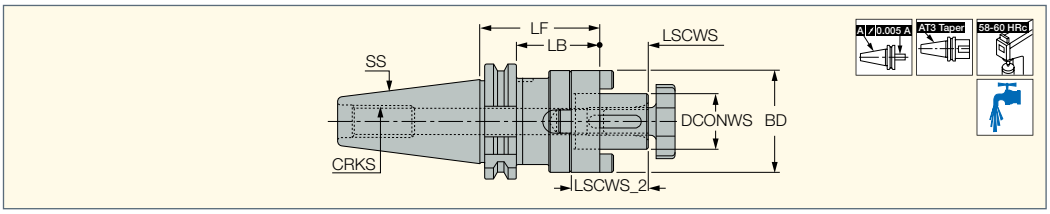
Designation			
DIN69871 40 FM 40	DR. DOG 16 E	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*
DIN69871 50 FM 40X70	DR. DOG 16 E	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*
DIN69871 50 FM 60	DR. DOG 1E		

* Optional, should be ordered separately



DIN69871

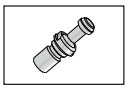
DIN69871-SEMC
DIN 6358 COMBI Shell Mill Holders with DIN 69871 Form AD Taper Shanks



Designation	SS	DCONWS	LF	LSCWS	LB	LSCWS_2	BD	CRKS	CDI(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 - Hole for data chip, 0 - Without hole for data chip



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Spare Parts

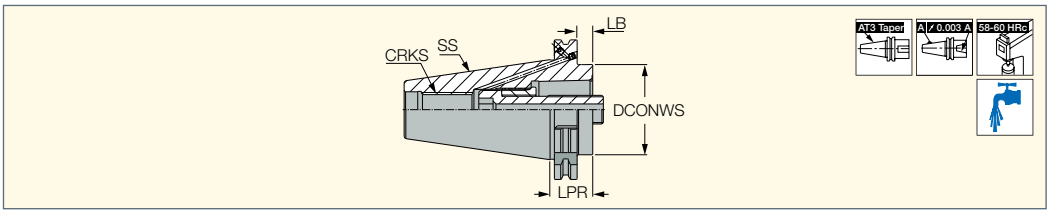
Designation				
DIN69871 30 SEMC 16X 50	16 D.RING SEMC	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	KEY SEMC 16 4X4X20
DIN69871 30 SEMC 22X 50	22 D.RING SEMC	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	KEY SEMC 22 6X6X25
DIN69871 40 SEMC 16X 55	16 D.RING SEMC	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	KEY SEMC 16 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, should be ordered separately

DIN69871 CAMFIX

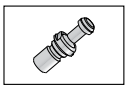
DIN69871-C#

CAMFIX (ISO 26623-1) Holders with DIN 69871 Form AD/ ADB Tapered Shanks



Designation	SS	DCONWS	LPR	LB	CRKS	CDI[1]	kg
C4 AD SKA 40X30 ADB	40	40.00	30.00	11.00	M16	0	0.83
C5 AD SKA 40X30	40	50.00	30.00	11.00	M16	0	0.80
C5 AD SKA 50X30 ADB	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 ADB	50	80.00	70.00	51.00	M24	0	3.77

(1) 1 - Hole for data chip, 0 - Without hole for data chip



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Spare Parts

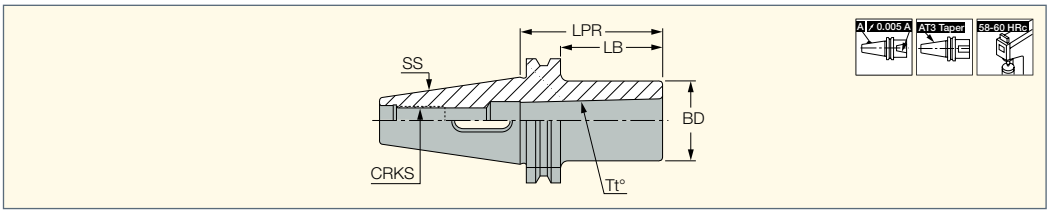
Designation						
C4 AD SKA 40X30 ADB	SR M14X58 C4	HW 8.0*	MT RING M22X17XC4			WRENCH C4 DRW NUT*
C5 AD SKA 40X30	SR M16X70 C5	HW 10.0*	MT RING M25X20XC5			WRENCH C5 DRW NUT*
C5 AD SKA 50X30 ADB	SR M16X70 C5	HW 10.0*	MT RING M25X20XC5	SR M4X4 DIN913	HW 2.0*	WRENCH C5 DRW NUT*
C6 AD SKA 50X30	SR M20X87 C6/8	HW 14.0*	MT RING M30X24XC6/8			WRENCH C6-8 DRW NUT*
C8 AD SKA 50X70 ADB	SR M20X87 C6/8	HW 14.0*	MT RING M30X24XC6/8	SR M4X4 DIN913	HW 2.0*	WRENCH C6-8 DRW NUT*

* Optional, should be ordered separately

DIN69871

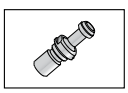
DIN69871-MT

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	CDI[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 - Hole for data chip, 0 - Without hole for data chip

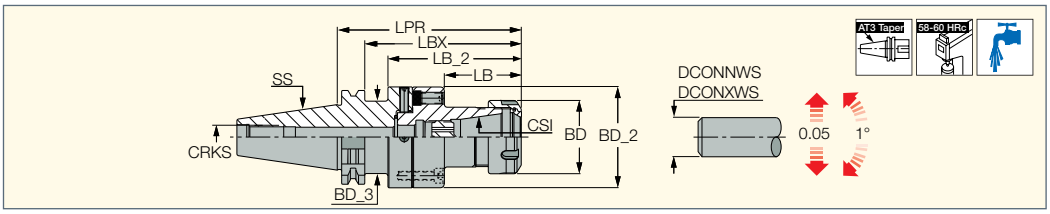


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DIN69871 FINEFIT

ADJ DIN69871-ER

Center Alignment DIN 6499 ER Collet Chucks with DIN 69871 Form AD/B Taper Shanks

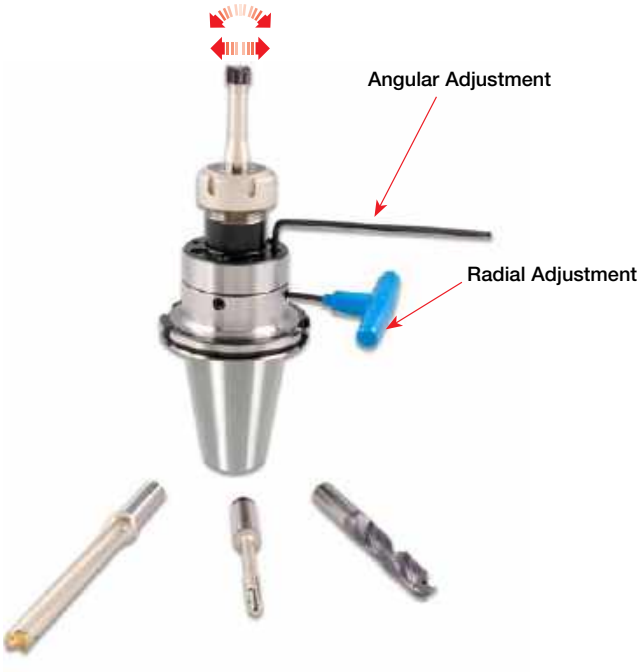


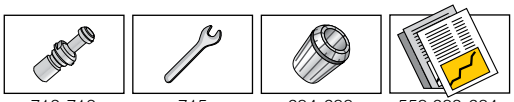
Designation	SS	CSI	DCONNWS(1)	DCONXWS(2)	LPR	LB	LBX	LB_2	BD	BD_2	BD_3	CRKS	kg
ADJ DIN69871 40 D70 ER32	40	ER32	2.0	20.0	124.50	52.50	105.4	89.50	50.00	70.00	46.00	M16	2.36
ADJ DIN69871 50 D70 ER32	50	ER32	2.0	20.0	124.50	52.50	105.4	-	50.00	70.00	-	M24	4.29

- Radial adjustment 0.05 mm Angular adjustment 1°

(1) Minimum diameter

(2) Maximum diameter





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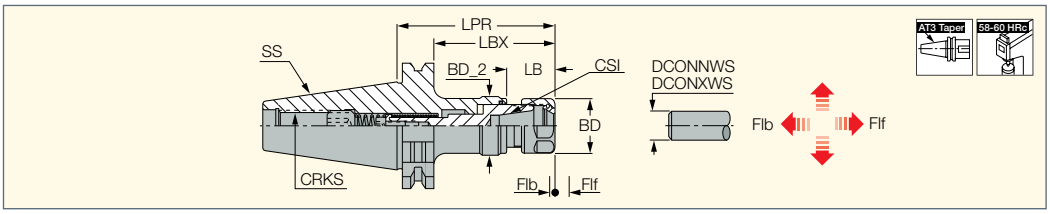
Spare Parts

Designation		
ADJ DIN69871 40 D70 ER32		ADJ ER32 NOSE
ADJ DIN69871 50 D70 ER32	OR 21X4N	ADJ ER32 NOSE

DIN69871 GTI

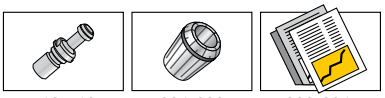
GTI DIN69871-ER (tapping)

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	CDI(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	2.90
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 (1) 1 - Hole for data chip, 0 - Without hole for data chip


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Spare Parts

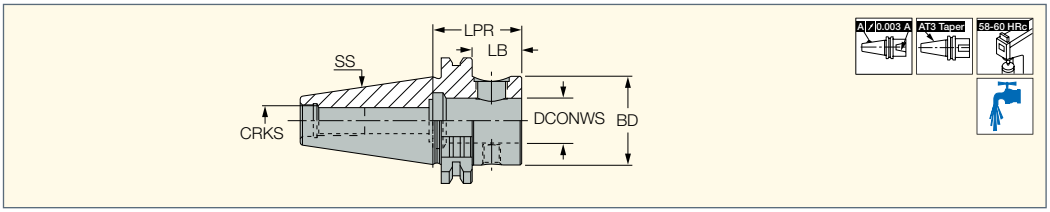
Designation		
GTI DIN69871 40 ER16	NUT ER16 TOP	WRENCH ER16*
GTI DIN69871 40 ER32	NUT ER32 TOP	WRENCH ER32*
GTI DIN69871 40 ER40	NUT ER40 TOP	WRENCH ER40*
GTI DIN69871 50 ER16	NUT ER16 TOP	WRENCH ER16*
GTI DIN69871 50 ER32	NUT ER32 TOP	WRENCH ER32*
GTI DIN69871 50 ER40	NUT ER40 TOP	WRENCH ER40*

* Optional, should be ordered separately

DIN69871 CLICKFIT

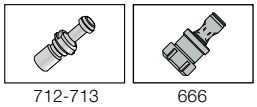
DIN69871-CF

DIN69871 Form ADB Tapered
Shanks to CLICKFIT Adapters



Designation	SS	DCONWS	LPR	LB	BD	CRKS	CDI(2)	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
DIN69871 50 CF4-L B (1)	50	25.00	100.00	80.9	44.50	M24	0	3.52

• Tightening torque: 6 Kgxm
(1) B for coolant through flange. (1) 1 - Hole for data chip, 0 - Without hole for data chip


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Spare Parts

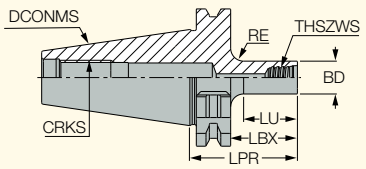
Designation				
DIN69871-CF	SCREW M16X1.5 FOR CF4	WRENCH HW 8 200X36 DIN911	OR 15X3N	WRENCH REAL C.F M8

MULTI-MASTER

DIN69871

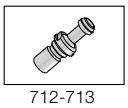
MM S-A-SK

DIN 69871 Integral Tapered Shanks for MULTI-MASTER Milling Heads



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

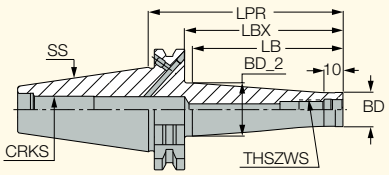
• Do not apply lubricant to the threaded connection • For adaptation, see page 44

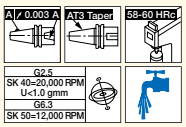

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DIN69871 FLEXFIT

DIN69871-ODP

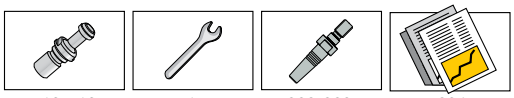
FLEXFIT Threaded Connection Shanks with Integral DIN69871 Form ADB Taper Adaptation





Designation	SS	THSZWS	BD	BD_2	LPR	LBX	LB	CRKS	CDI[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	4.14
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 - Hole for data chip, 0 - Without hole for data chip

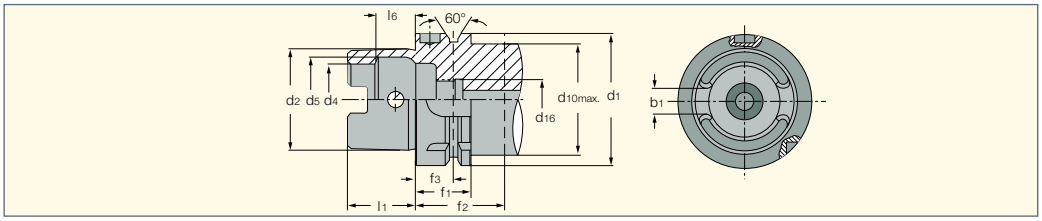

712-713 715 666-668 664

DIN 69893 HSK A / E



HSK DIN 69893 (ISO 12164-1 Standard)

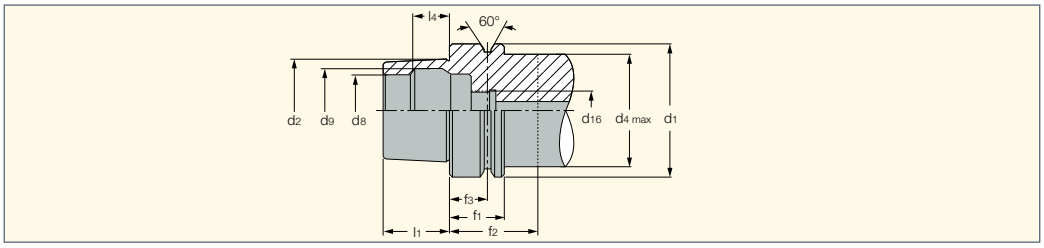
DIN 69893 Form A



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

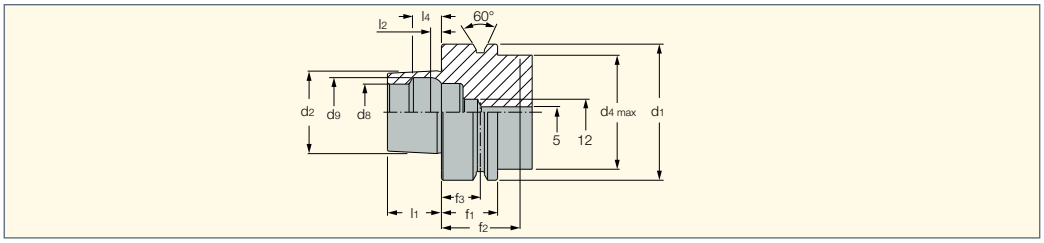
(1) The dimensions in parentheses refer to dimension b1 only for HSK A...WH tools. These tools feature key slot gap and tolerance, used on turning tools for accurate cutting edge height position, (according to Japanese ICTM standard and ISO 12164/3 standard).

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)



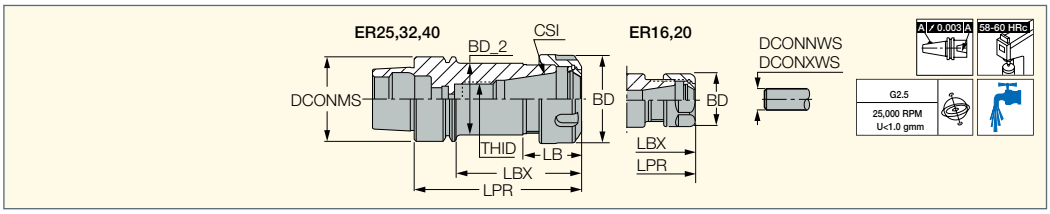
HSK-F	d1 h10	d2	d4 max	d8 H10	d9 H11	l1-0.2	l2	l4 Js10	f1-0.1	f2 min	f3±0.1
63	63	38	53	26	32	25	5.0	14.13	26	42	18

(1) Without crosshole.

HSK

HSK E-ER

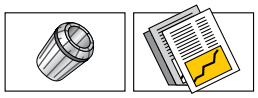
DIN6499 ER Collet Chucks
with HSK DIN69893 Form
E Tapered Shanks



Designation	DCONMS	CSI	DCONNWS(2)	DCONXWS(3)	BD	BD_2	LPR	LBX	LB	THID	kg
HSK E32 ER16X60	32.00	ER16	0.5	10.0	28.00	22.40	60.00	40.0	21.50	M10x1-6H	0.22
HSK E32 ER20X60	32.00	ER20	1.0	13.0	34.00	25.40	60.00	40.0	26.00	M10x1-6H	0.18
HSK E32 ER25X65	32.00	ER25	1.0	16.0	42.00	25.80	65.00	45.0	30.00	M10x1-6H	0.20
HSK E40 ER16X60	40.00	ER16	0.5	10.0	28.00	28.00	60.00	40.0	27.10	M12X1-6H	0.28
HSK E40 ER16X80	40.00	ER16	0.5	10.0	28.00	28.00	80.00	60.0	27.10	M10x1.5-6H	0.36
HSK E40 ER20X80	40.00	ER20	1.0	13.0	34.00	33.80	80.00	60.0	28.00	M12	0.44
HSK E40 ER25X80	40.00	ER25	1.0	16.0	42.00	33.80	80.00	60.0	28.00	M18X1.5	0.42
HSK E40 ER32X80	40.00	ER32	2.0	20.0	50.00	40.10	80.00	60.0	31.00	M22X1.5	0.41
HSK E50 ER16X100	50.00	ER16	0.5	10.0	28.00	28.00	100.00	74.0	27.00	M10	0.64
HSK E50 ER16X100M (1)	50.00	ER16	0.5	10.0	22.00	22.00	100.00	74.0	25.60	M10	0.55
HSK E50 ER16X80	50.00	ER16	0.5	10.0	28.00	28.00	80.00	54.0	27.10	M10	0.55
HSK E50 ER20X80	50.00	ER20	1.0	13.0	34.00	34.00	80.00	54.0	28.00	M12	0.60
HSK E50 ER25X80	50.00	ER25	1.0	16.0	42.00	32.40	80.00	54.0	28.00	M16	0.71
HSK E50 ER32X100	50.00	ER32	2.0	20.0	50.00	40.00	100.00	74.0	31.00	M22X1.5	0.78
HSK E50 ER32X80	50.00	ER32	2.0	20.0	50.00	40.00	80.00	54.0	31.00	M16X1-6H	0.63
HSK E63 ER16X100	63.00	ER16	0.5	10.0	28.00	28.00	100.00	74.0	27.10	M10	0.91
HSK E63 ER16X80	63.00	ER16	0.5	10.0	28.00	28.00	80.00	54.0	27.10	M10	0.92
HSK E63 ER20X75	63.00	ER20	1.0	13.0	34.00	34.00	75.00	49.0	28.00	M18X1-6H	0.90
HSK E63 ER32X100	63.00	ER32	2.0	20.0	50.00	50.00	100.00	75.0	36.00	M22X1.5	1.28

- A cooling tube must be used with all coolant through HSK spindles (should be ordered separately).

(1) Equipped with nut ER 16 MINI
(2) Minimum diameter
(3) Maximum diameter



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Spare Parts

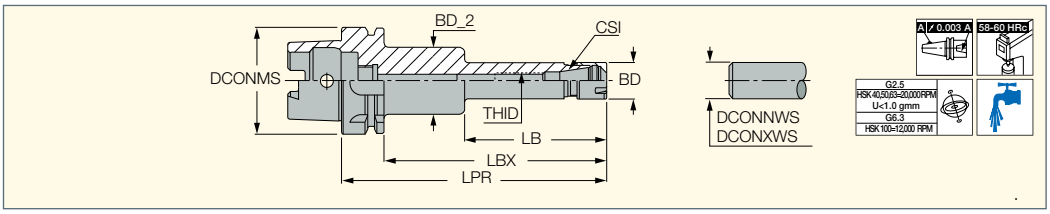
Designation					
HSK E32 ER16X60	NUT ER16 TOP	WRENCH ER16*			
HSK E32 ER20X60	NUT ER20 TOP	WRENCH ER20*			
HSK E32 ER25X65	NUT ER25 TOP	WRENCH ER25*			
HSK E40 ER16X60	NUT ER16 TOP	WRENCH ER16*		COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK E40 ER16X80	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	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, should be ordered separately

HSK

HSK A-ER-M (mini)

DIN6499 ER Mini Collet
Chucks with HSK DIN69893
Form A Tapered Shanks

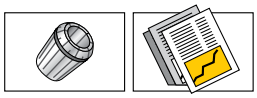


Designation	DCONMS	CSI	DCONNWS[1]	DCONXWS[2]	BD	BD_2	LPR	LBX	LB	THID	CDI[3]	kg
HSK A50 ER16X100M	50.00	ER16	0.5	10.0	22.00	-	100.00	74.0	-	M10	1	0.50
HSK A50 ER20X100M*	50.00	ER20	1.0	13.0	28.00	-	100.00	74.0	-	M12	1	0.61
HSK A63 ER11X160M	63.00	ER11	0.5	7.0	16.00	19.50	160.00	134.0	94.50	M6	1	0.93
HSK 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 (should be ordered separately).

[1] Minimum diameter

[2] Maximum diameter [1] 1 - Hole for data chip, 0 - Without hole for data chip



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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*

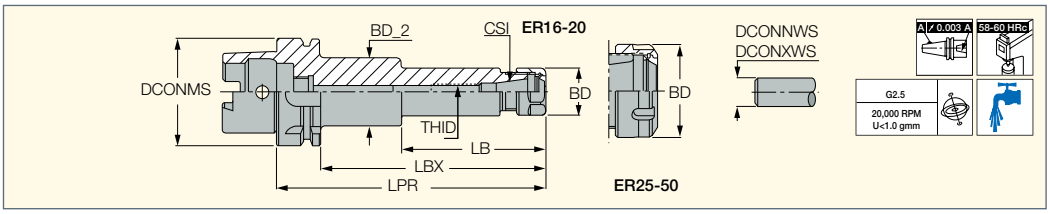
* Optional, should be ordered separately



HSK

HSK A-ER

DIN6499 ER Collet Chucks
with HSK DIN69893 Form
A Tapered Shanks



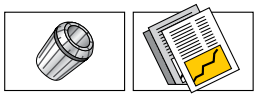
Designation	DCONMS	CSI	DCONNWS(2)	DCONXWS(3)	BD	BD_2	LPR	LBX	LB	THID	CDI(4)	kg
HSK A40 ER16X60	40.00	ER16	0.5	10.0	28.00	28.00	60.00	40.0	27.00	M10X1.5-6H	1	0.27
HSK A40 ER16X80	40.00	ER16	0.5	10.0	28.00	28.00	80.00	60.0	27.00	M10	1	0.36
HSK A40 ER25X100	40.00	ER25	1.0	16.0	42.00	32.40	100.00	80.0	28.00	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	M10	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	1.29
HSK A63 ER25X160	63.00	ER25	1.0	16.0	42.00	42.00	160.00	134.0	28.50	M16	1	1.68
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 (should be ordered separately).

(1) Attention: different design

(2) Minimum diameter

(3) Maximum diameter (1) 1 - Hole for data chip, 0 - Without hole for data chip



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Spare Parts

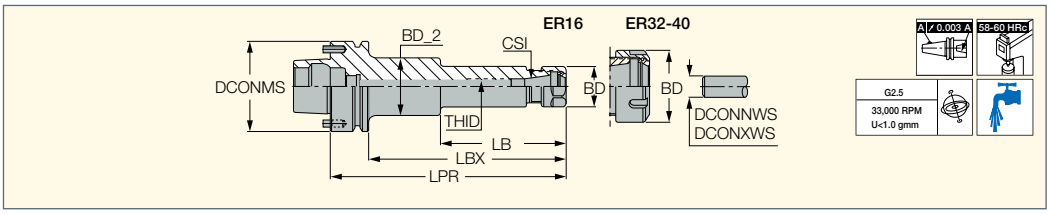
Designation					
HSK A40 ER16X60	NUT ER16 TOP	WRENCH ER16*		COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK A40 ER16X80	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*
HSK A40 ER25X100	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 16X2*	COOLING TUBE HSK A40*	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 18X1.5*	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			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, should be ordered separately

HSK

HSK FM-ER

DIN6499 ER Collet Chucks with HSK DIN69893 FM Tapered Shanks with Two Pins for MAKINO Machine Models MAG



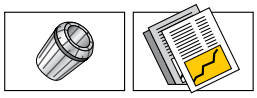
Designation	DCONMS	CSI	LPR	DCONNWS(2)	DCONXWS(3)	BD	BD_2	LBX	LB	THID	kg
HSK FM63 ER16X80 (1)	63.00	ER16	80.00	0.5	10.0	28.00	-	54.0	-	M10	0.81
HSK FM63 ER16X100 (1)	63.00	ER16	100.00	0.5	10.0	28.00	-	74.0	-	M10	0.87
HSK FM63 ER16X120 (1)	63.00	ER16	120.00	0.5	10.0	28.00	-	94.0	-	M10	0.98
HSK FM63 ER16X160 (1)	63.00	ER16	160.00	0.5	10.0	28.00	40.00	134.0	85.60	M10	1.32
HSK FM63 ER32X80 (1)	63.00	ER32	80.00	2.0	20.0	50.00	-	54.0	-	-	0.96
HSK FM63 ER32X100 (1)	63.00	ER32	100.00	2.0	20.0	50.00	-	74.0	-	M22X1.5	1.19
HSK FM63 ER40X80	63.00	ER40	80.00	3.0	26.0	63.00	50.00	54.0	32.00	-	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	1.16
HSK FM80 ER16X85	80.00	ER16	85.00	0.5	10.0	28.00	-	59.0	-	M10	3.00
HSK FM80 ER16X120	80.00	ER16	120.00	0.5	10.0	28.00	-	94.0	-	M10	3.70
HSK FM80 ER20X85	80.00	ER20	85.00	1.0	13.0	34.00	-	59.0	-	M8	3.00
HSK FM80 ER20X120	80.00	ER20	120.00	1.0	13.0	34.00	-	94.0	-	M12	3.70
HSK FM80 ER32X85	80.00	ER32	85.00	2.0	20.0	50.00	-	59.0	-	M8	3.00
HSK FM80 ER32X120	80.00	ER32	120.00	2.0	20.0	50.00	-	94.0	-	M22X1.5	3.70

• 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 (should be ordered separately)

(1) Please check availbility

(2) Minimum diameter

(3) Maximum diameter



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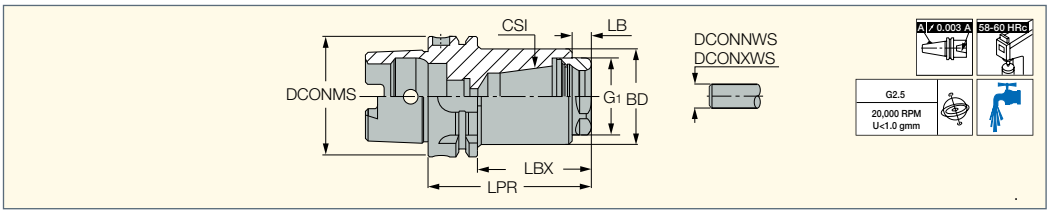
Spare Parts

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 ER20X85	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 8X1.25*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK FM80 ER20X120	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 12X1.75*	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, should be ordered separately

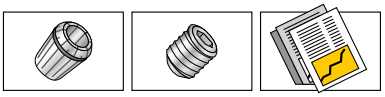
SHORTIN HSK

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	CDI(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 (should be ordered separately).
(1) Minimum diameter
(2) Maximum diameter (1) 1 - Hole for data chip, 0 - Without hole for data chip


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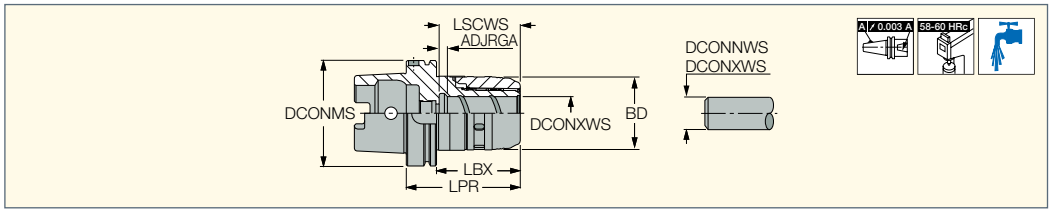
Spare Parts

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, should be ordered separately

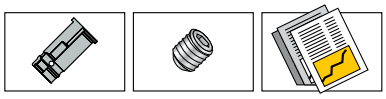
MAXIN HSK

HSK A-MAXIN
Power Chucks with HSK DIN69893 Form A Tapered Shanks



Designation	DCONMS	DCONNWS(1)	DCONXWS(2)	BD	LPR	LBX	ADJRGA	LSCWS	CDI(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 (should 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 (1) 1 - Hole for data chip, 0 - Without hole for data chip


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Spare Parts

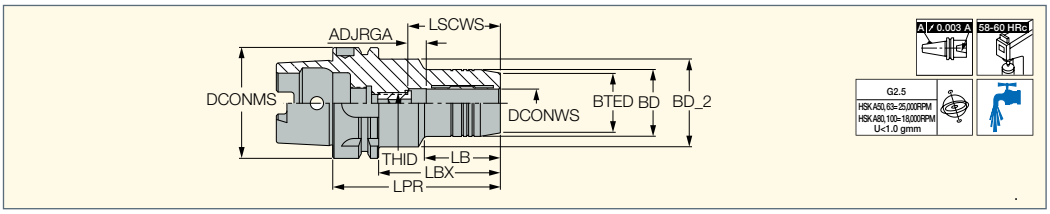
Designation				
HSK A63 MAXIN20X95	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 MAXIN32X113	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A100 MAXIN20X115	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 MAXIN32X110	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*	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, should be ordered separately

HYDROFIT HSK
HOLDING LINE

HSK A-HYDRO

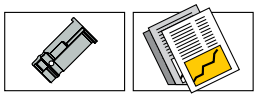
Hydraulic Chucks with
HSK DIN69893 Form
A Tapered Shanks



Designation	DCONMS	DCONWS	BTED	BD	BD_2	LPR	LBX	LB	ADJRGA	LSCWS	THID	CDI(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	1.25
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 (ordered 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 should be ordered separately.

(1) 1 - Hole for data chip, 0 - Without hole for data chip



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Spare Parts

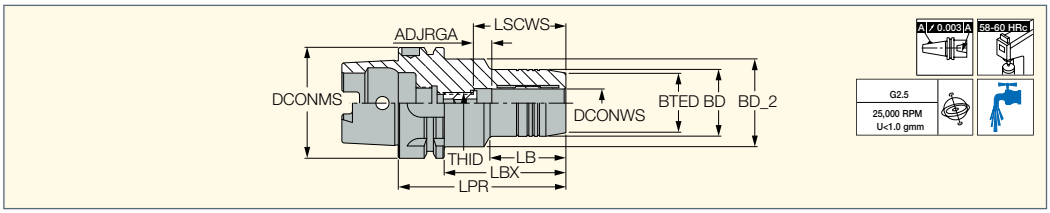
Designation					
HSK A50 HYDRO 6X80	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 6*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A50 HYDRO 8X80	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 8*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A50 HYDRO 10X85	HYDRO CLAMP 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, should be ordered separately

HYDROFIT HSK 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	CDI(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	0.00	52.50	80.00	0.00	8.00	51.0	M8X1	1	1.32
HSK A63 HYDRO 20X80 HD	20.00	38.00	52.50	53.00	80.00	0.00	8.00	51.0	M8X1	1	1.45
HSK A100 HYDRO 20X90 HD	20.00	38.00	0.00	52.50	90.00	0.00	8.00	51.0	M8X1	1	1.92
HSK A100 HYDRO 32X100 HD	32.00	58.50	0.00	72.00	100.00	0.00	9.00	61.0	M8X1	1	3.80

(1) 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

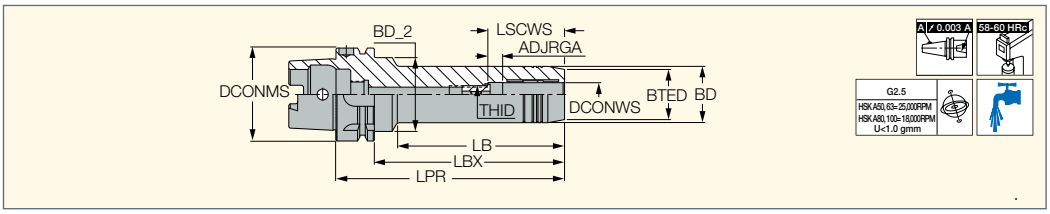
Designation			
HSK A63 HYDRO 12X80 HD	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	ALLEN KEY SW5X100*
HSK A63 HYDRO 16X80 HD	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	ALLEN KEY SW5X100*
HSK A63 HYDRO 20X80 HD	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	ALLEN KEY SW5X100*
HSK A100 HYDRO 20X90 HD	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, should be ordered separately

HYDROFIT HSK
HOLDING LINE

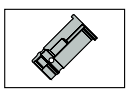
HSK A-HYDRO (long)

Long Projection Hydraulic Chucks with HSK DIN69893 Form A Tapered Shanks



Designation	DCONMS	DCONWS	BTED	BD	BD_2	LPR	LBX	LB	ADJRGA	LSCWS	THID	CDI(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	2.44
HSK A63 HYDRO 25X150	63.00	25.00	46.00	50.00	50.00	150.00	124.0	-	10.00	58.0	M16X1	1	2.56
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 (ordered 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 should be ordered separately.(1) 1 - Hole for data chip, 0 - Without hole for data chip


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Spare Parts

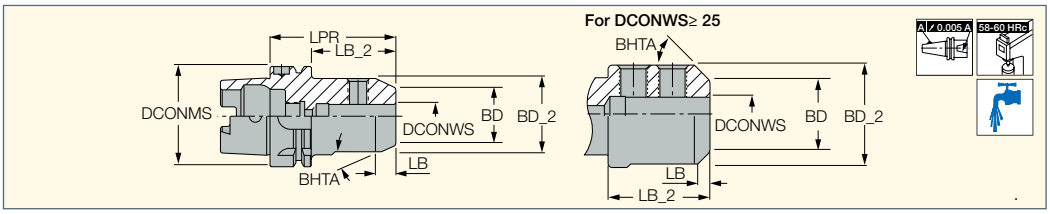
Designation					
HSK A63 HYDRO 6X150	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 6*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 6X200	HYDRO CLAMP SCREW M8X14	TEST BAR HYDRO 6*	WRENCH HYDRO HEX 4*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 HYDRO 8X150	HYDRO CLAMP 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, should be ordered separately

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	CDI(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 A100EM 12X80	100.00	12.00	30.00	42.00	80.00	12.9	51.00	25.0	1	2.45
HSK A100EM 14X80	100.00	14.00	32.00	44.00	80.00	12.9	51.00	25.0	1	2.00
HSK A100EM 16X100	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 (should be ordered separately).(1) 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

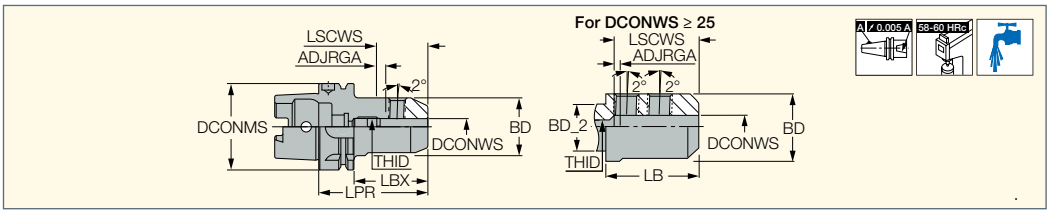
Designation			
HSK A50 EM8X65*	SR M8X10 DIN1835-B	WRENCH COOL TUBE HSK50*	COOLING TUBE HSK A50*
HSK A50 EM10X80*	SR M10X12 DIN1835-B	WRENCH COOL TUBE HSK50*	COOLING TUBE HSK A50*
HSK A50 EM16X80*	SR M14X16 DIN1835-B	WRENCH COOL TUBE HSK50*	COOLING TUBE HSK A50*
HSK A50 EM20X80*	SR M16X16 DIN1835-B	WRENCH 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 A100EM 12X80	SR M12X16 DIN1835-B	WRENCH COOL TUBE HSK100*	COOLING TUBE HSK A100*
HSK A100EM 14X80	SR M12X16 DIN1835-B	WRENCH COOL TUBE HSK100*	COOLING TUBE HSK A100*
HSK A100EM 16X100	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, should 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]	CDI[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 (should be ordered separately).

[1] Adjustment screw has an internal coolant hole.

[2] Adjustment screw hexagon key size [1] 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

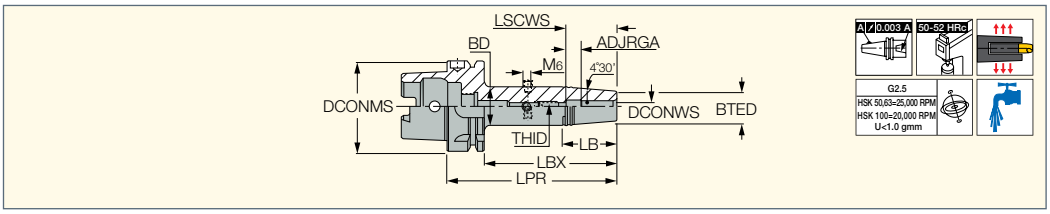
Designation				
HSK A63 EM6X80 E	SR M6X10 DIN1835B	PRESET M5X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 EM8X80 E	SR M8X10 DIN1835-B	PRESET M6X20B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 EM10X80 E	SR M10X12 DIN1835-B	PRESET CAP M8X12B	COOLING TUBE HSK A63*	WRENCH COOL TUBE 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, should be ordered separately

SHRINKIN HSK

HSK A-SRKIN

Thermal Shrink Chucks
with HSK DIN69893 Form
A Tapered Shanks

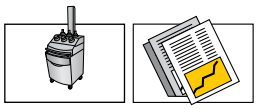


Designation	DCONMS	DCONWS	BTED	BD	LPR	LBX	LB	ADJRGA	LSCWS	THID	Key(2)	CDI(3)	kg
HSK A50 SRKIN6X80*	50.00	6.00	21.00	27.00	80.00	54.0	38.00	11.00	36.0	M5	2.50	1	0.56
HSK A63 SRKIN6X120	63.00	6.00	21.00	27.00	120.00	94.0	38.00	11.00	36.0	M5	2.50	1	1.00
HSK A63 SRKIN6X160	63.00	6.00	21.00	27.00	160.00	134.0	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	6.00	42.0	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	-	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	3.14
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 SRKIN18X160	100.00	18.00	33.00	42.00	160.00	131.0	57.00	11.00	50.0	M12	6.00	1	3.14
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 (should 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 (1) 1 - Hole for data chip, 0 - Without hole for data chip



694-695 689-691

Spare Parts

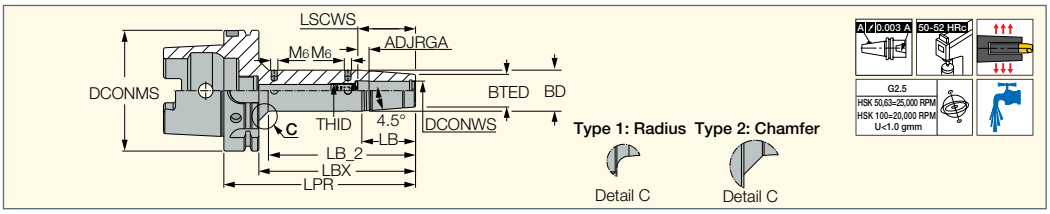
Designation			
HSK A50 SRKIN6X80*	PRESET M5X18B	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A63 SRKIN6X120	PRESET M5X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN6X160	PRESET M5X18B	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRKIN6X80	PRESET M5X18B	COOLING TUBE HSK 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			
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 SRKIN18X160	PRESET M12X18B	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*
HSK A100 SRKIN20X105	PRESET M16X20B	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, should be ordered separately

X-STREAM JET TOOLHOLDING
SHRINKIN HSK

HSK A-SRKIN-CX

Thermal Shrink Chucks with HSK DIN69893 Form A Tapered Shank and Coolant Jet Channels along the Shank Bore



Designation	DCONMS	DCONWS	BTED	BD	LB	LB_2	LBX	LPR	ADJRGA	LSCWS	THID	Key(2)	Fig.	CDI(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 (should be ordered separately) • Use only inductive heating device for SRKIN holders • Preset screw CX allows supply of coolant via JET channels - do not remove

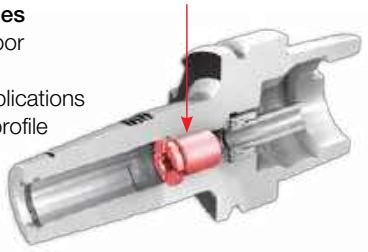
(1) Shorter projection than DIN 69882-8, use special IND S DISC

(2) Adjustment screw hexagon key size (1) 1 - Hole for data chip, 0 - Without hole 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!

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

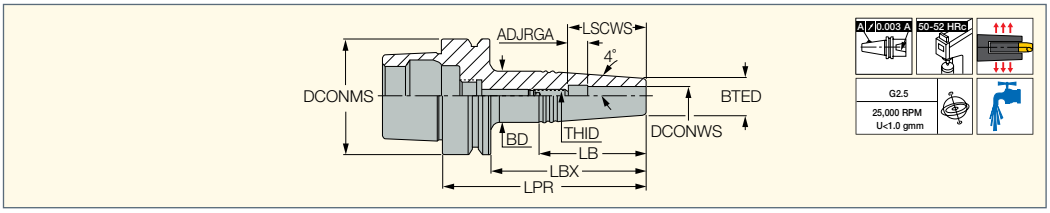
* Optional, should be ordered separately



HSK SHRINKIN

HSK E-SRK

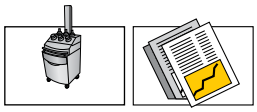
Thermal Chuck Collets with HSK DIN69893 Form E Tapered Shanks for Solid Carbide Tools Only



Designation	DCONMS	DCONWS	BTED	BD	LPR	LBX	LB	ADJRGA	LSCWS	THID	Key(1)	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	0.17
HSK E32 SRK4X45	32.00	4.00	10.00	15.00	65.00	45.0	35.00	6.00	18.0	M5	2.00	0.17
HSK E32 SRK6X45	32.00	6.00	11.00	16.00	65.00	45.0	35.00	10.00	28.0	M4	2.00	0.17
HSK E32 SRK10X45	32.00	10.00	16.00	22.00	65.00	45.0	42.00	10.00	40.0	M4	2.00	0.20
HSK E40 SRK3X45	40.00	3.00	10.00	13.00	65.00	45.0	30.00	6.00	16.0	M5	2.50	0.24
HSK E40 SRK3X80	40.00	3.00	10.00	19.00	100.00	80.0	64.00	6.00	16.0	M5	2.50	0.30
HSK E40 SRK4X45	40.00	4.00	10.00	15.00	65.00	45.0	35.00	6.00	18.0	M5	2.50	0.24
HSK E40 SRK4X80	40.00	4.00	10.00	19.00	100.00	80.0	64.00	6.00	18.0	M5	2.50	0.31
HSK E40 SRK5X45	40.00	5.00	10.00	15.00	65.00	45.0	35.00	10.00	25.0	M4	2.00	0.24
HSK E40 SRK5X80	40.00	5.00	10.00	19.00	100.00	80.0	64.00	10.00	25.0	M4	2.00	0.32
HSK E40 SRK6X45	40.00	6.00	11.00	16.00	65.00	45.0	35.00	10.00	28.0	M5	2.50	0.23
HSK E40 SRK6X80	40.00	6.00	11.00	20.00	100.00	80.0	64.00	10.00	28.0	M5	2.50	0.32
HSK E40 SRK8X45	40.00	8.00	14.00	20.00	65.00	45.0	42.00	10.00	35.0	M5	2.50	0.27
HSK E40 SRK10X45	40.00	10.00	16.00	22.00	65.00	45.0	42.00	10.00	40.0	M5	2.50	0.27
HSK E40 SRK10X80	40.00	10.00	16.00	24.50	100.00	80.0	60.00	10.00	40.0	M8	4.00	0.39
HSK E40 SRK12X45	40.00	12.00	20.00	26.00	65.00	45.0	42.00	10.00	42.0	M5	2.50	0.32
HSK E40 SRK12X80	40.00	12.00	20.00	28.00	100.00	80.0	56.00	10.00	42.0	M10	5.00	0.46
HSK E50 SRK3X45	50.00	3.00	10.00	15.00	71.00	45.0	36.00	6.00	16.0	M5	2.50	0.45
HSK E50 SRK3X80	50.00	3.00	10.00	19.00	106.00	80.0	64.00	6.00	16.0	M5	2.50	0.51
HSK E50 SRK4X45	50.00	4.00	10.00	15.00	71.00	45.0	36.00	6.00	18.0	M5	2.50	0.49
HSK E50 SRK4X80	50.00	4.00	10.00	19.00	106.00	80.0	64.00	6.00	18.0	M5	2.50	0.50
HSK E50 SRK6X45	50.00	6.00	11.00	16.00	71.00	45.0	36.00	10.00	28.0	M5	2.50	0.45
HSK E50 SRK6X80	50.00	6.00	11.00	20.00	106.00	80.0	64.00	10.00	28.0	M5	2.50	0.51
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	0.47
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	0.56
HSK E50 SRK10X45	50.00	10.00	16.00	22.00	71.00	45.0	42.00	10.00	40.0	M6	3.00	0.48
HSK E50 SRK10X80	50.00	10.00	16.00	24.50	106.00	80.0	60.00	10.00	40.0	M8	4.00	0.60
HSK E50 SRK12X45	50.00	12.00	20.00	26.00	71.00	45.0	42.00	10.00	42.0	M6	3.00	0.50

• A cooling tube must be used with all coolant through HSK spindles (should be ordered separately). • To be used for carbide tools only.

(1) Adjustment screw hexagon key size



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Spare Parts

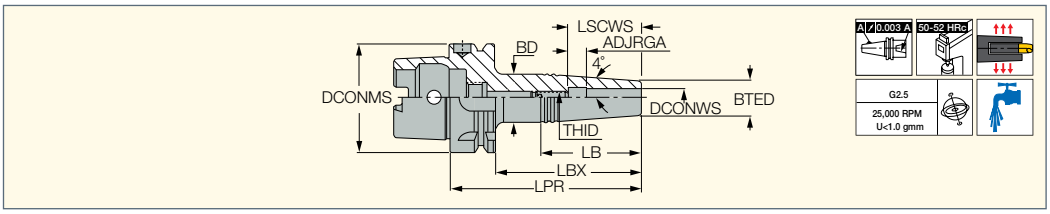
Designation			
HSK E32 SRK3X45	SR M4X10 DIN913	COOLING TUBE HSK A32*	WRENCH COOL TUBE HSK32*
HSK E32 SRK4X45	SR M5X20 DIN913	COOLING TUBE HSK A32*	WRENCH COOL TUBE HSK32*
HSK E32 SRK6X45	SR M4X20 DIN916	COOLING TUBE HSK A32*	WRENCH COOL TUBE HSK32*
HSK E32 SRK10X45	SR M4X20 DIN916	COOLING TUBE HSK A32*	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 M8X20 DIN913	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK E50 SRK12X45	SR M6X10 DIN916	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*

* Optional, should be ordered separately

SHRINKIN HSK

HSK A-SRK

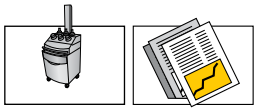
Thermal Chuck Collets with HSK DIN69893 Form A Tapered Shanks for Solid Carbide Tools Only



Designation	DCONMS	DCONWS	BTED	BD	LPR	LBX	LB	ADJRGA	LSCWS	THID	Key(1)	CDI(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 (should be ordered separately). • To be used for carbide tools only. • Remove preset screw for coolant through.

(1) Key for the adjustment screw. (1) 1 - Hole for data chip, 0 - Without hole for data chip



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Spare Parts

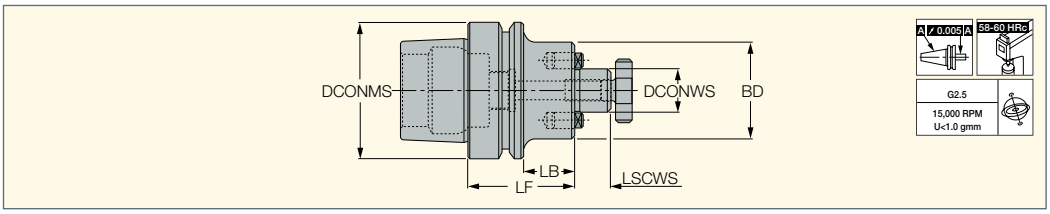
Designation			
HSK A63 SRK 3X50	SR M6X10 DIN916	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 3X85	SR M6X10 DIN916	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 4X50	SR M6X10 DIN916	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 SRK 4X85	SR M6X10 DIN916	COOLING TUBE HSK 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, should be ordered separately

HSK

HSK E-SEM

ISO 3937 Shell Mill Holders
with HSK E DIN69893
Form E Tapered Shanks



Designation	DCONMS	DCONWS	BD	LF	LB	LSCWS	kg
HSK E40 SEM 16X50	40.00	16.00	38.00	50.00	30.0	17.00	0.45
HSK E40 SEM 22X50	40.00	22.00	47.00	50.00	30.0	19.00	0.54

• A cooling tube must be used with all coolant through HSK spindles (should be ordered separately). • For internal coolant through the holder, the related COOLANT SET should be ordered via Accessories (applicable to certain tools only)

Spare Parts

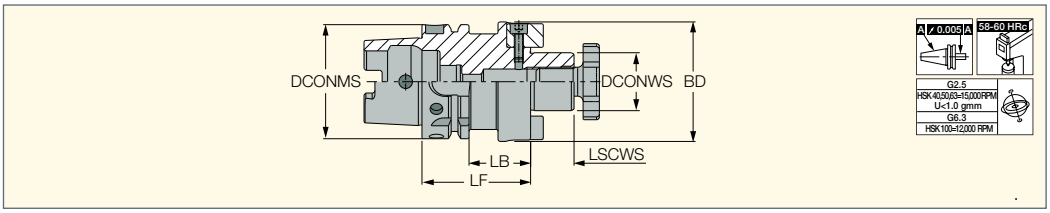
Designation					
HSK E40 SEM 16X50	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*	
HSK E40 SEM 22X50	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	COOLING TUBE HSK A40*	WRENCH COOL TUBE HSK40*	DR.DOG 10S

* Optional, should 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	CDI[1]	kg
HSK A50 SEM22X60*	50.00	22.00	47.00	60.00	19.00	34.0	1	0.80
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 (should be ordered separately). • For internal coolant through the holder, the related COOLANT SET should be ordered via Accessories (applicable to certain tools only)[1] 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

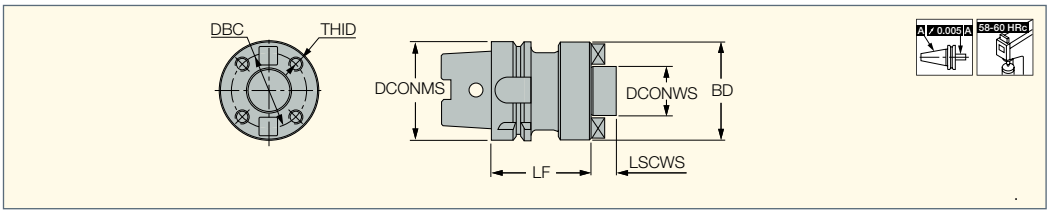
Designation						
HSK A50 SEM22X60*	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*		SR M4X10DIN912
HSK A63 SEM16X50	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	DR.DOG 8S	SR M3X10DIN912
HSK A63 SEM22X50	M10 CLAMP SCREW SEM22	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					SR M6X16 DIN912

* Optional, should 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	CDI(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 DIN 912 M12X25

• A cooling tube must be used with all coolant through HSK spindles (should be ordered separately). • Peripheral clamping screws are not supplied.(1) 1 - Hole for data chip, 0 - Without hole for data chip

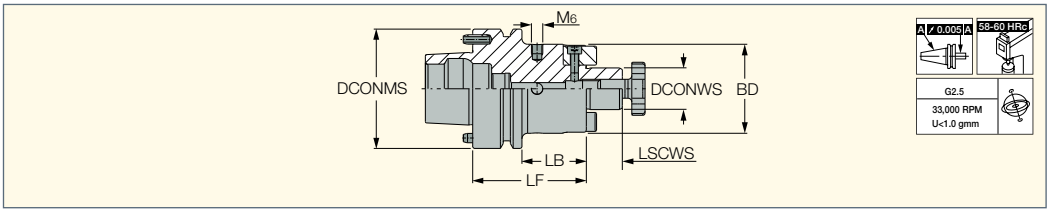


716

HSK

HSK FM-SEM

Shell Mill Adapters with HSK DIN69893 FM Tapered Shanks with Two Pins for MAKINO Machine Models MAG



Designation	DCONMS	DCONWS	LF	BD	LSCWS	LB	kg
HSK FM63 SEM 22X60	63.00	22.00	60.00	47.00	19.00	34.0	1.13

• A cooling tube must be used with all coolant through HSK spindles (should 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 (applicable to certain tools only)

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

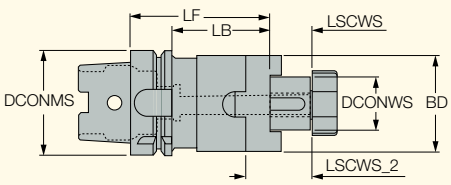
* Optional, should be ordered separately

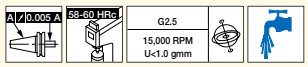


HSK

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	CDI(1)	kg
HSK A50 SEMC16X50*	50.00	16.00	32.00	50.00	24.0	17.00	27.00	1	0.80
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 (should be ordered separately). • When mounting slitting cutters, remove the driving ring and use spacer rings. • Verify that the weight of the entire tool assembly does not exceed the machine spindle's carrying capability.(1) 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

Designation						
HSK A50 SEMC16X50*	16 D.RING SEMC	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*	
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

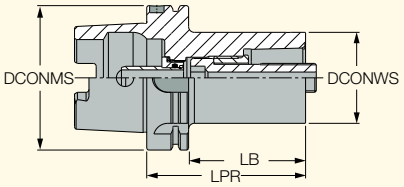
* Optional, should be ordered separately



HSK CAMFIX

HSK-C#

CAMFIX (ISO 26623-1)
Holders with HSK DIN 69893
Form A Tapered Shanks



Designation	DCONMS	DCONWS	LPR	LB	CDI(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
C6 AD HSK A100-110	100.00	63.00	110.00	81.00	1	4.00

- Note: To enable clamping the part to be attached, first remove the cooling tube

(1) 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

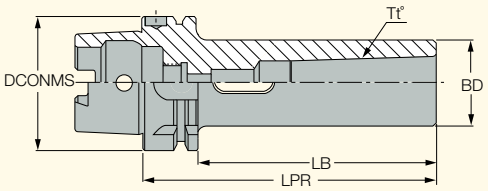
Designation						
C4 AD HSK A63WHX080	SR M14X58 C4	HW 8.0*	MT RING M22X17XC4	COOLING TUBE HSK A63 C5	WRENCH COOL TUBE HSK63*	WRENCH C4 DRW NUT*
C5 AD HSK A63WHX90	SR M16X70 C5	HW 10.0*	MT RING M25X20XC5	COOLING TUBE HSK A63 C5	WRENCH COOL TUBE HSK63*	WRENCH C5 DRW NUT*
C5 AD HSK A100WHX100	SR M16X70 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, should 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	CDI(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 (should be ordered separately).

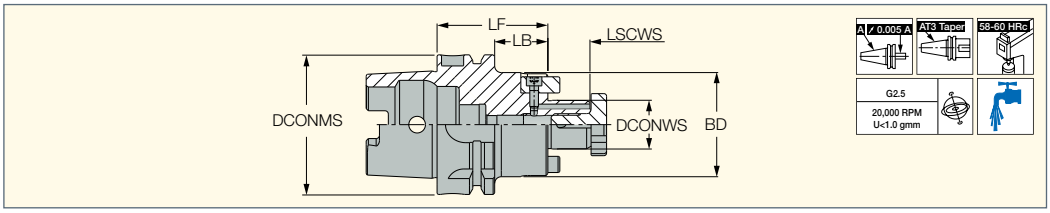
* Optional, should be ordered separately

(1) 1 - Hole for data chip, 0 - Without hole for data chip

HSK

HSK A-SEM-C

Shell Mill Holders with Coolant Holes and DIN69893 form A HSK Tapered Shanks



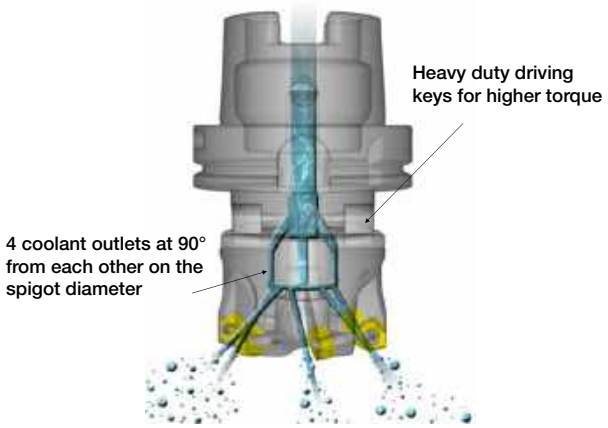
Designation	DCONMS	DCONWS	BD	LF	LB	LSCWS	CDI(1)	kg
HSK A63 SEM16X50C	63.00	16.00	38.00	50.00	24.0	17.00	1	0.84
HSK A63 SEM16X100C	63.00	16.00	38.00	100.00	74.0	17.00	1	1.16
HSK A63 SEM22X50C	63.00	22.00	47.00	50.00	24.0	19.00	1	0.97
HSK A63 SEM22X100C	63.00	22.00	47.00	100.00	74.0	19.00	1	1.68
HSK A63 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 (should be ordered separately).

(1) 1 - Hole for data chip, 0 - Without hole 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

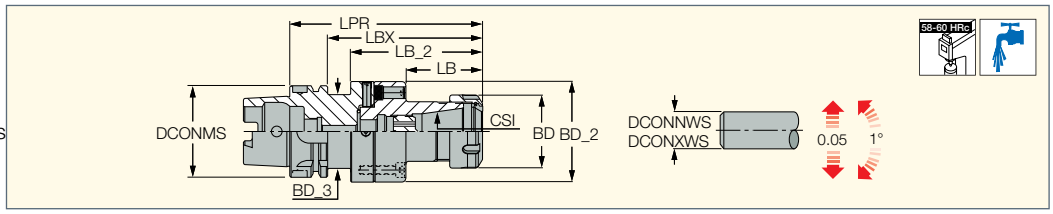
Designation						
HSK A63 SEM16X50C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	WRENCH M8 SEMC16*
HSK A63 SEM16X100C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*	WRENCH M8 SEMC16*
HSK A63 SEM22X50C	M10 CLAMP 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 SEMC 16*
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 SEMC32*
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, should be ordered separately

FINEFIT HSK

ADJ HSK A-ER

DIN6499 ER Collet Chucks with Center Alignment (FINEFIT) and HSK DIN69893/A Tapered Shanks

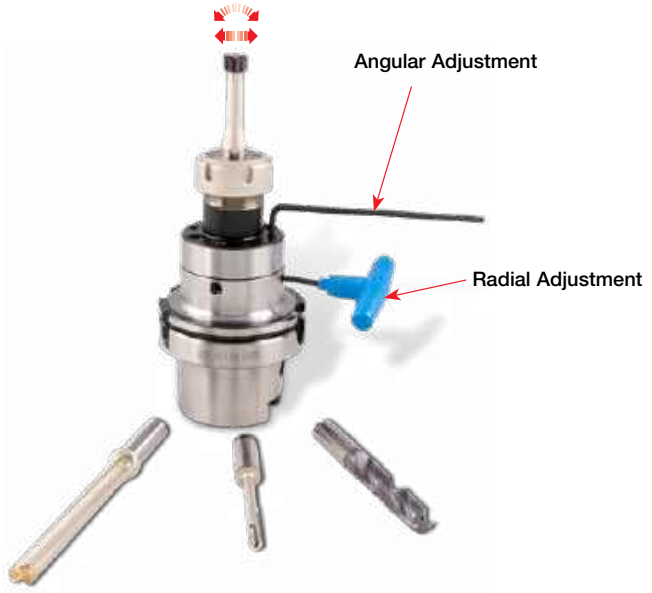


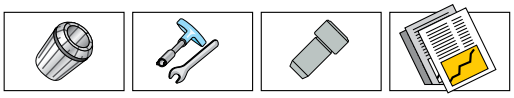
Designation	DCONMS	CSI	DCONNWS(1)	DCONXWS(2)	BD_2	BD_3	BD	LPR	LBX	LB	LB_2	CDI(3)	kg
ADJ HSK A63 D70 ER32	63.00	ER32	2.0	20.0	70.00	46.00	50.00	134.50	108.5	52.50	92.50	1	2.25
ADJ HSK A100 D70 ER32	100.00	ER32	2.0	20.0	70.00	-	50.00	130.00	101.0	53.00	-	1	3.64

• A cooling tube must be used with all coolant through HSK spindles (should be ordered separately). • Radial adjustment 0.05 mm Angular adjustment 1°

(1) Minimum diameter

(2) Maximum diameter (1) 1 - Hole for data chip, 0 - Without hole for data chip





684-688 718-719 718 558,682-684

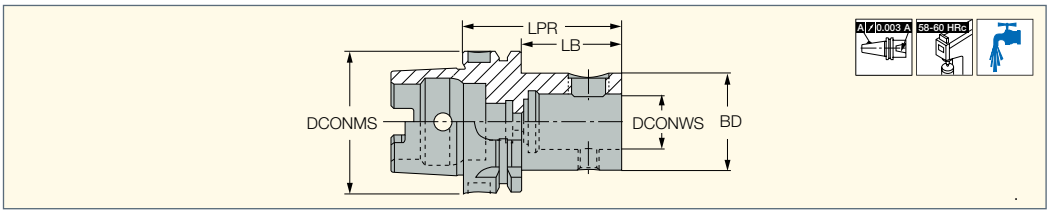
Spare Parts

Designation	
ADJ HSK A-ER	ADJ ER32 NOSE

HSK CLICKFIT

HSK A-CF (CLICKFIT)

Modular Connections (CLICKFIT) with HSK DIN69893/A Tapered Shanks



Designation	DCONMS	DCONWS	LPR	LB	BD	CDI(1)	kg
HSK A63 CF4-S	63.00	25.00	70.00	44.0	44.50	1	1.00
HSK A80 CF4-S	80.00	25.00	73.00	47.0	44.50	1	1.50
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 (should be ordered separately).

(1) 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

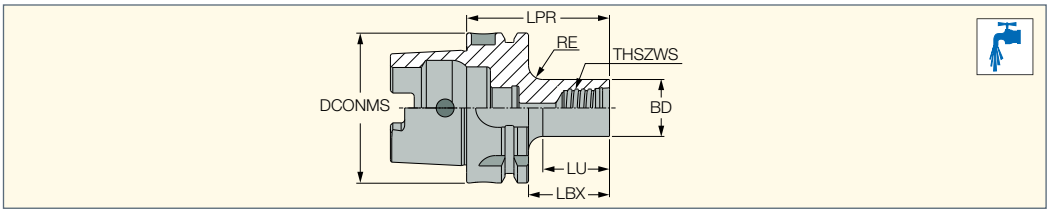
Designation						
HSK A63 CF4-S	SCREW M16X1.5 FOR CF4	WRENCH HW 8 200X36 DIN911	OR 15X3N	WRENCH REAL C.F M8	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A80 CF4-S	SCREW M16X1.5 FOR CF4	WRENCH HW 8 200X36 DIN911	OR 15X3N	WRENCH REAL C.F M8	COOLING TUBE HSK A 80*	WRENCH COOL TUBE HSK80*
HSK A100 CF4-S	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, should be ordered separately

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	CDI(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-H060-HSK A63-T15	63.00	T15	23.90	60.00	34.0	28.00	6.0	1	0.76

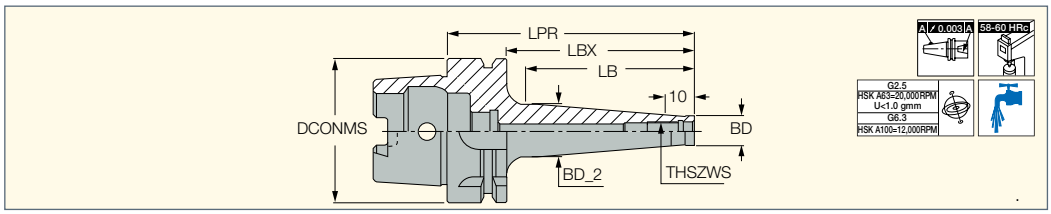
• Do not apply lubricant to the threaded connection • For adaptation options, see page 664

(1) 1 - Hole for data chip, 0 - Without hole for data chip

FLEXFIT HSK

HSK A-ODP (FLEXFIT)

FLEXFIT Threaded Adaptation
with HSK DIN69893/A
Tapered Shanks

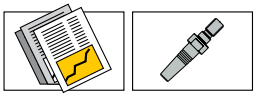


Designation	DCONMS	THSZWS	BD	BD_2	LPR	LBX	LB	CDI(1)	kg		
HSK A32 ODP12X42	32.00	M12	21.00	20.60	42.00	22.0	-	1	0.17	COOLING TUBE HSK A32*	WRENCH COOL TUBE HSK32*
HSK A50 ODP12X48	50.00	M12	21.00	20.60	48.00	22.0	-	1	0.46	COOLING TUBE HSK A50*	WRENCH COOL TUBE HSK50*
HSK A63 ODP6X109	63.00	M06	9.80	23.00	109.00	83.0	75.00	1	0.74	COOLING TUBE HSK A63*	WRENCH COOL TUBE HSK63*
HSK A63 ODP6X59	63.00	M06	9.80	11.50	59.00	33.0	25.00	1	0.66	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 (should be ordered separately).

(1) 1 - Hole for data chip, 0 - Without hole for data chip

* Optional, should be ordered separately

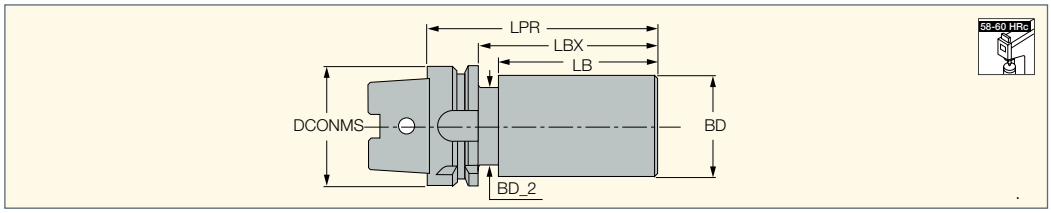


664 666-668

HSK

HSK A-B-MN (blanks)

Blanks with HSK DIN69893/A
Tapered Shanks



Designation	DCONMS	BD	BD_2	LPR	LBX	LB	CDI(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 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

Designation		
HSK A-B-MN (blanks)	COOLING TUBE HSK A100*	WRENCH COOL TUBE HSK100*

* Optional, should be ordered separately

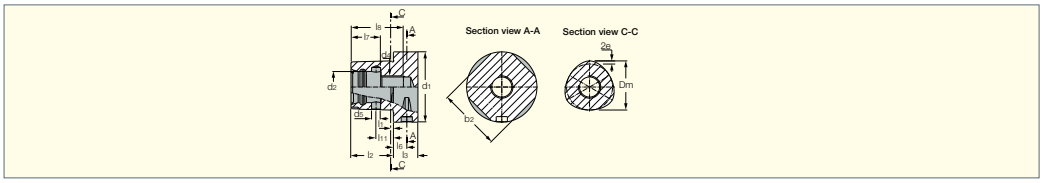
CAMFIX DIN 26623-1



CAMFIX

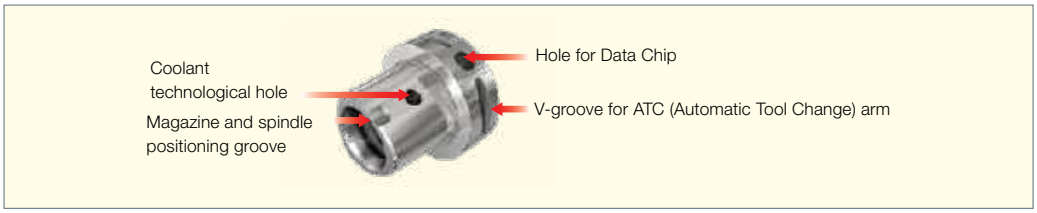
CAMFIX ISO 26623-1

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

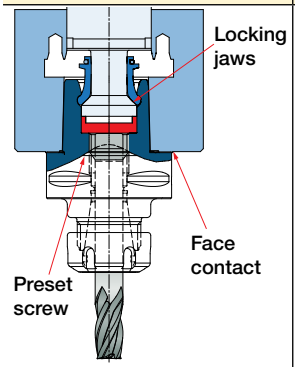
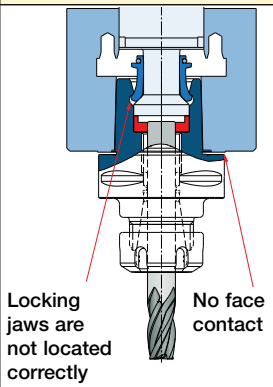


Features

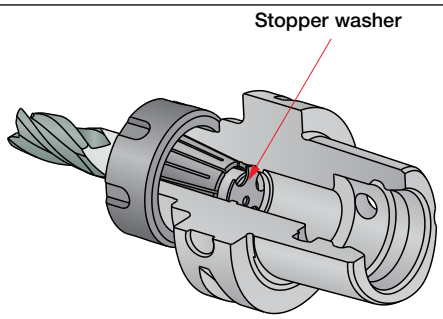
- Symmetrical design: Due to the symmetrical design, the torque load is distributed on the polygon, providing a self-centering effect.
- Rigidity: The **CAMFIX** clamping mechanism is extremely rigid against bending forces.
- Accuracy: The taper and face contact ensure high repeatability within



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.



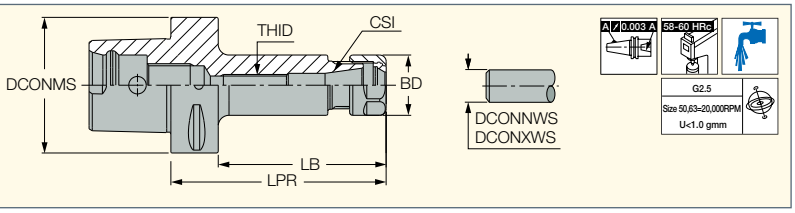
ER chucks

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



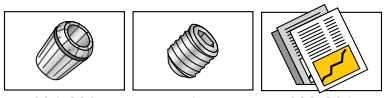
Designation	DCONMS	CSI	DCONNWS[2]	DCONXWS[3]	BD	LPR	LB	THID	CDI[4]	kg
C3 ER16X45	32.00	ER16	1.0	10.0	28.00	45.00	30.0	-	0	0.20
C3 ER20X45	32.00	ER20	1.0	13.0	34.00	45.00	30.0	-	0	0.22
C4 ER16X70	40.00	ER16	1.0	10.0	28.00	70.00	50.0	M10	1	0.38
C4 ER20X35 [1]	40.00	ER20	1.0	13.0	34.00	35.00	27.0	-	1	0.16
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 - Hole for data chip, 0 - Without hole for data chip

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	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	WRENCH ER16*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ER16X130	NUT ER16 TOP	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	WRENCH ER20*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ER20X130	NUT ER20 TOP	WRENCH ER20*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ER25X055	NUT ER25 TOP	WRENCH ER25*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ER25X100	NUT ER25 TOP	WRENCH ER25*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ER32X057	NUT ER32 TOP	WRENCH ER32*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ER32X100	NUT ER32 TOP	WRENCH ER32*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C6 ER16X100	NUT ER16 TOP	WRENCH ER16*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ER16X130	NUT ER16 TOP	WRENCH ER16*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ER16X160	NUT ER16 TOP	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	WRENCH ER20*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ER20X130	NUT ER20 TOP	WRENCH ER20*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ER20X160	NUT ER20 TOP	WRENCH ER20*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ER25X060	NUT ER25 TOP	WRENCH ER25*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ER25X100	NUT ER25 TOP	WRENCH ER25*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ER25X130	NUT ER25 TOP	WRENCH ER25*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ER25X160	NUT ER25 TOP	WRENCH ER25*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ER32X060	NUT ER32 TOP	WRENCH ER32*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ER32X100	NUT ER32 TOP	WRENCH ER32*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ER32X130	NUT ER32 TOP	WRENCH ER32*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ER32X160	NUT ER32 TOP	WRENCH ER32*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ER40X065	NUT ER40 TOP	WRENCH ER40*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ER40X100	NUT ER40 TOP	WRENCH ER40*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ER40X130	NUT ER40 TOP	WRENCH ER40*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C8 ER32X100	NUT ER32 TOP	WRENCH ER32*	COOLING TUBE C8*	WRENCH COOL TUBE C8*
C8 ER32X160	NUT ER32 TOP	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	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, should be ordered separately

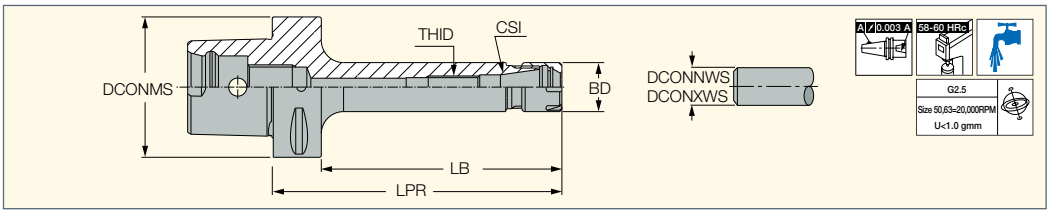


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CAMFIX

C#-ER-M

DIN 6499 ER Long Mini Collet Chucks with CAMFIX (ISO 26623-1 standard) Exchangeable Tapered Shanks

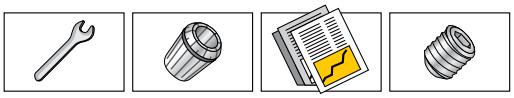


Designation	DCONMS	CSI	DCONNWS(1)	DCONXWS(2)	BD	LPR	LB	THID	CDI(3)	kg			
C4 ER16X70 M	40.00	ER16	0.5	10.0	22.00	70.00	50.0	M10	1	0.32	NUT ER16 MINI	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C5 ER16X100 M	50.00	ER16	0.5	10.0	22.00	100.00	80.0	M10	1	0.57	NUT ER16 MINI	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 ER16X130 M	50.00	ER16	0.5	10.0	22.00	130.00	110.0	M10	1	0.56	NUT ER16 MINI	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C6 ER16X100 M	63.00	ER16	0.5	10.0	22.00	100.00	78.0	M10	1	0.90	NUT ER16 MINI	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ER16X130 M	63.00	ER16	0.5	10.0	22.00	130.00	108.0	M10	1	1.07	NUT ER16 MINI	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 ER16X160 M	63.00	ER16	0.5	10.0	22.00	160.00	138.0	M10	1	1.07	NUT ER16 MINI	COOLING TUBE C6*	WRENCH COOL TUBE C6*

(1) Minimum diameter

(2) Maximum diameter (1) 1 - Hole for data chip, 0 - Without hole for data chip

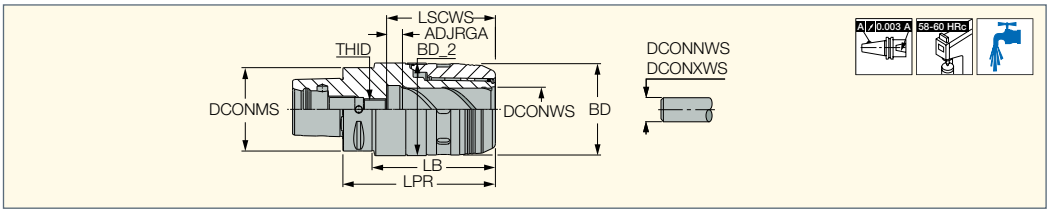
* Optional, should be ordered separately


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CAMFIX MAXIN

C#-MAXIN

MAXIN Power Chucks with CAMFIX (ISO 26623-1 standard) Exchangeable Shanks

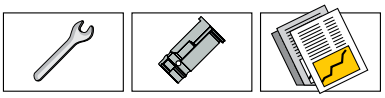


Designation	DCONMS	DCONNWS(1)	DCONXWS(2)	BD	BD_2	LPR	LB	ADJRGA	LSCWS	THID	CDI(3)	kg
C5 MAXIN 20X100	50.00	6.0	20.0	51.00	53.00	96.00	75.0	12.00	67.0	M16	1	0.87
C6 MAXIN20X95	63.00	6.0	20.0	51.00	53.00	96.00	73.0	12.00	67.0	M16	1	1.10
C6 MAXIN32X115	63.00	6.0	32.0	69.00	70.00	115.00	93.0	12.00	82.0	M16	1	2.88
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 (1) 1 - Hole for data chip, 0 - Without hole for data chip


716 697,718 556-557

Spare Parts

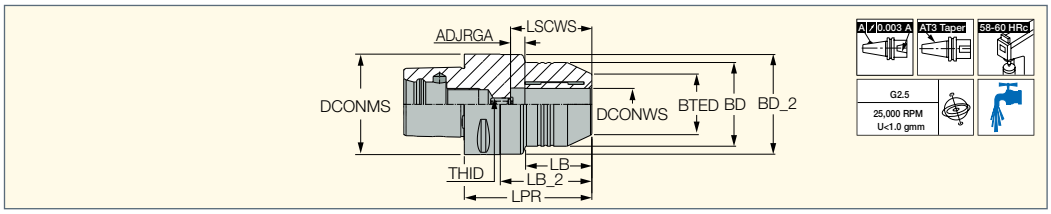
Designation				
C5 MAXIN 20X100	COOLING TUBE C5*	WRENCH COOL TUBE C5*	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*
C6 MAXIN20X95	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*
C6 MAXIN32X115	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*
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, should be ordered separately

HYDROFIT CAMFIX
HOLDING LINE

C#-HYDRO HD

Hydraulic Chucks with CAMFIX Shanks

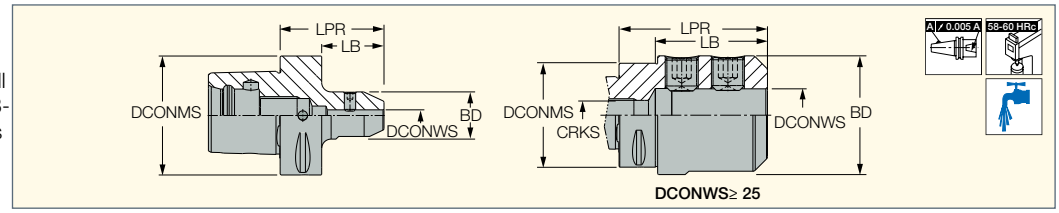


Designation	DCONMS	DCONWS	BTED	BD	BD_2	LB	LB_2	LPR	ADJRGA	LSCWS	THID	kg
C4 HYDRO 12X65 HD	40.00	12.00	32.00	-	39.50	-	44.00	65.00	10.00	46.00	M8X1	0.66
C4 HYDRO 20X83 HD	40.00	20.00	38.00	-	45.50	-	62.40	83.00	10.00	51.00	M8X1	0.67
C5 HYDRO 12X70 HD	50.00	12.00	32.00	42.00	49.50	33.00	50.00	70.00	10.00	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

CAMFIX

C#-EM

DIN 1835 Form B Weldon Endmill Holders with CAMFIX (ISO 26623-1) Exchangeable Tapered Shanks

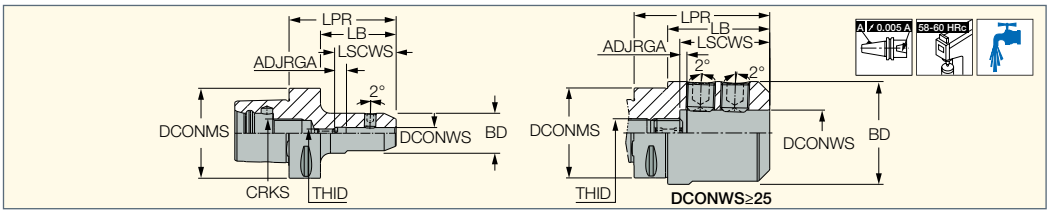


Designation	DCONMS	DCONWS	BD	LPR	LB	CRKS	CDI(1)	kg				
C3 EM 6X45	32.00	6.00	25.00	45.00	30.0	M12	0	0.23	SR M6X10 DIN1835B	HW 3.0*	COOLING TUBE C3*	WRENCH COOL TUBE C3*
C3 EM 8X45	32.00	8.00	28.00	45.00	30.0	M12	0	0.25	SR M8X10 DIN1835-B	HW 4.0*	COOLING TUBE C3*	WRENCH COOL TUBE C3*
C3 EM10X50	32.00	10.00	35.00	50.00	35.0	M12	0	0.35	SR M10X12 DIN1835-B	HW 5.0*	COOLING TUBE C3*	WRENCH COOL TUBE C3*
C3 EM12X55	32.00	12.00	42.00	55.00	40.0	M12	0	0.40	SR M12X16 DIN1835-B	HW 6.0*	COOLING TUBE C3*	WRENCH COOL TUBE C3*
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 EM18X70	80.00	18.00	50.00	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*

* Optional, should be ordered separately (1) 1 - Hole for data chip, 0 - Without hole for data chip

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	CDI[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 EM6X70 E	40.00	6.00	25.00	70.00	5.00	35.0	50.0	M14	M5	1	0.42
C4 EM8X70 E	40.00	8.00	28.00	70.00	8.00	43.0	50.0	M14	M6	1	0.46
C4 EM10X70 E	40.00	10.00	35.00	70.00	6.00	45.0	50.0	M14	M8	1	0.57
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 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

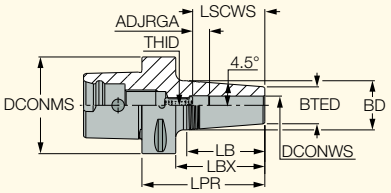
Designation						
C3 EM 6X70 E	SR M6X10 DIN1835B	PRESET M5X18B	HW 3.0*	HW 2.5*	COOLING TUBE C3*	WRENCH COOL TUBE C3*
C4 EM6X70 E	SR M6X10 DIN1835B	PRESET M5X18B	HW 3.0*	HW 2.5*	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 EM8X70 E	SR M8X10 DIN1835-B	PRESET CAP M6X12B	HW 3.0*	HW 4.0*	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 EM10X70 E	SR M10X12 DIN1835-B	PRESET CAP M8X12B	HW 4.0*	HW 5.0*	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*	HW 6.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 EM18X80 E	SR M14X16 DIN1835-B	PRESET CX M12X16	HW 6.0*	HW 6.0*	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 EM20X85 E	SR M16X16 DIN1835-B	PRESET CX M16X14	HW 8.0*	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*	HW 6.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM18X85 E	SR M14X16 DIN1835-B	PRESET CX M12X16	HW 6.0*	HW 6.0*	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 EM20X85 E	SR M16X16 DIN1835-B	PRESET CX M16X14	HW 8.0*	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*

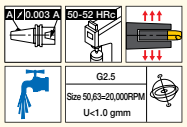
* Optional, should be ordered separately

SHRINKIN CAMFIX

C#-SRKIN

Thermal Shrink Chucks with Integral CAMFIX (ISO 26623-1) Tapered Shanks for Solid Carbide, HSS and Steel Tools



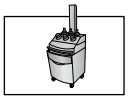


Designation	DCONMS	DCONWS	BTED	BD	LPR	LBX	LB	ADJRGA	LSCWS	THID	Key(1)	CDI(2)	kg
C4 SRKIN 10X75	40.00	10.00	24.00	32.00	75.00	55.0	50.80	11.00	42.0	M8	4.00	1	0.49
C4 SRKIN 12X75	40.00	12.00	24.00	32.00	75.00	55.0	50.80	11.00	47.0	M10	5.00	1	0.48
C4 SRKIN 14X80	40.00	14.00	27.00	34.00	80.00	60.0	44.50	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
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	0.45
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
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
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
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
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

• 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 (1) 1 - Hole for data chip, 0 - Without hole for data chip


689-691


694-695

Spare Parts

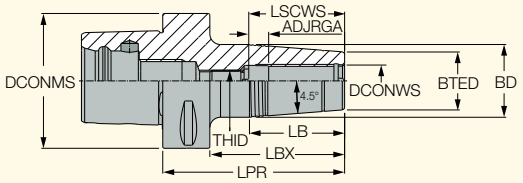
Designation			
C4 SRKIN 10X75	PRESET CX M8X16	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 SRKIN 12X75	PRESET CX M10X16	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 SRKIN 14X80	PRESET CX M10X16	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 SRKIN 16X80	PRESET CX M12X16	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 SRKIN 18X80	PRESET CX M12X16	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 SRKIN 20X85	PRESET CX M16X14	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 SRKIN 6X75	PRESET M5X18B	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 SRKIN 8X75	PRESET M6X20B	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C5 SRKIN 10X75	PRESET CX M8X16	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 SRKIN 12X75		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*
C5 SRKIN 6X75	PRESET M5X18B	COOLING TUBE C5*	WRENCH COOL TUBE C5*
C5 SRKIN 8X75	PRESET M6X20B	COOLING TUBE C5*	WRENCH COOL TUBE C5*
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*
C6 SRKIN 6X80	PRESET M5X18B	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 8X80	PRESET M6X20B	COOLING TUBE C6*	WRENCH COOL TUBE C6*

* Optional, should be ordered separately

X-STREAM JET TOOLHOLDING
SHRINKiN CAMFIX

C#-SRKIN-CX

Thermal Shrink Chucks with CAMFIX (ISO 26623-1) Tapered Shank and Coolant Jet Channels along the Shank Bore



Designation	DCONMS	DCONWS	BTED	BD	LPR	LBX	LB	LSCWS	ADJRGA	THID	Key(1)	CDI(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 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

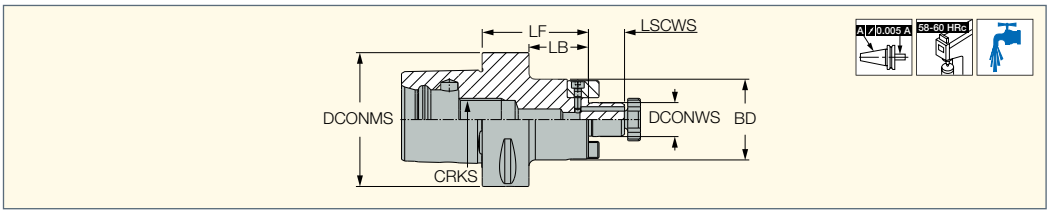
Designation			
C6 SRKIN 6X80 CX	PRESET CX M5X13	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 8X80 CX	PRESET CX M6X12	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 10X80 CX	PRESET CX M8X16	COOLING TUBE C6*	WRENCH COOL TUBE C6*
C6 SRKIN 12X80 CX	PRESET CX M10X16	COOLING TUBE C6*	WRENCH COOL TUBE C6*
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, should be ordered separately

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	CDI[1]	kg
C3 SEM 16X30 C	32.00	16.00	38.00	17.00	13.0	30.00	M12	0	0.30
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 SEM16X50 C	80.00	16.00	38.00	17.00	20.0	50.00	M20	1	1.90
C8 SEM16X100C	80.00	16.00	38.00	17.00	70.0	100.00	M20	1	2.32
C8 SEM22X50 C	80.00	22.00	47.00	19.00	20.0	50.00	M20	1	2.01
C8 SEM22X100C	80.00	22.00	47.00	19.00	70.0	100.00	M20	1	2.88
C8 SEM27X50 C	80.00	27.00	58.00	21.00	20.0	50.00	M20	1	2.18
C8 SEM27X100C	80.00	27.00	58.00	21.00	70.0	100.00	M20	1	3.14
C8 SEM32X50 C	80.00	32.00	66.00	24.00	20.0	50.00	M16	1	2.28
C8 SEM32X100C	80.00	32.00	66.00	24.00	70.0	100.00	M16	1	3.56
C8 SEM32X78X50C	80.00	32.00	78.00	24.00	20.0	50.00	M20	1	2.20
C8 SEM32X78X100C	80.00	32.00	78.00	24.00	70.0	100.00	M20	1	4.50
C8 SEM40X60 C	80.00	40.00	82.00	27.00	30.0	60.00	M20	1	2.99

[1] 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

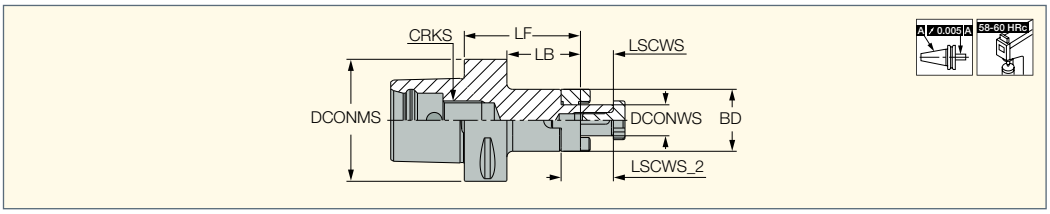
Designation								
C3 SEM 16X30 C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912		WRENCH M8 SEMC16*	HW 2.5*	COOLING TUBE C3*	WRENCH COOL TUBE C3*
C4 SEM16X32 C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912		WRENCH M8 SEMC16*	HW 2.5*	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 SEM16X55 C	M8 CLAMP SCREW SEM16	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 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 SEM16X100C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912		WRENCH M8 SEMC16*	HW 2.5*	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 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 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 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 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 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 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 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 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, should 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	CDI(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
C4 SEMC27X50	40.00	27.00	50.00	48.00	30.0	21.00	33.00	M14	1	0.33
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	1.08
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 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

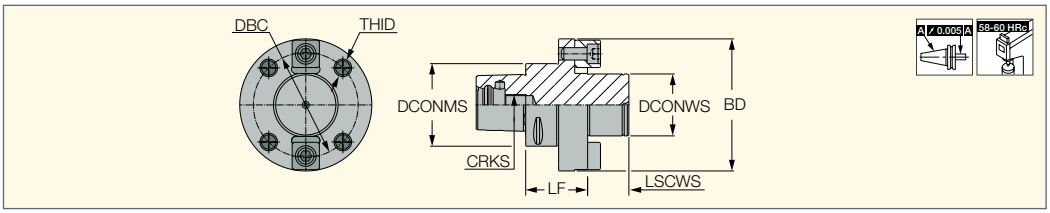
Designation						
C3 SEMC 16X30	16 D.RING SEMC	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	COOLING TUBE C3*	WRENCH COOL TUBE C3*	KEY SEMC 16 4X4X20
C4 SEMC16X45	16 D.RING SEMC	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16	COOLING TUBE C4*	WRENCH COOL TUBE C4*	KEY SEMC 16 4X4X20
C4 SEMC22X45	22 D.RING SEMC	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22	COOLING TUBE C4*	WRENCH COOL TUBE C4*	KEY SEMC 22 6X6X25
C4 SEMC27X50	27 D.RING SEMC	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27	COOLING TUBE C4*	WRENCH COOL TUBE C4*	KEY SEMC 27 7X7X25
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		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, should be ordered separately

CAMFIX

C#-FM

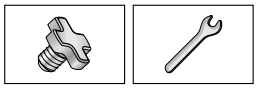
DIN 6357 Face Mill Holders with CAMFIX (ISO 26623-1) Tapered Shanks



Designation	DCONMS	DCONWS	LSCWS	LF	BD	DBC	THID	CRKS	CDI(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 - Hole for data chip, 0 - Without hole for data chip



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Spare Parts

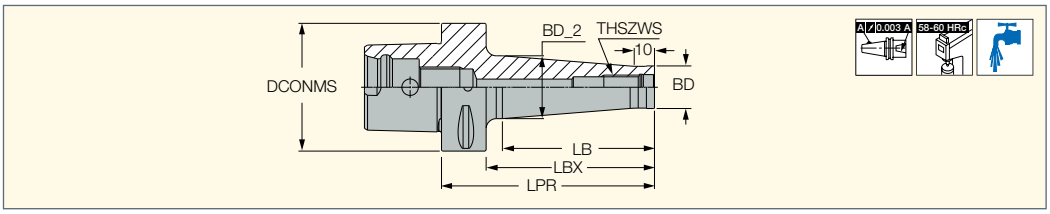
Designation			
C8 FM 60X60	COOLING TUBE C8*	WRENCH COOL TUBE C8*	DR. DOG 1E

* Optional, should be ordered separately

FLEXFIT CAMFIX

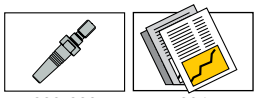
C#-ODP (FLEXFIT)

FLEXFIT Threaded Connection Shanks with CAMFIX (ISO 26623-1) Adaptation



Designation	DCONMS	THSZWS	BD	BD_2	LPR	LBX	LB	CDI(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 10X103	50.00	M10	18.00	28.00	103.00	83.0	75.00	1	0.10	COOLING TUBE C5*	WRENCH COOL TUBE C5*
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	0.65	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	0.00	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*

* Optional, should be ordered separately (1) 1 - Hole for data chip, 0 - Without hole for data chip

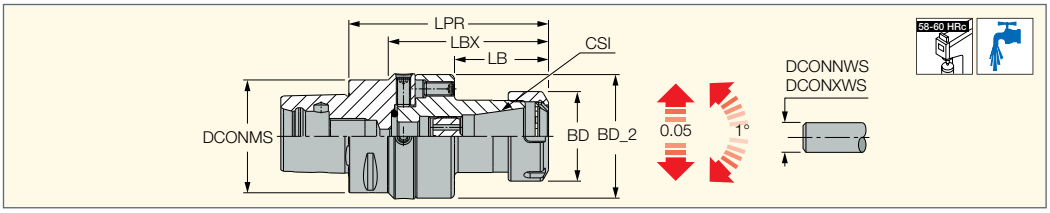


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FINEFIT CAMFIX

ADJ C#-ER

FINEFIT Center Alignment Shank and Base with CAMFIX Adaptations for Specially Tailored Toolholders

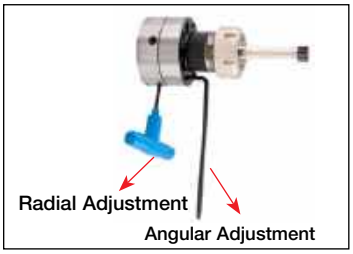


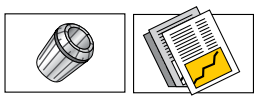
Designation	DCONMS	CSI	DCONNWS(1)	DCONXWS(2)	BD_2	BD	LPR	LBX	LB	CDI(3)	kg
ADJ C4 ER32	40.00	ER32	2.0	20.0	70.00	50.00	110.00	89.5	52.50	1	1.58
ADJ C5 ER32	50.00	ER32	2.0	20.0	70.00	50.00	115.00	95.0	52.50	1	2.12
ADJ C6 ER32	63.00	ER32	2.0	20.0	70.00	50.00	111.50	89.5	52.50	1	2.07

- Radial adjustment 0.05 mm, Angular adjustment 1°

(1) Minimum diameter

(2) Maximum diameter (1) 1 - Hole for data chip, 0 - Without hole for data chip





684-688 682-684

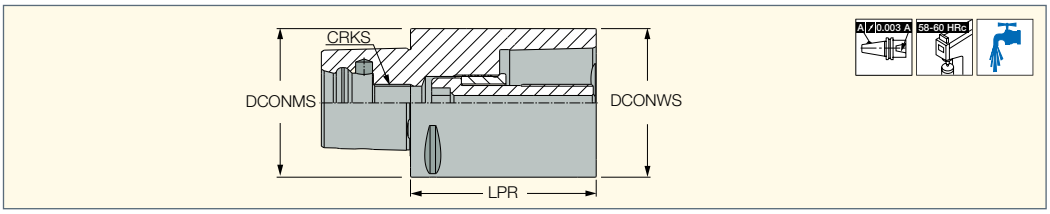
Spare Parts

Designation	
ADJ C#-ER	ADJ ER32 NOSE

CAMFIX

EX C# (CAMFIX extension)

CAMFIX Extension Adapters



Designation	DCONMS	DCONWS	LPR	CRKS	CDI[1]	kg
C3 EX C3X060	32.00	32.00	60.00	M12	0	0.40
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 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

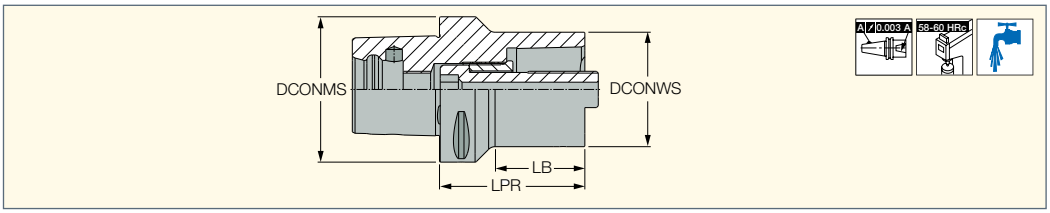
Designation						
C3 EX C3X060	SR M12X50 C3	HW 7.0*	MT RING M18X15XC3	COOLING TUBE C3*	WRENCH COOL TUBE C3*	WRENCH C3 DRW NUT*
C3 EX C3X080	SR M12X50 C3	HW 7.0*	MT RING M18X15XC3	COOLING TUBE C3*	WRENCH COOL TUBE C3*	WRENCH C3 DRW NUT*
C4 EX C4X060	SR M14X58 C4	HW 8.0*	MT RING M22X17XC4	COOLING TUBE 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, should be ordered separately

CAMFIX

RE-C#

CAMFIX Reduction Adapters



Designation	DCONMS	DCONWS	LPR	LB	kg
C6 RE C3X070	63.00	32.00	70.00	39.00	1.10
C8 RE C3X060	80.00	32.00	60.00	29.30	1.70
C6 RE C4X080	63.00	40.00	80.00	51.40	1.20
C8 RE C4X070	80.00	40.00	70.00	36.50	1.90
C6 RE C5X080	63.00	50.00	80.00	51.50	1.50
C8 RE C5X080	80.00	50.00	80.00	49.30	2.20
C8 RE C6X080	80.00	63.00	80.00	53.10	2.50
C8 RE C6X120	80.00	63.00	120.00	12.00	4.00

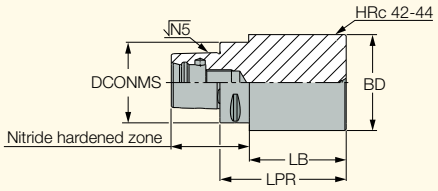
Spare Parts

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, should be ordered separately

CAMFIX

C#-B4340 (blank)
Blanks with CAMFIX (ISO 26623-1 Standard) Exchangeable Tapered Shanks



Designation	DCONMS	BD	LPR	LB	CDI(1)	kg		
C3 B4340 032090	32.00	32.00	90.00	-	0	0.60	COOLING TUBE C3*	WRENCH COOL TUBE C3*
C3 B4340 040110	32.00	40.00	110.00	93.2	0	1.00	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	2.00	COOLING TUBE C3*	WRENCH COOL TUBE C3*
C3 B4340 070060	32.00	70.00	60.00	43.2	0	1.30	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	6.00	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 B4340 040095	40.00	40.00	95.00	75.0	1	3.50	COOLING TUBE C4*	WRENCH COOL TUBE C4*
C4 B4340 052065	40.00	52.00	65.00	44.0	1	0.99	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

* Optional, should be ordered separately

(1) 1 - Hole for data chip, 0 - Without hole for data chip

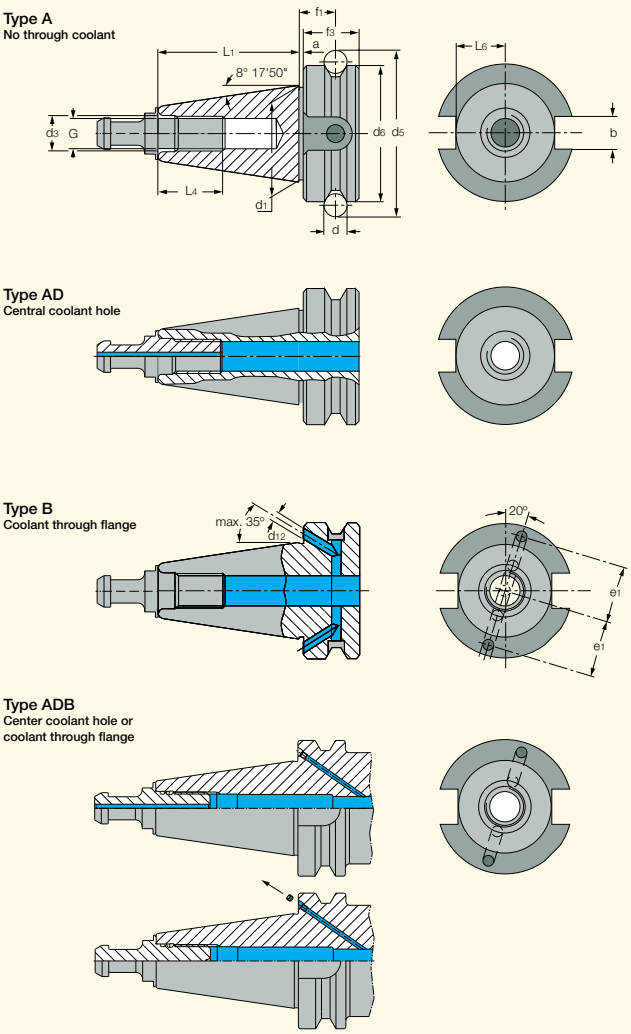
BT MAS-403



BT MAS

Toolholder Standard

"ADB" holders provide both "AD" and "B" type coolant flow options



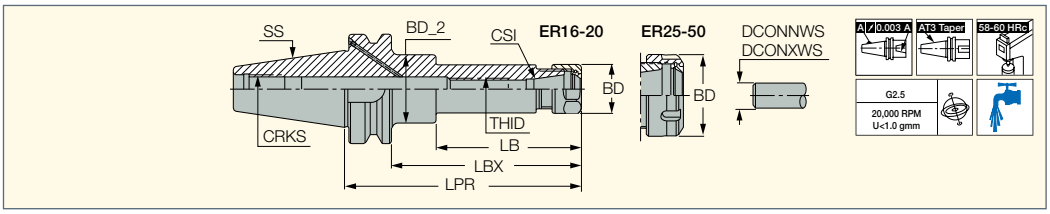
Shank	a	b (H12)	d	d1	G	d3 (H8)	d5	d6 (H8)	f1 ±0.1
BT 30	2	16.1	8	31.75	M12	12.5	56.144	46	13.6
BT 40	2	16.1	10	44.45	M16	17.0	75.679	63	16.6
BT 50	3	25.7	15	69.85	M24	25.0	119.020	100	23.2

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	CDI[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 ER50X150	50	ER50	10.0	34.0	150.00	112.0	-	78.00	-	M36X1.5	M24	0	5.50

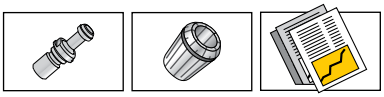
- B is the designation for coolant through flange.

[1] AD TYPE

[2] Balanced to G6.3/12, 000 RPM

[3] Minimum diameter

[4] Maximum diameter [1] 1 - Hole for data chip, 0 - Without hole for data chip


712-713 684-688 682-684

Spare Parts

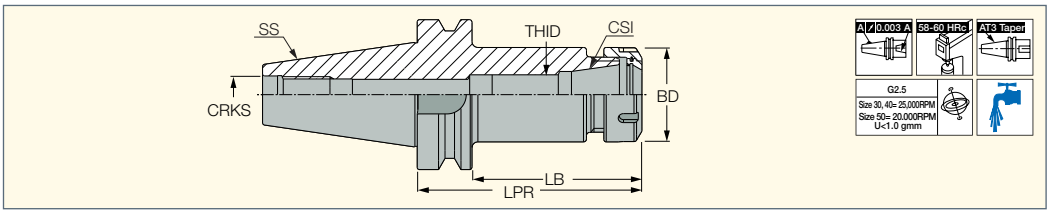
Designation						
BT30 ER16X 70	NUT ER16 TOP		WRENCH ER16*	PRESET ER-JET 10X1.5*		
BT30 ER16X100	NUT ER16 TOP		WRENCH ER16*	PRESET ER-JET 10X1.5*		
BT30 ER20X 70	NUT ER20 TOP		WRENCH ER20*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*	
BT30 ER25X 60	NUT ER25 TOP		WRENCH ER25*	PRESET ER-JET 16X2*	PRESET 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 ER50X150	NUT ER50 UM		WRENCH ER50*	PRESET ER-JET 28X1.5*		

* Optional, should be ordered separately

BT MAS

BT-FC-ER

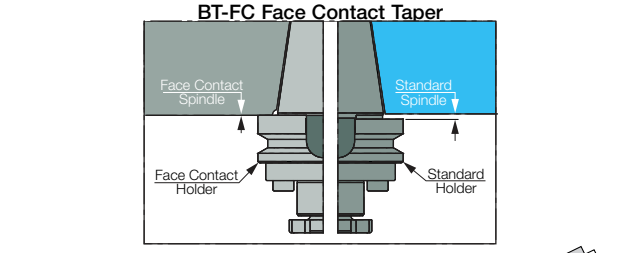
ER Collet Chucks with BT
MAS-403 Face Contact
AD Tapered Shanks

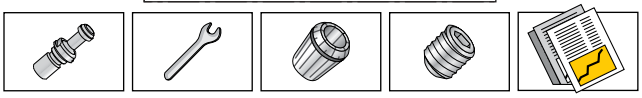


Designation	SS	CSI	BD	LPR	LB	THID	CRKS	CDI(1)	kg	
BT30 FC ER16X70	30	ER16	28.00	70.00	48.0	M10	M12	0	0.60	NUT ER16 TOP
BT30 FC ER16X100	30	ER16	28.00	100.00	79.0	M10	M12	0	0.61	NUT ER16 TOP
BT30 FC ER20X70	30	ER20	34.00	70.00	48.0	M12	M12	0	0.51	NUT ER20 TOP
BT30 FC ER25X60	30	ER25	42.00	60.00	38.0	M16	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 - Hole for data chip, 0 - Without hole for data chip

BT-FC Face Contact Taper



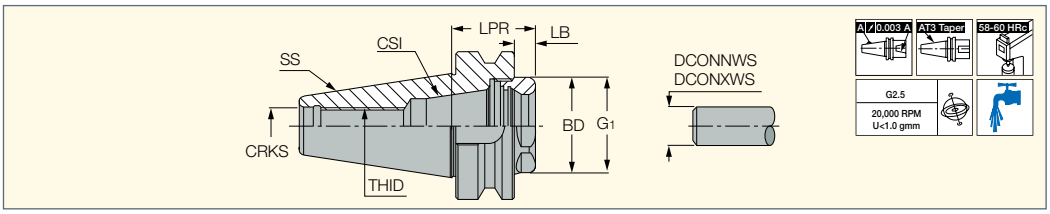


712-713 | 715 | 684-688 | 715 | 682-684

BT MAS SHORTIN

BT-ER-SHORT

Short ER Collet Chucks with BT
MAS-403 AD Tapered Shanks

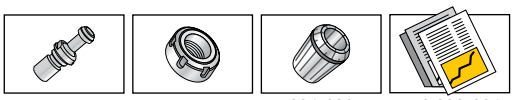


Designation	SS	CSI	DCONNWS(1)	DCONXWS(2)	LPR	LB	BD	THID	CRKS	G1	CDI(3)	kg
BT30 ER20 SHORT	30	ER20	1.0	13.0	23.70	5.2	25.00	M12	M12	M25X1.5	0	0.30
BT40 ER32 SHORT	40	ER32	2.0	20.0	36.50	6.0	40.00	M16	M16	M40X1.5	0	0.74
BT40 ER40 SHORT	40	ER40	3.0	26.0	43.00	6.0	50.00	M16	M16	M50X1.5	0	0.78
BT50 ER32 SHORT	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 (1) 1 - Hole for data chip, 0 - Without hole for data chip



712-713 | 714 | 684-688 | 559,682-684

Spare Parts

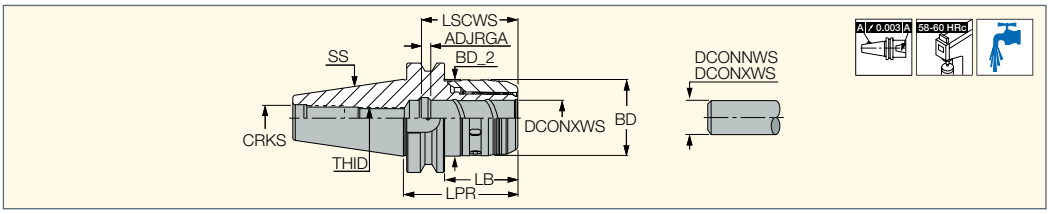
Designation				
BT30 ER20 SHORT	NUT ER20 SHORT		PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
BT40 ER32 SHORT	NUT ER32 SHORT	WRENCH ER32 SHORT*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
BT40 ER40 SHORT	NUT ER40 SHORT	WRENCH ER40 SHORT*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
BT50 ER32 SHORT	NUT ER32 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, should be ordered separately

BT MAS MAXIN

BT-MAXIN

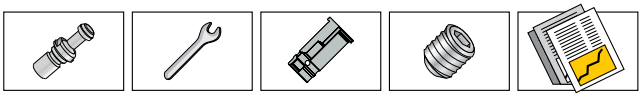
Power Chucks with BT MAS-403 ADB Tapered Shanks



Designation	SS	DCONNWS(1)	DCONXWS(2)	BD	BD_2	LPR	LB	ADJRGA	LSCWS	THID	CRKS	CDI(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 (1) 1 - Hole for data chip, 0 - Without hole for data chip



Spare Parts

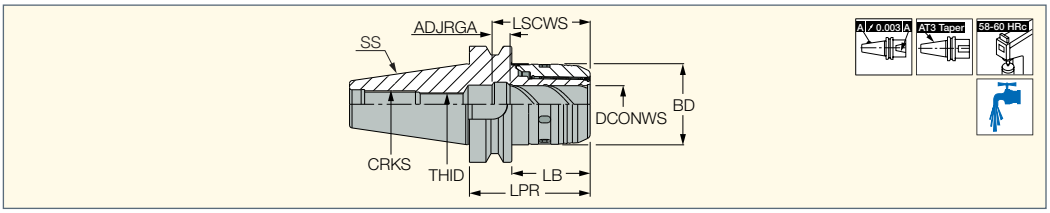
Designation		
BT40 MAXIN 20X 85	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*
BT40 MAXIN 32X108	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*
BT50 MAXIN 20X105	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*
BT50 MAXIN 20X105 ADB	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*
BT50 MAXIN 32X106	WRENCH MAXIN 32 HOOK*	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, should be ordered separately

MAXIN BT MAS

BT-FC-MAXIN

Power Chucks with BT MAS-403 Face Contact AD Tapered Shanks

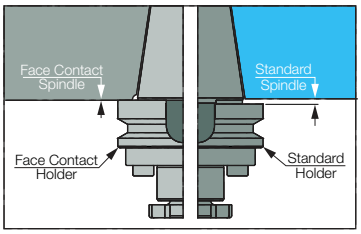


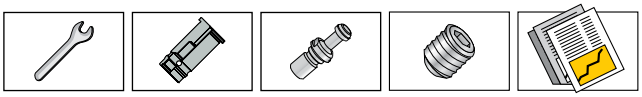
Designation	SS	DCONNWS(1)	DCONXWS(2)	BD	LPR	LB	ADJRGA	LSCWS	THID	CRKS	CDI(3)	kg
BT40 FC MAXIN20X85	40	6.0	20.0	53.00	85.00	58.0	12.80	68.3	M16	M16	0	1.67
BT40 FC MAXIN32X108	40	6.0	32.0	70.00	108.00	80.5	13.00	83.0	M16	M16	0	1.65
BT50 FC MAXIN20X105	50	6.0	20.0	53.00	105.00	67.0	13.10	68.6	M16	M24	0	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 (1) 1 - Hole for data chip, 0 - Without hole for data chip

BT-FC Face Contact Taper





Spare Parts

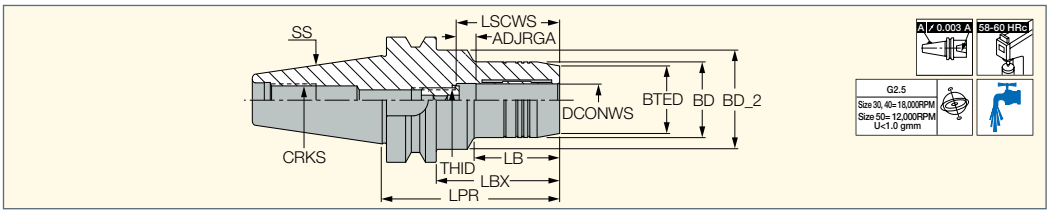
Designation		
BT40 FC MAXIN20X85	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*
BT40 FC MAXIN32X108	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*
BT50 FC MAXIN20X105	WRENCH MAXIN 20 HOOK*	EXTRACTOR SC COLLETS*
BT50 FC MAXIN32X106	WRENCH MAXIN 32 HOOK*	EXTRACTOR SC COLLETS*

* Optional, should be ordered separately

BT MAS HYDROFIT HOLDING LINE

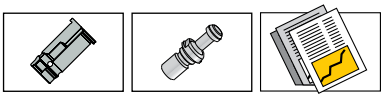
BT-HYDRO

Hydraulic Chucks with MAS-BT Form AD Shanks



Designation	SS	DCONWS	BTED	BD	BD_2	LPR	LBX	LB	ADJRGA	LSCWS	THID	CRKS	CDI(1)	kg
BT30 HYDRO 6X60	30	6.00	23.00	26.00	-	60.00	38.0	-	10.00	37.0	M5	M12	0	0.58
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	3.20
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 (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) 1 - Hole for data chip, 0 - Without hole for data chip



697 712-713 562

Spare Parts

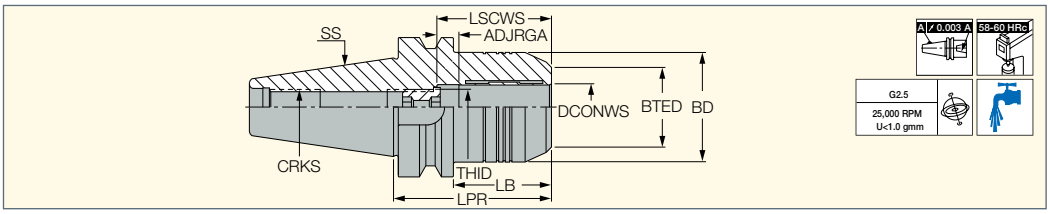
Designation			
BT30 HYDRO 6X60	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 6*
BT30 HYDRO 8X64	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 8*
BT30 HYDRO 10X64	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 10*
BT30 HYDRO 12X72	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO 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	HYDRO CLAMP SCREW M8X14	WRENCH HYDRO HEX 4*	TEST BAR HYDRO 32*

* Optional, should be ordered separately

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	CDI(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 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

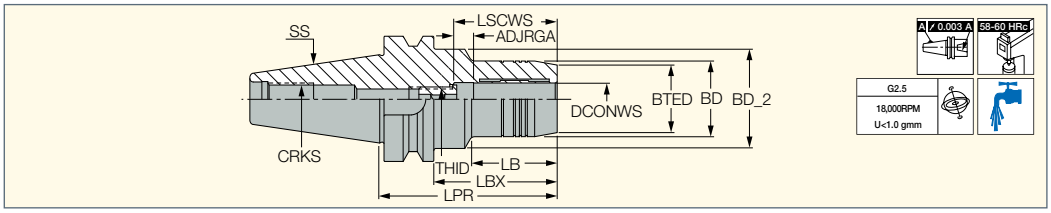
Designation	
BT40 HYDRO 12X58 HD	ALLEN KEY SW5X100*
BT40 HYDRO 16X72.5 HD	ALLEN KEY SW5X100*
BT40 HYDRO 20X72.5 HD	ALLEN KEY SW5X100*
BT50 HYDRO 20X83.5 HD	ALLEN KEY SW5X100*
BT50 HYDRO 32X90 HD	ALLEN KEY SW6X100*

* Optional, should be ordered separately

BT MAS HYDROFIT HOLDING LINE

BT-FC-HYDRO

Hydraulic Chucks with MAS-BT Face Contact Form AD Shanks



Designation	SS	DCONWS	LPR	BTED	BD	BD_2	LBX	LB	ADJRGA	LSCWS	THID	CRKS	CDI(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 (ordered separately) • Clamping wrench (wrench HYDRO HEX 4) and test bar should be ordered separately(1) 1 - Hole for data chip, 0 - Without hole for data chip

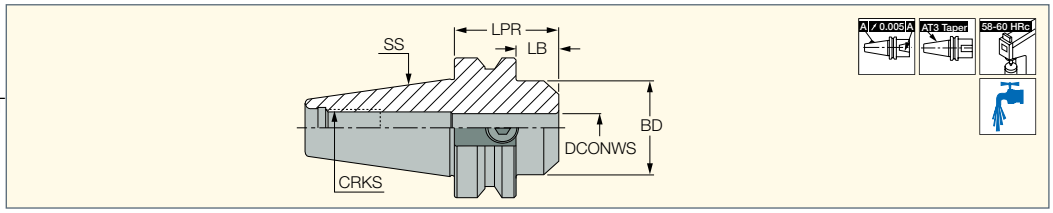
Spare Parts

Designation	
BT-FC-HYDRO	HYDRO CLAMP SCREW M8X14

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	CDI(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.

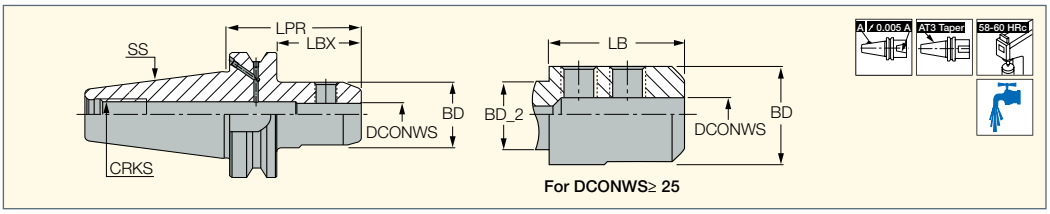
(1) 1 - Hole for data chip, 0 - Without hole for data chip

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BT MAS

BT-EM (DIN 1835 Form B)

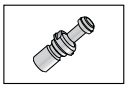
DIN6359 / DIN 1835 Form B
Weldon Endmill Holders with BT MAS-403 ADB Tapered Shanks



For DCONWS≥ 25

Designation	SS	DCONWS	LPR	BD	BD_2	LBX	LB	CRKS	CDI(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 65	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 18X 65	40	18.00	65.00	50.00	-	38.0	-	M16	0	1.39	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 (1) 1 - Hole for data chip, 0 - Without hole for data chip



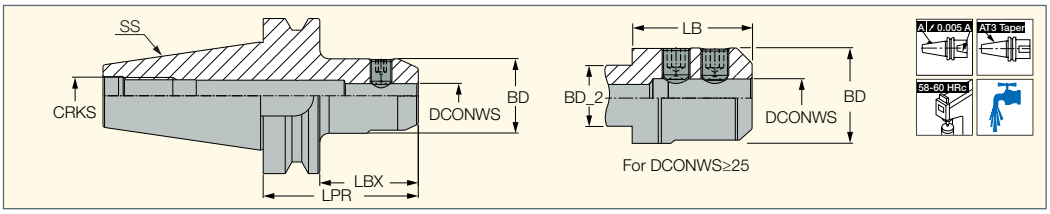
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BT MAS

BT-FC-EM

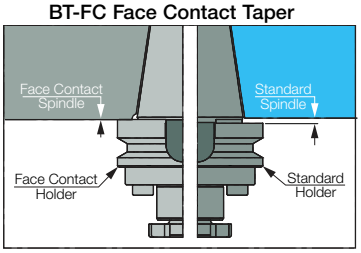
DIN1835 Form B Endmills with
BT MAS-403 Face Contact
AD Tapered Shanks

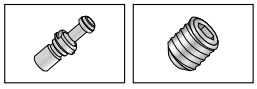


Designation	SS	DCONWS	BD	BD_2	LPR	LBX	LB	CRKS	CDI[1]	kg
BT30 FC EM12X60	30	12.00	42.00	-	60.00	38.0	-	M12	0	0.73
BT30 FC EM16X60	30	16.00	45.90	-	60.00	38.0	-	M12	0	0.80
BT30 FC EM20X80	30	20.00	52.00	44.40	80.00	58.0	48.00	M12	0	1.04
BT40 FC EM10X65	40	10.00	35.00	-	65.00	39.0	-	M16	0	1.25
BT40 FC EM12X65	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	3.24

[1] 1 - Hole for data chip, 0 - Without hole for data chip

BT-FC Face Contact Taper



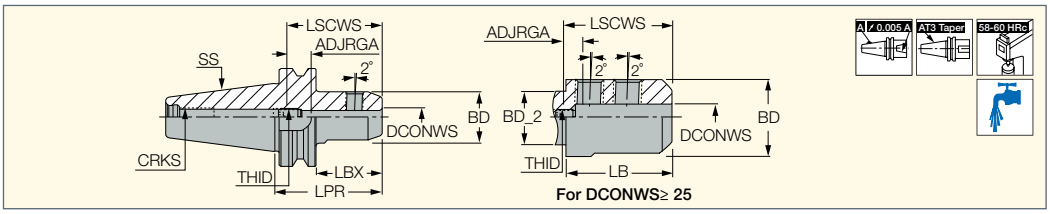


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BT MAS

BT-EM (DIN 1835 Form E)

DIN6359 / DIN 1835 Form E
Drill Holders with BT MAS-403 AD Tapered Shanks

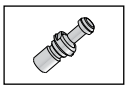


Designation	SS	DCONWS	BD	BD_2	LPR	LBX	LB	ADJRGA	LSCWS	THID(1)	Key(2)	CRKS	CDI(3)	kg
BT40 EM 16X 65 E	40	16.00	48.00	-	65.00	38.0	-	10.00	57.0	M12	6.00	M16	0	1.38
BT40 EM 20X 75 E	40	20.00	52.00	-	75.00	48.0	-	10.00	59.0	M16	8.00	M16	0	1.55
BT40 EM 25X105 E	40	25.00	65.00	61.00	105.00	78.0	68.00	10.00	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 (1) 1 - Hole for data chip, 0 - Without hole for data chip



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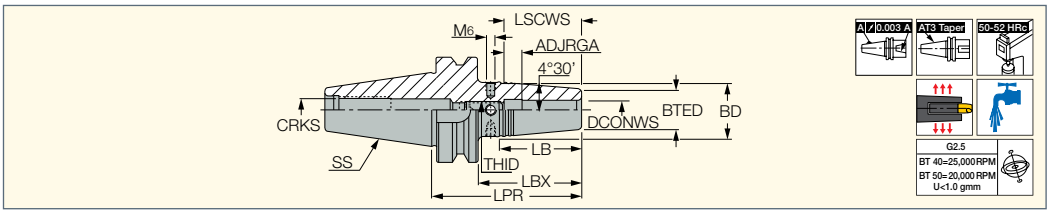
Spare Parts

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	CDI(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	26.00	21.00	100.00	62.0	32.00	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 (1) 1 - Hole for data chip, 0 - Without hole for data chip



712-713 689-691 694-695

Spare Parts

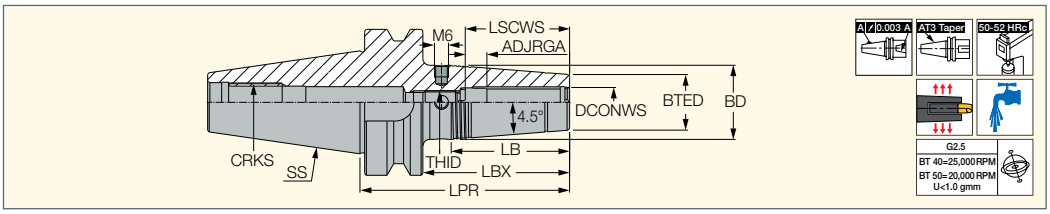
Designation	
BT40 SRKIN 6X 90	PRESET M5X18B
BT40 SRKIN 8X 90	PRESET M6X20B
BT40 SRKIN 10X 90	PRESET M8X20B
BT40 SRKIN 12X 90	PRESET M10X18B
BT40 SRKIN 14X 90	PRESET M10X18B
BT40 SRKIN 16X 90	PRESET M12X18B
BT40 SRKIN 16X120	PRESET M12X18B
BT40 SRKIN 18X 90	PRESET M12X18B
BT40 SRKIN 20X 90	PRESET M16X20B
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

X-STREAM JET TOOLHOLDING

SHRINKIN BT MAS

BT-SRKIN-CX

Thermal Shrink Chucks with BT MAS-403 Form AD Tapered Shank and Coolant Jet Channels along the Shank Bore



Designation	SS	DCONWS	BTED	BD	LPR	LBX	LB	LSCWS	ADJRGA	THID	Key(1)	CRKS	CDI(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	1.26
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 18X90 CX	40	18.00	33.00	42.00	90.00	63.00	57.00	47.80	9.30	M12	6.00	M16	0	1.40
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 18X100 CX	50	18.00	33.00	42.00	100.00	62.00	57.00	47.80	9.30	M12	6.00	M24	0	3.92
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 (1) 1 - Hole for data chip, 0 - Without hole for data chip

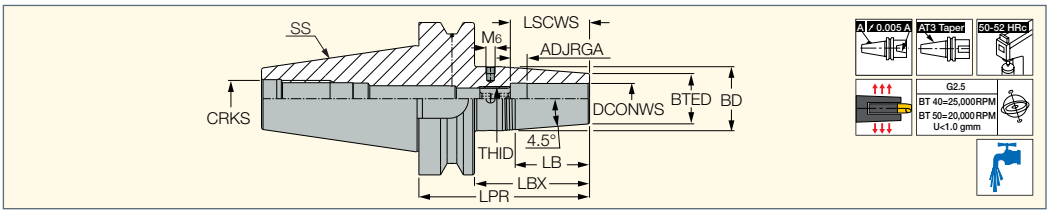
Spare Parts

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 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 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

SHRINKIN BT MAS

BT-FC-SRKIN

Thermal Shrink Chucks with
BT MAS-403 Face Contact
AD Tapered Shanks

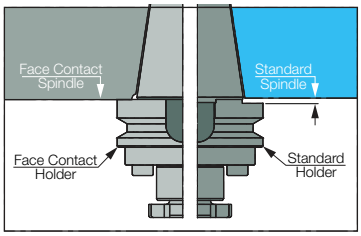


Designation	SS	DCONWS	BTED	BD	LPR	LBX	LB	ADJRGA	LSCWS	THID	CRKS	CDI(1)	kg
BT40 FC SRKIN 6X90	40	6.00	21.00	27.00	90.00	64.0	38.00	11.00	36.0	M5	M16	0	1.16
BT40 FC SRKIN 8X90	40	8.00	21.00	27.00	90.00	64.0	38.00	11.00	36.0	M6	M16	0	1.14
BT40 FC SRKIN10X90	40	10.00	24.00	32.00	90.00	64.0	50.80	11.00	42.0	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 - Hole for data chip, 0 - Without hole for data chip

BT-FC Face Contact Taper





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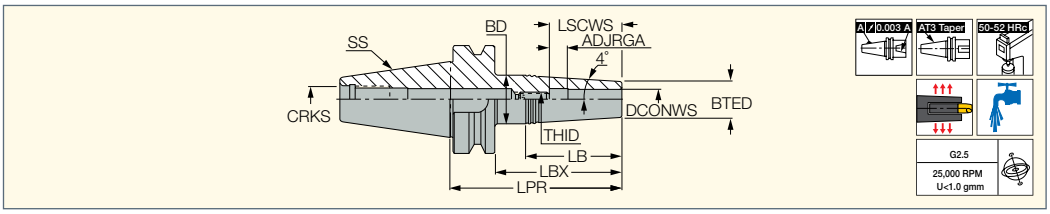
Spare Parts

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 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	CDI(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 (1) 1 - Hole for data chip, 0 - Without hole for data chip



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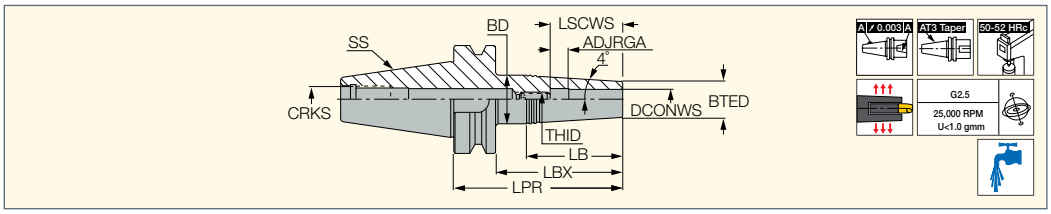
Spare Parts

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

SHRINKIN BT MAS

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	CDI(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 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

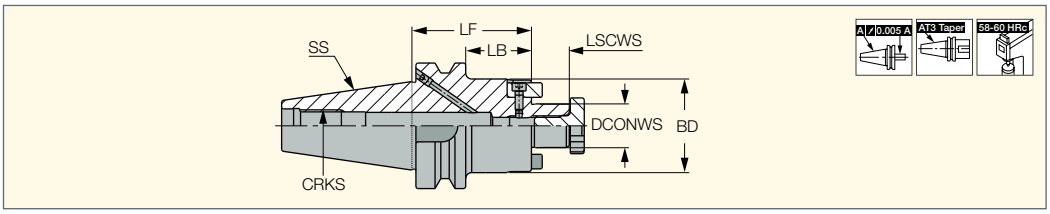
Designation		
BT30 FC SRK 3X50	SR M6X10 DIN916	
BT30 FC SRK 4X50	SR M6X10 DIN916	
BT30 FC SRK 6X50	SR M8X12 DIN916	
BT30 FC SRK 8X50	SR M10X10 DIN913	
BT30 FC SRK12X50		PRESET M10X18B



BT MAS

BT-SEM

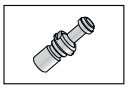
ISO 3937 Shell Mill Holders
with BT MAS-403 ADB
Tapered Shanks



Designation	SS	DCONWS	LF	BD	LSCWS	LB	CRKS	CDI[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 - Hole for data chip, 0 - Without hole for data chip



712-713

Spare Parts

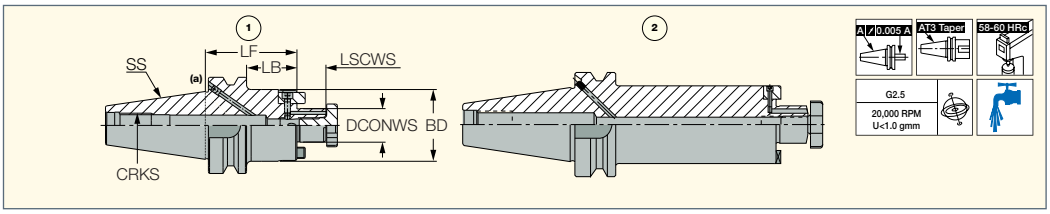
Designation					
BT30 SEM 16X50	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	DR.DOG 8S	SR M3X10DIN912	
BT30 SEM 22X50	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912	
BT30 SEM 27X50	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*	DR.DOG 12S	SR M5X14DIN912	
BT40 SEM 16X120	M8 CLAMP SCREW SEM16	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*	DR. DOG 14 E	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, should be ordered separately

BT MAS

BT-SEM-C

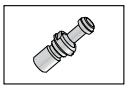
ISO 3937 Shell Mill Holders with Coolant Holes and BT MAS-403 ADB Tapered Shanks



Designation	SS	DCONWS	BD	LF	LSCWS	LB	CRKS	Fig.	CDI(2)	kg
BT40 SEM 16X60C	40	16.00	38.00	60.00	17.00	33.0	M16	1.	0	1.21
BT40 SEM 16X100C	40	16.00	38.00	100.00	17.00	73.0	M16	1.	0	1.57
BT40 SEM 22X60C	40	22.00	47.00	60.00	19.00	33.0	M16	1.	0	1.10
BT40 SEM 22X100C	40	22.00	47.00	100.00	19.00	73.0	M16	1.	0	2.03
BT40 SEM 27X45C	40	27.00	58.00	45.00	21.00	18.0	M16	1.	0	1.32
BT40 SEM 27X100C	40	27.00	58.00	100.00	21.00	73.0	M16	1.	0	2.44
BT40 SEM 32X60C	40	32.00	66.00	60.00	24.00	33.0	M16	1.	0	1.84
BT40 SEM32X78X60C	40	32.00	78.00	60.00	24.00	33.0	M16	1.	0	2.20
BT40 SEM32X78X100C	40	32.00	78.00	100.00	24.00	73.0	M16	1.	0	3.36
BT50 SEM 16X75C	50	16.00	38.00	75.00	17.00	37.0	M24	1.	0	3.82
BT50 SEM 16X100C	50	16.00	38.00	100.00	17.00	62.0	M24	1.	0	4.00
BT50 SEM 22X75C	50	22.00	47.00	75.00	19.00	37.0	M24	1.	0	4.00
BT50 SEM 22X100C	50	22.00	47.00	100.00	19.00	62.0	M24	1.	0	4.30
BT50 SEM 22X48X220C (1)	50	22.00	48.00	220.00	19.00	182.0	M24	2.	0	5.98
BT50 SEM 22X61X320C (1)	50	22.00	61.00	320.00	19.00	282.0	M24	2.	0	9.91
BT50 SEM 27X60C	50	27.00	58.00	60.00	21.00	22.0	M24	1.	0	3.96
BT50 SEM 27X100C	50	27.00	58.00	100.00	21.00	62.0	M24	1.	0	4.72
BT50 SEM 27X61X320C (1)	50	27.00	61.00	320.00	21.00	282.0	M24	2.	0	9.78
BT50 SEM 32X75C	50	32.00	66.00	75.00	24.00	37.0	M24	1.	0	4.50
BT50 SEM 32X100C	50	32.00	66.00	100.00	24.00	62.0	M24	1.	0	5.04
BT50 SEM32X78X50C	50	32.00	78.00	50.00	24.00	12.0	M24	1.	0	4.16
BT50 SEM32X78X100C	50	32.00	78.00	100.00	24.00	62.0	M24	1.	0	5.99
BT50 SEM 32X78X390C (1)	50	32.00	78.00	390.00	24.00	352.0	M24	2.	0	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 (1) 1 - Hole for data chip, 0 - Without hole for data chip



712-713

Spare Parts

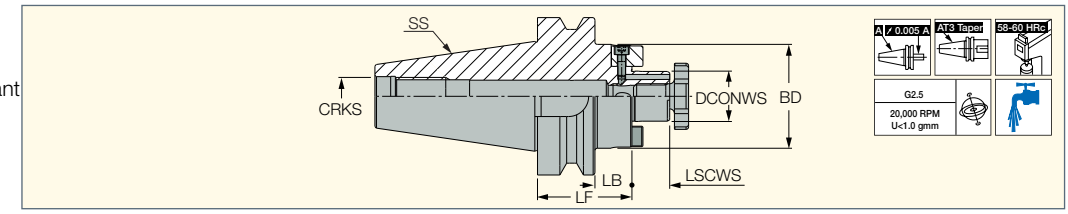
Designation					
BT40 SEM 16X60C	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	DR.DOG 8S	SR M3X10DIN912	SR M4X4 DIN913
BT40 SEM 16X100C	M8 CLAMP SCREW SEM16	WRENCH M8 SEMC16*	DR.DOG 8S	SR M3X10DIN912	SR M4X4 DIN913
BT40 SEM 22X60C	M10 CLAMP SCREW SEM22	WRENCH M10 SEMC 22*	DR.DOG 10S	SR M4X10DIN912	SR M4X4 DIN913
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*	DR. DOG 14 E	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, should be ordered separately

BT MAS

BT-FC-SEM-C

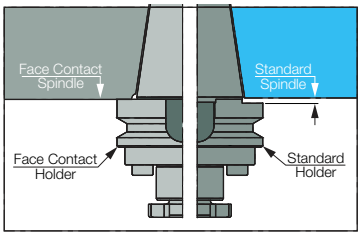
Shell EndMill Holders with Coolant Holes and BT MAS-403 Face Contact AD Tapered Shanks



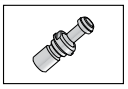
Designation	SS	DCONWS	BD	LF	LB	LSCWS	CRKS	CDI[1]	kg
BT30 FC SEM16X50C	30	16.00	38.00	50.00	28.0	17.00	M12	0	0.62
BT30 FC SEM22X50C	30	22.00	47.00	50.00	28.0	19.00	M12	0	0.77
BT30 FC SEM27X50C	30	27.00	58.00	50.00	28.0	21.00	M12	0	0.88
BT40 FC SEM16X60C	40	16.00	38.00	60.00	34.0	17.00	M16	0	1.24
BT40 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	4.07
BT50 FC SEM16X120C	50	16.00	38.00	120.00	83.5	17.00	M24	0	4.43
BT50 FC SEM22X75C	50	22.00	47.00	75.00	38.5	19.00	M24	0	1.20
BT50 FC SEM22X120C	50	22.00	47.00	120.00	83.5	19.00	M24	0	4.85
BT50 FC SEM27X60C	50	27.00	58.00	60.00	23.5	21.00	M24	0	4.30
BT50 FC SEM27X105C	50	27.00	58.00	105.00	68.5	21.00	M24	0	5.00
BT50 FC SEM32X60 C	50	32.00	66.00	60.00	11.5	24.00	M24	0	1.29
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	4.32

[1] 1 - Hole for data chip, 0 - Without hole for data chip

BT-FC Face Contact Taper







712-713

Spare Parts

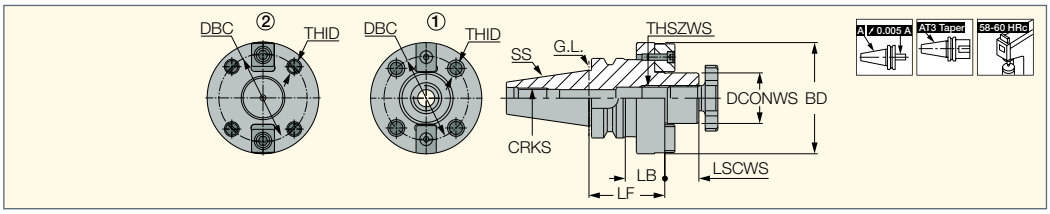
Designation				
BT30 FC SEM16X50C	M8 CLAMP SCREW SEM16	DR.DOG 8S	SR M3X10DIN912	WRENCH M8 SEMC16*
BT30 FC SEM22X50C	M10 CLAMP SCREW SEM22	DR.DOG 10S	SR M4X10DIN912	WRENCH M10 SEMC 22*
BT30 FC SEM27X50C	M12 CLAMP SCREW SEM27	DR.DOG 12S	SR M5X14DIN912	WRENCH M12 SEMC 27*
BT40 FC SEM16X60C	M8 CLAMP SCREW 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, should be ordered separately

BT MAS

BT-FM

DIN 6357 Face Mill Holders with BT MAS-403 A/ AD Tapered Shanks



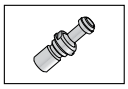
Designation	SS	DCONWS	LSCWS	LF	LB	BD	DBC	THID	THSZWS	CRKS	Fig.	CDI(3)	kg
BT40 FM 40X60 (1)	40	40.00	27.00	60.00	33.0	88.00	66.70	M12	M20	M16	1.	0	2.33
BT50 FM 40X50 (1)	50	40.00	27.00	50.00	12.0	88.00	66.70	M12	M20	M24	1.	0	4.19
BT50 FM 60X88 (2)	50	60.00	38.00	88.00	40.0	128.00	101.60	M16	-	M24	2.	0	8.60

- Peripheral clamping screws are not supplied.

(1) Form AD

(2) Form A

(3) 1 - Hole for data chip, 0 - Without hole for data chip



712-713

Spare Parts

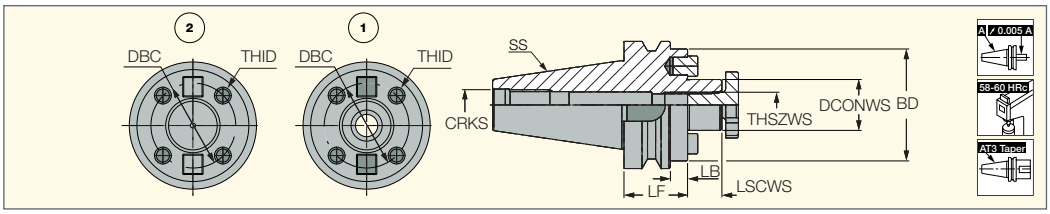
Designation					
BT40 FM 40X60		M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	DR. DOG 16 E	SR M5X16 DIN912
BT50 FM 40X50		M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	DR. DOG 16 E	SR M5X16 DIN912
BT50 FM 60X88	SR DIN 912 M12X25			DR. DOG 1E	

* Optional, should 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.	CDI(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	4.50
BT50 FC FM60 (2)	50	128.00	60.00	101.60	88.00	40.00	41.5	M24	-	M16	0	2.	0	9.45

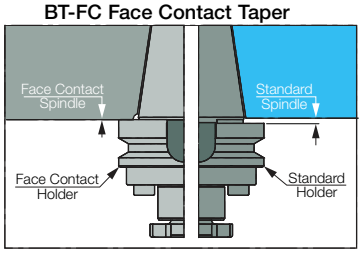
(1) Form AD

(2) Form A

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

(4) 1 - Hole for data chip, 0 - Without hole for data chip

BT-FC Face Contact Taper



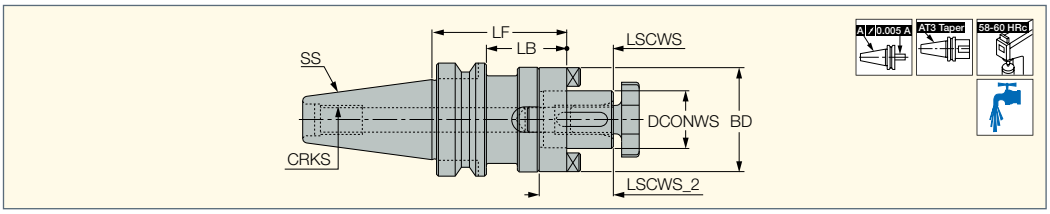


712-713 716 717

BT MAS

BT-SEMC

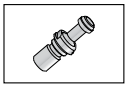
COMBI Shell Mill Holders with BT MAS-403 AD Tapered Shanks



Designation	SS	DCONWS	LSCWS	BD	LF	LB	LSCWS_2	CRKS	CDI(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	5.23
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 - Hole for data chip, 0 - Without hole for data chip



712-713

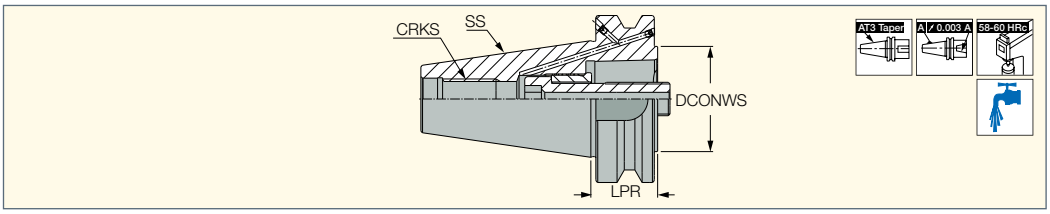
Spare Parts

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, should be ordered separately

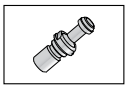
BT MAS CAMFIX

BT-C#
CAMFIX (ISO 26623-1)
Holders with BT MAS-403
AD/ADB Tapered Shanks



Designation	SS	DCONWS	LPR	CRKS	CDI[1]	kg
C4 AD BT40X030 ADB	40	40.00	30.00	M16	0	1.00
C5 AD BT40X30	40	50.00	30.00	M16	0	1.00
C5 AD BT50X40 ADB	50	50.00	40.00	M24	0	3.46
C6 AD BT50X40	50	63.00	40.00	M24	0	3.44
C8 AD BT50X70 ADB	50	80.00	70.00	M24	0	4.05

(1) 1 - Hole for data chip, 0 - Without hole for data chip



712-713

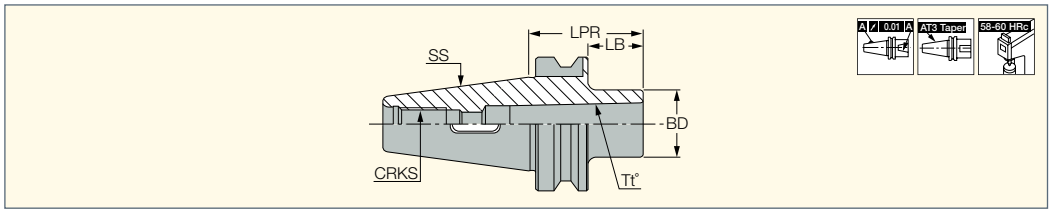
Spare Parts

Designation				
C4 AD BT40X030 ADB	SR M14X58 C4	HW 8.0*	MT RING M22X17XC4	WRENCH C4 DRW NUT
C5 AD BT40X30	SR M16X70 C5	HW 10.0*	MT RING M25X20XC5	WRENCH C5 DRW NUT*
C5 AD BT50X40 ADB	SR M16X70 C5	HW 10.0*	MT RING M25X20XC5	WRENCH C5 DRW NUT
C6 AD BT50X40	SR M20X87 C6/8	HW 14.0*	MT RING M30X24XC6/8	WRENCH C6-8 DRW NUT
C8 AD BT50X70 ADB	SR M20X87 C6/8	HW 14.0*	MT RING M30X24XC6/8	WRENCH C6-8 DRW NUT

* Optional, should be ordered separately

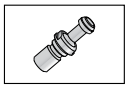
BT MAS

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	CDI[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

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

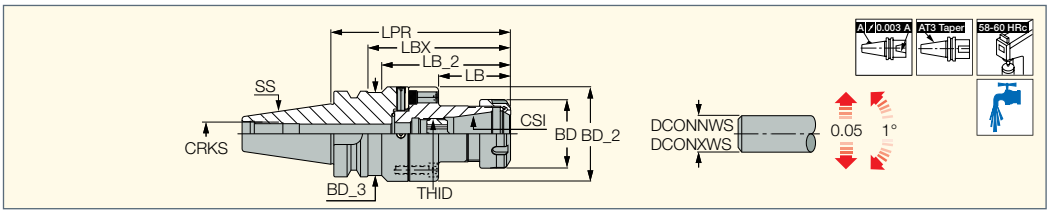


712-713

BT MAS FINEFIT

ADJ BT-ER

DIN 6499 ER Collet Chucks with Center Alignment and BT MAS-403 ADB Tapered Shanks

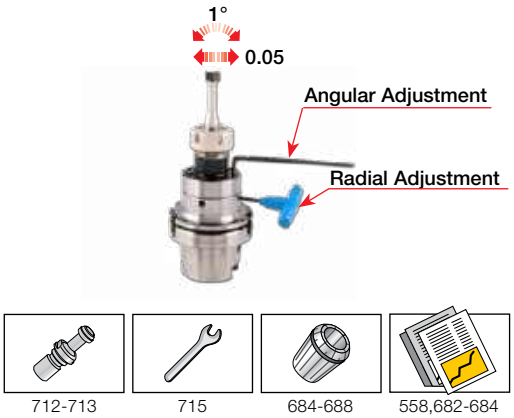


Designation	SS	CSI	DCONNWS(1)	DCONXWS(2)	LPR	LBX	LB_2	LB	BD	BD_2	BD_3	THID	CRKS	kg
ADJ BT40 D70 ER32	40	ER32	2.0	20.0	129.50	102.5	92.50	52.50	50.00	70.00	62.50	M22X1.5	M16	2.56
ADJ BT50 D70 ER32	50	ER32	2.0	20.0	144.50	106.5	106.50	52.50	50.00	70.00	70.00	M22X1.5	M24	5.90

• Radial adjustment 0.05 mm, Angular adjustment 1° • Add B to the designation for coolant through flange option.

(1) Minimum diameter

(2) Maximum diameter



712-713 | 715 | 684-688 | 558,682-684

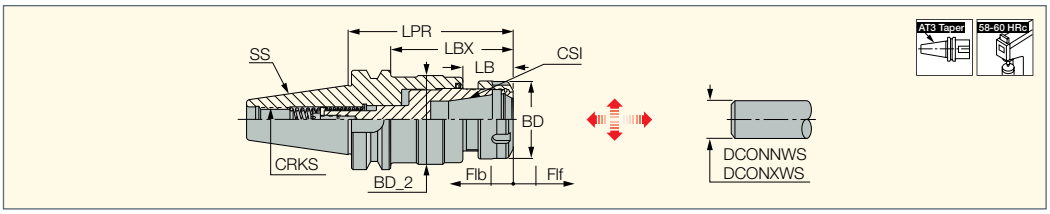
Spare Parts

Designation	
ADJ BT-ER	ADJ ER32 NOSE

BT MAS GTI

GTI BT-ER (tapping)

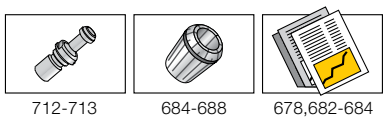
DIN 6499 ER Tapping Attachments with BT MAS-403 A Tapered Shanks



Designation	SS	CSI	Tap min	Tap max	DCONNWS(1)	DCONXWS(2)	LPR	LBX	LB	BD	BD_2	Flf	Flb	CRKS	CDI(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) 0 - Without coolant supply, 1 - With coolant supply



712-713 | 684-688 | 678,682-684

Spare Parts

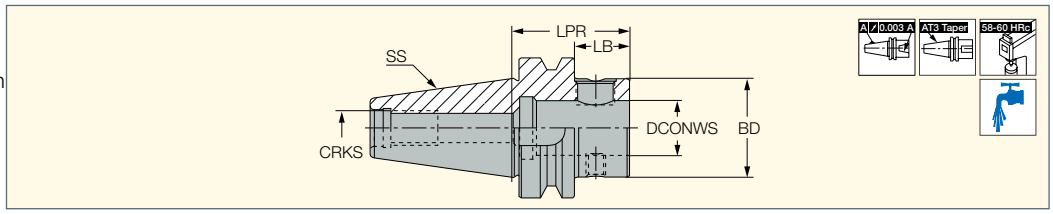
Designation		
GTI BT40 ER16	NUT ER16 TOP	WRENCH ER16*
GTI BT40 ER32	NUT ER32 TOP	WRENCH ER32*
GTI BT40 ER40	NUT ER40 TOP	WRENCH ER40*
GTI BT50 ER16	NUT ER16 TOP	WRENCH ER16*
GTI BT50 ER32	NUT ER32 TOP	WRENCH ER32*
GTI BT50 ER40	NUT ER40 TOP	WRENCH ER40*

* Optional, should be ordered separately

BT MAS CLICKFIT

BT-CF (CLICKFIT)

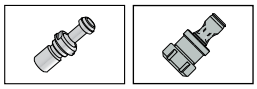
Modular System Connections with BT MAS-403 AD Tapered Shanks



Designation	SS	DCONWS	LPR	LB	BD	CRKS	CDI(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

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



712-713 666

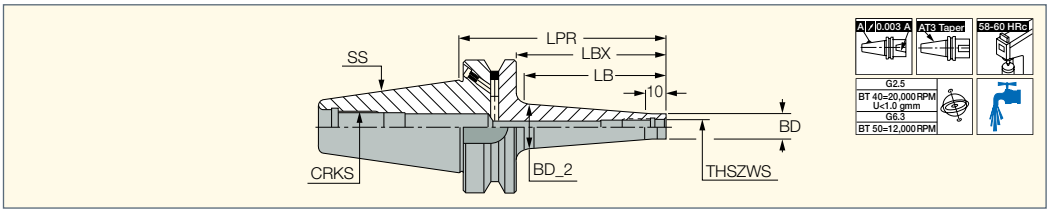
Spare Parts

Designation		
BT-CF (CLICKFIT)	SCREW M16X1.5 FOR CF4	WRENCH HW 8 200X36 DIN911

BT MAS FLEXFIT

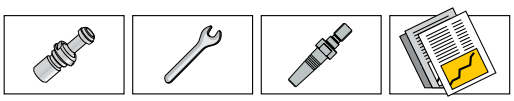
BT-ODP (FLEXFIT)

FLEXFIT Threaded Adaptation with Integral BT MAS-403 Tapered Shanks (ADB type)



Designation	SS	THSZWS	BD	BD_2	LPR	LBX	LB	CRKS	CDI(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	4.28
BT50 ODP 12X194	50	M12	23.00	40.00	194.00	156.0	150.00	M24	0	4.57
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	5.24
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.(3) 0 - Without coolant supply, 1 - With coolant supply



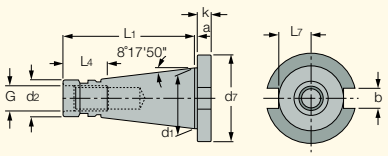
712-713 715 666-668 664

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

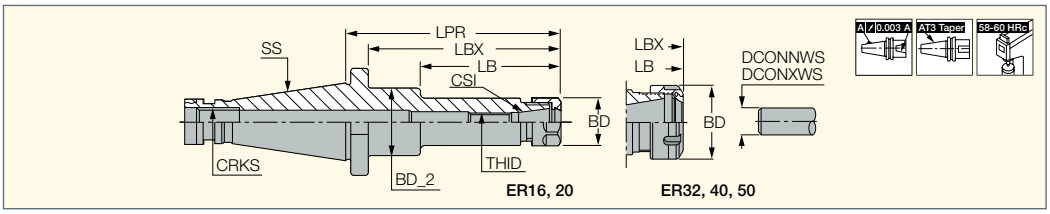
Shank	L1	L4	L7 MAX	Taper AT3
SK 30	68.4	24	16.2	0.002
SK 40	93.4	32	22.5	0.003
SK 50	126.8	47	35.3	0.004



DIN2080

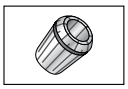
DIN2080-ER

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	CDI(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 ER20X 63	40	ER20	1.0	13.0	63.00	51.4	-	34.00	-	M12	M16	0	0.90
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 40 ER50X 80	40	ER50	10.0	34.0	80.00	68.4	-	78.00	-	M22X1.5	M24	0	1.20
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) 0 - Without coolant supply, 1 - With coolant supply



684-688

Spare Parts

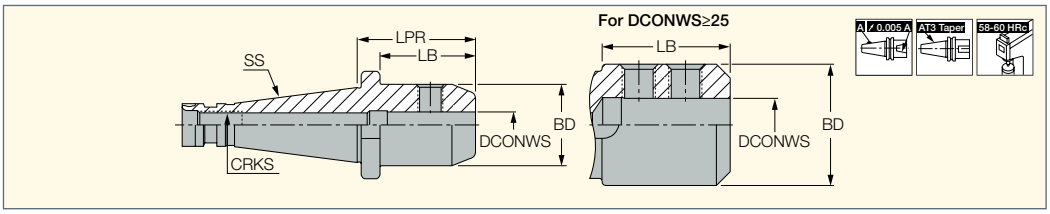
Designation				
DIN2080 30 ER16X 75	NUT ER16 TOP	WRENCH ER16*	PRESET ER-JET 10X1.5*	
DIN2080 30 ER32X 55	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 18X1.5*	PRESET ER-JET 18X1.5L*
DIN2080 30 ER40X 83	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 22X1.5*	PRESET ER-JET 22X1.5L*
DIN2080 40 ER16X100	NUT ER16 TOP	WRENCH 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 ER20X 63	NUT ER20 TOP	WRENCH ER20*	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 40 ER50X 80	NUT ER50 UM	WRENCH ER50*	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, should be ordered separately

DIN2080

DIN2080-EM

DIN 6359/DIN 1835 Form B
Endmill Weldon Holders with
DIN 2080 AD Tapered Shanks



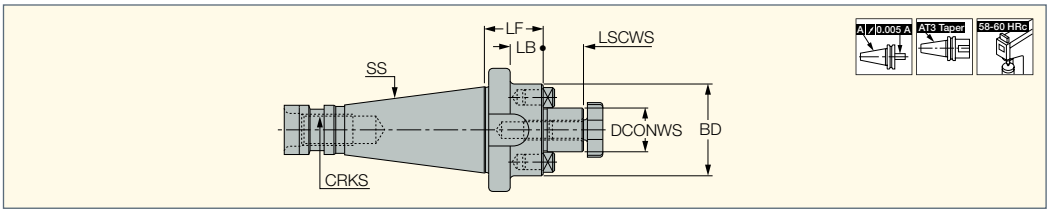
Designation	SS	DCONWS	BD	LPR	LB	CRKS	CDI(1)	kg	
DIN2080 30 EM 6X 40	30	6.00	25.00	40.00	30.4	M12	0	0.39	SR M6X10 DIN1835B
DIN2080 30 EM 8X 40	30	8.00	28.00	40.00	30.4	M12	0	0.41	SR M8X10 DIN1835-B
DIN2080 30 EM10X 40	30	10.00	35.00	40.00	30.4	M12	0	0.47	SR M10X12 DIN1835-B
DIN2080 40 EM 8X 50	40	8.00	28.00	50.00	38.4	M16	0	0.87	SR M8X10 DIN1835-B
DIN2080 40 EM10X 50	40	10.00	35.00	50.00	38.4	M16	0	0.95	SR M10X12 DIN1835-B
DIN2080 40 EM12X 50	40	12.00	42.00	50.00	38.4	M16	0	1.05	SR M12X16 DIN1835-B
DIN2080 40 EM20X 63	40	20.00	52.00	63.00	51.4	M16	0	1.42	SR M16X16 DIN1835-B
DIN2080 40 EM25X 80	40	25.00	65.00	80.00	68.4	M16	0	2.06	SR M18X2X20 DIN1835-B
DIN2080 40 EM32X 80	40	32.00	72.00	80.00	68.4	M16	0	2.24	SR M20X2X20 DIN1835-B
DIN2080 50 EM 6X 63	50	6.00	25.00	63.00	47.8	M24	0	2.69	SR M6X10 DIN1835B
DIN2080 50 EM 8X 63	50	8.00	28.00	63.00	47.8	M24	0	2.75	SR M8X10 DIN1835-B
DIN2080 50 EM10X 63	50	10.00	35.00	63.00	47.8	M24	0	2.79	SR M10X12 DIN1835-B
DIN2080 50 EM12X 63	50	12.00	42.00	63.00	47.8	M24	0	2.95	SR M12X16 DIN1835-B
DIN2080 50 EM16X 63	50	16.00	48.00	63.00	47.8	M24	0	3.03	SR M14X16 DIN1835-B
DIN2080 50 EM25X 80	50	25.00	65.00	80.00	64.8	M24	0	3.78	SR M18X2X20 DIN1835-B
DIN2080 50 EM32X 80	50	32.00	72.00	80.00	64.8	M24	0	4.00	SR M20X2X20 DIN1835-B
DIN2080 50 EM40X 90	50	40.00	90.00	90.00	74.8	M24	0	5.08	SR M20X2X20 DIN1835-B
DIN2080 50 EM50X100	50	50.00	100.00	100.00	84.8	M24	0	5.94	SR M24X2X25 DIN1835-B

(1) 1 - Hole for data chip, 0 - Without hole for data chip

DIN2080

DIN2080-SEM

DIN 3937 Shell Mill Holders with
DIN 2080 A Tapered Shanks



Designation	SS	DCONWS	LSCWS	LF	LB	BD	CRKS	CDI(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 30 SEM 27X 32	30	27.00	21.00	32.00	22.4	58.00	M12	0	0.76	M12 CLAMP SCREW SEM27	WRENCH M12 SEMC 27*
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	3.07	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)

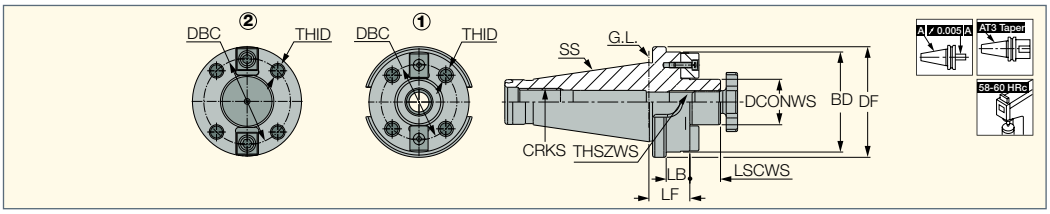
* Optional, should be ordered separately

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

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

Spare Parts

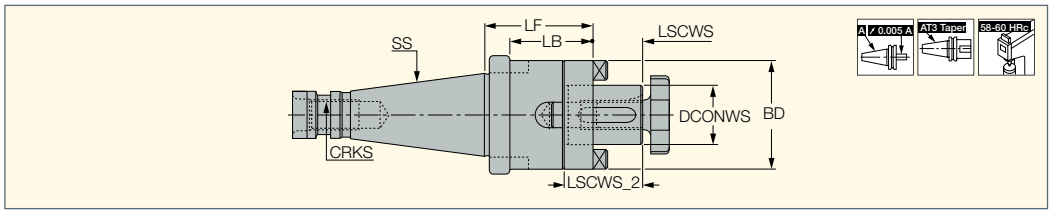
Designation			
DIN2080 50 FM 40	M20 CLAMP SCREW SEM40	WRENCH M20 SEMC 40*	DR. DOG 16 E
DIN2080 50 FM 60			DR. DOG 1E

* Optional, should 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	CDI(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)(3) 0 - Without coolant supply, 1 - With coolant supply

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

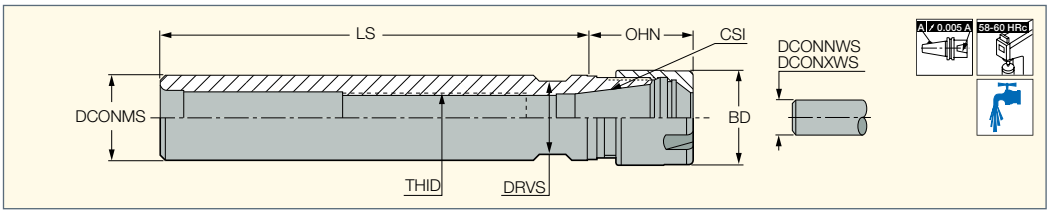
* Optional, should be ordered separately

STRAIGHT & MORSE TAPER SHANKS



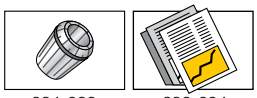
Straight Shank

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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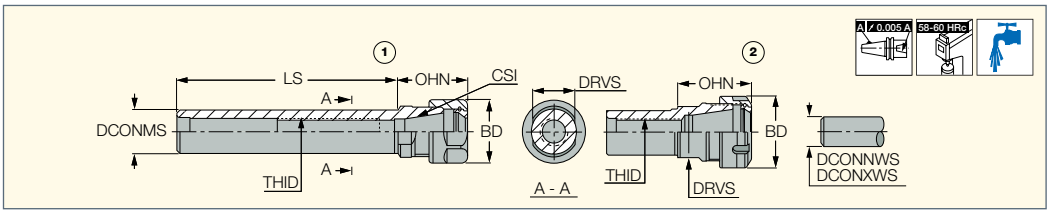
Spare Parts

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

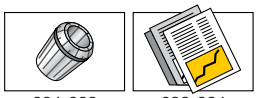
Straight Shank

ST-ER
DIN 6499 ER Collet Chucks
with Straight Shanks



Designation	DCONMS	CSI	DCONNWS(1)	DCONXWS(2)	LS	OHN(3)	THID	BD	DRVS(4)	Fig.	kg
ST 16X 50 ER11 F	16.00	ER11	0.5	7.0	50.00	18.50	M8	19.00	13.0	1.	0.06
ST 20X 50 ER11 F	20.00	ER11	0.5	7.0	50.00	18.50	M10	19.00	17.0	1.	0.10
ST 20X100 ER11	20.00	ER11	0.5	7.0	100.00	18.50	M10	19.00	17.0	1.	0.20
ST 20X150 ER11	20.00	ER11	0.5	7.0	150.00	18.50	M10	19.00	17.0	1.	0.25
ST 20X 50 ER16 F	20.00	ER16	0.5	10.0	50.00	32.30	M12	28.00	19.0	1.	0.07
ST 20X100 ER16	20.00	ER16	0.5	10.0	100.00	30.00	M12	28.00	19.0	1.	0.20
ST 20X100 ER16 F	20.00	ER16	0.5	10.0	100.00	30.00	M12	28.00	19.0	1.	0.25
ST 20X150 ER16	20.00	ER16	0.5	10.0	150.00	30.00	M12	28.00	19.0	1.	0.28
ST 20X 50 ER20 F	20.00	ER20	1.0	13.0	50.00	42.50	M12	34.00	22.0	1.	0.15
ST 25X100 ER20	25.00	ER20	1.0	13.0	100.00	36.00	M16	34.00	22.0	1.	0.30
ST 25X150 ER20	25.00	ER20	1.0	13.0	150.00	36.00	M16	34.00	22.0	1.	0.39
ST 20X 50 ER25 F	20.00	ER25	1.0	16.0	50.00	46.00	M12	42.00	28.0	2.	0.34
ST 20X100 ER25	20.00	ER25	1.0	16.0	100.00	46.00	M12	42.00	28.0	2.	0.29
ST 20X100 ER25 F	20.00	ER25	1.0	16.0	100.00	46.00	M12	42.00	28.0	2.	0.09
ST 25X 50 ER25 F	25.00	ER25	1.0	16.0	50.00	46.00	M16	42.00	28.0	2.	0.22
ST 25X100 ER25	25.00	ER25	1.0	16.0	100.00	46.00	M16	42.00	28.0	2.	0.36
ST 20X 50 ER32 F	20.00	ER32	2.0	20.0	50.00	54.00	M12	50.00	36.0	2.	0.30
ST 20X100 ER32	20.00	ER32	2.0	20.0	100.00	54.00	M12	50.00	36.0	2.	0.40
ST 25X 50 ER32 F	25.00	ER32	2.0	20.0	50.00	52.00	M16X2	50.00	36.0	2.	0.32
ST 30X 50 ER32 F	30.00	ER32	2.0	20.0	50.00	52.00	M18X1.5	50.00	36.0	2.	0.39
ST 32X 50 ER32 F	32.00	ER32	2.0	20.0	50.00	52.00	M18X1.5	50.00	36.0	2.	0.42
ST 32X150 ER32	32.00	ER32	2.0	20.0	150.00	52.00	M18X1.5	50.00	36.0	2.	0.88
ST 40X 75 ER32 F	40.00	ER32	2.0	20.0	75.00	46.00	M22X1.5	50.00	44.0	2.	0.72
ST 25X 50 ER40 F	25.00	ER40	3.0	26.0	50.00	60.00	M16X2	63.00	45.0	2.	0.52
ST 30X 50 ER40 F	30.00	ER40	3.0	26.0	50.00	60.00	M18X1.5	63.00	45.0	2.	0.57
ST 32X 50 ER40 F	32.00	ER40	3.0	26.0	50.00	60.00	M18X1.5	63.00	45.0	2.	0.80
ST 40X 75 ER40 F	40.00	ER40	3.0	26.0	75.00	55.00	M22X1.5	63.00	45.0	2.	0.94
ST 50X 80 ER40 F	50.00	ER40	3.0	26.0	80.00	60.00	M28X1.5	63.00	54.0	2.	1.30
ST 50X 80 ER50 F	50.00	ER50	10.0	34.0	80.00	77.00	M36X1.5	78.00	58.0	2.	1.32

(1) Minimum diameter
(2) Maximum diameter
(3) Minimum overhang
(4) Torque key size


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Spare Parts

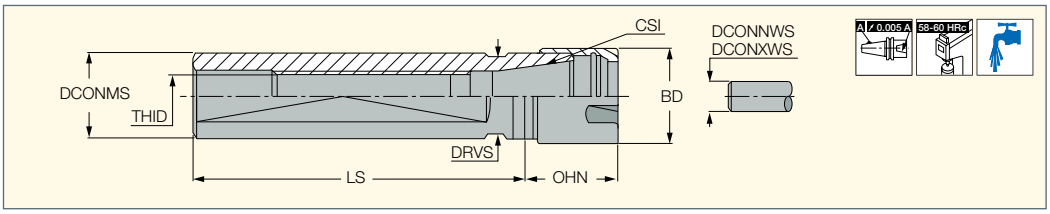
Designation				
ST 16X 50 ER11 F	NUT ER11 UM	WRENCH ER11*	PRESET ER-JET 8X1.25*	
ST 20X 50 ER11 F	NUT ER11 UM	WRENCH ER11*	PRESET ER-JET 10X1.5*	
ST 20X100 ER11	NUT ER11 UM	WRENCH ER11*	PRESET ER-JET 10X1.5*	
ST 20X150 ER11	NUT ER11 UM	WRENCH ER11*	PRESET ER-JET 10X1.5*	
ST 20X 50 ER16 F	NUT ER16 TOP	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, should be ordered separately



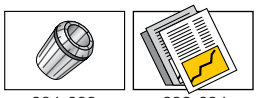
Straight Shank

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]	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	M8X1	16.00	13.0	0.07
ST 16X140 ER11 MF	16.00	ER11	140.00	0.5	7.0	18.50	M8X1	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	0.12
ST 20X 50 ER16 MF [2]	20.00	ER16	50.00	0.5	10.0	26.00	M12X1	22.00	17.0	0.10
ST 20X 70 ER16 MF [2]	20.00	ER16	70.00	0.5	10.0	26.00	M12X1	22.00	17.0	0.17
ST 20X120 ER16 MF [2]	20.00	ER16	120.00	0.5	10.0	26.00	M12X1	22.00	17.0	0.19
ST 20X140 ER16 MF [2]	20.00	ER16	140.00	0.5	10.0	26.00	M12X1	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	M12X1	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	0.27
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	0.36
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	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

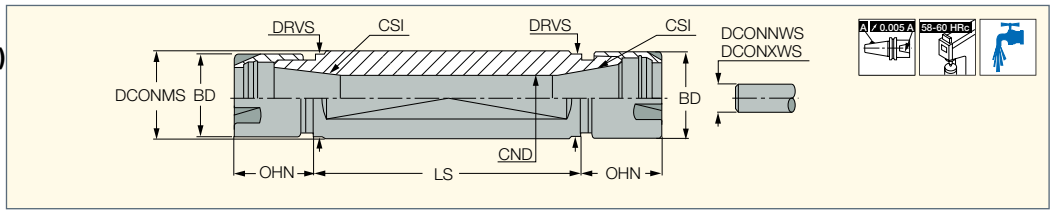
Designation			
ST 16X 38 ER11 MF	NUT ER11 MINI	WRENCH ER11 MINI*	PRESET ER-JET 8X1*
ST 16X 50 ER11 MF	NUT ER11 MINI	WRENCH ER11 MINI*	PRESET ER-JET 8X1*
ST 16X140 ER11 MF	NUT ER11 MINI	WRENCH ER11 MINI*	PRESET ER-JET 8X1*
ST 16X 35 ER16 MF	NUT ER16 MINI	WRENCH ER16 MINI*	PRESET ER-JET 8X1*
ST 20X 50 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, should 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	OHN[5]	DRVS[6]	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) Minimum overhang
(6) Torque key size


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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*

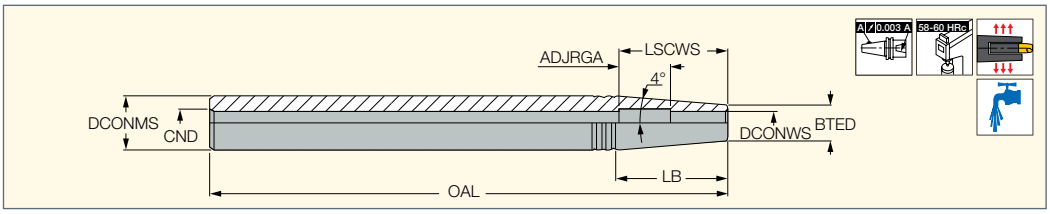
* Optional, should be ordered separately

Straight Shank

SHRINKIN

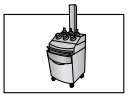
ST-SRK

Thermal Chuck Collets
with Cylindrical Shanks



Designation	DCONWS	DCONMS	BTED	CND	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	0.63

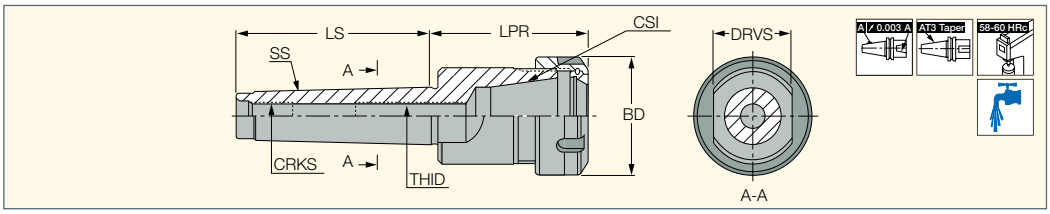
• To be used for carbide tools only.


694-695

Morse Taper

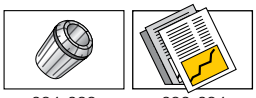
MT-ER

DIN 6499 ER Collet Chucks with
DIN 228-2 Morse Taper Shanks



Designation	SS	CSI	DCONNWS(1)	DCONXWS(2)	LPR	LS	BD	THID	CRKS	DRVS(3)	kg
MT 2 ER20X48.5	2	ER20	1.0	13.0	48.50	64.00	34.00	M10	M10	22.0	0.16
MT 2 ER25X52	2	ER25	1.0	16.0	52.00	64.00	42.00	M10	M10	28.0	0.21
MT 3 ER32X 69	3	ER32	2.0	20.0	69.00	81.00	50.00	M12	M12	24.0	0.47
MT 3 ER40X 79	3	ER40	3.0	26.0	79.00	81.00	63.00	M12	M12	24.0	0.64
MT 4 ER32X 61	4	ER32	2.0	20.0	60.50	102.50	50.00	M16	M16	32.0	0.62
MT 4 ER40X 82	4	ER40	3.0	26.0	81.50	102.50	63.00	M16	M16	32.0	0.82
MT 4 ER50X108	4	ER50	10.0	34.0	107.50	102.50	78.00	M16	M16	32.0	1.44
MT 5 ER40X 82	5	ER40	3.0	26.0	82.00	129.50	63.00	M28X1.5	M20	45.0	1.54
MT 5 ER50X 85	5	ER50	10.0	34.0	85.00	129.50	78.00	M28X1.5	M20	45.0	0.70

(1) Minimum diameter
(2) Maximum diameter
(3) Torque key size



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Spare Parts

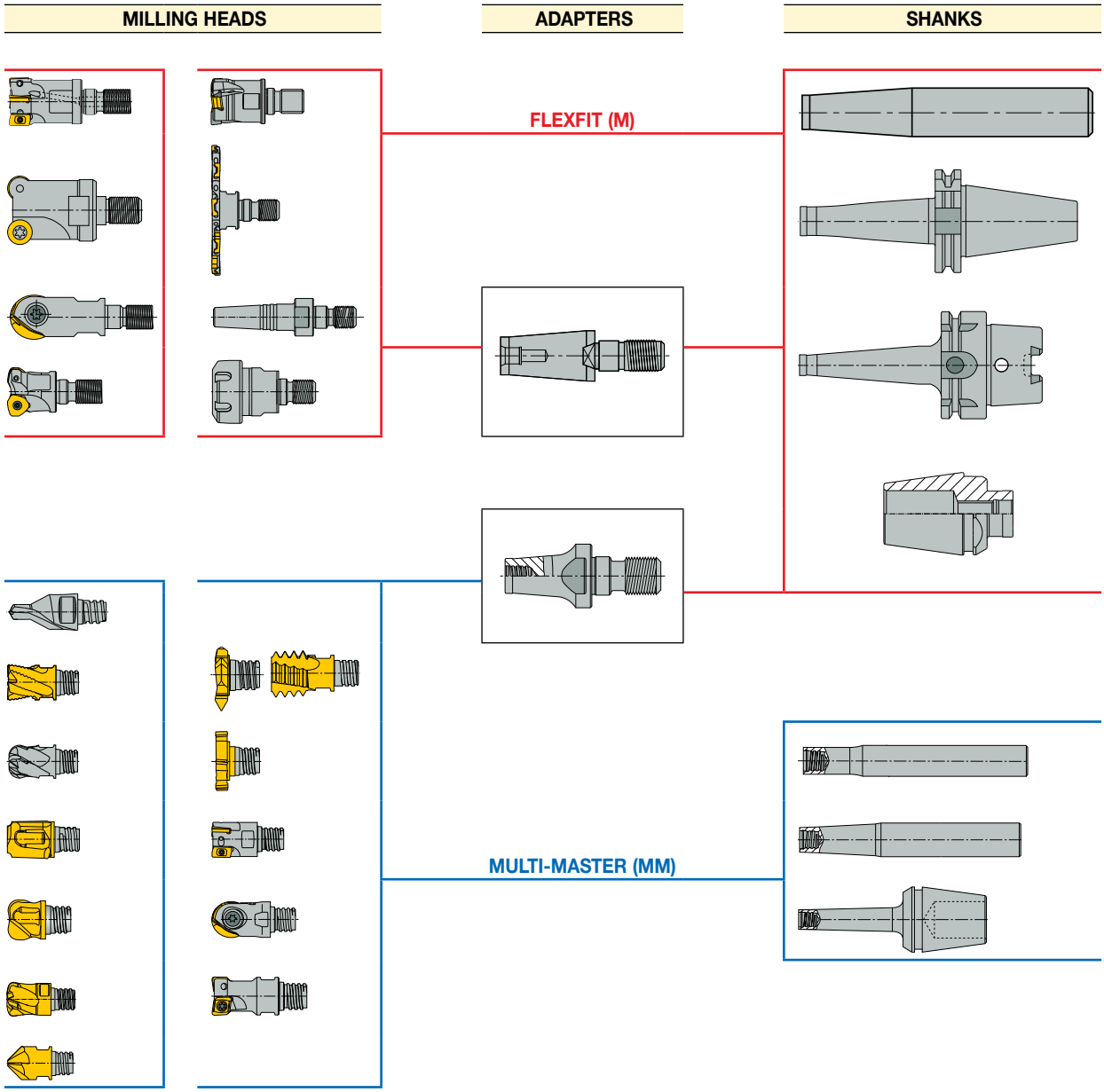
Designation				
MT 2 ER20X48.5	NUT ER20 TOP	WRENCH ER20*	PRESET ER-JET 10X1.5*	
MT 2 ER25X52	NUT ER25 TOP	WRENCH ER25*	PRESET ER-JET 10X1.5*	
MT 3 ER32X 69	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
MT 3 ER40X 79	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 12X1.75*	PRESET ER-JET 12X1.75L*
MT 4 ER32X 61	NUT ER32 TOP	WRENCH ER32*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
MT 4 ER40X 82	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 16X2*	PRESET ER-JET 16X2L*
MT 4 ER50X108	NUT ER50 UM	WRENCH ER50*	PRESET ER-JET 16X2*	
MT 5 ER40X 82	NUT ER40 TOP	WRENCH ER40*	PRESET ER-JET 28X1.5*	
MT 5 ER50X 85	NUT ER50 UM	WRENCH ER50*	PRESET ER-JET 28X1.5*	

* Optional, should be ordered separately

FLEXFIT • CLICKFIT



MULTI-MASTER and FLEXFIT Connection Options



Features

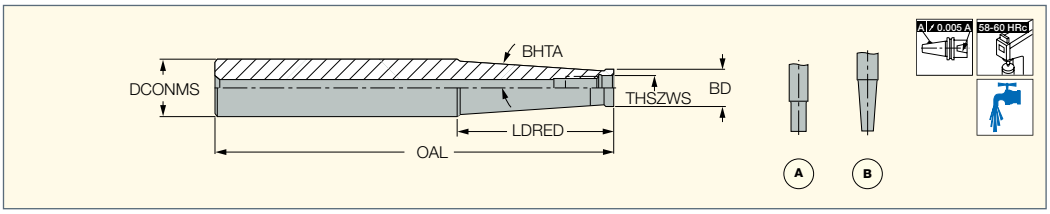
Modular system reduces stock cost by using the same head with different shank options Enables machining with larger overhang. Same head can be mounted on metric and inch combinations.

Straight Shank

FLEXFIT

S M

Shanks for Tools with FLEXFIT 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

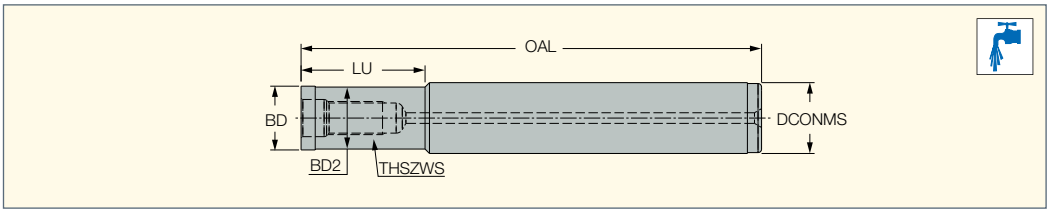
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FLEXFIT

Straight Shank

S M-C-H

Carbide Shanks with Coolant Channels for Tools with FLEXFIT Threaded Connection



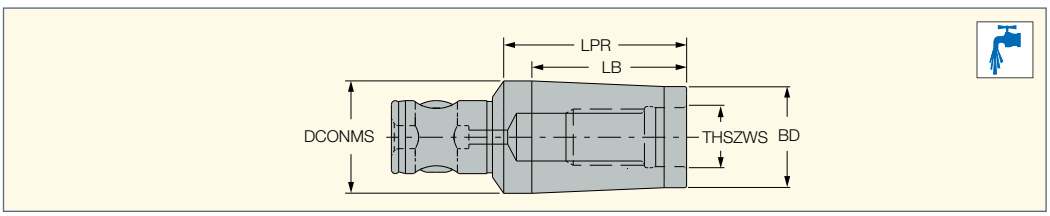
Designation	DCONMS	THSZWS	OAL	LU	BD	BD_2	kg
S M08-L150-C16-C-H	16.00	M08	150.00	80.0	15.30	15.30	0.39
S M08-L200-C16-C-H	16.00	M08	200.00	140.0	15.30	15.30	0.59
S M08-L250-C16-C-H	16.00	M08	250.00	180.0	15.30	15.30	0.84
S M10-L150-C20-C-H	20.00	M10	150.00	80.0	18.50	18.50	0.73
S M10-L200-C20-C-H	20.00	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 664

ITSBORE FLEXFIT

RE MB-ODP

Adapters for MB Modular System Connections to a FLEXFIT Threaded Connection

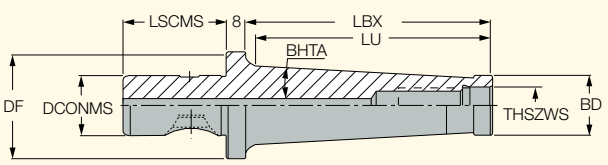


Designation		
RE MB20-ODP-M10-L32	BH MB20 COUPLING SET*	HW 3.0*
RE MB25-ODP-M12-L38	BH MB25 COUPLING SET*	HW 3.0*
RE MB32-ODP-M16-L40	BH MB32 COUPLING SET*	HW 4.0*

* Optional, should be ordered separately

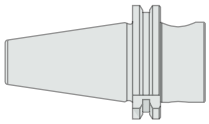
CLICKFIT FLEXFIT

S M-CF
CLICKFIT to FLEXFIT Adapters

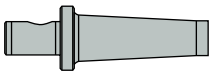


Designation	THSZWS	BD	LBX	LU	DF	LSCMS	BHTA	DCONMS	kg
S M12-L85/3.30-CF4	M12	21.00	85.0	81.30	44.00	42.00	4.4	25.00	0.23
S M12-L140/5.50-CF4	M12	21.00	140.0	139.10	44.00	42.00	4.4	25.00	0.98
S M16-L130/5.11-CF4	M16	29.00	130.0	126.80	44.00	42.00	2.6	25.00	0.23
S M16-L170/6.70-CF4	M16	29.00	170.0	168.60	44.00	42.00	2.0	25.00	1.30

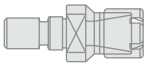
SHANK



SM...CF4

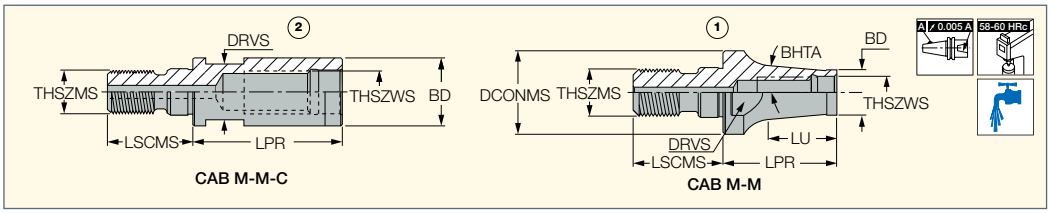


CDP...



FLEXFIT

CAB M-M (FLEXFIT)
Reducers and Extensions with Coolant Holes for the Modular FLEXFIT System



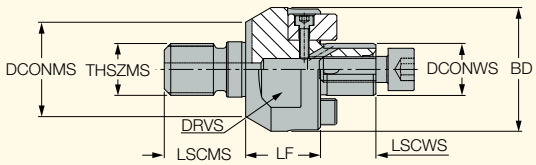
Designation	THSZWS	THSZMS	BD	LPR	LU	DCONMS	LSCMS	DRVS(1)	Fig.	BHTA	kg
CAB M06M08	M06	M08	9.70	30.00	24.80	13.00	17.50	9.5	1.	5.7	0.02
CAB M08M08-C	M08	M08	13.00	30.00	-	-	17.50	9.6	2.	-	0.02
CAB M08M10	M08	M10	13.00	40.00	33.40	18.00	20.20	15.0	1.	5.2	0.07
CAB M10M10-C	M10	M10	18.00	35.00	-	-	20.00	15.0	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
FLEXFIT 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 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) Clamping wrench size
(2) Tool tightening torque Nxm (lbfxin)
(3) Tightening torque: 30 Nm Max

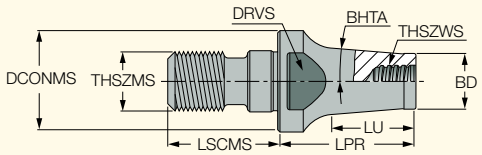
Spare Parts

Designation		
CAB M16 SEM 16 C	SR M3X10DIN912	SR M8X25DIN912

FLEXFIT
MULTI-MASTER

MM CAB

Adapters for Connecting
FLEXFIT 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	0.03
MM CAB T08M08-25/1.0	T08	M08	25.00	19.50	11.70	13.00	17.50	11.0	1.5	20	0.03
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 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) Clamping wrench size

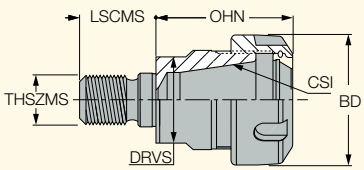
(2) Tool tightening torque Nxm (lbfxin)

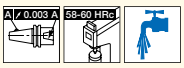

664

FLEXFIT

CDP ER-M

DIN 6499 ER Collet Chucks with
Threaded FLEXFIT 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	29	0.03
CDP ER11 M12 M	ER11	M12	0.5	7.0	27.0	22.00	16.00	17.0	33	0.04
CDP ER16 M10 M	ER16	M10	0.5	10.0	38.1	20.00	22.00	17.0	29	0.05
CDP ER16 M12 M	ER16	M12	0.5	10.0	37.1	22.00	22.00	17.0	33	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 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) Minimum diameter

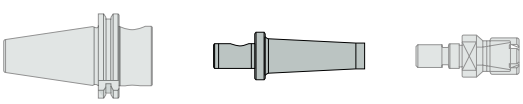
(2) Maximum diameter

(3) Minimum overhang

(4) Torque key size

(5) Tool tightening torque Nxm (lbfxin)

SHANK SM...CF4 CDP...



ERCOLLET
FLEXFIT

ER-ODP

FLEXFIT Threaded Adaptation
with Integral ER Collet
for ER Collet Chucks

Fig. 1

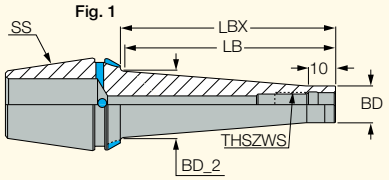
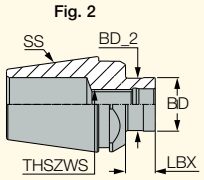
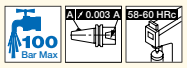


Fig. 2





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 M 8X25	ER32	M08	22.00	25.00	13.10	15.00	1	0.15
ER32 ODP M 8X50	ER32	M08	49.00	50.00	13.10	23.00	1	0.21
ER32 ODP M 8X75	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	1	0.20



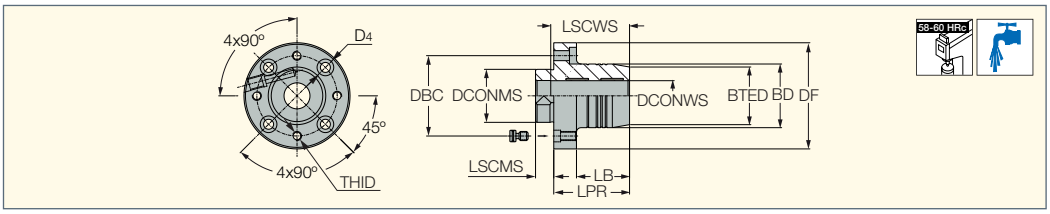
CENTER ALIGNMENT DEVICES



HYDROFIT HOLDING LINE

ADJ HYDRO

Radial and Angular Adjustable Hydraulic Flanges

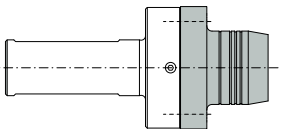


Designation	DCONMS	DCONWS	BTED	BD	DF	LPR	LB	LSCWS	LSCMS	DBC	D4	THID
ADJ HYDRO 20 D70	35.00	20.00	38.00	42.00	70.00	50.00	35.0	52.0	10.00	53.00	11.00	M6

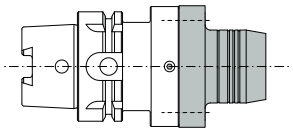
- Chucking forces will be reduced by 25% if reduction sleeves are used.
- Reduction sleeves are available for 3 to 16 mm bore diameters (ordered separately).

Designation

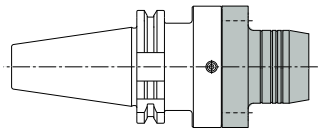
ADJ ST1 D2.756
ADJ ST25 D70
ADJ ST32 D70

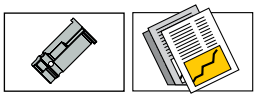


ADJ **HSK** A 63 D70
ADJ **HSK** A 100 D70



ADJ CAT40 D2.756
ADJ CAT50 D2.756
ADJ BT40 D70
ADJ BT50 D70




699 562

Spare Parts

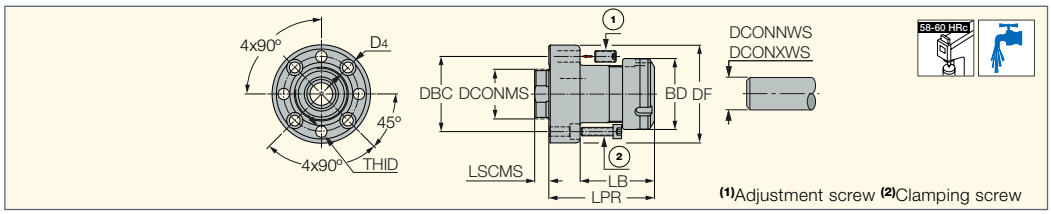
Designation		
ADJ HYDRO	WRENCH HYDRO HEX 4*	HYDRO CLAMP SCREW M8X14

* Optional, should 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

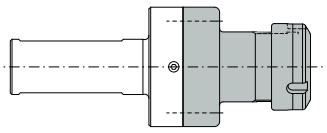
(1) Minimum diameter
(2) Maximum diameter

Spare Parts

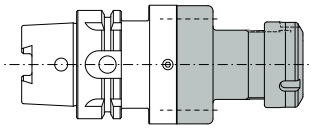
1 - Adjustment screw
2 - Clamping screw

Designation

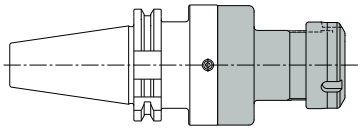
ADJ ST1 D2.756
ADJ ST25 D70
ADJ ST32 D70

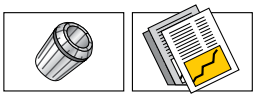


ADJ **HSK** A 63 D70
ADJ **HSK** A 100 D70



ADJ CAT40 D2.756
ADJ CAT50 D2.756
ADJ BT40 D70
ADJ BT50 D70




684-688 558,682-684

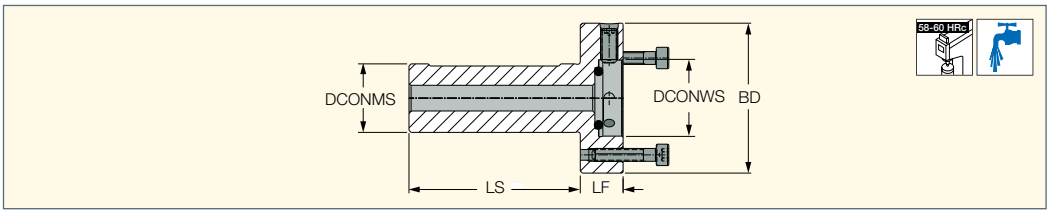
Spare Parts

Designation				
ADJ ER NOSE	NUT ER32 TOP	ADJUST SPACER 9.5X5	PRESET ER-JET 22X1.5	SR M8X1X16 DIN916

Straight Shank

ADJ ST

FINEFIT Center Alignment Shank and Base with Cylindrical Shanks with a Clamping Flat



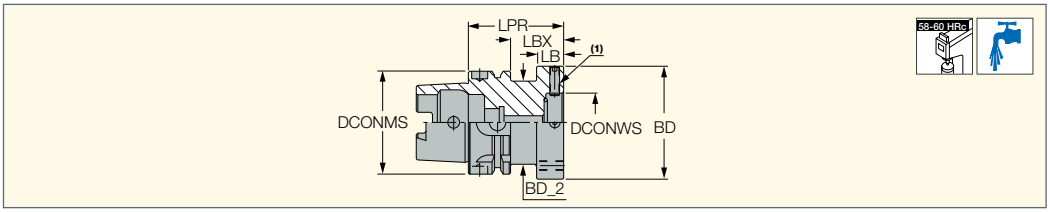
Designation	DCONMS	LF	LS	BD	DCONWS						
ADJ ST25 D70	25.00	20.00	80.00	70.00	35.00	SR M8X1X16 DIN916	SR M6X30 DIN912	OR 21X4N	HW 4.0*	ADJUST SPACER 9.5X5*	HW 5.0*
ADJ ST32 D70	32.00	20.00	80.00	70.00	35.00	SR M8X1X16 DIN916	SR M6X30 DIN912	OR 21X4N	HW 4.0*	ADJUST SPACER 9.5X5*	HW 5.0*

* Optional, should be ordered separately

HSK FINEFIT

ADJ HSK A

FINEFIT Center Alignment Shank and Base with a DIN69893 HSK Tapered Shank for Specially Tailored Toolholders



Designation	DCONMS	LPR	LBX	LB	DCONWS	BD	BD_2	CDI(2)	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

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*

(1) Use 4 mm hex key for screw adjustment.

(2) 1 - Hole for data chip, 0 - Without hole for data chip

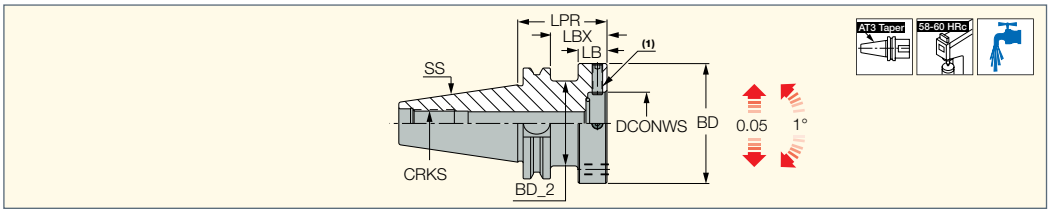
- A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)

* Optional, should be ordered separately

DIN69871

ADJ DIN69871

FINEFIT Center Alignment Shank and Base with a DIN69871 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

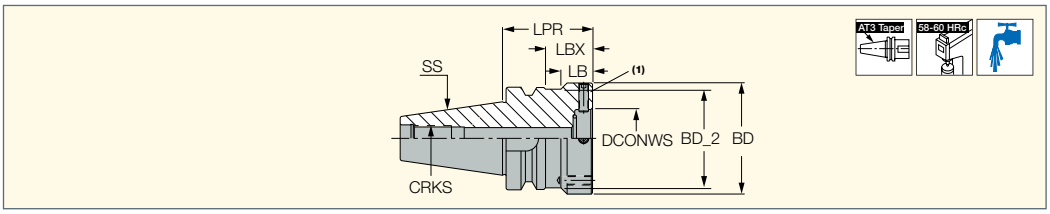
Designation						
ADJ DIN69871	SR M8X1X16 DIN916	SR M6X30 DIN912	OR 21X4N	HW 4.0*	ADJUST SPACER 9.5X5*	HW 5.0*

* Optional, should 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*

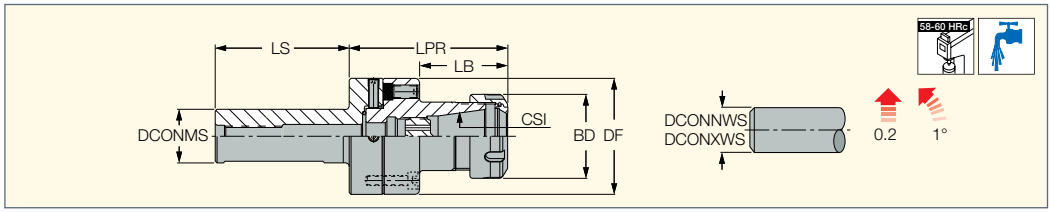
* Optional, should be ordered separately

Straight Shank

FINEFIT

ADJ ST-ER

FINEFIT DIN 6499 ER Collet Chucks with Center Alignment and Cylindrical Shanks with a Clamping Flat

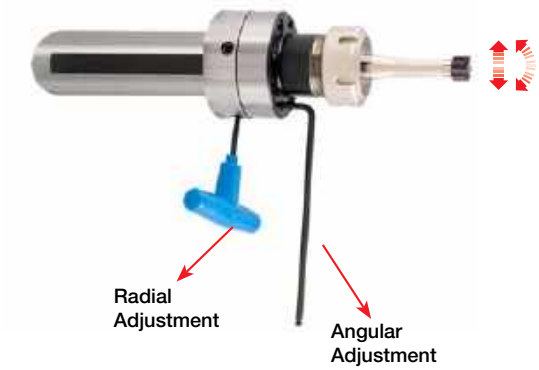


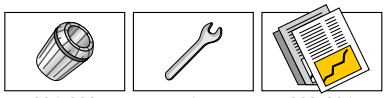
Designation	DCONMS	CSI	DCONNWS(1)	DCONXWS(2)	LPR	LB	LS	BD	DF	kg
ADJ ST25 D70 ER32	25.00	ER32	2.0	20.0	94.50	52.5	80.00	50.00	70.00	1.74
ADJ ST32 D70 ER32	32.00	ER32	2.0	20.0	94.50	52.5	80.00	50.00	70.00	1.91

• Radial adjustment 0.2 mm Angular adjustment 1°

(1) Minimum diameter

(2) Maximum diameter





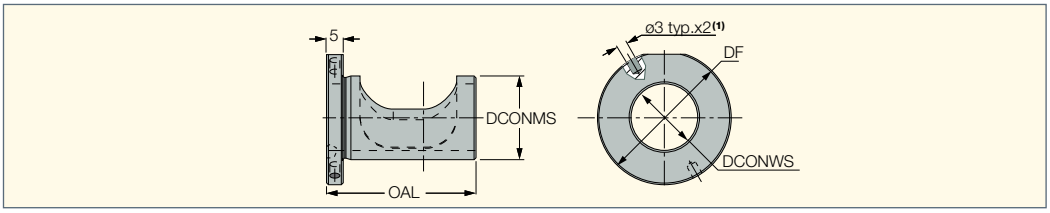
684-688 715 682-684

Spare Parts

Designation	
ADJ ST-ER	ADJ ER32 NOSE

Accessories

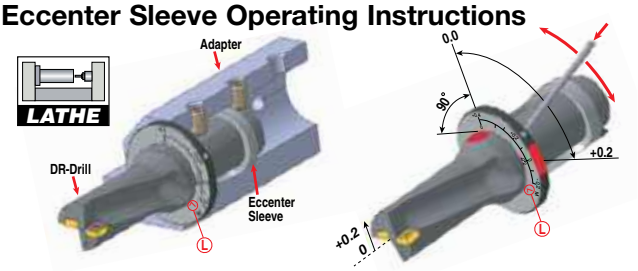
Drilling Eccenter Sleeves
Bushings for Enlarging or Reducing DR Nominal Drilling Diameters by Shifting the Drill Off-Center



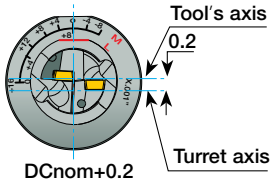
Designation	DCONWS	DCONMS	DF	OAL
ECCENTER SLEEVE 20X25	20.00	25.00	40.00	44.00
ECCENTER SLEEVE 25X32	25.00	32.00	50.00	46.00
ECCENTER SLEEVE 32X40	32.00	40.00	65.00	55.00
ECCENTER SLEEVE 40X50	40.00	50.00	75.00	77.00

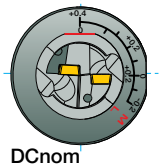
- (1) Holes for inserting a pin, used to facilitate radial adjustment of the sleeve (pin not supplied)

Eccenter Sleeve Operating Instructions



Operation on a Lathe





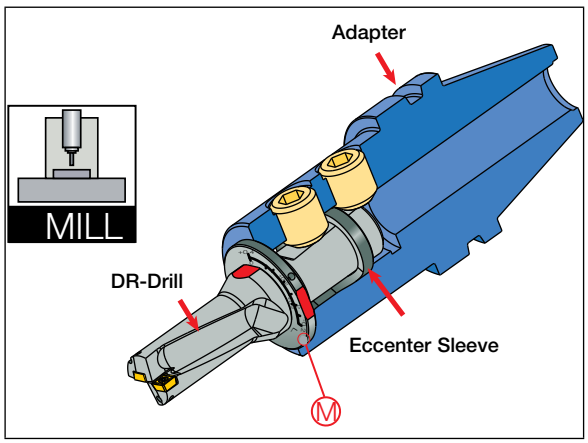
DCnom
Tool and turret axes coincide

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).

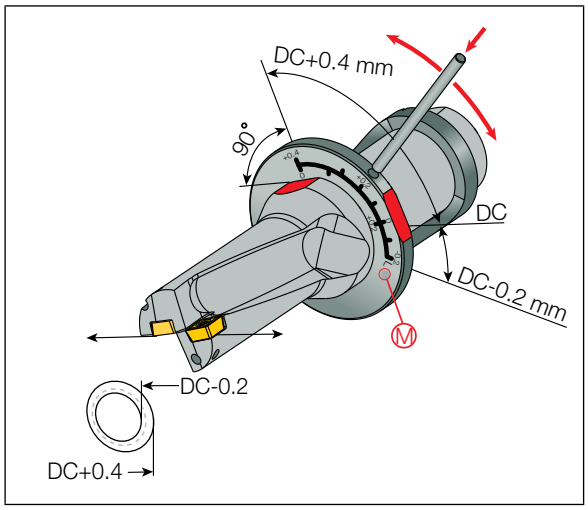


Operation on a Milling Machine

On a milling machine, the drill's nominal diameter can be changed by shifting the drill's axis out of the tool spindle.

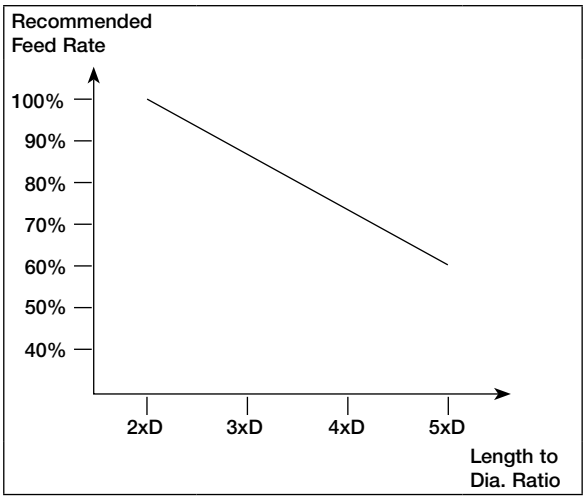


Radial adjustment pin (not supplied)



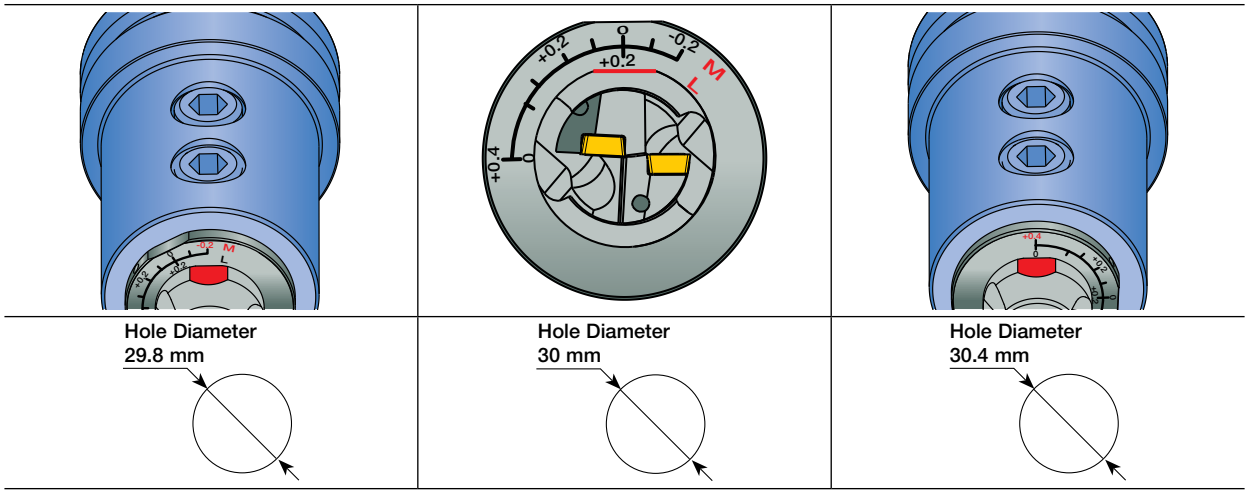
To enlarge the diameter, turn the sleeve clockwise.

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

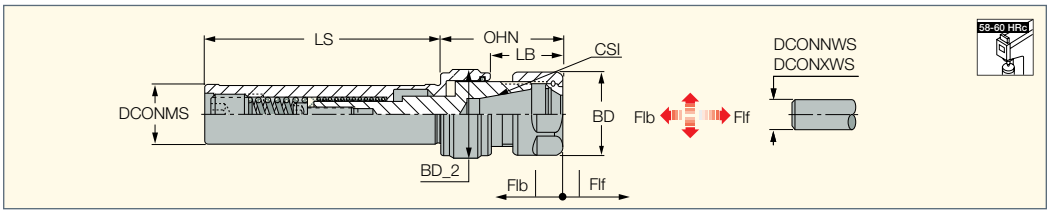


TAPPING & REAMING DEVICES



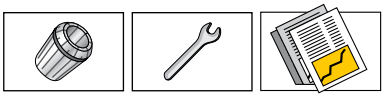
Straight Shank GTI

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	CDI(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 • (1) Use 4 mm hex key for screw adjustment. • A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)


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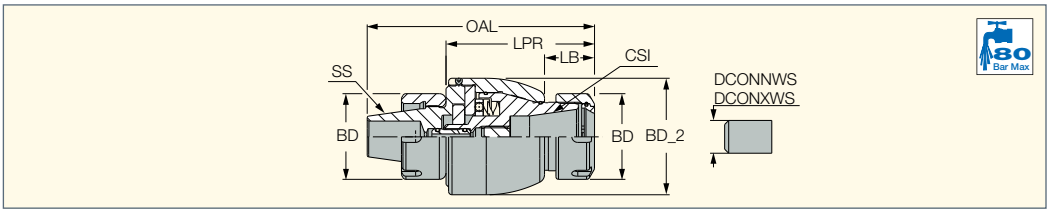
Spare Parts

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, should be ordered separately

ERCOLLET 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	32	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

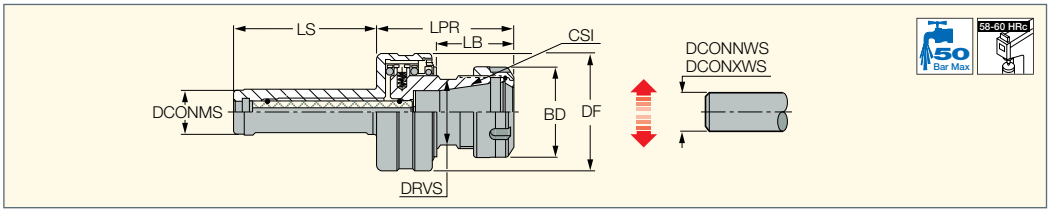

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Spare Parts

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 with Cylindrical Shanks with a Clamping Flat



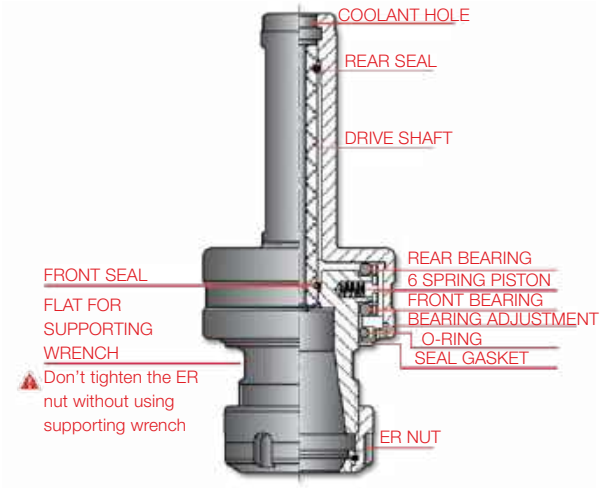
Designation	DCONMS	CSI	DCONNWS(3)	DCONXWS(4)	LS	LPR	LB	BD	DF	RFI	DRVS(5)	kg
GFI ST20 ER20 (1)	20.00	ER20	1.0	13.0	65.00	55.50	31.0	34.00	50.00	1.00	22.0	0.56
GFI ST25 ER32 (2)	25.00	ER32	2.0	20.0	80.00	76.90	45.9	50.00	65.00	1.60	36.0	1.20

- Maximum 2000 RPM!

(1) Radial float from center
(2) Minimum diameter
(3) Maximum diameter
(4) Torque key size
(5) Torque key size

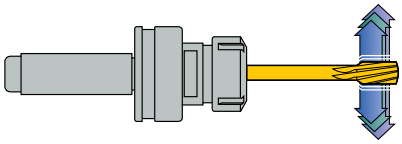
GFI ER - Floating Reamer Collet Chuck

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, should be ordered separately

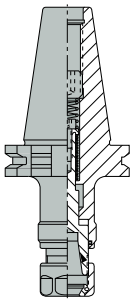
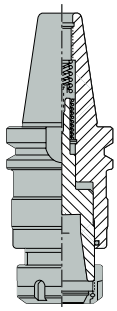
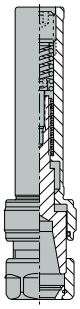
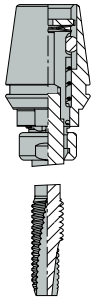
GTI / GTIN - Tapping Attachment

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 581	Page 650	Page 676	Page 679

Description
Short tap chucks for **ER** collets.

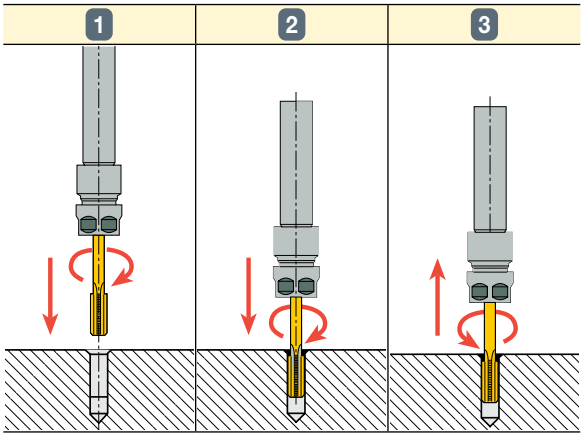
Applications
Axial float/tension/compression type for CNC milling machines and lathes with reversing motors and rigid tapping.

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.

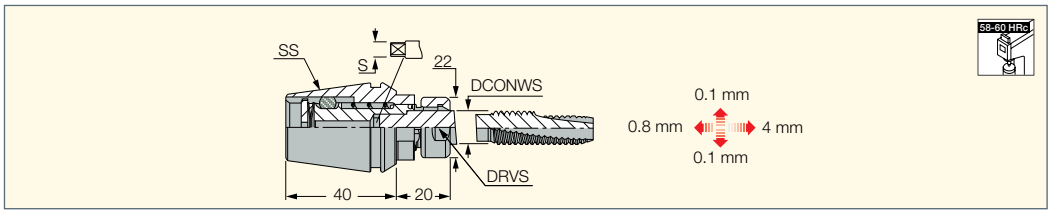
2 Start spindle forward with right hand rotation until reaching desired depth.

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)	CDI(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	0.23
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 • (1) Use 4 mm hex key for screw adjustment. • A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)

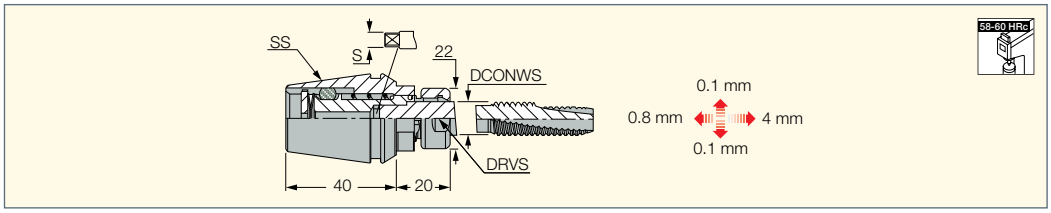
Spare Parts

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)	CDI(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 • (1) Use 4 mm hex key for screw adjustment. • A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)

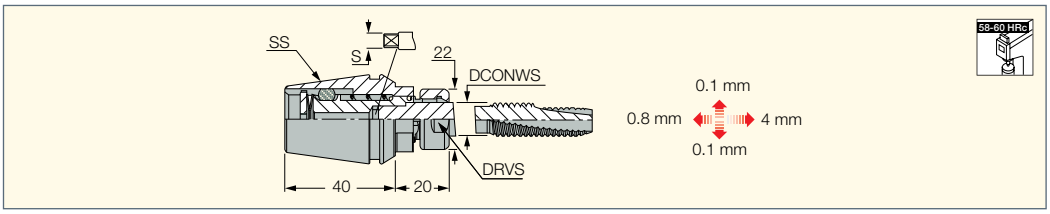
Spare Parts

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)	CDI(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	0.22
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 • (1) Use 4 mm hex key for screw adjustment. • A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)

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

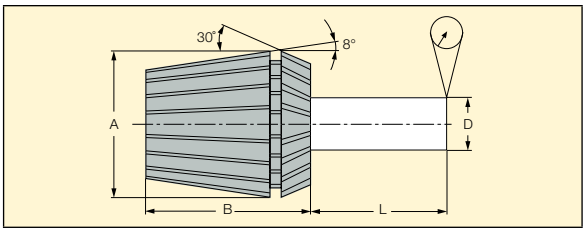


ER-ODP



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

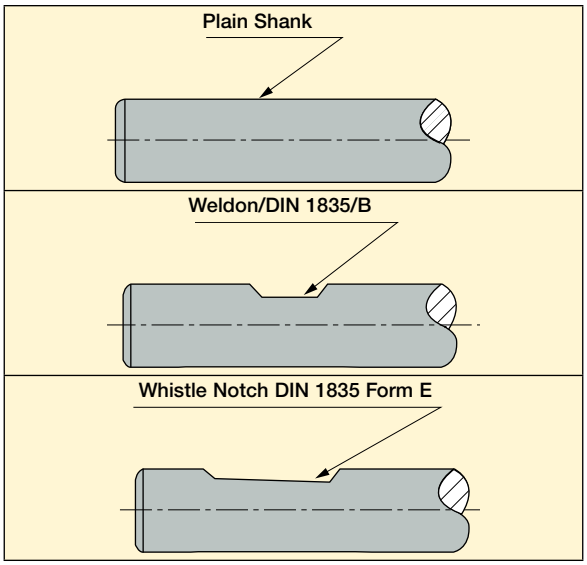
L mm	D mm	Standard Precision	AA Ultra Precision	DIN 6499
6	1.0-1.6	0.01	0.005	
10	1.6-3.0	0.01	0.005	0.015
16	3.0-6.0	0.01	0.005	0.015
25	6.0-10.0	0.01	0.005	0.015
40	10.0-18.0	0.01	0.005	0.020
50	18.0-26.0	0.01	0.005	0.020
60	26.0-34.0			0.025

ER - Coolit Sealed Collet

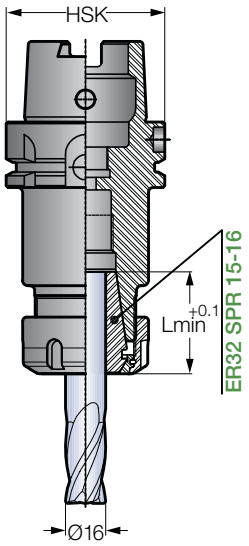
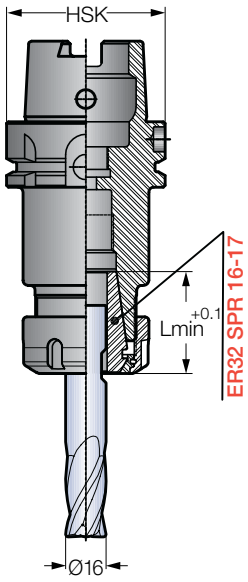
Two Types

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

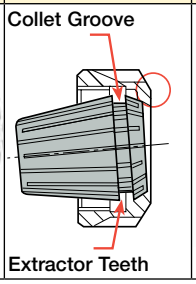
Friction bearing **ER** nut is a nut with a unique two-piece exclusive friction mechanism, combining radial and angular self-centering movements.

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

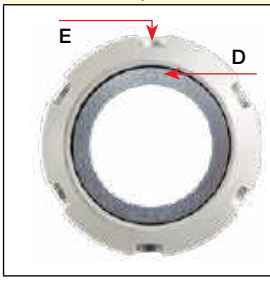
1 Insert the collet at an angle, fitting the two extractor teeth which protrude **(A)** into the collet's groove **(B)**.
2 Place the two parts on a clean and horizontal work surface.
3 Press down with your thumb on the back end of the collet until it clicks into place **(C)**.

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.

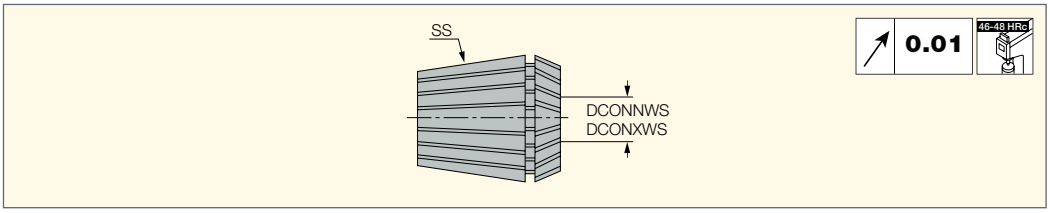
⚠ Recommended Clamping Torque for Standard ER & ER-Top Clamping Nut

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

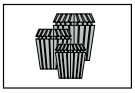
DIN 6499/ ISO 15488-B
ER Spring Collet with Super Finish Surface and Special Anti-Corrosion Protection



Designation	SS	DCONNWS[3]	DCONXWS[4]
ER11 SPR 0.5-1.0 [1]	ER11	0.50	1.00
ER11 SPR 1.0-1.5	ER11	1.00	1.50
ER11 SPR 1.5-2.0	ER11	1.50	2.00
ER11 SPR 2.0-2.5	ER11	2.00	2.50
ER11 SPR 2.5-3.0	ER11	2.50	3.00
ER11 SPR 3.0-3.5	ER11	3.00	3.50
ER11 SPR 3.5-4.0	ER11	3.50	4.00
ER11 SPR 4.0-4.5	ER11	4.00	4.50
ER11 SPR 4.5-5.0	ER11	4.50	5.00
ER11 SPR 5.0-5.5	ER11	5.00	5.50
ER11 SPR 5.5-6.0	ER11	5.50	6.00
ER11 SPR 6.0-6.5	ER11	6.00	6.50
ER11 SPR 6.5-7.0	ER11	6.50	7.00
ER16 SPR 0.5-1	ER16	0.50	1.00
ER16 SPR 1-1.5	ER16	1.00	1.50
ER16 SPR 1.5-2	ER16	1.50	2.00
ER16 SPR 2-3	ER16	2.00	3.00
ER16 SPR 3-4 [2]	ER16	3.20	4.00
ER16 SPR 4-5	ER16	4.00	5.00
ER16 SPR 5-6	ER16	5.00	6.00
ER16 SPR 6-7	ER16	6.00	7.00
ER16 SPR 7-8	ER16	7.00	8.00
ER16 SPR 8-9	ER16	8.00	9.00
ER16 SPR 9-10	ER16	9.00	10.00
ER20 SPR 1-2	ER20	1.00	2.00
ER20 SPR 1-1.5	ER20	1.00	1.50
ER20 SPR 1.5-2	ER20	1.50	2.00
ER20 SPR 2-3	ER20	2.00	3.00
ER20 SPR 3-4	ER20	3.00	4.00
ER20 SPR 4-5	ER20	4.00	5.00
ER20 SPR 5-6	ER20	5.00	6.00
ER20 SPR 6-7	ER20	6.00	7.00
ER20 SPR 7-8	ER20	7.00	8.00
ER20 SPR 8-9	ER20	8.00	9.00
ER20 SPR 9-10	ER20	9.00	10.00
ER20 SPR 10-11	ER20	10.00	11.00
ER20 SPR 11-12	ER20	11.00	12.00
ER20 SPR 12-13	ER20	12.00	13.00
ER25 SPR 1-1.5	ER25	1.00	1.50
ER25 SPR 1.5-2	ER25	1.50	2.00
ER25 SPR 2-3	ER25	2.00	3.00
ER25 SPR 3-4	ER25	3.00	4.00
ER25 SPR 4-5	ER25	4.00	5.00
ER25 SPR 5-6	ER25	5.00	6.00
ER25 SPR 6-7	ER25	6.00	7.00
ER25 SPR 7-8	ER25	7.00	8.00
ER25 SPR 8-9	ER25	8.00	9.00
ER25 SPR 9-10	ER25	9.00	10.00
ER25 SPR 10-11	ER25	10.00	11.00
ER25 SPR 11-12	ER25	11.00	12.00
ER25 SPR 12-13	ER25	12.00	13.00
ER25 SPR 13-14	ER25	13.00	14.00
ER25 SPR 14-15	ER25	14.00	15.00
ER25 SPR 15-16	ER25	15.00	16.00

Designation	SS	DCONNWS[3]	DCONXWS[4]
ER32 SPR 2-3	ER32	2.00	3.00
ER32 SPR 3-4	ER32	3.00	4.00
ER32 SPR 4-5	ER32	4.00	5.00
ER32 SPR 5-6	ER32	5.00	6.00
ER32 SPR 6-7	ER32	6.00	7.00
ER32 SPR 7-8	ER32	7.00	8.00
ER32 SPR 8-9	ER32	8.00	9.00
ER32 SPR 9-10	ER32	9.00	10.00
ER32 SPR 10-11	ER32	10.00	11.00
ER32 SPR 11-12	ER32	11.00	12.00
ER32 SPR 12-13	ER32	12.00	13.00
ER32 SPR 13-14	ER32	13.00	14.00
ER32 SPR 14-15	ER32	14.00	15.00
ER32 SPR 15-16	ER32	15.00	16.00
ER32 SPR 16-17	ER32	16.00	17.00
ER32 SPR 17-18	ER32	17.00	18.00
ER32 SPR 18-19	ER32	18.00	19.00
ER32 SPR 19-20	ER32	19.00	20.00
ER40 SPR 3-4	ER40	3.00	4.00
ER40 SPR 4-5	ER40	4.00	5.00
ER40 SPR 5-6	ER40	5.00	6.00
ER40 SPR 6-7	ER40	6.00	7.00
ER40 SPR 7-8	ER40	7.00	8.00
ER40 SPR 8-9	ER40	8.00	9.00
ER40 SPR 9-10	ER40	9.00	10.00
ER40 SPR 10-11	ER40	10.00	11.00
ER40 SPR 11-12	ER40	11.00	12.00
ER40 SPR 12-13	ER40	12.00	13.00
ER40 SPR 13-14	ER40	13.00	14.00
ER40 SPR 14-15	ER40	14.00	15.00
ER40 SPR 15-16	ER40	15.00	16.00
ER40 SPR 16-17	ER40	16.00	17.00
ER40 SPR 17-18	ER40	17.00	18.00
ER40 SPR 18-19	ER40	18.00	19.00
ER40 SPR 19-20	ER40	19.00	20.00
ER40 SPR 20-21	ER40	20.00	21.00
ER40 SPR 21-22	ER40	21.00	22.00
ER40 SPR 22-23	ER40	22.00	23.00
ER40 SPR 23-24	ER40	23.00	24.00
ER40 SPR 24-25	ER40	24.00	25.00
ER40 SPR 25-26	ER40	25.00	26.00
ER50 SPR 10-12	ER50	10.00	12.00
ER50 SPR 12-14	ER50	12.00	14.00
ER50 SPR 14-16	ER50	14.00	16.00
ER50 SPR 16-18	ER50	16.00	18.00
ER50 SPR 18-20	ER50	18.00	20.00
ER50 SPR 20-22	ER50	20.00	22.00
ER50 SPR 22-24	ER50	22.00	24.00
ER50 SPR 24-26	ER50	24.00	26.00
ER50 SPR 26-28	ER50	26.00	28.00
ER50 SPR 28-30	ER50	28.00	30.00
ER50 SPR 30-32	ER50	30.00	32.00
ER50 SPR 32-34	ER50	32.00	34.00

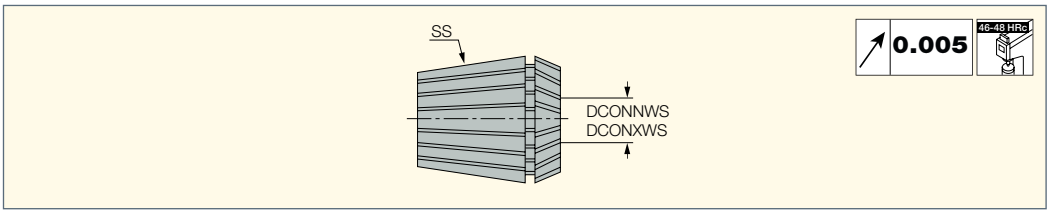
[1] The existing ER11 Collets with 1 mm clamping range will be phased out.
[2] For shank diameter 3-3.1 use ER16 SPR 2-3
[3] Minimum diameter
[4] Maximum diameter



ERCOLLET

ER-SPR-AA

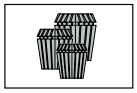
DIN 6499 'AA' Ultra Precise ER Spring Collets with Super Finish Surface and Special Anti-Corrosion Protection



Designation	SS	DCONNWS(3)	DCONXWS(4)
ER11 SPR 0.5-1.0 AA	ER11	0.02	0.04
ER11 SPR 1.0-1.5 AA	ER11	0.04	0.06
ER11 SPR 1.5-2.0 AA	ER11	0.06	0.08
ER11 SPR 2.0-2.5 AA	ER11	0.08	0.10
ER11 SPR 2.5-3.0 AA	ER11	0.10	0.12
ER11 SPR 3.0-3.5 AA	ER11	0.12	0.14
ER11 SPR 3.5-4.0 AA	ER11	0.14	0.16
ER11 SPR 4.0-4.5 AA	ER11	0.16	0.18
ER11 SPR 4.5-5.0 AA	ER11	0.18	0.20
ER11 SPR 5.0-5.5 AA	ER11	0.20	0.22
ER11 SPR 5-6 AA (1)	ER11	0.20	0.24
ER11 SPR 5.5-6.0 AA	ER11	0.22	0.24
ER11 SPR 6.0-6.5 AA	ER11	0.24	0.26
ER11 SPR 6-7 AA (1)	ER11	0.24	0.28
ER11 SPR 6.5-7.0 AA	ER11	0.26	0.28
ER16 SPR 0.5-1 AA	ER16	0.02	0.04
ER16 SPR 1.5-2 AA	ER16	0.06	0.08
ER16 SPR 2-3 AA	ER16	0.08	0.12
ER16 SPR 3-4 AA (2)	ER16	0.12	0.16
ER16 SPR 4-5 AA	ER16	0.16	0.20
ER16 SPR 5-6 AA	ER16	0.20	0.24
ER16 SPR 6-7 AA	ER16	0.24	0.28
ER16 SPR 7-8 AA	ER16	0.28	0.31
ER16 SPR 8-9 AA	ER16	0.31	0.35
ER16 SPR 9-10 AA	ER16	0.35	0.39
ER20 SPR 1-2 AA	ER20	0.04	0.08
ER20 SPR 1.5-2 AA	ER20	0.06	0.08
ER20 SPR 2-3 AA	ER20	0.08	0.12
ER20 SPR 3-4 AA	ER20	0.12	0.16
ER20 SPR 4-5 AA	ER20	0.16	0.20
ER20 SPR 5-6 AA	ER20	0.20	0.24
ER20 SPR 6-7 AA	ER20	0.24	0.28
ER20 SPR 7-8 AA	ER20	0.28	0.31
ER20 SPR 8-9 AA	ER20	0.31	0.35
ER20 SPR 9-10 AA	ER20	0.35	0.39
ER20 SPR 10-11 AA	ER20	0.39	0.43
ER20 SPR 11-12 AA	ER20	0.43	0.47
ER20 SPR 12-13 AA	ER20	0.47	0.51
ER25 SPR 1-2 AA	ER25	0.04	0.08
ER25 SPR 1.5-2 AA	ER25	0.06	0.08
ER25 SPR 2-3 AA	ER25	0.08	0.12
ER25 SPR 3-4 AA	ER25	0.12	0.16
ER25 SPR 4-5 AA	ER25	0.16	0.20
ER25 SPR 5-6 AA	ER25	0.20	0.24
ER25 SPR 6-7 AA	ER25	0.24	0.28
ER25 SPR 7-8 AA	ER25	0.28	0.31
ER25 SPR 8-9 AA	ER25	0.31	0.35
ER25 SPR 9-10 AA	ER25	0.35	0.39

Designation	SS	DCONNWS(3)	DCONXWS(4)
ER25 SPR 10-11 AA	ER25	0.39	0.43
ER25 SPR 11-12 AA	ER25	0.43	0.47
ER25 SPR 12-13 AA	ER25	0.47	0.51
ER25 SPR 13-14 AA	ER25	0.51	0.55
ER25 SPR 14-15 AA	ER25	0.55	0.59
ER25 SPR 15-16 AA	ER25	0.59	0.63
ER32 SPR 2-3 AA	ER32	0.08	0.12
ER32 SPR 3-4 AA	ER32	0.12	0.16
ER32 SPR 4-5 AA	ER32	0.16	0.20
ER32 SPR 5-6 AA	ER32	0.20	0.24
ER32 SPR 6-7 AA	ER32	0.24	0.28
ER32 SPR 7-8 AA	ER32	0.28	0.31
ER32 SPR 8-9 AA	ER32	0.31	0.35
ER32 SPR 9-10 AA	ER32	0.35	0.39
ER32 SPR 10-11 AA	ER32	0.39	0.43
ER32 SPR 11-12 AA	ER32	0.43	0.47
ER32 SPR 12-13 AA	ER32	0.47	0.51
ER32 SPR 13-14 AA	ER32	0.51	0.55
ER32 SPR 14-15 AA	ER32	0.55	0.59
ER32 SPR 15-16 AA	ER32	0.59	0.63
ER32 SPR 16-17 AA	ER32	0.63	0.67
ER32 SPR 17-18 AA	ER32	0.67	0.71
ER32 SPR 18-19 AA	ER32	0.71	0.75
ER32 SPR 19-20 AA	ER32	0.75	0.79
ER40 SPR 3-4 AA	ER40	0.12	0.16
ER40 SPR 4-5 AA	ER40	0.16	0.20
ER40 SPR 5-6 AA	ER40	0.20	0.24
ER40 SPR 6-7 AA	ER40	0.24	0.28
ER40 SPR 7-8 AA	ER40	0.28	0.31
ER40 SPR 8-9 AA	ER40	0.31	0.35
ER40 SPR 9-10 AA	ER40	0.35	0.39
ER40 SPR 10-11 AA	ER40	0.39	0.43
ER40 SPR 11-12 AA	ER40	0.43	0.47
ER40 SPR 12-13 AA	ER40	0.47	0.51
ER40 SPR 13-14 AA	ER40	0.51	0.55
ER40 SPR 14-15 AA	ER40	0.55	0.59
ER40 SPR 15-16 AA	ER40	0.59	0.63
ER40 SPR 16-17 AA	ER40	0.63	0.67
ER40 SPR 17-18 AA	ER40	0.67	0.71
ER40 SPR 18-19 AA	ER40	0.71	0.75
ER40 SPR 19-20 AA	ER40	0.75	0.79
ER40 SPR 20-21 AA	ER40	0.79	0.83
ER40 SPR 21-22 AA	ER40	0.83	0.87
ER40 SPR 22-23 AA	ER40	0.87	0.91
ER40 SPR 23-24 AA	ER40	0.91	0.94
ER40 SPR 24-25 AA	ER40	0.94	0.98
ER40 SPR 25-26 AA	ER40	0.98	1.02

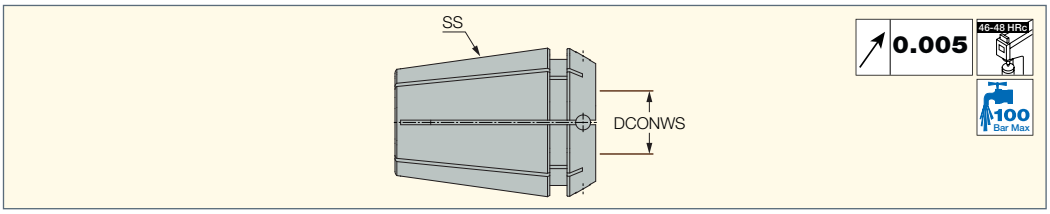
(1) For shank diameter 3-3.1 use ER16 SPR 2-3
(2) Minimum diameter
(3) Maximum diameter
(4) Maximum diameter



ERCOLLET

ER-SEAL-AA

DIN 6499/ ISO 15488-B ER
Sealed Single Diameter Collet
with Super Finish Surface and
Special Anti-Corrosion Protection



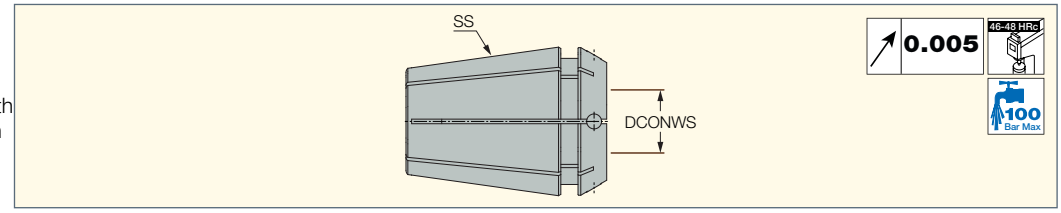
Designation	SS	DCONWS
ER11 SEAL 3 AA	ER11	3.00
ER11 SEAL 4 AA	ER11	4.00
ER11 SEAL 5 AA	ER11	5.00
ER11 SEAL 6 AA	ER11	6.00
ER16 SEAL 3 AA	ER16	3.00
ER16 SEAL 4 AA	ER16	4.00
ER16 SEAL 5 AA	ER16	5.00
ER16 SEAL 6 AA	ER16	6.00
ER16 SEAL 7 AA	ER16	7.00
ER16 SEAL 8 AA	ER16	8.00
ER16 SEAL 9 AA	ER16	9.00
ER16 SEAL 10 AA	ER16	10.00
ER20 SEAL 3 AA	ER20	3.00
ER20 SEAL 4 AA	ER20	4.00
ER20 SEAL 5 AA	ER20	5.00
ER20 SEAL 6 AA	ER20	6.00
ER20 SEAL 7 AA	ER20	7.00
ER20 SEAL 8 AA	ER20	8.00
ER20 SEAL 9 AA	ER20	9.00
ER20 SEAL 10 AA	ER20	10.00
ER20 SEAL 11 AA	ER20	11.00
ER20 SEAL 12 AA	ER20	12.00
ER25 SEAL 3 AA	ER25	3.00
ER25 SEAL 4 AA	ER25	4.00
ER25 SEAL 5 AA	ER25	5.00
ER25 SEAL 6 AA	ER25	6.00
ER25 SEAL 7 AA	ER25	7.00
ER25 SEAL 8 AA	ER25	8.00
ER25 SEAL 9 AA	ER25	9.00
ER25 SEAL 10 AA	ER25	10.00
ER25 SEAL 11 AA	ER25	11.00
ER25 SEAL 12 AA	ER25	12.00
ER25 SEAL 13 AA	ER25	13.00
ER25 SEAL 14 AA	ER25	14.00
ER25 SEAL 15 AA	ER25	15.00
ER25 SEAL 16 AA	ER25	16.00
ER32 SEAL 3 AA	ER32	3.00
ER32 SEAL 4 AA	ER32	4.00
ER32 SEAL 5 AA	ER32	5.00
ER32 SEAL 6 AA	ER32	6.00
ER32 SEAL 7 AA	ER32	7.00
ER32 SEAL 8 AA	ER32	8.00
ER32 SEAL 9 AA	ER32	9.00
ER32 SEAL 10 AA	ER32	10.00
ER32 SEAL 11 AA	ER32	11.00
ER32 SEAL 12 AA	ER32	12.00
ER32 SEAL 13 AA	ER32	13.00
ER32 SEAL 14 AA	ER32	14.00
ER32 SEAL 15 AA	ER32	15.00
ER32 SEAL 16 AA	ER32	16.00
ER32 SEAL 17 AA	ER32	17.00
ER32 SEAL 18 AA	ER32	18.00
ER32 SEAL 19 AA	ER32	19.00
ER32 SEAL 20 AA	ER32	20.00
ER40 SEAL 6 AA	ER40	6.00
ER40 SEAL 8 AA	ER40	8.00
ER40 SEAL 10 AA	ER40	10.00
ER40 SEAL 12 AA	ER40	12.00
ER40 SEAL 14 AA	ER40	14.00
ER40 SEAL 16 AA	ER40	16.00
ER40 SEAL 18 AA	ER40	18.00
ER40 SEAL 20 AA	ER40	20.00
ER40 SEAL 22 AA	ER40	22.00
ER40 SEAL 25 AA	ER40	25.00

- Recommended for improved runout and clamping torque.

ERCOLLET

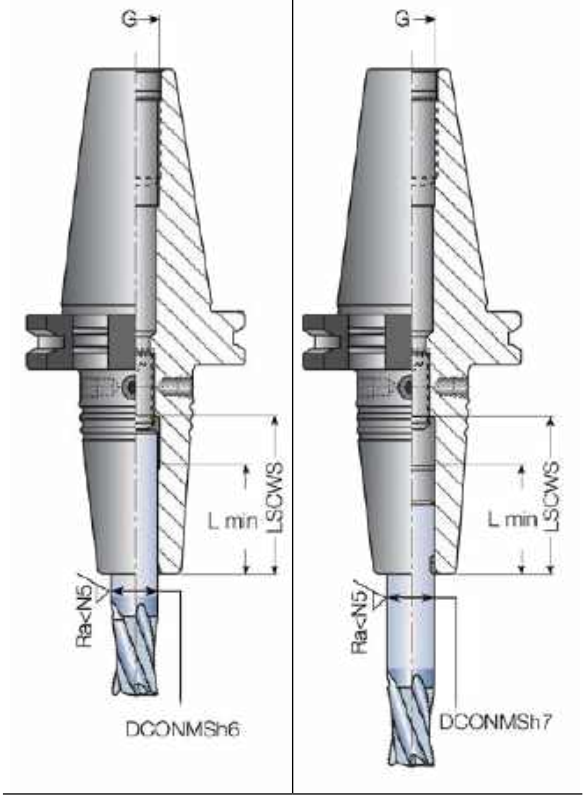
ER-SEAL-AA-JET

DIN 6499/ ISO 15488-B ER
Sealed Single Diameter Collet with
Special Anti-Corrosion Protection
Featuring 4 Cooling Jets

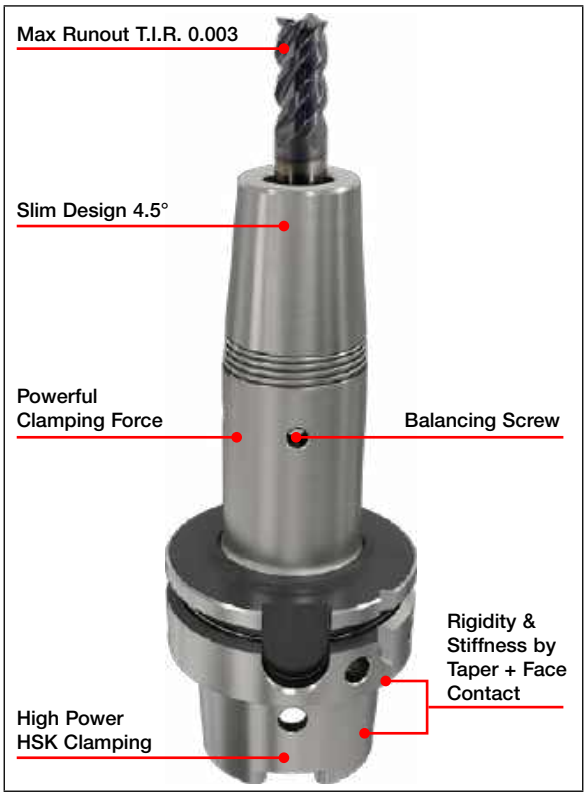


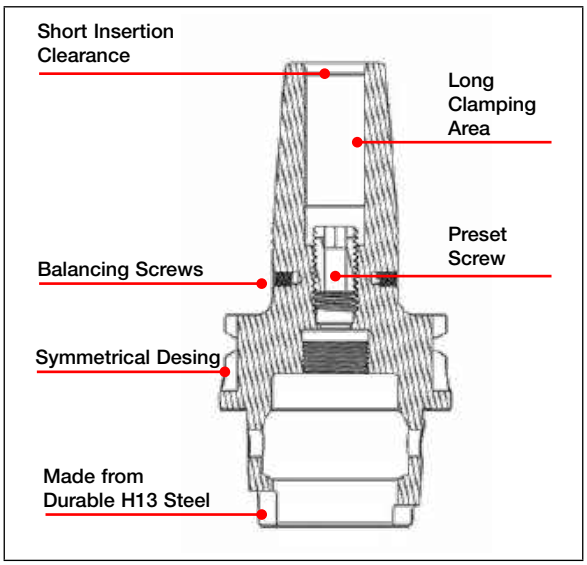
Designation	SS	DCONWS
ER16 SEAL 3 AA JET	ER16	3.00
ER16 SEAL 4 AA JET	ER16	4.00
ER16 SEAL 5 AA JET	ER16	5.00
ER16 SEAL 6 AA JET	ER16	6.00
ER16 SEAL 7 AA JET	ER16	7.00
ER16 SEAL 8 AA JET	ER16	8.00
ER16 SEAL 9 AA JET	ER16	9.00
ER16 SEAL 10 AA JET	ER16	10.00
ER20 SEAL 3 AA JET	ER20	3.00
ER20 SEAL 4 AA JET	ER20	4.00
ER20 SEAL 5 AA JET	ER20	5.00
ER20 SEAL 6 AA JET	ER20	6.00
ER20 SEAL 7 AA JET	ER20	7.00
ER20 SEAL 8 AA JET	ER20	8.00
ER20 SEAL 9 AA JET	ER20	9.00
ER20 SEAL 10 AA JET	ER20	10.00
ER20 SEAL 11 AA JET	ER20	11.00
ER20 SEAL 12 AA JET	ER20	12.00
ER25 SEAL 4 AA JET	ER25	4.00
ER25 SEAL 5 AA JET	ER25	5.00
ER25 SEAL 6 AA JET	ER25	6.00
ER25 SEAL 7 AA JET	ER25	7.00
ER25 SEAL 8 AA JET	ER25	8.00
ER25 SEAL 9 AA JET	ER25	9.00
ER25 SEAL 10 AA JET	ER25	10.00
ER25 SEAL 11 AA JET	ER25	11.00
ER25 SEAL 12 AA JET	ER25	12.00
ER25 SEAL 13 AA JET	ER25	13.00
ER25 SEAL 14 AA JET	ER25	14.00
ER25 SEAL 15 AA JET	ER25	15.00
ER25 SEAL 16 AA JET	ER25	16.00
ER32 SEAL 4 AA JET	ER32	4.00
ER32 SEAL 5 AA JET	ER32	5.00
ER32 SEAL 6 AA JET	ER32	6.00
ER32 SEAL 7 AA JET	ER32	7.00
ER32 SEAL 8 AA JET	ER32	8.00
ER32 SEAL 9 AA JET	ER32	9.00
ER32 SEAL 10 AA JET	ER32	10.00
ER32 SEAL 11 AA JET	ER32	11.00
ER32 SEAL 12 AA JET	ER32	12.00
ER32 SEAL 13 AA JET	ER32	13.00
ER32 SEAL 14 AA JET	ER32	14.00
ER32 SEAL 15 AA JET	ER32	15.00
ER32 SEAL 16 AA JET	ER32	16.00
ER32 SEAL 17 AA JET	ER32	17.00
ER32 SEAL 18 AA JET	ER32	18.00
ER32 SEAL 19 AA JET	ER32	19.00
ER32 SEAL 20 AA JET	ER32	20.00
ER40 SEAL 6 AA JET	ER40	6.00
ER40 SEAL 8 AA JET	ER40	8.00
ER40 SEAL 10 AA JET	ER40	10.00
ER40 SEAL 12 AA JET	ER40	12.00
ER40 SEAL 14 AA JET	ER40	14.00
ER40 SEAL 16 AA JET	ER40	16.00
ER40 SEAL 18 AA JET	ER40	18.00
ER40 SEAL 20 AA JET	ER40	20.00
ER40 SEAL 22 AA JET	ER40	22.00
ER40 SEAL 25 AA JET	ER40	25.00

Correct	Wrong
✔	✗



1 Do not use Weldon type shanks.
2 Insert shank at least Lmin into the chuck.
3 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



SHORTIN 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



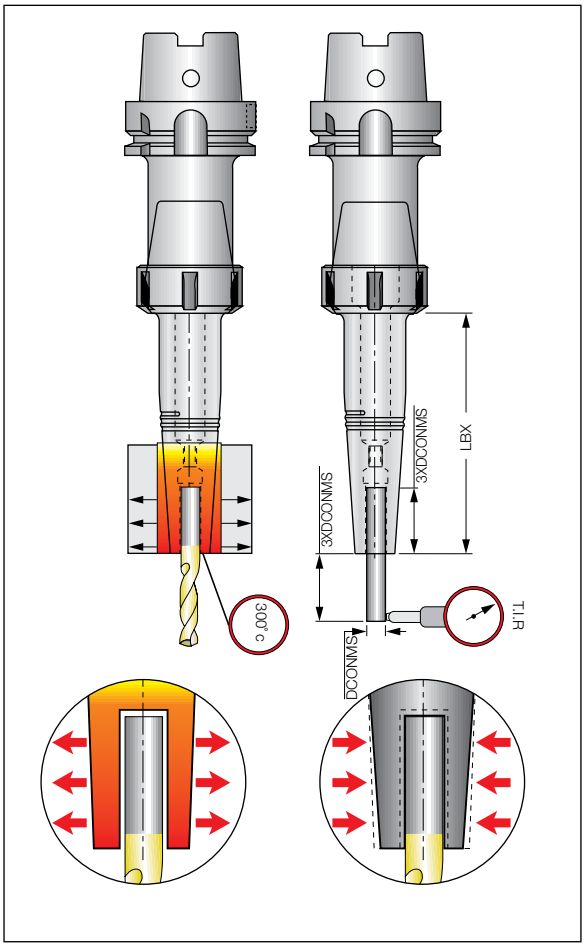
BT40-SRK DIN69871-40 SRK



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.



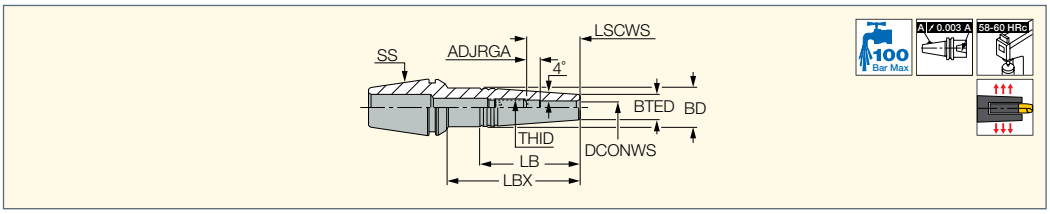
Features

- 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 changing

LBX (mm)	Max T.I.R.
35	7µm
60	9µm
85	10µm

ERCOLLET
SHRINKIN

ER-SRK
Thermal Shrink Chucks with an Integral ER Collet

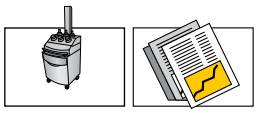


Designation	SS	DCONWS	LBX	LB	ADJRGA	LSCWS	BD	BTED	THID	Key(1)	kg		
ER20 SRK 3X35	ER20	3.00	35.0	24.50	6.00	16.0	13.50	10.00	M6	3.00	0.07	SR M6X10 DIN916
ER20 SRK 3X60	ER20	3.00	60.0	24.50	6.00	16.0	13.50	10.00	M6	3.00	0.09	SR M6X10 DIN916
ER20 SRK 4X35	ER20	4.00	35.0	24.50	6.00	18.0	13.50	10.00	M6	3.00	0.07	SR M6X10 DIN916
ER20 SRK 4X60	ER20	4.00	60.0	24.50	6.00	18.0	13.50	10.00	M6	3.00	0.10	SR M6X10 DIN916
ER20 SRK 5X35	ER20	5.00	35.0	24.50	6.00	21.0	13.50	10.00	M6	3.00	0.07	SR M6X10 DIN916
ER20 SRK 5X60	ER20	5.00	60.0	24.50	6.00	21.0	13.50	10.00	M6	3.00	0.10	SR M6X10 DIN916
ER20 SRK 6X35	ER20	6.00	35.0	25.50	6.00	24.0	13.50	11.00	M8	4.00	0.07	SR M8X12 DIN916
ER20 SRK 6X60	ER20	6.00	60.0	29.50	6.00	24.0	13.50	11.00	M8	4.00	0.09	SR M8X12 DIN916
ER25 SRK 3X35	ER25	3.00	35.0	24.50	6.00	16.0	13.50	10.00	M6	3.00	0.10	SR M6X10 DIN916
ER25 SRK 3X60	ER25	3.00	60.0	44.50	6.00	16.0	16.30	10.00	M6	3.00	0.13	SR M6X10 DIN916
ER25 SRK 4X35	ER25	4.00	35.0	24.50	6.00	18.0	13.50	10.00	M6	3.00	0.10	SR M6X10 DIN916
ER25 SRK 4X60	ER25	4.00	60.0	44.50	6.00	18.0	16.30	10.00	M6	3.00	0.15	SR M6X10 DIN916
ER25 SRK 5X35	ER25	5.00	35.0	24.50	6.00	21.0	13.50	10.00	M6	3.00	0.10	SR M6X10 DIN916
ER25 SRK 5X60	ER25	5.00	60.0	44.50	6.00	21.0	16.30	10.00	M6	3.00	0.14	SR M6X10 DIN916
ER25 SRK 6X35	ER25	6.00	35.0	26.00	6.00	24.0	14.70	11.00	M8	4.00	0.10	SR M8X12 DIN916
ER25 SRK 6X60	ER25	6.00	60.0	44.50	6.00	24.0	17.30	11.00	M8	4.00	0.14	SR M8X12 DIN916
ER25 SRK 8X35	ER25	8.00	35.0	26.50	5.00	30.0	17.80	14.00	M10	5.00	0.12	SR M10X10 DIN913
ER25 SRK 8X60	ER25	8.00	60.0	39.50	6.00	31.0	17.90	14.00	M10	5.00	0.15	SR M10X10 DIN913
ER32 SRK 3X35	ER32	3.00	35.0	22.50	6.00	16.0	13.50	10.00	M6	3.00	0.16	SR M6X10 DIN916
ER32 SRK 3X60	ER32	3.00	60.0	44.50	6.00	16.0	16.30	10.00	M6	3.00	0.20	SR M6X10 DIN916
ER32 SRK 3X85	ER32	3.00	85.0	70.00	6.00	16.0	19.80	10.00	M6	3.00	0.25	SR M6X10 DIN916
ER32 SRK 4X35	ER32	4.00	35.0	23.50	6.00	18.0	13.50	10.00	M6	3.00	0.17	SR M6X10 DIN916
ER32 SRK 4X60	ER32	4.00	60.0	44.50	6.00	18.0	16.30	10.00	M6	3.00	0.19	SR M6X10 DIN916
ER32 SRK 4X85	ER32	4.00	85.0	70.00	6.00	18.0	19.80	10.00	M6	3.00	0.24	SR M6X10 DIN916
ER32 SRK 5X35	ER32	5.00	35.0	24.50	6.00	21.0	13.50	10.00	M6	3.00	0.16	SR M6X10 DIN916
ER32 SRK 5X60	ER32	5.00	60.0	44.50	6.00	21.0	16.30	10.00	M6	3.00	0.20	SR M6X10 DIN916
ER32 SRK 5X85	ER32	5.00	85.0	70.00	6.00	21.0	19.80	10.00	M6	3.00	0.24	SR M6X10 DIN916
ER32 SRK 6X35	ER32	6.00	35.0	25.50	6.00	24.0	14.70	11.00	M8	4.00	0.16	SR M8X12 DIN916
ER32 SRK 6X60	ER32	6.00	60.0	45.00	6.00	24.0	17.30	11.00	M8	4.00	0.19	SR M8X12 DIN916
ER32 SRK 6X85	ER32	6.00	85.0	69.50	8.00	26.0	20.80	11.00	M8	4.00	0.26	SR M8X12 DIN916
ER32 SRK 8X35	ER32	8.00	35.0	33.00	6.00	31.0	18.95	14.00	M10	5.00	0.18	SR M10X10 DIN913
ER32 SRK 8X60	ER32	8.00	60.0	45.00	6.00	31.0	20.40	14.00	M10	5.00	0.21	SR M10X10 DIN913
ER32 SRK 8X85	ER32	8.00	85.0	65.00	6.00	31.0	23.20	14.00	M10	5.00	0.28	SR M10X10 DIN913
ER32 SRK 10X35	ER32	10.00	35.0	34.00	5.00	35.0	20.80	16.00	M12	6.00	0.18	SR M12X10 DIN913
ER32 SRK 10X60	ER32	10.00	60.0	44.50	6.00	36.0	22.40	16.00	M12	6.00	0.24	SR M12X10 DIN913
ER32 SRK 10X85	ER32	10.00	85.0	49.50	6.00	36.0	23.00	16.00	M12	6.00	0.29	SR M12X10 DIN913
ER32 SRK 12X35	ER32	12.00	35.0	28.00	-	32.0	24.00	20.00	-	-	0.21	
ER32 SRK 12X60	ER32	12.00	60.0	28.00	6.00	38.0	24.00	20.00	M14	6.00	0.27	SR M14X12 DIN913
ER32 SRK 12X85	ER32	12.00	85.0	28.00	6.00	38.0	24.00	20.00	M14	6.00	0.33	SR M14X12 DIN913

• For carbide tools only • 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

• For through tool coolant, preset screw must be removed

(1) Hex key size for the rear stopper screw



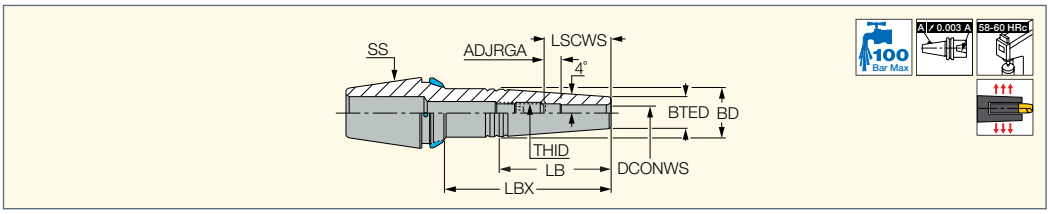
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ERCOLLET

SHRINKIN

ER-SRK-JET2

Thermal Shrink Chuck with Two Internal Cooling Jets and an Integral ER Collet

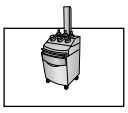


Designation	SS	DCONWS	LBX	LB	ADJRGA	LSCWS	BD	BTED	THID	Key(1)	kg	
ER20 SRK 3X35 JET2	ER20	3.00	35.0	24.50	6.00	16.0	13.50	10.00	M6	3.00	0.07	SR M6X10 DIN916
ER20 SRK 4X35 JET2	ER20	4.00	35.0	24.50	6.00	18.0	13.50	10.00	M6	3.00	0.07	
ER20 SRK 5X35 JET2	ER20	5.00	35.0	24.50	6.00	21.0	13.50	10.00	M6	3.00	0.09	
ER20 SRK 6X35 JET2	ER20	6.00	35.0	25.50	6.00	24.0	13.50	11.00	M8	4.00	0.07	SR M8X12 DIN916
ER25 SRK 3X35 JET2	ER25	3.00	35.0	24.50	6.00	16.0	13.50	10.00	M6	3.00	0.55	SR M6X10 DIN916
ER25 SRK 3X60 JET2	ER25	3.00	60.0	44.50	6.00	16.0	16.30	10.00	M6	3.00	0.16	SR M6X10 DIN916
ER25 SRK 4X35 JET2	ER25	4.00	35.0	24.50	6.00	18.0	13.50	10.00	M6	3.00	0.58	SR M6X10 DIN916
ER25 SRK 4X60 JET2	ER25	4.00	60.0	44.50	6.00	18.0	16.30	10.00	M6	3.00	0.16	
ER25 SRK 5X35 JET2	ER25	5.00	35.0	24.50	6.00	21.0	13.50	10.00	M6	3.00	0.10	
ER25 SRK 5X60 JET2	ER25	5.00	60.0	44.50	6.00	21.0	16.30	10.00	M6	3.00	0.15	SR M6X10 DIN916
ER25 SRK 6X35 JET2	ER25	6.00	35.0	26.00	6.00	24.0	14.70	11.00	M8	4.00	0.11	SR M8X12 DIN916
ER25 SRK 6X60 JET2	ER25	6.00	60.0	44.50	6.00	24.0	17.30	11.00	M8	4.00	0.16	SR M8X12 DIN916
ER25 SRK 8X35 JET2	ER25	8.00	35.0	26.50	5.00	30.0	17.80	14.00	M10	5.00	0.12	SR M10X10 DIN913
ER25 SRK 8X60 JET2	ER25	8.00	60.0	39.50	6.00	31.0	17.90	14.00	M10	5.00	0.15	SR M10X10 DIN913
ER32 SRK 3X35 JET2	ER32	3.00	35.0	22.50	6.00	16.0	13.50	10.00	M6	3.00	0.16	SR M6X10 DIN916
ER32 SRK 3X60 JET2	ER32	3.00	60.0	44.50	6.00	16.0	16.30	10.00	M6	3.00	0.19	SR M6X10 DIN916
ER32 SRK 3X85 JET2	ER32	3.00	85.0	70.00	6.00	16.0	19.80	10.00	M6	3.00	0.25	SR M6X10 DIN916
ER32 SRK 4X35 JET2	ER32	4.00	35.0	23.50	6.00	18.0	13.50	10.00	M6	3.00	0.16	SR M6X10 DIN916
ER32 SRK 4X60 JET2	ER32	4.00	60.0	44.50	6.00	18.0	16.30	10.00	M6	3.00	0.19	SR M6X10 DIN916
ER32 SRK 4X85 JET2	ER32	4.00	85.0	70.00	6.00	18.0	19.80	10.00	M6	3.00	0.22	SR M6X10 DIN916
ER32 SRK 5X35 JET2	ER32	5.00	35.0	24.50	6.00	21.0	13.50	10.00	M6	3.00	0.16	SR M6X10 DIN916
ER32 SRK 5X60 JET2	ER32	5.00	60.0	44.50	6.00	21.0	16.30	10.00	M6	3.00	0.19	SR M6X10 DIN916
ER32 SRK 5X85 JET2	ER32	5.00	85.0	70.00	6.00	21.0	19.80	10.00	M6	3.00	0.25	SR M6X10 DIN916
ER32 SRK 6X35 JET2	ER32	6.00	35.0	25.50	6.00	24.0	14.70	11.00	M8	4.00	0.15	SR M8X12 DIN916
ER32 SRK 6X60 JET2	ER32	6.00	60.0	45.00	6.00	24.0	17.30	11.00	M8	4.00	0.19	SR M8X12 DIN916
ER32 SRK 6X85 JET2	ER32	6.00	85.0	69.50	8.00	26.0	20.80	11.00	M8	4.00	0.23	SR M8X12 DIN916
ER32 SRK 8X35 JET2	ER32	8.00	35.0	33.00	6.00	31.0	18.80	14.00	M10	5.00	0.17	SR M10X10 DIN913
ER32 SRK 8X60 JET2	ER32	8.00	60.0	45.00	6.00	31.0	20.40	14.00	M10	5.00	0.22	SR M10X10 DIN913
ER32 SRK 8X85 JET2	ER32	8.00	85.0	65.00	6.00	31.0	23.20	14.00	M10	5.00	0.29	SR M10X10 DIN913
ER32 SRK 10X35 JET2	ER32	10.00	35.0	34.00	5.00	35.0	20.80	16.00	M12	6.00	0.20	SR M12X10 DIN913
ER32 SRK 10X60 JET2	ER32	10.00	60.0	44.50	6.00	36.0	22.40	16.00	M12	6.00	0.25	SR M12X10 DIN913
ER32 SRK 10X85 JET2	ER32	10.00	85.0	49.50	6.00	36.0	23.00	16.00	M12	6.00	0.30	SR M12X10 DIN913
ER32 SRK 12X35 JET2	ER32	12.00	35.0	28.00	0.00	-	24.00	20.00	-	-	0.21	
ER32 SRK 12X60 JET2	ER32	12.00	60.0	28.00	6.00	38.0	24.00	20.00	M14	6.00	0.29	SR M14X12 DIN913
ER32 SRK 12X85 JET2	ER32	12.00	85.0	28.00	6.00	38.0	24.00	20.00	M14	6.00	0.32	SR M14X12 DIN913

• For carbide tools only • 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

• For through tool coolant, preset screw must be removed

(1) Hex key size for the rear stopper screw



694-695

Induction Heating Unit

ER... SRK	Integral SRK	Integral SRKIN
		

- Easy and efficient to operate
- Quick tool change (5 sec.)
- Short cooling time (30-90 sec)
- Solid carbide range 3-32 mm
- H.S.S. cutter range 6-32 mm

Suitable for:

- Integral SRKIN tooling
- Integral heavy duty tooling
- Extensions
- ER..SRK... unique collets



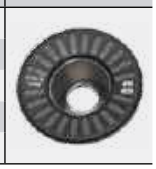
Technical Specifications		
Clamping range	3-32 mm	Carbide tool shank
Clamping range	6-32 mm	HSS & steel shank
Main power supply	3 x 380-500V 50/60Hz	
Nominal power	13 kW	
Nominal current	16 AMP	
Cooling unit power supply	220V 50Hz	
Nominal power	0.5 kW	
Max. tool length	440 mm (from gauge line)	
Max. dia. clamping chuck	52 mm	
Effective induction field length	45 mm	
Expansion time	Approx. 5-12 seconds	
Cooling time	Approx. 30-90 seconds	
Weight	150 kg	
Overall dimensions	170 x 73 x 60 cm	

⚠ Can be used for carbide and HSS tools.

Induction Heating Unit

IND SHRINKIN UNIT EUR

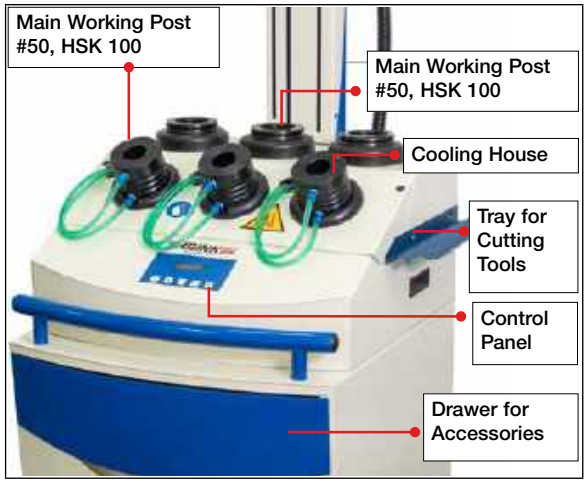
Includes:
Induction unit
Cooling unit
Trolley
3 pcs. tool adapter(1)
Ind thermic gloves

Cooling Sleeves	Used for	
IND COOLING COLLET 6-8		
IND COOLING COLLET 10-12		
IND COOLING COLLET 14-16	SRKIN	
IND COOLING COLLET 18-20		
IND COOLING COLLET ER 3-5		
IND COOLING COLLET ER 6		
IND COOLING COLLET ER 8	SRK	
IND COOLING COLLET ER 10		
IND COOLING COLLET ER 12		
IND S DISC 3-5 13kW		
IND S DISC 6-12 13kW		
IND S DISC 14-16 13kW	SRKIN	
IND S DISC 18-20 13kW		
IND S DISC 25-32 13kW		

Optional Tool Adapter for HSK	
IND 32 TOOL ADAPTER	
IND 40 TOOL ADAPTER	
IND 50 TOOL ADAPTER(2)	
IND 63 TOOL ADAPTER(1)	
IND 80 TOOL ADAPTER	

(1) For taper #40
(2) For taper #30

Induction Main Unit





Accessories (included)

INDUCTION Starter Unit

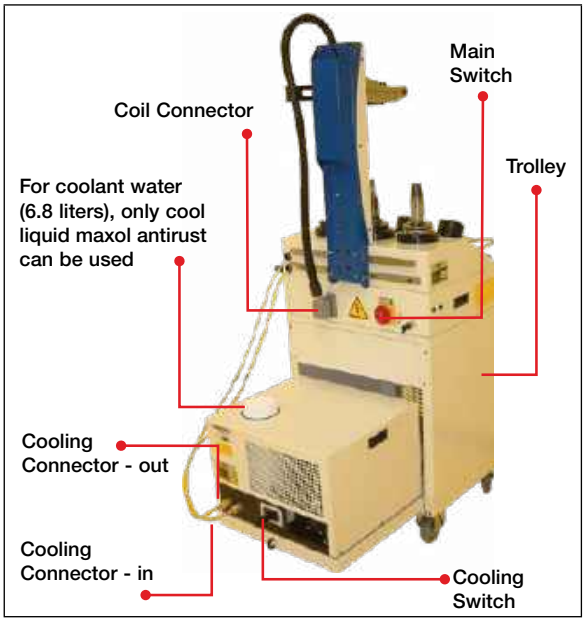
The induction starter unit is an economical starter version of the **SHRINKIN** induction unit. It was designed to help the end-user purchase the modern shrink chucking technology in a low cost device.
The starter unit is actually a simplified and limited version of the complete inductive system that we offer today.

Designation:

4505585 IND SHRINK START UNIT EUR



⚠ Can be used for carbide and HSS tools.

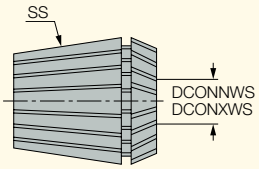


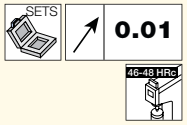
ERCOLLET

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

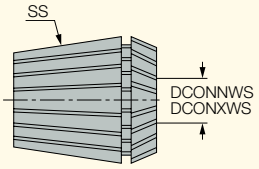
(1) Clamping range 0.5 mm
(2) Minimum diameter
(3) Maximum diameter

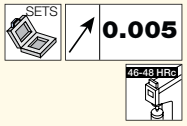
ERCOLLET

SET ER-SPR-AA

Sets of DIN 6499 'AA' Ultra Precise ER Spring Collets with Super Finish Surface and Special Anti-Corrosion Protection







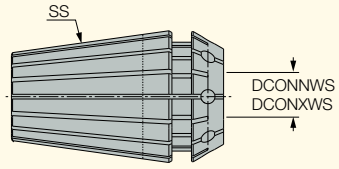
Designation	SS	Qty	DCONNWS(2)	DCONXWS(3)
SET ER11 SPR 13 AA (1)	ER11	13	0.5	7.0
SET ER16 SPR 10 AA	ER16	10	0.5	10.0
SET ER20 SPR 12 AA	ER20	12	1.0	13.0
SET ER25 SPR 15 AA	ER25	15	1.0	16.0
SET ER32 SPR 18 AA	ER32	18	2.0	20.0
SET ER40 SPR 23 AA	ER40	23	3.0	26.0

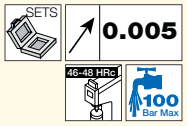
(1) Clamping range 0.5 mm
(2) Minimum diameter
(3) Maximum diameter

ERCOLLET

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

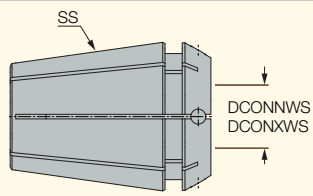
(1) Minimum diameter
(2) Maximum diameter

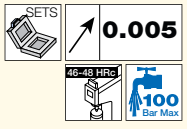
ERCOLLET

SET ER-SEAL-AA-JET

DIN 6499/ ISO 15488-B ER Sealed Single Diameter Collet with Special Anti-Corrosion Protection Featuring 4 Cooling Jets





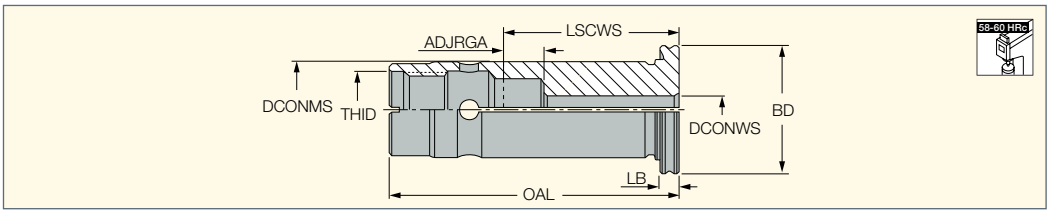


Designation	SS	Qty	DCONNWS(1)	DCONXWS(2)
SET ER16 SEAL 7 AA JET	ER16	7	4.00	10.00
SET ER20 SEAL 9 AA JET	ER20	9	4.00	12.00
SET ER25 SEAL 13 AA JET	ER25	13	4.00	16.00
SET ER32 SEAL 17 AA JET	ER32	17	4.00	20.00
SET ER40 SEAL 10 AA JET	ER40	10	6.00	25.00

(1) Minimum diameter
(2) Maximum diameter

MAXIN
Power Chuck

SC-SPR
SC Straight Collets for MAXIN Power Chucks

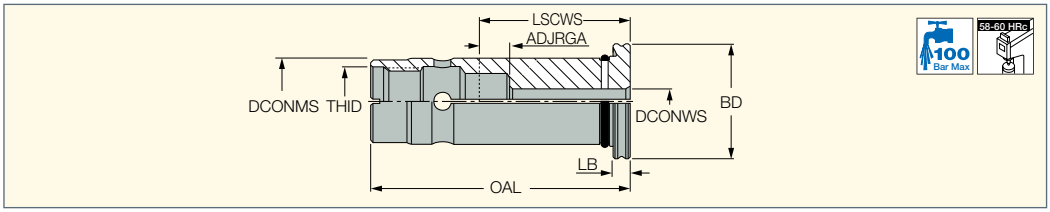


Designation	DCONMS	DCONWS	BD	LB	OAL	LSCWS	ADJRGA[1]	THID
SC 20 SPR 6	20.00	6.00	27.00	4.00	60.00	35.00	7.00	M16
SC 20 SPR 8	20.00	8.00	27.00	4.00	60.00	35.00	7.00	M16
SC 20 SPR 10	20.00	10.00	27.00	4.00	60.00	48.00	13.00	M16
SC 20 SPR 12	20.00	12.00	27.00	4.00	60.00	48.00	8.00	M16
SC 20 SPR 14	20.00	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
Power Chuck

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

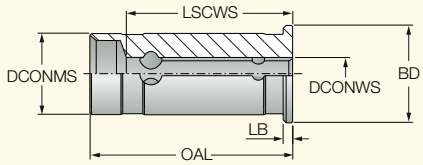
HYDROFIT KITS & ACCESSORIES



HYDROFIT HOLDING LINE

Hydraulic Chuck

SC-HYDRO
Sealed Reduction Sleeves
for Hydraulic Chucks



Designation	DCONMS	DCONWS	LSCWS	OAL	BD	LB
SC 12 S HYDRO 3	12.00	3.00	19.0	44.00	16.00	2.0
SC 12 S HYDRO 4	12.00	4.00	24.0	44.00	16.00	2.0
SC 12 S HYDRO 5	12.00	5.00	28.0	44.00	16.00	2.0
SC 12 S HYDRO 6	12.00	6.00	33.0	44.00	16.00	2.0
SC 12 S HYDRO 8	12.00	8.00	39.0	44.00	16.00	2.0
SC 20 S HYDRO 3	20.00	3.00	18.9	50.00	24.00	2.5
SC 20 S HYDRO 4	20.00	4.00	19.2	50.00	24.00	2.5
SC 20 S HYDRO 5	20.00	5.00	19.6	50.00	24.00	2.5
SC 20 S HYDRO 6	20.00	6.00	28.9	50.00	24.00	2.5
SC 20 S HYDRO 8	20.00	8.00	29.5	50.00	24.00	2.5
SC 20 S HYDRO 10	20.00	10.00	33.1	50.00	24.00	2.5
SC 20 S HYDRO 12	20.00	12.00	33.7	50.00	24.00	2.5
SC 20 S HYDRO 14	20.00	14.00	34.3	50.00	24.00	2.5
SC 20 S HYDRO 16	20.00	16.00	39.9	50.00	24.00	2.5
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
SC 32 S HYDRO 6	32.00	6.00	26.1	63.00	36.00	2.5
SC 32 S HYDRO 8	32.00	8.00	28.7	63.00	36.00	2.5
SC 32 S HYDRO 10	32.00	10.00	32.3	63.00	36.00	2.5
SC 32 S HYDRO 12	32.00	12.00	37.9	63.00	36.00	2.5
SC 32 S HYDRO 14	32.00	14.00	38.5	63.00	36.00	2.5
SC 32 S HYDRO 16	32.00	16.00	38.2	63.00	36.00	2.5
SC 32 S HYDRO 18	32.00	18.00	42.8	63.00	36.00	2.5
SC 32 S HYDRO 20	32.00	20.00	43.4	63.00	36.00	2.5
SC 32 S HYDRO 25	32.00	25.00	46.9	63.00	36.00	2.5

- Any cylindrical, Weldon shanks only 6-20 mm may be clamped in the sleeves

SPINJET COOLENT DRIVEN HSM SPINDLES



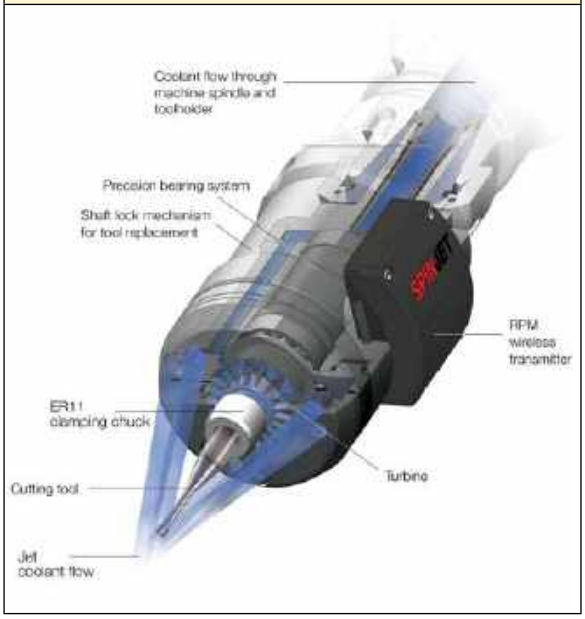
SPINJET – A unique, coolant-driven high speed compact spindle for small diameter tools.

The **SPINJET** 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 **SPINJET** 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

SPINJET is equipped with an online speed display system, monitoring the actual cutting tool rotation speed during machining.

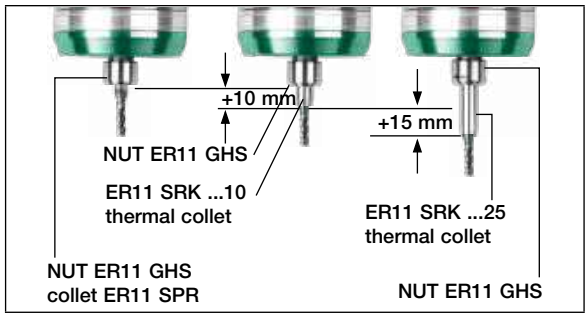
- 2.4 GHz radio frequency transmission
- Direct wireless rotational speed monitoring in a range of up to 10 meters
- Externally powered display enables reading all **SPINJET** systems being used on the machine



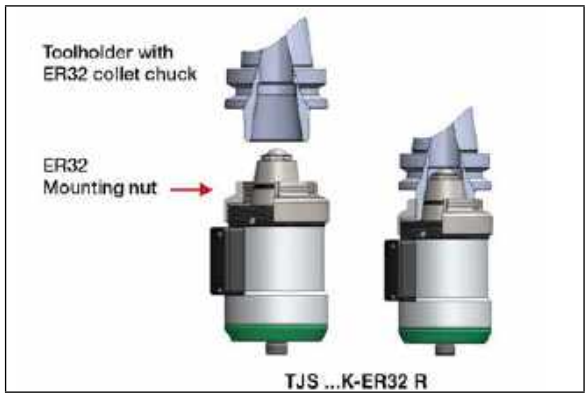
RPM wireless transmitter



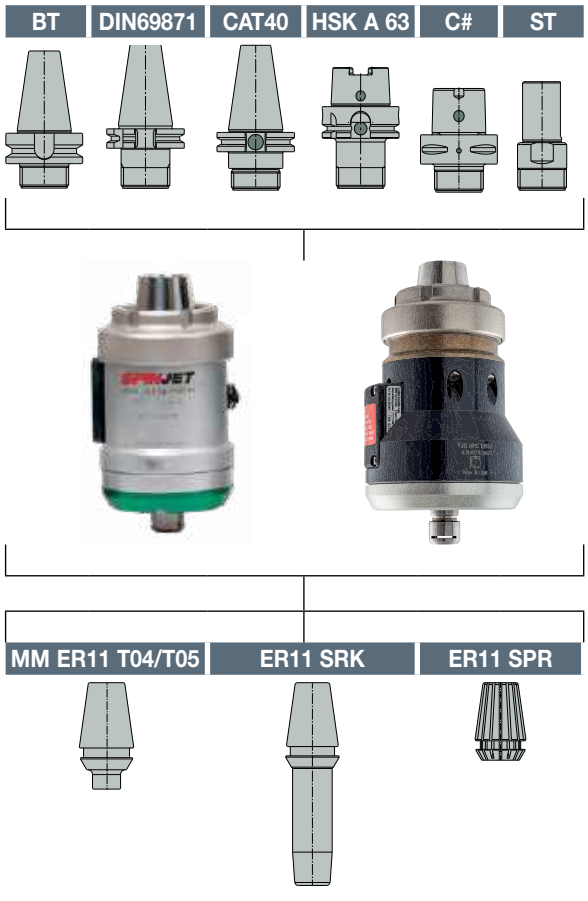
A New Solution for Cutting Tool Overhang



Built in ER32 Collet Chuck Featuring high precision and low runout, suitable for various standard toolholders with ER32 taper.



SPINJET-HPC ER32 LINE - Adaptation Options

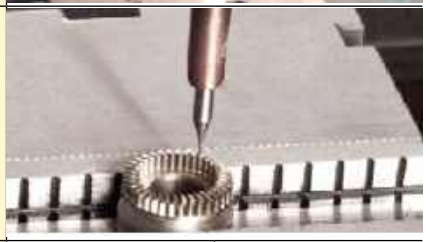


Clamping type: ER11 collet size

Operating Data	Model: HPC	Model: SPINJET-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

SPINJET-HPC LINE Spindle Applications

Drilling	
Thread Milling	
Milling	
Engraving & Chamfering	
Grinding	



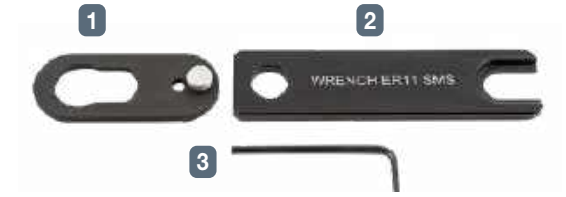
HSM Jet Spindle with mounting adaptation options (for illustration purposes only)

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

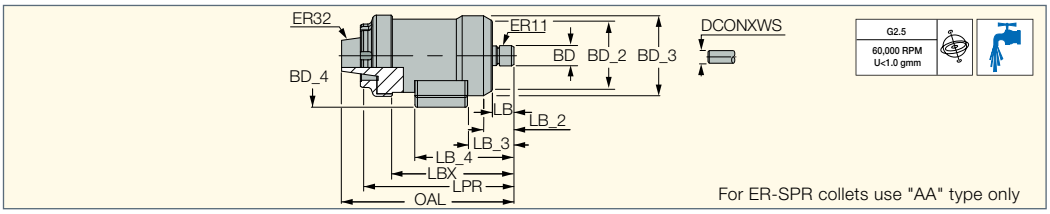


Shaft lock flat key and wrench

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)	CDI(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 • For user guide, see pages 701-703

(1) Maximum tool shank diameter
(2) Minimum RPM
(3) Maximum RPM • (1) Use 4 mm hex key for screw adjustment. • A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)

Spare Parts

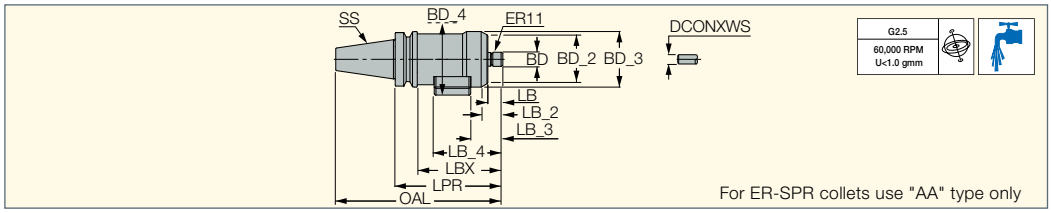
Designation					
TJS-GJET-ER32	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	TJS SHAFT LOCK KEY	TJS TSD DISPLAY*

* Optional, should be ordered separately

SPINJET BT MAS

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)	CDI(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 701-703

(1) Maximum tool shank diameter
(2) Minimum RPM
(3) Maximum RPM • (1) Use 4 mm hex key for screw adjustment. • A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)

Spare Parts

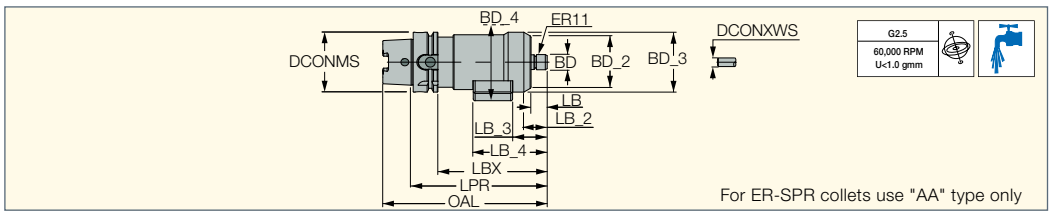
Designation					
TJS-GJET-BT	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	TJS SHAFT LOCK KEY	TJS TSD DISPLAY*

* Optional, should be ordered separately

SPINJET HSK

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)	CDI(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 701-703

(1) Maximum tool shank diameter
(2) Minimum RPM
(3) Maximum RPM • (1) Use 4 mm hex key for screw adjustment. • A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)

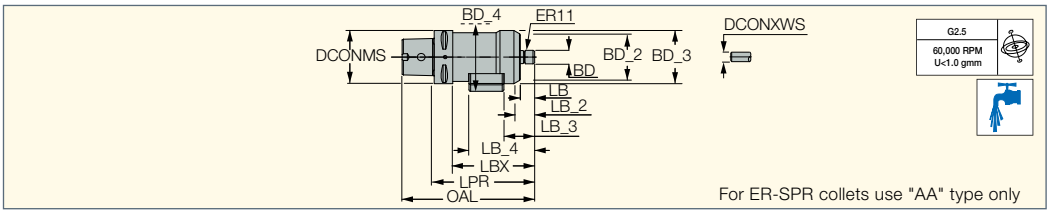
Spare Parts

Designation					
TJS-GJET-HSK A63	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	TJS SHAFT LOCK KEY	TJS TSD DISPLAY*

* Optional, should be ordered separately

SPINJET CAMFIX

TJS-GJET-C#
Coolant Driven High Speed Compact Spindles with CAMFIX (ISO 26623-1) Shanks



Designation	BD	BD_2	BD_3	BD_4	LB	LB_2	LB_3	LB_4	LBX	LPR	OAL	DCONXWS(1)	DCONMS	LF	CDI(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 701-703

(1) Maximum tool shank diameter

- (1) Use 4 mm hex key for screw adjustment. • A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)(2) 1 - Hole for data chip, 0 - Without hole for data chip

(3) Minimum RPM

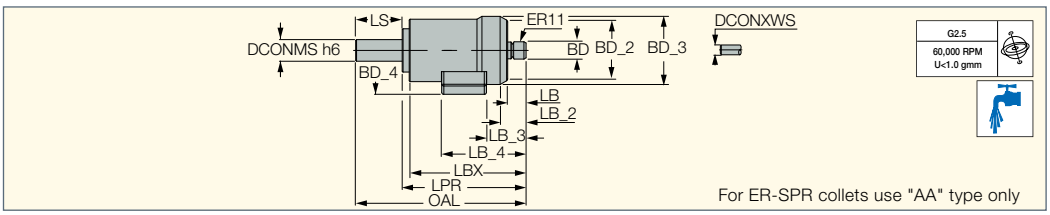
Spare Parts

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, should be ordered separately

SPINJET

TJS-GJET-ST
Coolant Driven High Speed Compact Spindles with Cylindrical Shanks



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)	CDI(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 701-703

(1) Maximum tool shank diameter

(2) Minimum RPM

(3) Maximum RPM • (1) Use 4 mm hex key for screw adjustment. • A cooling tube must be used with all coolant through HSK spindles (should be ordered separately)

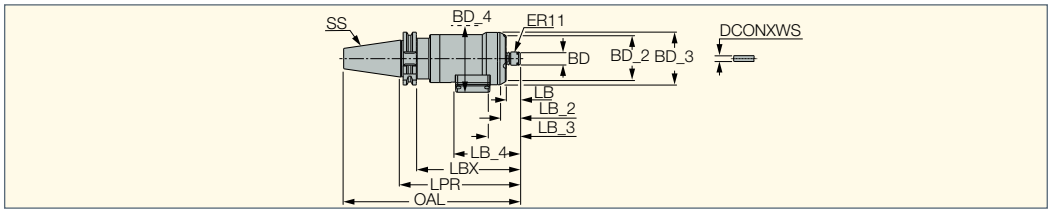
Spare Parts

Designation					
TJS-GJET-ST	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	TJS SHAFT LOCK KEY	TJS TSD DISPLAY*

* Optional, should be ordered separately

SPINJET DIN69871

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 701-703

(1) Maximum diameter

(2) Minimum RPM

(3) Maximum RPM

Spare Parts

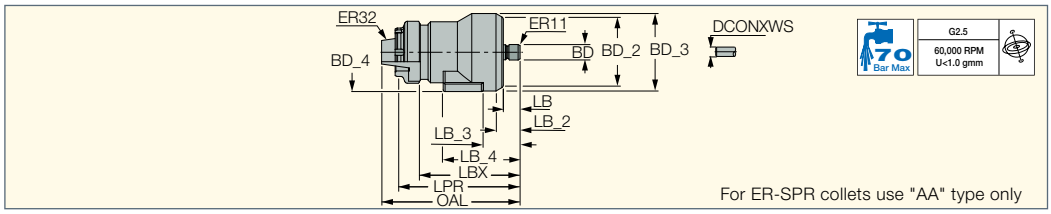
Designation					
TJS-GJET-DIN69871	TJS SHAFT LOCK KEY	NUT ER11 GHS	WRENCH ER11 SMS	TJS TSD DISPLAY*	HW 2.0

* Optional, should 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)	CDI(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 701-703

(1) Maximum diameter
(2) Minimum RPM
(3) Maximum RPM
(4) 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

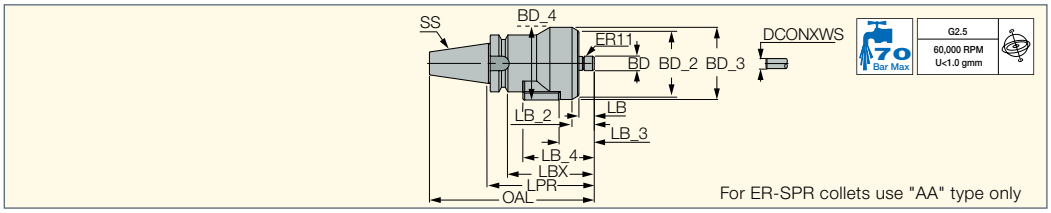
Designation					
TJS HPC ER	TJS TSD DISPLAY*	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	TJS SHAFT LOCK KEY

* Optional, should be ordered separately

SPINJET BT MAS

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)	CDI(4)	kg
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 701-703

(1) Maximum diameter
(2) Minimum RPM
(3) Maximum RPM
(4) 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

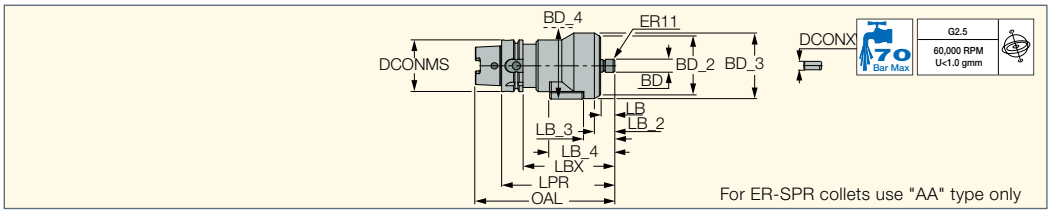
Designation					
TJS HPC BT	TJS TSD DISPLAY*	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	TJS SHAFT LOCK KEY

* Optional, should be ordered separately

SPINJET HSK

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)	CDI(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 701-703

(1) Maximum diameter
(2) Minimum RPM
(3) Maximum RPM
(4) 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

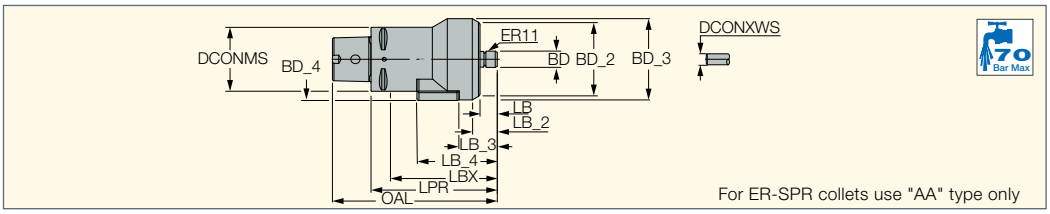
Designation					
TJS HPC HSK	TJS TSD DISPLAY*	NUT ER11 GHS	WRENCH ER11 SMS	HW 2.0	TJS SHAFT LOCK KEY

* Optional, should 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)	CDI(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 701-703

(1) Maximum diameter
(2) Minimum RPM
(3) Maximum RPM
(4) 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

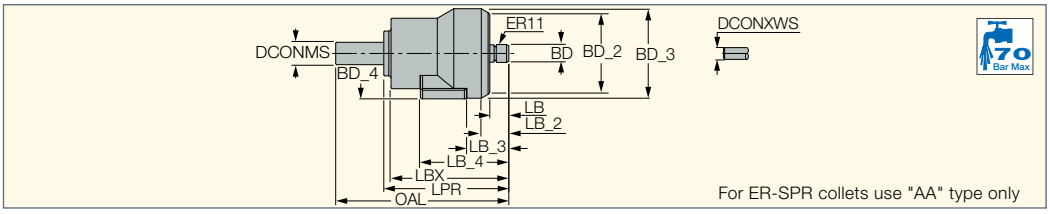
Designation						
TJS HPC C#	NUT ER11 GHS	WRENCH ER11 SMS	TJS TSD DISPLAY*	HW 2.0	TJS SHAFT LOCK KEY	COOLING TUBE C6*

* Optional, should 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)	CDI(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 701-703

(1) Maximum diameter
(2) Minimum RPM
(3) Maximum RPM
(4) 1 - Hole for data chip, 0 - Without hole for data chip

Spare Parts

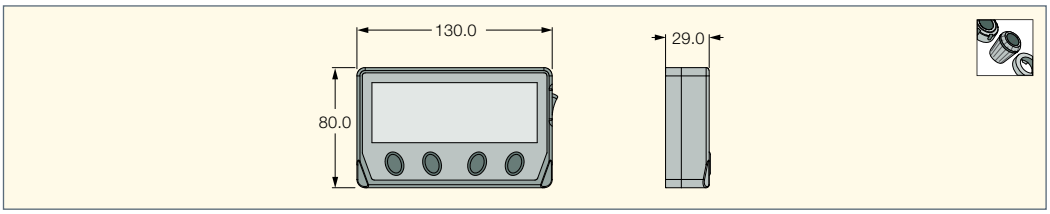
Designation					
TJS HPC ST	NUT ER11 GHS	WRENCH ER11 SMS	TJS TSD DISPLAY*	HW 2.0	TJS SHAFT LOCK KEY

* Optional, should be ordered separately

SPINJET

TJS TSD DISPLAY

RPM Speed Display for SPINJET
High Speed Spindles

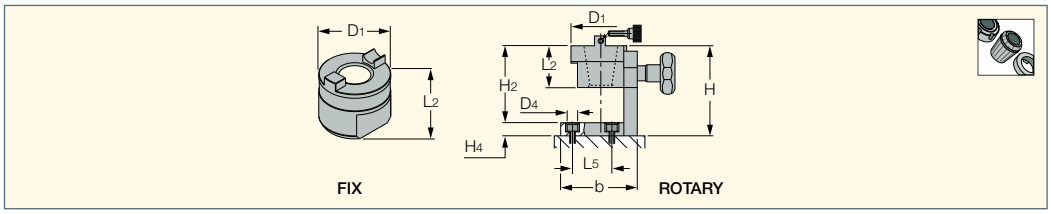


AUXILARY DEVICES



Accessories

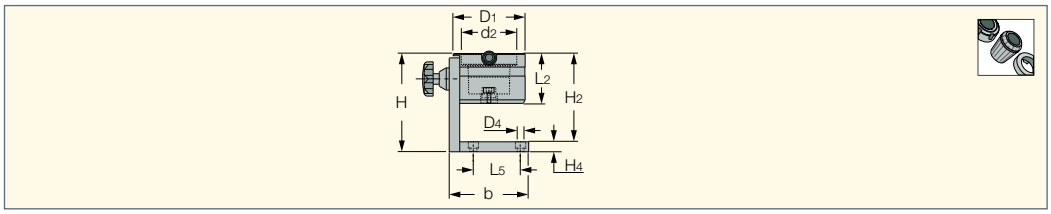
TOOL CLAMP
Tool Clamp Fixture for
ISO, DIN 69871 and BT
MAS-403 Tool Shanks



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

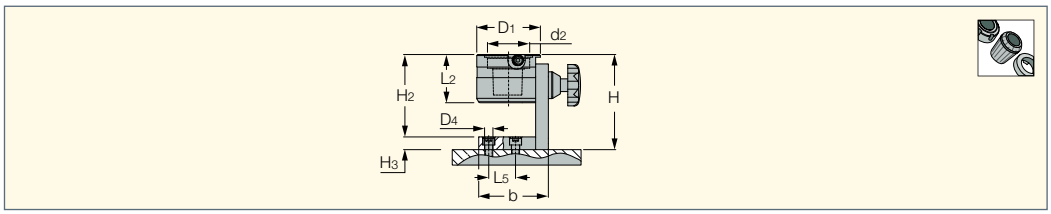
MULTI-CLAMP HSK (A/C)
Multi-Clamp Rotary Fixture
for HSK Shanks



Designation	CSI	d2	D1	L2	H	H2	H4	b	L5	D4
MULTI CLAMP 50 A/C	HSK A/C50	50.00	82.00	72.00	142.0	123.0	19.0	104.0	40.00	12.50
MULTI CLAMP 63 A/C	HSK A/C63	63.00	95.00	72.00	142.0	123.0	19.0	104.0	40.00	12.50
MULTI CLAMP 100 A/C	HSK A/C100	100.00	130.00	90.00	178.0	159.0	19.0	144.0	85.00	12.50

Accessories

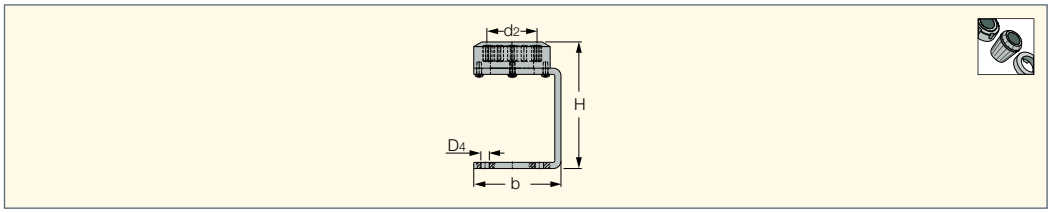
MULTI-CLAMP C#
Rotary Clamping Fixtures
for CAMFIX (ISO 26623-1)
Tapered Shank Toolholders



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

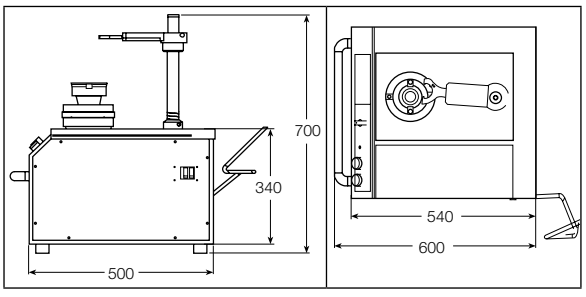
Power Clamping Unit for Collet Chucks

Safety precautions: never hold or touch the cutting tool, chuck or machine spindle during operation.

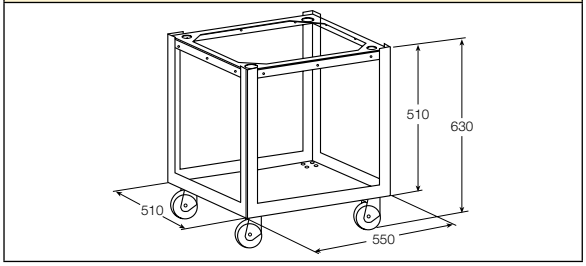


Note: Assemble the collet and cutting tool. By hand, place the nut onto the collet chuck.

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)



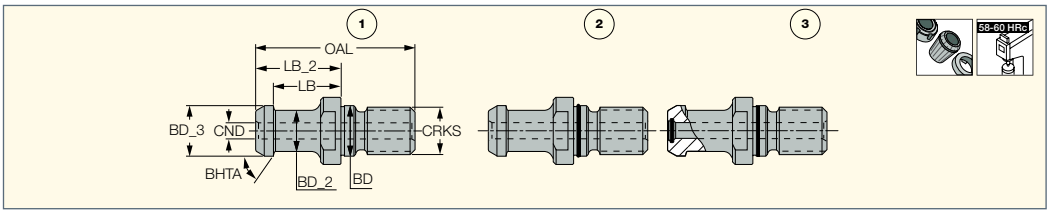
ACCESSORIES & SPARE PARTS



Accessories

PS BT-JIS (Pull Stud)

BT Pull Stud with JIS 6339 Retention Knob



Designation	SS	CRKS	BD_3	BD_2	BD	CND	LB	OAL	LB_2	BHTA	Fig.	CSP(2)
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 JISBO	40	M16	19.00	14.00	17.00	5.5	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

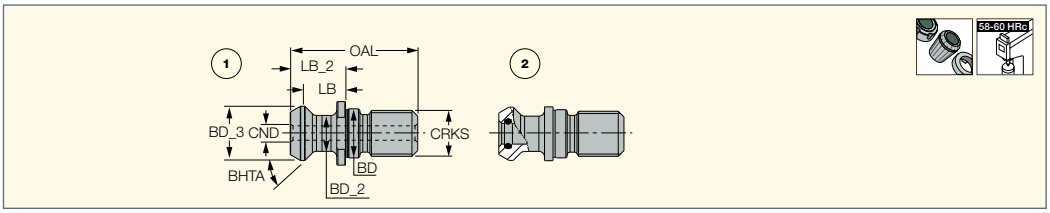
(1) 4 mm through hole for OKUMA machines

(2) 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	LB	OAL	LB_2	BHTA	Fig.	CSP(1)
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

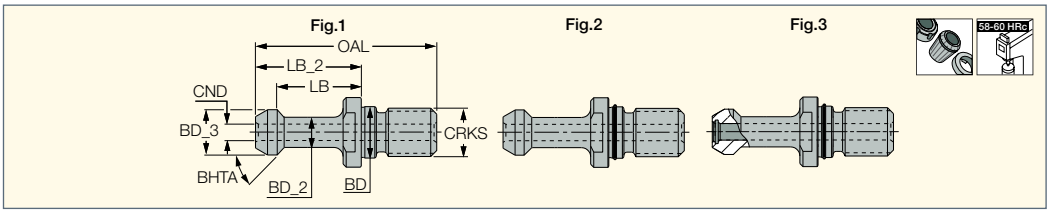
• Fig 1: With coolant hole only • Fig 2: With coolant hole and internal O-ring

(1) 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	LB	OAL	LB_2	BHTA	Fig.	CSP(1)
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

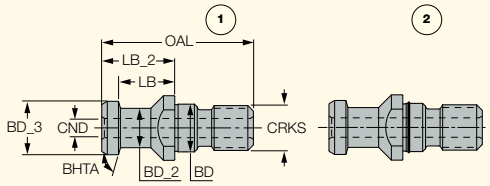
• Fig 1: With or without coolant holes (coolant holes only in items with a B suffix) • Fig 2: With coolant holes and external O-ring

• Fig 3: With coolant holes, external and internal O-rings

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

Accessories

PS SK-DIN (Pull Stud)
SK Pull Stud with DIN
69872 Retention Knob





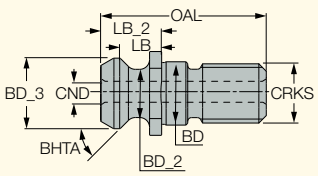
Designation	SS	CRKS	BD_3	BD_2	BD	CND	LB	OAL	LB_2	BHTA	Fig.	CSP(1)
PS SK30 15 M12 DIN	30	M12	13.00	9.00	13.00	-	19.00	44.0	24.00	75.0	1.	0
PS SK40 15 M16 DIN	40	M16	19.00	14.00	17.00	-	20.00	54.0	26.00	75.0	1.	0
PS SK40 15 M16 DIN O	40	M16	19.00	14.00	17.00	-	20.00	54.0	26.00	75.0	2.	0
PS SK40 15 M16 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) 0 - Without coolant supply, 1 - With coolant supply

Accessories

PS CAT-ISO (Pull Stud)
CAT Pull Studs with ISO
Retention Knob



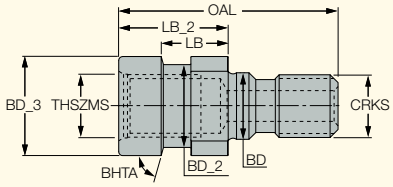


Designation	SS	CRKS	BD_3	BD_2	BD	CND	LB	OAL	LB_2	BHTA	CSP(1)
PS CAT40 45 M16ISOB	40	M16	18.95	12.95	17.00	7.4	11.15	44.5	16.40	45.0	1
PS CAT50 45 M24ISOB	50	M24	29.10	19.60	25.00	8.0	17.95	65.5	25.55	45.0	1

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

Accessories

PS OTT-BT (Pull Stud)
BT/SK Pull Stud with OTT
System Retention Knob



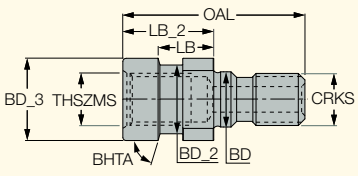


Designation	SS	CRKS	THSZMS	BD_3	BD_2	BD	LB	OAL	LB_2	BHTA	CSP(1)
PS OTT BT40 M16	40	M16	M16	25.00	21.10	17.00	16.60	56.0	28.00	75.0	0
PS OTT BT50 M24	50	M24	M24	39.30	32.00	25.00	13.35	65.0	25.00	75.0	0

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

Accessories

PS OTT-SK (Pull Stud)
SK Pull Stud with OTT
System Retention Knob





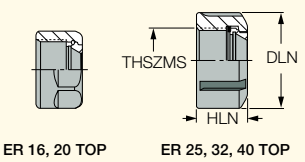
Designation	SS	CRKS	THSZMS	BD_3	BD_2	BD	LB	OAL	LB_2	BHTA	CSP(1)
PS OTT SK40 M16	40	M16	M16	25.00	21.10	17.00	13.00	53.0	25.00	75.0	0

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

Accessories

NUT ER-TOP

ER-TOP Clamping Nuts for DIN 6499 Collet Chucks



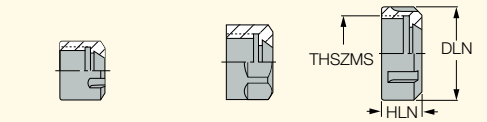
ER 16, 20 TOP ER 25, 32, 40 TOP

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



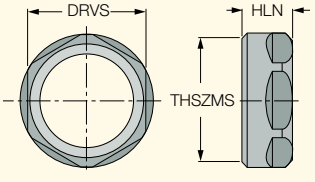
ER 11, 16, 20, 25 Mini UM ER 16, 20 UM ER 25, 32, 40, 50

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 SHORTIN Short ER Collet Chucks



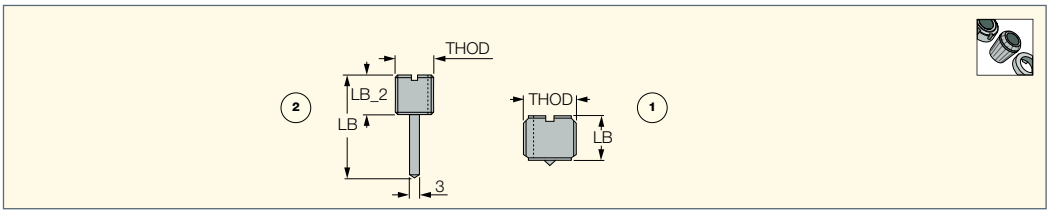
Designation	DRVS[1]	HLN	THSZMS	TQ
NUT ER20 SHORT	22.0	10.70	M25X1.5	117.7
NUT ER32 SHORT	36.0	15.00	M40X1.5	215.8
NUT ER40 SHORT	46.0	16.00	M50X1.5	245.3

(1) Torque key size

Accessories

PRESET ER-JET

Preset Screws with Oil Holes for ER Sealed Collets (optional)

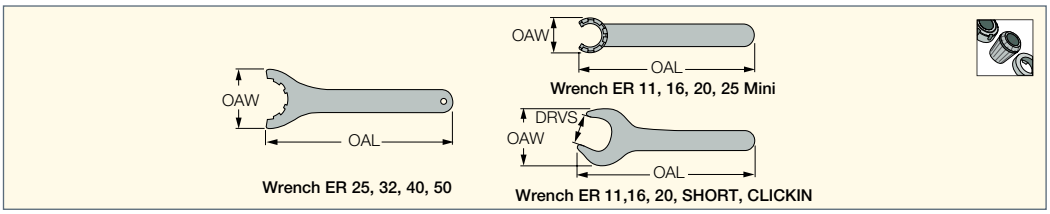


Designation	THOD	LB	LB_2	Fig.
PRESET ER-JET 8X1	M8X1	15.00	-	1.
PRESET ER-JET 8X1.25	M8X1.25	15.00	-	1.
PRESET ER-JET 10X1.5	M10X1.5	15.00	-	1.
PRESET ER-JET 12X1	M12X1	15.00	-	1.
PRESET ER-JET 12X1.75	M12X1.75	15.00	-	1.
PRESET ER-JET 12X1.75L	M12X1.75	40.00	15.0	2.
PRESET ER-JET 14X1	M14X1	15.00	-	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

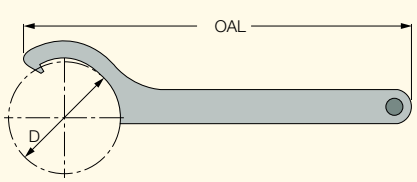


Designation	OAW	DRVS[1]	OAL
WRENCH ER11 MINI	16.80	-	95.00
WRENCH ER11	32.00	17.0	95.00
WRENCH ER16 MINI	22.50	-	117.00
WRENCH ER16	42.80	25.0	143.00
WRENCH ER20 MINI	28.00	-	128.00
WRENCH ER20	53.50	30.0	172.00
WRENCH ER25 MINI	36.00	-	140.00
WRENCH ER25	70.00	-	207.00
WRENCH ER32	78.00	-	255.00
WRENCH 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

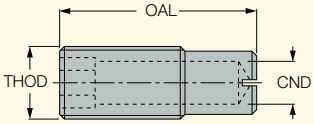


Designation	D	OAL
WRENCH MAXIN 20 HOOK	52.00	205.00
WRENCH MAXIN 32 HOOK	68.00	240.00

MAXIN

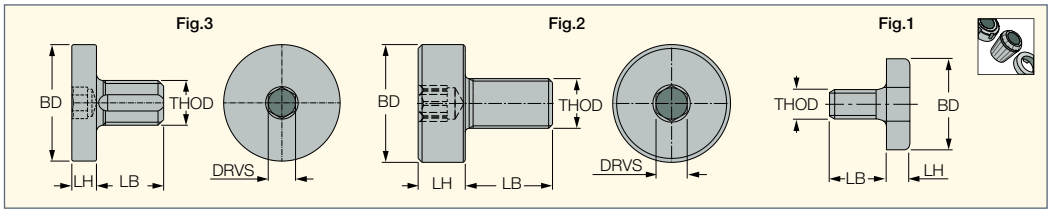
Power Chuck

PRESET MAXIN
Tool Stopper Preset Screws
for MAXIN Collet Chucks



Designation	THOD	OAL	CND	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

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

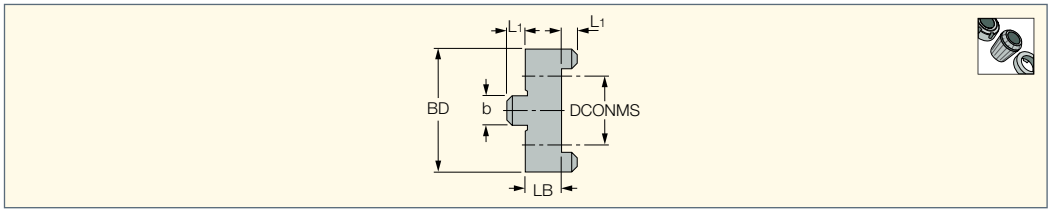
Spare Parts

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

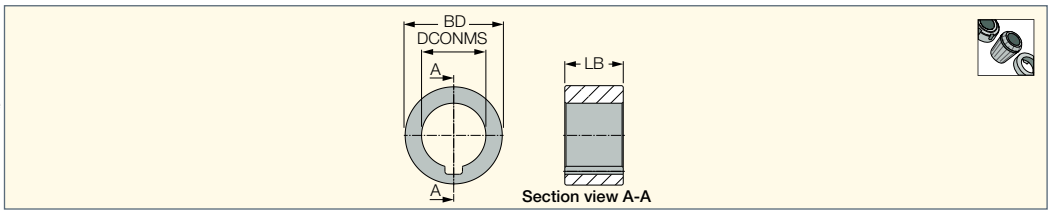
Driving Rings DIN 6366/1 for COMBI Shell Mill Holders



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

SPACER STUB

Stub Spacer Rings In Accordance with DIN 2084-B Standard

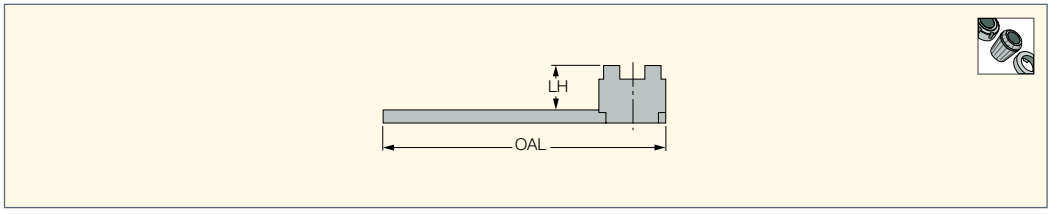


Designation	DCONMS	LB	BD
SPACER STUB 22X2	22.00	2.00	34.00
SPACER STUB 22X5	22.00	5.00	34.00
SPACER STUB 22X6	22.00	6.00	34.00
SPACER STUB 22X20	22.00	20.00	34.00
SPACER STUB 27X2	27.00	2.00	41.00
SPACER STUB 27X4	27.00	4.00	41.00
SPACER STUB 27X6	27.00	6.00	41.00
SPACER STUB 27X8	27.00	8.00	41.00
SPACER 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

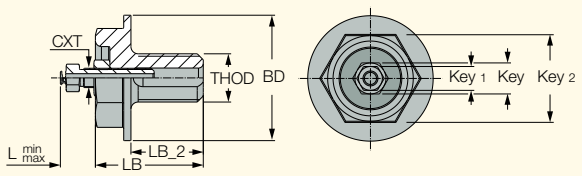


Designation	DRVS[1]	FTDZ	OAL	LH
WRENCH M8 SEMC16	16.0	M8	180.00	20.0
WRENCH M10 SEMC 22	22.0	M10	200.00	25.0
WRENCH M12 SEMC 27	27.0	M12	225.00	32.0
WRENCH M16 SEMC 32	32.0	M16	250.00	36.0
WRENCH M20 SEMC 40	40.0	M20	280.00	40.0
WRENCH M24 SEMC 50	50.0	M24	315.00	50.0

[1] Torque key size

Accessories

COOLANT SET
Clamping Screws with Adjustable Protrusion 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.

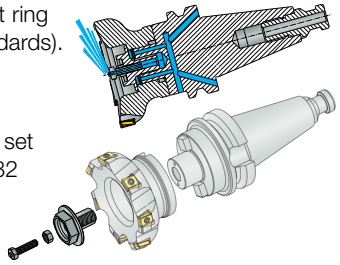
Tests show that cutting fluid supplied through the axis of a tool and directed radially at the bottom of the tool dramatically improves both the cooling effect and chip evacuation.

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

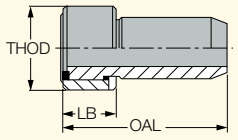


Spare Parts

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 A4	NOZZLE M8	NUT M8 DIN 934 A2
COOLANT SET SR M20X2.5-40	WASHER M8 DIN 433 A4	NOZZLE M8	NUT M8 DIN 934 A2

Accessories

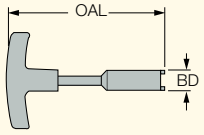
COOLING TUBE HSK-A
Cooling Tubes for HSK-A Shanks



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

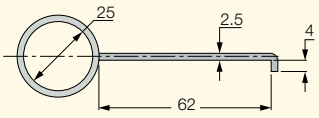
WRENCH HSK
HSK-A Cooling Tube Wrench



Designation	OAL	BD
WRENCH COOL TUBE HSK32	8.50	115.00
WRENCH COOL TUBE HSK40	10.50	115.00
WRENCH COOL TUBE HSK50	14.50	115.00
WRENCH COOL TUBE HSK63	16.50	136.00
WRENCH COOL TUBE HSK80	18.50	136.00
WRENCH COOL TUBE HSK100	22.00	136.00
WRENCH COOL TUBE HSK125	24.50	175.00

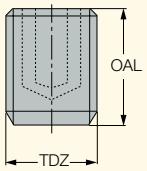
Accessories

EXTRACTOR SC COLLETS
SC Collet Extraction Hook



Accessories

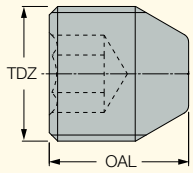
SCREW EM
Lock Screw for Endmill Holder



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

CLICKFIT LOCKING SCREW
Locking Screw for CLICKFIT Holders

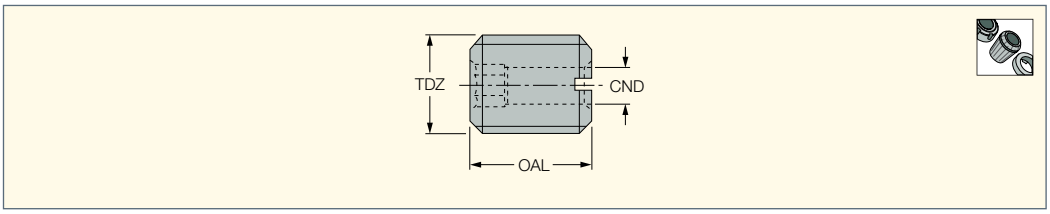


Designation	TDZ	OAL	Key
SCREW M16X1.5 FOR CF4	M16X1.5	16.50	8.00
SCREW M18X1.5 FOR CF5	M18X1.5	18.00	10.00

Accessories

SRKIN PRESET SCREW

Preset Screw for SRKIN Thermal Shrink Collets with Coolant Holes

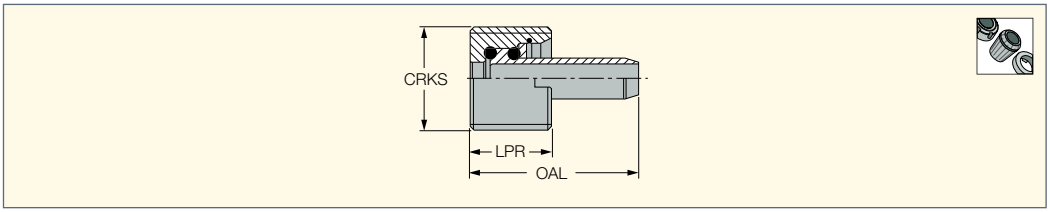


Designation	TDZ	OAL	CND	Key	SS
PRESET M5X18B	M5X0.8	18.00	2.10	2.50	EM E/SRKIN
PRESET M6X20B	M6X1	20.00	2.50	3.00	EM E/SRKIN
PRESET M8X20B	M8X1.25	20.00	3.50	4.00	EM E/SRKIN
PRESET M10X18B	M10X1.5	18.00	4.50	5.00	EM E/SRKIN
PRESET M12X18B	M12X1.75	18.00	5.50	6.00	EM E/SRKIN
PRESET M16X20B	M16X2	20.00	7.50	6.00	EM E/SRKIN
PRESET M16X25B	M16X2	25.00	7.50	6.00	SRKIN
PRESET M20X20E	M20X2.5	20.00	6.00	6.00	EM E

Accessories

COOLING TUBE C#

Cooling Tubes for CAMFIX (ISO 26623-1) Shanks



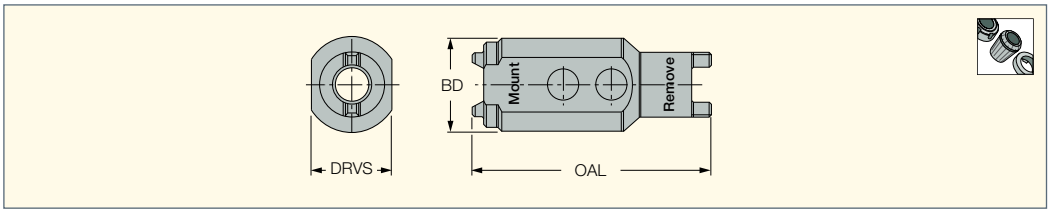
Designation	LPR	CRKS	OAL
COOLING TUBE C3	10.00	M12x1.5	22.30
COOLING TUBE C4	12.00	M14x1.5	25.40
COOLING TUBE C5	14.00	M16x1.5	28.50
COOLING TUBE C6	15.00	M20x2	31.00
COOLING TUBE C8	15.00	M20x2	31.50
COOLING TUBE C10	16.00	M24x2	34.00

- 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#

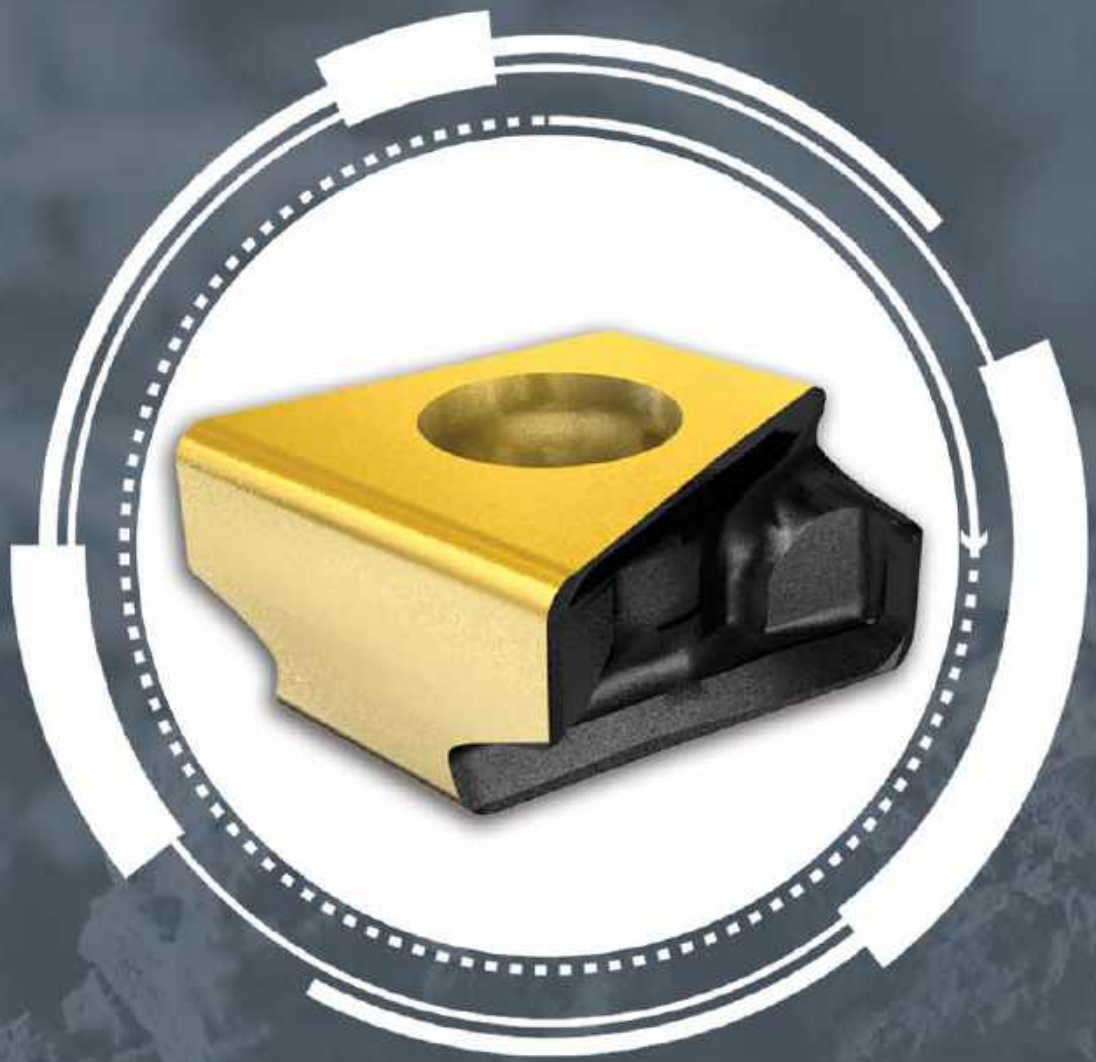
Clamping and Removing Wrenches for CAMFIX (ISO 26623-1) Cooling Tubes



Designation	OAL	BD	DRVS[1]
WRENCH COOL TUBE C3	40.00	14.80	12.0
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

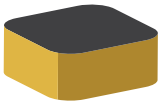
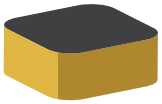
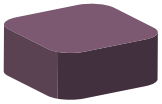
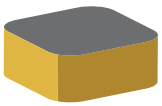
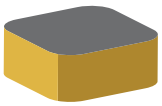
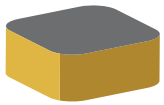
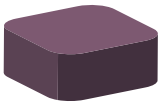
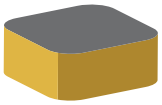
MATERIALS AND GRADES



Member IMC Group

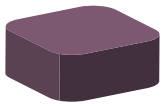
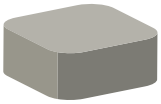
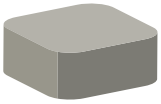
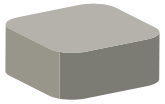
ISCAR

ISCAR Milling 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	P10-P20 M10-M20 K10-K25 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	
	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 AiTCrN 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	
	IC845	P25-P45 	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	

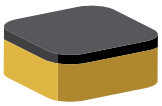
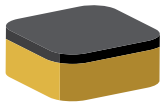
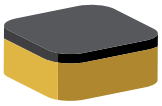
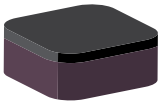
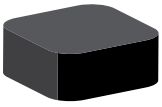
* For coated grades

ISCAR Milling Grades Chart

	Grade	ISO	Grade Description	Coating Layers	Coating Color*
PVD COATED	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	
	IC907	P10-P20 M05-M15 K15-K30 S10-S20 H05-H15	A hard submicron grain size substrate with PVD coating suitable for a wide range of materials such as steels, alloy steels, and hard steels, austenitic stainless steel and heat resistant alloys at moderate to relatively high cutting speeds at stable conditions. Features high wear resistance and plastic deformation durability.	TiAlN 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

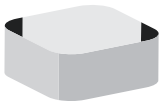
ISCAR Milling Grades Chart

	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	
	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.	TiN 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	

ISCAR Milling 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	

MATERIAL GROUPS

Based on ISO 513 and VDI 3323 standards

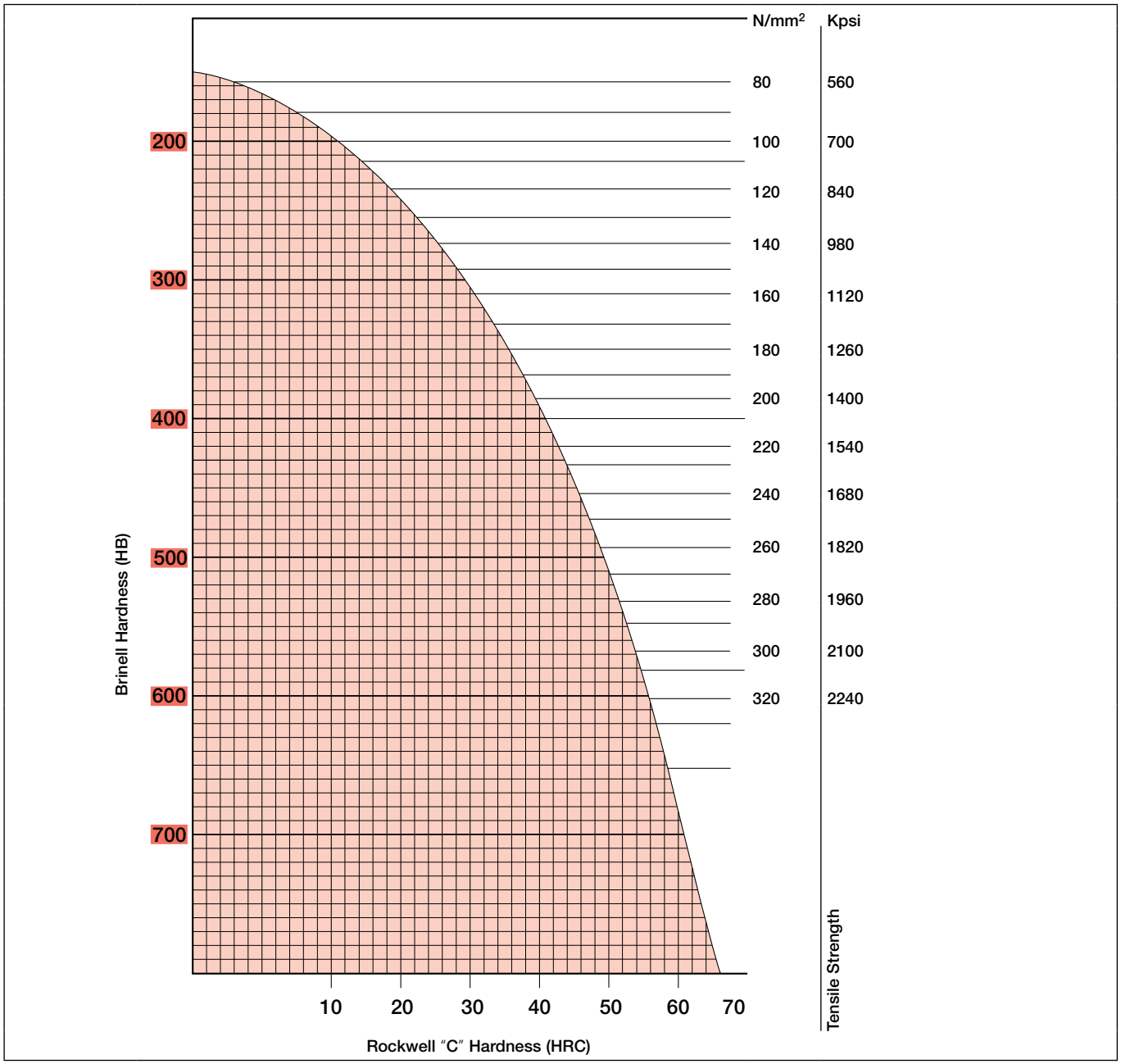
ISO	Material		Condition	Tensile Strength [N/mm²]	Kc1[1] [N/mm²]	mc[2]	Hardness HB	Material Group No.
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	1350	0.21	125	1
		≥ 0.25 %C	Annealed	650	1500	0.22	190	2
		< 0.55 %C	Quenched and tempered	850	1675	0.24	250	3
		≥ 0.55 %C	Annealed	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
High Temp. and Titanium Alloys
Hardened Steel and Cast Iron

(1) Specific cutting force for 1 mm² chip section.
(2) Chip thickness factor.

MATERIAL GROUPS

Hardness Conversion Table



According to VDI 3323 Standard

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
1	1020; G10200; K02301; K02595; K02596; K02597; K02598; K02599; K02702; K0300	1.0044	S275JR; St 44-2; Fe 430 B	EN 43 B; Fe 430 B FN; 43/25 HR; 43/25HS; 43 B; HFW4; HFS4; ERW 3	E 28-2	1411; 1412	Fe 430 B FN; Fe 430 B	AE 275 B; Fe 430 B FN	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	St4ps; St4sp	S275JR
1		1.0050	E295; St 50-2; Fe 490-2; ST 50-2 G (E295+CR)	Fe 490-2 FN; 50 B	A 50-2	1550; 2172	Fe 490	A 490-2; Fe 490-2 FN	SS 490; SS 50	St5ps; St5sp	
1	K02404; K02702	1.0045	S355JR; Fe 510 B	50 B; 4360-50 B	E 36-2		Fe 510 B FN	AE 355 B	SN 400 B; SN 400 C; SN 490 B; SN 490 C; SS 490; SS 50		S355JR
1	K02702	1.0143	S275J0; St 44-3 U; Fe 430 C	43C; 4360-43C	E 28-3	1414-01	Fe 430 C FN	AE 275 D			S275J0
1		1.0130	P265S; SPH 265	164-400B LT 20	SPH 265; A 42 AP			SPH 265			P265S
1	A 619	1.0333	DC03G1; USt 3; USt 13	2 CR; 3 CR	E		FeP 02	AP 02	SPCD		DC03G1
1	K02601; K03000; A 573 Gr. 70; A 611 Gr.D	1.0144	S275J2G3 (S275J2); St 44-3 (Fe 430 D 1)	Fe 430 D1 FF; 4360-43 C; 4360-43 D	E 28-3; E 28-4	1411; 1412; 1414	Fe 430 B; Fe 430 C (FN); Fe 430 D (FF)	AE 275 D; Fe 430 D1 FF	SM 400 A; SM 400 B; SM 400 C; SS 400; STK 400; STKR 400; SM 41 A; SM 41 B; SM 41 C	St4kp; St4ps; St4sp	
1	1008; G10080; A 621	1.0330	DC01; DC 01; St 2; St 12	CR 4; CS 4	C; TC	1142	FeP 01; FeP 00	AP 11; FeP 01; AP 00	SPCC; CR 1		DC01 (FeP 05)
1	1015; G10150; K02401	1.0037	S235JR (Fe 360 B); St 37-2	Fe 360 B; 4360-40 B; ERW 3; CEW 3; 37/23 HR; 37/23 HS; 37/23 CR; 37/23 CS	E 24-2	1311	Fe 360 B; 1449 37/23 HR	AE 235 B; Fe 360 B	STKM 12 A; STKM 12 AC		
1		1.0035	S185 (Fe 310-0); St 33	Fe 310-0; 15 HR; 15 HS; 1449 15 HR; 1449 15 HS	A 33	1300	Fe 320	Fe 310-0; A 310-0	SGP; SS 330; SS 34	St0	S185
1	K02502	1.0034	E195; RSt 34-2	CEW 2; 34/20 HR; 34/20 HS; 34/20 CR; 1449 34/20CS	A 34-2 NE		Fe 330 BFN			St2ps; St2sp	E195
1		1.0334	DD12G1; UStW 23		2 C		FeP 12	AP 12	SPHD	10kp	
1	1006; G10060	1.0335	DD13; StW 24	1 CR; 1 CS; 1 HR; 2 HR; 2 HS; 2 CR; 2 CS	3 C		FeP 13	AP13	SPHE	08kp	DD13
1	A 620	1.0338	DC04; St 4; St 14	CR 1; CR 2	ES	1147	FeP 04	AP 04; FeP 04	SPCE; HR 4	08JuA	DC04 (FeP 04)

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
1	K01700; K02001; K02200; K02201; K02203; K02503; K02601; K02801	1.0345	P235GH; HI; H I	141-360; 151-360; 154-360; 161-360; 164-360	A 37 CP	1330; 1331	FeE 235; Fe 360 1 KW; Fe 360 1 KG; Fe 360 2 KW; Fe 360 2 KG	A 37 Grado RA II; A 37 Grado RC I	SGV 410; SGV 450; SGV 480; SPV 235; SPV 450; SPV 490; SGV 42; SGV 46; SGV 49; SPV 24; SPV 46; SPV 50		P235GH
1	1010; G10100	1.0301	C10; C 10	040 A 10; 045 M 10; En 2 A; En 2 A/1; En 2 B; En 32 A; 10 CS	C10RR; XC 10; C 10; AF 34 C 10		1 C 10; C 10	F.151; F.151.A	S 10C	10	C10
1		1.0149	S275JOH; St 44-3 U; RoSt 44-2	43 C; 4360-43C	E 28-3	1412-04	Fe 430 C	Fe 430 C; AE 275 C			S275JOH
1		1.0226	DX51D; St 02 Z	Z2	GC	1151 10	FeP 02 G	FeP 02 G	SGC C		
1	A 1011 (SS Grade 36 (230) Type 2); A1011 (SS Grade 36 (250) Type 1)	1.0114	S235JO; St 37-3 U; Fe 360 C	40 C; 4360-40C	E 24-3		Fe 360 C FN	AE 235 C	SS 330; SS 34		S235JO
1	A572-60	1.8900	S380N; StE 380	4360 55 E		2145	FeE 390 KG		S 25 C		S380N
1	A 572 Gr. 65	1.0060	E335; St 60-2 (Fe 590-2 B)	En 55 C; Fe 590-2-FN; 55 E; 4360-55 E	A 60-2	1650	Fe 590; Fe 60-2	A 590; Fe 590-2 FN	SM 570; SM 58	St6ps; St6sp	E335
1		1.0028	S250G1T; USt 34-2		A 34-2		Fe 330; Fe 330 B FU		SS 330; SS 34		
1	K01700; K02200; K02801	1.0112	P235S; SPH 235	164-360B LT20; 1501-164-360B LT20	A 37 AP; SPH 235		Fe 360 C	AE 235 C			P235S
1		1.0722	10SPb20; 10 SPb 20		10 PbF 2		CF 10 SPb 20	10 SPb 20; F.2122			10SPb20
1	1108; 1109; 1111; B1111; B 1111; G11080; G11090	1.0721	10S20; 10 S 20		10 F 2		CF 10 S 20	10 S 20; F. 2121			10S20
1	12L13; 12L14; 12 L 13; 12 L 14; G12134; G12144	1.0718	11SMnPb30; 9 SMnPb 28	230 M 07 Pb; En 1A Pb	S 250 Pb	1914	CF 9 SMnPb 28	F.210.C; F.210.M; 11 SMnPb 28; F.2112	SUM 22 L; SUM 23 L; SUM 24 L		11SMnPb30
1	1213; 1215; G12130; G12150	1.0715	11SMn30; 9 SMn 28	230 M 07; En 1 A	S 250	1912	CF 9 S 22	F.210.A; F.210.L; 11 SMn 28; F.2111	SUM 22		11SMn30
1	1020; 1023; G10200; G10230	1.1151	C22E; Ck 22	055 M 15; 070 M 20; En 3 A; En 3 C; En 2	XC 25; XC 18; 2 C 22	1450	C 20; C 25	F.1120; C 25 K	S 20 C; S 20 CK; S 22 C	20	C22E
1	A 1008 (HSLAS-F Grade 80 [550]); A 1011 (HLAS-F Grade 80 [550])	1.0986	S500MC; QStE 500 TM	60F55 HR; 60F55 HS; 60F55 CS	E 560 D; S 560 MC		FeE 560 TM				S500MC

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
1	A 1008 (HSLAS-F Grade 70 [480]); A 1008 (HSLAS Grade 70 [480] Class 1)	1.0984	S500MC; QStE 500 TM		E 490 D; S 490 MC	2662	FeE 490 TM				S500MC
1	A 1008 (HSLAS Grade 65 [450] Class 1); A 1008 (HSLAS Grade 65 [450] Class 2)	1.0982	S460MC; QStE 460 TM	1501-50F45; 50F45 HR; 50F45 HS; 50F45 CS							S460MC
1	A 1008 (HSLAS Grade 50 [340] Class 1); A 1008 (HSLAS Grade 50 [340] Class 2)	1.0976	S355MC; QStE 360 TM	46F40 HR; 46F40 HS; 46F40 CS	E 355 D	2642	FeE 355 TM				S355MC
1	A 1008 (HSLAS Grade 50 [340]); A 1008 (HSLAS Grade45 [310] Class 2); A 1011 (HSLAS-F Grade 50 [340])	1.0972	S315MC; QStE 300 TM	1501-40F30; 43F35 HR; 43F35 HS; 43F35 CS	E 315 D						
1	K01600; K02007; K02700; K02701; K02803; K02900; K03009; K03300; K11803; K12000; K12001; K12037	1.0562	P355N; StE 355	225-490A	FeE 355 KG N; E 355 R/FP; A 510 AP	2106	FeE 355; FeE 355 KG; FeE 355 KW	AE 355 KG; AE 355 DD	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	15GF	P355N
1	1024; K03011; K03014; K12037; K12709	1.0570	S355J2G3 (S355J2); St 52-3 N (Fe 510 D1)			2132; 2134	fE 510	AE 355 D; Fe 510 D1 FF	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	17GS; 17G1S	S355J2G3
1	K01600; K02302; K02700; K02701; K02803; K03301; K11803; K12037; K12609; A 299 (A); A 299 (B)	1.0566	P355NL1; TStE 355	225-490 A	A 510 FP	2107	Fe E 355 KT		SLA 365; STK 490; STK 500; SLA 37; STK 50; STK 51		P355NL1
1	K01600; K02007; K02701; K02803; K117803; K12001; K12037; K12609	1.0565	P355NH; WStE 355	225/490; 225-490 A; 500 Nb	A 510 AP	2106	FeE 355-2; FeE 355 KW				P355NH
1	K12037	1.0549	S355 NLH; TStE 355	50 EE		2135	Fe 510 D	FeE 355 KTM			S355 NLH
1	K12000	1.0553	S355JO; St 52-3 U; Fe 510 C	50 C; 4360-50C	E 36-3		Fe 510 C FN	AE 355 C	SCC 3		S355JO

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
1	A 252 (1); A 252 (2); A 252 (3)	1.0547	S355JOH; St 52-3 U	50 C; 4360-50C	TSE 355-3; E 36-3		Fe 510 C	AE 355 C; Fe 510 C			S355JOH
1	K02502	1.0036	S235JRG1; S235JR; Fe 360 B; USt 37-2	Fe 360 B FU; Fe 360 B FN		1311; 1312	Fe 360 B; Fe 360 C; Fe 360 D	AE 235 B; Fe 360 B		16D; St3Kp	
1	1020; 1022; 1023; G10200; G10220; G10230	1.0402	C22	055 M 15; 070 M 20; En 3 A; En 3 B; En 3 C; En 2; 22 HS; 22 CS	AF 42 C 20; XC 25; 1 C 22	1450	C 20; C 21	F.112; 1 C 22	S 20 C; S 22 C	20	C22; 2C/2D
1	K01701; K02505; K02704; K02801	1.0425	P265GH; H II	151-400; 154-400; 161-400; 164-400	A 42 CP; A 42 AP	1431; 1430; 1432	Fe 410 1 KW; Fe 410 1 KG; Fe 410 1 KT; Fe 410 2 KW; Fe 410 2 KG	A 42 Grado RC I; A 42 Grado RC II; F.6306; F.6307	SG 295; SGV 410; SGV 450; SGV 480; SPV 315; SPV 355; SG 30; SGV 42; SGV 46; SGV 49; SPV 32; SPV 36	16K; 20K	P265GH
1	A27 65-35	1.0443	HX300PD; H300PD; H 300 PD		E 23-45 M	1305					HX300PD
1	K12000; K12037	1.0546	S355NL; TStE 355	50 EE; 4360-50EE	E 355 FP	2135; 2135-01	FeE 355 KT	AE 355 Grado KT			
1	K12709	1.0545	S355N; StE 355	50 E; 4360-50E	E 355 R	2134	FeE 355 KG	AE 355 Grado KG	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		S355N
1	K02705; K02305; K12709	1.0539	S355NH; StE 335 N	S355NH	S355NH; TSE 355-4	2134-04	Fe 510 B	Fe 355 KGN			S355NH
1	1213; 1215; G12130; G12150	1.0715	11SMn30; 9 SMn 28	230 M 07; 220 M 07	S 250	1912	CF 9 S 22	F.210.A; F.210.L; 11 SMn 28; F.2111	SUM 22		11SMn30
1		1.0722	10SPb20; 10 SPb 20		10 PbF 2		CF 10 SPb 20	10 SPb 20; F.2122			10SPb20
1	1215; G12150; A 29 (1215); A 108 (1215); A 510 (1215); A 510 (1215); A 519 (1215); A 521 (1215)	1.0736	11SMn37; 9 SMn 36		S 300		CF 9 Mn 36	12 SMn 35; F.2113	SUM 25		11SMn37
1	12L14; 12 L 14; G12144	1.0737	11SMnPb37; 9 SMnPb 36		S 300 Pb	1926	CF 9 SMnPb 36	12 SMnPb 35; F.2114			11SMnPb37
1	1010; G10100	1.1121	C10E; Ck 10	040 A 10; 045 M 10; En 2 A; En 2 A/1; En 2 B; En 32 A	C10RR; XC 10	1265	2 C 10; 2 C 15; 1 C 10; C 10	C 10 k; F.1510	S 09 CK; S 10 C	08; 10	C10E
1	1015; 1017; G10150; G10170	1.1141	C15E; Ck 15	080 A 15; 080 M 15; En 32 C	XC 12; XC 15; XC 18	1370	1 C 15; C 15	C 16 k; F.1511; F.1110; C 15 k	S 15 C; S 15 CK	15	C15E

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
1	1020; G10200; K02301; K02595; K02596; K02597; K02598; K02599; K02702; K03000	1.0044	S275JR; St 44-2; Fe 430 B	En 43 B; Fe 430 B; 43/25 HR; 43/25 HS; 43 B; HFW 4; HFS 4; ERW 3; CEW 4; SAW 4	E 28 A; NFA 35-501 E 28	1411; 1412	Fe 430 B FN	AE 275 B; Fe 430 B FN	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	St4ps; St4sp	S275JR
1		1.0250	S320GD; StE 320-3 Z		S 320 GD				SGC 440; SZAC 440; SZAH 440; SGLH 440		S320GD
1		1.0453	P265NL; P 265 NL								P265NL
1		1.0338	DC04; St 4; St 14	CR 1; CS 2	ES	1147	FeP 04	AP 04; FeP 04	SPCE; HR 4	08JuA	DC04
1											
1	K02001; K02601; K02701	1.0116	S235J2G3 (S235J2); St 37-3 N; Fe 360 D 1	Fe 360 D1 FF; 37/23 CR; 37/23 CS; 37/23 HR; 37/23 HS; 40 D; HFW 4; HFS 4	E 24-3; E 24-4; E 24-U	1312; 1313	Fe 360 C; D; Fe 360 C FN; Fe 360 D FF; Fe 37-2		SS 330; SS 34	16D; St3sp	S235J2G3
1	1015; 1017; G10150; G10170	1.0401	C15; C 15	080 A 15; 080 M 15; En32 C; 17 CS; 17 HS	C18RR; XC 18; C 18; AF 37 C 12	1350	1 C 15; C15; C16	F.111	S 15 C		C15
1		1.0347	DC03; RRSt; RRSt 13	CR2; CR3; CS3; 1449 3 CR; 1449 2 CR	E	1146	FeP 02; FeP 03	AP 02; AP02; FeP03	SPCD; CR 3	08Ju	DC03
1	K01500; K01702; K02401; K02502; K03000; A570.36	1.0038	S235JR; S235JRG2; RSt 37-2; Fe 360 B	Fe 360 B FU; 37/23 CR; 37/23 CS; 37/23 HR; 37/23 HS; HFW 3; HFS 3; 40 B	E 24-2 NE	1312	Fe 360 B FN	AE 235 B FN; AE 235 B FU; Fe 360 B FN; Fe 360 B FU	SS 330; SS 34	St3ps; St3sp	S235JR
1	J03001	1.0446	GE240; GS-45	A 1					230-450; 230-450 W	25L-3	GE240
2	1035; G10350	1.0501	C35G; C 35 G	080 M 30; En 5; 080 M 36	C 35; AF 55; 1 C 35; XC 38	1572; 1550	C 35; 1 C 35	F.113	S 35 C; S 35 CM		C35G
2	1035; G10350	1.1183	C35G; C 35 G; Cf 35	080 A 35	XC 38 TS	1572	C 36; C 38	F.1130; C 35 k	S 35 C; S 35 CM	35	C35G
2	1039; G10390	1.1157	40Mn4; 40 Mn 4		35 M 5					40G	
2	1040; G10400	1.0511	C40; C 40	En 8; 080 M 40	AF 60; C 40; 1 C 40		C 40; 1 C 40	F.114.A			C40
2	1045; 1045 H; 1042; G10450; H10450; G10420	1.1191	C45E; Ck 45	080 H 46; 080 M 46	C45RR; XC 45; XC 48 H-1	1672	C 45	F.1140; F.1142; C 45 k; C48 k	S 45 C; S 45 CM; S 48 C	45	C45E
2	1025; G10250	1.1158	C25E; Ck 25	070 M 26	2 C 25; XC 25		C 25	F.1120; C 25 k	S 25 C; S 28 C	25	C25E

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
2	1043; 1045; G10430; G10450	1.0503	C45; C 45	080 M 46	C 45; AF 65; C 45; 1 C 45	1650	C 45; 1 C 45	F.114	S 45 C; S 45 CM	45	C45
2	1050; 1055; G10500; G10550	1.1213	C53G; C53E; Cf 53		XC 48 TS		C 53		S 50 C; S 50 CM	50	
2	1140; G11400	1.0726	35S20; 35 S 20	212 M 36	35 MF 4	1957		F.210.G; 35 MnS 6; F.2131			35S20; 8M
2	1139; 1146; G11390; G11460	1.0727	46S20; 45 S 20		45 MF 4						46S20
2	K12000	1.0553	S355J0; St 52-3 U; Fe 510-C	50 C	E 36-3		Fe 510 C FN	AE 355 C	SCC 3		S355J0
2		1.0551	S355JRC								S355JRC
2	K02700; K02803; K03103; K03300; K12437	1.0473	P355GH; 19 Mn 6		A 52 CP	2101; 2102	Fe E 355-2	A 52 RC I, RA II	SGV 410; SGV 450; SGV 480		P355GH
2		1.0416	C18D; GS-38		20-400 M	1306					C18D
2	K12447	1.0577	S355J2; S355J2G4; Fe 510 D2		A 52 FP	2107		A 52 RB II; AE 355 D			
2	1049; 1050; G10490; G10500	1.1206	C50E; Ck 50	080 M 50	XC 50; 2 C 50	1674	C 50			50	C50E
2	1330; 1527; G13300; G15270	1.1170	28Mn6	150 M 19; En 14 A; En 14 B	20 M 5		C 28 Mn		SCMn 1	30G	28Mn6
2	1034; 1035; 1038; G10340; G10350; G10380; C 1034	1.1181	C35E; Ck 35	080 M 30; En 5; 080 M 36	XC35RR; XC32; XC 35; XC 38 H 2; XC 38 H 1; 2 C 35	1572	C 35	F.1130; C 35 k	S 35 C; S 35 CM; S 38 C	35	C35E
2		1.1180	C35R; Cm 35	080 A 35	XC 38 H 1 u; Cm 35		C 35	F.1135; C 35 k-1			C35R
2	1030; G10300	1.1178	C30E; Ck 30	080 M 30; En 5	XC 32		C 30	2 C 30	S 30 C; S 30 CM		C30E
2	1049; 1050; G10490; G10500	1.0540	C50	En 43 A; 080 M 50	C50	1674	C 50	1 C 50	S 50 C		C50
2	1536; G15360	1.1166	34Mn5					TO.B	SMn 433 H; SMn 433 HRCH; SMn 433 RCH; SMn 1 H		
2	1025; G10250	1.0406	C25	070 M 26	1 C 25		C 25; 1 C 25				
2		1.0723	15S22; 15 S 20	210 A 15; 210 M 15		1922		F.210F; F.210.F	SUM 32		
2		1.1730	C45U; C45W; C 45 U; C 45 U								C45U
3	1045; 1049; G10450; G10490	1.1201	C45R; Cm 45	080 M 46	3 C 45; XC 42 H 1; XC 48 H 1 u	1660	C 45	F.1145; F.1147; C 45 k-1; C 48 k-1	S 45 C; S 45 CM	45	C45R
3	1040; G10400	1.1186	C40E; Ck 40	080 M 40; En 8	2 C 40; XC 42 H 1		C 40		S 40 C	40	C40E

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3	1074; 1075; G10740; G10750	1.0614	C76D; C 76 D; D 75-2		XC 75		3 CD 75			75	C76D
3	1095; G10950	1.0618	C92D; C 92 D; D 95-2	95 HS; 95 CS	XC 90		3 CD 95				C92D
3	1086; G10860	1.0616	C86D; C 86 D; D 85-2	80 HS; 80 CS	XC 80		C 85; 3 CD 85				C86D
3		1.1165	G28Mn6; GS-30 Mn 5	A 5; A 6				30 Mn 5; AM 30 Mn 5; F.120.D; F.8211; F.8311	SCMn 2	27ChGSNMDTL; 30GSL	G28Mn6
3	K01700; K02001; K02200; K02201; A 516 Gr.70; A 515 Gr. 70; A 414 Gr.F; A 414 Gr.G	1.0481	P295GH; 17Mn4; 17 Mn 4	224-469 B	A 48 CP; A 48 AP	2102	Fe 295	A 47 RC I; RA II	SG 365; SGV 410; SGV 450; SGV 480; SPV 315; SG 37; SGV 42; SGV 46; SGV 49; SPV 32	14G2	P295GH
3	1043; 1045; G10430; G10450	1.0503	C45; C 45	080 M 46	C 45; AF 65; C 45; 1 C 45	1650	C 45; 1 C 45	F.114	S 45 C; S 45 CM		C45
3	1335; 1335 H; 1541; 1541 H; G13350; G15410; H13350; H15410	1.1167	36Mn5; 36 Mn 5	150 M 36	40 M 5; 35 Mn 5	2120		F. 1203-36 Mn 6; F. 8212-36 Mn 5	SMn 438; SMn 438H; SCMn 3	35G2; 35GL	36Mn5
3	1045; 1045 H; 1042; G10450; H10450; G10420	1.1191	C45E; Ck 45	089 H 46; 080 M 46	C45RR; XC 45; XC 48 H 1	1672	C 45	F.1140; F.1142; C 45 k; C 48 k	S 45 C; S 45 CM; S 48 C	45	C45E
3		1.1303	38MnVS6; 38 MnVS 6								38MnVS6
4	1055; G10550	1.0535	C55	070 M 55; En 9	C54; 1 C 55; AF 70; C 55	1655	C 55; 1 C 55	F.115	S 55 C; S 55 C-CSP; S 55 CM	55	C55
4	1055; G10550	1.1203	C55E; Ck 55	070 M 55; En 9	C50RR; XC 54; XC 50; 2 C 55; XC 55 H 1	1655	C 55	F.1150; C 55 K	S 55 C; S 55 C-CSP; S 55 CM	55	C55E
4	1060; G10600	1.0601	C60	060 A 62; En 43 D	C60; 1 C 60		C 60; 1 C 60		S 58 C; S 60-C-CSP; S 60 CM; S 65 C-CSP; S 65 CM	60; 60G	C60; 43D
4	1070; G10700	1.1231	C67S; Ck 67	060 A 67; 080 A 67; En 43 E	C68RR; XC 68	1770	C 67		S 70 C-CSP; S 70 CM	65GA; 68GA	C67S
4	1074; 1075; 1078; G10700; G10750; G10780	1.1248	C75S; Ck 75	060 A 78; 80	C75RR; XC 75	1774	C 75		S 75 CM	75A	C75S
4	1095; G10950	1.1274	C100S; Ck 101	95	C100RR; XC 100	1870	C 100		SK 95 -CSP		C100S
4	W112; W1; T72301	1.1563	C125U; C 125 W		Y2 120; C120E3U		C 120 KU	F.5123; C 120	SK 120; SK 120 M; SK 2; SK 2 M; TC 120	U12-1	C125U

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
4	1086; G10860	1.1269	C80S; Ck 85; C 85 E		C90RR; XC 90		C 85		SK 85-CP	85A	C80S
4	1055; G10550	1.1209	C55R; Cm 55	070 M 55; En 9	3 C 55; XC 55 H 1		C 55	F.1155; C 55 k-1			C55R
4	1074; 1075; G10740; G10750	1.0605	C75	060 A 78	C 75		C 75			75	
4	1070; G10700	1.0603	C67	060 A 67; 080 A 67; En 43 E; 1449 70 HS	C68; XC 65		C 67		S 70 C-CSP; S 70 CM		C67
4		1.1219	C56E2; Cf 54						C56E2; S55C		C56E2
5	1055; G10550	1.1220	C56D2; C 56 D 2		C 56 D 2						C56D2
5		1.1217	C90S; C 90 S	CS95	C90RR; XC 90; XC90; C90E2U				SK 95		C90S
5	1060; 1064; G10600; G10640	1.1221	C60E; Ck 60	060 A 62; 070 M 60; En 43 D	C60RR; XC 60; X 65; 2 C 60	1678	C 60		S 58 C; S 60 C-CSP; S 60 CM; C 65 C-CSP; C 60 CM	60GA	C60E
5	1055; G10550	1.1203	C55E; Ck 55	070 M 55; En 9	C50RR; XC 54; XC 50; XC 55 H 1; 2 C 55	1655	C 55	F.1150; C 55 k	S 55 C; S 55 C-CSP; S 55 CM	55	C55E
6	9260; G92600	1.5028	65Si7; 65 Si 7		60 S 7				50 P 7; SUP 6; SUP 6 M; SUP 7; SWOSM	60S2G	
6	9260 H; H92600; 9260; G92600	1.5027	60Si7	251 A 60; 251 H 60	60 S 7		60 Si 7	F.144.B; F.1441		60S2	
6	9255; G92550	1.5026	56Si7; 56 Si 7; 55Si7; 55 Si 7	251 A 58; En 45 A	55 S 7	2085; 2090	55 Si 7	F.144; F.144.A; 56 Si 7; F.1440		55S2; 60S2	565Si7; 55Si7
6	9255; G22550	1.5025	51Si7; 51 S 7		50S7; 51 Si 7		48 Si 7; 50 Si 7	F.145.B			51Si7
6		1.5024	46Si7		45 S 7; Y 46 S 7; 46 SI 7			F.1451			46Si7
6	G50986; ASTM Grade E50100; ASTM Grade G15116; SAE E50100	1.3501	100Cr2; 100 Cr 2	GCr6; B00040; GCr4	100C2					SchCh4	
6	K21390; K21590; ASTM A 182 F22	1.7380	10CrMo9-10; 10 CrMo 9 10	622; 622-490; 622/515; 622/690	12 CD 9-10; 10 CD 9.10	2218	12 CrMo 9 10	TU.H	SCMQ4E; SCMV 4; SFVA F 22.A; SFVA F 22.B; SFVCM F22B; STBA 24; STFA 24; STPA 24	12Ch8	10CrMo9-10
6	O2; T31502	1.2842	90MnCrV8; 90 MnCrV 8	BO 2; BO2	90 MnV 8; 90 MV 8		90 MnVCr 8 KU	90 MnCrV 8; F.5229			90MnCrV8
6		1.2550	60WCrV7; 60 WCrV 7	BS1; BS 1	55 WC 20	2710	55 WCrV 8 KU; 58 WCr 9 KU	60 WCrSiV 8; F.5242			60WCrV7
6		1.2241	51CrMnV4; 51 CrV 4; 50 CrV 4								
6	L2; T61202	1.2210	115CrV3; 115 CrV 3		100 C 3		107 CrV 3 KU	F.520.L; F.5125			115CrV3

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6		1.2419	105WCr6; 105 WCr 6	105WC 13	105 WCr 5; 105 WC 13	2140	107 WCr 5 KU	F.5233; 105 WCr 5	SKS 2; SKS 2 M; SKS 3; SKS 31	ChW1G; ChWG	105WCr6
6	4820; 5120; 5120H; G48200; G51200; H51200	1.7147	20MnCr5; 20 MnCr 5	150 M 19	20 MC 5	2172	20 MnCr 5; Fe52	F.150.D	SMnC 420 H; SMnC 420 RCH; SMnC 21 H	18ChG	20MnCr5
6	9255; G92550	1.0904	55Si7; 55 Si 7	250A53	55 S 7	2085	55 Si 8	56 Si 7			
6	9254; G92550	1.0904	55Si7; 55 Si 7	250 A 53	55 S 7	2090					
6	9262; G95620	1.0961	HDT 450 F; S340 MGC		60 SC 6		60 SiCr 8	60 SiCr 8; F.1442		60S2; 55S2; 50ChFA	
6	4135; 4137; 4135H; 4137H; G41350; G41370; H41350; H41370	1.7220	34CrMo4; GS34 CrMo 4; G34 CrMo 4	708 A 30	34 CD 4; 34CrMo4RR; 35 CD 4;	2234	34 CrMo 4 KB; 35 CrMo 4	35 CrMo 4 DF; F.125.A; F.125.B; F.1254; F.1250	SCM 435 H; SCM 435 HRCH; SCM 435 M; SCM 435 RCH; SCM 435TK; SCM 3 H; STKS 3	35ChM; AS38ChGM	34CrMo4
6		1.5120	38MnSi4; 38 MnSi 4								
6	L3; T61203	1.2067	102Cr6; 102 Cr 6; 100Cr6	BL 3; BL3	100Cr6RR; 100 C 6; 100Cr6; Y 100 C 6		102 Cr 6 KU	F.5230; 100 Cr 6	SUJ 2	Ch	102Cr6
6	L1	1.2108	90CrSi5; 90 CrSi 5			2092	105 WCr 5				90CrSi5
6	P20; T51620	1.2330	35CrMo4; 35 CrMo 4	708 A 37	34 CD 4	2234	35 CrMo 4				35CrMo4
6	O1; T31501	1.2510	100MnCrW4; 100 MnCrW 4	BO1; BO0; BO 1; BO 0	90MnWCrV5; 90 MWCV 5; 8 MO 8	2140	95 MnWCr 5 KU; 10 WCr 6	F.522.A; F.5220; 95 MnCrW5; 105 WCr 5	SKS 31		100MnCrW4
6	S1; T41901	1.2542	45WCrV7; 45 WCrV 7	BS1; BS 1	45 WCrV 8; 45 WCrV 20	2710	45 WCrV 8 KU	F.524; F.5241; 45 WCrSi 8		5ChW25F	45WCrV7
6	L6; T61206	1.2713	55NiCrMoV6; 56NiCrMoV6; 55 NiCrMoV 6; 56 NiCrMoV 6	BH 224; BH 225	55 NCDV 7			F.520.S	SKT 4	5ChNM	55NiCrMoV6
6		1.2721	50NiCr13		55 NCV 6	2550		F.528			
6	E52100; G52986	1.3505	100Cr6; 100 Cr 6	2 S.135; 535 A 99	100Cr6RR; 100 C 6; 100Cr6	2258	100 Cr 6	F.131; 100 Cr 6; F.1310	SUJ 2; SUJ 4	SchCh 15	100Cr6
6	K11820; K12020; K12320; A204 Grade A; A182 Grade F1	1.5415	16Mo3; 15 Mo 3	1503-243 B	15 D 3	2912; 16Mo3	16 Mo 3 KG; 16 Mo 3 KW; 16 Mo 5 KG; 16 Mo 5 KW	F. 2601; 16 Mo 3	STBA 12; STFA 12; STPA 12		
6	4422; G44220; J12522	1.5419	G20Mo5; 20Mo4; GS-22 Mo 4	245; B 1; B1					SCPH 11		G20Mo5
6	A 350-LF 5; K13050; K21703; K22103	1.5622	14Ni6; 14 Ni 6		16 N 6		14 Ni 6 KG; 14 Ni 6 KT	F.2641; 15 Ni 6			14Ni6
6	3415	1.5732	14NiCr10; 14 NiCr 10		14 NC 11		16 NiCr 11	15 NiCr 11	SNC 415; SNC 415 H; SNC 415 M	12ChN3A	14NiCr10

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6	3310; 3310 RH; 3312; 3316; 9315; E 3310; E 3316; E9315; G33106	1.5752	15NiCr13; 14NiCr14; 15 NiCr 13; 14NiCr14	655 M 13; 655 H 13; En 36 A	10 NC 12; 12 NC 15; 14 NC 12; 16 NC 12; 16 NCD 13			15 NiCr 11; F.1540	SNC 815 H; SNC 815 HRCH; SNC 815 RCH; SNC 22 H		15NiCr13
6		1.7262	15CrMo5; 15 CrMo 5		12 CD 4			12 CrMo 4; F.150.J; F155; F.1551	SCM 415 H; SCM 415 HRCH; SCM 415 M; SCM 415 RCH; SCM 415 TK; SCM 21 H		15CrMo5
6		1.6587	17CrNiMo6; 17 CrNiMo 6	820A16	18 NCD 6			14 NiCrMo 13			
6	9310; 9310H; 9310 RH; E 9310 H; G93106; H93100; H93106	1.6657	14NiCrMo13-4; 14 NiCrMo 13 4	832 H 13; 832 M 13; S.157; En 36 C	16 NCD 13		15 NiCrMo 13; 16 NiCrMo 12	14 NiCrMo 13; 14 NiCrMo 13-1; F.1560; F.1569			
6	5015; G50150	1.7015	15Cr3; 15 Cr 3	523 M 15	12 C 3; 15Cr2RR; 15 C 2				SCr 415; SCr 415 H; SCr 415 HRCH; SCr 415 RCH; SCr 21 H	15Ch	15Cr3
6	5132; 5132 H; G51320; H51320	1.7033	34Cr4; 34 Cr 4	530 A 32; 530 H 32; 530 M 32	32 C 4		34 Cr 4; 34 Cr KB	35 Cr 4; F.8221	SCr 430; SCr 430 H; SCr 430 HRCH; SCr 430 RCH; SCr 2 H	35Ch	34Cr4
6	5140; 5140 H; 5140 RH; G51400; H51400	1.7035	41Cr4; 41 Cr 4	530 A 40; 530 M 40; 530 H 40; En 18	42 C 4		41 Cr 4; 41 Cr 4 KB	41 Cr 4 DF; F.1211; F.1202	SCr 440; SCr 440 H	40Ch	41Cr4
6	5140; G51400	1.7045	42Cr4; 42 Cr 4	530 A 40	42 C 4 TS	2245	41 Cr 4	42 Cr 4	SCr 440		
6	5115; 5117; G51150; G51170	1.7131	16MnCr5; 16 MnCr 5	527 M 17; 590 H 17; 590 M 17	16MnCr5RR; 16 MC 5	2173	16 MnCr 5	F.1516		18ChG	16MnCrS5
6		1.7139	16MnCrS5; 16 MnCrS 5		BGH 7139; BOHLER E 411; VW 4221; OPEL QS1916; PROCONS 7139; E411; SES	2127					16MnCrS5
6	5155; 5155 H; 5150; G51550; H51550; G51600	1.7176	55Cr3; 55 Cr 3	525 A 58; 525 A 60; En 48	55 C 3; 55Cr3	2253	55 Cr 3	F.1431	SUP 9; SUP 9 A; SUP 9 M	50ChGA	55Cr3
6	4142; G41420	1.7223	41CrMo4; 41 CrMo 4		MOC 2; V320		41 CrMo 4	42 CrMo 4	SNB 22-1	40ChFA	
6	4140; 4140 H; 4140 RH; 4142; 4142 H; 4145; G41400; H41400; G41420; H41420; K14248; K14047	1.7225; 1.7227	42CrMo4; 42CrMo4V; 42 CrMo 4; 42 CrMo 4 V	708 M 40; 709 M 40; En 19; En 19 A	42 CD 4; 40 CD 4; 42CrMo4RR	2244; 42CrMo4	42 CrMo 4; 38 CrMo 4 KB; 41 CrMo 4	TO.D; TU.L	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	40ChFA	42CrMo4

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6	4147; 4147 H; 4150; 4150 H; 8650; 8650 H; G41470; G41500; G86500; H41470; H41500; H86500	1.7228	50CrMo4; 50 CrMo 4	708 M 40; 708 A 47		2512	653 M 31		SCM 445 H; SCM 445 HRCH; SCM 445 RCH; SCM 5 H		50CrMo4
6	8620; G86200	1.7321	20MoCr4; 20 MoCr 4			2625				BGH 7321; E320; SIQUAL 7321	20MoCr4
6	K11547; K11562; K11564; K11757; K11789; K12052; ASTM A182 F12	1.7335	13CrMo4-5; 13 CrMo4 4	620; 620-440; 620-470; 620-540; 621	15 CD 4-05	2216	14 CrMo 3; 14CrMo4 5	TU.E; TU.F; F.2631; 14 CrMo 4 5	SCMV 2; SFVA 12; STBA 22; STFA 22; STPA 20; STPA 22	12ChM; 15ChM	13CrMo4-5
6	K21390; K21590; ASTM A182 F22	1.7380	10CrMo9-10; 10 CrMo 9 10; GS-12CrMo9-10; GS-12 CrMo 9 10; G 12 CrMo9-12	622; 622-490; 622/515; 622/690; 1502-622	12 CD 9-10; 10 CD 9.10	2218	12 CrMo 9; 12 CrMo 10	TU.H	SCMQ 4 E; SCMV 4; SFVA F 22 A; SFVA F 22 B; SFVCM F 22 B; STBA 24; STFA 24; STPA 24	12Ch8	10CrMo9-10
6		1.7715	14MoV6-3; 14 MoV 6 3	1503-660-440				13 MoCrV 6			
6	E71400; K24065; K24728; A355 Class A	1.8509	41CrAlMo7-10; 41CrAlMo7; 41 CrAlMo 7	905 M 39; En 41 B	40 CAD 6.12	2940	41 CrAlMo 7	F.174; 41 CrAlMo 7; F1740	SACM 645; SACM 1	38Ch2MJuA	41B
6		1.6566	17NiCrMo6-4								17NiCrMo6-4
6	P20+S	1.2312	40CrMnMoS8-6		40 CMD 8 S						
6		1.7149	20MnCrS5; 20 MnCrS 5								20MnCrS5
6	P20+Ni	1.2738	40CrMnNiMo8-6-4; 40 CrMnNiMo 8 6 4		40 CMND 8					40Ch2GNM	40CrMnNiMo8-6-4
6		1.2311	40CrMnMo7; 40 CrMnMo 7		40 CMD 8		35 CrMo 8 KU	F.5302			40CrMnMo7
6		1.7238	49CrMo4; 49 CrMo 4								
6	4150; G41500	1.7701	52CrMoV4; 51CrMoV4; 51 CrMoV 4		51 CDV 4; 51CrMoV4		51 CrMoV 4				51CrMoV4
6		1.7337	16CrMo4-4; 16 CrMo 4 4				A 18 CrMo 45 KW		SCM 415 M; SCM 415; STBA 22; SFVA F12		
6		1.7242	16CrMo4; 16 CrMo 4		15 CD 3.5		18 CrMo 4	F.1550; 18 CrMo 4	SCM 418 H; SCM 418 HRCH; SCM 418 RCH; SCM 418 TK		16CrMo4
6	4419; 4419 H; 4520; G44190; H44190; G45200; K11522; K11820; K12020; K12023; K12320; K12821	1.5423	16Mo5				16 Mo 5 KG; 16 Mo 5 KW	TU.D; F.2602	SB 450 M; SB 480 M; SB 46 M SB 49 M		
6										30ChGSA	

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
6	HY-80; HY 80; HY80; K31820; MIL-S-21952										
6				605 M 36; En 16; En 16T							
7	4130; 4130 H; 4130 RH; G41300; H41300	1.7218	25CrMo4; 25 CrMo 4; GS-25 CrMo 4; G 25 CrMo 4	708 A 25	25 CD 4	2225	25 CrMo 4; 25 CrMo KB	F.222; F.1256	SCM 420 TK; SCM 430 M; SCM 430 RCH; SCM 430 TK; STKS 1	20ChM; 30ChM	25CrMo4
7		1.8070	21CrMoV5-11; 21 CrMoV 5 11				35 NiCr 9				
7		1.7755	GS-35 CrMoV 10 4; G35 CrMoV 10-4								
7		1.7733	24CrMoV5-5		20 CDV 6		21 CrMoV 5 11				
7	4340; 4340 H; 9850; G43400; G98500; H43400; K23028	1.6565	40NiCrMo6; 40 NiCrMo 6	817 M 40; En 24				F.1275; 40 NiCrMo 7	SNB 24-1; SNB 24-2; SNB 24-3; SNB 24-4; SNB 24-5; SNCM 439 RCH	40Ch2N2MA	40NiCrMo6
7	8640; 8640 H; 8740; 8740 H; 8742; G86400; G87400; G87420; H86400; H87400; K11640	1.6546	40NiCrMo2-2; 40 NiCrMo 2 2		40 NCD 2; 40 NCD TS		40 NiCrMo 2; 40 NiCrMo 2 KB	40 NiCrMo 2 DF; F.1205; F.1204; TO.E	SNCM 240; SNCM 240 RCH	38ChGNM	
7	8617; 8617 H; 8620; 8620 H; 8620 RH; 8617; G86170; G86200; H86170; H86200; K12147	1.6523	20NiCrMo2-2; 21NiCrMo2; 21 NiCrMo 2	805 H 20; 805 M 20; 806 M 20; En 362	20 NCD 2	2506	20 NiCrMo 2	20 NiCrMo 2; 20 NiCrMo 3-1; F.1522; F.1534	SNCM 220; SNCM 220 H; SNCM 220 HRCH; SNCM 220 M; SNCM 220 RCH; SNCM 21 H	20ChGNM	20NiCrMo2-2
7		1.5755	31NiCr14; 31 NiCr 14	653 M 31	18 NC 13						
7	3135	1.5710	36NiCr6; 36 NiCr 6	640 A 35	35 NC 6				SNC 236		36NiCr6
7	4340; G43400; 4337; G43370	1.6582	34CrNiMo6; 34 CrNiMo 6	816 M 6; 817 M 40	34 CrNiMo 8; 35 NCD 6	2541	35 NiCrMo 6 KB	F.1272		38Ch2N2MA	34CrNiMo6
7		1.8519	31CrMoV9; 31 CrMoV 9							30Ch3MF	31CrMoV9
7	8630	1.6545	30NiCrMo2-2; 30 NiCrMo 2 2		30 NCD 2		30 NiCrMo 2 KB				
7	4340; G43400	1.6580	30CrNiMo8	823 M 30	30 CND 8; 30 NCD 8			30 CrNi Mo 8	SNCM 431		
7	K01907	1.5217	20MnV6; 20 MnV 6 N	55 C; GR 55; Grade 55	20MV6; TS E 455 4; TU E 455 4						20MnV6; S460
7	300M; 4340M; K44220	1.6928	41SiNiCrMoV7-6	S 155							
8		1.8523	40CrMoV13-9; 39CrMoV13-9; 39 CrMoV 13 9	897 M 39			36 CrMoV 12				40CrMoV13-9
8		1.8515	31CrMo12; 31 CrMo 12	722 M 24	30 CD 12	2240	32 CrMo 12	F.1712; F.124.A			31CrMo12; 40B

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
8		1.8161	58CrV4; 58 CrV 4								
8		1.7361	32CrMo12; 32 CrMo 12	722 M 24	30 CD 12	2240	30 CrMo 12	F.124.A			32CrMo12
8	9840; G98400	1.6511	36CrNiMo4; 36 CrNiMo 4	817 M 37; 816 M 40	40 NCD 3; 35 NCD 5		39 NiCrMo 4; 39 NiCrMo 4 KB	F.128; F.1280; 35 NiCrMo 4	SUP 10	40ChGNM; 40ChN2MA	36CrNiMo4
8	6145; 6150; 6150 H; G61500; H61500	1.8159	51CrV4; 50CrV4; 50 CrV 4	735 A 50; 735 A 51; 735 H 51; 735 M 50; En 47	50CrV4RR; 50 CV 4; 51 CV 4	2230	50 CrV 4	F.143; F.143.A; 51 CrV 4; F.1430	SUP 10; SUP 10-CSP; SUP 10 M	50ChFA; 50ChGFA	51CrV4
8	3435	1.5736	36NiCr10; 36 NiCr 10		30 NC 11				SNC 631; SNC 631 H; SNC 631 M		
8	A128 Grade A; J91109; J91129; J91139; J91149	1.3401; 1.3403	X120Mn12; X 120 Mn 12; G-X120 Mn 12	BW 10	Z 120 M 12	2183	GX 120 Mn 12	F.240.A; F.240.A1; AM-X 120 Mn 12; F.8251	SCMnH 1; SCMnH 11	110G13L	
8	4142; G41420	1.2332	47CrMo4	708 M 40	42 CD 4	2244	42 CrMo 4	42 CrMo 4	SCM; SCM 440		47CrMo4
8	4140 H; 4140 RH; 4140 HT		42CrMo4+QT								
8											
8											
8		1.8705	21MnCr6-5								
8											
9		1.6659	31NiCrMo13-4	830 M 31		2534		F.270			
9		1.5864	35NiCr18								
9											
9											
9											
9		1.8715	17MnCr5-3								17MnCr5-3
10	K71340; K81340	1.5662	X8Ni9	1501-509; 1501-510; 502-650; 509-690	9 Ni; Z 8 N 09		X 10 Ni 9; X 12 Ni 09	F.2645; XBNi 09	SL9N520; SL9N590; STBL 690; STPL 690; SL9N53; SL9N60; STBL 70; STPL 70		X8Ni9
10	2515; A2515; 2517; E2517; K41583	1.5680	X12Ni5; 12Ni19;		Z 18 N 5; Z 10 N 05; 5 Ni				SL5N590; SL5N60		X12Ni5
10	D4; T30404; D6; T30406	1.2436	X210CrW12; X 210 CrW 12	BD6	Z 200 CD 12; Z 210 CW 12-01; X210CrW12-1	2312	X 215 CrW 12 1 KU	F.5213; X210 CrW 12	SKD 2		X210CrW12
10	H13; T20813	1.2344	X40CrMoV5-1; X40 CrMoV 5 1	BH 13	X 40 CrMoV 5; Z 40 CDV 5	2242	X 40 CrMoV 5 1 1 KU	F.5318; X 40 CrMoSiV 5	SKD 61	4Ch5MF1S	X40CrMoV5-1
10	A2; T30102	1.2363	X100CrMoV5; X100CrMoV5-1; X 100 CrMoV 5 1	BA 2	X 100 CrMoV 5; Z 100 CDW 5	2260	X 100 CrMoV 5 1 KU	F.536; F.5227; X 100 CrMoV 5	SKD 12		X100CrMoV5
10	H21; T20821	1.2581	X30WCrV9-3; X30WCrV9 3	BH 21	Z 30 WCV 9		X 30 WCrV 9 3 KU	F.5323; X 30 WCrV 9	SKD 5	3Ch2W8F	X30WCrV9-3; X30WCrV9 3
10		1.2601	X165CrMoV12; X 165 CrMoV 12			2310	X165CrMoW 12KU				X165CrMoV12
10		1.2316	X36CrMo17; X38CrMo16								X38CrMo16
10	M2; T11302	1.3343	HS6-5-2; HS 6-5-2; S 6-5-2	BM 2; BM2	Z 85 WDCV 06-05-04-02; 6-5-2; HS6-5-2	2722		F.550.A; F.5604	SKH 51	R6M5	HS6-5-2

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
10	H11; T20811	1.2343	X37CrMoV5-1; X38CrMoV5-1	BH 11	Z 38 CDV 5; X38CrMoV		X 37 CrMoV 5 1 KU	F.520.G; F.5137; X 37 CrMoSiV 5	SKD 6	4Ch5MFS	X37CrMoV5-1
10	H12; T20812	1.2606; 1.2605	X37CrMoW5-1; X 37 CrMoW 5 1; X35CrWMoV5; X 35 CrWMoV 5	BH 12	Z 35 CWDV 5; X35CrWMoV5		X 35 CrMoW 05 KU	F.537	SKD 62	5ChNM	X37CrMoW5-1; X35CrWMoV5
10	D2; T30402	1.2379	X153CrMoV12; X155CrVMo12-1; X155 CrVMo 12 1	BD 2	X 160 CrMoV 12; Z 160 CDV 12	2310	X 155 CrVMo 12 1 KU	F.520.A	SKD 10; SKD 11		X153CrMoV12
10		1.2085	X33CrS16; X 33 CrS 16		Z 35 V CD 17.S						X33CrS16
10		1.2162	21MnCr5; 21 MnCr 5		20 MC 5						21MnCr5
10		1.2767	X45NiCrMo4; 45NiCrMo16; X 45 NiCrMo 4		45 NCD 16		40 NiCrMoV 8 KU				X45NiCrMo4
10		1.2764	X19NiCrMo4; X 19 NiCrMo 4; GX19NiCrMo4								X19NiCrMo4
10	D3; T30403	1.2080	X210Cr12; X 210 Cr 12	BD 3	X200Cr12; Z 200 C 12		X 205 Cr 12 KU	F.521; F.5212; X 210 Cr 12	SKD 1	Ch12	X210Cr12
10		1.2367	X38CrMoV5-3; X 38 CrMoV 5 3								X38CrMoV5-3
10		1.6957	27NiCrMoV15-6; 26NiCrMoV14-5; 26 NiCrMoV 14 5								
10	501; 502; S50100; S50200; K41545	1.7362	X12CrMo5; X 11 CrMo 5; 12CrMo19-5; 12 CrMo 19 5					F.240.B; TU.J	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		X12CrMo5
11	M33; T11333; M34; T11334	1.3249	HS2-9-2-8; S 2-9-2-8	BM 34				2-9-2-8; F.5611			
11	M41; T11341	1.3246	HS7-4-2-5; S 7-4-2-5		Z 110 WKCDV 07-05-04-04-02			F.5615; HS 7-4-2-5			HS7-4-2-5
11	M42; T11342	1.3247	HS2-10-1-8; S 2-10-1-8	BM 42	Z 110 DKCWV 09-08-04-02-01; 2-9-1-8; HS2-9-1-8	2716	HS 2-9-1-8	F.5617; HS 2-10-1-8	SKH 59		HS2-10-1-8
11		1.3207	HS10-4-3-10; S 10-4-3-10	BT 42	Z 130 WKCDV 10-10-04-04-03; 10-4-3-10; HS10-4-3-10		HS 10-4-3-10	F.550.B; F.5553; HS 10-4-3-10	SKH 57	R12F3K10M3-SCh	HS10-4-3-10
11	T15; T12015	1.3202	HS12-1-4-5; S 12-1-4-5	BT 15	HS12-1-4-5		HS 12-1-5-5	F.5563; HS 12-1-5-5		R13F4K5	
11		1.3243	HS6-5-2-5; S 6-5-2-5	BM 35	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	2723	HS 6-5-2-5	F.550.C; F.5613; HS 6-5-2-5	SKH 55	R6M5K5	HS6-5-2-5
11	M7; T11307	1.3348	HS2-9-2; S 2-9-2		Z 100 DCWV 09-04-02-02; 2-9-2; HS2-9-2	2782	HS 2 9 2	F.5607; HS 2-9-2	SKH 58		HS2-9-2
11	T4; T12004	1.3255	HS18-1-2-5; S 18-1-2-5	BT 4	Z 80 WKCV 19-05-04-01; HS 18-1-1-5		HS 18-1-1-5	F.5530; HS 18-1-1-5	SKH 3		HS18-1-2-5

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
11	T1; T12001	1.3355	HS18-0-1; S 18-0-1	BT 1	18-0-1; HS 18-0-1; Z 80 WCV 18-04-01	2750	HS 18-0-1	F.5520; HS 18-0-1	SKH 2	R18	HS18-0-1
11											
11											
11											
11											
11											
11											
11			X10NiMoCrV6								
12	430 F; S43020	1.4104	X12CrMoS17; X 12 CrMoS 17		Z 13 CF 17	2383	X 10 CrS 17	F.3413	SUS 430 F		X12CrMoS17
12	S31500	1.4417	GX2CrNiMoN25-7-3			2376					GX2CrNiMoN 25-7-3
12		1.4742	X10CrAlSi18; X10CrAl18		Z 12 CAS 18			F.3113; X 10 CrAl 18	SUS 21	15Ch18SJu	X10CrAlSi18
12		1.4724	X10CrAlSi13; X10CrAl13; X 10 CrAl 13				X 10 CrAl 12	F.3152; X 10 CrAl 13		10Ch13SJu	X10CrAlSi13
12	434; S43400	1.4113	X6CrMo17-1; X 6 CrMo 17 1	434 S 17	Z 8 CD 17-01	2325		F.3116	SUS 434		X6CrMo17-1
12	HNV-6; HNV6; S65006	1.4747	X80CrNiSi20; X 80 CrNiSi 20	443 S 65	Z 80 CSN 20-02		X 80 CrSiNi 20	F.320B	SUH 4		
12	446; S44600	1.4762	X10CrAlSi25; X10CrAl24; X 10 CrAl 24		Z 10 CAS 24	2322		F.3154	SUH 446		X10CrAlSi25
12	EV 8; S63008	1.4871	X53CrMnNiN21-9; X 53 CrMnNiN 21 9	349 S 52	Z 52 CMN 21-9 Az		X 53 CrMnNiN 21 9	F.3217	SUH 35, SUH 36	55Ch20G9AN4	X53CrMnNiN21-9
12		1.4001	X7Cr14; X 7 Cr 14; G-X 7 Cr 13		Z 8 C 13 FF				SUS 4105		X7Cr14
12	440 B; S44003	1.4112	X90CrMoV18		X 89 CrMoV 18-1			SUS 440B			X90CrMoV18
12	410 S; 403; S41008; S40300	1.4000	X6Cr13; X 6 Cr 13	403 S 17	Z 8 C 12	2301	X 6 Cr 13	F.3110	SUS 403; SUS 403 FB; SUS 410 S	08Ch13	X6Cr13
12	410; S41000; S41001; CA-15	1.4006	X12Cr13; GX12Cr13; X 12 Cr 13; X 10 Cr 13	410 S 21; ANC 1 grade A; En 56 A	Z 10 C 13; Z 13 C 13	2302	X 12 Cr 13 KG; X 12 Cr 13 KW	F.3401	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	12Ch13; 15Ch13L	X13Cr13
12	405; S40500	1.4002	X6CrAl13; X 6 CrAl 13	405 S 17	Z 8 CA 12		X 6 CrAl 13	F.3111	SUS 405; SUS 405 TB; SUS 405 TP		X6CrAl13
12	416; S41600	1.4005	X12CrS13; X 12 CrS 13	416 S 21; En 56 AM	Z 11 CF 13	2380	X12 CrS 13	F.3411	SUS 416		X12CrS13
12		1.4015	X8Cr17								
12	430; S43000	1.4016	X6Cr17; X 6 Cr 17	430 S 17; 430 S 15; 430 S 18	Z 8 C 17	2320	X 8 Cr 17	F.310.D; F.3113	SUS 430; SUS 430 TB; SUS 430 TKA; SUS 430 TKC; SUS 430 TP	12Ch17	X6Cr17
12		1.4027	GX20Cr14	ANC 1 grade B; ANC 1 grade C; 420 C 24; 420 C 29	Z 20 C 13 M				SCS 2	20Ch13L	
12	420 F; S42020	1.4028	X30Cr13; X 30 Cr 13	420 S 37; 420 S 45; En 56 C; En 56 D	Z 33 C 13 Cl; Z 33 C 13; Z 30 C 13	2304	X 30 Cr 13	F.3403	SUS 420 F; SUS 420 J 2; SUS 420 J 2-CSP; SUS 420 J 2 FB; SUS 420 J 2 TKA	30Ch13	X30Cr13

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
12		1.4086	GX120Cr29; G-X 120 Cr 29	452 C 11							
12		1.4340	GX40CrNi27-4; G-X 40 CrNi 27 4								
12		1.4720	X20CrMo13; X 20 CrMo 13								
12	439; 430 Ti; S43035; S43036; XM 8	1.4510	X3CrTi17; X 6 CrTi 17		Z 4 CT 17		X 6 CrTi 17	F.3115; X 5 CrTi 17	SUS 430 LX; SUS 430 LXTB; SUS XM8TB	08Ch17T	X3CrTi17
12	446-1	1.4749	X18CrN28		Z 12 C 25						X18CrN28
12		1.4511	X3CrNb17; X 6 CrNb 17		Z 4 CNb 17		X 6 CrNb 17	F.3122; X 5 CrNb 17	SUS 430 LX; SUS 430 LXTB		X3CrNb17
12	409; S40900	1.4512	X2CrTi12; X 6 CrTi 12	LW 19; 409 S 19	Z 3 CT 12		X 6 CrTi 12	F.3121	SUH 409 L; SUS 409 LTB; SUS 409 TB		X2CrTi12
12		1.4418	X4CrNiMo16-5-1; X 4 CrNiMo 16 5		Z 6 CND 16-04-01	2387					X4CrNiMo16-5-1
12	420; S42000	1.4021	X20Cr13; X 20 Cr 13	420 S 37; 420 S 29; En 56 C	Z 20 C 13 Cl; Z 20 C 13	2303	X 20 Cr 13	F.310.J; F.3402	SUS 420 J 1; SUS 420 J 1 FB; SUS 420 J 1 TKA	20Ch13	X20Cr13
13	420; S42000; S42080	1.4031	X39Cr13; X 38 Cr 13		Z 40 C 14 Cl; Z 40 C 14	2304	X 40 Cr 14	F.3404; X40 Cr 13	SUS 420 J 2	40Ch13	X39Cr13
13		1.4922	X20CrMoV11-1; X20CrMoV12-1; X 20 CrMoV 12 1	BS 762		2317	X 20 CrMoNi 12 01				X20CrMoV11-1; X20CrMoV12-1
13		1.4923	X22CrMoV12-1; X21CrMoNiV12-1; X 22 CrMoV 12 1								X22CrMoV12-1; X21CrMoNiV12-1
13	420; S42000	1.4021	X20Cr13; X 20 Cr 13	420 S 37; 420 S 29; En 56 C	Z 20 C 13 Cl; Z 20 C 13	2303	X 20 Cr 13	F.310.J; F.3402; X 20 Cr 13	SUS 420 J 1; SUS 420 J 1 FB; SUS 420 J 1 TKA	20Ch13	X20Cr13
13	420; S42000	1.4034	X46Cr13; X 46 Cr 13		Z 44 C 14 Cl; Z 44 C 14; Z 38 C 13 M		X 40 Cr 14	F.3405; X 40 Cr 13		40Ch13	X46Cr13
13	431; S43100	1.4057	X17CrNi16-2; X 20 CrNi 17 2; X 22 CrNi 17	431 S 29; En 57	Z 15 CN 16.02 Cl; Z 15 CN 16-02	2321	X16 CrNi 16	F.313; F.3427; X 19 CrNi 17 2	SUS 431; SUS 431 FB	14Ch17N2; 20Ch17N2	X17CrNi16-2
13	CA 6-NM; S41500; J91540	1.4313	X3CrNiMo13-4; X 4 CrNi 13 4		Z 6 CN 13-04; Z 6 CN 13-4; Z 4 CND 13.4 M	2384					X3CrNiMo13-4
13		1.4122	X39CrMo17-1; X 35 CrMo 17				X 39 CrMo 17-1				X39CrMo17-1
13	422; S42200	1.4935	X20CrMoWV12-1; X 20 CrMoWV 12 1								X20CrMoWV12-1
13	HNV 3; S65007	1.4718	X45CrSi9-3; X 45 CrS 9 3; G-X 45 CrNi 9 3	401 S 45; En 52	Z 45 CS 9		X 45 CrSi 8	F.322; F.3220	SUH 1	40Ch9S2; 4Ch9S2	X45CrSi9-3
13		1.2083; 1.2083 ESR	X40Cr14; X 42 Cr 13		X40Cr14; Z 40 C 14	2314	X 41 Cr 13 KU	F.5263; X 40 Cr 13	SUS 420 J 2		X40Cr14
13	CA 6-NM; J91540	1.4317	GX4CrNi13-4; G-X 5 CrNi 13 4	425 C 11; 425 C 12	Z 4 CND 13 4 M		GX 6 CrNi 13 04		SCS 6; SCS 6X		GX4CrNi13-4
13	S13800; XM-13	1.4534	X3CrNiMoAl 13-8-2; X 3 CrNiMoAl 13 8 2	FE-PM1503							X3CrNiMoAl 13-8-2
14	15-5PH; 15-5 PH; XM-12; S15500; J92110	1.4545; 1.4545.9	X5CrNiCuNb15-5		Z 7 CNU 15-05						X5CrNiCu15-3
14	329; S31260; S32900	1.4460	X3CrNiMo27-5-2; X 4 CrNiMo 27 5 2		Z 3 CND 25-07 Az; Z 5 CND 27-05 Az	2324		F.3552; F.3309; X 8 CrNiMo 27-05; X 8 CrNiMo 26 6	SUS 329 J 1; SUS 329 J 1 FB; SUS 329 J 1 TB; SUS 329 J 1 TP	10Ch26N5M	X3CrNiMo27-5-2

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
14	321; S32100	1.4541	X6CrNiTi18-10	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	Z 6 CNT 18-10	2337	X 6 CrNiTi 18 11; X 6 CrNiTi 18 11 KG; X 6 CrNiTi 18 11 KW; X 6 CrNiTi 18 11 KT	F.332; F.3523; X 6 CrNiTi 18 10	SUS 321	06Ch18N10T; 08Ch18N10T; 09Ch18N10T; 12Ch18N10T	X6CrNiTi18-10
14		1.4425	X2CrNiMo18-13-3								
14	316; 316H; 316 H; S31600; S31609	1.4401	X5CrNiMo17-12-2; X 5 CrNiMo 18 10	316 S 31; 316 S 33; 316 S 17; 316 S 19; 316 S 40; 316 S 41; 845	Z 6 CND 17-11; Z 6 CND 17-11-02-FF; Z 7 CND 17-11-02; Z 7 CND 17-12-02	2347	X 5 CrNiMo 17 12; X 5 CrNiMo 17 12 KG; X 5 CrNiMo 17 12 KW	F.310.A; F.3534; X 5 CrNiMo 17 12 2	SUS 316; SUS 316 A; SUS 316 FB; SUS 316 HFB; SUS 316 HTB; SUS 316 HTP; SUS 316 TB; SUS 316 TBS	08Ch16N11M3	X5CrNiMo17-12-2
14		1.4821	X20CrNiSi25-4		Z20CNS25.04						X20CrNiSi25-4
14	J92701	1.4312	GX10CrNi18-8	ANC 3 grade A; ANC 3 A; 302 C 25	Z 10 CN 18.9 M				SCS 12; SCS 13A	10Ch18N9L	
14	J92605; J93005	1.4823	GX40CrNiSi27-4; G-X 40 CrNiSi 27 4						SCH 11 X		GX40CrNiSi27-4
14		1.4585	GX7CrNiMoCuNb18-18; G-X 7 CrNiMoCuNb 18 18				X 6 CrNiMoTi 17 12				
14	347; J92640; J82710	1.4552	GX5CrNiNb19-11; G-X 5 CrNiNb 18 9	347 C 17; 821 grade Nb	Z 4 CNNb 19.10 M; Z 6 CNNb 18.10 M			AM-X 7 CrNiNb 20 10; F.8413	SCS 21; SCS 21 X		GX5CrNiNb19-11
14		1.4500	GX7NiCrMoCuNb25-20; G-X 7 NiCrMoCuNb 25-20		23 NCDU 25.20 M						
14	304; S30400	1.4301	X5CrNi18-10; X 5 CrNi 18 9	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	Z 4 CN 19-10 FF; Z 5 CN 17-08; Z 6 CN 18-09; Z 7 CN 18-09	2333; 2332	X 5 CrNi 18 10; X 5 CrNi 18 10 KG; X 5 CrNi 18 10 KW; X 5 CrNi 18 10 KT	F.3504; X 5 CrNi 18 10	SUS 304; SUS 304 A; SUS 304-CSP; SUS 304 FB; SUS 304 TB; SUS 304 TBS; SUS 304 TKA; SUS 304 TKC	08Ch18N10	X5CrNi18-10
14	304L; 304 L; S30403; J92500; J92600	1.4306; 1.4309	X2CrNi19-11; GXCrNi19-11	304 S 11; LW 20; LWCF 20; S.536; T.74; 304 C 12; 305 S 11	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	2352	X 3 CrNi 18 11; X 2 CrNi 18 11; GX 2 CrNi 19 10	F.310.G; F.3503; X 2 CrNi 19 10; AM-X 2 CrNi 19 10; F.8412	SCS19	03Ch18N11	X2CrNi19-11; GXCrNi19-11
14	304H; 304 H; CF-8; J92590; J92600; J92650; J92710	1.4308	GX5CrNi19-10; G-X 6 CrNi 18 9	304 C 15	Z 6 CN 18.10 M; Z 6 CN 19.9 M			AM-X 7 CrNi 20 10; F.8411	SCS 13; SCS 13 A; SCS 13 X	07Ch18N9L	GX5CrNi19-10; 58E
14	J92701	1.4312	GX10CrNi18-8; G-X 10 CrNi 18 8	ANC 3 grade A; ANC 3 A; 3025 S 25	Z 10 CND 18.9 M				SCS 12	10Ch18N9L	GX10CrNi18-8
14	S32304	1.4362	X2CrNiN23-4; X 2 CrNiN 23 4		Z 3 CN 23-04 Az	2327					X2CrNiN23-4
14	201; S20100	1.4372	X12CrMnNiN17-7-5		Z 12 CMN 17-07 Az				SUS 201		X12CrMnNiN 17-7-5

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
14	316; S31600	1.4436	X3CrNiMo17-13-3; X 5 CrNiMo 17 13 3	316 S 31; 316 S 33; LW 23; LWCF 23; 316 S 19; 316 S 40; 316 S 41; 1.4436	Z 6 CND 18-12-03; Z6 CND 18-13; Z 7 CND 18-12-03	2343	X 5 CrNiMo 17 13; X 8 CrNiMo 17 13	F.3538; X 5 CrNiMo 17 13 3	SUS 316; SUS 316 A; SUS 316 FB; SUS 316 TB; SUS 316 TBS; SUS 316 TKA; SUS 316 TKC; SUS 316 TP		X3CrNiMo17-13-3
14	316L; 316 L; S31603; J92700; J92800	1.4404	X2CrNiMo17-12-2; X2CrNiMo17-13-2; X 2 CrNiMo 17 12 2; X 2 CrNiMo 17 13 2	316 S 11; 316 S 13; 316 S 14; 316 S 30; S.161; S.537; T.75	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	2348	X 2 CrNiMo 17 12	F.310.K; F.3533; F.3537	SUS 316 L; SUS 316 LFB; SUS 316 LTBS; SUS 316 LTP; SUS 316 F 316 L		X2CrNiMo17-13-2
14	316LN; 316 LN; S31653	1.4406	X2CrNiMoN17-11-2; X2CrNiMoN17-12-2; X 2 CrNiMoN 17 12 2	316 S 61; 316 S 63	Z 2 CND 17-11 Az		X 2 CrNiMoN 17 12	F.3542; X 2 CrNiMoN 17 12 2	SUS 316 LN; SUS F 316 LN		X2CrNiMoN 17-11-2
14	CF-8M; J92900	1.4408	GX5CrNiMo 19-11-2; G-X 6 CrNiMo 18 10	ANC 4 grade B; ANC 4 B; 316 C 16; 845 grade B				AM-X 7 CrNiMo 20 10; F.8414	SCS 14; SCS 14 A; SCS 14 X	07Ch18N10G2S2M2L	GX5CrNiMo 19-11-2
14	S32750	1.4410	X2CrNiMoN25-7-4; X 10 CrNiMo 18 9		Z 5 CND 25-06 Az	2328					X2CrNiMoN 25-7-4
14	316LN; 316 LN; S31563	1.4429	X2CrNiMoN17-13-3; X 2 CrNiMoN 17 13 3	316 S 63; 1.4429	Z 3 CND 17-12 Az	2375	X 2 CrNiMoN 17 13	F.3543; X 2 CrNiMoN 17 13 3	SUS 316 LN; SUS F 316 LN		X2CrNiMoN 17-13-3
14	316L; 316 L; S31603; J92800	1.4435	X2CrNiMo18-4-3; X 2 CrNiMo18 14 3	316 S 13; 316 S 11; 316 S 14; 316 S 31; LW 22; LWCF 22; 845 B	Z 3 CND 17-12-03; Z 3 CND 18-14-03	2353	X 2 CrNiMoN 17 13; X 2 CrNiMoN 17 13 KG; X 2 CrNiMoN 17 13 KW	F.3533-X2 CrNiMo 17 13 2	SUS 316 L; SUS 316 LFB; SUS 316 LTBS; SUS 316 LTP; SUS F 316 L	O3Ch17N14M3	X2CrNiMo18-4-3
14	S31726	1.4439	X2CrNiMoN17-13-5; X 2 CrNiMoN 17 13 5		Z 3 CND 18-14-05 Az			F.3544; X 2 CrNiMoN 17 13 5			X2CrNiMoN 17-13-5
14	317; S31700	1.4449	X3CrNiMo18-12-3	317 S 16			X 5 CrNiMo 18 15		SUS 317; SUS 317 TB; SUS 317 TP; SUS F 317		X3CrNiMo18-12-3
14	329; S31260; S32900	1.4460	X3CrNiMoN27-5-2; X 4 CrNiMoN 27 5 2		Z 5 CND 27-05 Az; Z 3 CND 25-07 Az	2324		F.3552; F.3309; X 8 CrNiMo 27-05; X 8 CrNiMo 26 6	SUS 329 J 1; SUS 329 J 1 FB; SUS 329 J 1 TB; SUS 329 J 1 TP	10Ch26N5M	X3CrNiMoN27-5-2
14	S31803; S31260; S32900	1.4462	X2CrNiMoN22-5-3; X 2 CrNiMoN 22 5 3	318 S 13; 1.4462	Z 2 CND 24-08 Az; Z 3 CND 25-06-03 Az; Z 3 CND 25 -05 Az	2377			SUS 329 J 3 L; SUS 329 J 3 LTB; SUS 329 J 3 LTP		X2CrNiMoN22-5-3
14	631; 17-7PH; 17-7 PH; S17700	1.4568; 1.4564; 1.4504	X7CrNiAl17-7; X 7 CrNiAl 17 7	301 S 81	Z 9 CNA 17-07; Z 8 CNA 17-07	2388		X 2 CrNiMo 17 12	SUS 631; SUS 631 J 1; SUS 631-CSP	09Ch17N7Ju1	X7CrNiAl17-7
14	443; 444; S44300; S44400	1.4521	X2CrMoTi18-2; X 2 CrMoTi 18 2		Z 3 CDT 18-02; Z 3 CDT 18-2	2326		F.3123; X 2 CrMoTiNb 18 2	SUS 444; SUS 444 TB; SUS 444 TP		X2CrMoTi18-2
14	904L; 904 L; N08904	1.4539	X1NiCrMoCu25-20-5; X 1 NiCrMoCuN 25 20 5	904 S 13	Z 2 NCDU 25-20	2562					X1NiCrMoCu 25-20-5
14	630; 17-4PH; 17-4 PH; S17400	1.4542	X5CrNiCuNb16-4; X 5 CrNiChNb 17 4		Z 7 CNU 15-05; Z 7 CNU 16-04; Z 7 CNU 17-04				SUS 630; SUS 630 FB; SUS F 630		X5CrNiCuNb16-4
14	S31254	1.4547	X1CrNiMoN20-18-7			2378					X1CrNiMoN 20-18-7

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
14	631; 17-7PH; 17-7 PH; S17700	1.4568	X7CrNiAl17-7; X 7 CrNiAl 17 7	301 S 81	Z 9 CNA 17-07; Z 8 CNA 17-07	2388		X 2 CrNiMo 17 12	SUS 631; SUS 631 J 1; SUS 631-CSP	09Ch17N7Ju1	X7CrNiAl17-7
14	316 Ti; S31635	1.4571	X6CrNiMoTi17-12-2; X 6 CrNiMoTi 17 12 2	320 S 31; 320 S 18	Z 6 CNDT 17-12	2350	X 6 CrNiMoTi 17 12; X 6 CrNiMoTi 17 12 KG; X 6 CrNiMoTi 17 12 KW	F.310.B; F.3535; X 6 CrNiMoTi 17 12 2	SUS 316 Ti; SUS 316 TiTB; SUS 316 TiTP	08Ch16N11M3T; 08Ch17N13M2T; 10Ch17N13M2T	X6CrNiMoTi 17-12-2
14	309S; 309 S; 309; S30908; S30900	1.4833	X12CrNi23-13; X 7 CrNi 23 14	309 S 24	Z 15 CN 23-13; Z 15 CN 24-13		X 6 CrNi 23 14		SUS 309 S; SUS 309 S TB; SUS 309 S TP		X12CrNi23-13
14	S30415	1.4891	X4CrNiSiN18-10; X 4 CrNiSiN 18 10			2372					X4CrNiSiN 18-10
14	S30815	1.4893	X9CrNiSiNCe21-11-2; X 8 CrNiSiN 21 11			2368					X9CrNiSiNCe 21-11-2
14	304H; 304 H; S30409; S30480	1.4948	X6CrNi18-10; X6CrNi18-11; X 6 CrNi 18 11;	304 S 50; 304 S 51; 801 grade A	Z 5 CN 18-09				SUS 302		X6CrNi18-10
14		1.4581	GX5CrNiMoNb19-11-2; G X 5 CrNiMoNb 18 10	ANC 4 grade C; ANC 4 C; 318 C 17; 845 grade Nb	Z 4 CNDNb 18.12 M		GX 6 CrNiMoNb 20 11		SCS 22		GX5CrNiMoNb 19-11-2
14	303; S30300	1.4305	X8CrNiS18-9; X 10 CrNiS 18 9	303 S 31	Z 8 CNF 18-09	2346	X 10 CrNiS 18 09	F.310.C; F.3508; X 10 CrNiS 18-09	SUS 303	30Ch18N11	X8CrNiS18-9; 58M
14	304L; 304 L; S30403	1.4306	X2CrNi19-11; X 2 CrNi 19 11	304 S 11; LW14; LW 20; LWCF 14; LWCF 20; S.536; T.74; 304 C 12; 304 S 11	Z 1 CN 18-12; Z 3 CN 18-10; Z 3 CN 19-11; Z 3 CN 19-11 FF	2352	X 2 CrNi 18 11; X 3 CrNi 18 11	F.310.G; F.3503; X 2 CrNi 18 10	SUS 304 L; SUS 304 LFP; SUS 304 LTB; SUS 304 LTBS; SUS 304 LTP; SUS F 304 L	03Ch18N11	X2CrNi19-11
14	301; J 230; S30100; S30200	1.4310	X10CrNi18-8; X 12 CrNi 17 7	301 S 21; 301 S 22	Z 11 CN 17-08; Z 11 CN 18-08; Z 12 18-09	2331	X 12 CrNi 17 07	F.3517; X 2 CrNiN 18 10	SUS 301; SUS 301-CSP; SUS 302; SUS 302 FB	12Ch18N9	X10CrNi18-8
14	304LN; 304 LN; S30453	1.4311	X2CrNiN18-10; X 2 CrNiN 18 10	304 S 61	Z 3 CN 18-10 Az; Z 3 CN 18-07 Az	2371	X 2 CrNiN 18 11	F.3541; X 2 CrNiN 18 10	SUS 304 LN; SUS F 304 LN		X2CrNiN18-10
14	304B1; 304B2; 304B3; 304 B1; 304 B2; 304 B3; S30461; S30462; S30463	1.4350	X5CrNi18-9	304 S 31	Z 6 CN 18.09	2332; 2333	X 5 CrNi 18 10	F.3551			58E
14	317L; 317 L; S31703	1.4438	X2CrNiMo18-15-4; X2 CrNiMo 18 16 4	317 S 12	Z 2 CND 19-15-04; Z 3 CND 19-15-04	2367	X 2 CrNiMo 18 16	F.3539; X2 CrNiMo 18 16 4	SUS 317 L; SUS 317 LFB; SUS 317 LTB; SUS 317 LTP; SUS F 317 L; SUS Y 317 L		X2CrNiMo18-15-4
14	321H; 321 H; S32109	1.4878	X12CrNiTi18-10; X 12 CrNiTi 18-9	321 S 31	Z 6 CNT 18-10	2337	X 6 CrNiTi 18.11	F.3553	SUS 321; SUS 321 HFB; SUS 321 HTB; SUS 321 HTP; SUS 321 TKA; SUS 321 TP; SUS F 321; SUS Y 321		X12CrNiTi18-10; 58B

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
14	347; 348; S34700; S34800	1.4550	X6CrNiNb18-10; X 6 CrNiNb 18 10	347 S 31; ANC 3 grade B; ANC 3 B; 347 S 20; 347 S 40; 347 S 50; 347 S 51	Z 6 CNNb 18-10	2338	X 6 CrNiNb 18 11; X 6 CrNiNb 18 11 KG; X 6 CrNiNb 18 11 KW; X 6 CrNiNb 18 11 KT	F.3524; X 6 CrNiNb 18 10	SUS 347; SUS 347 FB; SUS 347 HTB; SUS 347 TB; SUS 347 TKA; SUS 347 TP; SUS F 347	08Ch18N12B	X6CrNiNb18-10; 58F;
14	318; S31803	1.4583	X10CrNiMoNb18-12; X 10CrNiMoNb 18 12		Z 6 CNDNb 18-12		X 6 CrNiMoNb 20 11				
14	310H; 310 H; 310S; 310 S; S31008; S31009	1.4845	X8CrNi25-21; X 12 CrNi 25 21	310 S 16; 310 S 24; 310 S 25; 310 S 31	Z 8 CN 25-20; Z 12 CN 25-20; Z 12 CN 26-21	2361	X 6 CrNi 25 20 (X 6 CrNi 25 20)	F.331	SUS 310 S; SUS 310 FB; SUS 310 STG; SUS 310 STP; SUS310 TB; SYS Y 310 S	10Ch23N18; 20Ch23N18	X12CrNi25-21
14		1.4465; 1.4466	X1CrNiMoN25-22-2; X 2 CrNiMoN 25 22 7								X1CrNiMoN 25-22-2
14	309; S30900	1.4828	X15CrNiSi20-12; X 15 CrNiSi 20 12	309 S 24	Z 9 CN 24-13; Z 17 CNS 20-12		X 16 CrNi 23 14	F.3312; X 15 CrNiSi 20-12	SUH 309; SUS 309 TB; SUS 309 TP	20Ch20N14S2	58C; X15CrNiSi20-12
14	HK; J94203; J94204; J94224	1.4848	GX40CrNiSi25-20; G-X 40 CrNiSi 25 20	310 C 40; 310 C 45			G X 40 CrNi 26 20	AM-X 40 CrNi 25 20; F.8452	SCH 21; SCH 22; SCH 22 X		GX40CrNiSi25-20
14	HK 30; J93503; J94003; J94013; HH	1.4837; 1.4848+Nb	GX40CrNiSi25-12; G-X 40 CrNiSi 25 12	309 C 30			G X 35 CrNi 25 12		SCH 13; SCH 13 A; SCH 13 X; SCH 17; SCS 17	40Ch24N12SL	GX40CrNiSi25-12
14	310; 314; S3100; S31400; S31500	1.4841	X15CrNiSi25-21; X 15 CrNiSi 25 20	314 S 25	Z 15 CNS 25-20		X 16 CrNiSi 25 20	F.3310; X 15 CrNiSi 25-20	SUH 310; SUS 310 TB; SUS Y 310	20Ch25N20S2	X15CrNiSi25-21
14		1.4849	GX40NiCrSiNb38-19; G-X 40 NiCrSi 38 18								GX40NiCrSiNb 38-19
14	S32760; SA351/995; 25Cr-7Ni-Mo-N	1.4501	X2CrNiMoCuWN25-7-4	1.4501	Z 3 CNDU 25-06 Az						X2CrNiMoCuWN 25-7-4
14	348; S34800	1.4546	X5CrNiNb18-10	2 S.130; 2 S.143; 3 S.144; 3 S.145; S.525; S.527							
14		1.4544; 1.4544.9		S.524; S.526; 2 S 129	Z 10 CNT 18-11; 9160/C 63; 9160C201		X 6 CrNiTi 18 11			08Ch18N12T	FE-PA 13
14		1.6900	X12CrNi18-9; X 12 CrNi 18 9								
14		1.4829	X12CrNi22-12; X 12 CrNi 22 12								
14		1.4882	X50CrMnNiNbN21-9		Z 50 CMNNb 21.09						X50CrMnNiNbN 21-9
14	316N; 316 N; J92804	1.4409	GX2CrNiMo19-11-2; G-X 2 CrNiMo 19 11 2		Z 3 CND 19.10 M		GX2 CrNiMo 19 11	AM-X 2 CrNiMo 19 11; F.8415	SCS 16 A; SCS 16 AX SCS 16 AXN		GX2CrNiMo 19-11-2
14	304L; 304 L J92500; J92620	1.4309	GX2CrNi19-11	304 C 12	Z 3 CN 19.10 M		GX 2 CrNi 19 10	AM-X 2 CrNi 19 10; F.8412	SCS 19; SCS 19 A		GX2CrNi19-11
15	A48 25 B; Class 25; No 25 B	0.6015	EN-GJL-150; GG 15; EN-JL 1020	Grade 150	Ft 15 D; R 15 D	01 15-00	G 14; G 15	FG 15	FC 15; FC 150	SCh 15	EN-GJL-150; EN-JL 1020
15	A48-30 B; Class 30, No.30 B	0.6020	EN-GJL-200; GG 20; EN-JL 1030	Grade 220	Ft 20 D	01 20-00	G 20; Gh 190	FG 20	FC 20; FC 200	SCh 20	EN-GJL-200; EN-JL 1030
15	A48-20 B; Class 20; No 20 B	0.6010	EN-GJL-100; GG 10; EN-JL 1010		Ft 10 D	01 10-00	G 10	FG 10	FC 10; FC 100	SCh10	EN-GJL-100; EN-JL 1010

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
16	A48-45 B; Class 45; No 45 B	0.6030	EN-GJL-300; GG 30; EN-JL 1050	Grade 300	Ft 30 D	01 30-00	G 30	FG 30	FC 30; FC 300	SCh 30	EN-GJL-300; EN-JL 1050
16	A48-50 B; Class 50; No 50 B	0.6035	EN-GJL-350; GG 35; EN-JL 1060	Grade 350	Ft 35 D	01 35-00	G 35	FG 35	FC 35; FC350	SCh 35	EN-GJL-350; GG 35; EN-JL 1060
16	A48-60 B; Class 60; No 60 B	0.6040	EN-JLZ; GG 40	Grade 400	Ft 40 D	01 40-00				SCh 40	EN-JLZ
16	A48-40 B; Class 40; No 40 B	0.6025	EN-GJL-250; GG 25; EN-JL 140	Grade260	Ft 25 D	01 25-00	G 25	FG 25	FC 25	SCh 25	EN-GJL-250; EN-JL 140
17		0.7033	EN-GJS-350-22-LT; GGG 35.3	350/22 L 40	FGS 370-/17	0717-15	GS 370-17	FNG 38-17	FCD 350-22L	VCh42-12	EN-GJS-350-22-LT
17	60-40-18; A536 60-40-18	0.7043	EN-GJS-400-18; EN-GJS-400-18-LT; GGG-40.3; EN-GJS-400-18A-LT	370/7; SNG 370/17	FGS 370-17	0717-15	GSO 400-12			VCh 42-2	EN-GJS-400-18; EN-GJS-400-18-LT; EN-GJS-400-18A-LT
17	60-40-18; A536 60-40-18	0.7040	EN-GJS-400-15; EN-JS 1030; GGG-40	420/12; SNG 420/12	FCS 400-12	0717-02	GS 400-12	FGE 38-17	FCD 40	VCh 42-12	EN-GJS-400-15; EN-JS 1030
17	65-45-12; A536 65-45-12	5.3107	EN-GJS-450-10	450/10; SNG 450/10	FGS 450-10		GS 400-12	FGE 42-12	FCD450	VCh 45	EN-GJS-450-10
18	65-45-12; A536 65-45-12	0.7050	EN-GJS-500-7; EN-GJS-500-7A; EN-JS 1050; GGG-50	500/7	FGS 500-7	0727-02	GS 500/7	FGE 50-7	FCD 50; FCD 500; FCD 500-7	VCh 50-2	EN-GJS-500-7; EN-GJS-500-7A; EN-JS 1050
18	80-55-06; A536 80-55-06	0.7060	EN-GJS-600-3; EN-GJS-600-3A; EN-JS 1060; GGG-60	600/3	FGS 600-3	0732-03	GS 600/3	FGE 60-2	FCD 60; FCD 600; FCD 600-3		
18		0.7652	GGG-NiMn 13 7	S-NiMn 13 7	S-NM 13 7	07 32-03	GGG 60	GGG 60			
18	100-70-03; A536 100-70-03	0.7070	EN-GJS-700-2; EN-JS 1070; GGG-70	700/2; SNG700/2	FGS 700-2	0737-01	GS 700-2	FGE 70-2	FCD 70; FCD 700; FCD 700-2	VCh 70-2	EN-GJS-700-2; EN-JS 1070
18	A439 Type D-2	0.7660	GGG-NiCr 20 2	S-NiCr 20 2	S-NC 20-2						
18	A439 Type D-2 B	0.7661	GGG-NiCr 20 3	S-NiCr 20 3	S-NC 20 3						
19	A47-32510; A47 Class 32510; A47 Grade 32510; 32510	0.8135	EN-GJMB-350-10; EN-JM 1130; GTS-35-10; GTS-35	B 340/12; 310 B340/12	MN 35-10; A32-702 MN 350-10	0810	B 35-10	GTS 35; 36114 Type A	FCMB 340; G5703 FCMB 340	KCh 35-10	EN-GJMB-350-10; EN-JM 1130
19	A47-35018, A47 Class 35018; A47 Grade 35018				MN 380-18; A32-702 MN 380-18					KCh 37-12	
19	A47-22010; A47 Class 22010; A47 Grade 22010; UNS F22200			B 32-10; 6681 B 32-10					FCMB 310	KCh 33-8	
20	A220-50005; A220 Class 50005; A220 Grade 50005	0.8155	EN-GJMB-550-4; EN-JM1160; GTS-55-04	P 55-04; P 510/4	MP 60-3; A32-703 MP 60-3; Mn 550-4	0856-00	P 55-04	Type C; 36116 Type C	FCMP 540	KCh 55-4; KCh60-3	EN-GJMB-550-4; EN-JM1160
20	A220-70003; A220 Class 70003; A220 Grade 70003	0.8165	EN-GJMB-650-2; EN-JM1180; GTS-65-02	P 65-02; 6681 P 65-02; P 570/3	Mn 650-3	0862-030	GMN 65		FCMP 590	KCh 63-3	EN-GJMB-650-2; EN-JM1180
20	A220-70003; A220 Class 70003; A220 Grade 70003	0.8170	EN-GJMB-700-2; EN-JM1190; GTS-70-02	P 70-2; 6681 P 70-2; P 690/2	MP 70-2; A 32-703 MP 70-2; Mn 700-2	0862-03	P 70-2; GMN 70	36116 Type A	FCMP 690	KCh 70-2	EN-GJMB-700-2; EN-JM1190

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
20	A220-45006; A220 Class 45006; A220 Grade 45006 A220-45008; A220 Class 45008; A220 Grade 45008	0.8145	EN-GJMD-450-6; EN-JM1140; GTS-45-06; GTS-45	P 45-06; 6681 P 45-06	MP 50-5; A32-703 MP 50-5	0854-00	P 45-06	Type E; 36116 Type E		KCh 45-7	EN-GJMD-450-6; EN-JM1140
20	A220-80002; A220 Class 80002; A220 Grade 80002			P 70-2	MN 700-2	854			FCMP 70; FCMP 700	KCh 80-1.5	
20	A220-90001; A220 Class 90001; A220 Grade 90001										
20	A220-60004; A220 Class 60004; A220 Grade 60004										
20	A220-40010; A220 Class 40010; A220 Grade 40010					0852-00					
20		0.8040	EN-GJMW-400-5; GTW-40-05	W 40-05	MB 400-5		W 40-05	36113 Type A	FCMW 370		EN-GJMW-400-5; EN-JM1030
20		0.8035	EN-GJMW-350-4; GTW-35-04	W 35-04	MB 35-7		W 35-04	36113 Type B	FCMW 330		EN-GJMW-350-4; EN-JM1010
21	AA5005; AA5006; A95005; A95006; 5005; 5005A; 5006	3.3315	AlMg1; AlMg1C	N41	A G0-6	144106	L3350		A5005	1510; AMg1	AlMg1C; 5005A
21	AA1050; A91050; 1050; 1050A	3.0255	Al99,5; Al99.5	1B	A5	14407	9001/2	L-3051		AD0	Al99.5; Al99,5; 1050A
21	AA1200; A91200 ; 1200; 1200A	3.0205	Al99,0; Al99.0; Al99	1C	A4	144010	Al99.0	L-3001	A1200	A0	Al99.0; AL99,0; 1200
22	AA2017; A92017; 2017; 2017A	3.1325; 3.1124	AlCu2,5Si(A); AlCu2.5Si(A); AlCuMg1		A-U4G			L-3120		V65	AlCu2,5Si(A); AlCu2.,5Si(A); 2017A
22		3.2315	AlMgSi1	H30	A-SGM0.7	144312	9006/4	L-3453		AD35	AlSiMgMn; 6082
22		3.4345	AlZnMgCuO,5; AlZnMgCuO.5								AlZnMgCu0.5; AlZnMgCu0,5; 7022
22		3.1655	AlCu6BiPb; AlCuBiPb	FC1	A-U5PbBi	144355	9002/5	L-3192	A2011		AlCu6BiPb; 2011
22	AA7075; A97075; 7075	3.4365; 3.4364	AlZn5,5MgCu; AlZn5.5MgCu; AlZnMgCu1,5; AlZnMgCu1.5	7075; L95; L96	A-Z5GU		9007/2	L-3710	A7075	B95	AlZn5.5MgCu; AlZn5,.5MgCu; AW-7075; 7075
22	AA2024; A92024; 2024	3.1355; 3.1354	AlCuMg2	2024; 2L97	A-U4G1		9002/4; 3583	L-3140	A2024	D16	AlCu4Mg1; 2024
22		3.4335	AlZn4,5Mg1; AlZn4.5Mg1	H17	A-Z5G	144425	9007/1	L-3741			AlZn4.5Mg1; AlZn4,5Mg1; 7020
22	AA6061; A96061; 6061	3.3211; 3.3214	AlMg1SiCu	H20	A-GSUC		9006/2	L-3420	A6061	AD33	EN AW-6061; EN AW-AlMg1SiCu; AlMg1SiCu

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
23		3.3261	G-AlMg5Si; GK-AlMg5Si; AlMg5Si; VDS 245	LM5		144163				AL13	EN AC-51400; EN AC-AlMg5Si; G-AlMg5Si; AlMg5Si
23		3.2982	GD-AlSi12(Cu); G-AlSi12(Cu); AlSi12(Cu); VDS 231 D		A-S12U		3048				EN AC-47100; EN AC-AlSi12C; G-AlSi12Cu; AlSi12Cu; AlSi12Cu1(Fe)
23	520.0; AA 520.0; A05200				A-G10S		3056	L-2310	AC7B	A18	
23	222.0; AA 222.0; A02220			LM12			3041	L-2110			
23	518.0; AA 518.0; A05180	3.3292	G-AlMg9; GD-AlMg9; AlMg9; VDS 349								EN AC-51200; EN AC-AlMg9; G-AlMg9; AlMg9
23	203.0; AA 203.0; A02030	3.1754	G-AlCu5Ni1,5; G-AlCu5Ni1.5		AU5NKZr						
23	ER4047; A94047	3.2585	SG-AlSi12	4047A; NG2		144262					SG-AlSi12; EL-AlSi12
23	712.0; AA 712.0; A07120		G-AlZn10Si8Mg; GK-AlZn10Si8Mg; AlZn10Si8Mg; VDS 108		A-Z5GF		3602				EN AC-71100; EN AC-AlZn10Si8Mg; G-AlZn10Si8Mg; AlZn10Si8Mg
23	514.0; 514.1; AA 514.0; AA 514.1; A05140; A05141	3.3561	G-AlMg5; GK-AlMg5; AlMg5; EN AC-51300; VDS 244		A-G6		3058	L-2331		AL28; AMg5Mz;	EN AC-51300; EN AC-AlMg5; G-AlMg5; AlMg5
23	B413.0; AA B413.0; A24130; B213.0; AA 213.0; A22130	3.2581; 3,2582	G-AlSi12; GK-AlSi12; GD-AlSi12; AlSi12	LM6	A-S13	144261	4514	L-2520	AC3		EN AC-44200; EN AC-AlSi12; G-AlSi12; GD-AlSi12; AlSi12
23		3.2211	G-AlSi11; GK-AlSi11; AlSi11								EN AC-44000; EN AC-AlSi11; G-AlSi11
23	A444.0; AA A444.0; A14440									AK7	
23		3.3541	G-AlMg3; GK-AlMg3; GF-AlMg3; AlMg3; VDC 244	H20	A-G3T	144224	3059	L-2341	ADC6		EN AC-51100; EN AC-AlMg3; G-AlMg3; AlMg3
24	515.0; AA 515.0; A05150	3.3241	G-AlMg3Si; GK-AlMg3Si; GF-AlMg3Si; AlMg3Si; AlMg3Si1								G-AlMg3Si1; AlMg3Si
24		3.2373	G-AlSi9Mg; GK-AlSi9Mg; AlSi9Mg		A-S9G		3051		AC4A	AK9	G-AlSi9Mg; AlSi9Mg
24	A356.0; AA A356.0; A13560; A356.2; AA A356.2; A13562	3.2371	G-AlSi7Mg; GK-AlSi7Mg; GF-AlSi7Mg; AlSi7Mg	2L99	A-S7G03			L-2651	AC4CH	AL9	G-AlSi7Mg; AlSi7Mg
24	204.0; AA 204.0; A02040	3.1371	G-AlCu4TiMg; GK-AlCu4TiMg; GF-AlCu4TiMg; AlCu4TiMg		AU5GT			L-2140	AC1B		EN AC-21000; EN AC-AlCu4TiMg; G-AlCu4TiMg
24	A333.0; AA A333.0; A13330	3.2161	G-AlSi8Cu3; GK-AlSi8Cu3			144163				AL13	EN AC-AlSi8Cu3; EN AC-AlSi8Cu3; G-AlSi8Cu3

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
24	380.0; AA 380.0; A03800	3.2163	G-AlSi9Cu3; GD-AlSi9Cu3; AlSi9Cu3; VDS 226	LM24	A-S9U3	144252	3610	L-2630	AC4B	AK8M3; AK8	EN AC-46200; EN AC-AlSi8Cu3; G-AlSi9Cu3; AlSi8Cu3
24	365.0; AA 365.0; A03650		G-AlSi10MnMg								EN AC-43500; EN AC-AlSi10MnMg; G-AlSi10MnMg
24	319.0; AA 319.0; A03190	3.2151	G-AlSi6Cu4; GK-AlSi6Cu4; AlSi6Cu4; VDS 225	LM21	A-S5UZ	144230	7369/4	L-2620	AC2B	AK5M	EN AC-45000; EN AC-AlSi6Cu4; G-AlSi6Cu4; AlSi6Cu4
24		3.2383	G-AlSi10MgCu; GK-AlSi10MgCu; G-AlSi10Mg(Cu); GK-AlSi10Mg(Cu); AlSi10MgCu; AlSi10Mg(Cu)		A-S10UG						
24		3.2381; 3.2385	G-AlSi10Mg; GK-AlSi10Mg; GD-AlSi10Mg; AlSi10Mg; VDS 239		A-S10G	144253					EN AC-43000; EN AC-AlSi10Mg; G-AlSi10Mg; AlSi10Mg
24		3.1841	G-AlCu4Ti; AlCu4Ti							AL19	EN AC-21100; EN AC-AlCu4Ti; G-AlCu4Ti; AlCu4Ti
25	390.0; AA 390.0; A03900		G-AlSi17Cu4Mg	LM30		4282					EN AB-48100; EN AC-48100; G-AlSi17Cu4Mg; AlSi17Cu4Mg
25	393.0; AA 393.0; A03930		G-AlSi20CuMgNi; AlSi20CuMgNi	LM29						AK21M2N2	
25			G-AlSi18Cu1MgNi; AlSi18Cu1MgNi	LM28							
26	C36000	2.0375	CuZn36Pb3	CZ124	CuZn36Pb3		12167		C3600; C3601; C3602		CuZn36Pb3; CW603N
26	C83810	2.1098	CuSn3Zn8Pb5-C; G-CuSn2ZnPb	LG1							CuSn3Zn8Pb5-C
26	C83600	2.1096; 2.1096.01	CuSn5Zn5Pb5-C; G-CuSn5ZnPb; Rg 5	LG2	CuPb5Sn5Zn5; UE5; U-E 5 Pb 5 Z 5	5204-15			H5111; H2203	BrO5Ts5S5	CuSn5Zn5Pb5-C
26	C93200	2.1090	CuSn7Zn4Pb7-C; G-CuSn7ZnPb; GC-CuSn7ZnPb; GZ-CuSn7ZnPb; Rg 7	GC 493K	CuSn7Pb6Zn4; UE7; U-E 7 Z 5 Pb 4						CuSn7Zn4Pb7-C
26	C93800	2.1182	CuSn7Pb15-C; G-CuPb15Sn; GC-CuPb15Sn; GZ-CuPb15Sn	LB1	U-Pb15E8; U-Pb 15 E8			C-3300			CuSn7Pb15-C; CC496K
26	C93700	2.1176	CuSn10Pb10-C; G-CuPb10Sn; GC-CuPb10Sn; GZ-CuPb10Sn	LB2	U-Pb10						CuSn10Pb10-C
27	C22000	2.0230	CuZn10; Ms90	CZ101	U-Z10; CuZn10		P-CuZn10; P-OT90		C2200	L90	CuZn10; CW501L
27	C86200; SAE 430A	2.0596	CuZn34Mn3Al2Fe1-C; G-CuZn34Al2; GK-CuZn34Al2; GZ-CuZn34Al2	HTB 1	U-Z36N3; CuZn19Al6Y20				HBSC4; H5102/class 3; H5102/class 4	LTs23A; LTs23A6Zh3MTs2	CuZn34Mn3Al2 Fe1-C; CC764S
27	C27200	2.0335	CuZn36; Ms64	CZ108	U-Z36; CuZn 36		C 2700			L63	CuZn36; CW507L
27	C27400	2.0321	CuZn37; Ms63	CZ108			P-CuZn37; P-OT63		C2720	L63	CuZn37; CW508L
27	C86400	2.0592	CuZn35Mn2Al1Fe1-C; G-CuZn35Al1; GK-CuZn35Al1; GZ-CuZn35Al1; G-Ms60	HTB 1					HBSC1; CAC301		CuZn35Mn2Al1 Fe1-C; CC765S

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
27	C46400	2.0530	CuZn38Sn1As; CuZn38Sn1	CZ112			P-CuZn39Sn1		C4640	LO60-1	CuZn38Sn1As; CW717R
27	C23000; 85Cu-15Zn	2.0240	CuZn15 ; CuZn 15	CZ102	U-Z15; CuZn15	5112-02; 5112-04; 5112-05			C2300		CuZn15; CW502L
27	C24000; 80Cu-20Zn	2.0250	CuZn20; CuZn 20; Ms80	CZ103	CuZn20	5114-02; 5114-04; 5114-05			C2400		CuZn20; CW503L
27	C26000; CA260	2.0265	CuZn30; CuZn 30	CZ106	CuZn30				C2600		CuZn30; CW505L
28	C63000	2.0966	CuAl10Ni5Fe4; CuAl 10 Ni 5 Fe 4	CA 104	U-A10N; CuAl9Ni5Fe3		P-CuAl10Ni5Fe5		C6301	BrAD; BrAZhN10-4-4; N10-4-4	CuAl10Ni5Fe4; CW307G
28	C90700	2.1050	CuSn10-C; G-CuSn 10; SnBz10	CT1	CuSn8						CuSn10-C; CC480K
28	C90800; C91700	2.1052; 2.1052.01; 2.1052.04; 2.1052.03	CuSn12-C; G-CuSn12; GZ-CuSn12; SnBz12, Gbz12	PB2	UE12P				CAC502C; PBC2C		CuSn12-C; CC483K
28	C95800; C95810	2.0975	G-CuAl10Fe5Ni5-C; G-CuAl 10 Ni; NiAlBz-F60		CuAl10Fe5Ni5 Y70				CAC703C		CC333G
28	C11000	2.0060	Cu-ETP; E-Cu57; E Cu 57	C101	Cu-B		Cu-DHP	C11020	C1100	M1	Cu-ETP; E-Cu57; CW004A
28	C81500	2.1292	G-CuCrF 35	CC1-FF	U-Cr0.8Zr						
28	C10300	2.0070	Cu-HCP; Cu-PHC; SE-Cu						C103	LS60-2	Cu-HCP; CW020A; Cu-PHC; CW021A
28	C10100; C10200	2.0040	Cu-OF; OF-Cu	C103; C110	Ci-c1; Cu-c2			C-1120	C1011; C1020	M0b	Cu-OF; CW008A
28	C86550	2.0590	G-CuZn40Fe; G-SoMsF30								G-CuZn40Fe
28	C18100; C18150	2.1293	CuCr1Zr; CuCrZr	CC102	U-C1Z; U-Cr0.8Zr						CuCr1Zr; CW106C
28	C11000; C12200	2.0090	Cu-DHP; E-Cu58; E Cu 58 SF-Cu	C106	Cu-B				C1100; C1220	M1f	Cu-DHP; E-Cu58; CW024A
28	C95500	2.0971	CuAl9Ni3Fe2		UA9					BrA10Zh4N4L	
28	C61000	2.0920	CuAl8; Cu Al 8		CuAl8					BrA7	CuAl8
29											
29											
30											
30											
31	330; N08330	1.4864	X12NiCrSi35-16; X12NiCrSi36-16; X12 NiCrSi 36 16	NA 17; INCOLOY alloy DS	Z 20 NCS 33-16; Z 12 NCS 37-18; Z 12 NCS 35-16			F.3313	SUH 330		
31	N08002; N08004; N08005; N08030	1.4865	GX40NiCrSi38-19 GX40NiCrSi38-18; G-X40 NiCrSi38 18	330 C 11; 330 C 40; 331 C 40			GX 50 NiCr 39 19		SCH 15; SCH 16		GX40NiCrSi38-18
31		1.4558	X2NiCrAlTi32-20; X2 NiCrAlTi 32 20	NA 15					NCF 800		X2NiCrAlTi32-20
31	N08031	1.4562	X1NiCrMoCu32-28-7; X1 NiCrMoCu 32 28 7								X1NiCrMoCu 32-28-7
31		1.4958	X5NiCrAlTi31-20; X5 NiCrAlTi 31 20	NA 15					NCF 800 H; NCF 718		X5NiCrAlTi31-20
31	N08811	1.4959	X8NiCrAlTi32-21; X8 NiCrAlTi 32 21	NA 15; NA 15 H	Z 8 NC 33-21; Z 10 NC 32-21						X8NiCrAlTi32-21

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	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
31	N08028	1.4563	X1NiCrMoCu31-27-4; X1 NiCrMoCu 31 27 4		Z 2 NCDU 31-27; Z 1 NCDU 31-27-03	2584				EK77; ChN30MDB	X1NiCrMoCu 31-27-4
31	B 163; N08800; N08810; N08332; N08811	1.4876	X10NiCrAlTi32-21; X10NiCrAlTi32-20; X10 NiCrAlTi 32 20	NA 15; NA 15 H	Z 10 NC 32-21; Z 8 NC 33-21			F.3314; F.3545	NCF 800; NCF 800 TB; NCF 800 TP		X10NiCrAlTi32-21
32	S590; J 467	1.4977	X40CoCrNi20-20; X40 CoCrNi 20 20		Z 42 CNKDWNb						
32	660; S66286	1.4980	X6NiCrTiMoVB25-15-2; X5NiCrTi26-15 X6 NiCrTiMoVB 25 15 2; X5 NiCrTi 26 15	HR 51; HR 52	Z 3 NCT 25; Z 6 NCTDV 25.15 B						X6NiCrTiMoVB 25-15-2; X5NiCrTi26-15
32		1.4943; 1.4944	X4NiCrTi25-15; X5NiCrTi26-15	HR 51	Z 6 NCTDV 25-15 B	2570					X4NiCrTi25-15; X5NiCrTi26-15
32	661; R30155	1.4971	X12CrCoNi21-20; X12 CrCoNi 21 20								X12CrCoNi21-20
32	Haynes 556; R30556										
33	Incoloy 825; N08825;	2.4858	NiCr21Mo	NA 16	NC 21 Fe DU					ChN38VT	
33	Hastelloy C-4; N06455	2.4610	NiMo16Cr16Ti								
33	Nimonic 75; N06075; AMS 5715	2.4630; 2.4951	NiCr20Ti	HR 5; HR 203-4	NC 20 T						
33	Inconel 625; N06625; AMS 5666	2.4856	NiCr22Mo9Nb	NA 21	NC 22 FeDNb						
33	Inconel 690; N06690	2.4642	NiC29Fe		NC 30 Fe						
33	Monel 400; N04400	2.4360; 2.4361	NiCu30Fe	NA 13	NU 30						
33	Hastelloy X; N06002; 5390A; AMS 5754; AMS 5536	2.4603; 2.4665	NiCr30FeMo; NiCr22Fe18Mo; NiCr21Fe18Mo9	HR 6	NC 22 FeD						
33	Inconel 617; N06617; AMS 5887	2.4663a	NiCr23Co12Mo		NC 14 K 9 T 5 DWA						
33	Nimonic 90; N07090; AMS 5829	2.4632; 2.4969	NiCr20Co18Ti; NiCr 20 Co 18 Ti	HR 2; HR202; HR 402; HR 501; HR 502; HR 503	Z 8 NCDT 42						NiCr20Co18Ti
33	Haynes 214; NO7214	2.4646	NiCr16Al								
33	Rene 41; N07041; AMS 5712; AMS 5713	2.4973	NiCr19Co11MoTi; NiCr 19 CoMo		NC 19 KDT						
33	Hastelloy B2; N10665	2.4617; 2.4616; 2.4615	NiMo28; EL-NiM29; SG(UP)-NiMo27						YNiMo-7		NiMo28
33	Udimet L-605; R30605	2.4964	CoCr20W15Ni								
33	Monel R-405; N04405	2.4360; 2.4361	NiCu30Fe	NA 13	NU 30						
33	Inconel 600; N06600; AMS 5665	2.4816	NiCr15Fe8; NiCr 15 Fe	NA 14	NC 16 FeT					ChN78T	NiCr15Fe8
33	Inconel 601; N06601	2.4851	NiCr23Fe15A; NiCr 23 Fe		N C 23 FeA					ChN60Yu	NiCr23Fe15A
33	Nimonic 263; N07263; AMS 5872; AMS 5886	2.4650	NiCo20Cr20MoTi; NiCo 20 Cr 20 MoTi MoTi	HR 10; HR 206; HR 404	NCK 20 D						NiCo20Cr20MoTi

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34	Haynes 188; Jetalloy 209; R30188; AMS 5772	2.4964	CoCr22W14Ni		KC22WN						
34	Monel K-500; N05500	2.4375	NiCu30Al3Ti; NiCu 30 Al	NA 18	NU 30 AT						NiCu30Al3Ti
34	Inconel 718; N07718; AMS 5596; AMS 5589	2.4668	NiCr19Nb5Mo3; NiCr 19 NbMo; NiCr19Fe19Nb5Mo3	HR 8	NC 19 Fe Nb						NiCr19Nb5Mo3
34		2.4955	NiFe25Cr20NbTi; NiFe 25 Cr 20 NbTi		NiFe25Cr20NbTi						NiFe25Cr20NbTi
34	Incoloy 925; N09925	2.4670									
34	Nimonic 901; N09901; AMS 5660; AMS 5661	2.4662	NiFe35Cr14MoTi; NiCr13Mo6Ti3; NiCr 13 Mo 6 Ti 3		Z8 NCDT 42						
34	Udimet 500; N07500; AISI 684	2.4983	NiCr18Co18MoAlTi		NCK 19 DAT						NiCr18Co18MoAlTi
34	Nimonic 80A; N07080	2.4631; 2.4952	NiCr20TiAl; NiCr 20 TiAl	HR 401; HR 601	NC 20 TA				NCF 80 A	ChN77TYuR; ChN56VMTYu	NiCr20TiAl
34	Jetalloy 209; AMS 5772		CoCr22W14Ni		KC 22 WN						
34	Altemp S-816	2.4989	CoCr20Ni20W							Altemp S-816	
34	MAR-M 246	2.4675	NiCr23Mo16Cu; NiCr 23 Mo 16 Cu								NiCr23Mo16Cu
34	Inconel 722; N07722; AMS 5411										
34	Waspaloy; N07001; AISI 685; AMS 5704; AMS 5706; AMS 5708; AMS 5544	2.4654	NiCr20Co13Mo4Ti3AL; NiCr 19 Co 14 Mo 4 Ti		NC 20 K 14						NiCr20Co 13Mo4Ti3AL
34	Rene 80				NC14 K9 T5 DWA						
35	5388C; N30002; CW-12MW;	2.4883	G-NiM16CrW								
35	N7M; N-7M; N30007	2.4685	G-NiMo28		ND 30 M						
35	N12MV; N-12MV; N30012	2.4882; 9.4810; 2.4810/9.4810	G-NiMo30								
35	Nimocast PK24; N13100; AMS 5397	2.4674	G-NiCo15Cr10AlTiMo	HC 204	NK 15 CAT						
35	Jethete M-252; N07252; AMS 5551	2.4916	G-NiCr19Co; G-NICR 19 Co								
35	Nimocast 713; N07713; AMS 5391; Inconel 713LC	2.4670	G-NiCr13Al6MoNb	HC 203	NC 13 AD						
35	M-35-1; N214135	2.4365; 2.4365/9.4365	G-NiCu40Nb						NiCuC		
36	Titanium Grade 1; R50250; ASTM GR. 1	3.7024; 3.7025	Ti 1; Ti 99.8	TA1	T-35		Ti1-Type 1	Ti-PO1	Class 2; Gr-1	VT1-00	Ti 99.8

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
36	Titanium Grade 2; R50400; AMS 4902; AMS 4941; AST M Gr. 2	3.7034; 3.7035; 3.7036	Ti 2; Ti 99.7	TA2; TA3; TA4; TA5	T-40		Ti1-Type 2	Ti-PO2	Class 2; Gr-2	VT1-0	Ti 99.7
36	Titanium Grade 3; R50500; ASTM Gr. 3	3.7055; 3.7056	Ti 3; Ti 99.6	DTD 5023, DTD 5273	T-50		Ti1-Type 3		Class 3; Gr-3		Ti 99.6
36	Titanium Grade 4; R50700; ASTM Gr. 4	3.7064; 3.7065; 3.7066	Ti 4; Ti 99.5	TA7; TA8; TA9	T-60		Ti1-Type 4		Class 4; Gr-4		Ti 99.5
36	Titanium Grade 7; R52400; Ti-0.15Pd	3.7235					Ti2Pd-Type 7		Class 13; Gr-13		
37	Titanium Grade 5; R56400; Ti-6Al-4V	3.7165; 3.7164	Ti6Al4V	TA10; TA11; TA12; TA13; TA 28; TA56; Ti-Al-V	TA6V; T-A 6 V; Ti-P.63		TiAl6V4-Type 5	Ti-P63	Class 6 0; Gr 6 0; SAT-64	VT6	Ti6Al4V
37	Titanium Grade 6Al-2Sn-4Zr-2Mo; R54620; 6Al-2Sn-4Zr-2Mo	3.7145; 3.7144	TiAl6Sn2Zr4Mo2							VT25	TiAl6Sn2Zr4Mo2
37		3.7175; 3.7174	TiAl6V6Sn2								
37	Titanium Grade 9; R56320; Ti-3Al-2.5V	3.7195; 3.7194	Ti6Al2.5V				TiAl3V2.5-Type 9		Class 6 1; Gr 6 1	PT-3V	Ti6Al2.5V
37		3.7124	TiCu2	TA 21; TA22; TA23; TA24	T-U2			Ti-P11			
37		3.7185; 3.7184	Ti4Al4Mo2Sn; TiAl4Mo4Sn4Si0.5	TA45; TA46; TA47; TA48; TA49; TA50; TA57	T-A4DE			Ti-P68			
37	Titanium Grade 6; R54520; Ti-5Al-2.5Sn	3.7115.1; 3.7115	TiAl5Sn2.5; TiAl 5 Sn 22	TA14; TA17	T-A5E; Ti-P.65				SAT-525	VT5-1	TiAl5Sn2.5
37	R56410; Ti-10V-2Fe-3Al										
37	Titanium grade 23; R56401; Ti-6Al-4V-ELI		Ti6Al4V ELI	TA11			TiAl6V4ELI-Type 5.1		Class 6 1; Gr 6 1		
37										VST 5553	Ti5Al5V5Mo3Cr; Ti-5Al-5V-5Mo-3Cr
37	Ti-4Al-3Mo-1V				T-A4D3V					VT14	
37										VT22	
38		1.2762	75CrMoNiW6-7; 75 CrMoNiW 6 7								75CrMoNiW6-7
38	W1; T72301	1.1625	C80W2; C 80 W2	BW 18				F.520.U; F.5107; C 80	SK 75; SK 85; SK 85 M; SK 5; SK 5 M; SK 6	U8-1	C80W2
38	W110; T72301	1.1545	C105U; C 105 W 1; C 105 U		C 105 E 2 U; Y1 105; C105E2U	1880	C 100 KU	F.515; F.516	SK 105; SK 3; TC 105	U10A-1; U10A-2; U11-1	C105U

Material Group No.	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
38		1.6746	32NiCrMo14-5; 32 NiCrMo 14-5	832 M 31	35 NCD 14			F.1262-32 NiCrMo 12			32NiCrMo14-5
38	W210; T72302	1.2833	100V1; 100 V 1	BW 2	C 105 E 2 UV 1; Y1 105 V; 100 V 2		102 V 2 KU		SKS 43		100V1
38	6145; 6150; 6150 H; G61500; H61500	1.8159	51CrV4; 50CrV4; 50 CrV 4	735 A 50; 735 A 51; 735 H 51; 735 M 50; En 47	50CrV4RR; 50 CV 4; 51 CV 4	2230	50 CrV 4	F.143; F.143.A; 51 CrV 4; F.1430	SUP 10; SUP 10-CSP; SUP 10 M	50ChFA; 50ChGFA	51CrV4
38	P20; T51620	1.2330	35CrMo4; 35 CrMo 4	708 A 37	34 CD 4	2234	35 CrMo 4				35CrMo4
38											
38											
38											
38											
38		1.8721	26MnCr6-3								26MnCr6-3
38											
38											
38											
38		1.2083; 1.2083 ESR	X40Cr14; X 42 Cr 13		X40Cr14; Z 40 C 14	2314	X 41 Cr 13 KU	F.5263; X 40 Cr 13	SUS 420 J 2		X40Cr14
38	300M; 4340M; K44220	1.6928	41SiNiCrMoV7-6								S 155
38										30ChGSA	
39	A2; T30102	1.2363	X100CrMoV5; X100CrMoV5-1; X 100 CrMoV 5 1	BA 2	X 100 CrMoV 5; Z 100 CDW 5	2260	X 100 CrMoV 5 1 KU	F.536; F.5227; X 100 CrMoV 5	SKD 12		X100CrMoV5
39	D2; T30402	1.2379	X153CrMoV12; X155CrVMo12-1; X155 CrVMo 12 1	BD 2	X 160 CrMoV 12; Z 160 CDV 12	2310	X 155 CrVMo 12 1 KU	F.520.A	SKD 10; SKD 11		X153CrMoV12
39	D3; T30403	1.2080	X210Cr12; X 210 Cr 12	BD 3	X200Cr12; Z 200 C 12		X 205 Cr 12 KU	F.521; F.5212; X 210 Cr 12	SKD 1	Ch12	X210Cr12
39	L3; T61203	1.2067	102Cr6; 102 Cr 6; 100 Cr 6	BL 3; BL3	100Cr6RR; 100 C 6; 100Cr6; Y 100 C 6		102 Cr 6 KU	F.5230; 100 Cr 6	SUJ 2	Ch	102Cr6
39	M1; H41; T11301; T20841	1.3346	HS2-9-1; S 2-9-1	BM 1	HS 2-8-1; Z 85 DCWV 08-04-02-01						HS2-9-1
39	T1; T12001	1.3355	HS18-0-1; S 18-0-1	BT 1	18-0-1; HS 18-0-1; Z 80 WCV 18-04-01	2750	HS 18-0-1	F.5520; HS 18-0-1	SKH 2	R18	HS18-0-1
39	O2; T31502	1.2842	90MnCrV8; 90 MnCrV 8	BO 2; BO2	90 MnV 8; 90 MV 8		90 MoVCr 8 KU	90 MnCrV 8; F.5229			90MnCrV8
39	H13; T20813	1.2344	X40CrMoV5-1; X40 CrMoV 5 1	BH 13	X 40 CrMoV 5; Z 40 CDV 5	2242	X 40 CrMoV 5 1 1 KU	F.5318; X 40 CrMoSiV 5	SKD 61	4Ch5MF1S	X40CrMoV5-1
39											
39											
39											
39											
39											
39	440C; S44004; S44025	1.4125	X105CrMo17; X105 CrMo 17		Z 100 CD 17 Cl; Z 100 CD 17				SUS 440 C	95Ch18; 110Ch18M-SChD	X105CrMo17
40	A 532 III A 25% Cr	0.9650	G-X 260 Cr 27	Grade 3 D		0466-00				ChWG	
40	Ni-Hard 4	0.9630	G-X 300 CrNiSi 9 5 2								
40	Ni-Hard 1	0.9625	G-X 330 NiCr 4 2	Grade 2 B		0513-00					
40	A 532 III A 25% Cr	0.9655	G-X 300 CrMo 27 1	Grade 3 E						20Ch25N20S2	
40	Ni-Hard 2	0.9620	G-X 260 NiCr 4 2	Grade 2 A		0512-00					

Material Group No.											
	USA	Germany		U.K.	France	Sweden	Italy	Spain	Japan	Russia	EURONORM
	AISI/SAE/ UNS/ ASTM/AA	Werkstoff	DIN	BS	AFNOR	SS	UNI	UNE	JIS	GOST	EN
41	A532 IID20%CrMo-LC	0.9645; 5.5609	G-X 260 CrMoNi 20 2 1	Grade 3C							EN-GJN-HV600(XCr23)
41	A532 IIC15%CrMo-HC	0.9635; 0.9640	G-X 300 CrMo 15 3; G-X 300 CrMoNi 15 2 1	Grade 3A; Grade 3B							EN-GJN-HV600(XCr14)

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