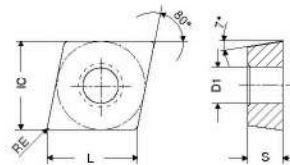


CCGT / CCMT / CCXT

Designation	L	S	D1	IC
	mm	mm	mm	mm
CC.T 0602..	6.4	2.38	2.8	6.35
CC.T 09T3..	9.7	3.97	4.4	9.52
CC.T 1204..	12.9	4.76	5.5	12.70



CCGT / CCMT

ISO	RE	-CF05 CTEP110		-SF TCM10		-SF TCM407		-SF CTCP125		-SF CTCP135		-SF CTCP115		-SF CTCP125	
		Article no. 76 247 ...	£	Article no. 70 251 ...	£	Article no. 70 251 ...	£	Article no. 76 251 ...	£	Article no. 76 251 ...	£	Article no. 76 253 ...	£	Article no. 76 253 ...	£
060202EN	0.2	12.60	002	12.21	900	12.21	850	12.60	502	12.60	702				
060204EN	0.4	12.60	004	12.21	902	12.21	852					7.07	304	7.07	504
09T302EN	0.2	13.43	014	12.60	904	12.60	854								
09T304EN	0.4	13.43	016	12.60	906							8.82	316	8.82	516
09T308EN	0.8	13.43	018	12.60	908							8.82	318	8.82	518
120404EN	0.4			15.76	910									12.42	528
120408EN	0.8													12.42	530
Steel		●		●		●		●		●		●		●	
Stainless steel		○		○		○		○		○		○		○	
Cast iron		○		○		○		○		○		○		○	
Non ferrous metals															
Heat resistant alloys										○					

CCMT / CCGT

		-SF CTCP135	-CF55 CTEP110	-SMF TCM10	-SMF CTCP115	-SMF CTCP125	-SMF CTCP135	-SM CTCP125
		-ZF HCR1135	-PF15 DCC1110	-SMF CWC10	-SMF HCX1115	-SMF HCX1125	-SMF HCR1135	-ZM HCX1125
		DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	F	F	F	F	M
		CCMT	CERMET CCMT	CERMET CCMT	CCMT	CCMT	CCMT	CCGT
		1A/08	1A/78	1A/78	1A/08	1A/08	1A/08	1A/08
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	76 253 ...	76 248 ...	70 249 ...	76 249 ...	76 249 ...	76 249 ...	76 250 ...
		£	£	£	£	£	£	£
060202EN	0.2							12.60 502
060204EN	0.4	7.07 704	6.85 004	6.62 900		7.07 504	7.07 704	
060208EN	0.8					7.07 506		
09T304EN	0.4	8.82 716	8.80 016	8.21 904	8.82 316	8.82 516	8.82 716	
09T308EN	0.8		8.80 018	8.21 906	8.82 318	8.82 518		
120404EN	0.4		12.42 028			12.42 528		
120408EN	0.8				12.42 330		12.42 730	
Steel		●	●	●	●	●	●	●
Stainless steel		○	○		○	○	○	○
Cast iron			○	○	○	○		○
Non ferrous metals								
Heat resistant alloys		○					○	

CCGT / CCMT

		-SM CTCP135	-SM CTCK110	-SM CTCK120	-SM CTCP115	-SM CTCP125	-SM CTCP135	-SMQ CTCP115
		-ZM HCR1135	-ZM DCX3110	-ZM HCF3120	-ZM HCX1115	-ZM HCX1125	-ZM HCR1135	-SMQ HCX1115
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		M	M	M	M	M	M	F
		CCGT	CCMT	CCMT	CCMT	CCMT	CCMT	CCMT
		1A/08	1A/08	1A/08	1A/08	1A/08	1A/08	1A/08
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	76 250 ...	70 252 ...	70 252 ...	76 252 ...	76 252 ...	76 252 ...	76 194 ...
		£	£	£	£	£	£	£
060202EN	0.2	12.60 702						
060204EN	0.4		7.07 004	7.07 554	7.07 304	7.07 504	7.07 704	
060208EN	0.8		7.07 006	7.07 506	7.07 306		7.07 706	
09T304EN	0.4		8.82 016	8.82 516	8.82 316	8.82 516	8.82 716	9.92 31600
09T308EN	0.8		8.82 018	8.82 518	8.82 318	8.82 518	8.82 718	9.92 31800
09T312EN	1.2		8.82 020	8.82 520				
120404EN	0.4		12.42 028	12.42 528	12.42 328	12.42 528	12.42 728	13.94 32800
120408EN	0.8		12.42 030	12.42 530	12.42 330	12.42 530	12.42 730	13.94 330
120412EN	1.2					12.42 532		
Steel		●	●	●	●	●	●	●
Stainless steel		○	○		○	○	○	○
Cast iron			●	●	○	○		○
Non ferrous metals								
Heat resistant alloys		○					○	

CCMT / CCXT

		-SMQ CTCP125	-SF CTC2135	-F43 CTC2135	-M81 CWN2120	-M25 CTPM125	-SM CTC2135	-M55 CTPM125
		-SMQ HCX1125	-ZF CWN2135	-F43 CWN2135		-PF23 HCN2125	-ZM CWN2135	-PF26 HCN2125
		DRAGONSKIN				DRAGONSKIN		DRAGONSKIN
		F	F	F	M	F	M	F
		CCMT	CCMT	CCMT	CCXT	CCMT	CCMT	CCMT
		1A/08	1A/08	1A/08	1A	1A/08	1A/08	1A/08
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	£	£	£	£	£	£	£
060202FN	0.2	76 194 ...	70 253 ...	70 185 ...	70 254 ...	75 210 ...	70 252 ...	75 211 ...
060204EN	0.4		6.85 460		8.76 100	7.07 204	6.85 670	7.07 204
060204FN	0.4				8.76 102			
09T302FN	0.2				8.57 104			
09T304EN	0.4	9.92 516	8.80 464	8.80 460	8.57 106	8.82 216	8.80 674	8.82 216
09T304FN	0.4				8.57 106			
09T308EN	0.8	9.92 518		8.80 462	8.57 108	8.82 218	8.80 676	8.82 218
09T308FN	0.8							
120404EN	0.4	13.94 528					12.42 678	12.42 228
120408EN	0.8	13.94 530					12.42 680	12.42 230
Steel		●	○	○	○	○	○	○
Stainless steel		○	●	●	●	●	●	●
Cast iron		○						
Non ferrous metals					○			
Heat resistant alloys			●	●			●	

9

CCGT

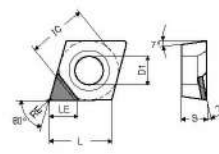
		-23P H216T	-25P H210T	-25P AMZ	-25Q H210T	-25Q AMZ	-27 H10T	-27 CWN15
		-23P CWK26	-25P CWK20	-25P AMZ	-25Q CWK20	-25Q AMZ	-AL CWK15	-AL CWN15
		F	F	F	M	M	M	M
		CCGT	CCGT	CCGT	CCGT	CCGT	CCGT	CCGT
		1A/90	1A/90	1A/90	1A/90	1A	1A/90	1A
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	£	£	£	£	£	£	£
060202FN	0.2	70 255 ...	70 248 ...	70 248 ...	70 248 ...	70 248 ...	70 254 ...	70 254 ...
060204FN	0.4	9.92 652	9.92 636	11.80 556	10.78 678	14.25 618	9.29 600	11.79 300
		9.92 654	9.92 638	11.80 558			9.29 602	11.79 302
09T302FN	0.2		10.38 639	12.10 539			9.92 604	12.19 304
09T304FN	0.4	10.38 656	10.38 640	12.10 560	11.39 680	14.94 620	9.92 606	12.19 306
09T308FN	0.8	10.38 658	10.38 641	12.10 541	11.39 681	14.94 621	9.92 608	12.19 308
120402FN	0.2		12.10 643				11.59 610	14.15 310
120404FN	0.4		12.10 642	15.45 562	13.43 682	16.80 622	11.59 612	14.15 312
120408FN	0.8		12.10 644	15.45 564	13.43 686	16.80 626	11.59 614	14.15 314
Steel				○		○		
Stainless steel				○		○		○
Cast iron		○	○	○	○	○	○	○
Non ferrous metals		●	●	●	●	●	●	●
Heat resistant alloys		○	○		○		○	

CCGT / CCMT

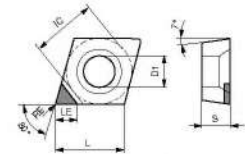
ISO	RE mm	-27 AMZ		-29 H216T		-29 AMZ		-F23 CTP2120	
		-AL AMZ						-F23 CCN2120	
		M CCGT		M CCMT		M CCMT		F CCGT	
		1A/90		NEW 1A/90		NEW 1A/90		1A/08	
		Article no. 70 254 ...		Article no. 70 245 ...		Article no. 70 245 ...		Article no. 70 191 ...	
		£		£		£		£	
060200FN	0.0							12.60	600
060201FN	0.1							12.60	602
060202FN	0.2	11.29	450						
060204EN	0.4			7.15	60400	8.55	40400		
060204FN	0.4	11.29	452						
09T300FN	0.0							14.55	604
09T301FN	0.1							14.55	606
09T302FN	0.2	11.59	454						
09T304EN	0.4			7.61	61600	8.83	41600		
09T304FN	0.4	11.59	456						
09T308EN	0.8			7.61	61800	8.83	41800		
09T308FN	0.8	11.59	458						
120402FN	0.2	14.45	460						
120404FN	0.4	14.45	462						
120408FN	0.8	14.45	464						
Steel			○				○		
Stainless steel			○				○		●
Cast iron			○	○		○		○	
Non ferrous metals		●		●		●		○	
Heat resistant alloys				○					●

CCGW / CCGT

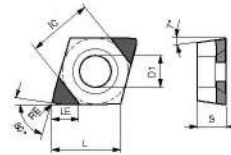
Designation	L	S	D1	IC
	mm	mm	mm	mm
CCG. 0602..	6.40	2.38	2.8	6.35
CCGW 09T3..	9.70	3.97	4.4	9.52
CCGW 1204..	12.90	4.76	5.5	12.70



CCGT -A

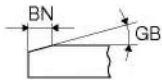


CCGW -A



CCGW-Q-B / -B
(CCGW -2MC / -2Q)

CCGW / CCGT

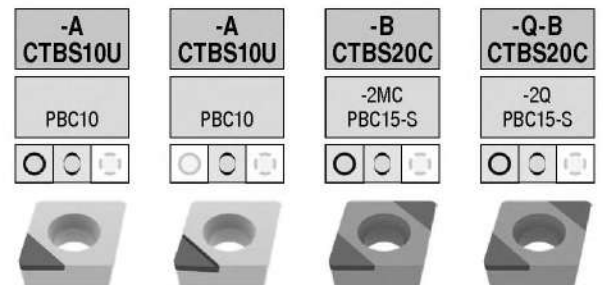
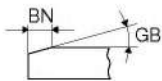


-A CTBS10U	-A CTBS10U	-B CTBS20C	-Q-B CTBS20C
PBC10	PBC10	-2MC PBC15-S	-2Q PBC15-S
F	F	F	F
CBN CCGW Y0	CBN CCGT Y0	CBN CCGW Y0	CBN CCGW Y0
Article no. 71 120 ...	Article no. 71 124 ...	Article no. 71 161 ...	Article no. 71 162 ...
£	£	£	£

ISO	RE	GB	BN	LE				
	mm	°	mm	mm				
060202SN	0.2	10	0.09	3.4				73.32 120
060202SN	0.2	15	0.11	3.4				73.32 130
060202TN	0.2	20	0.14	3.4	62.03	300		
060202TN	0.2	20	0.15	3.4				73.32 140
060202SN	0.2	20	0.16	3.4			73.32 150	73.32 150
060202TN	0.2	25	0.17	3.4			73.32 160	73.32 160
060202FN	0.2			3.4	62.03	200	76.10 200	
060202EN	0.2			3.4			73.32 110	73.32 110
060204SN	0.4	10	0.09	3.1			73.32 121	73.32 121
060204SN	0.4	15	0.11	3.1			73.32 131	73.32 131
060204TN	0.4	20	0.14	3.1	62.03	302		
060204TN	0.4	20	0.15	3.1			73.32 141	73.32 141
060204SN	0.4	20	0.16	3.1			73.32 151	73.32 151
060204TN	0.4	25	0.17	3.1			73.32 161	73.32 161
060204SN	0.4	25	0.18	3.1			73.32 171	73.32 171
060204FN	0.4			3.1	62.03	202	76.10 202	
060208SN	0.8	10	0.09	2.8			73.32 122	
060208SN	0.8	15	0.11	2.8			73.32 132	
060208TN	0.8	20	0.15	2.8			73.32 142	
060208TN	0.8	25	0.17	2.8			73.32 162	
060208SN	0.8	25	0.18	2.8			73.32 172	
060208SN	0.8	30	0.18	2.8			73.32 182	
060208EN	0.8			2.8			73.32 112	
09T302SN	0.2	10	0.09	3.4			73.32 123	
09T302SN	0.2	15	0.11	3.4			73.32 133	
09T302SN	0.2	20	0.16	3.4			73.32 153	
09T302TN	0.2	25	0.17	3.4			73.32 163	
09T302SN	0.2	25	0.18	3.4			73.32 173	
09T302EN	0.2			3.4			73.32 113	

Cast iron	•	•	•	•
Sintered steels	•	•	•	•
Heat resistant alloys	•	•	•	•
hardened < 45 HRC				
hardened 46-55 HRC				
hardened 56-60 HRC				
hardened 61-65 HRC				

CCGW / CCGT



F
CBN
CCGW
Y0

F
CBN
CCGT
Y0

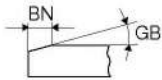
F
CBN
CCGW
Y0

F
CBN
CCGW
Y0

ISO	RE mm	GB °	BN mm	LE mm	Article no. 71 120 ... £	Article no. 71 124 ... £	Article no. 71 161 ... £	Article no. 71 162 ... £
09T304EN	0.4			3.1				
09T304SN	0.4	10	0.09	3.1			73.32 114	
09T304SN	0.4	15	0.11	3.1			73.32 124	73.32 124
09T304TN	0.4	20	0.14	2.8	62.03 304		73.32 134	73.32 134
09T304TN	0.4	20	0.15	3.1			73.32 144	73.32 144
09T304SN	0.4	20	0.16	3.1			73.32 154	73.32 154
09T304TN	0.4	25	0.17	3.1			73.32 164	73.32 164
09T304SN	0.4	25	0.18	3.1			73.32 174	73.32 174
09T304SN	0.4	30	0.18	3.1			73.32 184	
09T304FN	0.4			2.8	62.03 204			
09T308SN	0.8	10	0.09	2.8			73.32 125	73.32 125
09T308SN	0.8	15	0.11	2.8				73.32 135
09T308TN	0.8	20	0.14	2.5	62.03 306			
09T308TN	0.8	20	0.15	2.8			73.32 145	73.32 145
09T308SN	0.8	20	0.16	2.8			73.32 155	73.32 155
09T308TN	0.8	25	0.17	2.8			73.32 165	73.32 165
09T308SN	0.8	25	0.18	2.8			73.32 175	
09T308SN	0.8	30	0.18	2.8			73.32 185	
09T308FN	0.8			2.5	62.03 206			
09T308EN	0.8			2.8				73.32 115
120404FN	0.4			3.1	52.75 208			
120404TN	0.4	20	0.14	3.1	52.75 308			
120408FN	0.8			2.8	52.75 210			
120408TN	0.8	20	0.14	2.8	52.75 310			

Cast iron	•	•	•	•
Sintered steels	•	•	•	•
Heat resistant alloys	•	•	•	•
hardened < 45 HRC				
hardened 46-55 HRC				
hardened 56-60 HRC				
hardened 61-65 HRC				

CCGW



-B
CTBH15U

-B
CTBH15C

-Q-B
CTBH15C



F
CBN
CCGW

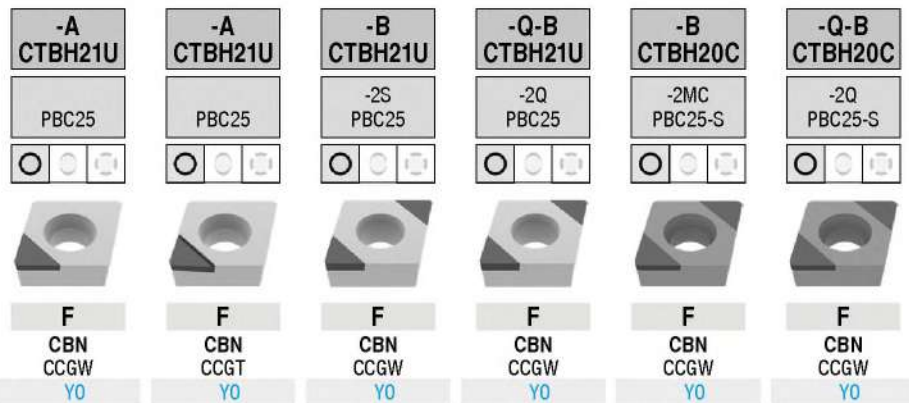
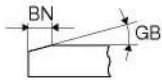
F
CBN
CCGW

F
CBN
CCGW

ISO	RE mm	GB °	BN mm	LE mm	NEW		NEW		NEW	
					YO	Article no.	YO	Article no.	YO	Article no.
060202SN	0.2	15	0.11	3.4		71 001 ...		71 000 ...		71 002 ...
060202EN	0.2			3.4	£	30214	£	30214		
060204SN	0.4	15	0.11	3.1	82.40	30414	79.70	30414		
060204SN	0.4	25	0.13	3.1	82.40	30429	79.70	30429		
060204EN	0.4			3.1	82.40	00400	79.70	00400		
060208EN	0.8			2.8	82.40	00600	79.70	00600		
060208SN	0.8	15	0.11	2.8	82.40	30614	79.70	30614		
060208SN	0.8	25	0.13	2.8	82.40	30629	79.70	30629		
09T302SN	0.2	15	0.11	3.4			79.70	31414		
09T302SN	0.2	25	0.13	3.4			79.70	31429		
09T304SN	0.4	15	0.11	3.1			79.70	31614	92.45	31614
09T304SN	0.4	25	0.13	3.1			79.70	31629	79.70	31629
09T308SN	0.8	15	0.11	2.8			79.70	31814	79.70	31814
09T308SN	0.8	25	0.13	2.8			79.70	31829	79.70	31829

Cast iron			
Sintered steels			
Heat resistant alloys			
hardened < 45 HRC	•	•	•
hardened 46-55 HRC	•	•	•
hardened 56-60 HRC	•	•	•
hardened 61-65 HRC			

CCGW / CCGT

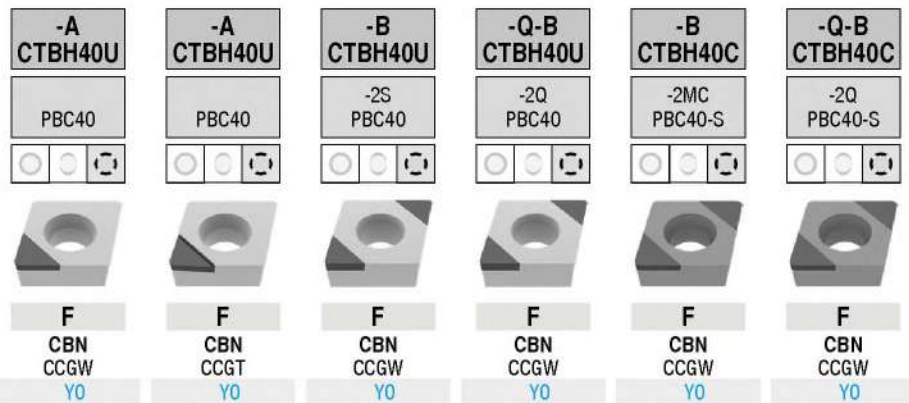
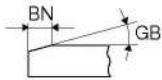


ISO	RE mm	GB °	BN mm	LE mm	-A CTBH21U		-B CTBH21U		-Q-B CTBH21U		-B CTBH20C		-Q-B CTBH20C	
					Article no. 71 120 ...	Article no. 71 124 ...	Article no. 71 121 ...	Article no. 71 123 ...	Article no. 71 161 ...	Article no. 71 162 ...				
060202SN	0.2	10	0.09	3.4						73.32	230	73.32	230	
060202SN	0.2	15	0.11	3.4								73.32	240	
060202SN	0.2	20	0.09	3.4						73.32	250			
060202TN	0.2	20	0.14	3.4	62.03	500								
060202TN	0.2	25	0.14	3.4						73.32	260			
060202EN	0.2			3.4								73.32	220	
060202SN	0.2	25	0.15	3.4						73.32	270			
060202FN	0.2			3.4	62.03	400 1)	76.10	400				73.32	210	
060204EN	0.4			3.1						73.32	221			
060204SN	0.4	10	0.09	3.1						73.32	231	73.32	231	
060204SN	0.4	15	0.11	3.1						73.32	241	73.32	241	
060204SN	0.4	20	0.09	3.1						73.32	251	73.32	251	
060204TN	0.4	20	0.14	3.1	62.03	502								
060204TN	0.4	25	0.14	3.1						73.32	261	73.32	261	
060204FN	0.4			3.1	62.03	402 1)	76.10	402						
060204SN	0.4	25	0.15	3.1						73.32	271			
060208SN	0.8	10	0.09	2.8						73.32	232			
060208SN	0.8	20	0.09	2.8						73.32	252			
060208TN	0.8	25	0.14	2.8						73.32	262			
060208SN	0.8	30	0.18	2.8						73.32	282			
060208FN	0.8			2.8						73.32	212			
09T302SN	0.2	10	0.09	3.4						73.32	233			
09T302SN	0.2	15	0.11	3.4						73.32	243			
09T302SN	0.2	20	0.09	3.4						73.32	253			
09T302SN	0.2	25	0.15	3.4						73.32	273			
09T304SN	0.4	10	0.09	3.1						73.32	234			
09T304SN	0.4	15	0.11	3.1						73.32	244			
09T304SN	0.4	20	0.09	3.1						73.32	254			
09T304TN	0.4	20	0.14	2.8	62.03	504								
09T304TN	0.4	20	0.14	3.1			103.14	502	85.72	502				
09T304TN	0.4	25	0.14	3.1						73.32	264			
09T304SN	0.4	25	0.15	3.1						73.32	274			
09T304SN	0.4	30	0.18	3.1						73.32	284			
09T304EN	0.4			3.1						73.32	224			
09T304FN	0.4			3.1			103.14	402 1)						
09T304FN	0.4			2.8	62.03	404 1)								
09T308SN	0.8	10	0.09	2.8						73.32	235	73.32	235	
09T308SN	0.8	15	0.11	2.8						73.32	245	73.32	245	
09T308SN	0.8	20	0.09	2.8								73.32	255	
09T308TN	0.8	20	0.14	2.8			103.14	504	85.72	504				
09T308TN	0.8	20	0.14	2.5	62.03	506								
09T308TN	0.8	25	0.14	2.8						73.32	265	73.32	265	
09T308SN	0.8	25	0.15	2.8						73.32	275			
09T308FN	0.8			2.5	62.03	406 1)								
09T308EN	0.8			2.8								73.32	225	
09T308FN	0.8			2.8			103.14	404 1)	85.72	404 1)		73.32	215	
120404TN	0.4	20	0.14	3.1	52.75	508								
120408TN	0.8	20	0.14	2.8	52.75	510								

Cast iron					
Sintered steels					
Heat resistant alloys					
hardened < 45 HRC					
hardened 46-55 HRC	•	•	•	•	•
hardened 56-60 HRC	•	•	•	•	•
hardened 61-65 HRC					

1) Machining to 60 HRC

CCGW / CCGT

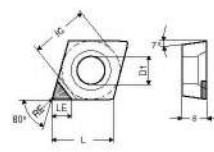


ISO	RE mm	GB °	BN mm	LE mm	-A CTBH40U		-B CTBH40U		-Q-B CTBH40U		-B CTBH40C		-Q-B CTBH40C	
					Article no. 71 120 ... £	Article no. 71 124 ... £	Article no. 71 121 ... £	Article no. 71 123 ... £	Article no. 71 161 ... £	Article no. 71 162 ... £				
060202TN	0.2	20	0.09	3.4						73.32	320			
060202SN	0.2	20	0.09	3.4								73.32	330	
060202SN	0.2	25	0.09	3.4						73.32	350		73.32 350	
060202TN	0.2	25	0.11	3.4						73.32	340		73.32 340	
060202TN	0.2	25	0.12	3.4	62.69	900								
060202TN	0.2	30	0.14	3.4						73.32	360		73.32 360	
060202FN	0.2			3.4	62.69	800	76.10	800						
060204SN	0.4	20	0.09	3.1						73.32	331			
060204SN	0.4	25	0.09	3.1						73.32	351		73.32 351	
060204TN	0.4	25	0.11	3.1						73.32	341		73.32 341	
060204TN	0.4	25	0.12	3.1	62.69	902								
060204TN	0.4	30	0.14	3.1						73.32	361		73.32 361	
060204SN	0.4	30	0.16	3.1						73.32	371		73.32 371	
060204SN	0.4	35	0.17	3.1						73.32	381		73.32 381	
060204FN	0.4			3.1	62.69	802	76.10	802						
060208TN	0.8	20	0.09	2.8						73.32	322			
060208SN	0.8	25	0.09	2.8						73.32	352			
060208TN	0.8	25	0.11	2.8						73.32	342			
060208TN	0.8	30	0.14	2.8						73.32	362			
060208SN	0.8	30	0.16	2.8						73.32	372			
060208SN	0.8	35	0.17	2.8						73.32	382			
09T302TN	0.2	20	0.09	3.4						73.32	323			
09T302SN	0.2	25	0.09	3.4						73.32	353			
09T302TN	0.2	25	0.11	3.4						73.32	343			
09T302SN	0.2	30	0.16	3.4						73.32	373			
09T302SN	0.2	35	0.17	3.4						73.32	383			
09T304SN	0.4	20	0.09	3.1						73.32	334	73.32	334	
09T304TN	0.4	20	0.09	3.1						73.32	324	73.32	324	
09T304SN	0.4	25	0.09	3.1						73.32	354	73.32	354	
09T304TN	0.4	25	0.11	3.1						73.32	344	73.32	344	
09T304TN	0.4	25	0.12	3.1			103.14	902	85.72	902				
09T304TN	0.4	25	0.12	2.8	62.69	904								
09T304TN	0.4	30	0.14	3.1						73.32	364	73.32	364	
09T304SN	0.4	30	0.16	3.1						73.32	374			
09T304EN	0.4			3.1						73.32	314			
09T304SN	0.4	35	0.17	3.1						73.32	384			
09T304FN	0.4			3.1			103.14	802	85.72	802				
09T304FN	0.4			2.8	62.69	804								
09T308SN	0.8	20	0.09	2.8						73.32	335	73.32	335	
09T308TN	0.8	20	0.09	2.8						73.32	325	73.32	325	
09T308SN	0.8	25	0.09	2.8						73.32	355	73.32	355	
09T308TN	0.8	25	0.11	2.8						73.32	345	73.32	345	
09T308TN	0.8	25	0.12	2.8			103.14	904	85.72	904				
09T308TN	0.8	25	0.12	2.5	62.69	906								
09T308TN	0.8	30	0.14	2.8						73.32	365	73.32	365	
09T308SN	0.8	30	0.16	2.8						73.32	375			
09T308SN	0.8	35	0.17	2.8						73.32	385			
09T308FN	0.8			2.8			103.14	804	85.72	804				
09T308FN	0.8			2.5	62.69	806								
09T308EN	0.8			2.8								73.32	315	
120404FN	0.4			3.1	52.75	808								
120404TN	0.4	25	0.12	3.1	52.75	908								
120408TN	0.8	25	0.12	2.8	52.75	910								

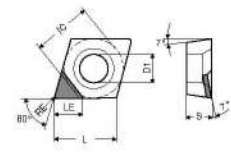
Cast iron													
Sintered steels													
Heat resistant alloys													
hardened < 45 HRC													
hardened 46-55 HRC													
hardened 56-60 HRC													
hardened 61-65 HRC													

CCGW / CCGT

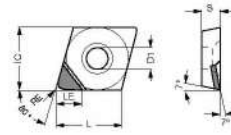
Designation	L	S	D1	IC
	mm	mm	mm	mm
CCG. 0602..	6,45	2,38	2,8	6,35
CCG. 09T3..	9,70	3,97	4,4	9,52
CCG. 1204..	12,90	4,76	5,5	12,70



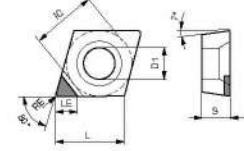
CCGW-Q-A



CCGT-A



CCGT-Q-A



CCGW-A

CCGW / CCGT

	-A CTDMD05	-A CTDPD20	-A CTDPD20	-Q-A CTDPD20	-Q-A CTDPD20
	MDC	PDC	PDC	-2Q PDC	-2Q PDC
	F	F	F	F	F
	DIAMOND CCGW	DIAMOND CCGW	DIAMOND CCGT	DIAMOND CCGW	DIAMOND CCGT
	Y0	Y0	Y0	Y0	Y0
ISO	Article no. 71 120 ...	Article no. 71 120 ...	Article no. 71 124 ...	Article no. 71 125 ...	Article no. 71 126 ...
	£	£	£	£	£
RE					
LE					
mm					
060201FN	0.1	3.4			98.64 101
060202FN	0.2	2.5	346.11 050		
060202FN	0.2	3.3		97.26 100	98.64 102
060202FN	0.2	3.4		91.24 100	
060204FN	0.4	2.5	346.11 052		
060204FN	0.4	3.1		97.26 102	98.64 104
060204FN	0.4	3.2		91.24 102	
09T301FN	0.1	4.5			98.61 111
09T302FN	0.2	4.4			98.61 112
09T304FN	0.4	2.5	353.00 054		
09T304FN	0.4	4.2		98.61 114	98.61 114
09T304FN	0.4	4.3		100.46 104	93.41 104
09T308FN	0.8	2.5	353.00 056		
09T308FN	0.8	4.1		100.46 106	93.41 106
120402FN	0.2	4.4			102.27 122
120404FN	0.4	4.2			102.27 124
120404FN	0.4	4.3			78.24 108
120408FN	0.8	4.1			78.24 110

Steel					
Stainless steel					
Cast iron					
Non ferrous metals	•	•	•	•	•
Heat resistant alloys	○				

CCGT / CCGW

ISO	RE mm	LE mm	-A-CB1 CTDPD20		-A-CB1 CTDPD20		-Q-A CTDPS30		-Q-A CTDPS30		-A-CB2 CTDPS30		-A-Q-CB2 CTDPS30	
			-CB1 PDC		-Q-CB1 PDC		-2Q PDC-S		-2Q PDC-S		-CB2 PDC-S		-Q-CB2 PDC-S	
			F DIAMOND CCGT YO		F DIAMOND CCGT YO		F DIAMOND CCGW YO		F DIAMOND CCGT YO		M DIAMOND CCGT YO		M DIAMOND CCGT YO	
			Article no. 71 300 ...		Article no. 71 305 ...		Article no. 71 125 ...		Article no. 71 126 ...		Article no. 71 301 ...		Article no. 71 306 ...	
			£		£		£		£		£		£	
060202FN	0.2	3.3					98.64	152	98.64	152				
060202EN	0.2	3.3											101.43	202
060202EN	0.2	3.4									88.31	202		
060202FN	0.2	3.4	88.31	102										
060204FN	0.4	3.1			101.43	104								
060204EN	0.4	3.1											101.43	204
060204EN	0.4	3.2									88.31	204		
060204FN	0.4	3.2	88.31	104										
060208EN	0.8	3.0									92.18	208		
09T302FN	0.2	4.4					98.61	162	98.61	162				
09T302EN	0.2	4.4											102.70	212
09T302EN	0.2	4.5									91.53	212		
09T302FN	0.2	4.5	86.84	112										
09T304FN	0.4	4.2			102.70	114								
09T304EN	0.4	4.2											102.70	214
09T304EN	0.4	4.3									91.53	214		
09T304FN	0.4	4.3	86.84	114										
09T308EN	0.8	4.1									99.19	218		
09T308FN	0.8	4.1	94.08	118										
120402FN	0.2	4.4							102.27	172				
120402EN	0.2	4.4											105.22	222
120404EN	0.4	4.2											105.22	224
120404FN	0.4	4.2			105.22	124			102.27	174				
120404EN	0.4	4.3									92.10	224		
120404FN	0.4	4.3	92.10	124										
120408EN	0.8	4.1									95.80	228		
120408FN	0.8	4.1	95.80	128										

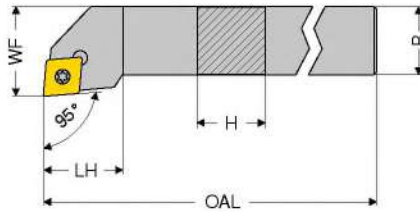
Steel					
Stainless steel					
Cast iron					
Non ferrous metals	•	•	•	•	•
Heat resistant alloys			○	○	○

CCGT

ISO	RE mm	LE mm	-A-CB3 CTDPU20		-A-CB1 CTDCD10		-A-CB2 CTDCD10		-A-Q-CB2 CTDCD10	
			-CB3 PDC-S		-CB1 CVD		-CB2 CVD		-Q-CB2 CVD	
			R	F	M	M				
			DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT				
			YO	YO	YO	YO				
			Article no. 71 302 ...	Article no. 71 300 ...	Article no. 71 301 ...	Article no. 71 306 ...				
			£	£	£	£				
060202FN	0.2	2.4		112.07	302					
060204EN	0.4	2.1				119.32	304			
060204FN	0.4	2.2		112.07	304					
060204EN	0.4	2.2				112.07	304			
060204EN	0.4	3.2	70.28							
09T304EN	0.4	2.1				125.19	314			
09T304FN	0.4	2.2		115.71	314					
09T304EN	0.4	2.2								
09T304EN	0.4	4.3	70.28			115.71	314			
09T308EN	0.8	4.1	76.77							
120404EN	0.4	2.1				122.96	324			
120408EN	0.8	2.1				130.23	328			

Steel				
Stainless steel				
Cast iron				
Non ferrous metals		•	•	•
Heat resistant alloys		○		

MaxiLock-S – SCLC 95° – Toolholder with screw clamping



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
								Article no. 70 653 ... £	Article no. 70 652 ... £	Article no. 70 653 ... £	Article no. 70 652 ... £
SCLC R/L 0808 D06	8	8	60	9	10	1,2	CC.. 0602	55.38 008	55.38 008	55.38 008	55.38 008
SCLC R/L 1010 E06	10	10	70	9	12	1,2	CC.. 0602	58.72 010	58.72 010	58.72 010	58.72 010
SCLC R/L 1212 F09	12	12	80	15	16	3,2	CC.. 09T3	58.72 012	58.72 012	58.72 012	58.72 012
SCLC R/L 1616 H09	16	16	100	17	20	3,2	CC.. 09T3	72.73 016	72.73 016	72.73 016	72.73 016
SCLC R/L 2020 K09	20	20	125	17	25	3,2	CC.. 09T3	77.31 020	77.31 020	77.31 020	77.31 020
SCLC R/L 1616 H12	16	16	100	20	20	5	CC.. 1204	72.73 116	72.73 116	72.73 116	72.73 116
SCLC R/L 2020 K12	20	20	125	20	25	5	CC.. 1204	77.31 120	77.31 120	77.31 120	77.31 120
SCLC R/L 2525 M12	25	25	150	20	32	5	CC.. 1204	79.97 125	79.97 125	79.97 125	79.97 125
SCLC R/L 3225 P12	32	25	170	20	32	5	CC.. 1204	83.13 132	83.13 132	83.13 132	83.13 132

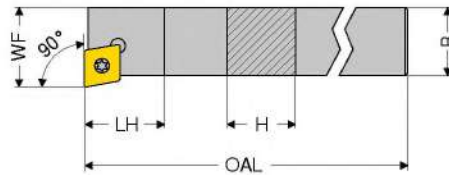
i Tool holders with HSK-T interface can be found in → Chapter 16.

Spare parts

for Article no.

	Y7 Key D Article no. 80 950 ... £		2A/28 Combination Key Article no. 70 950 ... £		2A Clamping screw Article no. 70 950 ... £		2A/28 Carbide type C Article no. 70 950 ... £		2A/28 Threaded sleeve Article no. 70 950 ... £	
70 653 008 / 70 652 008	10.30	110			2.15	112				
70 653 010 / 70 652 010	10.30	110			2.15	112				
70 653 012 / 70 652 012	12.26	113			2.85	113				
70 653 016 / 70 652 016			7.53	398	2.85	113	8.79	165	4.22	171
70 653 020 / 70 652 020			7.53	398	2.85	113	8.79	165	4.22	171
70 653 116 / 70 652 116			7.53	398	2.34	114	11.25	166	4.22	170
70 653 120 / 70 652 120			7.53	398	2.34	114	11.25	166	4.22	170
70 653 125 / 70 652 125			7.53	398	2.34	114	11.25	166	4.22	170
70 653 132 / 70 652 132			7.53	398	2.34	114	11.25	166	4.22	170

MaxiLock-S – SCFC 90° – Toolholder with screw clamping



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
								Article no. 70 761 ...	£	Article no. 70 760 ...	£
SCFC R/L 0808 D06	8	8	60	10	10	1,2	CC.. 0602	55.38	008	55.38	008
SCFC R/L 1010 E06	10	10	70	10	12	1,2	CC.. 0602	58.72	010	58.72	010
SCFC R/L 1212 F09	12	12	80	13	16	3,2	CC.. 09T3	58.72	012	58.72	012
SCFC R/L 1616 H09	16	16	100	13	20	3,2	CC.. 09T3	72.73	016	72.73	016
SCFC R/L 2020 K12	20	20	125	17	25	5	CC.. 1204	77.31	020	77.31	020

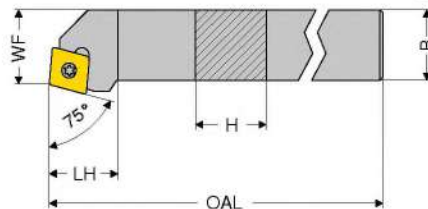
Spare parts

for Article no.

	Article no. 80 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£
70 761 008 / 70 760 008	10.30	110			2.15	112				
70 761 010 / 70 760 010	10.30	110			2.15	112				
70 761 012 / 70 760 012	12.26	113			2.85	113				
70 761 016 / 70 760 016			7.53	398	2.85	113	8.79	165	4.22	171
70 761 020 / 70 760 020			7.53	398	2.34	114	11.25	166	4.22	170

Y7	2A/28	2A	2A/28	2A/28
Key D	Combination Key	Clamping screw	Carbide type C	Threaded sleeve
Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
£	£	£	£	£

MaxiLock-S – SCRC 75° – Toolholder with screw clamping



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
								Article no. 70 649 ...	£	Article no. 70 648 ...	£
SCRC R 1010 E06	10	10	70	10	11	1,2	CC.. 0602			58.72	010
SCRC R/L 1212 F09	12	12	80	16	13	3,2	CC.. 09T3	58.72	012	58.72	012
SCRC R/L 1616 H09	16	16	100	17	17	3,2	CC.. 09T3	72.73	016	72.73	016
SCRC R/L 2020 K09	20	20	125	17	22	3,2	CC.. 09T3	77.31	020	77.31	020
SCRC R/L 2020 K12	20	20	125	20	22	5	CC.. 1204	77.31	120	77.31	120
SCRC R/L 2525 M12	25	25	150	20	27	5	CC.. 1204	79.97	125	79.97	125

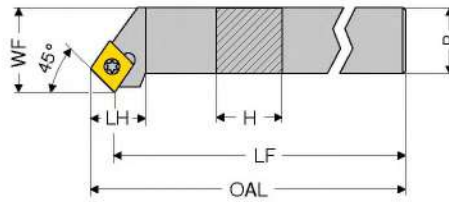
Spare parts

for Article no.

	Article no. 80 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£
70 648 010	10.30	110			2.15	112				
70 649 012 / 70 648 012	12.26	113			2.85	113				
70 649 016 / 70 648 016			7.53	398	2.85	113	8.79	165	4.22	171
70 649 020 / 70 648 020			7.53	398	2.85	113	8.79	165	4.22	171
70 649 120 / 70 648 120			7.53	398	2.34	114	11.25	166	4.22	170
70 649 125 / 70 648 125			7.53	398	2.34	114	11.25	166	4.22	170

Y7	2A/28	2A	2A/28	2A/28
Key D	Combination Key	Clamping screw	Carbide type C	Threaded sleeve
Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
£	£	£	£	£

MaxiLock-S – SCSC 45° – Toolholder with screw clamping



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
									Article no. 70 641 ...	£	Article no. 70 640 ...	£
SCSC R 1616 H12	16	16	109.1	100	20	20	5	CC.. 1204			72.73	016
SCSC R/L 2020 K12	20	20	134.1	125	20	25	5	CC.. 1204	77.31	020	77.31	020
SCSC R/L 2525 M12	25	25	159.1	150	20	32	5	CC.. 1204	79.97	025	79.97	025

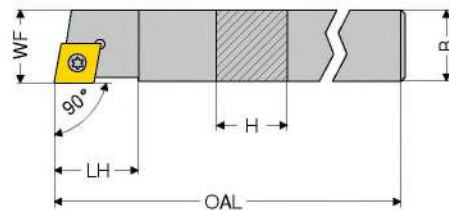
Spare parts

for Article no.	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£
70 640 016	T15/SW	7.53	398	M4,5x12	2.34	114	11.25	166
70 641 020 / 70 640 020	T15/SW	7.53	398	M4,5x12	2.34	114	11.25	166
70 641 025 / 70 640 025	T15/SW	7.53	398	M4,5x12	2.34	114	11.25	166



MaxiLock-S – SCAC 90° – Toolholder with screw clamping

▲ for sliding head lathes



Illustrations show right-hand versions



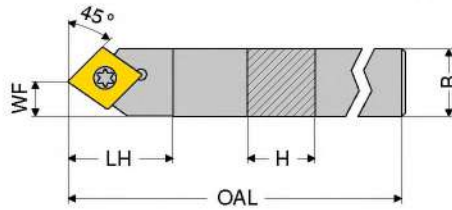
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
								Article no. 70 757 ...	£	Article no. 70 756 ...	£
SCAC R/L 0808 K06	8	8	125	9	8	1,2	CC.. 0602	58.72	108	58.72	108
SCAC R/L 0808 D06	8	8	60	9	8	1,2	CC.. 0602	55.38	008	55.38	008
SCAC R/L 1010 M06	10	10	150	9	10	1,2	CC.. 0602	58.72	110	58.72	110
SCAC R/L 1010 E06	10	10	70	9	10	1,2	CC.. 0602	58.72	010	58.72	010
SCAC R/L 1212 M09	12	12	150	13	12	3,2	CC.. 09T3	65.68	112	65.68	112
SCAC R/L 1212 F09	12	12	80	13	12	3,2	CC.. 09T3	58.72	012	58.72	012
SCAC R/L 1414 M09	14	14	150	13	14	3,2	CC.. 09T3	65.68	114	65.68	114
SCAC R/L 1616 H09	16	16	100	13	16	3,2	CC.. 09T3	72.73	116	72.73	116
SCAC R/L 2020 K12	20	20	125	17	20	5	CC.. 1204	77.31	120	77.31	120

Spare parts

for Article no.	Article no. 80 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£
70 756 108 / 70 757 108	10.30	110			2.15	112		
70 756 008 / 70 757 008	10.30	110			2.15	112		
70 756 110 / 70 757 110	10.30	110			2.15	112		
70 756 010 / 70 757 010	10.30	110			2.15	112		
70 756 112 / 70 757 112	12.26	113			2.85	113		
70 756 012 / 70 757 012	12.26	113			2.85	113		
70 756 114 / 70 757 114	12.26	113			2.85	113		
70 756 116 / 70 757 116			7.53	398	2.85	113	8.79	165
70 756 120 / 70 757 120			7.53	398	2.34	114	11.25	166



MaxiLock-S – SCDC 45° – Toolholder with screw clamping



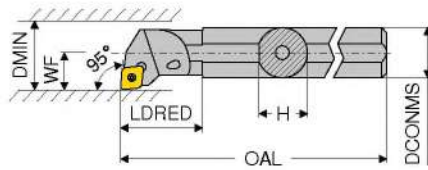
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 2A/24	
								Article no. 70 752 ...	£
SCDC L 0808 K06	8	8	125	13	4	1,2	CC.. 0602	58.72	008
SCDC L 1010 M06	10	10	150	13	5	1,2	CC.. 0602	58.72	010
SCDC L 1212 M09	12	12	150	18	6	3,2	CC.. 09T3	65.68	012
SCDC L 1414 M09	14	14	150	18	7	3,2	CC.. 09T3	65.68	014



Spare parts for Article no.	Article no. 80 950 ...		Article no. 70 950 ...	
	£		£	
70 752 008	10.30	110	2.15	112
70 752 010	10.30	110	2.15	112
70 752 012	12.26	113	2.85	113
70 752 014	12.26	113	2.85	113

MaxiLock-S – SCLC 95° – Boring bar with screw clamping

- ▲ A... = with thro' coolant
- ▲ S... = without thro' coolant



Illustrations show right-hand versions



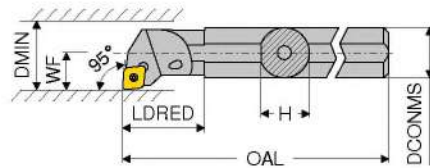
ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
									Article no. 70 717 ...	£	Article no. 70 716 ...	£
S08H SCLC R/L 06	8	7.2	100		5	11	1,2	CC.. 0602	87.79	008	87.79	008
A08F SCLC R/L 06	8	7.6	80	17	5	11	1,2	CC.. 0602	87.79	208	87.79	208
A10H SCLC R/L 06	10	9.5	100	19	7	13	1,2	CC.. 0602	87.79	210	87.79	210
S10K SCLC R/L 06	10	9.0	125		7	13	1,2	CC.. 0602	87.79	010	87.79	010
A12K SCLC R/L 06	12	11.5	125	22	9	16	1,2	CC.. 0602	87.79	212	87.79	212
S12Q SCLC R/L 06	12	11.0	180		9	16	1,2	CC.. 0602	87.79	012	87.79	012
A16M SCLC R/L 06	16	14.0	150	50	9	18	1,2	CC.. 0602	89.70	116	89.70	116
S16R SCLC R/L 09	16	14.5	200		11	20	3,2	CC.. 09T3	89.70	016	89.70	016
A16M SCLC R/L 09	16	15.0	150	29	11	20	3,2	CC.. 09T3	89.70	216	89.70	216
A20Q SCLC R/L 09	20	18.5	180	32	13	25	3,2	CC.. 09T3	111.82	220	111.82	220
S20S SCLC R/L 09	20	18.0	250		13	25	3,2	CC.. 09T3	111.82	020	111.82	020
S25T SCLC R/L 09	25	23.0	300		17	32	3,2	CC.. 09T3	128.55	025	128.55	025
A25R SCLC R/L 09	25	23.0	200	36	17	32	3,2	CC.. 09T3	128.55	225	128.55	225
A32S SCLC R/L 12	32	30.0	250	50	22	40	5	CC.. 1204	176.73	232	176.73	232
A40T SCLC R/L 12	40	38.0	300	60	27	50	5	CC.. 1204	212.18	240	212.18	240

i Tool holders with HSK-T or PSC interface can be found in → Chapter 16.

Spare parts	Y7		2A/28		2A/28		2A/28		2A/28	
	Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£
for Article no.	80 950 ...		70 950 ...		70 950 ...		70 950 ...		70 950 ...	
70 716 008 / 70 717 008	10.30	110			2.34	116				
70 716 208 / 70 717 208	10.30	110			2.34	116				
70 716 210 / 70 717 210	10.30	110			2.34	116				
70 716 010 / 70 717 010	10.30	110			2.34	116				
70 716 212 / 70 717 212	10.30	110			2.34	116				
70 716 012 / 70 717 012	10.30	110			2.34	116				
70 716 116 / 70 717 116	10.30	110			2.34	116				
70 716 016 / 70 717 016	12.26	113			2.85	110				
70 716 216 / 70 717 216	12.26	113			2.85	110				
70 716 220 / 70 717 220	12.26	113			2.85	304				
70 716 020 / 70 717 020	12.26	113			2.85	110				
70 716 025 / 70 717 025	12.26	113			2.85	113				
70 716 225 / 70 717 225	12.26	113			2.85	304				
70 716 232 / 70 717 232			7.53	398	2.34	114	11.25	166	4.22	170
70 716 240 / 70 717 240			7.53	398	2.34	114	11.25	166	4.22	170

MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions



ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand 2A		Right-hand 2A	
									Article no. 70 719 ...	£	Article no. 70 718 ...	£
E-A08F SCLC R/L 06	8	7.5	80	18	6	12	1,2	CC.. 0602	161.09	208	161.09	208
E-A10H SCLC R/L 06	10	9.0	100	20	7	14	1,2	CC.. 0602	161.09	210	161.09	210
E-A12K SCLC R/L 06	12	11.0	125	20	9	18	1,2	CC.. 0602	173.55	212	173.55	212
E-A16M SCLC R/L 09	16	15.0	150	28	11	22	3,2	CC.. 09T3	294.55	216	294.55	216
E-A20Q SCLC R/L 09	20	18.0	180	38	13	26	3,2	CC.. 09T3	364.18	220	364.18	220
E-A25R SCLC R/L 09	25	23.0	200	38	17	34	3,2	CC.. 09T3	462.27	225	462.27	225
E-A32S SCLC R/L 12	32	30.0	250	43	22	39	5	CC.. 1204	727.36	232	727.36	232

Spare parts

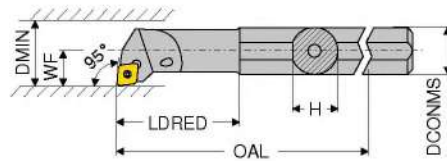
for Article no.

		Article no. 80 950 ...		Article no. 70 950 ...	
		£		£	
70 718 208 / 70 719 208	T08	10.30	110	M2,5x5	2.34 116
70 718 210 / 70 719 210	T08	10.30	110	M2,5x5	2.34 116
70 718 212 / 70 719 212	T08	10.30	110	M2,5x5	2.34 116
70 718 216 / 70 719 216	T15	12.26	113	M4x9,5	2.85 449
70 718 220 / 70 719 220	T15	12.26	113	M4x9,5	2.85 449
70 718 225 / 70 719 225	T15	12.26	113	M4x9,5	2.85 449
70 718 232 / 70 719 232	T15	12.26	113	M4x11	3.09 174



MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions



ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand	Right-hand
									2A	2A
									Article no. 70 719 ...	Article no. 70 718 ...
									£	£
E-A0608F SCLC R/L 06	8	7.5	100	25	4	8	1,2	CC.. 0602	173.55 308	173.55 308
E-A0810H SCLC R/L 06	10	9.0	110	32	6	12	1,2	CC.. 0602	173.55 310	173.55 310
E-A1012K SCLC R/L 06	12	11.0	125	38	7	14	1,2	CC.. 0602	173.55 312	173.55 312
E-A1216M SCLC R/L 06	16	15.0	150	50	9	18	1,2	CC.. 0602	173.55 316	173.55 316

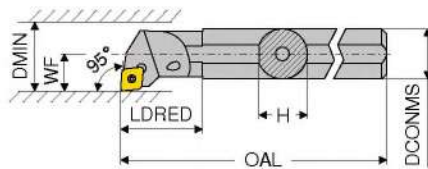
Spare parts

for Article no.	Article no. 80 950 ...	Article no. 70 950 ...
	£	£
70 718 308 / 70 719 308	10.30 110	2.34 116
70 718 310 / 70 719 310	10.30 110	2.34 116
70 718 312 / 70 719 312	10.30 110	2.34 116
70 718 316 / 70 719 316	10.30 110	2.34 116



MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ Type: Solid carbide



Illustrations show right-hand versions



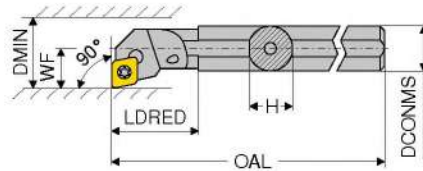
ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand	Right-hand
									2A/24	2A/24
									Article no. 70 719 ...	Article no. 70 718 ...
									£	£
E08H SCLC R/L 06	8	7.6	100	mm	5	11	1,2	CC.. 0602	199.64 008	199.64 008
E10K SCLC R/L 06	10	9.0	125	22	7	13	1,2	CC.. 0602	230.64 010	230.64 010
E12Q SCLC R/L 06	12	11.5	180	26	9	16	1,2	CC.. 0602	302.91 012	302.91 012
E16R SCLC R/L 09	16	15.0	200	34	11	20	3,2	CC.. 09T3	395.82 016	395.82 016
E20S SCLC R/L 09	20	18.5	250	38	13	25	3,2	CC.. 09T3	494.45 020	494.45 020
E25T SCLC R/L 09	25	23.0	300	43	17	32	3,2	CC.. 09T3	871.91 025	871.91 025

Spare parts

for Article no.	Article no. 80 950 ...	Article no. 70 950 ...
	£	£
70 719 008 / 70 718 008	T08 10.30 110	M2,5x5 2.34 116
70 719 010 / 70 718 010	T08 10.30 110	M2,5x5 2.34 116
70 719 012 / 70 718 012	T08 10.30 110	M2,5x5 2.34 116
70 719 016 / 70 718 016	T15 12.26 113	M3,5x7,2 2.85 110
70 719 020 / 70 718 020	T15 12.26 113	M3,5x8,6 2.85 304
70 719 025 / 70 718 025	T15 12.26 113	M3,5x11 2.85 113



MaxiLock-S – SCFC 90° – Boring bar with screw clamping



Illustrations show right-hand versions

ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
									Article no. 70 793 ...	£	Article no. 70 792 ...	£
A08F SCFC R/L 06	8	7.6	80	17	5	11	1,2	CC.. 0602	87.79	208	87.79	208
A10H SCFC R/L 06	10	9.5	100	19	7	13	1,2	CC.. 0602	87.79	210	87.79	210
A12K SCFC R/L 06	12	11.5	125	22	9	16	1,2	CC.. 0602	87.79	212	87.79	212

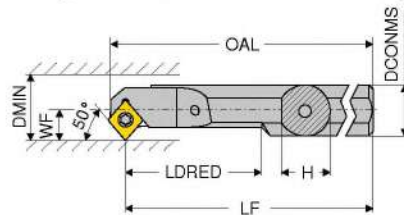
Spare parts

for Article no.

Article no.	£	Article no.	£
70 792 208 / 70 793 208	10.30	110	M2,5x5
70 792 210 / 70 793 210	10.30	110	M2,5x5
70 792 212 / 70 793 212	10.30	110	M2,5x5



MaxiLock-S – SMC 50° – Boring bar with screw clamping



Illustrations show right-hand versions

ISO designation	DCONMS	H	OAL	LF	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand 2A		Right-hand 2A	
										Article no. 70 723 ...	£	Article no. 70 722 ...	£
A08H SMC R/L 06	8	7	104.15	100	20	5.5	10.5	1,2	CC.. 0602	87.79	208	87.79	208
A10H SMC R/L 06	10	9	114.15	110	26	6.0	11.0	1,2	CC.. 0602	87.79	210	87.79	210
A12K SMC R/L 06	12	11	129.15	125	32	7.0	13.0	1,2	CC.. 0602	87.79	212	87.79	212
A16M SMC R/L 06	16	14	154.15	150	40	9.0	16.0	1,2	CC.. 0602	89.70	216	89.70	216

Spare parts

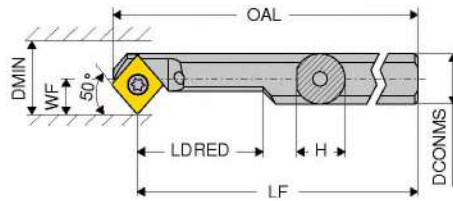
for Article no.

Article no.	£	Article no.	£
70 723 208 / 70 722 208	10.30	110	M2,5x5
70 723 210 / 70 722 210	10.30	110	M2,5x5
70 723 212 / 70 722 212	10.30	110	M2,5x5
70 723 216 / 70 722 216	10.30	110	M2,5x5



MaxiLock-S – SMC 50° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions



ISO designation	DCONMS	H	OAL	LF	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand	Right-hand
										2A	2A
										Article no. 70 707 ...	Article no. 70 706 ...
										£	£
E-A0608H SMC R/L 06	8	7.5	104.15	100	20	5.5	10.5	1,2	CC.. 0602	173.55 008	173.55 008
E-A0810H SMC R/L 06	10	9.0	114.15	110	26	6.0	11.0	1,2	CC.. 0602	173.55 010	173.55 010
E-A1012K SMC R/L 06	12	11.0	129.15	125	32	7.0	13.0	1,2	CC.. 0602	173.55 012	173.55 012
E-A1216M SMC R/L 06	16	15.0	154.15	150	40	9.0	16.0	1,2	CC.. 0602	173.55 016	173.55 016

Y7		2A/28	
Key D		Clamping screw	
Article no. 80 950 ...		Article no. 70 950 ...	
£		£	
10.30	110	2.34	116
10.30	110	2.34	116
10.30	110	2.34	116
10.30	110	2.34	116

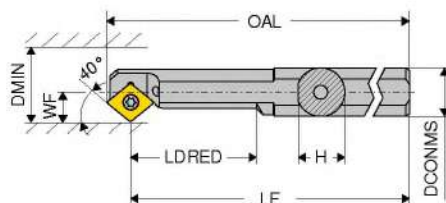
Spare parts

for Article no.

70 706 008 / 70 707 008	
70 706 010 / 70 707 010	
70 706 012 / 70 707 012	
70 706 016 / 70 707 016	

MaxiLock-S – SCXC 40° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions



ISO designation	DCONMS	H	OAL	LF	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand	Right-hand
										2A	2A
										Article no. 70 715 ...	Article no. 70 714 ...
										£	£
E-A0608H SCXC R/L 06	8	7.5	105	100	20	5	9.5	1,2	CC.. 0602	173.55 008	173.55 008
E-A0810H SCXC R/L 06	10	9.0	115	110	26	6	11.0	1,2	CC.. 0602	173.55 010	173.55 010
E-A1012K SCXC R/L 06	12	11.0	130	125	32	7	13.0	1,2	CC.. 0602	173.55 012	173.55 012
E-A1216M SCXC R/L 06	16	15.0	155	150	40	9	16.0	1,2	CC.. 0602	173.55 016	173.55 016

Y7		2A/28	
Key D		Clamping screw	
Article no. 80 950 ...		Article no. 70 950 ...	
£		£	
10.30	110	2.34	116
10.30	110	2.34	116
10.30	110	2.34	116
10.30	110	2.34	116

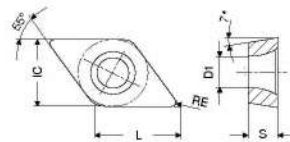
Spare parts

for Article no.

70 714 008 / 70 715 008	
70 714 010 / 70 715 010	
70 714 012 / 70 715 012	
70 714 016 / 70 715 016	

DCGT / DCMT / DCXT / DCET

Designation	L	S	D1	IC
	mm	mm	mm	mm
DC.T 0702..	7.75	2.38	2.8	6.35
DC.T 11T3..	11.60	3.97	4.4	9.52



DCGT / DCMT

		-CF05 CTEP110	-SF TCM10	-SF TCM407	-SF CTCP125	-SF CTCP115	-SF CTCP125	-SF CTCP135
		-PF14 DCC1110	-ZF CWC10	-ZF CWC407	-ZF HCX1125	-ZF HCX1115	-ZF HCX1125	-ZF HCR1135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	F	F	F	F	F
		CERMET DCGT	CERMET DCGT	CERMET DCGT	DCGT	DCMT	DCMT	DCMT
		1A/78	1A/78	1A/78	1A/08	1A/08	1A/08	1A/08
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	76 245 ...	70 257 ...	70 257 ...	76 257 ...	76 259 ...	76 259 ...	76 259 ...
		£	£	£	£	£	£	£
070201EN	0.1		12.21 898					
070202EN	0.2	12.60 002	12.21 900		12.60 502			
070204EN	0.4	12.60 004	12.21 902	12.21 852		7.07 304	7.07 504	7.07 704
11T302EN	0.2	16.68 014	15.56 904	15.56 854				
11T304EN	0.4	16.68 016	15.56 906	15.56 856		9.94 316	9.94 516	9.94 716
11T308EN	0.8	16.68 018	15.56 908	15.56 858		9.94 318	9.94 518	9.94 718
Steel		●	●	●	●	●	●	●
Stainless steel		○	○	○	○	○	○	○
Cast iron		○	○	○	○	○	○	○
Non ferrous metals								
Heat resistant alloys								○

DCMT / DCGT

		-CF55 CTEP110	-SMF TCM10	-SMF CTCP115	-SMF CTCP125	-SMF CTCP135	-SM CTCP125	-SM CTCP135
		-PF15 DCC1110	-SMF CWC10	-SMF HCX1115	-SMF HCX1125	-SMF HCR1135	-ZM HCX1125	-ZM HCR1135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	F	F	F	M	M
		CERMET DCMT	CERMET DCMT	DCMT	DCMT	DCMT	DCGT	DCGT
		1A/78	1A/78	1A/08	1A/08	1A/08	1A/08	1A/08
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	76 246 ...	70 265 ...	76 265 ...	76 265 ...	76 265 ...	76 256 ...	76 256 ...
		£	£	£	£	£	£	£
070202EN	0.2	7.15 002	6.62 898					
070204EN	0.4	7.15 004	6.62 900		7.07 504	7.07 704	12.60 502	12.60 702
070208EN	0.8					7.07 706		
11T304EN	0.4	9.92 016	9.29 904	9.94 316	9.94 516	9.94 716		
11T308EN	0.8	9.92 018	9.29 906	9.94 318	9.94 518	9.94 718		
Steel		●	●	●	●	●	●	●
Stainless steel		○	○	○	○	○	○	○
Cast iron		○	○	○	○	○	○	○
Non ferrous metals								
Heat resistant alloys						○		○

DCMT

		-SM CTCK110	-SM CTCK120	-SM CTCP115	-SM CTCP125	-SM CTCP135	-SMQ CTCP115	-SMQ CTCP125
		-ZM DCX3110	-ZM HCF3120	-ZM HCX1115	-ZM HCX1125	-ZM HCR1135	-SMQ HCX1115	-SMQ HCX1125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		M	M	M	M	M	M	M
		DCMT	DCMT	DCMT	DCMT	DCMT	DCMT	DCMT
		1A/08	1A/08	1A/08	1A/08	1A/08	1A/08	1A/08
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	£	£	£	£	£	£	£
070204EN	0.4	70 258 ... 004	70 258 ... 554	76 258 ... 304	76 258 ... 504	76 258 ... 704	76 195 ... 304	76 195 ... 504
070208EN	0.8	7.07 006	7.07 506	7.07 306	7.07 506	7.07 706		
11T304EL	0.4							11.08 516
11T304EN	0.4	9.94 016	9.94 516	9.94 316	9.94 516	9.94 716		11.08 515
11T304ER	0.4							11.08 517
11T308EN	0.8	9.94 018	9.94 518	9.94 318	9.94 518	9.94 718		11.08 518
11T312EN	1.2				9.94 520			
Steel		•	•	•	•	•	•	•
Stainless steel		○		○	○	○	○	○
Cast iron		•	•	○	○		○	○
Non ferrous metals								
Heat resistant alloys						○		

9

DCGT / DCMT / DCXT

		-SF CTC2135	-SF CTC2135	-F43 CTC2135	-M81 CWN2120	-M25 CTPM125	-SM CTC2135	-M55 CTPM125
		-ZF CWN2135	-ZF CWN2135	-F43 CWN2135		-PF23 HCN2125	-ZM CWN2135	-PF26 HCN2125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	F	M	F	M	F
		DCGT	DCMT	DCMT	DCXT	DCMT	DCMT	DCMT
		1A/08	1A/08	1A/08	1A	1A/08	1A/08	1A/08
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	£	£	£	£	£	£	£
070202EN	0.2	70 257 ... 440		6.85 400		7.07 202		
070202FN	0.2				8.95 100			
070204EN	0.4		6.85 440	6.85 402		7.07 204	6.85 440	7.07 204
070204FN	0.4				8.95 102			
070208EN	0.8						6.85 442	7.07 206
11T302EN	0.2			9.92 404		9.92 214		
11T302FN	0.2				9.30 104			
11T304EN	0.4		9.92 444	9.92 406		9.94 216	9.92 444	9.94 216
11T304FN	0.4				9.30 106			
11T308EN	0.8		9.92 446	9.92 408		9.94 218	9.92 448	9.94 218
11T308FN	0.8				9.30 108			
Steel		○	○	○		○	○	○
Stainless steel		•	•	•	•	•	•	•
Cast iron								
Non ferrous metals					○			
Heat resistant alloys		•	•	•			•	

DCGT

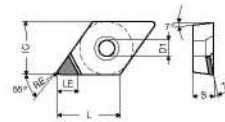
		-23P H216T	-25P H210T	-25P AMZ	-25Q H210T	-25Q AMZ	-27 H10T	-27 CWN15
		-23P CWK26	-25P CWK20	-25P AMZ	-25Q CWK20	-25Q AMZ	-AL CWK15	-AL CWN15
		F	F	F	M	M	M	M
		DCGT	DCGT	DCGT	DCGT	DCGT	DCGT	DCGT
		1A/90	1A/90	1A/90	1A/90	1A	1A/90	1A
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	70 261 ...	70 263 ...	70 263 ...	70 263 ...	70 263 ...	70 260 ...	70 260 ...
		£	£	£	£	£	£	£
070202FN	0.2		8.94 632	10.68 552			8.45 600	10.81 300
070204FN	0.4	8.94 654	8.94 634	10.68 554			8.45 602	10.81 302
11T302FN	0.2		11.08 635	12.92 535			10.57 604	12.78 304
11T304FL	0.4				12.10 670	15.43 620		
11T304FN	0.4				12.10 660	15.43 610	10.57 606	12.78 306
11T304FR	0.4	11.08 664	11.08 636	12.92 556	12.10 680	15.43 630		
11T308FL	0.8				12.10 672	15.43 622		
11T308FN	0.8				12.10 662	15.43 612	10.57 608	12.78 308
11T308FR	0.8	11.08 666	11.08 638	12.92 558	12.10 682	15.43 642		
Steel								
Stainless steel								
Cast iron								
Non ferrous metals								
Heat resistant alloys								

DCGT / DCMT / DCET

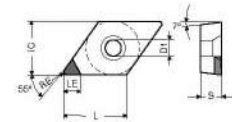
		-27 AMZ	-29 H216T	-29 AMZ	-F05 CTPX710	-F23 CTP2120
		-AL AMZ				-F23 CCN2120
		M	M	M	F	F
		DCGT	DCMT	DCMT	DCET	DCGT
		1A/90	1A/90	1A/90	1H/17	1A/08
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	70 260 ...	70 246 ...	70 246 ...	76 254 ...	70 192 ...
		£	£	£	£	£
0702005FN	0.05				15.24 10200	
070200FN	0.00					12.60 600
0702015FN	0.15				15.24 10600	
070201FN	0.10				15.24 10400	12.60 602
070202FN	0.20	10.26 450			15.24 10800	
070204EN	0.40		6.47 60400	7.96 40400		
070204FN	0.40	10.26 452				
11T3005FN	0.05				20.20 11400	
11T300FN	0.00					16.98 604
11T3015FN	0.15				20.20 11800	
11T301FN	0.10				20.20 11600	16.98 606
11T302FN	0.20	12.42 454			20.20 12000	
11T304EN	0.40		8.73 61600	9.95 41600		
11T304FN	0.40	12.42 456				
11T304N	0.40				20.20 12200	
11T308EN	0.80		8.73 61800	9.95 41800		
11T308FN	0.80	12.42 458				
Steel						
Stainless steel						
Cast iron						
Non ferrous metals						
Heat resistant alloys						

DCGW / DCGT

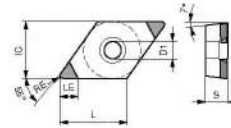
Designation	L	S	D1	IC
	mm	mm	mm	mm
DCG. 0702..	7.75	2.38	2.8	6.35
DCG. 11T3..	11.60	3.97	4.4	9.52



DCGT -A

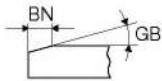


DCGW -A



DCGW -B

DCGW / DCGT

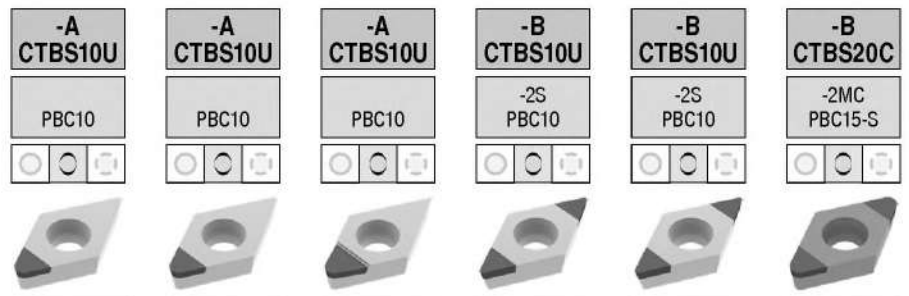
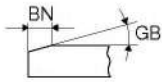


-A CTBS10U	-A CTBS10U	-A CTBS10U	-B CTBS10U	-B CTBS10U	-B CTBS20C
PBC10	PBC10	PBC10	-2S PBC10	-2S PBC10	-2MC PBC15-S
F CBN DCGW	F CBN DCGW	F CBN DCGT	F CBN DCGW	F CBN DCGW	F CBN DCGW

ISO	RE mm	GB °	BN mm	LE mm	-A CTBS10U		-A CTBS10U		-A CTBS10U		-B CTBS10U		-B CTBS10U		-B CTBS20C	
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070202SN	0.2	10	0.09	3.9											73.32	120
070202SN	0.2	15	0.11	3.9											73.32	130
070202TN	0.2	20	0.14	3.9			52.75	300							73.32	140
070202TN	0.2	20	0.15	3.9											73.32	150
070202SN	0.2	20	0.16	3.9											73.32	160
070202TN	0.2	25	0.17	3.9											73.32	160
070202FN	0.2			3.9	52.75	200			63.92	200						
070204SN	0.4	10	0.09	3.5											73.32	121
070204SN	0.4	15	0.11	3.5											73.32	131
070204TN	0.4	20	0.14	3.5			52.75	302							73.32	141
070204TN	0.4	20	0.15	3.5											73.32	151
070204SN	0.4	20	0.16	3.5											73.32	161
070204TN	0.4	25	0.17	3.5											73.32	181
070204SN	0.4	30	0.18	3.5											73.32	181
070204FN	0.4			3.5	52.75	202			63.92	202						
070208SN	0.8	15	0.11	3.0											73.32	132
070208TN	0.8	20	0.14	3.0			52.75	304							73.32	142
070208TN	0.8	20	0.15	3.0											73.32	152
070208SN	0.8	20	0.16	3.0											73.32	162
070208TN	0.8	25	0.17	3.0											73.32	172
070208SN	0.8	25	0.18	3.0											73.32	112
070208EN	0.8			3.0											73.32	112
070208FN	0.8			3.0	52.75	204			63.92	204						
11T302SN	0.2	15	0.11	3.9											73.32	133
11T302TN	0.2	20	0.14	3.9			52.75	306					81.11	300		
11T302TN	0.2	20	0.15	3.9											73.32	143
11T302SN	0.2	20	0.16	3.9											73.32	153

Cast iron	•	•	•	•	•	•
Sintered steels	•	•	•	•	•	•
Heat resistant alloys	•	•	•	•	•	•
hardened < 45 HRC						
hardened 46-55 HRC						
hardened 56-60 HRC						
hardened 61-65 HRC						

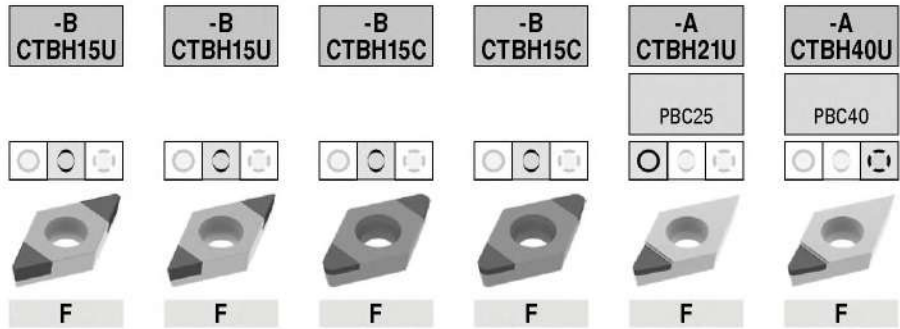
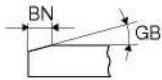
DCGW / DCGT



ISO	RE mm	GB °	BN mm	LE mm	-A CTBS10U		-A CTBS10U		-A CTBS10U		-B CTBS10U		-B CTBS10U		-B CTBS20C		
					PBC10	PBC10	PBC10	-2S PBC10	-2S PBC10	-2MC PBC15-S	F CBN DCGW	F CBN DCGW	F CBN DCGT	F CBN DCGW	F CBN DCGW	F CBN DCGW	
					YO	YO	YO	YO	YO	YO	YO	YO	YO	YO	YO	YO	
					Article no. 71 130 ...	Article no. 71 130 ...	Article no. 71 134 ...	Article no. 71 131 ...	Article no. 71 131 ...	Article no. 71 131 ...	Article no. 71 163 ...	Article no. 71 131 ...	Article no. 71 131 ...	Article no. 71 163 ...	Article no. 71 163 ...	Article no. 71 163 ...	
					£	£	£	£	£	£	£	£	£	£	£	£	
11T302TN	0.2	25	0.17	3.9												73.32	163
11T302FN	0.2			3.9	52.75	206		65.82	206	81.11	200					73.32	113
11T302EN	0.2			3.9												73.32	124
11T304SN	0.4	10	0.09	3.5												73.32	144
11T304TN	0.4	20	0.14	3.5		52.75	308					81.11	302			73.32	154
11T304TN	0.4	20	0.15	3.5												73.32	164
11T304SN	0.4	20	0.16	3.5												73.32	174
11T304TN	0.4	25	0.17	3.5												73.32	184
11T304SN	0.4	25	0.18	3.5												73.32	185
11T304SN	0.4	30	0.18	3.5												73.32	185
11T304FN	0.4			3.5	52.75	208		65.82	208	81.11	202					73.32	115
11T308SN	0.8	15	0.11	3.0												73.32	135
11T308TN	0.8	20	0.14	3.0		52.75	310					81.11	304			73.32	145
11T308TN	0.8	20	0.15	3.0												73.32	155
11T308SN	0.8	20	0.16	3.0												73.32	165
11T308TN	0.8	25	0.17	3.0												73.32	185
11T308SN	0.8	30	0.18	3.0												73.32	185
11T308FN	0.8			3.0	52.75	210		65.82	210	81.11	204					73.32	115
11T308EN	0.8			3.0												73.32	115

Cast iron	•	•	•	•	•	•
Sintered steels	•	•	•	•	•	•
Heat resistant alloys	•	•	•	•	•	•
hardened < 45 HRC						
hardened 46-55 HRC						
hardened 56-60 HRC						
hardened 61-65 HRC						

DCGW / DCGT



F
CBN
DCGW

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CBN
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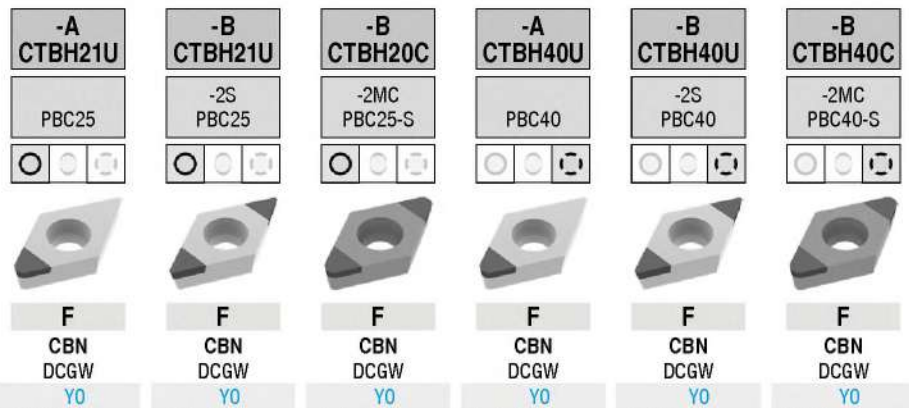
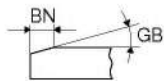
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ISO	RE mm	GB °	BN mm	LE mm	NEW		NEW		NEW		NEW		NEW		NEW	
					YO	YO	YO	YO	YO	YO	YO	YO	YO	YO		
					Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
					71 008 ...	71 012 ...	71 007 ...	71 009 ...	71 134 ...	71 134 ...	71 134 ...	71 134 ...	71 134 ...	71 134 ...	71 134 ...	71 134 ...
					£	£	£	£	£	£	£	£	£	£	£	£
070202EN	0.2			3.9	87.68 00200		79.70 00200									
070202SN	0.2	15	0.11	3.9	82.40 30214		79.70 30214									
070202FN	0.2			3.9						63.92 400		63.92 800				
070204EN	0.4			3.5	82.40 00400		79.70 00400									
070204SN	0.4	15	0.11	3.5	82.40 30414		79.70 30414									
070204SN	0.4	25	0.13	3.5	82.40 30429		79.70 30429									
070204FN	0.4			3.5						63.92 402		63.92 802				
070208SN	0.8	15	0.11	3.0		82.40 30614		79.70 30614								
070208SN	0.8	25	0.13	3.0		82.40 30629		79.70 30629								
070208EN	0.8			3.0		82.40 00600		79.70 00600								
11T302SN	0.2	15	0.11	3.9			79.70 31414									
11T302RN	0.2			3.9			79.70 21400									
11T302SN	0.2	25	0.13	3.9			79.70 31429									
11T302FN	0.2			3.9						65.82 406		65.82 806				
11T304SN	0.4	15	0.11	3.5			79.70 31614									
11T304SN	0.4	25	0.13	3.5			79.70 31629									
11T304RN	0.4			3.5			79.70 21600									
11T304FN	0.4			3.5						65.82 408		65.82 808				
11T308RN	0.8			3.0				79.70 21800								
11T308SN	0.8	15	0.11	3.0				79.70 31814								
11T308SN	0.8	25	0.13	3.0				79.70 31829								
11T308FN	0.8			3.0						65.82 410		65.82 810				

Cast iron																
Sintered steels																
Heat resistant alloys																
hardened < 45 HRC																
hardened 46-55 HRC																
hardened 56-60 HRC																
hardened 61-65 HRC																

DCGW

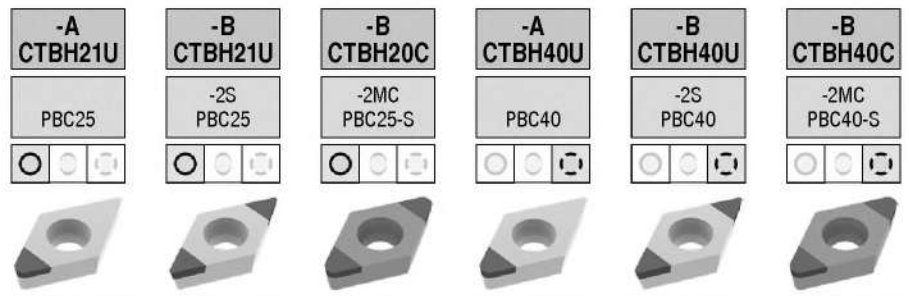
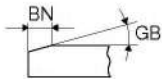


ISO	RE mm	GB °	BN mm	LE mm	-A CTBH21U		-B CTBH21U		-B CTBH20C		-A CTBH40U		-B CTBH40U		-B CTBH40C	
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070202FN	0.2			3.9	52.75	400 1)					52.75	800				
070202SN	0.2	10	0.09	3.9					73.32	230						
070202SN	0.2	15	0.11	3.9					73.32	240						
070202SN	0.2	20	0.09	3.9					73.32	250						
070202TN	0.2	20	0.09	3.9											73.32	320
070202TN	0.2	20	0.14	3.9	52.75	500									73.32	350
070202SN	0.2	25	0.09	3.9											73.32	340
070202TN	0.2	25	0.11	3.9											73.32	360
070202TN	0.2	25	0.12	3.9					52.75	900					73.32	370
070202TN	0.2	25	0.14	3.9					73.32	260					73.32	380
070202SN	0.2	30	0.14	3.9											73.32	310
070202SN	0.2	30	0.16	3.9											73.32	
070202SN	0.2	35	0.17	3.9											73.32	
070202EN	0.2			3.9											73.32	
070204SN	0.4	10	0.09	3.5					73.32	231						
070204SN	0.4	15	0.11	3.5					73.32	241						
070204SN	0.4	20	0.09	3.5					73.32	251					73.32	331
070204TN	0.4	20	0.14	3.5	52.75	502									73.32	351
070204SN	0.4	25	0.09	3.5											73.32	341
070204TN	0.4	25	0.11	3.5												
070204TN	0.4	25	0.12	3.5					52.75	902						
070204TN	0.4	25	0.14	3.5					73.32	261						
070204SN	0.4	25	0.15	3.5					73.32	271						
070204TN	0.4	30	0.14	3.5											73.32	361
070204SN	0.4	30	0.16	3.5											73.32	371
070204SN	0.4	35	0.17	3.5											73.32	381
070204FN	0.4			3.5	52.75	402 1)			73.32	211	52.75	802				
070208SN	0.8	10	0.09	3.0					73.32	232						
070208SN	0.8	20	0.09	3.0					73.32	252					73.32	332
070208TN	0.8	20	0.14	3.0	52.75	504									73.32	352
070208SN	0.8	25	0.09	3.0											73.32	342
070208TN	0.8	25	0.11	3.0												
070208TN	0.8	25	0.12	3.0					52.75	904						
070208TN	0.8	25	0.14	3.0					73.32	262						
070208TN	0.8	30	0.14	3.0											73.32	362
070208SN	0.8	30	0.16	3.0											73.32	372
070208SN	0.8	35	0.17	3.0											73.32	382
070208FN	0.8			3.0	52.75	404 1)			73.32	212	52.75	804				
070208EN	0.8			3.0					73.32	222					73.32	312
11T302FN	0.2			3.9	52.75	406 1)	81.11	400 1)			52.75	806	81.11	800 1)		
11T302SN	0.2	15	0.09	3.9					73.32	233						
11T302SN	0.2	15	0.11	3.9					73.32	243						
11T302SN	0.2	20	0.09	3.9					73.32	253						
11T302TN	0.2	20	0.09	3.9											73.32	323

Cast iron																
Sintered steels																
Heat resistant alloys																
hardened < 45 HRC																
hardened 46-55 HRC									•	•	•	•	•	•	•	•
hardened 56-60 HRC									•	•	•	•	•	•	•	•
hardened 61-65 HRC									•	•	•	•	•	•	•	•

1) Machining to 60 HRC

DCGW



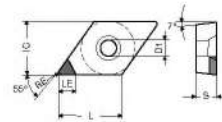
ISO	RE mm	GB °	BN mm	LE mm	-A CTBH21U		-B CTBH21U		-B CTBH20C		-A CTBH40U		-B CTBH40U		-B CTBH40C	
					Article no. 71 130 ...	Article no. 71 131 ...	Article no. 71 163 ...	Article no. 71 130 ...	Article no. 71 131 ...	Article no. 71 163 ...	Article no. 71 130 ...	Article no. 71 131 ...	Article no. 71 163 ...			
11T302TN	0.2	20	0.14	3.9	52.75	81.11					52.75	81.11			73.32	353
11T302SN	0.2	25	0.09	3.9											73.32	343
11T302TN	0.2	25	0.11	3.9												
11T302TN	0.2	25	0.12	3.9												
11T302TN	0.2	25	0.14	3.9												
11T302SN	0.2	25	0.15	3.9												
11T302TN	0.2	30	0.14	3.9												
11T302SN	0.2	35	0.17	3.9												
11T302EN	0.2			3.9												
11T304FN	0.4			3.5	52.75	81.11	73.32	52.75	81.11	73.32	52.75	81.11				
11T304SN	0.4	10	0.09	3.5			73.32			73.32						
11T304SN	0.4	15	0.11	3.5			73.32			73.32						
11T304SN	0.4	20	0.09	3.5			73.32			73.32						
11T304TN	0.4	20	0.09	3.5												
11T304TN	0.4	20	0.14	3.5	52.75	81.11										
11T304SN	0.4	25	0.09	3.5												
11T304TN	0.4	25	0.11	3.5												
11T304TN	0.4	25	0.12	3.5												
11T304TN	0.4	25	0.14	3.5			73.32			73.32						
11T304SN	0.4	25	0.15	3.5			73.32			73.32						
11T304TN	0.4	30	0.14	3.5												
11T304SN	0.4	30	0.16	3.5												
11T304SN	0.4	30	0.18	3.5			73.32			73.32						
11T304SN	0.4	35	0.17	3.5			73.32			73.32						
11T304EN	0.4			3.5			73.32			73.32						
11T308SN	0.8	15	0.11	3.0			73.32			73.32						
11T308SN	0.8	20	0.09	3.0			73.32			73.32						
11T308TN	0.8	20	0.09	3.0												
11T308TN	0.8	20	0.14	3.0	52.75	81.11										
11T308SN	0.8	25	0.09	3.0												
11T308TN	0.8	25	0.11	3.0												
11T308TN	0.8	25	0.12	3.0												
11T308TN	0.8	25	0.14	3.0			73.32			73.32						
11T308TN	0.8	30	0.14	3.0												
11T308SN	0.8	30	0.16	3.0												
11T308SN	0.8	30	0.18	3.0			73.32			73.32						
11T308SN	0.8	35	0.17	3.0			73.32			73.32						
11T308EN	0.8			3.0			73.32			73.32						
11T308FN	0.8			3.0	52.75	81.11	73.32	52.75	81.11	73.32	52.75	81.11				

Cast iron					
Sintered steels					
Heat resistant alloys					
hardened < 45 HRC					
hardened 46-55 HRC	•	•	•	•	•
hardened 56-60 HRC	•	•	•	•	•
hardened 61-65 HRC					

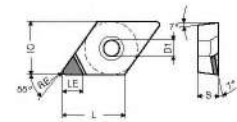
1) Machining to 60 HRC

DCGW / DCGT

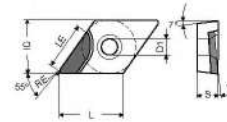
Designation	L	S	D1	IC
	mm	mm	mm	mm
DCG. 0702..	7.75	2.38	2.8	6.35
DCG. 11T3..	11.60	3.97	4.4	9.52



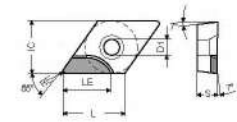
DCGW-A



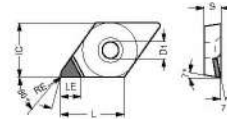
DCGT-A



DCGT-L



DCGT-R



DCGT-Q-A (-20)

DCGW / DCGT

-A CTDMD05	-A CTDMD05	-A CTDPD20	-A CTDPD20	-A CTDPD20	-A CTDPD20
MDC	MDC	PDC	PDC	PDC	PDC
F	F	F	F	F	F
DIAMOND DCGW	DIAMOND DCGT	DIAMOND DCGW	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT
YO	YO	YO	YO	YO	YO

ISO	RE	LE	-A CTDMD05 MDC		-A CTDMD05 PDC		-A CTDPD20 PDC		-A CTDPD20 PDC		
	mm	mm	Article no.	£	Article no.	£	Article no.	£	Article no.	£	
070202FN	0.2	2.5	71 130 ...		71 134 ...	406.61	050	77.85	100	77.85	100
070202FN	0.2	3.7									
070204FN	0.4	2.5			406.61	052	77.85	102	77.85	102	
070204FN	0.4	3.4									
070204FRR	0.4	5.5							108.09	102	
070204FLL	0.4	5.5								108.09	102
070208FN	0.8	2.5			406.61	054	77.85	104	77.85	104	
070208FN	0.8	3.0									
070208FRR	0.8	5.0							108.09	104	
070208FLL	0.8	5.0								108.09	104
11T302FN	0.2	2.5			406.61	056					
11T302FN	0.2	3.0	376.80	056							
11T302FN	0.2	4.7					79.66	106	79.66	106	
11T304FN	0.4	2.5			406.61	058					
11T304FN	0.4	3.0	376.80	058							
11T304FN	0.4	4.3					79.66	108	79.66	108	
11T304FRR	0.4	7.5							116.66	108	
11T304FLL	0.4	7.5								116.66	108
11T308FN	0.8	2.5			406.61	060					
11T308FN	0.8	4.0					79.66	110	79.66	110	
11T308FRR	0.8	7.0							116.66	110	
11T308FLL	0.8	7.0								116.66	110

Steel						
Stainless steel						
Cast iron						
Non ferrous metals	•	•	•	•	•	•
Heat resistant alloys	○	○				

DCGT / DCGW

ISO	RE mm	LE mm	-Q-A CTDPD20		-Q-A CTDPD20		-A-CB1 CTDPD20		-Q-A CTDPS30		-Q-A CTDPS30	
			Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£
070202FN	0.2	3.7										
070204FL	0.4	3.0										
070204FR	0.4	3.0	96.91	104	96.91	104						
070204FN	0.4	3.4					92.10	104				
070208FN	0.8	3.0					101.43	108				
11T302FR	0.2	4.0							102.27	162		
11T302FN	0.2	4.7					94.08	112				
11T304FR	0.4	4.0	102.27	114					102.27	164		
11T304FL	0.4	4.0			102.27	114					102.27	164
11T304FN	0.4	4.3					94.08	114				
11T308FN	0.8	4.0					108.99	118				
Steel												
Stainless steel												
Cast iron												
Non ferrous metals												
Heat resistant alloys												

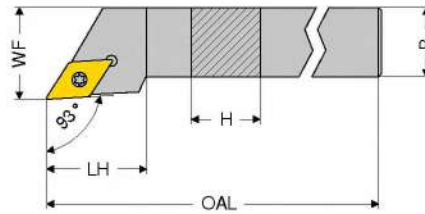
DCGT

ISO	RE mm	LE mm	-Q-A CTDPS30		-Q-A CTDPS30		-A-CB1 CTDPS30		-A-CB2 CTDPS30		-A-CB3 CTDPU20		
			-2Q PDC-S		-2Q PDC-S		-CB1 PDC-S		-CB2 PDC-S		-CB3 PDC-S		
			F	F	F	F	M	R					
			DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT					
			YO	YO	YO	YO	YO	YO					
			Article no. 71 144 ...	Article no. 71 145 ...	Article no. 71 310 ...	Article no. 71 311 ...	Article no. 71 312 ...						
			£	£	£	£	£						
070201FL	0.1	3.0		96.91 151									
070202FL	0.2	3.0		96.91 152									
070202FR	0.2	3.0	96.91										
070202FN	0.2	3.7			92.10 202								
070202EN	0.2	3.7				92.10 202							
070204FN	0.4	3.4			92.10 204								
070204EN	0.4	3.4				92.10 204					73.53	204	
070208EN	0.8	3.0				101.43 208							
11T301FL	0.1	4.0		102.27 161									
11T301FR	0.1	4.0	102.27										
11T302FR	0.2	4.0	102.27										
11T302FL	0.2	4.0		102.27 162									
11T302FN	0.2	4.7			94.08 212								
11T302EN	0.2	4.7				99.19 212							
11T304FN	0.4	4.3			94.08 214								
11T304EN	0.4	4.3				99.19 214					77.85	214	
11T308EN	0.8	4.0				108.99 218					87.58	218	
11T308FN	0.8	4.0			108.99	218							

DCGT

ISO	RE mm	LE mm	-A-CB1 CTDCD10		-A-CB2 CTDCD10	
			-CB1 CVD		-CB2 CVD	
			F	M		
			DIAMOND DCGT	DIAMOND DCGT		
			YO	YO		
			Article no. 71 310 ...	Article no. 71 311 ...		
			£	£		
070202FN	0.2	2.6				
070204FN	0.4	2.3				
070204EN	0.4	2.3			113.98 302	
070208EN	0.8	2.0			113.98 304	
						113.98 304
						122.96 308
11T304EN	0.4	2.3				115.71 314
11T304FN	0.4	2.3				
11T308EN	0.8	2.0			115.71 314	
11T308FN	0.8	2.0			129.68 318	
						129.68 318

MaxiLock-S – SDJC 93° – Toolholder with screw clamping



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
								Article no. 70 685 ...	Article no. 70 684 ...	Article no. 70 685 ...	Article no. 70 684 ...
SDJC R/L 0808 D07	8	8	60	13.0	10	1,2	DC.. 0702	55.38	008	55.38	008
SDJC R/L 1010 E07	10	10	70	13.0	12	1,2	DC.. 0702	58.72	010	58.72	010
SDJC R/L 1212 F07	12	12	80	14.5	16	1,2	DC.. 0702	58.72	012	58.72	012
SDJC R/L 1616 H11	16	16	100	20.0	20	3,2	DC.. 11T3	72.73	016	72.73	016
SDJC R/L 2020 K11	20	20	125	20.5	25	3,2	DC.. 11T3	77.31	020	77.31	020
SDJC R/L 2525 M11	25	25	150	21.5	32	3,2	DC.. 11T3	79.97	025	79.97	025
SDJC R/L 3225 P11	32	25	170	21.5	32	3,2	DC.. 11T3	83.13	032	83.13	032

i Tool holders with HSK-T or PSC interface can be found in → Chapter 16.

Spare parts

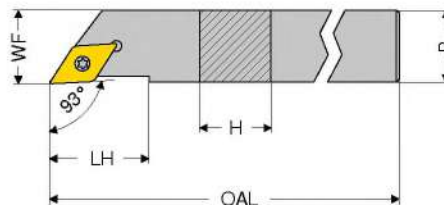
Insert

	Y7	2A/28	2A	2A/28	2A/28
DC.. 0702	10.30	110	2.15	112	
DC.. 11T3		7.53	2.85	113	6.81

Y7	2A/28	2A	2A/28	2A/28
Key D	Combination Key	Clamping screw	Solid Carbide Seat D	Threaded sleeve
Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
£	£	£	£	£

MaxiLock-S – SDJC 93° – Toolholder with screw clamping

▲ for sliding head lathes



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand X0		Right-hand X0	
								Article no. 70 685 ...	Article no. 70 684 ...	Article no. 70 685 ...	Article no. 70 684 ...
SDJC R/L 0808 H07	8	8	100	13.0	8	1,2	DC.. 0702	177.01	108	177.01	108
SDJC R/L 1010 H07	10	10	100	13.0	10	1,2	DC.. 0702	177.01	110	177.01	110
SDJC R/L 1212 H07	12	12	100	14.5	12	1,2	DC.. 0702	198.01	112	198.01	112
SDJC R/L 1616 K07	16	16	125	33.0	16	1,2	DC.. 0702	219.53	116	219.53	116
SDJC R/L 1212 H11	12	12	100	22.0	12	3,2	DC.. 11T3	198.01	212	198.01	212
SDJC R/L 1616 K11	16	16	125	33.0	16	3,2	DC.. 11T3	219.53	216	219.53	216

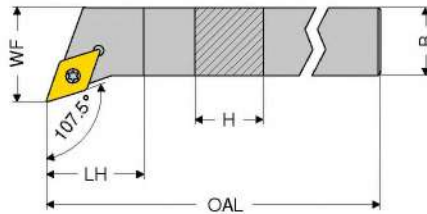
Spare parts

Insert

	Y7	2A
DC.. 0702	10.30	110
DC.. 11T3	12.26	113

Y7	2A
Key D	Clamping screw
Article no. 80 950 ...	Article no. 72 950 ...
£	£

MaxiLock-S – SDHC 107.5° – Toolholder with screw clamping



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
								Article no. 70 689 ...	Article no. 70 688 ...	Article no. 70 689 ...	Article no. 70 688 ...
SDHC R/L 1010 E07	10	10	70	5.5	12	1,2	DC.. 0702	£ 58.72	010	£ 58.72	010
SDHC R/L 1212 F07	12	12	80	12.0	16	1,2	DC.. 0702	£ 58.72	012	£ 58.72	012
SDHC R/L 1616 H11	16	16	100	10.4	20	3,2	DC.. 11T3	£ 72.73	016	£ 72.73	016
SDHC R/L 2020 K11	20	20	125	14.0	32	3,2	DC.. 11T3	£ 77.31	020	£ 77.31	020
SDHC R/L 2525 M11	25	25	150	20.0	32	3,2	DC.. 11T3	£ 79.97	025	£ 79.97	025

Spare parts

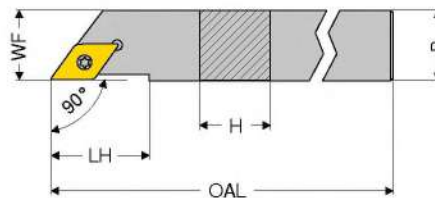
for Article no.

for Article no.	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
70 689 010 / 70 688 010	£ 10.30 110		£ 2.15 112		
70 689 012 / 70 688 012	£ 10.30 110		£ 2.15 112		
70 689 016 / 70 688 016		£ 7.53 398	£ 2.85 113	£ 6.81 106	£ 4.22 171
70 689 020 / 70 688 020		£ 7.53 398	£ 2.85 113	£ 6.81 106	£ 4.22 171
70 689 025 / 70 688 025		£ 7.53 398	£ 2.85 113	£ 6.81 106	£ 4.22 171

Y7	2A/28	2A	2A/28	2A/28
Key D	Combination Key	Clamping screw	Solid Carbide Seat D	Threaded sleeve
Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
£	£	£	£	£

MaxiLock-S – SDAC 90° – Toolholder with screw clamping

▲ for sliding head lathes



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
								Article no. 70 789 ...	Article no. 70 788 ...	Article no. 70 789 ...	Article no. 70 788 ...
SDAC R/L 0808 K07	8	8	125	14	8	1,2	DC.. 0702	£ 58.72	008	£ 58.72	008
SDAC R/L 1010 M07	10	10	150	14	10	1,2	DC.. 0702	£ 58.72	010	£ 58.72	010
SDAC R/L 1212 M07	12	12	150	14	12	1,2	DC.. 0702	£ 65.68	012	£ 65.68	012
SDAC R/L 1414 M11	14	14	150	21	14	3,2	DC.. 11T3	£ 65.68	014	£ 65.68	014

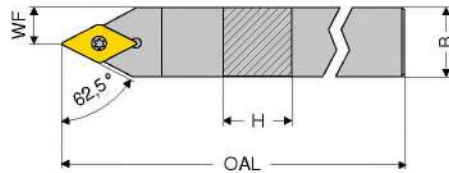
Spare parts

for Article no.

for Article no.	Article no.	Article no.	Article no.	Article no.
70 788 008 / 70 789 008	T08	£ 10.30 110	M2,5x6	£ 2.15 112
70 788 010 / 70 789 010	T08	£ 10.30 110	M2,5x6	£ 2.15 112
70 788 012 / 70 789 012	T08	£ 10.30 110	M2,5x6	£ 2.15 112
70 788 014 / 70 789 014	T15	£ 12.26 113	M3,5x11	£ 2.85 113

Y7	2A
Key D	Clamping screw
Article no. 80 950 ...	Article no. 70 950 ...
£	£

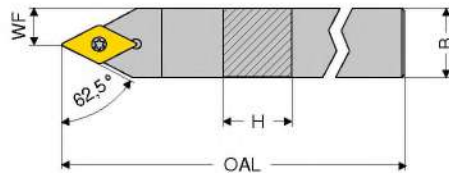
MaxiLock-S – SDNC 62.5° – Toolholder with screw clamping



ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Neutral 2A/24	
							Article no. 70 680 ...	£
SDNC N 0808 D07	8	8	60	4.0	1,2	DC.. 0702	55.38	008
SDNC N 1010 E07	10	10	70	5.0	1,2	DC.. 0702	58.72	010
SDNC N 1212 F07	12	12	80	6.0	1,2	DC.. 0702	58.72	012
SDNC N 1616 H11	16	16	100	8.0	3,2	DC.. 11T3	72.73	016
SDNC N 2020 K11	20	20	125	10.0	3,2	DC.. 11T3	77.31	020
SDNC N 2525 M11	25	25	150	12.5	3,2	DC.. 11T3	79.97	025

Spare parts for Article no.	Y7		2A/28		2A		2A/28		2A/28	
	Article no. 80 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£
70 680 008	10.30	110			2.15	112				
70 680 010	10.30	110			2.15	112				
70 680 012	10.30	110			2.15	112				
70 680 016			7.53	398	2.85	113	6.81	106	4.22	171
70 680 020			7.53	398	2.85	113	6.81	106	4.22	171
70 680 025			7.53	398	2.85	113	6.81	106	4.22	171

MaxiLock-S – SDNC 62.5° – Toolholder with screw clamping

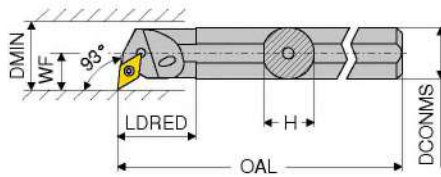


ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Neutral 2A/24	
							Article no. 70 784 ...	£
SDNC N 0808 K07	8	8	125	4	1,2	DC.. 0702	55.38	008
SDNC N 1010 M07	10	10	150	5	1,2	DC.. 0702	58.72	010
SDNC N 1212 M07	12	12	150	6	1,2	DC.. 0702	65.68	012
SDNC N 1414 M11	14	14	150	7	3,2	DC.. 11T3	65.68	014

Spare parts for Article no.	Y7		2A			
	Article no. 80 950 ...	£	Article no. 70 950 ...	£		
70 784 008	T08	10.30	110	M2,5x6	2.15	112
70 784 010	T08	10.30	110	M2,5x6	2.15	112
70 784 012	T08	10.30	110	M2,5x6	2.15	112
70 784 014	T15	12.26	113	M3,5x11	2.85	113

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

- ▲ A... = with thro' coolant
- ▲ S... = without thro' coolant



Illustrations show right-hand versions

ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
									Article no. 70 737 ...	£	Article no. 70 736 ...	£
S12Q SDUC R/L 07	12	11.0	180		9	17	1,2	DC.. 0702	87.79	012	87.79	012
A12K SDUC R/L 07	12	11.5	125	22	9	16	1,2	DC.. 0702	87.79	212	87.79	212
A16M SDUC R/L 07	16	15.0	150	29	11	20	1,2	DC.. 0702	89.70	216	89.70	216
S16R SDUC R/L 07	16	15.0	200		11	21	1,2	DC.. 0702	89.70	016	89.70	016
A20Q SDUC R/L 07	20	18.5	180	32	13	25	1,2	DC.. 0702	111.82	220	111.82	220
S20S SDUC R 07	20	18.0	250		13	25	1,2	DC.. 0702			111.82	020
S20S SDUC R 11	20	18.0	250		13	25	3,2	DC.. 11T3			111.82	120
A20Q SDUC R/L 11	20	18.5	180	32	13	25	3,2	DC.. 11T3	111.82	320	111.82	320
A25R SDUC R/L 11	25	23.0	200	36	17	32	3,2	DC.. 11T3	128.55	325	128.55	325
S25T SDUC R/L 11	25	23.0	300		17	32	3,2	DC.. 11T3	128.55	125	128.55	125
A32S SDUC R/L 11	32	30.0	250	50	22	40	3,2	DC.. 11T3	176.73	332	176.73	332
S32U SDUC R 11	32	30.0	350		22	40	3,2	DC.. 11T3			176.73	132
A40T SDUC R/L 11	40	38.0	300	60	27	50	3,2	DC.. 11T3	212.18	340	212.18	340

i Tool holders with HSK-T or PSC interface can be found in → Chapter 16.

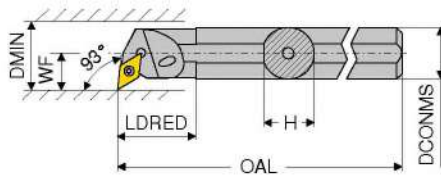
Spare parts

for Article no.

	Y7 Key D		2A/28 Combination Key		2A Clamping screw		2A/28 Solid Carbide Seat D		2A/28 Threaded sleeve	
	Article no. 80 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£
70 736 012 / 70 737 012	10.30	110			2.15	112				
70 736 212 / 70 737 212	10.30	110			2.15	112				
70 736 216 / 70 737 216	10.30	110			2.15	112				
70 736 016 / 70 737 016	10.30	110			2.15	112				
70 736 220 / 70 737 220	10.30	110			2.15	112				
70 736 020	10.30	110			2.15	112				
70 736 120	12.26	113			2.85	110				
70 736 320 / 70 737 320	12.26	113			2.85	110				
70 736 325 / 70 737 325	12.26	113			2.85	113				
70 736 125 / 70 737 125			7.53	398	2.85	113	6.81	106	4.22	171
70 736 332 / 70 737 332			7.53	398	2.85	113	6.81	106	4.22	171
70 736 132			7.53	398	2.85	113	6.81	106	4.22	171
70 736 340 / 70 737 340			7.53	398	2.85	113	6.81	106	4.22	171

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions



ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand	Right-hand
									2A	2A
									Article no. 70 739 ...	Article no. 70 738 ...
									£	£
E-A10H SDUC R/L 07	10	9	100	28	8	13	1,2	DC.. 0702	163.09 210	163.09 210
E-A12K SDUC R/L 07	12	11	125	18	9	18	1,2	DC.. 0702	163.09 212	163.09 212
E-A16M SDUC R/L 07	16	15	150	30	11	22	1,2	DC.. 0702	259.27 216	259.27 216
E-A20Q SDUC R/L 07	20	18	180	38	13	26	1,2	DC.. 0702	325.09 220	325.09 220
E-A20Q SDUC R/L 11	20	18	180	38	13	26	3,2	DC.. 11T3	344.18 320	344.18 320
E-A25R SDUC R/L 11	25	23	200	38	17	34	3,2	DC.. 11T3	495.73 225	495.73 225
E-A32S SDUC R/L 11	32	30	250	43	22	39	3,2	DC.. 11T3	727.36 232	727.36 232

Spare parts

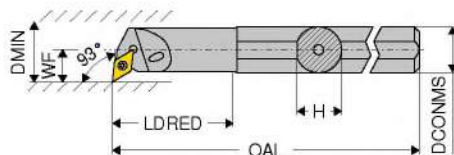
for Article no.

70 738 210 / 70 739 210	
70 738 212 / 70 739 212	
70 738 216 / 70 739 216	
70 738 220 / 70 739 220	
70 738 320 / 70 739 320	
70 738 225 / 70 739 225	
70 738 232 / 70 739 232	

Y7		2A	
	Key D		Clamping screw
Article no.	Article no.	Article no.	Article no.
80 950 ...	70 950 ...	80 950 ...	70 950 ...
£	£	£	£
10.30 110	2.15 112	10.30 110	2.15 112
10.30 110	2.15 112	10.30 110	2.15 112
10.30 110	2.15 112	10.30 110	2.15 112
12.26 113	2.85 449	12.26 113	2.85 449
12.26 113	2.85 449	12.26 113	2.85 449
12.26 113	2.85 449	12.26 113	2.85 449

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions



ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand	Right-hand
									2A	2A
									Article no. 70 739 ...	Article no. 70 738 ...
									£	£
E-A0810H SDUC R/L 07	10	9	100	22	7	12.5	1,2	DC.. 0702	203.09 410	203.09 410
E-A1012K SDUC R/L 07	12	11	125	28	9	15.5	1,2	DC.. 0702	203.09 412	203.09 412
E-A1216M SDUC R/L 07	16	15	150	36	11	19.5	1,2	DC.. 0702	203.09 416	203.09 416

Spare parts

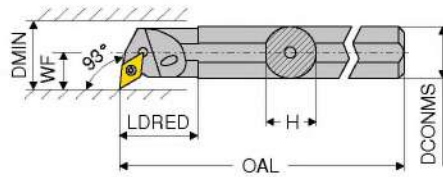
for Article no.

70 738 410 / 70 739 410	
70 738 412 / 70 739 412	
70 738 416 / 70 739 416	

Y7		2A	
	Key D		Clamping screw
Article no.	Article no.	Article no.	Article no.
80 950 ...	70 950 ...	80 950 ...	70 950 ...
£	£	£	£
10.30 110	2.15 112	10.30 110	2.15 112
10.30 110	2.15 112	10.30 110	2.15 112
10.30 110	2.15 112	10.30 110	2.15 112

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ Type: Solid carbide



Illustrations show right-hand versions

ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
									Article no. 70 739 ...	Article no. 70 738 ...	Article no. 70 739 ...	Article no. 70 738 ...
E12Q SDUC R/L 07	12	11.5	180	26	9	16	1,2	DC.. 0702	302.91	012	302.91	012
E16R SDUC R/L 07	16	15.0	200	34	11	20	1,2	DC.. 0702	395.82	016	395.82	016
E20S SDUC R/L 11	20	18.5	250	38	13	25	3,2	DC.. 11T3	494.45	120	494.45	120
E25T SDUC R/L 11	25	23.0	300	43	17	32	3,2	DC.. 11T3	871.91	125	871.91	125

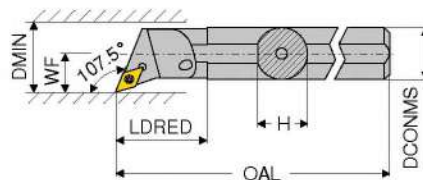
Spare parts

for Article no.

Article no.	£		Article no.	£	
70 739 012 / 70 738 012	10.30	110	80 950 ...	2.15	112
70 739 016 / 70 738 016	10.30	110	80 950 ...	2.15	112
70 739 120 / 70 738 120	12.26	113	80 950 ...	2.85	304
70 739 125 / 70 738 125	12.26	113	80 950 ...	2.85	113



MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping



Illustrations show right-hand versions

ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand 2A		Right-hand 2A	
									Article no. 70 741 ...	Article no. 70 740 ...	Article no. 70 741 ...	Article no. 70 740 ...
A10H SDQC R/L 07	10	9.0	100	22	7	12.5	1,2	DC.. 0702	87.79	210	87.79	210
A12K SDQC R/L 07	12	11.5	125	22	9	16.0	1,2	DC.. 0702	87.79	212	87.79	212
A16M SDQC R/L 07	16	15.0	150	29	11	20.0	1,2	DC.. 0702	89.70	216	89.70	216
A20Q SDQC R/L 07	20	18.5	180	32	13	25.0	1,2	DC.. 0702	111.82	220	111.82	220
A25R SDQC R/L 11	25	23.0	200	36	17	32.0	3,2	DC.. 11T3	128.55	225	128.55	225
A32S SDQC R/L 11	32	30.0	250	50	22	40.0	3,2	DC.. 11T3	176.73	232	176.73	232
A40T SDQC R/L 11	40	38.0	300	60	27	50.0	3,2	DC.. 11T3	212.18	240	212.18	240

Spare parts

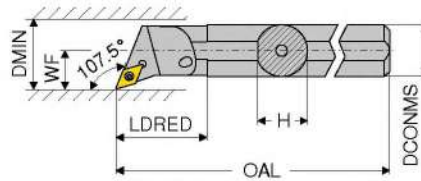
for Article no.

Article no.	£		Article no.	£		Article no.	£		Article no.	£		Article no.	£	
70 740 210 / 70 741 210	10.30	110	70 950 ...	2.15	112	70 950 ...	2.15	112	70 950 ...	2.15	112	70 950 ...	2.15	112
70 740 212 / 70 741 212	10.30	110	70 950 ...	2.15	112	70 950 ...	2.15	112	70 950 ...	2.15	112	70 950 ...	2.15	112
70 740 216 / 70 741 216	10.30	110	70 950 ...	2.15	112	70 950 ...	2.15	112	70 950 ...	2.15	112	70 950 ...	2.15	112
70 740 220 / 70 741 220	10.30	110	70 950 ...	2.15	112	70 950 ...	7.53	398	70 950 ...	2.85	113	70 950 ...	6.81	106
70 740 225 / 70 741 225			70 950 ...	7.53	398	70 950 ...	2.85	113	70 950 ...	6.81	106	70 950 ...	4.22	171
70 740 232 / 70 741 232			70 950 ...	7.53	398	70 950 ...	2.85	113	70 950 ...	6.81	106	70 950 ...	4.22	171
70 740 240 / 70 741 240			70 950 ...	7.53	398	70 950 ...	2.85	113	70 950 ...	6.81	106	70 950 ...	4.22	171



MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions



ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand 2A		Right-hand 2A	
									Article no. 70 751 ...	Article no. 70 750 ...	Article no. 70 751 ...	Article no. 70 750 ...
E-A12K SDQC R/L 07	12	11	125	24	9	18	1,2	DC.. 0702	£ 163.09	012	£ 163.09	012
E-A16M SDQC R/L 07	16	15	150	30	11	22	1,2	DC.. 0702	£ 278.36	016	£ 278.36	016
E-A20Q SDQC R/L 07	20	18	180	38	13	26	1,2	DC.. 0702	£ 325.09	020	£ 325.09	020
E-A20Q SDQC R/L 11	20	18	180	38	13	26	3,2	DC.. 11T3	£ 344.18	120	£ 344.18	120
E-A25R SDQC R/L 11	25	23	200	38	17	34	3,2	DC.. 11T3	£ 550.09	025	£ 550.09	025
E-A32S SDQC R/L 11	32	30	250	43	22	39	3,2	DC.. 11T3	£ 727.36	032	£ 727.36	032

Spare parts

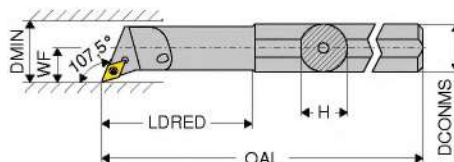
for Article no.

	Article no. 80 950 ...	Article no. 70 950 ...
70 750 012 / 70 751 012	£ 10.30 110	£ 2.15 112
70 750 016 / 70 751 016	£ 10.30 110	£ 2.15 112
70 750 020 / 70 751 020	£ 10.30 110	£ 2.15 112
70 750 120 / 70 751 120	£ 12.26 113	£ 2.85 449
70 750 025 / 70 751 025	£ 12.26 113	£ 2.85 449
70 750 032 / 70 751 032	£ 12.26 113	£ 2.85 449



MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions



ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand 2A		Right-hand 2A	
									Article no. 70 751 ...	Article no. 70 750 ...	Article no. 70 751 ...	Article no. 70 750 ...
E-A0810H SDQC R/L 07	10	9	100	22	7	12.5	1,2	DC.. 0702	£ 203.09	210	£ 203.09	210
E-A1012K SDQC R/L 07	12	11	125	28	9	15.5	1,2	DC.. 0702	£ 203.09	212	£ 203.09	212
E-A1216M SDQC R/L 07	16	15	150	36	11	19.5	1,2	DC.. 0702	£ 203.09	216	£ 203.09	216

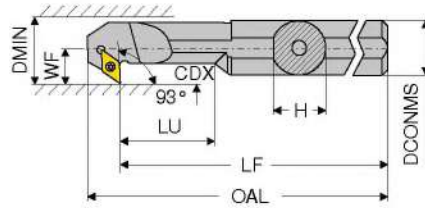
Spare parts

for Article no.

	Article no. 80 950 ...	Article no. 70 950 ...
70 750 210 / 70 751 210	£ 10.30 110	£ 2.15 112
70 750 212 / 70 751 212	£ 10.30 110	£ 2.15 112
70 750 216 / 70 751 216	£ 10.30 110	£ 2.15 112



MaxiLock-S – SDXC 93° – Boring bar with screw clamping



Illustrations show right-hand versions



ISO designation	DCONMS	H	LF	OAL	LU	WF	DMIN	CDX	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
											Article no. 70 733 ...	Article no. 70 732 ...	Article no. 70 733 ...	Article no. 70 732 ...
A12K SDXC R/L 07	12	11.5	125	137.0	24	9	16	4.5	1,2	DC.. 0702	£ 87.79	212	£ 87.79	212
A16M SDXC R/L 07	16	15.0	150	162.0	36	11	20	4.5	1,2	DC.. 0702	£ 89.70	216	£ 89.70	216
A20Q SDXC R/L 11	20	18.5	180	196.5	40	13	25	6.5	3,2	DC.. 11T3	£ 111.82	220	£ 111.82	220
A25R SDXC R/L 11	25	23.0	200	216.8	50	17	32	9.5	3,2	DC.. 11T3	£ 128.55	225	£ 128.55	225

Y7		2A	
	Key D		Clamping screw
Article no. 80 950 ...	Article no. 70 950 ...	Article no. 80 950 ...	Article no. 70 950 ...
£	£	£	£
10.30	110	2.15	112
10.30	110	2.15	112
12.26	113	2.85	304
12.26	113	2.85	304

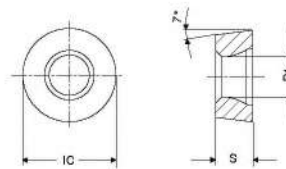
Spare parts

for Article no.

70 733 212 / 70 732 212
70 733 216 / 70 732 216
70 733 220 / 70 732 220
70 733 225 / 70 732 225

RCMT / RCGT









Designation	S	D1	IC
	mm	mm	mm
RCGT 0602..	2.38	2.8	6
RCGT 0803..	3.18	3.4	8
RC.T 1003..	3.18	4.0	10
RCMT 1204..	4.76	4.9	12
RCMT 1606..	6.35	5.3	16
RCMT 2006..	6.35	6.5	20
RCMT 2507..	7.94	7.2	25



RCMT / RCGT

ISO	RE mm	-SMF CTCK110		-SM CTCP125		-SM CTCP135		-SM CTCP115		-SM CTCP125		-SM CTCP135		-27 H10T	
		-SMF DCX3110		-ZM HCX1125		-ZM HCR1135		-ZM HCX1115		-ZM HCX1125		-ZM HCR1135		-AL CWK15	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		○ ○ □		○ ○ □		○ ○ □		○ ○ □		○ ○ □		○ ○ □		○ ○ □	
		F		M		M		M		M		M		M	
		RCMT		RCGT		RCGT		RCMT		RCMT		RCMT		RCGT	
		1A/08		1A/08		1A/08		1A/08		1A/08		1A/08		1A/90	
		Article no. 70 188 ...		Article no. 76 262 ...		Article no. 76 262 ...		Article no. 76 264 ...		Article no. 76 264 ...		Article no. 76 264 ...		Article no. 70 266 ...	
		€		€		€		€		€		€		€	
0602MOEN	3.0														
0602MOFN	3.0													5.48	600
0803MOEN	4.0														
0803MOFN	4.0													6.12	602
1003MOFN	5.0														
1003MOSN	5.0													6.12	604
1204MOSN	6.0														
1606MOEN	8.0														
1606MOSN	8.0	16.48	038												
2006MOSN	10.0														
2507MOSN	12.5														
Steel			●		●		●		●		●		●		
Stainless steel			○		○		○		○		○		○		
Cast iron			●		○		○		○		○		○		○
Non ferrous metals															●
Heat resistant alloys							○						○		○

RCGT

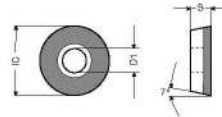
-27 CWN15	-27 AMZ
-AL CWN15	-AL AMZ
  	  
	
M RCGT 1A	M RCGT 1A/90
Article no. 70 266 ...	Article no. 70 266 ...
£ 7.30	£ 7.15
300	502

ISO	RE	mm
0602MOFN	3	
0803MOFN	4	

Steel	<input type="checkbox"/>	<input type="checkbox"/>
Stainless steel	<input type="checkbox"/>	<input type="checkbox"/>
Cast iron	<input type="checkbox"/>	<input type="checkbox"/>
Non ferrous metals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Heat resistant alloys	<input type="checkbox"/>	<input type="checkbox"/>

RCGT

Designation	S	D1	IC
	mm	mm	mm
RCGT 0602..	2.38	2.8	6
RCGT 10T3..	3.97	4.4	10



RCGT-F

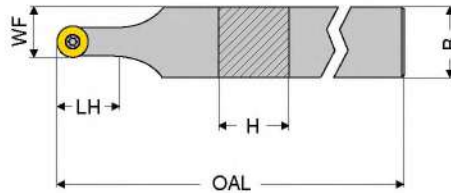
RCGT

ISO	RE	LE
	mm	mm
0602M0EN	3	6
0602M0FN	3	6
10T3M0EN	5	10
10T3M0FN	5	10

-F-CB1 CTDPD20	-F-CB1 CTDPS30	-F-CB2 CTDPS30
-CB1 PDC	-CB1 PDC-S	-CB2 PDC-S
F DIAMOND RCGT Y0	F DIAMOND RCGT Y0	M DIAMOND RCGT Y0
Article no. 71 315 ...	Article no. 71 315 ...	Article no. 71 316 ...
£	£	£
223.02 102	223.02 202	223.02 202
293.17 104	293.17 204	293.17 204

Steel			
Stainless steel			
Cast iron			
Non ferrous metals	•	•	•
Heat resistant alloys		○	○

MaxiLock-S – SRDC 0° – Toolholder with screw clamping



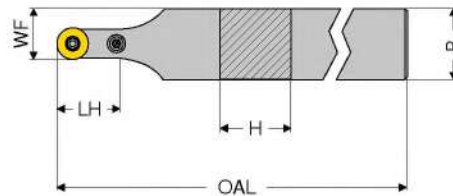
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 2A/24	
								Article no. 70 708 ...	£
SRDC N 1212 F06	12	12	80	12.4	9.0	1,2	RC.. 0602 MO	66.91	012
SRDC N 1616 H06	16	16	100	12.4	11.0	1,2	RC.. 0602 MO	69.39	016
SRDC N 2020 K06	20	20	125	12.4	13.0	1,2	RC.. 0602 MO	77.31	020
SRDC N 2525 M06	25	25	150	12.4	15.5	1,2	RC.. 0602 MO	79.97	025
SRDC N 1616 H08	16	16	100	16.4	12.0	1,8	RC.. 0803 MO	69.39	116
SRDC N 2020 K08	20	20	125	16.4	14.0	1,8	RC.. 0803 MO	77.31	120
SRDC N 2525 M08	25	25	150	16.4	16.5	1,8	RC.. 0803 MO	79.97	125
SRDC N 1616 H10	16	16	100	20.3	13.0	3,2	RC.. 1003 MO	69.39	216
SRDC N 2020 K10	20	20	125	20.3	15.0	3,2	RC.. 1003 MO	77.31	220
SRDC N 2525 M10	25	25	150	20.3	17.5	3,2	RC.. 1003 MO	79.97	225

Spare parts

for Article no.

	Y7	2A/28	2A	2A/28	2A/28
	Key D	Combination Key	Clamping screw	Solid carbide support R	Threaded sleeve
	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
	£	£	£	£	£
70 708 012	10.30 110		2.15 112		
70 708 016	10.30 110		2.15 112		
70 708 020	10.30 110		2.15 112		
70 708 025	10.30 110		2.15 112		
70 708 116	10.30 110		2.34 115		
70 708 120	10.30 110		2.34 115		
70 708 125	10.30 110		2.34 115		
70 708 216		7.53 398	2.85 113	11.25 117	4.22 171
70 708 220		7.53 398	2.85 113	11.25 117	4.22 171
70 708 225		7.53 398	2.85 113	11.25 117	4.22 171

MaxiLock-N – PRDC 0° – Toolholder with lever clamping

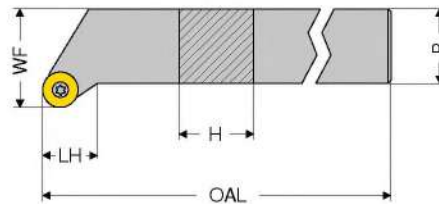


ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 2A/24	
								Article no. 70 544 ...	£
PRDC N 2525 M12	25	25	150	24	18.5	3	RCMT 1204	79.97	025
PRDC N 3225 P12	32	25	170	24	18.5	3	RCMT 1204	85.79	032
PRDC N 3225 P16	32	25	170	28	20.5	4	RCMT 1606	85.79	132
PRDC N 3225 P20	32	32	170	32	26.0	5	RCMT 2006	105.91	23200
PRDC N 4040 S25	40	40	250	42	32.5	6	RCMT 2507	131.73	04000

Tool holders with HSK-T interface can be found in → Chapter 16.

Spare parts	2A/28		2A/28		2A/28		2A/28		2A/28		2A/28	
	Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...	
for Article no.	£		£		£		£		£		£	
70 544 025	2.23	175	1.60	197	1.11	191	14.11	178	2.90	208	6.45	215
70 544 032	2.23	175	1.60	197	1.11	191	14.11	178	2.90	208	6.45	215
70 544 132	2.23	176	1.25	196	1.11	192	14.60	387	3.18	390	11.45	384
70 544 23200	2.23	177	1.02	391	1.11	394	13.85	28100	3.13	28500	15.49	27400
70 544 04000	2.34	396	1.60	392	1.11	395	17.05	28400	6.80	28600	29.05	27500

MaxiLock-S – SRGC – Toolholder with screw clamping



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
								Article no. 70 713 ...	£	Article no. 70 712 ...	£
SRGC R/L 1212 F06	12	12	80	10.0	16	1,2	RC.. 0602 MO	66.91	012	66.91	012
SRGC R 1616 H06	16	16	100	10.0	20	1,2	RC.. 0602 MO			69.39	016
SRGC R/L 2020 K06	20	20	125	11.5	25	1,2	RC.. 0602 MO	77.31	020	77.31	020
SRGC R/L 2525 M06	25	25	150	15.0	32	1,2	RC.. 0602 MO	79.97	025	79.97	025
SRGC R/L 1616 H08	16	16	100	11.0	20	1,8	RC.. 0803 MO	69.39	116	69.39	116
SRGC R 2020 K08	20	20	125	13.0	25	1,8	RC.. 0803 MO			77.31	120
SRGC R/L 2525 M08	25	25	150	16.0	32	1,8	RC.. 0803 MO	79.97	125	79.97	125
SRGC R/L 1616 H10	16	16	100	12.0	20	3,2	RC.. 1003 MO	69.39	216	69.39	216
SRGC R/L 2020 K10	20	20	125	13.5	25	3,2	RC.. 1003 MO	77.31	220	77.31	220
SRGC R/L 2525 M10	25	25	150	17.0	32	3,2	RC.. 1003 MO	79.97	225	79.97	225

Spare parts

for Article no.

		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...	
		£		£		£	
70 712 012 / 70 713 012	M2,5x6	2.15	112				
70 712 016	M2,5x6	2.15	112				
70 712 020 / 70 713 020	M2,5x6	2.15	112				
70 712 025 / 70 713 025	M2,5x6	2.15	112				
70 712 116 / 70 713 116	M3x7,3	2.34	115				
70 712 120	M3x7,3	2.34	115				
70 712 125 / 70 713 125	M3x7,3	2.34	115				
70 712 216 / 70 713 216	M3,5x11	2.85	113	11.25	117	M3,5	4.22 171
70 712 220 / 70 713 220	M3,5x11	2.85	113	11.25	117	M3,5	4.22 171
70 712 225 / 70 713 225	M3,5x11	2.85	113	11.25	117	M3,5	4.22 171

Spare parts

for Article no.

		Article no. 80 950 ...		Article no. 70 950 ...	
		£		£	
70 712 012 / 70 713 012	T08	10.30	110		
70 712 016	T08	10.30	110		
70 712 020 / 70 713 020	T08	10.30	110		
70 712 025 / 70 713 025	T08	10.30	110		
70 712 116 / 70 713 116	T08	10.30	110		
70 712 120	T08	10.30	110		
70 712 125 / 70 713 125	T08	10.30	110		
70 712 216 / 70 713 216				T15/SW	7.53 398
70 712 220 / 70 713 220				T15/SW	7.53 398
70 712 225 / 70 713 225				T15/SW	7.53 398



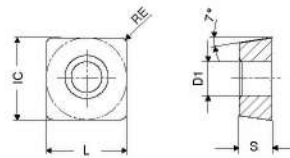
	Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...	
	£		£		£	
70 712 012 / 70 713 012	2.15	112				
70 712 016	2.15	112				
70 712 020 / 70 713 020	2.15	112				
70 712 025 / 70 713 025	2.15	112				
70 712 116 / 70 713 116	2.34	115				
70 712 120	2.34	115				
70 712 125 / 70 713 125	2.34	115				
70 712 216 / 70 713 216	2.85	113	11.25	117	M3,5	4.22 171
70 712 220 / 70 713 220	2.85	113	11.25	117	M3,5	4.22 171
70 712 225 / 70 713 225	2.85	113	11.25	117	M3,5	4.22 171



	Article no. 80 950 ...		Article no. 70 950 ...	
	£		£	
70 712 012 / 70 713 012	10.30	110		
70 712 016	10.30	110		
70 712 020 / 70 713 020	10.30	110		
70 712 025 / 70 713 025	10.30	110		
70 712 116 / 70 713 116	10.30	110		
70 712 120	10.30	110		
70 712 125 / 70 713 125	10.30	110		
70 712 216 / 70 713 216			T15/SW	7.53 398
70 712 220 / 70 713 220			T15/SW	7.53 398
70 712 225 / 70 713 225			T15/SW	7.53 398

SCGT / SCMT / SCMX

Designation	L	S	D1	IC
	mm	mm	mm	mm
SC.T 09T3..	9.52	3.97	4.4	9.52
SC.. 1204..	12.70	4.76	5.5	12.70



SCGT / SCMT

		-CF05 CTEP110	-SF TCM10	-SF TCM407	-SF CTCP125	-CF55 CTEP110	-SMF CTCP115	-SMF CTCP135
		-PF14 DCC1110	-ZF CWC10	-ZF CWC407	-ZF HCX1125	-PF15 DCC1110	-SMF HCX1115	-SMF HCR1135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	F	F	F	F	F
		CERMET SCGT	CERMET SCGT	CERMET SCGT	SCMT	CERMET SCMT	SCMT	SCMT
		1A/78	1A/78	1A/78	1A/08	1A/78	1A/08	1A/08
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	£	£	£	£	£	£	£
09T304EN	0.4	13.73 004	12.60 902	12.60 852	8.82 504	8.80 004	8.82 304	
09T308EN	0.8	13.73 006	12.60 904		8.82 506	8.80 006	8.82 306	
120408EN	0.8				12.42 518			12.42 718
Steel		●	●	●	●	●	●	●
Stainless steel		○			○	○	○	○
Cast iron		○	○	○	○	○	○	
Non ferrous metals								
Heat resistant alloys								○

9

SCMT / SCMX

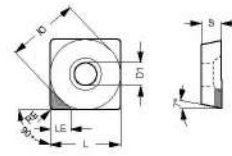
		-SM CTCK110	-SM CTCK120	-SM CTCP115	-SM CTCP125	-SM CTCP135	CTCP135	-SM CTC2135
		-ZM DCX3110	-ZM HCF3120	-ZM HCX1115	-ZM HCX1125	-ZM HCR1135	HCR1135	-ZM CWN2135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		M	M	M	M	M	M	M
		SCMT	SCMT	SCMT	SCMT	SCMT	SCMX	SCMT
		1A/08	1A/08	1A/08	1A/08	1A/08	1A/08	1A/08
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	£	£	£	£	£	£	£
09T304EN	0.4	8.82 004	8.82 504	8.82 304	8.82 504	8.82 704		
09T308EN	0.8	8.82 006	8.82 506	8.82 306	8.82 506	8.82 706		8.80 442
120408EN	0.8	12.42 018	12.42 518	12.42 318	12.42 518	12.42 718	11.29 718	12.42 444
120412EN	1.2	12.42 020	12.42 520		12.42 520			
Steel		●	●	●	●	●	●	○
Stainless steel		○		○	○	○	○	●
Cast iron		●	●	○	○			
Non ferrous metals								
Heat resistant alloys						○	○	●

SCMT / SCGT

		-M55 CTPM125	-25P H210T	-25P AMZ	-27 H10T	-27 CWN15
		-PF26 HCN2125	-25P CWK20	-25P AMZ	-AL CWK15	-AL CWN15
		DRAGONS SKIN				
		F	F	F	M	M
		SCMT	SCGT	SCGT	SCGT	SCGT
		1A/08	1A/90	1A/90	1A/90	1A
		Article no. 75 216 ...	Article no. 70 283 ...	Article no. 70 283 ...	Article no. 70 270 ...	Article no. 70 270 ...
ISO	RE	£	£	£	£	£
09T304FN	0.4				9.92	300
09T308EN	0.8	8.82				
09T308FN	0.8				9.92	302
120408EN	0.8	12.42				
120408FN	0.8		12.10	634	14.35	554
					11.59	604
						14.45
						304
Steel		○		○		
Stainless steel		●		○		○
Cast iron			○	○	○	
Non ferrous metals			●	●	●	●
Heat resistant alloys			○		○	

SCGT

Designation	L	S	D1	IC
	mm	mm	mm	mm
SCGT 09T3..	9.52	3.97	4.4	9.52



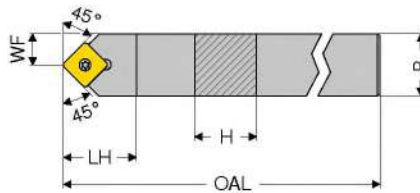
SCGT-A

SCGT

ISO	RE	LE	-A-CB1 CTDPD20		-A-CB2 CTDPS30		-A-CB3 CTDPU20	
			Article no.	Price (£)	Article no.	Price (£)	Article no.	Price (£)
09T304EN	0.4	4.4	71 320 ...		71 321 ...	101.43	71 322 ...	81.10
09T304FN	0.4	4.4	114	101.43	214	101.43	214	81.10
09T308EN	0.8	4.3	71 320 ...		71 321 ...	108.99	71 322 ...	87.58
09T308FN	0.8	4.3	118	108.99	218	108.99	218	87.58

Material	-A-CB1	-A-CB2	-A-CB3
Steel	○	○	○
Stainless steel	○	○	○
Cast iron	○	○	○
Non ferrous metals	●	●	●
Heat resistant alloys	○	○	○

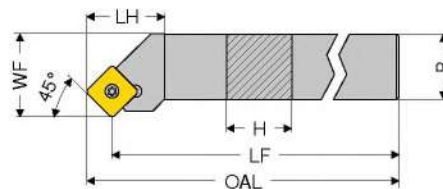
MaxiLock-S – SSDC 45° – Toolholder with screw clamping



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 2A/24	
								Article no. 70 656 ...	£
SSDC N 1212 F09	12	12	80	16	6.0	3,2	SC..09T3..	58.72	012
SSDC N 1616 H09	16	16	100	20	8.0	3,2	SC..09T3..	72.73	016
SSDC N 2020 K09	20	20	125	20	10.0	3,2	SC..09T3..	77.31	020
SSDC N 1616 H12	16	16	100	25	8.0	5	SC..1204..	72.73	116
SSDC N 2020 K12	20	20	125	25	10.0	5	SC..1204..	77.31	120
SSDC N 2525 M12	25	25	150	25	12.5	5	SC..1204..	79.97	125

Spare parts for Article no.	Y7		2A/28		2A/28		2A/28		2A/28	
	Article no. 80 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£
70 656 012	12.26	113			2.85	113				
70 656 016			7.53	398	2.85	113	8.79	167	4.22	171
70 656 020			7.53	398	2.85	113	8.79	167	4.22	171
70 656 116			7.53	398	2.34	114	11.25	168	4.22	170
70 656 120			7.53	398	2.34	114	11.25	168	4.22	170
70 656 125			7.53	398	2.34	114	11.25	168	4.22	170

MaxiLock-S – SSSC 45° – Toolholder with screw clamping



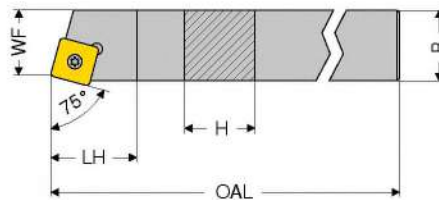
Illustrations show right-hand versions



ISO designation	H mm	B mm	LF mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
									Article no. 70 661 ...	£	Article no. 70 660 ...	£
SSSC R/L 1212 F09	12	12	80	86.40	18	16	3,2	SC..09T3..	58.72	012	58.72	012
SSSC R/L 1616 H09	16	16	100	106.40	20	20	3,2	SC..09T3..	72.73	016	72.73	016
SSSC R/L 2020 K09	20	20	125	131.40	20	25	3,2	SC..09T3..	77.31	020	77.31	020
SSSC R/L 1616 H12	16	16	100	108.63	25	20	5	SC..1204..	72.73	116	72.73	116
SSSC R/L 2020 K12	20	20	125	133.63	25	25	5	SC..1204..	77.31	120	77.31	120
SSSC R/L 2525 M12	25	25	150	158.63	25	32	5	SC..1204..	79.97	125	79.97	125
SSSC R 3225 P12	32	25	170	178.63	25	32	5	SC..1204..			83.13	132

Spare parts for Article no.	Y7		2A/28		2A/28		2A/28		2A/28	
	Article no. 80 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£
70 661 012 / 70 660 012	12.26	113			2.85	113				
70 661 016 / 70 660 016			7.53	398	2.85	113	8.79	167	4.22	171
70 661 020 / 70 660 020			7.53	398	2.85	113	8.79	167	4.22	171
70 661 116 / 70 660 116			7.53	398	2.34	114	11.25	168	4.22	170
70 661 120 / 70 660 120			7.53	398	2.34	114	11.25	168	4.22	170
70 661 125 / 70 660 125			7.53	398	2.34	114	11.25	168	4.22	170
70 660 132			7.53	398	2.34	114	11.25	168	4.22	170

MaxiLock-S – SSBC 75° – Toolholder with screw clamping



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
								Article no. 70 665 ...	£	Article no. 70 664 ...	£
SSBC R/L 1616 H09	16	16	100	20	13	3,2	SC.. 09T3..	72.73	016	72.73	016
SSBC R 2020 K09	20	20	125	20	17	3,2	SC.. 09T3..	77.31	020	77.31	020
SSBC R/L 2020 K12	20	20	125	20	17	5	SC.. 1204..	77.31	120	77.31	120
SSBC R/L 2525 M12	25	25	150	20	22	5	SC.. 1204..	79.97	125	79.97	125

Spare parts

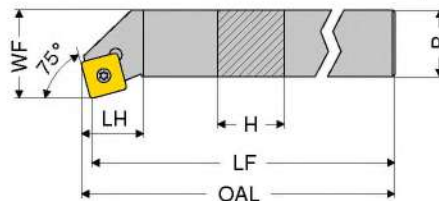
for Article no.

	£		£		£		£		£	
70 665 016 / 70 664 016	12.26	113	7.53	398	2.85	113	8.79	167	4.22	171
70 664 020	12.26	113	7.53	398	2.85	113	8.79	167	4.22	171
70 665 120 / 70 664 120	12.26	113	7.53	398	2.34	114	11.25	168	4.22	170
70 665 125 / 70 664 125	12.26	113	7.53	398	2.34	114	11.25	168	4.22	170



Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£
80 950 ...		70 950 ...		70 950 ...		70 950 ...		70 950 ...	

MaxiLock-S – SSKC 75° – Toolholder with screw clamping



Illustrations show right-hand versions



ISO designation	H mm	B mm	LF mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
									Article no. 70 669 ...	£	Article no. 70 668 ...	£
SSKC R/L 1616 H09	16	16	100	102.3	22	20	3,2	SC.. 09T3..	72.73	016	72.73	016
SSKC R/L 2020 K09	20	20	125	127.3	22	25	3,2	SC.. 09T3..	77.31	020	77.31	020
SSKC R 2020 K12	20	20	125	127.3	23	25	5	SC.. 1204..	77.31	120	77.31	120
SSKC R 2525 M12	25	25	150	153.3	23	32	5	SC.. 1204..	79.97	125	79.97	125

Spare parts

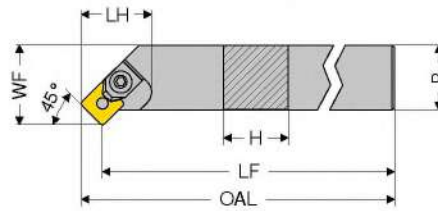
for Article no.

	£		£		£		£		£	
70 668 016 / 70 669 016	12.26	113	7.53	398	2.85	113	8.79	167	4.22	171
70 668 020 / 70 669 020	12.26	113	7.53	398	2.85	113	8.79	167	4.22	171
70 668 120	12.26	113	7.53	398	2.34	114	11.25	168	4.22	170
70 668 125	12.26	113	7.53	398	2.34	114	11.25	168	4.22	170



Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£
80 950 ...		70 950 ...		70 950 ...		70 950 ...		70 950 ...	

MaxiLock-P – MSSC 45° – Toolholder with top clamping



Illustrations show right-hand versions

ISO designation	H mm	B mm	LF mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
									Article no. 70 589 ...	£	Article no. 70 588 ...	£
MSSC R/L 2020 K12	20	20	125	133.65	32	25	5	SCMX 1204	83.97	020	83.97	020
MSSC R/L 2525 M12	25	25	150	158.65	28	32	5	SCMX 1204	87.03	025	87.03	025
MSSC R/L 3225 P12	32	25	170	178.65	28	32	5	SCMX 1204	89.70	032	89.70	032

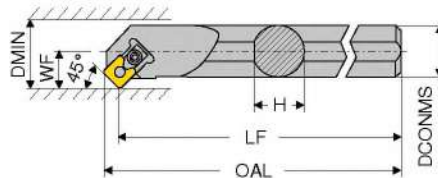
Spare parts

for Article no.

		Article no. 80 950 ...		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...		Article no. 70 950 ...	
		£		£		£		£		£	
70 588 020 / 70 589 020	T20	13.11	114	3.72	153	10.86	159	6.81	150	11.05	140
70 588 025 / 70 589 025	T20	13.11	114	3.72	153	10.86	159	6.81	150	11.05	140
70 588 032 / 70 589 032	T20	13.11	114	3.72	153	10.86	159	6.81	150	11.05	140



MaxiLock-P – MSSC 45° – Boring bar with top clamping



Illustrations show right-hand versions

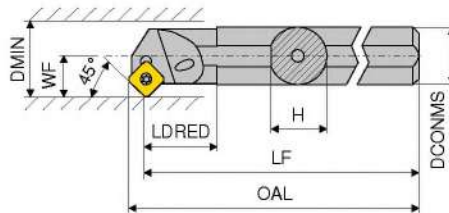
ISO designation	DCONMS	H	LF	OAL	WF	DMIN	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
									Article no. 70 625 ...	£	Article no. 70 624 ...	£
S32S MSSC R/L 12	32	30	250	258	22	40	5	SCMX 1204	205.45	032	205.45	032



Spare parts	Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£
for Article no. 70 625 032 / 70 624 032	80 950 ...	13.11	70 950 ...	4.57	70 950 ...	10.86	70 950 ...	6.81	70 950 ...	11.05
	T20	114	155	163	150	147				

MaxiLock-S – SSSC 45° – Boring bar with screw clamping

- ▲ A... = with thro' coolant
- ▲ S... = without thro' coolant



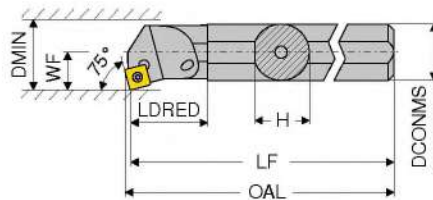
Illustrations show right-hand versions

ISO designation	DCONMS	H	LF	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
										Article no. 70 721 ...	£	Article no. 70 720 ...	£
S16R SSSC R 09	16	15.00	200	206.0	13.97	11	20	3,2	SC.. 09T3..	89.70	216	89.70	016
A16M SSSC R/L 09	16	15.25	150	156.0	29.00	11	20	3,2	SC.. 09T3..	89.70	216	89.70	216
A20Q SSSC R/L 09	20	19.00	180	186.0	32.00	13	25	3,2	SC.. 09T3..	111.82	220	111.82	220
A25R SSSC R/L 09	25	24.50	200	206.0	36.00	17	32	3,2	SC.. 09T3..	128.55	225	128.55	225
A32S SSSC R/L 12	32	31.00	250	258.3	50.00	22	40	5	SC.. 1204..	176.73	232	176.73	232
A40T SSSC R/L 12	40	39.00	300	308.1	60.00	27	50	5	SC.. 1204..	212.18	240	212.18	240



Spare parts	Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£	
for Article no.	80 950 ...	£	70 950 ...	£	70 950 ...	£	70 950 ...	£	70 950 ...	£	
70 720 016		12.26				2.85					
70 720 216 / 70 721 216		12.26				2.85					
70 720 220 / 70 721 220		12.26				2.85					
70 720 225 / 70 721 225		12.26				2.85					
70 720 232 / 70 721 232			7.53	398		2.34	114	11.25	168	4.22	170
70 720 240 / 70 721 240			7.53	398		2.34	114	11.25	168	4.22	170

MaxiLock-S – SSKC 75° – Boring bar with screw clamping



Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
										Article no. 70 725 ...	£	Article no. 70 724 ...	£
A16M SSKC R/L 09	16	15.0	150	152.4	29	11	20	3,2	SC..09T3..	89.70	216	89.70	216
A20Q SSKC R/L 09	20	18.5	180	182.4	32	13	25	3,2	SC..09T3..	111.82	220	111.82	220
A25R SSKC R/L 09	25	23.0	200	202.4	36	17	32	3,2	SC..09T3..	128.55	225	128.55	225



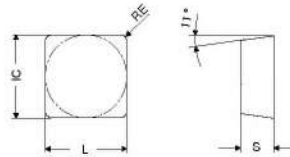
Spare parts

for Article no.

		Article no. 80 950 ...	£		Article no. 70 950 ...	£
70 724 216 / 70 725 216	T15	12.26	113	M3,5x7,2	2.85	110
70 724 220 / 70 725 220	T15	12.26	113	M3,5x8,6	2.85	304
70 724 225 / 70 725 225	T15	12.26	113	M3,5x8,6	2.85	304

SPMR / SPUN

Designation	L	S	IC
	mm	mm	mm
SPUN 0903..	9.52	3.18	9.52
SP.. 1203..	12.70	3.18	12.70



SPMR / SPUN

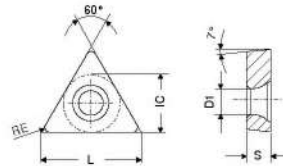
ISO	RE	M SPMR		M SPUN	
	mm	Article no.	Price	Article no.	Price
090304EN	0.4	76 208 ...	£ 6.75	76 206 ...	
120304EN	0.4		9.79		
120308EN	0.8		9.79		
120308ER	0.8		10.17		
Steel					
Stainless steel					
Cast iron					
Non ferrous metals					
Heat resistant alloys					

CTCP135	CTCP135
HCR1135	HCR1135
DRAGONSKIN	DRAGONSKIN
M	M
SPMR	SPUN
1A/11	1A/08
Article no.	Article no.
76 208 ...	76 206 ...
£	£
6.75	
704	
9.79	
716	
9.79	8.17
718	718
10.17	
720	

9

TCGT / TCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
TCMT 0902..	9.6	2.38	2.50	5.56
TC.T 1102..	11.0	2.38	2.80	6.35
TC.T 16T3..	16.5	3.97	4.40	9.52
TCMT 2204..	22.0	4.76	5.16	12.70



TCGT / TCMT

ISO	RE	-CF05 CTEP110		-SF TCM10		-SF CTCP125		-CF55 CTEP110		-SMF TCM10		-SMF CTCP115	
		-PF14 DCC1110		-ZF CWC10		-ZF HCX1125		-PF15 DCC1110		-SMF CWC10		-SMF HCX1115	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		F		F		F		F		F		F	
		CERMET TCGT		CERMET TCGT		TCMT		CERMET TCMT		CERMET TCMT		TCMT	
		1A/78		1A/78		1A/08		1A/78		1A/78		1A/08	
		Article no. 76 272 ...		Article no. 70 273 ...		Article no. 76 275 ...		Article no. 76 266 ...		Article no. 70 284 ...		Article no. 76 284 ...	
		£		£		£		£		£		£	
110202EN	0.2	12.31	014	11.39	900			7.02	016	6.62	902		
110204EN	0.4	12.31	016	11.39	902	6.95	516						
110208EN	0.8	12.31	018			6.95	518					6.95	318
16T304EN	0.4	15.60	028	14.45	906	10.04	528					10.04	328
16T308EN	0.8					10.04	530	9.73	030			10.04	330
Steel		●		●		●		●		●		●	
Stainless steel		○		○		○		○		○		○	
Cast iron		○		○		○		○		○		○	
Non ferrous metals													
Heat resistant alloys													

TCMT / TCGT

		-SMF CTCP135	-SM CTCP135	-SM CTCK110	-SM CTCK120	-SM CTCP115	-SM CTCP125	-SM CTCP135
		-SMF HCR1135	-ZM HCR1135	-ZM DCX3110	-ZM HCF3120	-ZM HCX1115	-ZM HCX1125	-ZM HCR1135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	M	M	M	M	M	M
		TCMT	TCGT	TCMT	TCMT	TCMT	TCMT	TCMT
		1A/08	1A/08	1A/08	1A/08	1A/08	1A/08	1A/08
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	£	£	£	£	£	£	£
090204EN	0.4	76 284 ...	76 270 ...	70 274 ...	70 274 ...	76 274 ...	76 274 ...	76 274 ...
						6.95 504		6.95 704
110202EN	0.2		12.31 714					
110204EN	0.4			6.95 016	6.95 516	6.95 316	6.95 516	6.95 716
110208EN	0.8	6.95 718		6.95 018	6.95 518	6.95 318		6.95 718
16T304EN	0.4			10.04 028	10.04 528	10.04 328	10.04 528	10.04 728
16T308EN	0.8			10.04 030	10.04 530	10.04 330	10.04 530	10.04 730
16T312EN	1.2			10.04 032	10.04 532			
220408EN	0.8						14.45 542	14.45 742
Steel		●	●	●	●	●	●	●
Stainless steel		○	○	○	○	○	○	○
Cast iron				●	●	○	○	
Non ferrous metals								
Heat resistant alloys		○	○					○

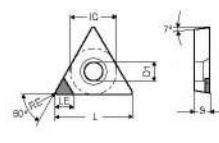
9

TCMT / TCGT

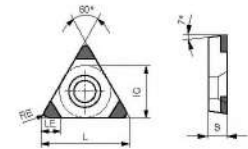
		-F43 CTC2135	-M25 CTPM125	-SM CTC2135	-M55 CTPM125	-27 H10T	-27 CWN15
		-F43 CWN2135	-PF23 HCN2125	-ZM CWN2135	-PF26 HCN2125	-AL CWK15	-AL CWN15
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
		F	F	M	F	M	M
		TCMT	TCMT	TCMT	TCMT	TCGT	TCGT
		1A/08	1A/08	1A/08	1A/08	1A/90	1A
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	£	£	£	£	£	£
090204EN	0.4	70 187 ...	75 217 ...	70 274 ...	75 218 ...	70 276 ...	70 276 ...
				6.85 398	6.95 204		
110202FN	0.2					9.92 600	12.19 300
110204EN	0.4	6.85 400	6.95 216	6.85 402	6.95 216	9.92 602	12.19 302
110204FN	0.4					9.92 604	14.45 304
16T302FN	0.2					11.69 604	14.45 304
16T304EN	0.4	9.55 402	10.04 228			11.69 606	14.45 306
16T304FN	0.4					11.69 608	14.45 308
16T308EN	0.8	9.55 404	10.04 230	9.55 396	10.04 230		
16T308FN	0.8						
Steel		○	○	○	○	○	○
Stainless steel		●	●	●	●	○	○
Cast iron						○	○
Non ferrous metals						●	●
Heat resistant alloys		●	●	●	○	○	○

TCGW

Designation	L	S	D1	IC
	mm	mm	mm	mm
TCGW 0902..	9.6	2.38	2.5	5.56
TCGW 1102..	11.0	2.38	2.8	6.35
TCGW 16T3..	16.5	3.97	4.4	9.52

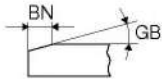


TCGW-A



TCGW-C

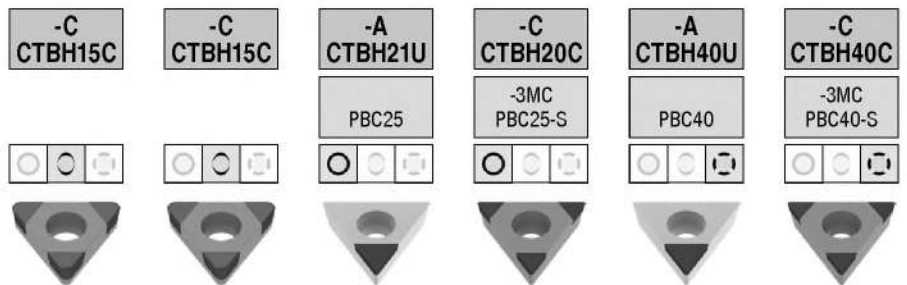
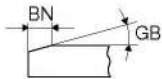
TCGW



ISO	RE	GB	BN	LE	-A CTBS10U		-C CTBS20C		-C CTBH15U		-C CTBH15U	
					PBC10	-3MC PBC15-S						
	mm	°	mm	mm	F CBN TCGW Y0	F CBN TCGW Y0	F CBN TCGW Y0	F CBN TCGW Y0	NEW Y0	NEW Y0		
					Article no. 71 140 ...	Article no. 71 164 ...	Article no. 71 028 ...	Article no. 71 029 ...				
					£	£	£	£				
090202SN	0.2	10	0.09	2.6		90.20 120						
090202SN	0.2	15	0.11	2.6		90.20 130						
090202TN	0.2	20	0.14	3.8	54.78 300							
090202TN	0.2	20	0.15	2.6		90.20 140						
090202SN	0.2	20	0.16	2.6		90.20 150						
090202EN	0.2			2.6							94.70 00200	
090204SN	0.4	10	0.09	2.2		90.20 121						
090204SN	0.4	15	0.11	2.2		90.20 131	94.70 30414					
090204TN	0.4	20	0.14	3.5	54.78 302							
090204SN	0.4	20	0.16	2.2		90.20 151						
090204TN	0.4	25	0.17	2.2		90.20 161						
090204FN	0.4			3.5	54.78 202							
090204EN	0.4			2.2		90.20 111	94.70 00400					
090208SN	0.8	10	0.09	1.8		90.20 122						
090208SN	0.8	15	0.11	1.8		90.20 132						
090208TN	0.8	20	0.15	1.8		90.20 142	94.70 30614					
090208TN	0.8	25	0.17	1.8		90.20 162						
090208EN	0.8			1.8			94.70 00600					
110202SN	0.2	10	0.09	2.9		90.20 123						
110202SN	0.2	15	0.11	2.9		90.20 133						
110202TN	0.2	20	0.14	3.8	52.75 306							
110202TN	0.2	20	0.15	2.9		90.20 143						
110202SN	0.2	20	0.16	2.9		90.20 153						
110202FN	0.2			3.8	52.75 206							
110204SN	0.4	10	0.09	2.5		90.20 124						
110204SN	0.4	15	0.11	2.5		90.20 134						
110204TN	0.4	20	0.14	3.5	52.75 308							
110204TN	0.4	20	0.15	2.5		90.20 144						
110204SN	0.4	20	0.16	2.5		90.20 154						
110204TN	0.4	25	0.17	2.5		90.20 164						
110204FN	0.4			3.5	52.75 208							
110204EN	0.4			2.5		90.20 114						
110208SN	0.8	10	0.09	2.1		90.20 125						
110208SN	0.8	15	0.11	2.1		90.20 135						
110208TN	0.8	20	0.14	3.0	52.75 310							
110208TN	0.8	20	0.15	2.1		90.20 145						
110208TN	0.8	25	0.17	2.1		90.20 165						
110208FN	0.8			3.0	52.75 210							
16T304SN	0.4	10	0.09	3.2		90.20 126						
16T304SN	0.4	15	0.11	3.2		90.20 136						
16T308SN	0.8	10	0.09	2.7		90.20 127						
16T308SN	0.8	15	0.11	2.7		90.20 137						
16T308SN	0.8	20	0.16	2.7		90.20 157						
16T308TN	0.8	25	0.17	2.7		90.20 167						
16T308EN	0.8			2.7		90.20 117						

Cast iron	•	•		
Sintered steels	•	•		
Heat resistant alloys	•	•		
hardened < 45 HRC			•	•
hardened 46-55 HRC			•	•
hardened 56-60 HRC			•	•
hardened 61-65 HRC			•	•

TCGW



F
CBN
TCGW
NEW YO
Article no.
71 027 ...
£

F
CBN
TCGW
NEW YO
Article no.
71 034 ...
£

F
CBN
TCGW
YO
Article no.
71 140 ...
£

F
CBN
TCGW
YO
Article no.
71 164 ...
£

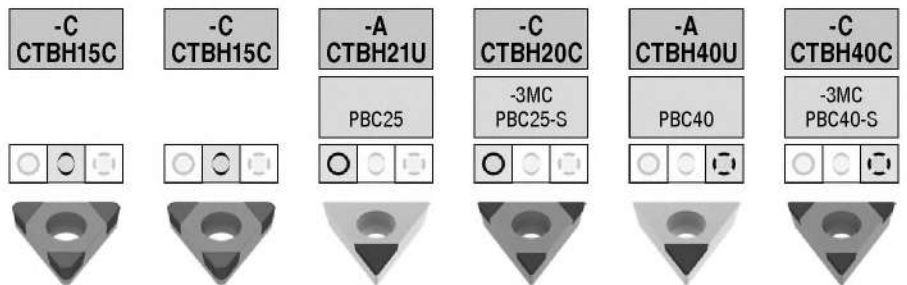
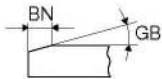
F
CBN
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YO
Article no.
71 140 ...
£

F
CBN
TCGW
YO
Article no.
71 164 ...
£

ISO	RE mm	GB °	BN mm	LE mm	£	£	£	£	£	£	
090202FN	0.2			2.6							
090202SN	0.2	15	0.11	2.6		92.45	30214				
090202SN	0.2	20	0.09	2.6					90.20	330	
090202TN	0.2	20	0.09	2.6					90.20	320	
090202TN	0.2	20	0.14	3.8			54.78	500			
090202TN	0.2	25	0.11	2.6						90.20	340
090202TN	0.2	25	0.12	3.8					54.78	900	
090202EN	0.2			2.6		92.45	00200		90.20	220	
090202FN	0.2			3.8			54.78	400			
090204SN	0.4	15	0.11	2.2	92.45	30414			90.20	241	
090204TN	0.4	20	0.09	2.2						90.20	321
090204TN	0.4	20	0.14	3.5			54.78	502			
090204SN	0.4	25	0.09	2.2						90.20	351
090204TN	0.4	25	0.11	2.2						90.20	341
090204TN	0.4	25	0.12	3.5					54.78	902	
090204EN	0.4			2.2	92.45	00400			90.20	221	
090204FN	0.4			3.5			54.78	402		54.78	802
090204TN	0.4	25	0.14	2.2					90.20	261	
090204SN	0.4	25	0.15	2.2					90.20	271	
090204TN	0.4	30	0.14	2.2						90.20	361
090204SN	0.4	30	0.16	2.2						90.20	371
090208SN	0.8	10	0.09	1.8					90.20	232	
090208SN	0.8	15	0.11	1.8	92.45	30614			90.20	242	
090208SN	0.8	20	0.09	1.8					90.20	252	
090208TN	0.8	20	0.14	1.8						90.20	362
090208TN	0.8	20	0.14	3.0			54.78	504			
090208SN	0.8	25	0.09	1.8						90.20	352
090208TN	0.8	25	0.11	1.8						90.20	342
090208TN	0.8	25	0.12	3.0					54.78	904	
090208EN	0.8			1.8	92.45	00600				90.20	312
110202SN	0.2	15	0.11	2.9			92.45	31414			
110202SN	0.2	20	0.09	2.9					90.20	253	
110202TN	0.2	20	0.09	2.9						90.20	323
110202TN	0.2	20	0.14	3.8			52.75	506			
110202TN	0.2	25	0.11	2.9						90.20	343
110202TN	0.2	25	0.12	3.8					52.75	906	
110202EN	0.2			2.9					90.20	223	
110202FN	0.2			2.9					90.20	213	
110202FN	0.2			3.8			52.75	406		52.75	806
110202SN	0.2	25	0.13	2.9		92.45	31429				
110202TN	0.2	30	0.14	2.9						90.20	363
110204FN	0.4			2.5					90.20	214	
110204SN	0.4	10	0.09	2.5					90.20	234	
110204EN	0.4			2.5					90.20	224	

Cast iron					
Sintered steels					
Heat resistant alloys					
hardened < 45 HRC	•	•			
hardened 46-55 HRC	•	•	•	•	•
hardened 56-60 HRC	•	•	•	•	•
hardened 61-65 HRC				•	•

TCGW

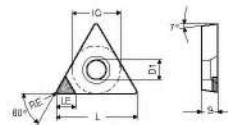


ISO	RE mm	GB °	BN mm	LE mm	-C CTBH15C		-A CTBH21U		-C CTBH20C		-A CTBH40U		-C CTBH40C	
					NEW	YO	NEW	YO	YO	YO	YO	YO	YO	YO
					Article no. 71 027 ...	Article no. 71 034 ...	Article no. 71 140 ...	Article no. 71 140 ...	Article no. 71 164 ...	Article no. 71 140 ...	Article no. 71 140 ...	Article no. 71 164 ...	Article no. 71 164 ...	Article no. 71 164 ...
					£	£	£	£	£	£	£	£	£	£
110204SN	0.4	15	0.11	2.5					90.20	244				
110204TN	0.4	20	0.09	2.5		92.45 31614							90.20	324
110204TN	0.4	20	0.14	3.5			52.75	508						
110204SN	0.4	25	0.09	2.5									90.20	354
110204TN	0.4	25	0.11	2.5									90.20	344
110204TN	0.4	25	0.12	3.5							52.75	908		
110204SN	0.4	25	0.13	2.5		92.45 31629			90.20	264				
110204TN	0.4	25	0.14	2.5							52.75	808		
110204FN	0.4			3.5										
110204SN	0.4	25	0.15	2.5					90.20	274				
110204TN	0.4	30	0.14	2.5									90.20	364
110204SN	0.4	30	0.16	2.5									90.20	374
110208SN	0.8	10	0.09	2.1					90.20	235				
110208SN	0.8	15	0.11	2.1	92.45	31814			90.20	245				
110208SN	0.8	20	0.09	2.1					90.20	255				
110208TN	0.8	20	0.09	2.1									90.20	325
110208TN	0.8	20	0.14	3.0			52.75	510						
110208SN	0.8	25	0.09	2.1									90.20	355
110208TN	0.8	25	0.12	3.0							52.75	910		
110208EN	0.8			2.1									90.20	315
110208SN	0.8	25	0.13	2.1	92.45	31829								
110208TN	0.8	25	0.14	2.1					90.20	265				
110208TN	0.8	30	0.14	2.1									90.20	365
110208SN	0.8	30	0.16	2.1									90.20	375
110208FN	0.8			3.0			52.75	410						
16T304SN	0.4	20	0.09	3.2					90.20	256			90.20	336
16T304SN	0.4	25	0.09	3.2									90.20	356
16T304TN	0.4	25	0.11	3.2									90.20	346
16T304SN	0.4	25	0.15	3.2					90.20	276				
16T304TN	0.4	30	0.14	3.2									90.20	366
16T304SN	0.4	35	0.17	3.2									90.20	386
16T304FN	0.4			3.2					90.20	216				
16T304EN	0.4			3.2					90.20	226				
16T308SN	0.8	15	0.11	2.7					90.20	247				
16T308SN	0.8	20	0.09	2.7									90.20	337
16T308SN	0.8	25	0.09	2.7									90.20	357
16T308TN	0.8	25	0.11	2.7									90.20	347
16T308TN	0.8	25	0.14	2.7					90.20	267				
16T308SN	0.8	25	0.15	2.7					90.20	277				
16T308TN	0.8	30	0.14	2.7									90.20	367
16T308SN	0.8	30	0.16	2.7									90.20	377
16T308SN	0.8	30	0.18	2.7					90.20	287				
16T308EN	0.8			2.7					90.20	227			90.20	317

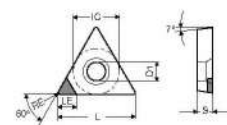
Cast iron														
Sintered steels														
Heat resistant alloys														
hardened < 45 HRC														
hardened 46-55 HRC														
hardened 56-60 HRC														
hardened 61-65 HRC														

TCGW / TCGT

Designation	L	S	D1	IC
	mm	mm	mm	mm
TCG. 0902..	9.6	2.38	2.5	5.56
TCG. 1102..	11.0	2.38	2.8	6.35
TCG. 16T3..	16.5	3.97	4.4	9.52



TCGT-A-CB



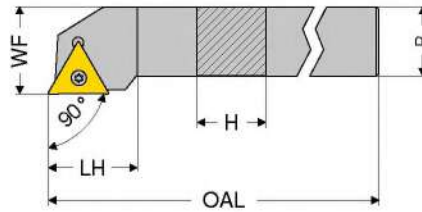
TCGW-A

TCGW / TCGT

ISO	RE	LE	-A CTDPD20		-A-CB1 CTDPD20		-A-CB2 CTDPS30		-A-CB3 CTDPU20	
			£	100	£	112	£	212	£	224
090202FN	0.2	3.7	79.66	100	88.31	112	88.31	212		
090202EN	0.2	3.7								
090204FN	0.4	3.4	79.66	102	88.31	114	88.31	214		
090204EN	0.4	3.4								
090208FN	0.8	3.0	79.66	104						
110202FN	0.2	3.7	76.12	106	92.10	122	92.10	222		
110202EN	0.2	3.7								
110204FN	0.4	3.4	76.12	108	92.10	124	92.10	224	73.53	224
110204EN	0.4	3.4								
110208FN	0.8	3.0	76.12	110						
16T304FN	0.4	4.6	79.66	112	92.18	134	92.18	234		
16T304EN	0.4	4.6								
16T308FN	0.8	4.2	79.66	114						
16T308EN	0.8	4.2							77.85	238

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	•	•	•	•
Heat resistant alloys			○	○

MaxiLock-S – STGC 90° – Toolholder with screw clamping



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
								Article no. 70 677 ...	£	Article no. 70 676 ...	£
STGC R/L 1010 E09	10	10	70	12	12	1	TC.. 0902	58.72	010	58.72	010
STGC R/L 1212 F11	12	12	80	15	16	1,2	TC.. 1102	58.72	012	58.72	012
STGC R/L 1616 H16	16	16	100	22	20	3,2	TC.. 16T3	72.73	016	72.73	016
STGC R/L 2020 K16	20	20	125	22	25	3,2	TC.. 16T3	77.31	020	77.31	020
STGC R/L 2525 M16	25	25	150	22	32	3,2	TC.. 16T3	79.97	025	79.97	025

Spare parts

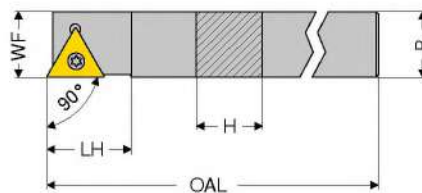
for Article no.

	Article no. 80 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£
70 676 010 / 70 677 010	109	10.30			111	2.34				
70 676 012 / 70 677 012	110	10.30			112	2.15				
70 676 016 / 70 677 016			398	7.53	113	2.85	169	7.05	171	4.22
70 676 020 / 70 677 020			398	7.53	113	2.85	169	7.05	171	4.22
70 676 025 / 70 677 025			398	7.53	113	2.85	169	7.05	171	4.22

Y7	2A/28	2A/28	2A/28	2A/28
Key D	Combination Key	Clamping screw	Solid Carbide Seat T	Threaded sleeve
Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
£	£	£	£	£

MaxiLock-S – STAC 90° – Toolholder with screw clamping

▲ for sliding head lathes



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
								Article no. 70 769 ...	£	Article no. 70 768 ...	£
STAC R/L 1010 K09	10	10	125	12	10	1	TC.. 0902	58.72	010	58.72	010
STAC R/L 1212 K11	12	12	125	15	12	1,2	TC.. 1102	65.68	012	65.68	012
STAC R 1414 K11	14	14	125	15	14	1,2	TC.. 1102			65.68	014

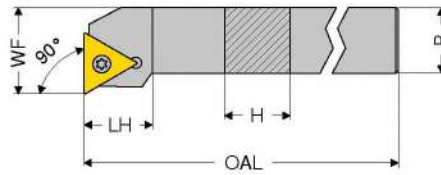
Spare parts

for Article no.

	Article no.	£	Article no.	£
70 769 010 / 70 768 010	T07	10.30	111	2.34
70 769 012 / 70 768 012	T08	10.30	110	2.15
70 768 014	T08	10.30	110	2.15

Y7	2A/28
Key D	Clamping screw
Article no. 80 950 ...	Article no. 70 950 ...
£	£

MaxiLock-S – STFC 90° – Toolholder with screw clamping



Illustrations show right-hand versions



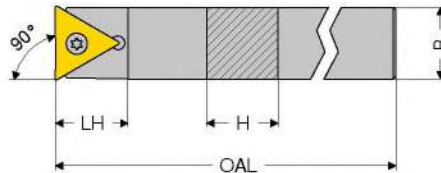
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
								Article no. 70 673 ...	£	Article no. 70 672 ...	£
STFC R/L 1212 F11	12	12	80	15	16	1,2	TC.. 1102	58.72	012	58.72	012
STFC R/L 1616 H16	16	16	100	20	20	3,2	TC.. 16T3	72.73	016	72.73	016
STFC R/L 2020 K16	20	20	125	20	25	3,2	TC.. 16T3	77.31	020	77.31	020
STFC R/L 2525 M16	25	25	150	20	32	3,2	TC.. 16T3	79.97	025	79.97	025

Spare parts

for Article no.

	Y7	2A/28	2A	2A/28	2A/28
	Key D	Combination Key	Clamping screw	Solid Carbide Seat T	Threaded sleeve
	Article no. 80 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...	Article no. 70 950 ...
70 673 012 / 70 672 012	10.30	110	2.15	112	
70 673 016 / 70 672 016		7.53	398	2.85	113
70 673 020 / 70 672 020		7.53	398	2.85	113
70 673 025 / 70 672 025		7.53	398	2.85	113

MaxiLock-S – STCC 90° – Toolholder with screw clamping



ISO designation	H mm	B mm	OAL mm	LH mm	torque moment Nm	Insert	Neutral 2A/24	
							Article no. 70 782 ...	£
STCC N 0808 K09	8	8	125	11	1	TC.. 0902	55.38	008
STCC N 1010 K11	10	10	125	15	1,2	TC.. 1102	58.72	010
STCC N 1212 K11	12	12	125	15	1,2	TC.. 1102	65.68	012
STCC N 1414 K11	14	14	125	21	1,2	TC.. 1102	65.68	014
STCC N 1616 K11	16	16	125	24	1,2	TC.. 1102	72.73	016

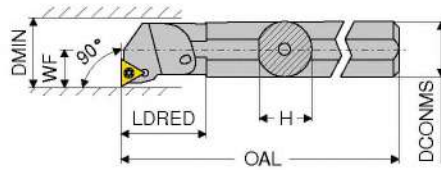
Spare parts

for Article no.

	Y7	2A/28
	Key D	Clamping screw
	Article no. 80 950 ...	Article no. 70 950 ...
70 782 008	T07	10.30
70 782 010	T08	10.30
70 782 012	T08	10.30
70 782 014	T08	10.30
70 782 016	T08	10.30

MaxiLock-S – STFC 90° – Boring bar with screw clamping

- ▲ A... = with thro' coolant
- ▲ S... = without thro' coolant



Illustrations show right-hand versions

ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
									Article no. 70 729 ...	£	Article no. 70 728 ...	£
A10H STFC R/L 09	10	9.5	100	19	7	13	1	TC.. 0902	87.79	210	87.79	210
A12K STFC R/L 11	12	11.5	125	22	9	16	1,2	TC.. 1102	87.79	212	87.79	212
A16M STFC R/L 11	16	15.0	150	29	11	20	1,2	TC.. 1102	89.70	216	89.70	216
S16R STFC R 11	16	15.0	200		11	21	1,2	TC.. 1102			89.70	016
A20Q STFC R/L 11	20	18.5	180	32	13	25	1,2	TC.. 1102	111.82	220	111.82	220
S20S STFC R 11	20	18.0	250		13	25	1,2	TC.. 1102			111.82	020
A25R STFC R/L 16	25	24.0	200	36	17	32	3,2	TC.. 16T3	128.55	225	128.55	225
A32S STFC R/L 16	32	31.0	250	50	22	40	3,2	TC.. 16T3	176.73	232	176.73	232
A40T STFC R/L 16	40	39.0	300	60	27	50	3,2	TC.. 16T3	212.18	240	212.18	240

Spare parts

for Article no.

		2A/28 Clamping screw		2A/28 Solid Carbide Seat T		2A/28 Threaded sleeve	
		Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£
70 729 210 / 70 728 210	M2,2x5	2.34	111				
70 729 212 / 70 728 212	M2,5x6	2.15	112				
70 729 216 / 70 728 216	M2,5x6	2.15	112				
70 728 016	M2,5x6	2.15	112				
70 729 220 / 70 728 220	M2,5x6	2.15	112				
70 728 020	M2,5x6	2.15	112				
70 729 225 / 70 728 225	M3,5x11	2.85	113	7.05	169	M3,5	4.22
70 729 232 / 70 728 232	M3,5x11	2.85	113	7.05	169	M3,5	4.22
70 729 240 / 70 728 240	M3,5x11	2.85	113	7.05	169	M3,5	4.22

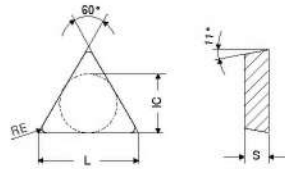
Spare parts

for Article no.

		Y7 Key D		2A/28 Combination Key	
		Article no. 80 950 ...	£	Article no. 70 950 ...	£
70 729 210 / 70 728 210	T07	10.30	109		
70 729 212 / 70 728 212	T08	10.30	110		
70 729 216 / 70 728 216	T08	10.30	110		
70 728 016	T08	10.30	110		
70 729 220 / 70 728 220	T08	10.30	110		
70 728 020	T08	10.30	110		
70 729 225 / 70 728 225				T15/SW	7.53
70 729 232 / 70 728 232				T15/SW	7.53
70 729 240 / 70 728 240				T15/SW	7.53

TPMR / TPUN

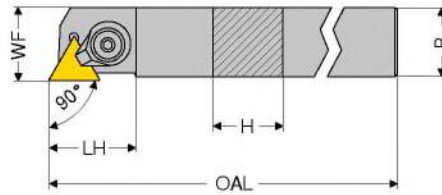
Designation	L	S	IC
	mm	mm	mm
TPMR 1103..	11.0	3.18	6.35
TPMR 1603..	16.5	3.18	9.52
TPUN 2204..	22.0	4.76	12.70



TPMR / TPUN

ISO	RE	mm	CTCK110		CTCP135		CTCP135		CTCP135	
			DCX3110	HCR1135	HCR1135	HCR1135	HCR1135	HCR1135		
			DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
			M		M		M		M	
			TPMR		TPMR		TPMR		TPUN	
			1A/11		1A/11		1A/08		1A/13	
			Article no.		Article no.		Article no.		Article no.	
			70 189 ...		76 228 ...		76 232 ...		76 212 ...	
			£		£		£		£	
110304EL	0.4						9.44	706		
110304EN	0.4				6.47	702			5.15	702
110304ER	0.4						9.44	704		
110308EN	0.8				6.47	704				
160304EL	0.4						12.00	714		
160304EN	0.4				8.45	706			6.75	720
160304ER	0.4						12.00	712		
160308EL	0.8						12.00	718		
160308EN	0.8		8.45	008	8.45	708			6.75	722
160308ER	0.8						12.00	716		
160312EN	1.2								6.75	724
220408EN	0.8								12.09	742
220412EN	1.2								12.09	744
Steel			●		●		●		●	
Stainless steel			○		○		○		○	
Cast iron			●							
Non ferrous metals										
Heat resistant alloys						○		○		○

Simplex - CTAP 90° - Toolholder with top clamping



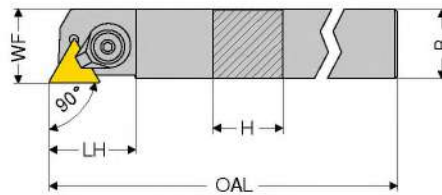
Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/23		Right-hand 2A/23	
								Article no. 70 797 ...	£	Article no. 70 796 ...	£
CTAP R/L 2020 K16	20	20	125	30	20.5	10	TP.. 1603	70 797 020	82.07	70 796 020	82.07
CTAP R/L 2525 M16	25	25	150	30	20.5	10	TP.. 1603	70 797 025	84.36	70 796 025	84.36

Spare parts for Article no.	2A/28 Clamp		2A/28 Key I		2A/28 Clamping screw		2A/28 Countersunk head grooved pin		2A/28 Solid Carbide Seat T		2A/28 Spring washer			
	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£		
70 796 020 / 70 797 020	8.06	601	SW4	2.34	396	M8x20	4.70	604	1.00	603	9.03	602	1.00	605
70 796 025 / 70 797 025	8.06	601	SW4	2.34	396	M8x20	4.70	604	1.00	603	9.03	602	1.00	605

Simplex - CTGP 90° - Toolholder with top clamping



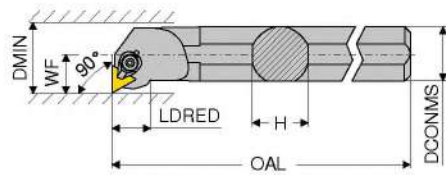
Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/23		Right-hand 2A/23	
								Article no. 70 797 ...	£	Article no. 70 796 ...	£
CTGP R 1010 E11	10	10	70	16.5	12	5	TP.. 1103	70 797 010	72.64	70 796 010	72.64
CTGP R/L 1212 F11	12	12	80	16.5	16	5	TP.. 1103	70 797 012	72.64	70 796 012	72.64

Spare parts for Article no.	2A/28 Clamp		Y7 Key D		2A/28 Clamping screw			
	Article no. 70 950 ...	£	Article no. 80 950 ...	£	Article no. 70 950 ...	£		
70 796 010	4.70	600	T15	12.26	113	M4x10	1.72	477
70 797 012 / 70 796 012	4.70	600	T15	12.26	113	M4x10	1.72	477

Simplex - CTFP 90° - Boring bar with top clamping



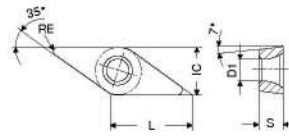
Illustrations show right-hand versions

ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand 2A/23		Right-hand 2A/23	
									Article no. 70 795 ...	£	Article no. 70 794 ...	£
S12Q CTFP R/L 11	12	11.0	180	15	9	16	5	TP.. 1103	97.27	012	97.27	012
S16R CTFP R/L 11	16	14.5	200	15	11	20	5	TP.. 1103	97.27	016	97.27	016
S20S CTFP R/L 11	20	18.0	250	15	13	25	5	TP.. 1103	118.73	020	118.73	020
S25T CTFP R/L 16	25	23.0	300	20	17	32	10	TP.. 1603	140.09	025	140.09	025
S32U CTFP R/L 16	32	30.0	350	20	22	40	10	TP.. 1603	190.00	032	190.00	032

Spare parts for Article no.	2A/28 Clamp		Y7 Key D		2A/28 Clamping screw		2A/28 Countersunk head grooved pin		2A/28 Solid Carbide Seat T	
	Article no. 70 950 ...	£	Article no. 80 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£
70 794 012 / 70 795 012	4.70	600	T15	12.26	113	M4x10	1.72	477		
70 794 016 / 70 795 016	4.70	600	T15	12.26	113	M4x10	1.72	477		
70 794 020 / 70 795 020	4.70	600	T15	12.26	113	M4x10	1.72	477		
70 794 025 / 70 795 025	7.93	606	T20	13.11	114	M6x16,2	4.70	596	1.00	603
70 794 032 / 70 795 032	7.93	606	T20	13.11	114	M6x16,2	4.70	596	1.00	603

VCGT / VCMT / VCXT / VCET

Designation	L	S	D1	IC
	mm	mm	mm	mm
VCET 1103..	11.1	3.18	2.8	6.35
VC.T 1103..	11.1	3.18	2.9	6.35
VC.T 1604..	16.6	4.76	4.4	9.52
VCGT 2205..	22.1	5.56	5.5	12.70



VCGT / VCMT

		-CF05 CTEP110	-SF TCM407	-SF TCM10	-SF CTCP115	-SF CTCP125	-SF CTCP135	-SF CTCP115
		-PF14 DCC1110	-ZF CWC407	-ZF CWC10	-ZF HCX1115	-ZF HCX1125	-ZF HCR1135	-ZF HCX1115
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	F	F	F	F	F
		CERMET VCMT	CERMET VCMT	CERMET VCMT	VCMT	VCMT	VCMT	VCMT
		1A/78	1A/78	1A/78	1A/08	1A/08	1A/08	1A/08
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	76 276 ...	70 277 ...	70 277 ...	76 277 ...	76 277 ...	76 277 ...	76 279 ...
		£	£	£	£	£	£	£
110301EN	0.1			13.94 892				
110302EN	0.2	15.27 014	13.94 844	13.94 894	14.55 314	14.55 514	14.55 714	
110304EN	0.4	15.27 016	13.94 846	13.94 896	14.55 316	14.55 516	14.55 716	
110308EN	0.8				14.55 318	14.55 518	14.55 718	
160404EN	0.4	18.21 028	17.60 850	17.60 900				14.55 328
160408EN	0.8	18.21 030		17.60 902				14.55 330
Steel		●	●	●	●	●	●	●
Stainless steel		○	○	○	○	○	○	○
Cast iron		○	○	○	○	○	○	○
Non ferrous metals								
Heat resistant alloys						○		

VCMT / VCGT

		-SF CTCP125	-SF CTCP135	-CF55 CTEP110	-SMF TCM10	-SMF CTCP135	-SMF CTCP115	-SMF CTCP125
		-ZF HCX1125	-ZF HCR1135	-PF15 DCC1110	-SMF CWC10	-SMF HCR1135	-SMF HCX1115	-SMF HCX1125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	F	F	F	F	F
		VCMT	VCMT	CERMET VCMT	CERMET VCMT	VCMT	VCMT	VCMT
		1A/08	1A/08	1A/78	1A/78	1A/08	1A/08	1A/08
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	76 279 ...	76 279 ...	76 292 ...	70 288 ...	76 285 ...	76 288 ...	76 288 ...
		£	£	£	£	£	£	£
110302EN	0.2					14.55 714		
110304EN	0.4			11.85 016	11.19 896		12.51 316	12.51 516
160404EN	0.4	14.55 528	14.55 728	14.55 028	13.85 900		14.55 328	14.55 528
160408EN	0.8	14.55 530		14.55 030	13.85 902		14.55 330	14.55 530
Steel		●	●	●	●	●	●	●
Stainless steel		○	○	○	○	○	○	○
Cast iron		○	○	○	○	○	○	○
Non ferrous metals								
Heat resistant alloys			○			○		

VCMT / VCGT

		-SMF CTCP135	-SM CTCK110	-SM CTCK120	-SM CTCP115	-SM CTCP125	-SM CTCP135	-SF CTC2135
		-SMF HCR1135	-ZM DCX3110	-ZM HCF3120	-ZM HCX1115	-ZM HCX1125	-ZM HCR1135	-ZF CWN2135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
		F	M	M	M	M	M	F
		VCMT	VCMT	VCMT	VCMT	VCMT	VCMT	VCMT
		1A/08	1A/08	1A/08	1A/08	1A/08	1A/08	1A/08
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	76 288 ...	70 278 ...	70 278 ...	76 278 ...	76 278 ...	76 278 ...	70 277 ...
		£	£	£	£	£	£	£
110302EN	0.2							14.55 444
110304EN	0.4	12.51 716						14.55 446
160404EN	0.4	14.55 728	14.55 028	14.55 528	14.55 328	14.55 528	14.55 728	
160406EN	0.6				14.55 329			
160408EN	0.8	14.55 730	14.55 030	14.55 530	14.55 330	14.55 530	14.55 730	
160412EN	1.2		14.55 032	14.55 532	14.55 33200	14.55 53200	14.55 732	
Steel		●	●	●	●	●	●	○
Stainless steel		○	○		○	○	○	●
Cast iron			●	●	○	○		
Non ferrous metals								
Heat resistant alloys		○					○	●

VCMT / VCXT / VCGT

		-SF CTC2135	-M81 CWN2120	-M25 CTPM125	-SM CTC2135	-M55 CTPM125	-25P H210T	-25P AMZ
		-ZF CWN2135		-PF23 HCN2125	-ZM CWN2135	-PF26 HCN2125	-25P CWK20	-25P AMZ
				DRAGONSKIN		DRAGONSKIN		
		F	M	F	M	F	F	F
		VCMT	VCXT	VCMT	VCMT	VCMT	VCGT	VCGT
		1A/08	1A	1A/08	1A/08	1A/08	1A/90	1A/90
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	70 279 ...	70 280 ...	75 219 ...	70 278 ...	75 220 ...	70 282 ...	70 282 ...
		£	£	£	£	£	£	£
110302FN	0.2						13.73 638	15.76 538
110304FN	0.4						13.73 640	15.76 540
160404EN	0.4	14.55 440		14.55 228	14.55 440	14.55 228		
160404FN	0.4		13.86 112				16.78 642	19.54 562
160408EN	0.8				14.55 442	14.55 230		
160408FN	0.8		13.86 114				16.78 644	19.54 564
160412FN	1.2						16.78 646	19.54 566
220530FN	3.0						22.68 648	26.04 568
Steel		○		○	○	○		○
Stainless steel		●	●	●	●	●		○
Cast iron							○	○
Non ferrous metals			○				●	●
Heat resistant alloys		●			●		○	

VCGT / VCMT

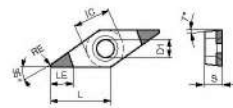
		-25Q H210T	-25Q AMZ	-27 H10T	-27 CWN15	-27 AMZ	-29 H216T	-29 AMZ
		-25Q CWK20	-25Q AMZ	-AL CWK15	-AL CWN15	-AL AMZ		
		M	M	M	M	M	M	M
		VCGT	VCGT	VCGT	VCGT	VCGT	VCMT	VCMT
		1A/90	1A	1A/90	1A	1A/90	NEW 1A/90	NEW 1A/90
ISO	RE	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
	mm	70 282 ...	70 282 ...	70 280 ...	70 280 ...	70 280 ...	70 247 ...	70 247 ...
		£	£	£	£	£	£	£
110302FN	0.2			13.11 606	15.43 306	15.36 456		
110304FL	0.4	15.27 670	18.58 620					
110304FN	0.4			13.11 608	15.43 308	15.36 458		
110304FR	0.4	15.27 680	18.58 630					
110308FN	0.8			13.11 610	15.43 310			
160404EN	0.4						12.31 62800	14.75 42800
160404FN	0.4			15.97 612	18.18 312	18.62 462		
160408EN	0.8						12.31 63000	14.75 43000
160408FN	0.8			15.97 614	18.18 314	18.62 464		
160412EN	1.2						12.31 63200	14.75 43200
160412FN	1.2			15.97 616	18.18 316			
220530FN	3.0			21.67 618				
Steel			○			○		○
Stainless steel			○		○	○		○
Cast iron		○	○	○	○	○	○	○
Non ferrous metals		●	●	●	●	●	●	●
Heat resistant alloys		○		○			○	

VCET / VCGT

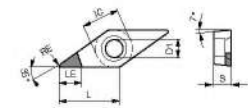
		-F05 CTPX710	-F23 CTP2120
			-F23 CCN2120
		F	F
		VCET	VCGT
		NEW 1H/17	1A/08
ISO	RE	Article no.	Article no.
	mm	76 255 ...	70 193 ...
		£	£
110300FN	0.00		14.55 600
1103015FN	0.15	21.17 11800	
110301FN	0.10	21.17 11600	14.55 602
113005FN	0.05	21.17 11400	
11302FN	0.20	21.17 12000	
11304FN	0.40	21.17 12200	
160401FN	0.10		18.62 606
Steel		●	
Stainless steel		●	●
Cast iron		○	○
Non ferrous metals		○	○
Heat resistant alloys		●	●

VCGW

Designation	L	S	D1	IC
	mm	mm	mm	mm
VCGW 1103..	11.1	3.18	2.9	6.35
VCGW 1604..	16.6	4.76	4.4	9.52

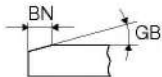


-B (-2MC)



-A

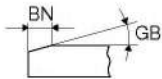
VCGW



	-A CTBS10U	-B CTBS20C	-B CTBH15U	-B CTBH15C
	PBC10	-2MC PBC15-S		
	F	F	F	F
	CBN VCGW	CBN VCGW	CBN VCGW	CBN VCGW
	YO	YO	NEW YO	NEW YO
ISO	Article no. 71 160 ...	Article no. 71 165 ...	Article no. 71 036 ...	Article no. 71 035 ...
RE	£	£	£	£
GB				
BN				
LE				
110302SN	0.2	15	0.11	3.4
110302TN	0.2	20	0.14	4.7
110302SN	0.2	25	0.13	3.4
110302FN	0.2			4.7
110302EN	0.2			3.4
110304SN	0.4	10	0.09	3.1
110304SN	0.4	15	0.11	3.1
110304TN	0.4	20	0.14	4.5
110304TN	0.4	20	0.15	3.1
110304SN	0.4	20	0.16	3.1
110304SN	0.4	25	0.13	3.1
110304SN	0.4	25	0.18	3.1
110304FN	0.4			4.5
110304EN	0.4			3.1
110308SN	0.8	10	0.09	2.5
110308SN	0.8	15	0.11	2.5
110308TN	0.8	20	0.14	4.2
110308SN	0.8	20	0.16	2.5
110308SN	0.8	25	0.13	3.1
110308SN	0.8	25	0.13	2.5
110308TN	0.8	25	0.17	2.5
110308SN	0.8	25	0.18	2.5
110308FN	0.8			4.2
110308EN	0.8			2.5
160402SN	0.2	15	0.11	3.4
160402TN	0.2	20	0.14	5.3
160404SN	0.2	25	0.13	3.4
160402RN	0.2			3.4
160402FN	0.2			5.3
160402SN	0.2	25	0.13	3.4
160404SN	0.4	10	0.09	3.1
160404SN	0.4	15	0.11	3.1
160404TN	0.4	20	0.14	5.0
160404TN	0.4	20	0.15	3.1
160404SN	0.4	20	0.16	3.1
160404RN	0.4			3.4
160404SN	0.4	25	0.13	3.1
160404SN	0.4	25	0.18	3.1
160404FN	0.4			5.0
160404RN	0.4			3.1

Cast iron	•	•		
Sintered steels	•	•		
Heat resistant alloys	•	•		
hardened < 45 HRC			•	•
hardened 46-55 HRC			•	•
hardened 56-60 HRC			•	•
hardened 61-65 HRC			•	•

VCGW

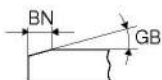


	-A CTBS10U	-B CTBS20C	-B CTBH15U	-B CTBH15C
	PBC10	-2MC PBC15-S		
	F	F	F	F
	CBN VCGW	CBN VCGW	CBN VCGW	CBN VCGW
	YO	YO	NEW YO	NEW YO
	Article no. 71 160 ...	Article no. 71 165 ...	Article no. 71 036 ...	Article no. 71 035 ...
	£	£	£	£
160408SN		73.32 126		
160408SN		73.32 136	82.40 34014	79.70 34014
160408TN	69.43 308			
160408SN		73.32 156		
160408SN			82.40 34029	79.70 34029
160408TN		73.32 166		
160408SN		73.32 176		
160408EN		73.32 116		
160408FN	69.43 208			
160408RN			82.40 24000	79.70 24000

ISO	RE	GB	BN	LE
	mm	°	mm	mm
160408SN	0.8	10	0.09	2.5
160408SN	0.8	15	0.11	2.5
160408TN	0.8	20	0.14	4.4
160408SN	0.8	20	0.16	2.5
160408SN	0.8	25	0.13	2.5
160408TN	0.8	25	0.17	2.5
160408SN	0.8	25	0.18	2.5
160408EN	0.8			2.5
160408FN	0.8			4.4
160408RN	0.8			2.5

Cast iron	•	•		
Sintered steels	•	•		
Heat resistant alloys	•	•		
hardened < 45 HRC				•
hardened 46-55 HRC				•
hardened 56-60 HRC				•
hardened 61-65 HRC				•

VCGW



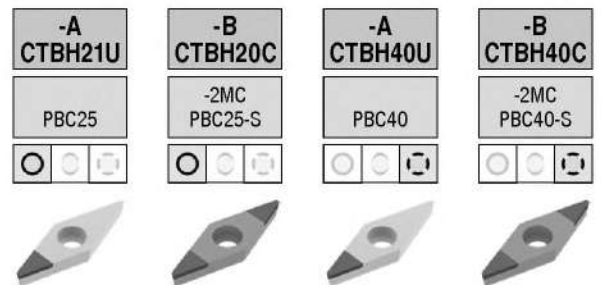
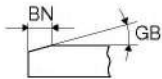
	-A CTBH21U	-B CTBH20C	-A CTBH40U	-B CTBH40C
	PBC25	-2MC PBC25-S	PBC40	-2MC PBC40-S
	F	F	F	F
	CBN VCGW	CBN VCGW	CBN VCGW	CBN VCGW
	YO	YO	YO	YO
	Article no. 71 160 ...	Article no. 71 165 ...	Article no. 71 160 ...	Article no. 71 165 ...
	£	£	£	£
110302TN	69.43 500			
110302TN			69.43 900	
110302FN	69.43 400 ¹⁾		69.43 800	
110304FN	69.43 402 ¹⁾		69.43 802	
110304SN		73.32 251		73.32 331
110304TN	69.43 502			73.32 351
110304SN				73.32 341
110304TN			69.43 902	

ISO	RE	GB	BN	LE
	mm	°	mm	mm
110302TN	0.2	20	0.14	4.7
110302TN	0.2	25	0.12	4.7
110302FN	0.2			4.7
110304FN	0.4			4.5
110304SN	0.4	20	0.09	3.1
110304TN	0.4	20	0.14	4.5
110304SN	0.4	25	0.09	3.1
110304TN	0.4	25	0.11	3.1
110304TN	0.4	25	0.12	4.5

Cast iron				
Sintered steels				
Heat resistant alloys				
hardened < 45 HRC				
hardened 46-55 HRC	•	•	•	•
hardened 56-60 HRC	•	•	•	•
hardened 61-65 HRC			•	•

1) Machining to 60 HRC

VCGW



F
CBN
VCGW
Y0

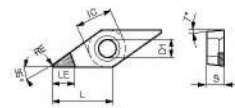
ISO	RE	GB	BN	LE	-A CTBH21U		-B CTBH20C		-A CTBH40U		-B CTBH40C	
	mm	°	mm	mm	Article no. 71 160 ...	£	Article no. 71 165 ...	£	Article no. 71 160 ...	£	Article no. 71 165 ...	£
110304EN	0.4			3.1								
110304FN	0.4			3.1								
110304TN	0.4	25	0.14	3.1								
110304SN	0.4	25	0.15	3.1								
110304TN	0.4	30	0.14	3.1								
110304SN	0.4	35	0.17	3.1								
110308FN	0.8			4.2	69.43	404 ¹⁾			69.43	804		
110308SN	0.8	15	0.11	2.5			73.32	242				
110308SN	0.8	20	0.09	2.5			73.32	252				
110308TN	0.8	20	0.14	4.2	69.43	504						73.32 332
110308SN	0.8	25	0.09	2.5								73.32 352
110308TN	0.8	25	0.11	2.5								73.32 342
110308TN	0.8	25	0.14	2.5			73.32	262				
110308SN	0.8	25	0.15	2.5			73.32	272				
110308TN	0.8	30	0.14	2.5								73.32 362
110308SN	0.8	30	0.16	2.5								73.32 372
110308SN	0.8	30	0.18	2.5			73.32	282				
110308SN	0.8	35	0.17	2.5								73.32 382
110308EN	0.8			2.5			73.32	222				73.32 312
160402FN	0.2			5.3	69.43	405 ¹⁾			69.43	805		
160402TN	0.2	20	0.14	5.3	69.43	505						
160402TN	0.2	25	0.12	5.3					69.43	905		
160404FN	0.4			5.0	69.43	406 ¹⁾			69.43	806		
160404SN	0.4	20	0.09	3.1			73.32	255				73.32 335
160404TN	0.4	20	0.14	5.0	69.43	506						
160404SN	0.4	25	0.09	3.1								73.32 355
160404TN	0.4	25	0.11	3.1								73.32 345
160404TN	0.4	25	0.12	5.0					69.43	906		
160404FN	0.4			3.1			73.32	215				
160404EN	0.4			3.1			73.32	225				
160404TN	0.4	25	0.14	3.1			73.32	265				
160404TN	0.4	30	0.14	3.1								73.32 365
160404SN	0.4	35	0.17	3.1								73.32 385
160408FN	0.8			4.4	69.43	408 ¹⁾			69.43	808		
160408SN	0.8	15	0.11	2.5			73.32	246				
160408SN	0.8	20	0.09	2.5			73.32	256				73.32 336
160408TN	0.8	20	0.14	4.4	69.43	508						
160408SN	0.8	25	0.09	2.5								73.32 356
160408TN	0.8	25	0.11	2.5								73.32 346
160408TN	0.8	25	0.12	4.4					69.43	908		
160408TN	0.8	25	0.14	2.5			73.32	266				
160408SN	0.8	25	0.15	2.5			73.32	276				
160408TN	0.8	30	0.14	2.5								73.32 366
160408SN	0.8	30	0.16	2.5								73.32 376
160408SN	0.8	30	0.18	2.5			73.32	286				
160408SN	0.8	35	0.17	2.5								73.32 386
160408EN	0.8			2.5			73.32	226				73.32 316
160412TN	1.2	20	0.14	3.9	69.43	510						

Cast iron				
Sintered steels				
Heat resistant alloys				
hardened < 45 HRC				
hardened 46-55 HRC				
hardened 56-60 HRC	•	•	•	•
hardened 61-65 HRC	•	•	•	•

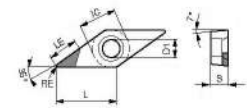
1) Machining to 60 HRC

VCGW / VCGT

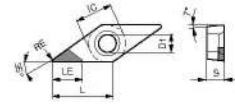
Designation	L	S	D1	IC
	mm	mm	mm	mm
VCG. 1103..	11.1	3.18	2.9	6.35
VCG. 1604..	16.6	4.76	4.4	9.52



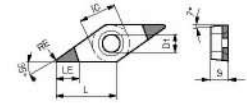
VCGT -A



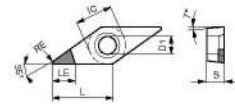
VCGT-L



VCGT-R



-B (-2MC)



VCGW -A

VCGW / VCGT

-A CTDMD05	-A CTDPD20	-A CTDPD20	-A CTDPD20	-A CTDPD20
MDC	PDC	PDC	PDC	PDC
F DIAMOND VCGW Y0	F DIAMOND VCGW Y0	F DIAMOND VCGT Y0	F DIAMOND VCGT Y0	F DIAMOND VCGT Y0

ISO	RE mm	LE mm	-A CTDMD05		-A CTDPD20		-A CTDPD20		-A CTDPD20		-A CTDPD20	
			Article no. 71 160 ...	£	Article no. 71 160 ...	£	Article no. 71 062 ...	£	Article no. 71 063 ...	£	Article no. 71 064 ...	£
110302FN	0.2	3.0	420.55	050	88.03	100	91.24	100				
110302FN	0.2	4.6			88.03	102	91.24	102				
110304FN	0.4	3.0	420.55	052								
110304FN	0.4	3.9			88.03	102	91.24	102				
110304FRR	0.4	6.5						116.66	102			
110304FLL	0.4	6.5								116.66	102	
110308FN	0.8	3.3			91.24	104	91.24	104				
110308FRR	0.8	6.0						116.66	104			
110308FLL	0.8	6.0								116.66	104	
160402FN	0.2	5.9			92.93	105	99.80	105				
160404FN	0.4	5.5			94.78	106	99.80	106				
160404FRR	0.4	7.5						125.23	106			
160404FLL	0.4	7.5								125.23	106	
160408FN	0.8	5.0			99.80	108	99.80	108				
160408FRR	0.8	7.0						125.23	108			
160408FLL	0.8	7.0								125.23	108	
160412FN	1.2	4.5			108.09	110	114.91	110				
160412FRR	1.2	7.0						133.51	110			
160412FLL	1.2	7.0								133.51	110	

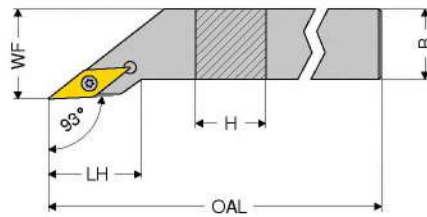
Steel					
Stainless steel					
Cast iron					
Non ferrous metals	•	•	•	•	•
Heat resistant alloys	○				

VCGT

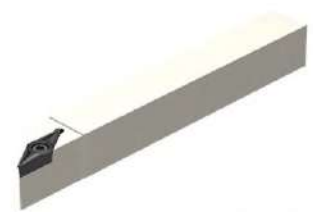
ISO	RE mm	LE mm	-A-CB1 CTDPD20		-A-CB1 CTDPS30		-A-CB2 CTDPS30		-A-CB3 CTDPU20		-A-CB1 CTDCD10		-A-CB2 CTDCD10	
			Article no. 71 330 ... £	Article no. 71 330 ... £	Article no. 71 331 ... £	Article no. 71 332 ... £	Article no. 71 330 ... £	Article no. 71 331 ... £	Article no. 71 330 ... £	Article no. 71 331 ... £				
110302FN	0.2	3.0									142.80	312		
110302EN	0.2	3.0											142.80	312
110302EN	0.2	4.6			115.71	212								
110302FN	0.2	4.6	119.32	112										
110304FN	0.4	3.0									142.80	314		
110304EN	0.4	3.0											142.80	314
110304EN	0.4	3.9			119.32	214	99.48	214						
110304FN	0.4	3.9	119.32	114	119.32	214								
160404EN	0.4	3.0											142.84	334
160404EN	0.4	5.5			129.68	234	103.80	234						
160404FN	0.4	5.5	129.68	134	129.68	234								
160408EN	0.8	3.0											159.10	338
160408EN	0.8	5.0			142.80	238								
160408FN	0.8	5.0	142.80	138	142.80	238								
160412EN	1.2	4.5			151.84	242								

Steel														
Stainless steel														
Cast iron														
Non ferrous metals			•	•	•	•	•	•	•	•	•	•	•	•
Heat resistant alloys				○		○		○		○				

MaxiLock-S – SVJC 93° – Toolholder with screw clamping



Illustrations show right-hand versions

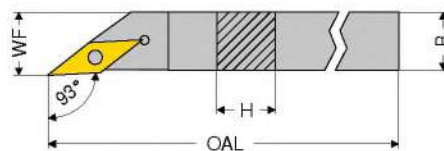


ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
								Article no. 70 697 ...	Article no. 70 696 ...	Article no. 70 697 ...	Article no. 70 696 ...
SVJC R/L 1212 F11	12	12	80	21.5	16	1,2	VC.. 1103	£ 72.06	012	£ 72.06	012
SVJC R/L 1616 H11	16	16	100	21.5	20	1,2	VC.. 1103	£ 79.97	016	£ 79.97	016
SVJC R/L 2020 K11	20	20	125	23.0	25	1,2	VC.. 1103	£ 91.73	020	£ 91.73	020
SVJC R/L 2525 M11	25	25	150	25.5	32	1,2	VC.. 1103	£ 98.36	025	£ 98.36	025
SVJC R/L 2020 K16	20	20	125	29.5	25	3,2	VC.. 1604	£ 91.73	120	£ 91.73	120
SVJC R/L 2525 M16	25	25	150	32.5	32	3,2	VC.. 1604	£ 98.36	125	£ 98.36	125
SVJC R/L 3225 P16	32	25	170	32.5	32	3,2	VC.. 1604	£ 106.09	132	£ 106.09	132

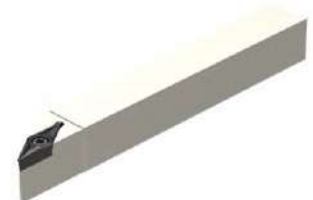
i Tool holders with HSK-T interface can be found in → Chapter 16.

Spare parts	Y7		2A/28		2A		2A/28		2A/28	
	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
Insert	80 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
VC.. 1103	£ 10.30	110	£ 7.53	398	£ 2.15	112	£ 9.15	107	£ 4.22	171
VC.. 1604					£ 2.85	113				

MaxiLock-S – SVJC 93° – Toolholder with screw clamping



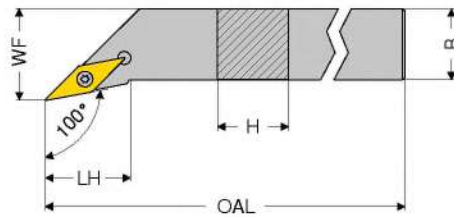
Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Left-hand X0		Right-hand X0	
							Article no. 70 697 ...	Article no. 70 696 ...	Article no. 70 697 ...	Article no. 70 696 ...
SVJC R/L 0808 H11	8	8	100	8	1,2	VC.. 1103	£ 182.23	008	£ 182.23	008
SVJC R/L 1010 H11	10	10	100	10	1,2	VC.. 1103	£ 182.23	010	£ 182.23	010
SVJC R/L 1212 H11	12	12	100	12	1,2	VC.. 1103	£ 216.67	112	£ 216.67	112
SVJC R/L 1616 K11	16	16	125	16	1,2	VC.. 1103	£ 227.24	116	£ 227.24	116

Spare parts	Y7		2A	
	Article no.	Article no.	Article no.	Article no.
Insert	80 950 ...	70 950 ...	70 950 ...	70 950 ...
VC.. 1103	£ 10.30	110	£ 2.15	112

MaxiLock-S – SVZC 100° – Toolholder with screw clamping



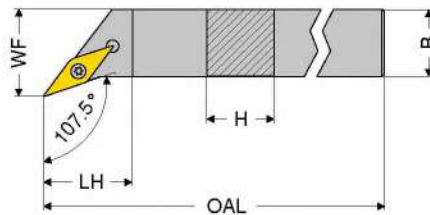
Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24			
								Article no. 70 701 ...	£	Article no. 70 700 ...	£		
SVZC R/L 2525 M16	25	25	150	28.5	32	3,2	VC.. 1604	70 701 ...	98.36	025	70 700 ...	98.36	025

Spare parts for Article no.	2A/28 Combination Key		2A/28 Clamping screw		2A/28 Solid Carbide Seat V		2A/28 Threaded sleeve				
	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£			
70 701 025 / 70 700 025	T15/SW	7.53	398	M3,5x11	2.85	113	9.15	107	M3,5	4.22	171

MaxiLock-S – SVHC 107.5° – Toolholder with screw clamping



Illustrations show right-hand versions



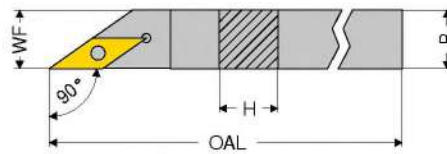
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24			
								Article no. 70 705 ...	£	Article no. 70 704 ...	£		
SVHC R/L 1212 F11	12	12	80	11.4	16	1,2	VC.. 1103	70 705 ...	72.06	012	70 704 ...	72.06	012
SVHC R/L 1616 H11	16	16	100	11.4	20	1,2	VC.. 1103	70 705 ...	79.97	016	70 704 ...	79.97	016
SVHC R/L 2020 K11	20	20	125	14.6	25	1,2	VC.. 1103	70 705 ...	91.73	020	70 704 ...	91.73	020
SVHC R/L 2525 M11	25	25	150	20.9	32	1,2	VC.. 1103	70 705 ...	98.36	025	70 704 ...	98.36	025
SVHC R/L 2020 K16	20	20	125	13.2	25	3,2	VC.. 1604	70 705 ...	91.73	120	70 704 ...	91.73	120
SVHC R/L 2525 M16	25	25	150	19.6	32	3,2	VC.. 1604	70 705 ...	98.36	125	70 704 ...	98.36	125
SVHC R/L 3225 P16	32	25	170	19.6	32	3,2	VC.. 1604	70 705 ...	106.09	132	70 704 ...	106.09	132
SVHC R/L 2525 M22	25	25	150	19.6	32	5	VC.. 2205	70 705 ...	98.36	225	70 704 ...	98.36	225
SVHC R/L 3225 P22	32	25	170	19.6	32	5	VC.. 2205	70 705 ...	106.09	232	70 704 ...	106.09	232

i Tool holders with HSK-T interface can be found in → Chapter 16.

Spare parts for Article no.	Y7 Key D		2A/28 Combination Key		2A Clamping screw		2A/28 Solid Carbide Seat V		2A/28 Threaded sleeve		
	Article no. 80 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	
70 704 012 / 70 705 012	80 950 ...	10.30	110								
70 704 016 / 70 705 016	80 950 ...	10.30	110								
70 704 020 / 70 705 020	80 950 ...	10.30	110								
70 704 025 / 70 705 025	80 950 ...	10.30	110								
70 704 120 / 70 705 120				7.53	398	2.15	112	9.15	107	4.22	171
70 704 125 / 70 705 125				7.53	398	2.85	113	9.15	107	4.22	171
70 704 132 / 70 705 132				7.53	398	2.85	113	9.15	107	4.22	171
70 704 225 / 70 705 225				7.53	398	2.34	114	12.14	109	4.22	170
70 704 232 / 70 705 232				7.53	398	2.34	114	12.14	109	4.22	170

MaxiLock-S – SVAC 90° – Toolholder with screw clamping

▲ for sliding head lathes



Illustrations show right-hand versions



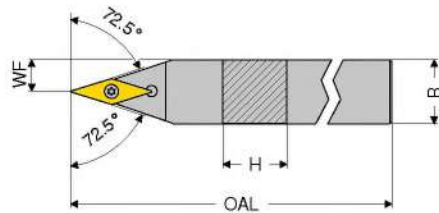
ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Left-hand X0		Right-hand X0	
							Article no. 70 695 ...	£	Article no. 70 694 ...	£
SVAC R/L 0808 H11	8	8	100	8	1,2	VC.. 1103	182.23	008	182.23	008
SVAC R/L 1010 H11	10	10	100	10	1,2	VC.. 1103	182.23	010	182.23	010
SVAC R/L 1212 H11	12	12	100	12	1,2	VC.. 1103	216.67	012	216.67	012

Spare parts

for Article no.		Article no. 80 950 ...	£		Article no. 70 950 ...	£
70 694 008 / 70 695 008	T08	10.30	110	M2,5x6	2.15	112
70 694 010 / 70 695 010	T08	10.30	110	M2,5x6	2.15	112
70 694 012 / 70 695 012	T08	10.30	110	M2,5x6	2.15	112



MaxiLock-S – SVVC 72.5° – Toolholder with screw clamping



ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Neutral 2A/24	
							Article no. 70 692 ...	£
SVVC N 1212 F11	12	12	80	6.0	1,2	VC.. 1103	72.06	012
SVVC N 1616 H11	16	16	100	8.0	1,2	VC.. 1103	79.97	016
SVVC N 2020 K11	20	20	125	10.0	1,2	VC.. 1103	91.73	020
SVVC N 2525 M11	25	25	150	12.5	1,2	VC.. 1103	98.36	025
SVVC N 2020 K16	20	20	125	10.0	3,2	VC.. 1604	91.73	120
SVVC N 2525 M16	25	25	150	12.5	3,2	VC.. 1604	98.36	125
SVVC N 3225 P16	32	25	170	12.5	3,2	VC.. 1604	106.09	132

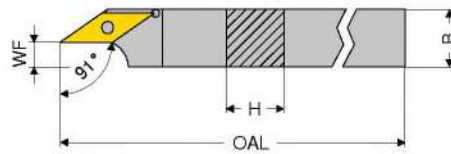
Spare parts

for Article no.		Article no. 80 950 ...	£		Article no. 70 950 ...	£		Article no. 70 950 ...	£
70 692 012		10.30	110		2.15	112			
70 692 016		10.30	110		2.15	112			
70 692 020		10.30	110		2.15	112			
70 692 025		10.30	110		2.15	112			
70 692 120				7.53	398	2.85	113	9.15	107
70 692 125				7.53	398	2.85	113	9.15	107
70 692 132				7.53	398	2.85	113	9.15	107



MaxiLock-S – SVXC 91° – Toolholder with screw clamping

▲ for sliding head lathes



Illustrations show right-hand versions

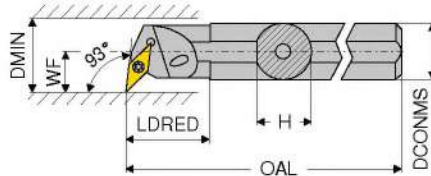


ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Left-hand X0		Right-hand X0	
							Article no. 70 691 ...	£	Article no. 70 690 ...	£
SVXC R/L 1010 H11	10	10	100	3.4	1,2	VC.. 1103	182.23	010	182.23	010
SVXC R/L 1212 H11	12	12	100	5.4	1,2	VC.. 1103	216.67	012	216.67	012
SVXC R/L 1616 K11	16	16	125	8.9	1,2	VC.. 1103	227.24	016	240.60	016
SVXC R/L 2020 K16	20	20	125	10.4	3,2	VC.. 1604	261.91	020	261.91	020



Spare parts for Article no.	Article no. 80 950 ...		Article no. 70 950 ...	
	£		£	
70 691 010 / 70 690 010	10.30	110	2.15	112
70 691 012 / 70 690 012	10.30	110	2.15	112
70 691 016 / 70 690 016	10.30	110	2.15	112
70 691 020 / 70 690 020	12.26	113	2.85	113

MaxiLock-S – SVUC 93° – Boring bar with screw clamping



Illustrations show right-hand versions



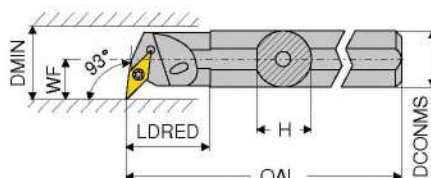
ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
									Article no. 70 745 ...	£	Article no. 70 744 ...	£
A16M SVUC R/L 11	16	15.0	150	29	11	20	1,2	VC.. 1103	114.45	216	114.45	216
A20Q SVUC R/L 11	20	18.5	180	32	13	25	1,2	VC.. 1103	131.91	220	131.91	220
A25R SVUC R/L 11	25	23.0	200	36	17	32	1,2	VC.. 1103	161.64	225	161.64	225
A32S SVUC R/L 16	32	30.0	250	50	22	40	3,2	VC.. 1604	193.91	232	193.91	232
A40T SVUC R/L 16	40	38.0	300	60	27	50	3,2	VC.. 1604	225.00	240	225.00	240

i Tool holders with HSK-T interface can be found in → Chapter 16.

Spare parts for Article no.	Y7		2A/28		2A		2A/28		2A/28	
	Article no. 80 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£	Article no. 70 950 ...	£
70 744 216 / 70 745 216	10.30	110			2.15	112				
70 744 220 / 70 745 220	10.30	110			2.15	112				
70 744 225 / 70 745 225	10.30	110			2.15	112				
70 744 232 / 70 745 232			7.53	398	2.85	113	9.15	107	4.22	171
70 744 240 / 70 745 240			7.53	398	2.85	113	9.15	107	4.22	171

MaxiLock-S – SVUC 93° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions

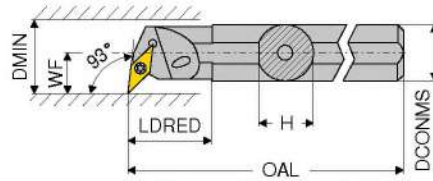


ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand 2A		Right-hand 2A	
									Article no. 70 747 ...	£	Article no. 70 746 ...	£
E-A16M SVUC R/L 11	16	15	150	16.5	11	21	1,2	VC.. 1103	296.45	216	296.45	216
E-A20Q SVUC R/L 11	20	18	180	20.5	13	25	1,2	VC.. 1103	422.27	220	422.27	220
E-A25R SVUC R/L 11	25	23	200	25.5	17	31	1,2	VC.. 1103	716.82	225	716.82	225
E-A25R SVUC R/L 16	25	23	200	25.5	17	31	3,2	VC.. 1604	716.82	325	716.82	325
E-A32S SVUC R/L 16	32	30	250	32.5	22	39	3,2	VC.. 1604	773.09	232	773.09	232

Spare parts for Article no.	Y7		2A	
	Article no. 80 950 ...	£	Article no. 70 950 ...	£
70 746 216 / 70 747 216	10.30	110	2.15	112
70 746 220 / 70 747 220	10.30	110	2.15	112
70 746 225 / 70 747 225	10.30	110	2.15	112
70 746 325 / 70 747 325	12.26	113	2.85	449
70 746 232 / 70 747 232	12.26	113	2.85	449

MaxiLock-S – SVUC 93° – Boring bar with screw clamping

▲ Type: Solid carbide



Illustrations show right-hand versions



ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
									Article no. 70 747 ...	£	Article no. 70 746 ...	£
E16R SVUC R/L 11	16	15.0	200	34	11	20	1,2	VC.. 1103	438.27	016	438.27	016
E20S SVUC R/L 11	20	18.5	250	38	13	25	1,2	VC.. 1103	519.82	020	519.82	020
E25T SVUC R/L 11	25	23.0	300	43	17	32	1,2	VC.. 1103	910.00	025	910.00	025

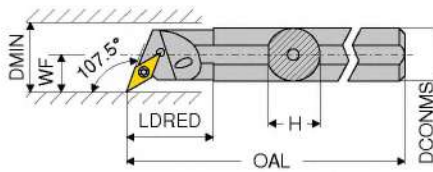


Spare parts

for Article no.

for Article no.	T08	£	110	M2,5x6	£	112
70 746 016 / 70 747 016	T08	10.30	110	M2,5x6	2.15	112
70 746 020 / 70 747 020	T08	10.30	110	M2,5x6	2.15	112
70 746 025 / 70 747 025	T08	10.30	110	M2,5x6	2.15	112

MaxiLock-S – SVQC 107.5° – Boring bar with screw clamping



Illustrations show right-hand versions



ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand 2A/24		Right-hand 2A/24	
									Article no. 70 749 ...	£	Article no. 70 748 ...	£
A16M SVQC R/L 11	16	15.0	150	29	11	20	1,2	VC.. 1103	114.45	216	114.45	216
A20Q SVQC R/L 11	20	18.5	180	32	13	25	1,2	VC.. 1103	131.91	220	131.91	220
A25R SVQC R/L 11	25	23.0	200	36	17	32	1,2	VC.. 1103	161.64	225	161.64	225
A32S SVQC R/L 16	32	30.0	250	50	22	40	3,2	VC.. 1604	193.91	232	193.91	232
A40T SVQC R/L 16	40	38.0	300	60	27	50	3,2	VC.. 1604	225.00	240	225.00	240

! Tool holders with HSK-T or PSC interface can be found in → Chapter 16.

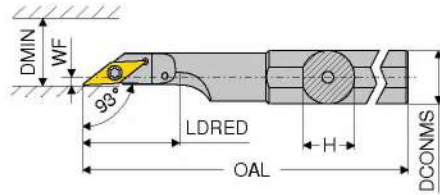
Spare parts

for Article no.

for Article no.	Y7	2A/28	2A	2A/28	2A/28
for Article no.	80 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
	£	£	£	£	£
70 748 216 / 70 749 216	10.30	110	2.15	112	
70 748 220 / 70 749 220	10.30	110	2.15	112	
70 748 225 / 70 749 225	10.30	110	2.15	112	
70 748 232 / 70 749 232		7.53	2.85	9.15	4.22
70 748 240 / 70 749 240		7.53	2.85	9.15	4.22



MaxiLock-S – SVJC 93° – Boring bar with screw clamping



Illustrations show right-hand versions

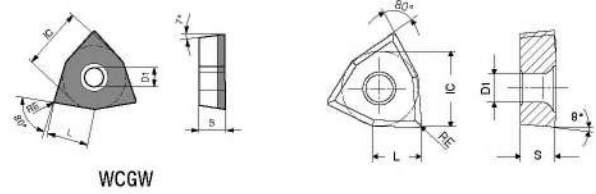
ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment Nm	Insert	Left-hand 2A		Right-hand 2A	
									Article no. 70 727 ...	£	Article no. 70 726 ...	£
A16M SVJC R/L 11	16	15	150	30	2	22	1,2	VC.. 1103	103.91	216	103.91	216
A20M SVJC R/L 11	20	19	150	38	2	25	1,2	VC.. 1103	103.91	220	103.91	220
A25M SVJC R/L 16	25	24	150	44	2	28	3,2	VC.. 1604	103.91	225	103.91	225

Spare parts

for Article no.	Key D		Clamping screw	
	Article no. 80 950 ...	£	Article no. 70 950 ...	£
70 727 216 / 70 726 216	10.30	110	2.15	112
70 727 220 / 70 726 220	10.30	110	2.15	112
70 727 225 / 70 726 225	12.26	113	3.09	174

WCGT / WCGW

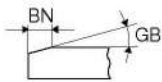
Designation	L	S	D1	IC
	mm	mm	mm	mm
WCGW 0201..	2.70	1.58	2.3	3.97
WCGT 0201..	2.71	1.59	2.1	3.97



WCGT

ISO	RE mm	-SF TCM10		-SF CTPP430		-SF H216T	
		-ZF CWC10		-ZF HCN2430		-ZF CWK26	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		F		F		F	
		CERMET WCGT 1A/78		WCGT 1A/08		WCGT 1A/08	
		Article no. 70 287 ...		Article no. 70 287 ...		Article no. 70 287 ...	
		£		£		£	
020102EN	0.2	14.75	900	15.88	450	12.13	600
020104EN	0.4	14.75	902	15.88	452	12.13	602
Steel		●		●			
Stainless steel				●			
Cast iron		○		○		○	
Non ferrous metals				○		●	
Heat resistant alloys				●		○	

WCGW



-F CTBS10U	-F CTBH15U	-F CTBH21U	-F CTBH40U
PBC10		PBC25	PBC40
F CBN WCGW YO	F CBN WCGW YO	F CBN WCGW YO	F CBN WCGW YO
Article no. 71 154 ...	Article no. 71 037 ...	Article no. 71 154 ...	Article no. 71 154 ...
£	£	£	£

ISO	RE	GB	BN	LE				
	mm	°	mm	mm				
020102EN	0.2			2.7				
020102SN	0.2	15	0.11	2.7				
020102TN	0.2	20	0.14	2.7				
020102TN	0.2	25	0.12	2.7				
020102FN	0.2			2.7	200.91	200		
020104SN	0.4	15	0.11	2.7				
020104TN	0.4	20	0.14	2.7				
020104FN	0.4			2.7				
020104EN	0.4			2.7				
020104TN	0.4	25	0.12	2.7				

Cast iron	•			
Sintered steels	•			
Heat resistant alloys	•			
hardened < 45 HRC			•	
hardened 46-55 HRC			•	•
hardened 56-60 HRC			•	•
hardened 61-65 HRC			•	•

1) Machining to 60 HRC

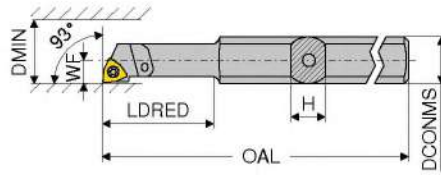
WCGW

-F CTDPD20
PDC
F DIAMOND WCGW YO

ISO	RE	LE		
	mm	mm		
020102FN	0.2	2.7	199.17	100
020104FN	0.4	2.7	199.17	102

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	•
Heat resistant alloys	

MaxiLock-S – SWUC 93° – Boring bar with screw clamping



Illustrations show right-hand versions



ISO designation	H mm	OAL mm	LDRED mm	WF mm	DCONMS mm	DMIN mm	torque moment Nm	Insert	Left-hand	Right-hand		
									2A	2A		
									Article no. 70 731 ...	Article no. 70 730 ...		
									£	£		
A0508H SWUC R/L 02	7	100	24	2.9	8	5.8	0,4	WC.. 0201..	125.82	005	125.82	005
A0608H SWUC R/L 02	7	100	24	3.9	8	7.8	0,4	WC.. 0201..	125.82	006	125.82	006
SET							0,4	WC.. 0201..	227.82	999	227.82	999

i Set includes boring bars 70 731 005 and 70 731 006 or 70 730 005 and 70 730 006

Spare parts

for Article no.

		Article no. 80 950 ...	Article no. 70 950 ...
		£	£
70 731 005 / 70 730 005	T06	11.15 108	M1,8x3,4 3.35 334
70 731 006 / 70 730 006	T06	11.15 108	M1,8x3,4 3.35 334



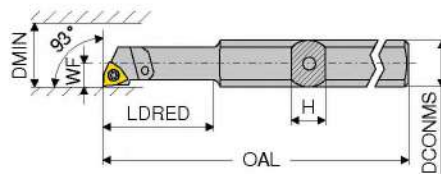
Key D



Clamping screw

MaxiLock-S – SWUC 93° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions



ISO designation	H mm	OAL mm	LDRED mm	WF mm	DCONMS mm	DMIN mm	torque moment Nm	Insert	Left-hand	Right-hand		
									2A	2A		
									Article no. 70 743 ...	Article no. 70 742 ...		
									£	£		
E-A0508H SWUC R/L 02	7	100	24	2.9	8	5.8	0,4	WC.. 0201..	140.09	005	140.09	005
E-A0608H SWUC R/L 02	7	100	24	3.9	8	7.8	0,4	WC.. 0201..	140.09	006	140.09	006
SET							0,4	WC.. 0201..	278.36	999	278.36	999

i Set includes boring bars 70 743 005 and 70 743 006 or 70 742 005 and 70 742 006

Spare parts

for Article no.

		Article no. 80 950 ...	Article no. 70 950 ...
		£	£
70 743 005 / 70 742 005	T06	11.15 108	M1,8x3,4 3.35 334
70 743 006 / 70 742 006	T06	11.15 108	M1,8x3,4 3.35 334



Key D



Clamping screw

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	< 1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100-350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300-500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300-500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500-900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270-450 N/mm²	0.8036	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500-650 N/mm²	0.8056	GTW-55	0.8066	GTW-65		
	3.7	Black malleable cast iron	300-450 N/mm²	0.8136	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500-800 N/mm²	0.8156	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5-10 % Si	< 400 N/mm²	3.2315	A-8 S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10-15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18		A-S17 U4		
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cu2 (Beryllium Copper)	2.0855	Cu2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-A11 Fe5 Ni5		Ampco 18 (Cu-A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe- Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30 Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 CS 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4802	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (T117)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7185	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46-55 HRC						
	6.3	Tempered steel	56-60 HRC						
	6.4		61-65 HRC						
	6.5		65-70 HRC						

Cutting data values for fine machining (F)

Chip breaker: -CF -F32 -CF20 -F30 -F40 // -F23 -M25 -F43 -SF -SMF -CF05 -CF55
 Chip breaker: (-CF) (-F32) (-NF12) (-NF23) (-F40) // (-F23) (-PF23) (-F43) (-ZF) (-SMF) (-PF14) (-PF15)

Index	v _c in m/min											
	CTEP110 (DCC1110)	TCM407 (CWC407)	TCM10 (CWC10)	CTCK110 (DCX3110)	CTCK120 (HCF3120)	CTCP115 (HCX1115)	CTCP125 (HCX1125)	CTCP135 (HCR1135)	CTPM125 (HCN2125)	CTPX710 (CTPX710)	CTP2120 (CCN2120)	CTC2135 (CWN2135)
1.1	300-370	290-340	230-270	270-340	230-280	260-350	200-270	180-220	120-260	120-170		170-220
1.2	400-520	340-430	280-350	270-350	230-310	280-360	230-280	190-240	130-220	140-200		190-230
1.3	350-400	300-370	280-350	250-340	210-280	220-350	240-290	170-210	130-250	110-160		160-200
1.4	300-370	240-310	170-330	250-330	210-270	240-320	200-270	180-220	130-220	90-150		170-230
1.5	400-440	230-280	180-340	240-320	200-260	230-300	220-260	160-210	100-180	90-150		150-200
1.6	350-410	230-270	170-320	230-310	190-270	210-270	210-250	170-230	100-180	100-130		160-220
1.7	250-300	250-310	180-280	200-280	160-230	240-320	210-280	170-210	60-180	80-140		150-200
1.8	300-360	230-290	160-250	210-270	170-220	200-280	190-240	150-190	60-180	80-130		140-180
1.9	200-320			230-310	190-260	200-300	170-240	170-200	80-180	80-120		170-200
1.10	250-320	250-310	180-270	230-290	190-240	220-280	180-240	150-200	100-180	80-120		140-170
1.11	240-310	230-290	170-250	220-290	180-240	200-270	170-240	140-180	100-180	80-140		140-180
1.12	240-310	270-320	190-270	250-310	210-260	210-300	200-270	160-200	80-180	130-220		160-200
1.13				210-270	170-220	180-270	170-240	140-190	60-180	80-120		130-180
1.14				220-280	180-230	180-250	180-230	130-180	80-180	70-130		130-180
1.15	260-310	210-250	170-250	200-290	170-240	160-250	150-230	120-160	80-150	70-130		120-160
1.16	260-310	210-250	170-250	200-280	170-230	150-240	140-220	120-170	80-150	70-100		110-160
2.1	250-320			190-310		200-280	200-280	160-210	200-280	90-260	190-260	160-240
2.2	250-320			190-320		200-280	200-280	160-210	200-280	80-240	200-250	180-250
2.3	300-350			180-300		190-260	190-260	130-200	190-260	70-240	190-240	150-240
2.4	210-250			200-300		190-240	190-240	120-200	190-240	40-220	140-210	160-230
2.5								100-150	100-220	60-230	110-190	150-230
2.6	210-250							60-80	100-220	40-170	80-160	120-170
2.7	210-250							60-80	40-100	40-160	80-140	120-160
3.1	340-480			260-310	220-260	220-280	200-260			140-240	140-180	
3.2	260-360			260-330	230-280	200-270	190-250			100-190	110-170	
3.3	360-520	280-430	220-300	330-450	320-410	180-250	170-240			130-260	130-180	
3.4	300-400	250-380	180-250	350-460	340-420	180-260	140-190			100-250	160-240	
3.5	330-500	250-400	250-350	380-460	360-420	260-320	240-290			160-240	160-230	
3.6	180-320	180-320	160-250	270-370	250-330	200-320	170-290			130-200	130-190	
3.7	330-500	250-400	250-350	350-430	320-390	240-320	240-290			150-240	150-220	
3.8	180-320	180-320	160-250	260-350	240-310	210-320	170-290			140-210	140-180	
4.1										300-3200	100-600	
4.2										200-2800	100-600	
4.3										400-2000	100-400	
4.4										40-2000	100-400	
4.5										200-1200	100-400	
4.6										250-1000	100-400	
4.7										200-1000	100-400	
4.8										200-1000	100-400	
4.9										200-1000	100-400	
4.10										200-1000	100-400	
4.11										150-800		
4.12										150-500		
4.13										100-250		
4.14										80-200		
4.15										80-220		
4.16												
4.17												
4.18										80-120		
4.19										100-140		
5.1								20-40		30-140	15-30	20-40
5.2								20-40		30-110	15-40	20-40
5.3								8-25		30-110	20-35	15-35
5.4								8-25		30-110	13-30	15-35
5.5								4-15		30-110	15-35	8-25
5.6								4-15		30-110	15-35	4-15
5.7								4-15		30-110	60-100	4-15
5.8								4-12		30-110	20-40	4-15
5.9								80-130		30-140	80-140	80-130
5.10								15-35		30-140	25-45	15-35
5.11								15-35		30-120	25-45	15-35
6.1	<p>i The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.</p>											
6.2												
6.3												
6.4												
6.5												

Cutting data values for medium machining (M)

Chip breaker: -M30 -M36 -M50 -M60 -M34 -M40 -42 -M42 -M52 -M70 // -M55 -SM -SMQ -M81
 Chip breaker:(-NM23) (-XU) (-NM15)(-NM26) (-M34) (-M40) (-42) (-M42) (-M52) (-NM19)// (-PF26) (-ZM) (-SMQ) (-M81)

	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN	
	CTCK110 (DCX3110)	CTCK120 (HCF3120)	CTCP115 (HCX1115)	CTCP125 (HCX1125)	CTCP135 (HCR1135)	CTPM125 (HCN2125)	CTP2120 (CCN2120)	CTC2135 (CWN2135)	CWN2120 (CWN2120)	CTP5110 (HCN5110)	CTP5115 (HCN5115)
Index	v _c in m/min										
1.1	260-330	220-270	250-340	200-260	170-210	120-250		170-210			
1.2	260-340	220-300	270-350	230-280	180-230	120-220		180-230			
1.3	230-320	190-260	220-350	240-290	160-200	120-250		150-220			
1.4	240-310	200-250	240-310	200-250	170-210	130-200		170-210			
1.5	230-310	190-250	230-300	210-250	150-200	100-170		150-200			
1.6	220-300	180-260	210-270	190-240	160-220	100-170		150-210			
1.7	190-270	150-210	240-300	200-270	160-200	50-160		150-200			
1.8	190-250	150-200	190-270	180-230	140-180	50-160		130-170			
1.9	210-290	170-240	190-280	160-220	160-190	60-160		160-190			
1.10	210-270	170-220	200-260	180-230	140-190	100-180		130-170			
1.11	210-280	170-230	180-260	170-240	130-170	80-180		130-170			
1.12	230-290	190-240	200-280	190-260	150-200	70-170		150-190			
1.13	190-260	150-210	180-250	170-230	130-180	60-170		120-180			
1.14	210-270	170-220	170-230	170-210	120-160	70-160		120-170			
1.15	180-270	150-220	150-240	130-220	110-150	60-120		100-150			
1.16	180-260	150-210	130-220	130-220	110-150	60-120		100-150			
2.1	150-270		200-280	200-280	150-210	120-280	180-240	150-230	130-200	180-260	180-260
2.2	150-260		200-280	200-280	150-200	120-280	180-230	170-250	120-220	170-240	170-240
2.3	140-250		190-260	190-260	120-200	120-260	170-220	140-220	100-160	170-220	170-220
2.4	160-260		190-240	190-240	110-190	120-240	130-210	140-210	80-180	130-220	130-220
2.5					90-150	100-220	100-180	120-210	90-140	100-170	100-170
2.6					60-80	100-220	70-140	100-140	80-150	80-150	80-150
2.7					60-80	40-100	70-110	100-140	80-120	80-150	80-150
3.1	220-280	170-240	140-240	120-210			120-170				
3.2	210-270	170-230	160-250	160-200			100-150				
3.3	300-350	260-310	150-220	150-200			120-170				
3.4	270-330	230-320	140-200	130-190			150-240				
3.5	290-370	250-330	200-260	160-230			150-220				
3.6	250-310	210-270	180-240	150-210			110-170				
3.7	290-370	250-330	180-280	160-230			140-220				
3.8	250-370	210-330	160-260	150-210			120-170				
4.1							100-600		400-2000		
4.2							100-600		400-2000		
4.3							100-400		400-2000		
4.4							100-400		200-1200		
4.5							100-400		200-1000		
4.6							100-400		250-1000		
4.7							100-400		250-1000		
4.8							100-400		250-1000		
4.9							100-400		250-1000		
4.10							100-400		250-1000		
4.11									150-800		
4.12									150-800		
4.13											
4.14											
4.15											
4.16											
4.17											
4.18											
4.19											
5.1					20-40		15-30	20-40		30-120	
5.2					20-40		15-40	20-40			30-90
5.3					8-25		20-35	15-35			30-90
5.4					8-25		13-30	15-35			30-90
5.5					4-15		15-35	8-25			30-90
5.6					4-15		15-35	4-15			30-90
5.7					4-15		60-100	4-15			30-90
5.8					4-12		20-40	4-15		30-120	
5.9					80-130	80-130	80-140	80-130		30-120	
5.10					15-35	25-45	25-45	15-35		30-120	
5.11					15-35		25-45	15-35		30-120	
6.1											
6.2											
6.3											
6.4											
6.5											

i The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data values for rough machining (R)

Chip breaker: .NMA -R28 -R58 -R88
Chip breaker: (.NMA) (-NR14) (-NR17) (-NR19)

	DRAGONSKIN CTCK110 (DCX3110)	DRAGONSKIN CTCK120 (HCF3120)	DRAGONSKIN CTCP115 (HCX1115)	DRAGONSKIN CTCP125 (HCX1125)	DRAGONSKIN CTCP135 (HCR1135)
Index	v _c in m/min				
1.1			220-320	180-240	160-200
1.2			270-350	230-280	170-220
1.3			220-350	240-290	150-190
1.4			240-310	180-250	160-200
1.5			230-300	200-240	140-190
1.6			210-270	190-240	150-210
1.7			240-300	180-260	150-190
1.8			190-270	150-210	130-170
1.9			190-280	140-200	150-180
1.10			200-260	170-220	130-180
1.11			180-260	160-220	120-160
1.12			200-280	170-240	140-190
1.13			180-250	160-230	120-170
1.14			170-230	150-190	110-150
1.15			150-240	150-210	100-140
1.16			130-220	150-190	100-140
2.1			200-280	200-280	140-200
2.2			200-280	200-280	140-190
2.3			190-260	190-260	110-190
2.4			190-240	190-240	100-180
2.5					80-150
2.6					55-75
2.7					55-75
3.1	220-280	170-240	140-220	130-180	
3.2	210-270	170-230	160-230	120-170	
3.3	300-350	260-310	150-200	130-180	
3.4	270-330	230-320	140-180	100-160	
3.5	290-370	250-330	200-240	150-200	
3.6	250-310	210-270	180-220	130-180	
3.7	290-370	250-330	180-260	150-200	
3.8	250-370	210-330	160-240	130-180	
4.1					
4.2					
4.3					
4.4					
4.5					
4.6					
4.7					
4.8					
4.9					
4.10					
4.11					
4.12					
4.13					
4.14					
4.15					
4.16					
4.17					
4.18					
4.19					
5.1					20-40
5.2					20-40
5.3					8-25
5.4					8-25
5.5					4-15
5.6					4-15
5.7					4-15
5.8					4-12
5.9					80-130
5.10					15-35
5.11					15-35
6.1					
6.2					
6.3					
6.4					
6.5					

i The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data values for aluminum-chip breakers

Chip breaker: **-23P** **-25P** **-25Q** **-27** **-29**
 Chip breaker: (-23P) (-25P) (-25Q) (-AL) (-29)

	H10T (CWK15)	H210T (CWK20)	H216T (CWK26)	AMZ (AMZ)	CWN15 (CWN15)
Index	v _c in m/min				
1.1				90-140	
1.2				110-160	
1.3				90-130	
1.4				80-120	
1.5				80-120	
1.6				90-110	
1.7				90-110	
1.8				70-90	
1.9				90-110	
1.10				70-90	
1.11				70-90	
1.12				70-110	
1.13				150-200	
1.14					
1.15				70-110	
1.16				70-110	
2.1				100-150	80-140
2.2					80-140
2.3					70-120
2.4					40-60
2.5					60-100
2.6				90-140	40-60
2.7					40-60
3.1	120-160	140-200	120-160	180-220	
3.2	90-140	100-160	90-140	140-180	
3.3	130-170	160-200	130-170	160-220	
3.4	90-130	110-150	90-130	120-180	
3.5	140-200	160-220	140-200	180-240	
3.6	120-160	140-180	120-160	160-200	
3.7	140-200	160-220	140-200	180-240	
3.8	120-160	140-180	120-160	160-200	
4.1	300-2500	300-3200	300-2500	300-3200	300-3200
4.2	200-2500	400-1500	200-2000	200-2800	200-2800
4.3	400-2000	300-1000	400-1500	400-2000	400-2000
4.4	400-1800	200-500	400-1500	40-2000	40-2000
4.5	200-1000	200-500	200-800	200-1200	200-1200
4.6	150-300	150-400	150-300	250-1000	250-1000
4.7	250-600	250-800	150-400	200-1000	200-1000
4.8	150-400	250-800	150-400	200-1000	200-1000
4.9	150-400	250-800	150-400	200-1000	200-1000
4.10	150-400	250-800	150-400	200-1000	200-1000
4.11	150-300	200-800	200-600	150-800	150-800
4.12	130-350	150-400	150-400	150-500	150-500
4.13	100-200	80-320	100-200	100-250	100-250
4.14	80-180	80-320	80-180	80-200	80-200
4.15	60-150	80-200	60-150	80-220	80-220
4.16					
4.17					
4.18	60-140				
4.19		100-140	100-140		
5.1		25-40	30-45		
5.2		25-40	20-35		
5.3		25-40	20-35		
5.4		20-30	15-25		
5.5		25-40	15-25		
5.6		20-30	15-25		
5.7		20-30	15-25		
5.8		15-25	15-25		
5.9	60-120	80-140	60-120		
5.10	30-80	40-100	30-80		
5.11	30-80	40-100	30-80		
6.1					
6.2					
6.3					
6.4					
6.5					

i The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data for machining non ferrous metals with carbide inserts

	Material group	Material examples		Machinability of aluminium alloys	Comments	Cutting speed v_c in m/min	
				*			
N	Pure aluminium	non hardenable	Al 99,5	W7	5	<ul style="list-style-type: none"> ▲ Snarl chips ▲ Possibly bad surface ▲ Excessive built-up edge ▲ Long tool life ▲ Use coolant emulsion 	300-3200
			Al 99,5	F13	4		
			Al 99	W8	5		
			Al 99	F14	4		
	Aluminium wrought alloys	non hardenable	Al Mn	W10	5	<ul style="list-style-type: none"> ▲ Snarl, continuous or fragmented chip ▲ Large feed rates necessary for good swarf control ▲ Built-up edge ▲ Long tool life ▲ Emulsion coolant is advantageous 	300-2500
			Al Mn	F16	4		
			Al Mg 1	W10	5		
			Al Mg 1	F19	4		
			Al Mg 3	W18	4		
			Al Mg 3	F25	3		
			Al Mg 5	W25	4		
			AL Mg 5	F28	2		
			Al Mg 4,5 Mn	W27	4		
			Al Mg 4,5 Mn	G35	3		
		hardenable	Al Mg Si 0,5	W	4	<ul style="list-style-type: none"> ▲ Good swarf control with higher feed rates ▲ Very good swarf control ▲ No built up edge ▲ Very good surface quality ▲ Good swarf control ▲ Good surface quality ▲ Little built-up edge 	200-2000
			Al Mg Si 0,5	F13-25	3		
			Al Mg Si 1	W	4		
			Al Mg Si 1	F21-30	3		
			Al Mg Si Pb	F20-28	2		
			Al Cu Si Pb	F28-37	1		
			Al Cu Mg Pb	F34-37	1		
			Al Cu Mg 1	W	3		
			Al Cu Mg 1	F33-40	2		
			Al Cu Mg 2	W	3		
	Cast Aluminium Alloys	non hardenable	G-Al Si 12		3	<ul style="list-style-type: none"> ▲ Good swarf control ▲ Built-up edge ▲ Higher Si content results in lower tool life ▲ High wear of the carbide ▲ Good swarf control ▲ Good surface quality ▲ Long tool life 	Si content < 12 % 400-1500
			G-Al Si 10 Mg		3		Si content ~ 12.5 % 300-1000
			G-Al Si 5 Mg		2		Si content > 13 % 200-500
			G-Al Si 7 Mg (9 Mg)		2		
			G-Al Si Cu 3		2		
			G-Al Si 6 Cu 4		2		
			G-Al Mg 3 (Mg 5)		2		
			G-Al Mg 9		2		
			G-Al Mg 10		2		
			G-Al Mg 3 Si (5 Si)		2		
	G-Al Cu 4 Ti (Mg)		2				
	G-Al Si 12 Cu Mg Ni		2				
	Copper wrought alloys		Cu Ag				300-1200
			Cu As				
			Cu Cd				
			Cu Cd Sn				
Cu Mg							
Cu Mn							
brass		Cu Zn Al					300-1000
		bronze	Cu Sn				300-800
			Cu Sn Zn				
			Cu Ni				
Cu Ni Fe							
Non metal materials	Duroplastics					80-320	
	Fibre-reinforced plastics						
	hard rubber						

* 1 = good machinability, 5 = bad machinability

1 The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values for negative inserts

Designation	-NF12 (Cermet)						-F50 (-NF15)					
	f			a _p			f			a _p		
	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.
mm/rev.			mm			mm/rev.			mm			
CN.. 090304							0,06	0,15	0,25	0,2	0,5	1,5
CN.. 090308							0,10	0,20	0,30	0,4	1,0	2,0
CN.. 120404	0,05	0,15	0,25	0,3	0,5	1,5	0,06	0,15	0,25	0,2	0,6	1,5
CN.. 120408	0,07	0,15	0,25	0,3	0,5	1,5	0,10	0,20	0,30	0,4	1,0	2,0
CN.. 120412							0,14	0,25	0,35	0,6	1,4	2,6
CN.. 120416												
CN.. 160608												
CN.. 160612												
CN.. 160616												
CN.. 160624												
CN.. 190608												
CN.. 190612												
CN.. 190616												
CN.. 190624												
CN.. 250924												
DN.. 110402							0,04	0,10	0,20	0,1	0,4	2,3
DN.. 110404	0,05	0,15	0,25	0,3	0,5	1,5	0,06	0,15	0,25	0,2	0,6	1,5
DN.. 110408	0,07	0,15	0,25	0,3	0,5	1,5	0,10	0,20	0,30	0,4	1,0	2,0
DN.. 110412							0,14	0,25	0,35	0,6	1,4	2,6
DN.. 150404							0,06	0,15	0,25	0,2	0,6	1,5
DN.. 150408							0,10	0,20	0,30	0,4	1,0	2,0
DN.. 150412							0,14	0,25	0,35	0,6	1,4	2,6
DN.. 150416												
DN.. 150604	0,05	0,15	0,25	0,3	0,5	1,5	0,06	0,15	0,25	0,2	0,6	1,5
DN.. 150608	0,07	0,15	0,25	0,3	0,5	1,5	0,10	0,20	0,30	0,4	1,0	2,0
DN.. 150612	0,10	0,20	0,30	0,5	0,7	1,5	0,14	0,25	0,35	0,6	1,4	2,6
DN.. 150616												
SN.. 090308							0,10	0,20	0,30	0,4	1,0	2,0
SN.. 120404							0,06	0,15	0,25	0,2	0,6	1,5
SN.. 120408							0,10	0,20	0,30	0,4	1,0	2,0
SN.. 120412							0,14	0,25	0,35	0,6	1,4	2,6
SN.. 120416												
SN.. 150608												
SN.. 150612												
SN.. 150616												
SN.. 190612												
SN.. 190616												
SN.. 190624												
SN.. 250724												
SN.. 250924												
TN.. 110304							0,06	0,15	0,25	0,2	0,6	1,5
TN.. 110308							0,10	0,20	0,30	0,4	1,0	2,0
TN.. 160404	0,05	0,15	0,25	0,3	0,5	1,5	0,06	0,15	0,25	0,2	0,6	1,5
TN.. 160408	0,07	0,15	0,25	0,3	0,5	1,5	0,10	0,20	0,30	0,4	1,0	2,0
TN.. 160412	0,10	0,20	0,30	0,5	0,7	1,5	0,14	0,25	0,35	0,6	1,4	2,6
TN.. 220404												
TN.. 220408												
TN.. 220412												
TN.. 220416												
VN.. 160404							0,06	0,15	0,25	0,2	0,6	1,5
VN.. 160408							0,10	0,20	0,30	0,4	1,0	2,0
VN.. 160412												
WN.. 060404	0,05	0,15	0,25	0,3	0,5	1,5	0,06	0,15	0,25	0,2	0,6	1,5
WN.. 060408	0,07	0,15	0,25	0,3	0,5	1,5	0,10	0,20	0,30	0,4	1,0	2,0
WN.. 060412												
WN.. 080404							0,06	0,15	0,25	0,2	0,6	1,5
WN.. 080408	0,07	0,15	0,25	0,3	0,5	1,5	0,10	0,20	0,30	0,4	1,0	2,0
WN.. 080412							0,14	0,25	0,35	0,6	1,4	2,6
WN.. 080416												



i The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-TFQ (-TFQ)						-XU (-XU)						-M50 (-NM15)					
	f			a _p			f			a _p			f			a _p		
	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.
mm/rev.			mm			mm/rev.			mm			mm/rev.			mm			
CN.. 090304																		
CN.. 090308																		
CN.. 120404	0,10	0,15	0,35	0,4	1,0	3,0	0,08	0,15	0,25	0,3	1,5	2,5	0,10	0,20	0,30	0,4	2,0	5,0
CN.. 120408	0,10	0,25	0,50	0,5	1,5	4,0	0,13	0,25	0,35	0,6	2,0	3,0	0,15	0,25	0,40	0,6	2,0	5,0
CN.. 120412	0,15	0,30	0,70	0,8	2,0	5,0	0,15	0,30	0,45	0,9	2,0	3,5	0,20	0,30	0,50	1,0	2,0	5,0
CN.. 120416													0,25	0,40	0,60	1,4	2,0	5,0
CN.. 160608													0,15	0,25	0,40	0,6	3,0	8,0
CN.. 160612													0,20	0,30	0,50	1,0	3,0	8,0
CN.. 160616													0,25	0,40	0,60	1,4	3,0	8,0
CN.. 160624																		
CN.. 190608																		
CN.. 190612																		
CN.. 190616																		
CN.. 190624																		
CN.. 250924																		
DN.. 110402																		
DN.. 110404													0,10	0,20	0,30	0,4	1,5	4,0
DN.. 110408													0,15	0,25	0,40	0,6	1,5	4,0
DN.. 110412													0,20	0,30	0,50	1,0	1,5	4,0
DN.. 150404													0,10	0,20	0,30	0,4	2,0	5,0
DN.. 150408													0,15	0,25	0,40	0,6	2,0	5,0
DN.. 150412													0,20	0,30	0,50	1,0	2,0	5,0
DN.. 150416													0,25	0,40	0,60	1,4	2,0	5,0
DN.. 150604	0,10	0,15	0,30	0,4	1,0	3,0	0,08	0,15	0,25	0,3	1,5	2,5	0,10	0,20	0,30	0,4	2,0	5,0
DN.. 150608	0,10	0,25	0,40	0,5	1,5	4,0	0,13	0,25	0,35	0,6	2,0	3,0	0,15	0,25	0,40	0,6	2,0	5,0
DN.. 150612							0,15	0,25	0,40	0,9	2,0	3,5	0,20	0,30	0,50	1,0	2,0	5,0
DN.. 150616													0,25	0,40	0,60	1,4	2,0	5,0
SN.. 090308																		
SN.. 120404																		
SN.. 120408													0,15	0,25	0,40	0,6	2,0	5,0
SN.. 120412													0,20	0,30	0,50	1,0	2,0	5,0
SN.. 120416													0,25	0,40	0,60	1,4	2,0	5,0
SN.. 150608													0,15	0,25	0,40	0,6	3,0	8,0
SN.. 150612													0,20	0,30	0,50	1,0	3,0	8,0
SN.. 150616													0,25	0,40	0,60	1,4	3,0	8,0
SN.. 190612																		
SN.. 190616																		
SN.. 190624																		
SN.. 250724																		
SN.. 250924																		
TN.. 110304																		
TN.. 110308																		
TN.. 160404													0,10	0,20	0,30	0,4	2,0	5,0
TN.. 160408													0,15	0,25	0,40	0,6	2,0	5,0
TN.. 160412													0,20	0,30	0,50	1,0	2,0	5,0
TN.. 220404																		
TN.. 220408													0,15	0,25	0,40	0,6	3,0	8,0
TN.. 220412													0,20	0,30	0,50	1,0	3,0	8,0
TN.. 220416																		
VN.. 160404							0,08	0,15	0,20	0,3	1,0	1,8	0,10	0,20	0,30	0,4	1,0	4,0
VN.. 160408							0,13	0,20	0,30	0,6	1,5	2,5	0,15	0,25	0,40	0,6	1,0	4,0
VN.. 160412													0,20	0,30	0,50	1,0	1,0	4,0
WN.. 060404	0,10	0,18	0,35	0,4	0,8	3,0							0,10	0,20	0,30	0,4	1,0	3,0
WN.. 060408	0,10	0,20	0,50	0,5	1,5	3,0							0,15	0,25	0,40	0,6	1,0	3,0
WN.. 060412													0,20	0,30	0,50	1,0	1,0	3,0
WN.. 080404							0,08	0,15	0,25	0,3	1,5	2,5	0,10	0,20	0,30	0,4	1,5	4,0
WN.. 080408	0,10	0,25	0,50	0,5	1,5	4,0	0,13	0,22	0,35	0,6	2,0	3,0	0,15	0,25	0,40	0,6	1,5	4,0
WN.. 080412	0,15	0,30	0,70	0,8	2,0	5,0	0,15	0,25	0,45	0,9	2,0	3,5	0,20	0,30	0,50	1,0	1,5	4,0
WN.. 080416													0,25	0,40	0,60	1,4	1,5	4,0



i Information on the cutting data of chip breakers not included in this overview, can be found on → Page 168–175

Cutting data standard values for negative inserts

Designation	-TMQ (-TMQ)						-M70 (-NM19)					
	f			a _p			f			a _p		
	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.
mm/rev.			mm			mm/rev.			mm			
CN.. 090304												
CN.. 090308												
CN.. 120404												
CN.. 120408	0,20	0,40	0,65	0,8	3,0	5,0	0,20	0,30	0,45	0,8	3,0	6,0
CN.. 120412	0,25	0,50	0,85	1,0	3,0	6,0	0,25	0,40	0,60	1,2	3,0	6,0
CN.. 120416							0,30	0,45	0,70	1,6	3,0	6,0
CN.. 160608							0,20	0,30	0,45	0,8	4,0	8,0
CN.. 160612							0,25	0,40	0,60	1,2	4,0	8,0
CN.. 160616							0,30	0,45	0,70	1,6	4,0	8,0
CN.. 160624							0,40	0,70	1,20	2,4	4,0	8,0
CN.. 190608							0,20	0,30	0,45	0,8	4,5	9,0
CN.. 190612							0,25	0,40	0,60	1,2	4,5	9,0
CN.. 190616							0,30	0,45	0,70	1,6	4,5	9,0
CN.. 190624							0,40	0,70	1,20	2,4	4,5	9,0
CN.. 250924							0,40	0,70	1,20	2,4	6,0	13,0
DN.. 110402												
DN.. 110404												
DN.. 110408							0,20	0,25	0,45	0,8	2,0	5,0
DN.. 110412							0,25	0,35	0,60	1,2	2,0	5,0
DN.. 150404												
DN.. 150408							0,20	0,25	0,45	0,8	2,5	6,0
DN.. 150412							0,25	0,35	0,60	1,2	2,5	6,0
DN.. 150416							0,30	0,40	0,70	1,6	2,5	6,0
DN.. 150604												
DN.. 150608	0,15	0,30	0,50	0,8	2,5	5,0	0,20	0,25	0,45	0,8	2,5	6,0
DN.. 150612	0,20	0,40	0,60	1,0	3,0	5,0	0,25	0,35	0,60	1,2	2,5	6,0
DN.. 150616							0,30	0,40	0,70	1,6	2,5	6,0
SN.. 090308												
SN.. 120404												
SN.. 120408							0,20	0,30	0,50	0,8	3,0	6,0
SN.. 120412							0,25	0,40	0,65	1,2	3,0	6,0
SN.. 120416							0,30	0,45	0,70	1,6	3,0	6,0
SN.. 150608												
SN.. 150612							0,25	0,40	0,65	1,2	4,0	8,0
SN.. 150616							0,30	0,45	0,75	1,6	4,0	8,0
SN.. 190612							0,25	0,40	0,65	1,2	4,5	9,0
SN.. 190616							0,30	0,45	0,75	1,6	4,5	9,0
SN.. 190624							0,40	0,70	1,20	2,4	4,5	9,0
SN.. 250724												
SN.. 250924							0,40	0,70	1,20	2,4	6,0	13,0
TN.. 110304												
TN.. 110308												
TN.. 160404												
TN.. 160408							0,20	0,25	0,45	0,8	2,5	6,0
TN.. 160412							0,25	0,35	0,60	1,2	2,5	6,0
TN.. 220404							0,15	0,20	0,30	0,4	3,0	7,0
TN.. 220408							0,20	0,25	0,45	0,8	3,0	7,0
TN.. 220412							0,25	0,35	0,60	1,2	3,0	7,0
TN.. 220416							0,30	0,40	0,70	1,6	3,0	7,0
VN.. 160404												
VN.. 160408												
VN.. 160412												
WN.. 060404												
WN.. 060408							0,20	0,30	0,45	0,8	2,0	4,0
WN.. 060412							0,25	0,40	0,60	1,2	2,0	4,0
WN.. 080404												
WN.. 080408	0,20	0,30	0,65	0,8	3,0	5,0	0,20	0,30	0,45	0,8	2,5	5,0
WN.. 080412	0,25	0,40	0,85	1,0	3,0	6,0	0,25	0,40	0,60	1,2	2,5	5,0
WN.. 080416							0,30	0,45	0,70	1,6	2,5	5,0

sharp ← → stable

i The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-R28 (-NR14)						-R58 (-NR17)						-R88 (-NR19)					
	f			a _p			f			a _p			f			a _p		
	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CN.. 090304																		
CN.. 090308																		
CN.. 120404																		
CN.. 120408	0,25	0,35	0,55	0,8	3,0	7,0	0,25	0,45	0,70	1,0	3,0	7,0						
CN.. 120412	0,30	0,45	0,70	1,0	3,0	7,0	0,30	0,55	0,85	1,5	3,0	7,0						
CN.. 120416	0,30	0,60	0,90	1,5	3,0	7,0	0,35	0,65	1,00	2,0	3,0	7,0						
CN.. 160608																		
CN.. 160612	0,30	0,45	0,70	1,0	4,0	9,0	0,30	0,55	0,85	1,5	4,0	9,0						
CN.. 160616	0,35	0,60	0,90	1,5	4,0	9,0	0,35	0,65	1,00	2,0	4,0	9,0						
CN.. 160624							0,40	0,75	1,20	2,5	4,0	9,0	0,40	0,70	1,20	2,0	5,0	9,0
CN.. 190608																		
CN.. 190612	0,30	0,45	0,70	1,0	5,5	12,0	0,35	0,55	0,85	1,5	5,5	12,0						
CN.. 190616	0,35	0,60	0,90	1,5	5,5	12,0	0,40	0,65	1,00	2,0	5,5	12,0	0,40	0,70	1,00	2,0	5,0	12,0
CN.. 190624	0,35	0,65	1,00	2,0	5,5	12,0	0,40	0,75	1,20	2,5	5,5	12,0	0,40	0,70	1,20	2,0	5,0	12,0
CN.. 250924							0,45	0,80	1,30	2,5	8,0	16,0	0,60	1,00	1,50	3,5	10,0	18,0
DN.. 110402																		
DN.. 110404																		
DN.. 110408																		
DN.. 110412																		
DN.. 150404																		
DN.. 150408																		
DN.. 150412																		
DN.. 150416																		
DN.. 150604																		
DN.. 150608																		
DN.. 150612	0,25	0,45	0,70	1,0	2,5	6,0	0,30	0,50	0,80	1,5	2,5	6,0						
DN.. 150616	0,30	0,60	0,85	1,5	2,5	6,0	0,35	0,60	0,90	2,0	2,5	6,0						
SN.. 090308																		
SN.. 120404																		
SN.. 120408							0,25	0,45	0,70	1,0	3,0	7,0						
SN.. 120412							0,30	0,55	0,85	1,5	3,0	7,0						
SN.. 120416																		
SN.. 150608																		
SN.. 150612	0,30	0,35	0,70	1,0	4,0	9,0	0,30	0,55	0,85	1,5	4,0	9,0						
SN.. 150616	0,35	0,60	0,90	1,5	4,0	9,0	0,35	0,65	1,00	2,0	4,0	9,0						
SN.. 190612							0,35	0,55	0,85	1,5	5,5	12,0						
SN.. 190616	0,35	0,60	0,90	1,5	5,5	12,0	0,40	0,65	1,00	2,0	5,5	12,0	0,40	0,70	1,00	2,0	5,0	12,0
SN.. 190624							0,40	0,75	1,20	2,0	5,5	12,0	0,40	0,70	1,20	2,0	5,0	12,0
SN.. 250724	0,35	0,65	1,00	2,0	7,0	16,0	0,45	0,80	1,30	2,5	8,0	16,0	0,60	1,00	1,50	3,5	10,0	18,0
SN.. 250924	0,35	0,65	1,00	2,0	7,0	16,0	0,45	0,80	1,30	2,5	8,0	16,0	0,60	1,00	1,50	3,5	10,0	18,0
TN.. 110304																		
TN.. 110308																		
TN.. 160404																		
TN.. 160408																		
TN.. 160412																		
TN.. 220404																		
TN.. 220408																		
TN.. 220412							0,30	0,50	0,80	1,5	3,0	7,0						
TN.. 220416	0,30	0,55	0,85	1,5	3,0	7,0												
VN.. 160404																		
VN.. 160408																		
VN.. 160412																		
WN.. 060404																		
WN.. 060408																		
WN.. 060412																		
WN.. 080404																		
WN.. 080408																		
WN.. 080412																		
WN.. 080416																		

9



i Information on the cutting data of chip breakers not included in this overview, can be found on → Page 168–175

Cutting data standard values for negative inserts

Designation	-F30 (-NF23)						-M30 (-NM23)					
	f			a _p			f			a _p		
	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.
	mm/rev.		mm			mm/rev.		mm				
CN.. 090304												
CN.. 090308												
CN.. 120404	0,05	0,15	0,25	0,4	1,0	2,0						
CN.. 120408	0,10	0,22	0,35	0,8	1,5	2,5	0,15	0,25	0,40	1,0	2,0	4,5
CN.. 120412							0,20	0,30	0,50	1,2	2,5	5,0
CN.. 120416							0,25	0,35	0,55	1,6	2,5	5,0
CN.. 160608												
CN.. 160612												
CN.. 160616												
CN.. 160624												
CN.. 190608												
CN.. 190612												
CN.. 190616												
CN.. 190624												
CN.. 250924												
DN.. 110402												
DN.. 110404	0,05	0,15	0,25	0,4	1,0	2,0						
DN.. 110408	0,10	0,20	0,35	0,8	1,5	2,5	0,15	0,25	0,40	1,0	2,0	4,5
DN.. 110412							0,20	0,30	0,50	1,2	2,0	4,5
DN.. 150404												
DN.. 150408												
DN.. 150412												
DN.. 150416												
DN.. 150604	0,05	0,15	0,25	0,4	1,0	2,0						
DN.. 150608	0,10	0,20	0,35	0,8	1,5	2,5	0,15	0,25	0,40	1,0	2,0	5,5
DN.. 150612							0,20	0,30	0,50	1,2	2,0	5,5
DN.. 150616												
SN.. 090308												
SN.. 120404	0,10	0,15	0,30	0,4	1,0	2,0						
SN.. 120408	0,15	0,20	0,40	0,8	1,5	2,5	0,20	0,25	0,45	1,0	2,0	4,5
SN.. 120412	0,15	0,20	0,40	1,2	1,8	2,5	0,25	0,30	0,50	1,2	2,0	5,0
SN.. 120416												
SN.. 150608												
SN.. 150612												
SN.. 150616												
SN.. 190612												
SN.. 190616												
SN.. 190624												
SN.. 250724												
SN.. 250924												
TN.. 110304												
TN.. 110308												
TN.. 160404	0,05	0,15	0,25	0,4	1,0	2,0						
TN.. 160408	0,10	0,15	0,35	0,8	1,5	2,5	0,15	0,25	0,40	1,0	2,0	4,5
TN.. 160412							0,20	0,30	0,50	1,2	2,0	4,5
TN.. 220404												
TN.. 220408												
TN.. 220412												
TN.. 220416												
VN.. 160404	0,08	0,10	0,20	0,4	1,0	2,0						
VN.. 160408	0,10	0,15	0,30	0,8	1,5	2,5	0,15	0,25	0,40	1,0	1,5	4,0
VN.. 160412												
WN.. 060404	0,05	0,15	0,25	0,4	1,0	2,0						
WN.. 060408	0,10	0,20	0,30	0,8	1,5	2,5	0,15	0,25	0,40	1,0	1,5	3,5
WN.. 060412							0,20	0,30	0,45	1,2	1,5	4,0
WN.. 080404	0,05	0,15	0,25	0,4	1,0	2,0						
WN.. 080408	0,10	0,20	0,35	0,8	1,5	2,5	0,15	0,25	0,40	1,0	2,0	4,5
WN.. 080412							0,20	0,30	0,50	1,2	2,0	5,0
WN.. 080416												

sharp ← → stable

i The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-M60 (-NM26)						-M34 (-M34)					
	f			a _p			f			a _p		
	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.
	mm/rev.			mm			mm/rev.			mm		
CN.. 090304												
CN.. 090308												
CN.. 120404							0,08	0,12	0,18	1,0	1,5	3,0
CN.. 120408	0,25	0,30	0,50	1,5	2,5	6,0	0,10	0,15	0,35	1,0	1,8	3,5
CN.. 120412	0,30	0,35	0,55	2,0	3,0	6,0	0,13	0,20	0,40	1,5	2,0	4,0
CN.. 120416	0,30	0,40	0,60	2,0	3,0	6,0	0,15	0,25	0,45	2,0	3,0	4,5
CN.. 160608												
CN.. 160612	0,30	0,35	0,55	2,0	3,0	8,0						
CN.. 160616												
CN.. 160624												
CN.. 190608												
CN.. 190612												
CN.. 190616												
CN.. 190624												
CN.. 250924												
DN.. 110402												
DN.. 110404												
DN.. 110408												
DN.. 110412												
DN.. 150404							0,08	0,12	0,18	0,8	1,2	2,5
DN.. 150408							0,10	0,15	0,30	1,0	1,8	3,5
DN.. 150412							0,13	0,20	0,38	1,5	2,0	4,0
DN.. 150416												
DN.. 150604												
DN.. 150608	0,25	0,30	0,45	1,5	2,5	6,0	0,10	0,15	0,30	1,0	1,8	3,5
DN.. 150612	0,30	0,40	0,55	1,5	2,5	6,0	0,13	0,20	0,38	1,5	2,0	4,0
DN.. 150616												
SN.. 090308												
SN.. 120404												
SN.. 120408	0,30	0,35	0,50	1,5	2,0	6,0	0,15	0,25	0,40	1,0	2,0	4,0
SN.. 120412	0,30	0,40	0,55	2,0	2,5	6,0	0,15	0,25	0,45	1,5	2,5	4,5
SN.. 120416	0,30	0,40	0,60	2,0	2,5	6,0						
SN.. 150608												
SN.. 150612												
SN.. 150616												
SN.. 190612												
SN.. 190616												
SN.. 190624												
SN.. 250724												
SN.. 250924												
TN.. 110304												
TN.. 110308												
TN.. 160404												
TN.. 160408	0,25	0,25	0,45	1,5	2,5	5,0	0,10	0,15	0,35	1,0	2,0	4,0
TN.. 160412	0,30	0,30	0,55	2,0	2,5	5,5						
TN.. 220404							0,10	0,15	0,35	1,0	2,0	4,0
TN.. 220408							0,13	0,20	0,40	1,5	2,5	4,0
TN.. 220412												
TN.. 220416							0,15	0,25	0,45	2,0	2,5	4,5
VN.. 160404							0,07	0,10	0,18	0,8	1,2	2,0
VN.. 160408							0,10	0,15	0,20	1,0	1,5	2,5
VN.. 160412							0,13	0,18	0,25	1,5	1,8	3,0
WN.. 060404												
WN.. 060408	0,25	0,30	0,45	1,5	2,0	4,0						
WN.. 060412	0,30	0,35	0,50	2,0	2,5	4,5						
WN.. 080404												
WN.. 080408	0,25	0,30	0,50	1,5	2,0	5,0	0,10	0,15	0,35	1,0	2,0	4,0
WN.. 080412	0,30	0,35	0,55	2,0	2,5	5,5	0,13	0,20	0,40	1,5	2,0	4,0
WN.. 080416												



i Information on the cutting data of chip breakers not included in this overview, can be found on → Page 168–175

Cutting data values for positive inserts

Designation	-CF05 (-PF14)						-SF (-ZF)					
	f			a _p			f			a _p		
	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.
mm/rev.			mm			mm/rev.			mm			
CC..060200							0,02	0,035	0,05	0,1	0,4	1,5
CC..060201							0,02	0,035	0,05	0,2	0,4	1,5
CC..060202	0,03	0,08	0,12	0,1	0,3	1,3	0,03	0,1	0,15	0,2	0,4	1,5
CC..060204	0,05	0,10	0,12	0,1	0,3	1,3	0,05	0,1	0,2	0,2	0,6	1,5
CC..060208							0,05	0,125	0,2	0,2	1	1,5
CC..09T300							0,02	0,035	0,05	0,2	0,75	2
CC..09T301							0,02	0,035	0,05	0,2	0,75	2
CC..09T302	0,03	0,08	0,12	0,1	0,3	1,3	0,05	0,075	0,1	0,2	0,75	2
CC..09T304	0,05	0,10	0,22	0,2	0,4	1,3	0,05	0,12	0,2	0,2	0,75	2
CC..09T308	0,06	0,13	0,25	0,2	0,4	1,3	0,05	0,125	0,25	0,4	1	2
CC..09T312												
CC..120402							0,05	0,075	0,1	0,2	0,8	2,5
CC..120404							0,05	0,12	0,2	0,2	1	2,5
CC..120408							0,08	0,15	0,25	0,4	1	2,5
CC..120412							0,08	0,15	0,25	0,4	1,5	2,5
DC..0702005												
DC..070201												
DC..0702015												
DC..070202	0,03	0,08	0,12	0,1	0,3	1,3	0,03	0,1	0,15	0,1	0,4	1,5
DC..070204	0,05	0,10	0,22	0,2	0,4	1,3	0,05	0,12	0,2	0,2	0,6	1,5
DC..070208												
DC..11T3005												
DC..11T301												
DC..11T3015												
DC..11T302	0,03	0,08	0,12	0,1	0,3	1,3						
DC..11T304	0,05	0,10	0,22	0,2	0,4	1,3	0,05	0,12	0,2	0,2	0,7	2
DC..11T308	0,06	0,13	0,25	0,2	0,4	1,3	0,08	0,15	0,25	0,4	1	2
DC..11T312												
RC..0602M0												
RC..0803M0												
RC..1003M0												
RC..1204M0												
RC..1606M0												
RC..2006M0												
RC..2507M0												
SC..09T304	0,05	0,10	0,22	0,2	0,4	1,3	0,05	0,12	0,2	0,2	0,7	2
SC..09T308	0,06	0,13	0,25	0,2	0,4	1,3	0,08	0,15	0,25	0,4	1	2
SC..120408							0,08	0,15	0,25	0,4	1	2,5
SC..120412												
TC..090204												
TC..110202	0,03	0,08	0,12	0,1	0,3	1,3						
TC..110204	0,05	0,10	0,22	0,2	0,4	1,3	0,05	0,12	0,2	0,2	0,7	2
TC..110208	0,06	0,13	0,25	0,2	0,4	1,3	0,08	0,15	0,25	0,4	1	2
TC..16T302												
TC..16T304	0,05	0,10	0,22	0,2	0,4	1,3	0,05	0,12	0,2	0,2	0,8	2,5
TC..16T308							0,08	0,15	0,25	0,4	1	2,5
TC..16T312												
TC..220408												
VC..1103005												
VC..110301												
VC..1103015												
VC..110302	0,03	0,06	0,12	0,1	0,3	1,3	0,02	0,08	0,15	0,1	0,4	1,5
VC..110304	0,05	0,08	0,22	0,2	0,4	1,3	0,05	0,1	0,2	0,2	0,6	1,5
VC..110308							0,08	0,12	0,22	0,4	1	1,5
VC..160402												
VC..160404	0,05	0,08	0,22	0,2	0,4	1,3	0,05	0,1	0,2	0,2	0,7	2
VC..160408	0,06	0,10	0,22	0,2	0,4	1,3	0,08	0,12	0,22	0,4	1	2
VC..160412												
VC..220530												
WC..020102							0,02	0,075	0,1	0,1	0,4	1
WC..020104							0,02	0,1	0,2	0,1	0,6	1,5

sharp ← → stable

i The data shows reference values. An adjustment to the actual conditions may be required.

Cutting data values for positive inserts

Designation	-SMQ (-SMQ)						-M25 (-PF23)					
	f			a _p			f			a _p		
	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.
mm/rev.			mm			mm/rev.			mm			
CC..060200												
CC..060201												
CC..060202												
CC..060204							0,06	0,13	0,20	0,2	1,1	2,0
CC..060208												
CC..09T300												
CC..09T301												
CC..09T302												
CC..09T304	0,10	0,25	0,4	0,4	2	4	0,06	0,14	0,22	0,2	1,2	2,2
CC..09T308	0,15	0,30	0,5	0,8	2	4	0,10	0,20	0,30	0,4	1,8	3,2
CC..09T312												
CC..120402												
CC..120404	0,10	0,25	0,4	0,4	2	4						
CC..120408	0,15	0,30	0,5	0,8	2	4						
CC..120412												
DC..0702005												
DC..070201												
DC..0702015												
DC..070202							0,04	0,09	0,13	0,1	0,9	1,6
DC..070204	0,10	0,18	0,25	0,4	1,5	3	0,06	0,12	0,18	0,2	1,1	2,0
DC..070208												
DC..11T3005												
DC..11T301												
DC..11T3015												
DC..11T302							0,04	0,10	0,16	0,1	1,1	2,0
DC..11T304	0,10	0,25	0,4	0,4	2	4	0,06	0,14	0,22	0,2	1,2	2,2
DC..11T308	0,15	0,30	0,5	0,8	2	4	0,10	0,20	0,30	0,4	1,8	3,2
DC..11T312												
RC..0602M0												
RC..0803M0												
RC..1003M0												
RC..1204M0												
RC..1606M0												
RC..2006M0												
RC..2507M0												
SC..09T304												
SC..09T308												
SC..120408												
SC..120412												
TC..090204												
TC..110202												
TC..110204							0,06	0,13	0,20	0,2	1,2	2,2
TC..110208												
TC..16T302												
TC..16T304							0,06	0,14	0,22	0,2	1,6	3,0
TC..16T308							0,10	0,20	0,30	0,4	1,9	3,4
TC..16T312												
TC..220408												
VC..1103005												
VC..110301												
VC..1103015												
VC..110302												
VC..110304												
VC..110308												
VC..160402												
VC..160404							0,06	0,13	0,20	0,2	1,2	2,2
VC..160408							0,10	0,15	0,25	0,4	1,4	3,0
VC..160412												
VC..220530												
WC..020102												
WC..020104												

sharp ← → stable








i The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-M55 (-PF26)						-F05					
	f			a _p			f			a _p		
	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.	min.	Recom- mended	max.
mm/rev.			mm			mm/rev.			mm			
CC.. 060200												
CC.. 060201												
CC.. 060202												
CC.. 060204	0,06	0,13	0,20	0,4	1,5	2,6						
CC.. 060208												
CC.. 09T300												
CC.. 09T301												
CC.. 09T302												
CC.. 09T304	0,08	0,16	0,24	0,4	1,7	3,0						
CC.. 09T308	0,12	0,24	0,35	0,8	2,4	4,0						
CC.. 09T312												
CC.. 120402												
CC.. 120404	0,08	0,18	0,28	0,4	2,2	4,0						
CC.. 120408	0,12	0,26	0,40	0,8	2,8	4,8						
CC.. 120412												
DC.. 0702005							0,02	0,025	0,04	0,1	1	2
DC.. 070201							0,02	0,03	0,05	0,1	1	2
DC.. 0702015							0,02	0,04	0,075	0,1	1	2
DC.. 070202							0,02	0,05	0,1	0,1	1	2
DC.. 070204	0,06	0,14	0,22	0,4	1,3	2,2						
DC.. 070208	0,08	0,16	0,24	0,8	1,6	2,4						
DC.. 11T3005							0,02	0,025	0,04	0,1	1,25	2,5
DC.. 11T301							0,02	0,03	0,05	0,1	1,25	2,5
DC.. 11T3015							0,02	0,04	0,075	0,1	1,25	2,5
DC.. 11T302							0,02	0,075	0,1	0,1	1,25	2,5
DC.. 11T304	0,08	0,16	0,24	0,4	1,7	3,0	0,02	0,1	0,25	0,1	1,25	2,5
DC.. 11T308	0,12	0,24	0,35	0,8	2,4	4,0						
DC.. 11T312												
RC.. 0602M0												
RC.. 0803M0												
RC.. 1003M0												
RC.. 1204M0												
RC.. 1606M0												
RC.. 2006M0												
RC.. 2507M0												
SC.. 09T304	0,12	0,24	0,35	0,8	2,4	4,0						
SC.. 09T308	0,12	0,26	0,40	0,8	2,8	4,8						
SC.. 120408												
SC.. 120412												
TC.. 090204	0,06	0,12	0,18	0,4	1,3	2,2						
TC.. 110202												
TC.. 110204	0,06	0,14	0,22	0,4	1,4	2,4						
TC.. 110208												
TC.. 16T302												
TC.. 16T304												
TC.. 16T308	0,12	0,24	0,35	0,8	2,6	4,4						
TC.. 16T312												
TC.. 220408												
VC.. 1103005							0,02	0,025	0,04	0,1	1,25	2,5
VC.. 110301							0,02	0,03	0,05	0,1	1,25	2,5
VC.. 1103015							0,02	0,04	0,075	0,1	1,25	2,5
VC.. 110302							0,02	0,075	0,1	0,1	1,25	2,5
VC.. 110304							0,02	0,15	0,25	0,1	1,25	2,5
VC.. 110308												
VC.. 160402												
VC.. 160404	0,08	0,14	0,20	0,4	1,7	3,0						
VC.. 160408	0,12	0,21	0,30	0,8	2,1	3,4						
VC.. 160412												
VC.. 220530												
WC.. 020102												
WC.. 020104												



i Information on the cutting data of chip breakers not included in this overview, can be found on → Page 168–175

Cutting data standard values for diamond cutting materials CTD PD20 / PS30 / PU20 / CD10

Material group		Grade	$a_p = 0,04-0,4 \text{ mm}$		$a_p = 0,4-1,0 \text{ mm}$		$a_p = 0,4-2,5 \text{ mm}$	
			Surface roughness R_z in μm		Surface roughness R_z in μm		Surface roughness R_z in μm	
			2,5-5,0	5,0-10	2,5-5,0	5,0-10	2,5-5,0	5,0-10
			CTD ...	CTD ...	CTD ...	CTD ...	CTD ...	CTD ...
Aluminium wrought alloys without Si $f=0.05-0.5 \text{ mm/rev.}$		Grade	PD20 / PU20 / CD10	PD20 / PU20 / CD10	PD20 / PU20 / CD10	PD20 / PU20 / CD10	PD20 / PU20 / CD10	PD20 / PU20 / CD10
	v_c in m/min		400-2500	400-2500	400-2000	400-2000	400-1600	400-1600
		Grade		PD20 / CD10		PD20 / CD10		PD20 / CD10
v_c in m/min			400-2500		400-2000		400-1600	
	Grade	PD20 / PU20	PD20 / PU20	PD20 / PU20	PD20 / PU20	PD20 / PU20	PD20 / PU20	
v_c in m/min		400-2500	400-2500	400-2000	400-2000	400-1600	400-1600	
Aluminium cast alloys Si=2-12 % $f=0.05-0.5 \text{ mm/rev.}$		Grade	PS30 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10
	v_c in m/min		600-2000	600-2200	600-1800	600-2000	600-1500	600-1800
		Grade	PD20 / PU20 / CD10	PD20 / PU20 / CD10	PD20 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10
v_c in m/min		400-2000	400-2200	400-1800	600-2000	400-1500	400-1800	
	Grade	PS30	PS30	PS30	PS30	PS30		
v_c in m/min		600-2000	600-2200	600-1800	600-2000	600-1500		
Aluminium cast alloys Si=12-20 % $f=0.05-0.5 \text{ mm/rev.}$		Grade	PU20 / CD10	PU20 / CD10	PU20 / CD10	PU20 / CD10	PU20 / CD10	PU20 / CD10
	v_c in m/min		800-1200	400-1800	700-1000	400-1500	600-900	400-1200
		Grade		PU20 / CD10		PU20 / CD10		PU20 / CD10
v_c in m/min			600-1800		600-1500		600-1200	
	Grade		PU20		PU20			
v_c in m/min			600-1800		600-1500			
Copper and copper wrought alloys $f=0.05-0.5 \text{ mm/rev.}$		Grade	PD20 / PU20 / CD10	PD20 / PU20 / CD10	PD20 / PU20 / CD10	PS30 / PU20 / CD10	PD20 / PU20 / CD10	PD20 / PU20 / CD10
	v_c in m/min		400-1800	300-1600	400-1600	300-1600	400-1400	400-1500
		Grade	PU20 / CD10	PD20 / PU20 / CD10	PD20 / PU20 / CD10	PS30 / PU20 / CD10	PD20 / PU20 / CD10	PD20 / PU20 / CD10
v_c in m/min		300-1500	300-1500	400-1600	300-1500	400-1500	300-1400	
	Grade		PD20 / PU20		PS30 / PU20	PD20 / PU20	PS30 / PU20	
v_c in m/min			300-1800		300-1700	300-1600	200-1300	
Plastic materials without reinforcement (acrylic glass) $f=0.05-0.7 \text{ mm/rev.}$		Grade		PD20 / CD10		PD20 / CD10		PD20 / CD10
	v_c in m/min			400-1200		300-1000		200-1000
		Grade		PD20 / CD10		PD20 / CD10		PS30 / CD10
v_c in m/min			300-1200		200-1000		200-900	
	Grade		PD20 / CD10		PD20 / CD10		PD20 / CD10	
v_c in m/min			400-1200		300-1000		200-1000	
Plastic materials with reinforcement (glass-fibre, carbon-fibre reinforced) $f=0.05-0.7 \text{ mm/rev.}$		Grade	PS30 / PU20 / CD10		PS30 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10
	v_c in m/min		500-1000		400-900	300-900	300-800	200-1200
		Grade	PS30 / PU20 / CD10		PS30 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10
v_c in m/min		400-900		300-800	200-900	200-800	200-1400	
	Grade	PU20		PU20	PU20	PU20		
v_c in m/min		500-1000		400-800	300-1000	300-800		

 Smooth cut	 Irregular cutting depth	 Interrupted cut
--	---	---

Application range of CBN grades

Cutting material grade	Cutting material designation				Application range	Interrupted cut	Material suitability/ ISO hardness			
	Properties		Application range				K	S	H	Sintered steels
	New	Old	PcBN content	Main binder						
High PcBN content	CTB S10U	PBC 10	95 %		Grey cast iron, sintered steels, super alloys	Smooth to medium interrupted cut	10	10	10	
	CTB S20C	PBC 15-S	90 %		Spheroidal graphite cast iron, sintered steels, super alloys		20	20	20	
Low PcBN content	CTB H15C	-	40 %	TiN	32 HRC and above	Smooth cut			15	
	CTB H15U	-	40 %	TiN					15	
	CTB H20C	PBC 25-S	65 %	TiCN	48-62 HRC	Smooth to slightly interrupted cut			20	
	CTB H21U	PBC 25	65 %	TiCN	52-65 HRC				20	
	CTB H40C	PBC 40-S	55 %	TiN	48-65 HRC	Interrupted cut			40	
	CTB H40U	PBC 40	65 %	TiN	54-65 HRC				40	

CBN – The Next Generation

The ‚Sandwich‘ Technology

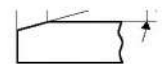
The singular system (patent), to apply CBN segments on a tungsten carbide base in a single process reduces the edge price significantly and opens up the possibility for the development of different CBN grades.

Specialized edge preparations! To achieve the highest efficiency for each application, the new CBN sandwich inserts are available with up to 8 edge preparations.

CBN Test Insert

The type CNGA test insert was specifically used, in order to identify the **quickest and most effective** type.

The insert is manufactured with four edge preparations for trial. The cutting edge with highest performance gives the correct chamfer style.



Article No.	Designation	Chamfers (BN x GB)				Price / £
71 499 ...						
290	CNGA 120408-X-CTB S20C	A F (sharp)	B 009B (0,09mm x 10°)	C 009C (0,09mm x 15°)	E 009D (0,09mm x 20°)	81.45
292	CNGA 120408-X-CTB H20C	B 009C (0,09mm x 15°)	C 009D (0,09mm x 20°)	E 011E (0,11mm x 25°)	G 014F (0,14mm x 30°)	81.45
294	CNGA 120408-X-CTB H40C	C 009D (0,09mm x 20°)	E 011E (0,11mm x 25°)	G 014F (0,14mm x 30°)	H 014G (0,14mm x 35°)	81.45

Cutting data values for CBN inserts

Index	Material	Strength	CTB S10U (PBC 10)					
			EN (A)			F		
			EN (A)			TN-D (F)		
			v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)		150-350	0,02-0,25	0,02-0,4	100-220	0,08-0,35	0,1-0,4
	General sintered steel (> HV300)		250-750	0,02-0,25	0,02-0,4	210-550	0,08-0,35	0,1-0,4
	High density sintered steel (> HV600)		200-700	0,02-0,25	0,02-0,4	150-400	0,08-0,35	0,1-0,4
3.1	Grey cast iron with lamellar graphite	100-350 N/mm ²	900-1600	0,02-0,25	0,05-0,25	700-1200	0,08-0,35	0,08-0,4
3.2	Grey cast iron with lamellar graphite	300-500 N/mm ²	900-1600	0,02-0,25	0,05-0,25	700-1200	0,08-0,35	0,08-0,4
3.3	Cast iron with spheroidal graphite	300-500 N/mm ²	1000-1750	0,02-0,25	0,02-0,25	800-1250	0,08-0,35	0,08-0,4
3.4	Cast iron with spheroidal graphite	500-900 N/mm ²	1000-1750	0,02-0,25	0,02-0,25	800-1250	0,08-0,35	0,08-0,4
3.5	White malleable cast iron	270-450 N/mm ²						
3.6	White malleable cast iron	500-650 N/mm ²						
3.7	Black malleable cast iron	300-450 N/mm ²						
3.8	Black malleable cast iron	500-800 N/mm ²						
5.1	Pure nickel							
5.2	Nickel alloys							
5.3	Nickel alloys	< 850 N/mm ²						
5.4	Nickel molybdenum alloys		300-700	0,02-0,25	0,02-0,4	250-400	0,08-0,35	0,08-0,4
5.5	Nickel-chromium alloys	< 1300 N/mm ²	300-700	0,02-0,25	0,02-0,4	250-400	0,08-0,35	0,08-0,4
5.6	Cobalt Chrome Alloys	< 1300 N/mm ²	300-700	0,02-0,25	0,02-0,4	250-400	0,08-0,35	0,08-0,4
5.7	Heat resistant alloys	< 1300 N/mm ²	300-700	0,02-0,25	0,02-0,4	250-400	0,08-0,35	0,08-0,4
5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm ²	300-700	0,02-0,25	0,02-0,4	250-400	0,08-0,35	0,08-0,4
5.9	Pure titanium	< 900 N/mm ²						
5.10	Titanium alloys	< 700 N/mm ²						
5.11	Titanium alloys	< 1200 N/mm ²						

Index	Material	Strength	CTB S20C (PBC 15S)					
			SN-C (D)			SN-D (E)		
			TN-D			SN-D		
			v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)		130-300	0,05-0,35	0,06-0,4	120-250	0,06-0,35	0,08-0,4
	General sintered steel (> HV300)		250-600	0,05-0,35	0,06-0,4	220-580	0,06-0,35	0,08-0,4
	High density sintered steel (> HV600)		180-550	0,05-0,35	0,06-0,4	170-510	0,06-0,35	0,08-0,4
3.1	Grey cast iron with lamellar graphite	100-350 N/mm ²	650-1100	0,05-0,35	0,06-0,4	600-1000	0,06-0,35	0,08-0,5
3.2	Grey cast iron with lamellar graphite	300-500 N/mm ²	650-1100	0,05-0,35	0,06-0,4	600-1000	0,06-0,35	0,08-0,5
3.3	Cast iron with spheroidal graphite	300-500 N/mm ²	750-1300	0,05-0,35	0,06-0,4	700-1250	0,06-0,35	0,08-0,5
3.4	Cast iron with spheroidal graphite	500-900 N/mm ²	750-1300	0,05-0,35	0,06-0,4	700-1250	0,06-0,35	0,08-0,5
3.5	White malleable cast iron	270-450 N/mm ²						
3.6	White malleable cast iron	500-650 N/mm ²						
3.7	Black malleable cast iron	300-450 N/mm ²						
3.8	Black malleable cast iron	500-800 N/mm ²						
5.1	Pure nickel							
5.2	Nickel alloys							
5.3	Nickel alloys	< 850 N/mm ²						
5.4	Nickel molybdenum alloys		180-500	0,05-0,4	0,06-0,4	180-450	0,06-0,5	0,08-0,5
5.5	Nickel-chromium alloys	< 1300 N/mm ²	180-500	0,05-0,4	0,06-0,4	180-450	0,06-0,5	0,08-0,5
5.6	Cobalt Chrome Alloys	< 1300 N/mm ²	180-500	0,05-0,4	0,06-0,4	180-450	0,06-0,5	0,08-0,5
5.7	Heat resistant alloys	< 1300 N/mm ²	180-500	0,05-0,4	0,06-0,4	180-450	0,06-0,5	0,08-0,5
5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm ²	180-500	0,05-0,4	0,06-0,4	180-450	0,06-0,5	0,08-0,5
5.9	Pure titanium	< 900 N/mm ²						
5.10	Titanium alloys	< 700 N/mm ²						
5.11	Titanium alloys	< 1200 N/mm ²						

i * Note chamfer width: The wider the chamfer, the more stable the cutting edge.

i The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data values for CBN inserts

					CTB H15U / CTB H15C (BHT02RU / BHT02R)					
					FN (A) / FN (A)			EN (B) / EN (B)		
					FN (A) / FN (A)			EN (B) / EN (B)		
					Ra (theo.)			1,0 - 3,2		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
6.1	Tempered steel	< 45 HRC	x		160-240	0,03-0,15	0,06-0,3	160-240	0,03-0,15	0,06-0,3
6.2		46-55 HRC	x		160-240	0,03-0,15	0,06-0,3	160-240	0,03-0,15	0,06-0,3
6.3		56-60 HRC	x		160-240	0,03-0,15	0,06-0,3	160-240	0,03-0,15	0,06-0,3
6.4		61-65 HRC								
6.5		65-70 HRC								

					CTB H21U / CTB H20C (PBC 25 / PBC 25S)					
					FN (A) / FN (A)			TN-C (B)		
					EN (A) / FN (A)			EN (B)		
					Ra (theo.)			1,0 - 4,5		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
6.1	Tempered steel	< 45 HRC								
6.2		46-55 HRC	x		300-380	0,04-0,25	0,05-0,5	280-350	0,04-0,15	0,05-0,5
6.3		56-60 HRC	x		300-380	0,04-0,25	0,05-0,5	280-350	0,04-0,15	0,05-0,5
6.4		61-65 HRC								
6.5		65-70 HRC								

					CTB H21U / CTB H20C (PBC 25 / PBC 25S)					
					TN-E (F) / SN-E (F)			SN-F (G)		
					TN-E (F)			SN-E (G)		
					Ra (theo.)			0,2 - 0,8		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
6.1	Tempered steel	< 45 HRC								
6.2		46-55 HRC	x		210-260	0,05-0,15	0,1-0,5	180-230	0,06-0,20	0,1-0,5
6.3		56-60 HRC	x		210-260	0,05-0,15	0,1-0,5	180-230	0,06-0,20	0,1-0,5
6.4		61-65 HRC								
6.5		65-70 HRC								

					CTB H40U / CTB H40C (PBC 40 / PBC 40S)					
					FN (A) / EN (A)			SN-C (B)		
					FN (A) / EN (A)			TN-D (B)		
					Ra (theo.)			0,8 - 3,0		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
6.1	Tempered steel	< 45 HRC								
6.2		46-55 HRC	x		190-250	0,03-0,15	0,03-0,5	180-240	0,04-0,15	0,03-0,5
6.3		56-60 HRC	x		190-250	0,03-0,15	0,03-0,5	180-240	0,04-0,15	0,03-0,5
6.4		61-65 HRC	x		190-250	0,03-0,15	0,03-0,5	180-240	0,04-0,15	0,03-0,5
6.5		65-70 HRC								

					CTB H40U / CTB H40C (PBC 40 / PBC 40S)					
					SN-E (F)			SN-F (G)		
					TN-F (F)			SN-F (G)		
					Ra (theo.)			0,2 - 0,8		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
6.1	Tempered steel	< 45 HRC								
6.2		46-55 HRC	x		180-230	0,05-0,25	0,1-0,5	130-200	0,04-0,15	0,1-0,5
6.3		56-60 HRC	x		180-230	0,05-0,25	0,1-0,5	130-200	0,04-0,15	0,1-0,5
6.4		61-65 HRC	x		180-230	0,05-0,25	0,1-0,5	130-200	0,04-0,15	0,1-0,5
6.5		65-70 HRC								

* Note chamfer width: The wider the chamfer, the more stable the cutting edge.

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data values for CBN inserts

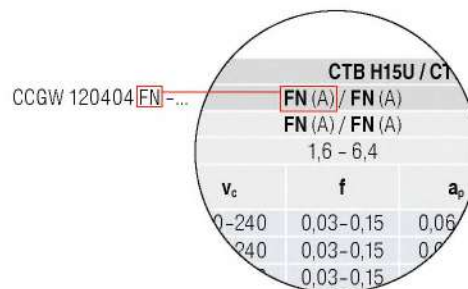
CTB H15U / CTB H15C (BHT02RU / BHT02R)								
SN-C (D) / SN-C (D)			SN-E (F) / SN-E (F)			RN / RN (Rounded chamfer)		
SN-C (D) / SN-C (D)			SN-E (F) / SN-E (F)			RN / RN (Rounded chamfer)		
0,5 - 1,6			0,1 - 0,8			0,1 - 0,8		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
140-200	0,06-0,2	0,08-0,3	120-180	0,06-0,25	0,1-0,4	130-210	0,06-0,2	0,08-0,3
140-200	0,06-0,2	0,08-0,3	120-180	0,06-0,25	0,1-0,4	130-210	0,06-0,2	0,08-0,3
140-200	0,06-0,2	0,08-0,3	120-180	0,06-0,25	0,1-0,4	130-210	0,06-0,2	0,08-0,3

CTB H21U / CTB H20C (PBC 25 / PBC 25S)								
TN-D (C)			TN-D (D) / SN-D (D)			TN-E (E)		
SN-B (C)			TN-D (D) / SN-C (D)			SN-D (E)		
0,8 - 3,0			0,5 - 2,0			0,35 - 2,5		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
270-330	0,06-0,25	0,05-0,5	250-320	0,06-0,25	0,08-1,0	220-290	0,05-0,15	0,08-0,5
270-330	0,06-0,25	0,05-0,5	250-320	0,06-0,25	0,08-1,0	220-290	0,05-0,15	0,08-0,5

CTB H21U / CTB H20C (PBC 25 / PBC 25S)		
SN-G (H)		
SN-F (H)		
0,1 - 0,5		
v_c	f	a_p
160-200	0,05-0,12	0,1-0,5
160-200	0,05-0,12	0,1-0,5

CTB H40U / CTB H40C (PBC 40 / PBC 40S)								
SN-D (C)			SN-D (D)			EN-T (E) / SN-E (E)		
SN-D (C)			TN-D (D)			EN-T (E) / SN-E (E)		
0,8 - 2,0			0,5 - 1,6			0,5 - 1,6		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
160-220	0,04-0,15	0,03-0,5	150-210	0,04-0,25	0,08-0,5	140-200	0,05-0,15	0,08-0,5
160-220	0,04-0,15	0,03-0,5	150-210	0,04-0,25	0,08-0,5	140-200	0,05-0,15	0,08-0,5
160-220	0,04-0,15	0,03-0,5	150-210	0,04-0,25	0,08-0,5	140-200	0,05-0,15	0,08-0,5

CTB H40U / CTB H40C (PBC 40 / PBC 40S)		
SN-G (H)		
SN-G (H)		
0,1 - 0,5		
v_c	f	a_p
120-190	0,04-0,12	0,1-0,5
120-190	0,04-0,12	0,1-0,5
120-190	0,04-0,12	0,1-0,5



Diamond as a cutting material



Ensures

- ▲ optimal surface quality
- ▲ burr-free workpieces
- ▲ high service lives
- ▲ lowest cutting forces
- ▲ high Process Security

Complete programme of roughing, finishing and wiper inserts for machining aluminium, non ferrous metals, plastics, ...

The cutting materials

	CTD CD10 (CVD) Fine grain Size (N10)	CTD PD20 (PKD) Fine grain grade (N20)	CTD PU20 (PKD) Coarse grain grade (N20)	CTD CD10 (CVD) Coarse grain Size (N30)
Properties	<ul style="list-style-type: none"> ▲ perfect sharp edges ▲ no cutting pressure ▲ very close tolerances ▲ highest abrasion resistance with highest toughness ▲ very high heat conductivity 	<ul style="list-style-type: none"> ▲ high sharpness ▲ lower cutting pressure than PDC-S ▲ close tolerance ▲ lower abrasion resistance with increased toughness 	<ul style="list-style-type: none"> ▲ very sharp cutting edge ▲ reduced cutting pressure ▲ tight tolerances ▲ very high level of wear resistance and toughness 	<ul style="list-style-type: none"> ▲ high sharpness ▲ lower cutting pressure ▲ close tolerance ▲ lower abrasion resistance than with the PDC, with increased toughness
Material	suitable for superfinishing and semi-finishing of all non ferrous metals and NE-composite materials with small to high levels of abrasiveness	suitable for fine machining of all NE materials with low abrasiveness	suitable for finishing to roughing non-ferrous metals and non-ferrous materials with highly abrasive alloying element. High chip removal on fibre-reinforced plastics such as CFRP and GFRP.	suitable for fine machining of all NE-materials and non-ferrous metals with low to very high levels of abrasiveness

Cutting Geometries

Neutral rake angle:

- ▲ higher cutting force
- ▲ higher temperature
- ▲ improved surface quality
- ▲ for stable workpieces



Positive rake angle:

- ▲ lower cutting force
- ▲ lower temperature
- ▲ reduction in surface quality
- ▲ for unstable workpieces
- ▲ improved accuracy



CB chip breaker geometries:

- ▲ reliable chip control
- ▲ ideal for low-alloy aluminium
- ▲ for F | M | R applications

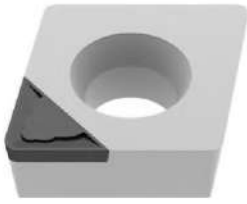


Notes on diamond usage

- ▲ coolant is not generally needed, however it facilitates chip removal
- ▲ note the chemical reaction to carbide-forming elements (PCD)
- ▲ note the thermal interaction and critical temperature:
PCD: 600 °C, CVD: 700 °C
Depending on the material, use cooling.

Cutting data standard values for the CB chip breaker geometries

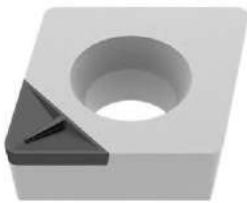
-CB1



3D-Chip Breaker -CB1				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,1 mm	0,05	0,30	0,02	0,05
0,2 mm	0,06	0,40	0,03	0,08
0,4 mm	0,10	0,80	0,04	0,15
0,8 mm	0,15	1,00	0,08	0,20
1,2 mm	0,30	1,50	0,12	0,25

- ▲ Finish and Superfinish
- ▲ Extremely sharp cutting edge geometry
- ▲ Depth of Cut a_p : 0,05–1,5 mm
- ▲ Smallest cutting pressure for highest accuracies
- ▲ For machining of thin-walled and unstable workpieces

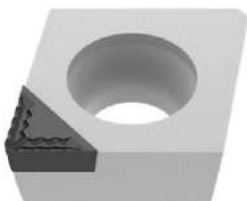
-CB2



3D-Chip Breaker -CB2				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,2 mm	0,50	0,80	0,08	0,12
0,4 mm	0,60	1,50	0,08	0,20
0,8 mm	0,70	1,50	0,15	0,30
1,2 mm	0,80	2,00	0,20	0,40

- ▲ Semi-finish and Finish machining
- ▲ Negative edge preparation
- ▲ Cutting Depth a_p : 0,5–2,0 mm
- ▲ High surface quality and tight tolerances
- ▲ Machining of solid workpieces under stable conditions


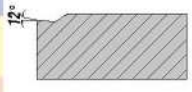

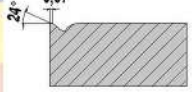



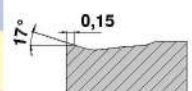



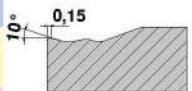
-CB3



3D-Chip Breaker -CB3				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,4 mm	1,00	3,00	0,10	0,20
0,8 mm	1,00	3,00	0,15	0,35

- ▲ Medium and rough machining
- ▲ Highly aggressive chip breaker
- ▲ Cutting depth a_p : 1,0–3,0 mm
- ▲ Stable component conditions necessary
- ▲ Cooling must be ensured

Standard chip breakers / application notes

Negative	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration		Geometry					
					a_p mm	f mm						
<p>-CF / -CF20 (-CF / -NF12)</p> <ul style="list-style-type: none"> ▲ Fine finishing ▲ Sharp cutting edge for low cutting forces ▲ Good chip control even at small depths of cut  <p>F</p>						<p>12°</p>	<p>CN.. DN.. TN.. WN..</p>	<p>0,30-1,50 0,07-0,25</p>				
									CTEP110 / TCM10 (DCC1110 / CWC10)			
									CTEP110 / TCM10 (DCC1110 / CWC10)			
									CTEP110 / TCM10 (DCC1110 / CWC10)			
<p>-F40 (-F40)</p> <ul style="list-style-type: none"> ▲ Fine turning chip breaker for machining steels ▲ Good chip control ▲ Ideal for copy turning work  <p>F</p>						<p>20°</p>	<p>VN..</p>	<p>0,50-2,00 0,10-0,30</p>				
									CTCP125 (HCX1125)	CTCP125 (HCX1125)		
									CTCP125 (HCX1125)	CTCP125 (HCX1125)		
									CTCP125 (HCX1125)	CTCP125 (HCX1125)		
									CTCP125 (HCX1125)	CTCP125 (HCX1125)		
<p>-F50 (-NF15)</p> <ul style="list-style-type: none"> ▲ Fine turning chip breaker for fine machining ▲ Steel and stainless steels ▲ Excellent chip control ▲ High surface quality  <p>F</p>						<p>15°</p>	<p>CN.. DN.. SN.. TN.. VN.. WN..</p>	<p>0,10-2,60 0,06-0,35</p>				
									CTCP125 (HCX1125)	CTCP115 / CTCP125 / CTCP135 (HCX1115 / HCX1125 / HCX1135)	CTCP135 (HCX1135)	
									CTCP115 / CTCP125 (HCX115 / HCX1125)	CTCP125 / CTCP135 (HCX1125 / HCX1135)	CTCP135 (HCX1135)	
<p>-TFQ (-TFQ)</p> <ul style="list-style-type: none"> ▲ Wiper geometry ▲ Finishing to medium machining ▲ Very high feedrate ▲ High surface quality  <p>F</p>						<p>17°</p>	<p>CN.. DN.. WN..</p>	<p>0,50-5,00 0,10-0,60</p>				
									CTEP110 / CTCP115 (DCC1110 / HCX1115)	CTCP115 / CTCP125 (HCX1115 / HCX1125)		
									CTEP110 / CTCP115 (DCC1110 / HCX1115)	CTCP115 / CTCP125 (HCX1115 / HCX1125)		
									CTEP110 / CTCP115 (DCC1110 / HCX1115)	CTCP115 / CTCP125 (HCX1115 / HCX1125)		
<p>-42 (-42)</p> <ul style="list-style-type: none"> ▲ Extremely soft-cutting chip breaker ▲ For small and medium widths of cut ▲ Suitable for thin-walled parts  <p>F M</p>						<p>16°</p>	<p>CN..</p>	<p>0,50-4,50 0,05-0,35</p>				
									CTC2135 (CWN2135)	CTC2135 (CWN2135)		
									CTC2135 (CWN2135)	CTC2135 (CWN2135)		
<p>-XU (-XU)</p> <ul style="list-style-type: none"> ▲ Finishing to light roughing ▲ Universal chip breaker ▲ Copy turning ▲ Excellent chip formation ▲ Low cutting forces  <p>M</p>						<p>10°</p>	<p>CN.. DN.. VN.. WN..</p>	<p>0,40-4,50 0,12-0,40</p>				
									CTCP115 / CTCP125 (HCX1115 / HCX1125)	CTCP115 / CTCP125 (HCX1115 / HCX1125)	CTCP125 (HCX1125)	
									CTCP125 (HCX1125)	CTCP125 (HCX1125)		
									CTCP115 (HCX1115)	CTCP115 / CTCP125 (HCX1115 / HCX1125)		





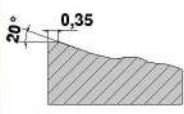

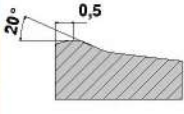
Main application steel and cast iron,
secondary application stainless steels

Standard chip breakers / application notes



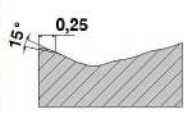


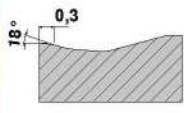
Negative	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration		Geometry	
					a _p mm	f mm		
-M40 (-M40) ▲ Stable geometry ▲ Medium feed rates ▲ Can be used for any application ▲ Good chip control		CTCP125 (HCX1125)	CTCP125 (HCX1125)			0,50-3,00	0,10-0,35	VN..
		CTCP125 (HCX1125)	CTCP125 (HCX1125)					
		CTCP125 (HCX1125)	CTCP125 (HCX1125)					
		CTCP125 (HCX1125)	CTCP125 (HCX1125)					
-M50 (-NM15) ▲ Medium machining ▲ First choice for steel machining ▲ Universal application ▲ Wide range of applications		CTCP115 / CTCP125 / CTCK110 / CTCK120 (HCX1115 / HCX1125 / DCX3110 / HCF3120)	CTCP115 / CTCP125 (HCX1115 / HCX1125)	CTCP125 (HCX1125)		0,50-5,00	0,12-0,40	CN.. DN.. SN.. TN.. VN.. WN..
		CTCP125 (HCX1125)	CTCP125 (HCX1125)					
		CTCP115 / CTCP125 / CTCK110 / CTCK120 (HCX1115 / HCX1125 / DCX3110 / HCF3120)	CTCP115 / CTCP125 / CTCK110 / CTCK120 (HCX1115 / HCX1125 / DCX3110 / HCF3120)	CTCP125 / CTCK120 (HCX1125 / HCF3120)				
		CTCP125 (HCX1125)	CTCP125 (HCX1125)					
-TMQ (-TMQ) ▲ Wiper geometry ▲ Light to medium rough machining ▲ Very high feedrate ▲ High surface quality		CTCP115 (HCX1115)	CTCP125 (HCX1125)			0,80-6,00	0,20-0,85	CN.. DN.. WN..
		CTCP125 (HCX1125)	CTCP125 (HCX1125)					
		CTCP125 (HCX1125)	CTCP125 (HCX1125)					
		CTCP125 (HCX1125)	CTCP125 (HCX1125)					
-M70 (-NM19) ▲ Light to medium rough machining ▲ Cast crust and forging skin ▲ Stable cutting edge ▲ Interrupted cut ▲ Raw materials and forgings		CTCK110 / CTCK120 / CTCP115 (DCX3110 / HCF3120 / HCX1115)	CTCP115 / CTCP125 (HCX1115 / HXC1125)	CTCP125 / CTCP135 (HCX1125 / HCR1135)		1,50-4,50	0,20-0,80	CN.. DN.. SN.. TN.. WN..
		CTCP125 / CTC2135 (HCX1125 / CWN2135)	CTC2135 / CTCP135 (CWN2135 / HCR1135)	CTCP135 / CTC2135 (HCR1135 / CWN2135)				
		CTCK110 / CTCK120 / CTCP115 / CTCP125 (DCX3110 / HCF3120 / HCX1115 / HCX1125)	CTCK120 / CTCP125 (HCF3120 / HCX1125)	CTCP125 / CTCK120 (HCX1125 / HCF3120)				
		CTC2135 / CTCP125 (CWN2135 / HCX1125)	CTC2135 / CTCP125 (CWN2135 / HCX1125)					
.NMA ▲ Rough machining ▲ Stable cutting edge ▲ For short-chipping materials ▲ First choice for grey cast iron						1,50-4,50	0,20-0,80	CN.. DN.. SN.. TN.. WN..
		CTCK110 (DCX3110)	CTCK110 / CTCK120 (DCX3110 / HFC3120)	CTCK120 (HFC3120)				
-R28 (-NR14) ▲ Single sided roughing geometry ▲ Longitudinal, face and copy turning ▲ Varying depths of cut ▲ Steels with low tensile strength (800 N/mm ²) ▲ Good chip control		CTCP115 / CTCP125 (HCX1115 / HCX1125)	CTCP115 / CTCP135 / CTCP125 (HCX1115 / HCR1135 / HCX1125)	CTCP135 (HCR1135)		1,00-12,00	0,25-0,80	CN.. DN.. SN..
		CTCP115 / CTCP125 (HCX1115 / HCX1125)	CTCP125 / CTCP135 (HCX1125 / HCR1135)	CTCP135 (HCR1135)				
		CTCP115 (HCX1115)	CTCP115 / CTCP125 (HCX1115 / HCX1125)	CTCP125 (HCX1125)				
		CTCP125 / CTCP135 (HCX1125 / HCR1135)	CTCP135 (HCR1135)	CTCP135 (HCR1135)				

Main application steel and cast iron, secondary application stainless steels

Standard chip breakers / application notes

Negative		Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration		Geometry		
						a _p mm	f mm			
Main application steel and cast iron, secondary application stainless steels	-R58 (-NR17)	 R	CTCP115 / CTCP125 (HCX1115 / HCX1125)	CTCP115 / CTCP135 / CTCP125 (HCX1115 / HCR1135 / HCX1125)	CTCP135 (HCR1135)		1,50-12,00	0,30-1,20	CN.. DN.. SN.. TN..	
	<ul style="list-style-type: none"> ▲ Single sided roughing geometry ▲ Longitudinal and face turning ▲ Light interrupted cut ▲ Low cutting forces ▲ Unstable machines 		CTCP115 / CTCP125 (HCX1115 / HCX1125)	CTCP125 / CTCP135 (HCX1125 / HCR1135)	CTCP135 (HCR1135)					
			CTCP115 (HCX1115)	CTCP115 / CTCP125 (HCX1115 / HCX1125)	CTCP125 (HCX1125)					
			CTCP125 / CTCP135 (HCX1125 / HCR1135)	CTCP135 (HCR1135)	CTCP135 (HCR1135)					
		-R88 (-NR19)	 R	CTCP115 / CTCP125 (HCX1115 / HCX1125)	CTCP115 / CTCP125 / CTCP135 (HCX1115 / HCX1125 / HCR1135)	CTCP135 (HCR1135)		3,50-16,00	0,50-1,50	SN..
	<ul style="list-style-type: none"> ▲ Single sided roughing geometry ▲ Longitudinal and face turning ▲ High feedrate ▲ Large depths of cut ▲ Heavily interrupted cut 	CTCP115 / CTCP125 (HCX1115 / HCX1125)		CTCP115 / CTCP125 (HCX1115 / HCX1125)	CTCP135 (HCR1135)					
		CTCP115 HCX1115		CTCP115 / CTCP125 (HCX1115 / HCX1125)	CTCP125 (HCX1125)					
		CTCP125 / CTCP135 (HCX1125 / HCR1135)		CTCP135 (HCR1135)	CTCP135 (HCR1135)					

Negative

Main application stainless steel, secondary application steel and super alloys	-F30 (-NF23)	 F	CTPM125 (HCN2125)	CTPM125 (HCN2125)			0,08-2,5	0,10-0,35	CN.. DN.. SN.. TN.. VN.. WN..	
	<ul style="list-style-type: none"> ▲ Finishing of stainless steels ▲ Continuous cut ▲ High surface quality ▲ Good swarf control 		CTPM125 (HCN2125)	CTPM125 (HCN2125)						
		-M30 (-NM23)	 F M	CTPM125 (HCN2125)	CTPM125 (HCN2125)	CTPM125 (HCN2125)		1,00-4,50	0,15-0,40	CN.. DN.. SN.. TN.. VN.. WN..
	<ul style="list-style-type: none"> ▲ Option for stainless steel machining ▲ Good swarf control ▲ Little edg build up ▲ Low cutting forces ▲ Little built-up edge ▲ Applicable on unstable machines 	CTPM125 (HCN2125)		CTPM125 (HCN2125)	CTPM125 (HCN2125)					
	-M42 (-M42)	 M	CTP2120 / CTC2135 (CCN2120 / CWN2135)	CTP2120 / CTC2135 (CCN2120 / CWN2135)	CTC2135 (CWN2135)		1,00-4,00	0,20-0,40	CN.. DN.. SN.. TN.. VN.. WN..	
<ul style="list-style-type: none"> ▲ For medium machining of stainless steels ▲ Also by application on general steels and superalloys 	CTP2120 / CTC2135 (CCN2120 / CWN2135)		CTP2120 / CTC2135 (CCN2120 / CWN2135)							
	-M60 (-NM26)	 M R	CTPM125 (HCN2125)	CTPM125 (HCN2125)	CTPM125 (HCN2125)		1,50-6,00	0,25-0,50	CN.. DN.. SN.. TN.. VN.. WN..	
<ul style="list-style-type: none"> ▲ Light to medium roughing ▲ Stable cutting edge ▲ Interrupted cut ▲ Forged skin and cast crust 	CTPM125 (HCN2125)		CTPM125 (HCN2125)	CTPM125 (HCN2125)						
			CTPM125 (HCN2125)	CTPM125 (HCN2125)						

Standard chip breakers / application notes

Negative		Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration		Geometry	
						a _p mm	f mm		
Main application super alloys, secondary application stainless steels	-F32 (-F32)	 F	CTP2120 (CCN2120)	CTP2120 (CCN2120)			0,05-4,0	0,05-0,25	CN.. DN.. VN..
	<ul style="list-style-type: none"> Streamlined geometry for finishing superalloys For finishing stainless steels 		CTP2120 (CCN2120)	CTP2120 (CCN2120)					
			CTP2120 (CCN2120)	CTP2120 (CCN2120)					
	-M34 (-M34)	 M	CTP5110 / CTP5115 (HCN5110 / HCN5115)	CTP5110 / CTP5115 (HCN5110 / HCN5115)			0,80-3,0	0,10-0,30	CN.. DN.. SN.. VN.. WN..
	<ul style="list-style-type: none"> First choice for superalloys Light cutting geometry Little built-up edge Low cutting forces 		CTP5110 / CTP5115 (HCN5110 / HCN5115)	CTP5110 / CTP5115 (HCN5110 / HCN5115)					
			CTP5110 / CTP5115 (HCN5110 / HCN5115)	CTP5110 / CTP5115 (HCN5110 / HCN5115)					
	-M52 (-M52)	 M	CTP2120 (CCN2120)	CTP2120 (CCN2120)			1,50-4,00	0,20-0,38	CN.. DN.. SN.. TN.. WN..
	<ul style="list-style-type: none"> Universal geometry for machining superalloys and stainless steels 		CTP2120 (CCN2120)	CTP2120 (CCN2120)					
			CTP2120 (CCN2120)	CTP2120 (CCN2120)					





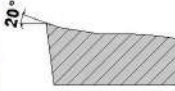

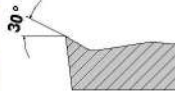


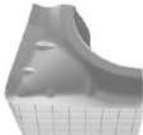
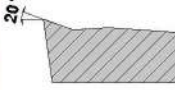




Positive		Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration		Geometry	
						a _p mm	f mm		
Main application steel and cast iron, secondary application stainless steels and super alloys	-CF05 (-PF14)	 F	CTEP110 / TCM407 (DCC1110 / CWC407)	TCM10 / TCM407 (CWC10 / CWC407)			0,20-1,30	0,06-0,25	CC.. DC.. SC.. TC.. VC..
	<ul style="list-style-type: none"> Fine finishing For all common steel materials, stainless steels and GGG Good swarf control High surface quality 		CTEP110 (DCC1110)						
			CTEP110 (DCC1110)	TCM10 / TCM407 (CWC10 / CWC407)					
	-SF (-ZF)	 F	CTC2135 / CTCP115 (CWN2135 / HCX1125)	CTCP125 (HCX1125)	CTCP125 / CTCP135 (HCX1125 / HCR1135)		0,05-2,50	0,05-0,25	CC.. DC.. SC.. TC.. VC.. WC..
	<ul style="list-style-type: none"> Finishing / contour turning Good swarf control High surface quality Low cutting forces 		CTC2135 / CTCP125 (CWN2135 / HCX1125)	CTCP125 / CTC2135 (HCX1125 / CWN2135)	CTC2135 (CWN2135)				
			CTC2135 / CTCP125 (CWN2135 / HCX1125)	CTC2135 (CWN2135)	CTCP125 (HCX1125)				
	-CF55 (-PF15)	 F M	CTEP110 (DCC1110)	TCM10 / CTEP110 (CWC10 / DCC1110)			0,20-1,30	0,06-0,25	CC.. DC.. SC.. TC.. VC..
	<ul style="list-style-type: none"> Finishing to medium machining Suitable for general and stainless steels Low cutting forces Good swarf control High surface quality 		CTEP110 (DCC1110)	CTEP110 (DCC1110)					
			CTEP110 (DCC1110)	CTEP110 (DCC1110)					

Standard chip breakers / application notes


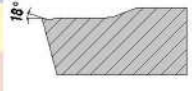

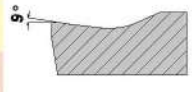
Positive		Model	Smooth cut	Irregular cutting depth	Interrupted cut	sectional illustration		Geometry	
						a_p mm	f mm		
Main application steel and cast iron, secondary application stainless steels and super alloys	-SMF (-SMF) ▲ Finishing to medium machining ▲ Low cutting forces ▲ Good swarf control ▲ High surface quality		CTEP110 / CTCP115 (DCC1110 / HCX1115)	TCM10 / CTCP125 / CTCP115 (CWC10 / HCX1125 / HCX1115)	CTCP135 HCR1135		13°	CC.. DC.. SC.. TC.. VC..	
			CTCP115 / CTCP125 / CTEP110 (HCX1115 / HCX1125 / DCC1110)	CTCP125 / CTCP135 (HCX1125 / HCR1135)	CTCP135 HCR1135				
			CTCP115 / CTCP135 (HCX1115 / HCR1135)	CTCP135 HCR1135	0,20-1,30				0,06-0,25
	-SM (-ZM) ▲ Medium machining ▲ Universal application ▲ Stable cutting edge ▲ Varying depths of cut ▲ Wide range of applications		CTCP115 / CTCP125 (HCX1115 / HCX1125)	CTCP125 / CTCP135 / CTCP115 (HCX1125 / HCR1135 / HCX1115)	CTCP125 / CTCP135 (HCR1135)		15°	0,1	CC.. DC.. RC.. SC.. TC.. VC..
			CTCP125 (HCX1125)	CTCP125 / CTCP135 (HCX1125 / HCR1135)	CTCP135 (HCR1135)				
			CTCP115 / CTCK110 / CTCK120 (HCX1115 / DCX3110 / HCF3120)	CTCP125 / CTCK110 / CTCK120 (HCX1125 / DCX3110 / HCF3120)	CTCK120 / CTCP125 HCF3120 / HCX1125				
	-SMQ (-SMQ) ▲ Positive wiper geometry ▲ Finishing to medium machining ▲ Very high feedrate ▲ High surface quality		CTCP115 (HCX1115)	CTCP125 (HCX1125)	CTCP125 (HCX1125)		15°	0,2	CC.. DC..
			CTCP115 (HCX1115)	CTCP125 (HCX1125)	CTCP125 (HCX1125)				
			CTCP125 / CTCP115 (HCX1125 / HCX1115)	CTCP125 (HCX1125)	CTCP125 (HCX1125)				

Positive		Model	Smooth cut	Irregular cutting depth	Interrupted cut	sectional illustration		Geometry	
						a_p mm	f mm		
Main application stainless steels	-F43 (-F43) ▲ For the light to medium machining of all stainless steels, general steels and superalloys		CTC2135 (CWN2135)	CTC2135 (CWN2135)	CTC2135 (CWN2135)		10°	0,06	CC.. DC.. TC..
			CTC2135 (CWN2135)	CTC2135 (CWN2135)	CTC2135 (CWN2135)				
			CTC2135 (CWN2135)	CTC2135 (CWN2135)	CTC2135 (CWN2135)				
	-M25 (-PF23) ▲ First choice for medium machining of stainless steels ▲ High surface quality ▲ Little built-up edge		CTPM125 (HCN2125)	CTPM125 (HCN2125)	CTPM125 (HCN2125)		10°	0,1-0,15	CC.. DC.. TC.. VC..
			CTPM125 (HCN2125)	CTPM125 (HCN2125)	CTPM125 (HCN2125)				
			CTPM125 (HCN2125)	CTPM125 (HCN2125)	CTPM125 (HCN2125)				
	-M55 (-PF26) ▲ First choice for medium machining to roughing of stainless steels ▲ Smooth to lightly interrupted cut ▲ Good swarf control ▲ Stable cutting edge		CTPM125 (HCN2125)	CTPM125 (HCN2125)	CTPM125 (HCN2125)		16°	0,15-0,2	CC.. DC.. SC.. TC.. VC..
			CTPM125 (HCN2125)	CTPM125 (HCN2125)	CTPM125 (HCN2125)				
			CTPM125 (HCN2125)	CTPM125 (HCN2125)	CTPM125 (HCN2125)				





Standard chip breakers / application notes

Positive		Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration		Geometry	
						a_p mm	f mm		
Main application stainless steels	-M81 (-M81) ▲ Directly pressed insert ▲ Positive rake angle ▲ Good swarf control ▲ For medium to rough machining	 M	CWN2120 (CWN2120)				1,00-6,00	0,25-0,60	CC.. DC.. VC..
			CWN2120 (CWN2120)	CWN2120 (CWN2120)	CWN2120 (CWN2120)				
Main application non-ferrous metals, secondary application stainless steels, steels, super alloys, cast iron	-23P (-23P) ▲ Low adhesion ▲ Good chip control with soft aluminium alloys	 F	H216T (CWK26)	H216T (CWK26)			0,2-4,0	0,05-0,3	CC.. DC..
			H216T (CWK26)	H216T (CWK26)	H216T (CWK26)				
	-25P (-25P) ▲ Sharp cutting edge ▲ Good swarf control on soft aluminium alloys ▲ Low adhesion	 F	AMZ (AMZ)	AMZ (AMZ)			0,50-4,50	0,05-0,60	CC.. DC.. SC.. VC..
			AMZ (AMZ)	AMZ (AMZ)					
			AMZ (AMZ)	AMZ (AMZ)					
			H216T (CWK26)	H216T (CWK26)	H216T (CWK26)				
	-25Q (-25Q) ▲ Wiper geometry ▲ High feed rates ▲ High surface quality ▲ Good swarf control on soft aluminium alloys ▲ Low adhesion	 M	H210T / AMZ (CWK20 / AMZ)	H210T / AMZ (CWK20 / AMZ)			0,05-6,50	0,05-0,60	CC.. DC.. VC..
			H210T / AMZ (CWK20 / AMZ)	H210T / AMZ (CWK20 / AMZ)	H210T / AMZ (CWK20 / AMZ)				
	-27 (-27) ▲ The universal Alu geometry ▲ Sharp cutting edge ▲ Extremely positive rake angle ▲ Low adhesion ▲ High feed rates	 M	AMZ (AMZ)	AMZ (AMZ)			1,00-10,00	0,10-0,75	CC.. DC.. RC.. SC.. TC.. VC..
			AMZ (AMZ)	AMZ (AMZ)					
AMZ (AMZ)			AMZ (AMZ)	H216T (CWK26)					
H10T (CWK15)			H10T (CWK15)	H10T (CWK15)					
-29 (-29) ▲ Direct sintered aluminium geometry ▲ Positive rake angle ▲ Good chip control ▲ For medium to rough machining	 F	AMZ (AMZ)	AMZ (AMZ)			1,00-6,00	0,25-0,60	CC.. DC.. VC..	
		AMZ (AMZ)	AMZ (AMZ)						
		AMZ (AMZ)	AMZ (AMZ)	H216T (CWK26)					
		H216T / AMZ (CWK26 / AMZ)	H216T / AMZ (CWK26 / AMZ)	H216T (CWK26)					

Standard chip breakers / application notes

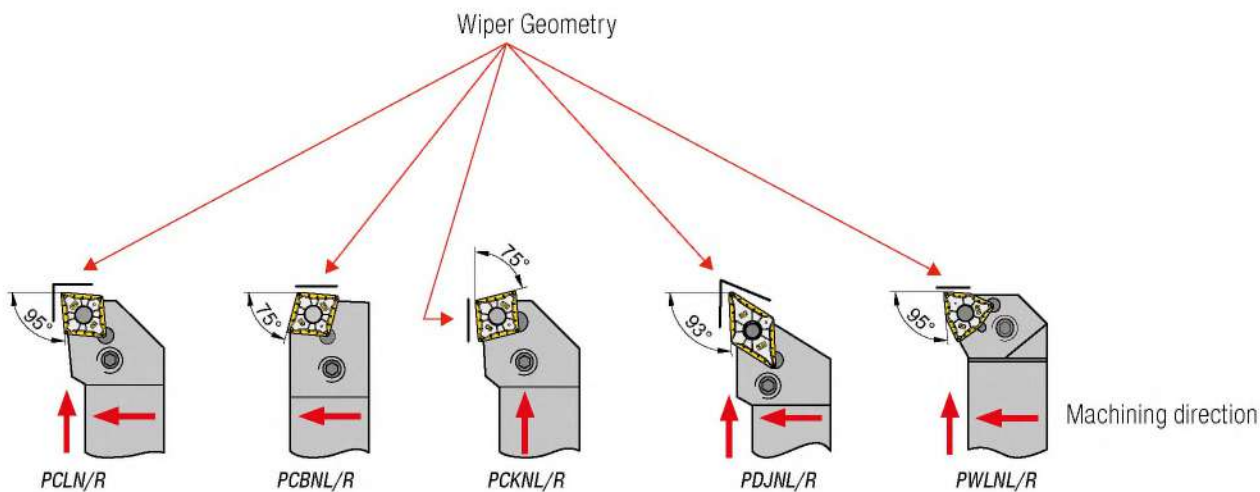
Positive	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration		Geometry
					a _p mm	f mm	
Main application super alloys and stainless steels, secondary application steels and non-ferrous metals	-F05 (-F05) ▲ Maximum tolerance class ▲ Outstanding chip control, even with the smallest cutting depths ▲ Very low cutting forces  F	CTPX710			 DC.. VC..	0,10-2,50 0,02-0,25	
		CTPX710					
		CTPX710					
		CTPX710					
		CTPX710					
	-F23 (-F23) ▲ Fine finishing (ground edge) ▲ Very high surface quality ▲ High repeatability ▲ Low depths of cut  F	CTP2120 (CCN2120)	CTP2120 (CCN2120)		 CC.. DC.. VC..	0,10-2,00 0,06-0,13	
		CTP2120 (CCN2120)					
		CTP2120 (CCN2120)					
		CTP2120 (CCN2120)					
		CTP2120 (CCN2120)	CTP2120 (CCN2120)				

Supplementary chip breakers / application notes

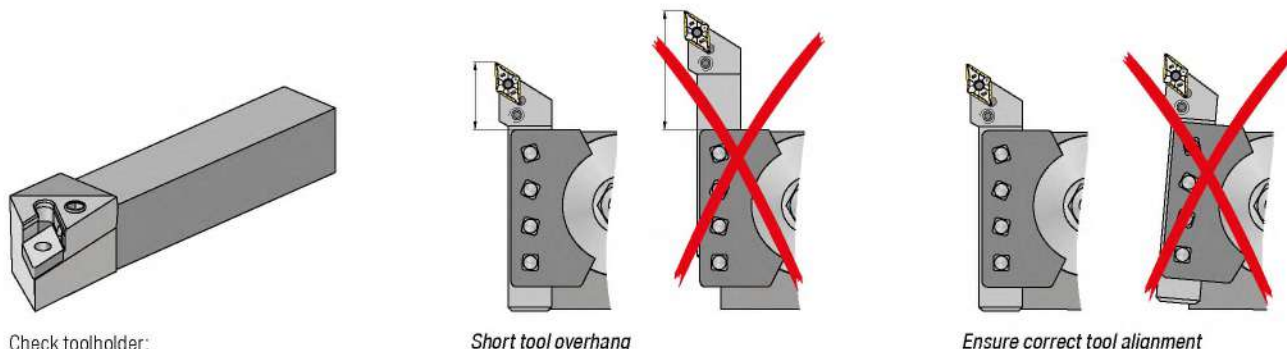
Negative	Model	Smooth cut	Irregular cutting depth	Interrupted cut
		○	○	⊙
<p>-11 (-11)</p> <ul style="list-style-type: none"> ▲ For copy machining in finishing operations ▲ On general steels, stainless steels and cast iron ▲ Can be used on less powerful machines 	 <p>F</p>		<p>CTCP125 (HCX1125)</p>	<p>CTCP135 (HCR1135)</p>
<p>-12 (-12)</p> <ul style="list-style-type: none"> ▲ For copy machining in the medium machining range ▲ On general steels, stainless steels and cast iron 	 <p>M</p>		<p>CTCP125 (HCX1125)</p>	<p>CTCP135 (HCR1135)</p>
<p>-EN (-EN)</p> <ul style="list-style-type: none"> ▲ Universal chip breaker for general steels 	 <p>M</p>	<p>CTCP115 HCX1115</p>	<p>CTCP125 (HCX1125)</p>	<p>CTCP135 (HCR1135)</p>
		<p>CTCP125 (HCX1125)</p>	<p>CTCP135 (HCR1135)</p>	<p>CTCP135 (HCR1135)</p>
		<p>CTCK110 DCX3110</p>	<p>CTCK120 HCF3120</p>	<p>CTCP125 (HCX1125)</p>
<p>-ER EL (-ER EL)</p> <ul style="list-style-type: none"> ▲ A problem solver for unstable conditions ▲ Can be used on less powerful machines ▲ Can be used for general steels and on stainless materials as a secondary application 	 <p>M</p>		<p>CTCP125 (HCX1125)</p>	<p>CTCP135 (HCR1135)</p>

Masterfinish – wiper geometry – notes

Through the use of indexable inserts with wiper edge (-TFQ; -TMQ; -SMQ; -25Q) high quality surfaces can be produced economically.



All turning inserts with wiper cutting edge are clamped in standard ISO tool holders



Check toolholder:

- ▲ Insert seat
- ▲ Shim
- ▲ Clamping Lever

Feed rate guide values for surface finish quality

Roughness range R_z in μm	$R_{1\text{max}}$	Corresponds to R_a	Roughness index	ISO 1302	Corner radius r_e in mm and feed rate f in mm/rev.			
					$r_e = 0,4$	$r_e = 0,8$	$r_e = 1,2$	$r_e = 1,6$
63-100	$\sqrt{R_{1,100}}$	12,5-25	N11	$\frac{25}{\nabla}$		0,51	0,69	0,88
40-63	$\sqrt{R_{1,63}}$	6,3-25	N10	$\frac{12,5}{\nabla}$	0,27	0,43	0,56	0,68
31,5-40	$\sqrt{R_{1,40}}$	4,9-6,3	N9	$\frac{6,3}{\nabla}$	0,25	0,37	0,49	0,57
25-31,5	$\sqrt{R_{1,31,5}}$	4,0-4,9			0,22	0,32	0,41	0,47
16-25	$\sqrt{R_{1,25}}$	2,5-4,0	N8	$\frac{3,2}{\nabla}$	0,20	0,28	0,36	0,39
10-16	$\sqrt{R_{1,16}}$	1,6-2,5			0,15	0,22	0,29	0,31
6,3-10	$\sqrt{R_{1,10}}$	1,0-1,6	N7	$\frac{1,6}{\nabla}$	0,10	0,13	0,18	0,20

Masterfinish – wiper geometry – functional principle

Relationship of feed rate to surface roughness

Improved Surface Quality

With the same feed rate an insert with wiper cutting edge reaches a roughness value R_t which is many times better than a conventional insert.



Shorter machining time

To achieve the same R_t -value as with a standard insert, double the feed rate can be applied for the insert with wiper cutting edge (= shorter production time per component!)



9

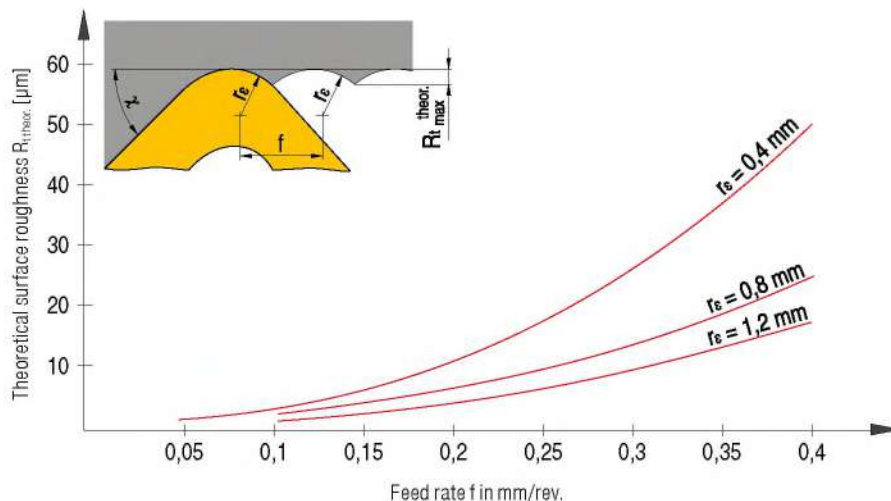
Theoretical Surface Quality

The maximum theoretical surface roughness with turning $R_{t,theor.}$ is the combination of feed rate and corner radius:

or approximately:

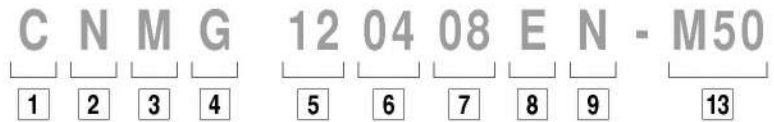
$$R_{t,theor.} = \left(r_s - \sqrt{r_s^2 - \frac{f^2}{4}} \right) \cdot 1000$$

$$R_{t,theor.} = \frac{125 \cdot f^2}{r_s} \text{ [}\mu\text{m]}$$

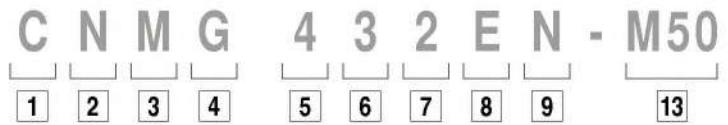


ISO designation system for inserts

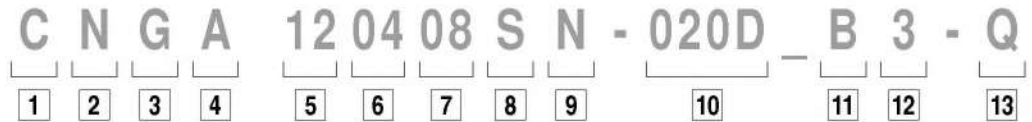
Indexable inserts – metric



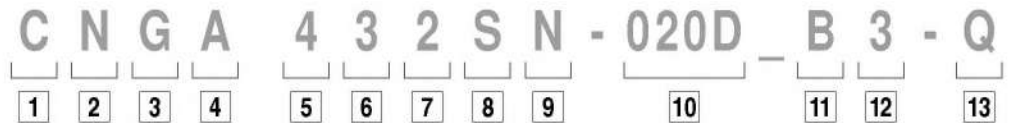
Indexable inserts – inch



Indexable inserts, CBN, ceramic – metric



Indexable inserts, CBN, ceramic – inch



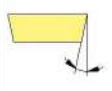
1

Insert shape

V	35°	Included angle
D	55°	
E	75°	
C	80°	
M	86°	
K	55°	Included angle
B	82°	
A	85°	
L	90°	Other shapes
P	108°	
H	120°	
O	135°	
R	-	
S	90°	
T	60°	
W	80°	

2

Clearance angle

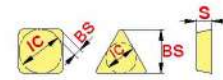


α		α	
A	3°	F	25°
B	5°	G	30°
C	7°	N	0°
D	15°	P	11°
E	20°		

O Clearance angles not included within the standard for which particular information is necessary.

3

Tolerances

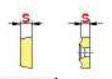


	IC±		BS		S	
	mm	inch	mm	inch	mm	inch
A	0,025	.0010	0,005	.0002	0,025	.001
F	0,013	.0005	0,005	.0002	0,025	.001
C	0,025	.0010	0,013	.0005	0,025	.001
H	0,013	.0005	0,013	.0005	0,025	.001
E	0,025	.0010	0,025	.0010	0,025	.001
G	0,025	.0010	0,025	.0010	0,13	.005
J	0,05-0,15*	.002-.006*	0,005	.0002	0,025	.001
K	0,05-0,15*	.002-.006*	0,013	.0005	0,025	.001
L	0,05-0,15*	.002-.006*	0,025	.0010	0,025	.001
M	0,05-0,15*	.002-.006*	0,05-0,20*	.003-.008*	0,13	.005
N	0,05-0,15*	.002-.006*	0,05-0,20*	.003-.008*	0,025	.001
U	0,08-0,25*	.003-.010*	0,13-0,38*	.005-.015*	0,13	.005

* Depends on insert size

6


Insert thickness



		Code	
mm	inch	mm	inch
1,59	1/16	01	1
2,38	3/32	02	
3,18	1/8	03	2
3,97	5/32	T3	
4,76	3/16	04	3
5,56	7/32	05	
6,35	1/4	06	4
7,94	5/16	07	5
9,52	3/8	09	6

7

Corner radius

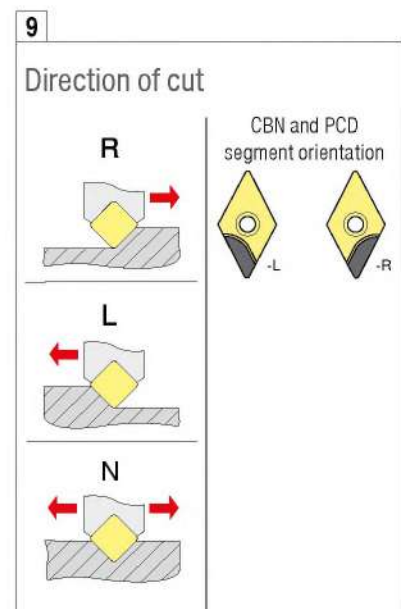


		Code		RN 00 RC MO
mm	inch	mm	inch	
≤ 0,05	.0015	00	X0	
0,1	.004	01	0	
0,2	.008	02	.5	
0,4	1/64	04	1	
0,8	1/32	08	2	
1,2	3/64	12	3	
1,6	1/16	16	4	
2,0	5/64	20	5	
2,4	3/32	24	6	
2,8	7/64	28	7	
3,2	1/8	32	8	

8

Cutting edge

F	Sharp
E	Honed
T	Chamfered
S	Chamfered and honed
K	Double-chamfered
P	Double-chamfered and honed
R	Round chamfer





4

Characteristics

N	
R	
F	
A	
M, P	
G, P	
W	
T	
Q	
U	
B	
H	
C	
J	
X	Special version

inch
Change at inscribed circle IK < 1/4"

IK > 1/4"	IK < 1/4"
N / R / F	E
A / M / G	D
X	X

5

Cutting length

Type	ISO	ANSI	L		IC	
			mm	inch	mm	inch
	06	2	6,4	.250	6,35	.250
	09	3	9,7	.382	9,525	.375
	12	4	12,9	.508	12,70	.500
	16	5	16,1	.634	15,875	.625
	19	6	19,3	.760	19,05	.750
	25	8	25,8	1.016	25,4	1.000
	32	12	35,24	1.269	31,75	1.250
	06	2	6,35	.250	6,35	.250
	09	3	9,525	.375	9,525	.375
	12	4	12,7	.500	12,7	.500
	15	5	15,875	.625	15,875	.625
	19	6	19,05	.750	19,05	.750
	25	8	25,4	1.000	25,4	1.000
	31	10	31,75	1.250	31,75	1.250
	07	2	7,7	.303	6,35	.250
	11	3	11,6	.457	9,525	.375
	15	4	15,5	.610	12,70	.500
	11	2	11,1	.437	6,35	.250
	16	3	16,6	.653	9,525	.375
	22	4	22,10	.870	12,70	.500

Type	ISO	ANSI	L		IC		
			mm	inch	mm	inch	
	06	1.2	6,9	.272	3,97	.156	
	09	1.8	9,6	.378	5,56	.219	
	11	2	11,0	.433	6,35	.250	
	16	3	16,5	.650	9,525	.375	
	22	4	22,	.079	12,70	.039	
	27	5	27,5	1.083	15,875	.625	
	33	6	33,0	1.299	19,05	.750	
		06	3	6,5	.256	9,525	.375
		08	4	8,7	.331	12,70	.039
		10	5	10,9	.429	15,875	.625
	06	2	6,35	.250	6,35	.250	
	08	-	8,0	.315	8,0	.315	
	09	3	9,52	.375	9,52	.375	
	10	-	10,0	.394	10,0	.394	
	12*	-	12,0	.472	12,0	.472	
	12	4	12,7	.488	12,70	.488	
	15	5	15,875	.625	15,875	.625	
	16	-	16,0	.630	16,0	.630	
	19	6	19,05	.750	19,05	.750	
	25	8	25,0	.984	25,0	.984	
	25*	-	25,4	1.000	25,4	1.000	
	31	10	31,75	1.250	31,75	1.250	
32	-	32,0	1.260	32,0	1.260		

* inch version

10

Chamfer type

T/S

K/P 1)

	mm	inch		
015	0,15	.006	A	05°
020	0,20	.008	B	10°
025	0,25	.010	C	15°
050	0,50	.020	D	20°
075	0,75	.030	E	25°
100	1,00	.040	F	30°
			G	35°

1) Two letters are assigned for double-chamfered cutting edges e.g. BE = chamfer angle 1 (y₁) = 10° chamfer angle 2 (y₂) = 25°

11

Number of cutting edges

Single sided		Complete insert thickness	
A		T	
B		U	
C		V	
D		W	
G		X	
H		Y	
Double sided		Entire clamping flat	
K		S	
L		F	
M		E	
N			
P			
Q			

12

Segment length

LE

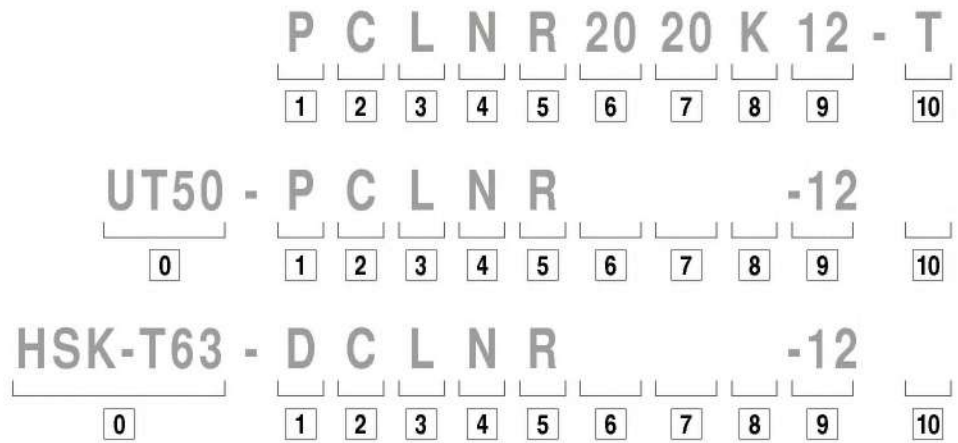
Approx. specification in mm

13

Chip breaker designation

You can find a comprehensive chip breaker overview on → **page 168-175**

ISO designation system for tool holders



0

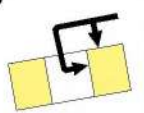
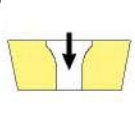
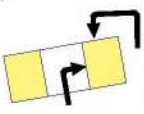
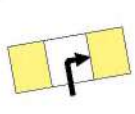
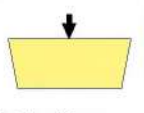
System/size

UT = UTS
according to ISO 26622
UT40 = UTS 40 mm
UT50 = UTS 50 mm
UT63 = UTS 63 mm

HSK-T
according to ISO 12164
HSK-T63 = 63 mm
HSK-T100 = 100 mm

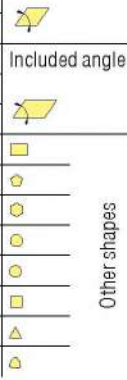
1

Tool holder

D  Retained from above and via bore	S  Retained via centre screw
M  Retained from above and via bore	P  Retained via the bore
C  Retained from above	X Special version


2

Insert shape

V 35°	Included angle	
D 55°		
E 75°		
C 80°		
M 86°	Included angle	
K 55°		
B 82°	Other shapes	
A 85°		
L 90°	Other shapes	
P 108°		
H 120°		
O 135°		
R -		
S 90°		
T 60°		
W 80°		

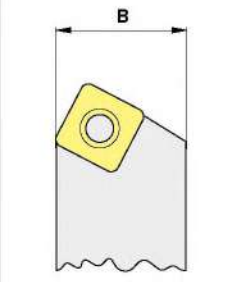
6

Shank height



7

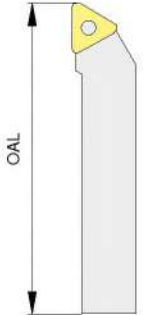
Shank width



8

Tool length

OAL			OAL		
mm	inch		mm	inch	
32	4.000	A	160	4.500	N
40	4.500	B	170	5.500	P
50	5.000	C	180	-	Q
60	6.000	D	200	6.000	R
70	7.000	E	250	7.000	S
80	8.000	F	300	8.000	T
90	5.500	G	350	5.500	U
100	5.625	H	400	3.500	V
110	5.300	J	450	3.500	W
125	14.000	K	500	3.750	Y
140	6.800	L	Special version		X
150	4.400	M			





3

Style

A 90°	B 75°	C 90°	D 45°	E 60°
F 90°	G 90°	H 107,5°	J 93°	K 75°
L 95°	M 50°	N 63°	P 117,5°	R 75°
S 45°	T 60°	U 93°	V 72,5°	W 60°
				Y 85°

4

Clearance angle

α	α
A 3°	F 25°
B 5°	G 30°
C 7°	N 0°
D 15°	P 11°
E 20°	

O Clearance angles not included within the standard for which particular information is necessary.

5

Direction of cut

9

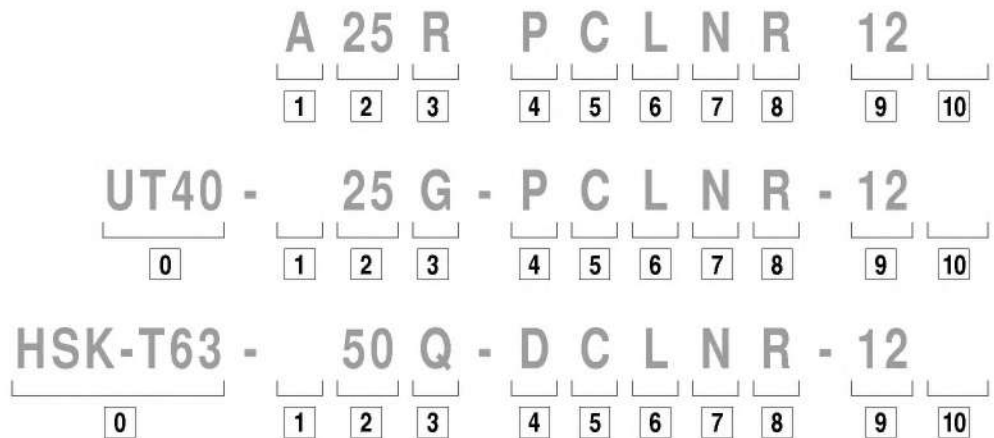
Cutting length

10

Manufacturer specification

- T = Toggle
- Special length (mm)
- Insert thickness (deviating from standard)
- Special version (X..)
- Machine manufacturer (specific)

ISO designation system for boring bars



0

System/size

UT = UTS
according to ISO 26622
UT40 = UTS 40 mm
UT50 = UTS 50 mm
UT63 = UTS 63 mm

HSK-T
according to ISO 12164
HSK-T63 = 63 mm
HSK-T100 = 100 mm



1

Shank type

S Steel shank	E As C with coolant hole
A Steel shank with coolant hole	F As C with antivibration system
B Steel shank with antivibration system	G As C with coolant hole and antivibration system
D Steel shank with coolant hole and antivibration system	H Heavy metal
C Carbide shank with steel head	J Heavy metal with coolant hole

5

Insert shape

V 35°	Included angle
D 55°	
E 75°	
C 80°	
M 86°	
K 55°	Included angle
B 82°	
A 85°	
L 90°	Other shapes
P 108°	
H 120°	
O 135°	
R -	
S 90°	
T 60°	
W 80°	

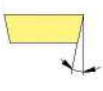
6

Style

*) CERATIZIT factory standard

7

Clearance angle



A 3°	F 25°
B 5°	G 30°
C 7°	N 0°
D 15°	P 11°
E 20°	

O Clearance angles not included within the standard for which particular information is necessary.



2

Shank diameter

DCONMS mm	DCONMS inch
08	
10	
12	
16	
20	
25	
32	
40	
50	
60	

A two-digit figure indicating the boring bar diameter in 1/16 of an inch.

3

Tool length

OAL		
mm	inch	
80	3	F
100	3,5	H
110	4	J
125	4,5	K
140	5	L
150	5,5	M
160	6	N
170	6,5	P
180	6,75	Q
200	7	R
250	8	S
300	10	T
350	12	U
400	14	V
450	16	W
500	18	Y
	20	
Special version		X

4

Clamping method

<p>D</p> <p>Retained from above and via bore</p>	<p>S</p> <p>Retained via centre screw</p>
<p>M</p> <p>Retained from above and via bore</p>	<p>P</p> <p>Retained via the bore</p>
<p>C</p> <p>Retained from above</p>	<p>X</p> <p>Special version</p>

9

8

Direction of cut

R

L

9

Cutting length

10

Manufacturer specification

T = Toggle
 Special length (mm)
 Insert thickness (deviating from standard)
 Special version (X...)
 Machine manufacturer (specific)

Types of wear

Wear on clearance face



Abrasion on flank: normal wear after a certain machining time

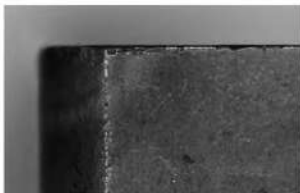
Cause

- ▲ Too high cutting speed
- ▲ Carbide grade with too low wear resistance
- ▲ Feed rate not adapted

Remedy

- ▲ Reduce cutting speed
- ▲ Use grade with higher wear resistance
- ▲ Adapt feed rate to cutting speed and cutting depth

Edge chipping



Through excessive mechanical stress at the cutting edge fracture and chipping can occur.

Cause

- ▲ Grade with too high wear resistance
- ▲ Vibration
- ▲ Too high cutting speed and / or feed rate
- ▲ Interrupted cut
- ▲ Swarf damage

Remedy

- ▲ Use tougher grade
- ▲ Use negative cutting edge geometry with chip groove
- ▲ Improve stability (tool, work piece)

Cratering



The hot chip which is being evacuated causes cratering at the rake face of the cutting edge.

Cause

- ▲ Too high cutting speed and / or feed rate
- ▲ Rake angle too shallow
- ▲ Grade with insufficient wear resistance
- ▲ Insufficient coolant supply

Remedy

- ▲ Reduce cutting speed and / or feed rate
- ▲ Use grade with higher wear resistance
- ▲ Increase coolant quantity and / or pressure, optimise coolant supply
- ▲ Use grade which is more resistant to cratering

Plastic deformation



High machining temperature and simultaneous mechanical stress can lead to plastic deformation.

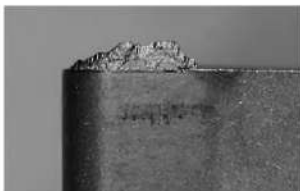
Cause

- ▲ Too high machining temperature resulting in softening of substrate
- ▲ Damage of coating
- ▲ Grade with insufficient wear resistance
- ▲ Insufficient coolant supply

Remedy

- ▲ Reduce cutting speed
- ▲ Use grade with higher wear resistance
- ▲ Provide cooling

Built-up edge



Built-up material / edges occur when the chip is not evacuated properly due to insufficient cutting temperature.

Cause

- ▲ Insufficient cutting speed
- ▲ Rake angle too shallow
- ▲ Wrong cutting material
- ▲ Lack of cooling / lubrication

Remedy

- ▲ Increase cutting speed
- ▲ Increase rake angle
- ▲ Apply TiN coating
- ▲ Use emulsion with higher concentration

Insert breakage



Excessive stress of the insert causes breakage.

Cause

- ▲ Excessive stress of cutting material
- ▲ Lack of stability
- ▲ Clearance angle too small

Remedy

- ▲ Use tougher grade
- ▲ Use protective edge chamfer
- ▲ Increase edge hone
- ▲ Use geometry with higher stability

Recommendation for Optimum Results

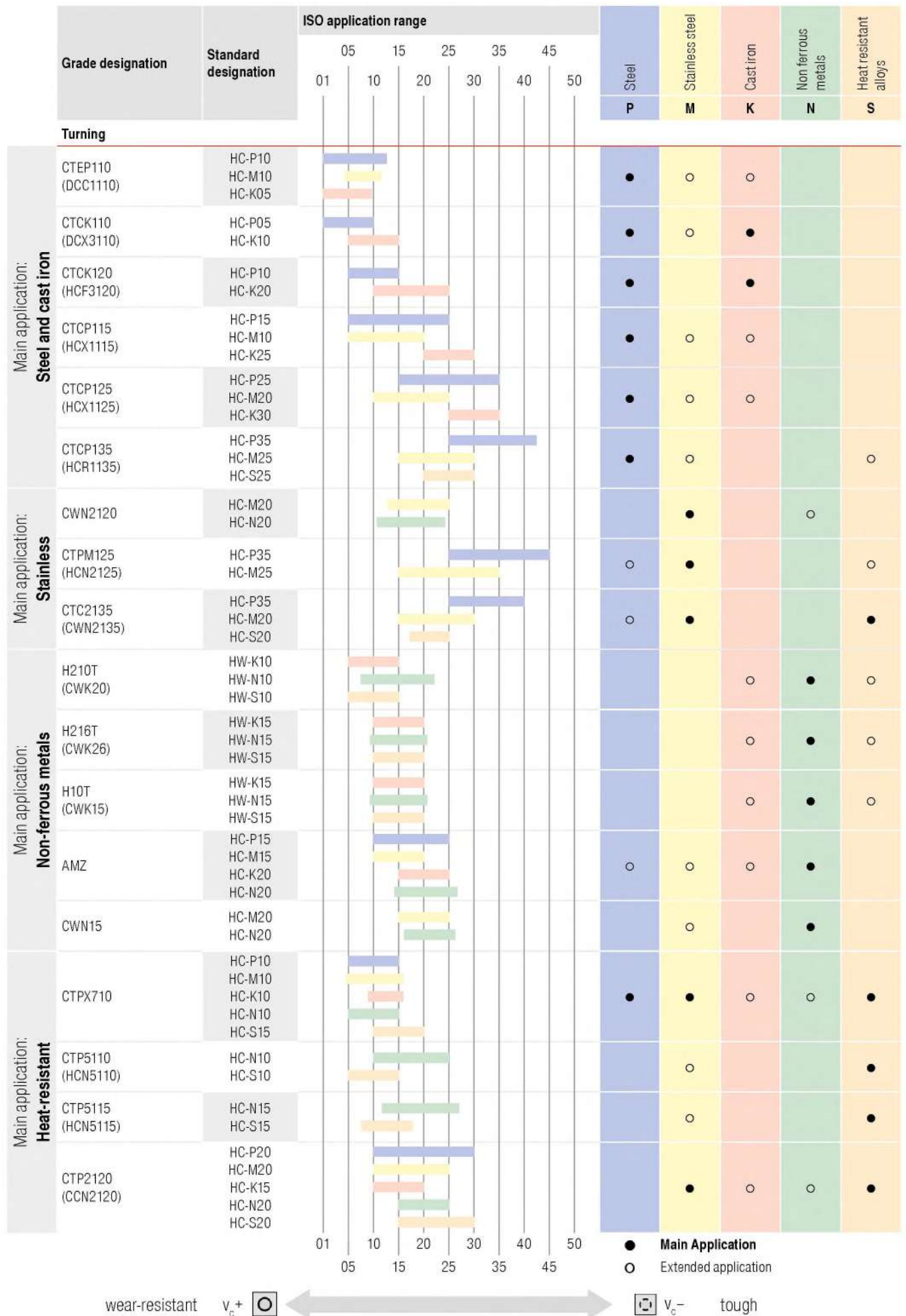
Type of problem															
Type of wear						Work piece problems				Swarf control					
Wear on clearance face	Cratering	Edge chipping	Plastic deformation	Insert breakage	Built-up edge	Vibration	Formation of pits and burrs	Chattered surface	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)				
↓	↓		↓		↓	↓			↑	↓		Cutting speed	Cutting data		
~		↓	↓	↓		↑		↓	↓	↑	↓	Feed rate			
↓	↓	↓	↓				↓	↓	↓			Feed rate at centre			
		↑	~		↓	~	↓	↓	↓	↓	↑	Chip groove	↑	↓	Insert selection
↑		↑	↑	↑		↓	↓	↓	↑			Corner radius	↑	larger smaller	
↑	↑	↓	↑	↓								Tap Material	↑	wear resistance toughness	
		~		~		~		~	~			Tool clamping	General criteria	Remedy measures	
		~		~		~		~	~			Work piece clamping			
		~		~		~			↓			Overhang			
~		~				~	~		~			Tip height			
●	~		●		●		●		●	●		Cooling lubricant			

raise, increase large influence
 raise, increase small influence

avoid, reduce large influence
 avoid, reduce small influence

check, optimise
 use

Grades Overview



Grade description

TCM407	<ul style="list-style-type: none"> ▲ Cermet, uncoated ▲ ISO P10 M05 K05 ▲ The uncoated cermet grade for super-fine finishing steel materials 	CTCK110	<ul style="list-style-type: none"> ▲ Carbide, TiCN-Al₂O₃-coated ▲ ISO P05 K10 ▲ The wear-resistant grade for machining cast iron materials at high cutting speeds in a continuous cut
CWC407		DCX3110	
CTEP110	<ul style="list-style-type: none"> ▲ Cermet, TiCN-Al₂O₃-coated ▲ ISO P10 M10 K05 ▲ The cermet grade with reserves of toughness for finish machining at high cutting speeds 	CTCK120	<ul style="list-style-type: none"> ▲ Carbide, TiCN-Al₂O₃-coated ▲ ISO P10 K20 ▲ The grade for cast iron machining, with high toughness reserves for difficult conditions and interrupted cuts
DCC1110		HCF3120	
TCM10	<ul style="list-style-type: none"> ▲ Cermet, uncoated ▲ ISO P15 M10 K10 ▲ The uncoated cermet grade for finish machining stainless and hardened steel ▲ Particularly wear resistant thanks to high heat resistance 	H10T	<ul style="list-style-type: none"> ▲ Carbide, uncoated ▲ ISO K15 N15 ▲ The uncoated carbide grade for machining aluminium and other non-ferrous metals
CWC10		CWK15	
CTCP115	<ul style="list-style-type: none"> ▲ Carbide, TiCN-Al₂O₃-coated ▲ ISO P15 M10 K25 ▲ The wear-resistant high-performance grade for stable conditions and a continuous cut 	H210T	<ul style="list-style-type: none"> ▲ Carbide, uncoated ▲ ISO N10 S10 K10 ▲ The wear-resistant carbide grade for machining aluminium and other non-ferrous metals
HGX1115		CWK20	
CTCP125	<ul style="list-style-type: none"> ▲ Carbide, TiCN-Al₂O₃-coated ▲ ISO P25 M20 K30 ▲ The first choice for universal machining of steels 	H216T	<ul style="list-style-type: none"> ▲ Carbide, uncoated ▲ ISO K15 N15 ▲ The uncoated carbide grade for machining aluminium and other non-ferrous metals ▲ Also highly suitable for HSC machining
HGX1125		CWK26	
CTCP135	<ul style="list-style-type: none"> ▲ Carbide, TiCN-Al₂O₃-coated ▲ ISO P35 M25 S25 ▲ The tough alternative for heavily interrupted cut and unstable conditions 	CWN15	<ul style="list-style-type: none"> ▲ Carbide, TiN-coated ▲ ISO K15 ▲ Special carbide grade for abrasive aluminium alloys
HCR1135		CWN15	
CTP2120	<ul style="list-style-type: none"> ▲ Carbide, TiAlN-coated ▲ ISO M20 K20 N20 S20 ▲ The universal carbide grade for stainless steel and super alloys 	AMZ	<ul style="list-style-type: none"> ▲ Carbide, TiAlN-coated ▲ ISO P10 K10 N10 S10 ▲ The coated carbide grade for aluminium machining
CCN2120		AMZ	
CWN2120	<ul style="list-style-type: none"> ▲ Carbide, TiN-coated ▲ ISO M20 K20 N20 ▲ The universal carbide grade for machining stainless steel 	CTP5110	<ul style="list-style-type: none"> ▲ Carbide, TiAlN-coated ▲ ISO M15 S15 ▲ The alternative for machining heat-resistant materials
CWN2120		HGN5110	
CTPM125	<ul style="list-style-type: none"> ▲ ISO P35 M25 S25 ▲ The universal carbide grade with maximum toughness, without affecting the necessary hot hardness and wear resistance for stainless machining 	CTP5115	<ul style="list-style-type: none"> ▲ Carbide, TiAlN-TiN-coated ▲ ISO M15 S15 ▲ The first choice for machining heat-resistant materials
HCN2125		HGN5115	
CTC2135	<ul style="list-style-type: none"> ▲ Carbide, TiCN-TiN-coated ▲ ISO P35 M30 S35 ▲ The turning grade for general stainless machining 	CTPX710	<ul style="list-style-type: none"> ▲ Carbide, AlTiN-coated ▲ ISO P10 M10 K10 N10 S15 ▲ Universal multi-material grade from the X7 line for highest machining requirements
CWN2135			

Grade description

C	T	C	P	1	2	5	(Example)
H	C	X	1	1	2	5	

Main application – material

1 P	Steel
2 M	Stainless steel
3 K	Cast iron
4 N	Light and non ferrous metals
5 S	Super alloys, titanium
6 H	Hard materials
7 X	Universal application

Application

1	Turning
2	Milling
3	Grooving
4	Drilling
5	Thread turning
6	Others
7	Several processes

Degree of hardness

05	ISO 05
10	ISO 10
15	ISO 15
	...

Programme Extension

EcoCut - Mini Ø 2-3.5 mm

DRAGONSKIN



→ Page 5

EcoCut adapter Mini



→ Page 6

EcoCut - Mini adapter with coolant connection thread



→ Page 7



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 EcoCut

10

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Tool Clamping

16 Adapters

17 Accessories

18 Material examples and article no. index

Table of contents

Advantages with EcoCut	2
Toolfinder	3
Overview EcoCut Mini and EcoCut Inserts	4
Product programme	5-14
Technical Information	
EcoCut Mini Cutting Data	15+16
EcoCut Classic Cutting Data	17+18
EcoCut ProfileMaster Cutting Data	19+20
Cutting Data	21+22
EcoCut Classic chip breaker characteristics	23
EcoCut Classic as a Boring Tool	24
Application information	25-29
Grade overview and application	30+31

CERATIZIT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **CERATIZIT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

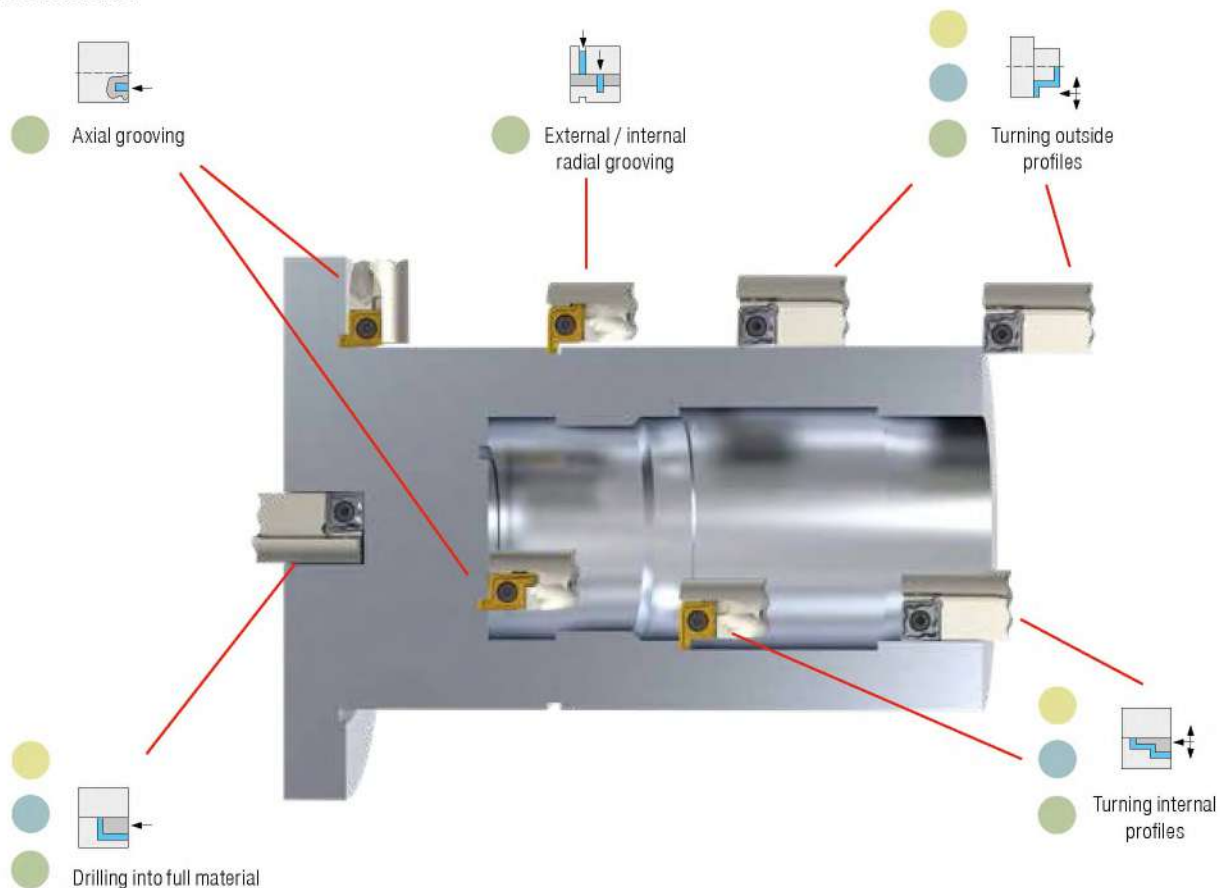
More productive thanks to EcoCut – continuous cost savings

Advantages with EcoCut

- ▲ reduced machining time
- ▲ reduced need for tool positions
- ▲ generates flat bottom of hole
- ▲ less programming
- ▲ lower set-up costs / reduced setting time
- ▲ time savings due to fewer tool changes







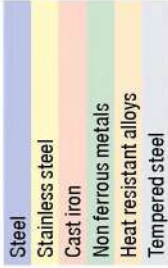



















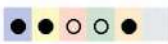















Toolfinder



Tools:			Applications					Pages	
Dimension	Hole Ø mm	max. hole depth mm							
EcoCut Mini	2,25xD	2-8	4,5-18	✓	✓	✓			5
	4xD	2-8	8-32	✓	✓	✓			5
EcoCut Classic	1,5xD	8-32	12-48	✓	✓	✓			9
	2,25xD	8-32	18-72	✓	✓	✓			10
	3xD	8-32	24-96	✓	✓	✓			11
EcoCut ProfileMaster	1,5xD	10-32	15-48	✓	✓	✓	✓	✓	13
	2,25xD	10-32	22,5-72	✓	✓	✓	✓	✓	14
EcoCut HSK-T	2,25xD	25-32	56,2-72	✓	✓	✓	see → Chapter 16, Adapters.		

EcoCut tools are suitable for off-centre drilling. This permits certain deviations from the nominal tool diameter to be achieved → For details, see the technical information.

Overview EcoCut Mini and EcoCut Inserts

Type	Smooth cut Irregular cutting depth Interrupted cut	Grade	Material	Radius RE in mm	coated uncoated	Pages
EcoCut Mini						
DRAGONSKIN 	  	CTPP435 HCN1435		0,1-0,2	<input checked="" type="checkbox"/> <input type="checkbox"/>	5
	  	CTWN425 CWK4425		0,1-0,2	<input type="checkbox"/> <input checked="" type="checkbox"/>	5
EcoCut Classic						
DRAGONSKIN 	  	CTCP425 HCR1425		0,2-0,8	<input checked="" type="checkbox"/> <input type="checkbox"/>	8
DRAGONSKIN 	  	CTCP435 HCR1435		0,2-0,8	<input checked="" type="checkbox"/> <input type="checkbox"/>	8
DRAGONSKIN 	  	CTPP430 HCN2430		0,2-0,8	<input checked="" type="checkbox"/> <input type="checkbox"/>	8
	  	H216T CWK26		0,2-0,8	<input type="checkbox"/> <input checked="" type="checkbox"/>	8
	  	H210T CWK20		0,2-0,8	<input type="checkbox"/> <input checked="" type="checkbox"/>	8
EcoCut ProfileMaster						
DRAGONSKIN 	  	CTPP430 HCN2430		0,4	<input checked="" type="checkbox"/> <input type="checkbox"/>	12

● = Main Application
○ = Extended application

EcoCut – Mini

▲ Drilling and turning tool for small diameters

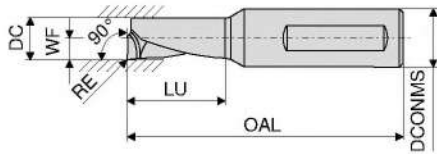


Diagram shows right hand version

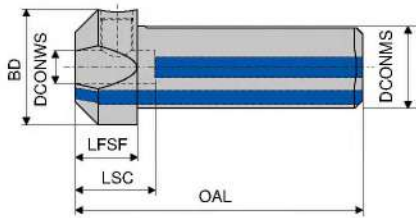


Designation	DC	DCONMS	OAL	LU	WF	RE	Solid carbide Left-hand 2B/20		Solid carbide Right-hand 2B/20		Solid carbide Left-hand 2B/20		Solid carbide Right-hand 2B/20	
							Article no. 70 805 ...	£	Article no. 70 804 ...	£	Article no. 70 805 ...	£	Article no. 70 804 ...	£
ECM 02 R/L 2,25D	2.0	4	28	4.50	1.00	0.1	46.33	320	46.33	320				
ECM 02 R/L 2,25D AL	2.0	4	28	4.50	1.00	0.1					40.85	420	40.85	420
ECM 02 R/L 4,00D	2.0	4	31	8.00	1.00	0.1	48.60	321	48.60	321				
ECM 02 R/L 4,00D AL	2.0	4	31	8.00	1.00	0.1					42.83	421	42.83	421
ECM 02,5 R/L 2,25D	2.5	4	29	5.63	1.25	0.1	47.75	325	47.75	325				
ECM 02,5 R/L 2,25D AL	2.5	4	29	5.63	1.25	0.1					42.07	425	42.07	425
ECM 02,5 R/L 4,00D	2.5	4	33	10.00	1.25	0.1	50.11	326	50.11	326				
ECM 02,5 R/L 4,00D AL	2.5	4	33	10.00	1.25	0.1					44.15	426	44.15	426
ECM 03 R/L 2,25D	3.0	4	31	6.75	1.50	0.1	49.25	330	49.25	330				
ECM 03 R/L 2,25D AL	3.0	4	31	6.75	1.50	0.1					43.40	430	43.40	430
ECM 03 R/L 4,00D	3.0	4	35	12.00	1.50	0.1	51.72	331	51.72	331				
ECM 03 R/L 4,00D AL	3.0	4	35	12.00	1.50	0.1					45.57	431	45.57	431
ECM 03,5 R/L 2,25D	3.5	4	32	7.88	1.75	0.1	51.15	335	51.15	335				
ECM 03,5 R/L 2,25D AL	3.5	4	32	7.88	1.75	0.1					45.10	435	45.10	435
ECM 03,5 R/L 4,00D	3.5	4	37	14.00	1.75	0.1	53.70	336	53.70	336				
ECM 03,5 R/L 4,00D AL	3.5	4	37	14.00	1.75	0.1					47.36	436	47.36	436
ECM 04 R/L 2,25D	4.0	6	35	9.00	2.00	0.2	54.32	300	54.32	300				
ECM 04 R/L 2,25D AL	4.0	6	35	9.00	2.00	0.2					47.85	450	47.85	450
ECM 04 R/L 4,00D	4.0	6	41	16.00	2.00	0.2	57.02	301	57.02	301				
ECM 04 R/L 4,00D AL	4.0	6	41	16.00	2.00	0.2					50.25	451	50.25	451
ECM 05 R/L 2,25D	5.0	6	37	11.25	2.50	0.2	56.20	302	56.20	302				
ECM 05 R/L 2,25D AL	5.0	6	37	11.25	2.50	0.2					49.20	452	49.20	452
ECM 05 R/L 4,00D	5.0	6	45	20.00	2.50	0.2	58.80	303	58.80	303				
ECM 05 R/L 4,00D AL	5.0	6	45	20.00	2.50	0.2					51.60	453	51.60	453
ECM 06 R/L 2,25D	6.0	8	38	13.50	3.00	0.2	57.65	306	57.65	306				
ECM 06 R/L 2,25D AL	6.0	8	38	13.50	3.00	0.2					50.87	456	50.87	456
ECM 06 R/L 4,00D	6.0	8	49	24.00	3.00	0.2	60.56	312	60.56	312				
ECM 06 R/L 4,00D AL	6.0	8	49	24.00	3.00	0.2					53.17	462	53.17	462
ECM 07 R/L 2,25D	7.0	8	42	15.75	3.50	0.2	59.43	308	59.43	308				
ECM 07 R/L 2,25D AL	7.0	8	42	15.75	3.50	0.2					52.44	458	52.44	458
ECM 07 R/L 4,00D	7.0	8	53	28.00	3.50	0.2	62.55	314	62.55	314				
ECM 07 R/L 4,00D AL	7.0	8	53	28.00	3.50	0.2					54.84	464	54.84	464
ECM 08 R/L 2,25D	8.0	8	45	18.00	4.00	0.2	61.40	310	61.40	310				
ECM 08 R/L 2,25D AL	8.0	8	45	18.00	4.00	0.2					53.90	460	53.90	460
ECM 08 R/L 4,00D	8.0	8	57	32.00	4.00	0.2	64.32	316	64.32	316				
ECM 08 R/L 4,00D AL	8.0	8	57	32.00	4.00	0.2					56.50	466	56.50	466

Steel	●	●		
Stainless steel	●	●		
Cast iron	○	○	○	○
Non ferrous metals			●	●
Heat resistant alloys	●	●		

→ v₀ Page 22

EcoCut – Adapter Mini

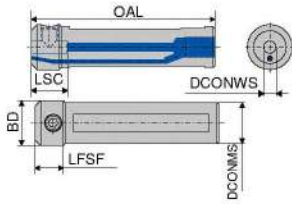


Designation	DCONWS	DCONMS	BD	OAL	LFSF	LSC	2B/20	
							Article no. 70 800 ...	£
EC-ADX16-04	4	16.00	22	59.0	14	18	171.64	716
EC-ADX12-04-E	4	19.05	25	63.5	14	18	171.64	719
EC-ADX20-04	4	20.00	25	64.0	14	18	171.64	720
EC-ADX16-06	6	16.00	22	59.0	14	18	171.64	976
EC-ADX12-06-E	6	19.05	25	63.5	14	18	171.64	986
EC-ADX20-06	6	20.00	25	64.0	14	18	171.64	996
EC-ADX16-08	8	16.00	22	59.0	14	18	171.64	978
EC-ADX12-08-E	8	19.05	25	63.5	14	18	171.64	988
EC-ADX20-08	8	20.00	25	64.0	14	18	171.64	998



Spare parts	for Article no.		2A/28	
			Article no. 70 950 ...	£
	70 800 716	M5x10 ISO 4026	2.71	867
	70 800 719	M5x10 ISO 4026	2.71	867
	70 800 720	M5x10 ISO 4026	2.71	867
	70 800 976	M8x1x8 - SW4	2.71	123
	70 800 986	M8x1x8 - SW4	2.71	123
	70 800 996	M8x1x8 - SW4	2.71	123
	70 800 978	M8x1x8 - SW4	2.71	123
	70 800 988	M8x1x8 - SW4	2.71	123
	70 800 998	M8x1x8 - SW4	2.71	123

EcoCut – Mini adapter with coolant connection thread



Designation	DCONWS	DCONMS	BD	OAL	LFSF	LSC	Thread	2B/20	
								Article no.	£
ECA 16-04	4	16.00	20.0	75	14	18	G 1/8	70 801 ...	716
ECA 0750-04	4	19.05	20.0	100	14	18	G 1/8	70 801 ...	719
ECA 20-04	4	20.00	19.6	90	14	18	G 1/8	70 801 ...	720
ECA 22-04	4	22.00	21.6	110	14	18	G 1/8	70 801 ...	722
ECA 25-04	4	25.00	24.6	110	14	18	G 1/8	70 801 ...	725
ECA 1000-04	4	25.40	25.0	110	14	18	G 1/8	70 801 ...	726
ECA 16-06	6	16.00	22.0	75	14	18	G 1/8	70 801 ...	816
ECA 0750-06	6	19.05	22.0	100	14	18	G 1/8	70 801 ...	819
ECA 20-06	6	20.00	22.0	90	14	18	G 1/8	70 801 ...	820
ECA 22-06	6	22.00	21.6	110	14	18	G 1/8	70 801 ...	822
ECA 25-06	6	25.00	24.6	110	14	18	G 1/8	70 801 ...	825
ECA 1000-06	6	25.40	25.0	110	14	18	G 1/8	70 801 ...	826
ECA 16-08	8	16.00	22.0	75	14	18	G 1/8	70 801 ...	916
ECA 0750-08	8	19.05	22.0	100	14	18	G 1/8	70 801 ...	919
ECA 20-08	8	20.00	22.0	90	14	18	G 1/8	70 801 ...	920
ECA 22-08	8	22.00	21.6	110	14	18	G 1/8	70 801 ...	922
ECA 25-08	8	25.00	24.6	110	14	18	G 1/8	70 801 ...	925
ECA 1000-08	8	25.40	25.0	110	14	18	G 1/8	70 801 ...	926

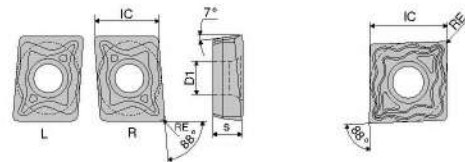


Spare parts

for Article no.	Article no.	£	10
70 801 716	M5X8 - DIN 913	1.36	13200
70 801 719	M5X8 - DIN 913	1.36	13200
70 801 720	M5X8 - DIN 913	1.36	13200
70 801 722	M5X8 - DIN 913	1.36	13200
70 801 725	M5x10 ISO 4026	2.71	867
70 801 726	M5x10 ISO 4026	2.71	867
70 801 816	M8x1x8 - SW4	2.71	123
70 801 819	M8x1x8 - SW4	2.71	123
70 801 820	M8x1x8 - SW4	2.71	123
70 801 822	M8x1x8 - SW4	2.71	123
70 801 825	M8x1x8 - SW4	2.71	123
70 801 826	M8x1x8 - SW4	2.71	123
70 801 916	M8x1x8 - SW4	2.71	123
70 801 919	M8x1x8 - SW4	2.71	123
70 801 920	M8x1x8 - SW4	2.71	123
70 801 922	M8x1x8 - SW4	2.71	123
70 801 925	M8x1x8 - SW4	2.71	123
70 801 926	M8x1x8 - SW4	2.71	123

XCNT / XCET

Designation	S	D1	IC
	mm	mm	mm
XC.T 0401..	1.80	2.10	4.5
XC.T 0502..	2.10	2.25	5.8
XC.T 0602..	2.38	2.50	6.5
XC.T 0703..	3.18	2.80	7.6
XC.T 0803..	3.18	3.40	8.5
XC.T 09T3..	3.97	3.40	9.6
XC.T 10T3..	3.97	4.40	10.6
XC.T 1304..	4.76	5.30	13.5
XC.T 1705..	5.56	5.30	17.5



XCNT / XCET



ISO	RE	XCNT		XCNT		XCNT		XCNT		XCET		XCET	
		Article no.	1D/19	Article no.	1D/19	Article no.	1D/19	Article no.	1D/19	Article no.	1D/19	Article no.	1D/19
	mm	£		£		£		£		£		£	
040102EL	0.2	14.07	720			14.07	820	14.07	920				
040102ER	0.2	14.07	722			14.07	822	14.07	922				
040102FL	0.2									15.75	620	16.37	120
040102FR	0.2									15.75	622	16.37	122
040104EL	0.4	14.07	700	14.68	750	14.07	800	14.07	900				
040104ER	0.4	14.07	702	14.68	752	14.07	802	14.07	902				
040104FL	0.4									15.75	600	16.37	100
040104FR	0.4									15.75	602	16.37	102
050202EN	0.2	14.07	723			14.07	823	14.07	923				
050202FN	0.2									15.75	623	16.37	123
050204EN	0.4	14.07	703	14.68	753	14.07	803	14.07	903				
050204FN	0.4									15.75	603	16.37	103
060202EN	0.2	14.07	724			14.07	824	14.07	924				
060202FN	0.2									15.75	624	16.37	124
060204EN	0.4	14.07	704	14.68	754	14.07	804	14.07	904				
060204FN	0.4									15.75	604	16.37	104
070304EN	0.4	14.07	705	14.68	755	14.07	805	14.07	905				
070304FN	0.4									15.75	605	16.37	105
080304EN	0.4	14.28	706	14.91	756	14.28	806	14.28	906				
080304FN	0.4									15.96	606	16.57	106
09T304EN	0.4	14.49	707	15.22	757	14.49	807	14.49	907				
09T304FN	0.4									16.05	607	16.68	107
10T304EN	0.4	15.22	708	15.85	758	15.22	808	15.22	908				
10T304FN	0.4									16.37	608	17.21	108
10T308EN	0.8	15.22	738	15.85	788	15.22	838	15.22	938				
10T308FN	0.8									16.37	628	17.21	128
130404EN	0.4	17.41	710	18.24	760	17.41	810	17.41	910				
130404FN	0.4									20.03	610	20.85	110
130408EN	0.8	17.41	740	18.24	790	17.41	840	17.41	940				
130408FN	0.8									20.03	611	20.85	111
170508EN	0.8	18.35	712	19.29	762	18.35	812	18.35	912				
170508FN	0.8									20.32	612	21.36	112

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	○
Non ferrous metals	○	●	○	●
Heat resistant alloys	●		●	●

EcoCut – Classic 1.5xD

▲ Drilling and turning tool

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver

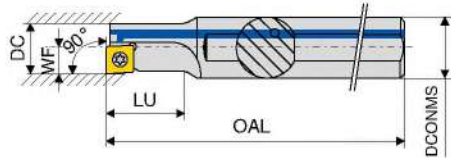


Diagram shows right hand version



Left-hand 2B/20 Right-hand 2B/20

Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	torque moment Nm	Insert	Article no.	
								70 805 ... £	70 804 ... £
ECC 08 L 1,5D 04	8	12	80	12.0	4.0	0,4	XC.T 0401..EL	144.64	008 2)
ECC 08 R 1,5D 04	8	12	80	12.0	4.0	0,4	XC.T 0401..ER		144.64 008 1)
ECC 10 R/L 1,5D 05	10	12	90	15.0	5.0	0,7	XC.T 0502..	144.64	010 144.64 010
ECC 12 R/L 1,5D 06	12	16	100	18.0	6.0	1,0	XC.T 0602..	147.00	012 147.00 012
ECC 14 R/L 1,5D 07	14	16	110	21.0	7.0	1,2	XC.T 0703..	150.55	014 150.55 014
ECC 16 R/L 1,5D 08	16	20	125	24.0	8.0	2,2	XC.T 0803..	152.91	016 152.91 016
ECC 18 R/L 1,5D 09	18	25	135	27.0	9.0	2,2	XC.T 09T3..	176.36	018 176.36 018
ECC 20 R/L 1,5D 10	20	25	150	30.0	10.0	3,2	XC.T 10T3..	198.82	020 198.82 020
ECC 25 R/L 1,5D 13	25	32	180	37.5	12.5	5,0	XC.T 1304..	229.27	025 229.27 025
ECC 32 R/L 1,5D 17	32	40	200	48.0	16.0	5,0	XC.T 1705..	259.91	032 259.91 032

- 1) Note! Right-hand insert on right-hand tool → Page 26
- 2) Note! Left-hand insert on left-hand tool → Page 26



Spare parts for Article no.	Article no. 80 950 ... £		Article no. 70 950 ... £	
	70 805 008	T06 - IP	13.68 123	M1,8x3,6 - IP
70 804 008	T06 - IP	13.68 123	M1,8x3,6 - IP	3.35 862
70 805 010 / 70 804 010	T06 - IP	13.68 123	M2x4,3 - IP	2.98 863
70 805 012 / 70 804 012	T07 - IP	13.49 124	M2,2x5 - IP	2.89 856
70 805 014 / 70 804 014	T08 - IP	13.49 125	M2,5x6 - IP	3.72 857
70 805 016 / 70 804 016	T09 - IP	14.77 126	M3x7 - IP	2.85 819
70 805 018 / 70 804 018	T09 - IP	14.77 126	M3x7 - IP	2.85 819
70 805 020 / 70 804 020	T15 - IP	15.77 128	M3,5x8,6 - IP	2.85 859
70 805 025 / 70 804 025	T20 - IP	16.56 129	M4,5x10,5 - IP	2.85 864
70 805 032 / 70 804 032	T20 - IP	16.56 129	M4,5x10,5 - IP	2.85 864

EcoCut – Classic 2.25xD

▲ Drilling and turning tool

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver

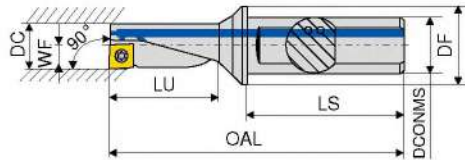


Diagram shows right hand version



Left-hand 2B/20 Right-hand 2B/20

Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LS mm	WF mm	torque moment Nm	Insert	Left-hand 2B/20		Right-hand 2B/20	
										Article no. 70 805 ... £	108 2)	Article no. 70 804 ... £	108 1)
ECC 08 L 2,25D 04	8	10	12	60.0	18.0	38	4.0	0,4	XC.T 0401..EL	215.18	108 2)		
ECC 08 R 2,25D 04	8	10	12	60.0	18.0	38	4.0	0,4	XC.T 0401..ER			215.18	108 1)
ECC 10 R/L 2,25D 05	10	12	16	69.5	22.5	42	5.0	0,7	XC.T 0502..	215.18	110	215.18	110
ECC 12 R/L 2,25D 06	12	16	20	78.0	27.0	45	6.0	1,0	XC.T 0602..	221.09	112	221.09	112
ECC 14 R/L 2,25D 07	14	16	20	83.5	31.5	45	7.0	1,2	XC.T 0703..	225.91	114	225.91	114
ECC 16 R/L 2,25D 08	16	20	25	94.0	36.0	50	8.0	2,2	XC.T 0803..	230.64	116	230.64	116
ECC 18 R/L 2,25D 09	18	25	32	109.5	40.5	56	9.0	2,2	XC.T 09T3..	254.09	118	254.09	118
ECC 20 R/L 2,25D 10	20	25	32	111.0	45.0	56	10.0	3,2	XC.T 10T3..	276.55	120	276.55	120
ECC 25 R/L 2,25D 13	25	32	40	129.0	56.5	60	12.5	5,0	XC.T 1304..	321.09	125	321.09	125
ECC 32 R/L 2,25D 17	32	40	50	158.0	72.0	70	16.0	5,0	XC.T 1705..	361.00	132	361.00	132

1) Note! Right-hand insert on right-hand tool → Page 26

2) Note! Left-hand insert on left-hand tool → Page 26

Spare parts

for Article no.

		Article no. 80 950 ... £		Article no. 70 950 ... £	
70 805 108	T06 - IP	13.68	123	M1,8x3,6 - IP	3.35 862
70 804 108	T06 - IP	13.68	123	M1,8x3,6 - IP	3.35 862
70 805 110 / 70 804 110	T06 - IP	13.68	123	M2x4,3 - IP	2.98 863
70 805 112 / 70 804 112	T07 - IP	13.49	124	M2,2x5 - IP	2.89 856
70 805 114 / 70 804 114	T08 - IP	13.49	125	M2,5x6 - IP	3.72 857
70 805 116 / 70 804 116	T09 - IP	14.77	126	M3x7 - IP	2.85 819
70 805 118 / 70 804 118	T09 - IP	14.77	126	M3x7 - IP	2.85 819
70 805 120 / 70 804 120	T15 - IP	15.77	128	M3,5x8,6 - IP	2.85 859
70 805 125 / 70 804 125	T20 - IP	16.56	129	M4,5x10,5 - IP	2.85 864
70 805 132 / 70 804 132	T20 - IP	16.56	129	M4,5x10,5 - IP	2.85 864



i The EcoCut Classic 2.25xD is also available as a Monoblock HSK-T version. See → Chapter 16, Adapters.

EcoCut – Classic 3xD – Heavy metal

- ▲ Drilling and turning tool
- ▲ vibration-damped

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver

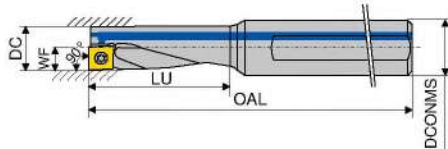


Diagram shows right hand version



Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	torque moment Nm	Insert	Left-hand 2B/20		Right-hand 2B/20	
								Article no. 70 805 ... £	608 2)	Article no. 70 804 ... £	608 1)
ECC 08 L 3,00D 04 H	8	12	80	24	4.0	0,4	XC.T 0401..EL	530.64	608 2)		
ECC 08 R 3,00D 04 H	8	12	80	24	4.0	0,4	XC.T 0401..ER			530.64	608 1)
ECC 10 R/L 3,00D 05 H	10	12	85	30	5.0	0,7	XC.T 0502..	533.00	610	533.00	610
ECC 12 R/L 3,00D 06 H	12	16	95	36	6.0	1,0	XC.T 0602..	575.27	612	575.27	612
ECC 14 R/L 3,00D 07 H	14	16	100	42	7.0	1,2	XC.T 0703..	588.64	614	588.64	614
ECC 16 R/L 3,00D 08 H	16	20	110	48	8.0	2,2	XC.T 0803..	645.45	616	645.45	616
ECC 18 R/L 3,00D 09 H	18	25	125	54	9.0	2,2	XC.T 09T3..	781.36	618	781.36	618
ECC 20 R/L 3,00D 10 H	20	25	130	60	10.0	3,2	XC.T 10T3..	797.18	620	797.18	620
ECC 25 R/L 3,00D 13 H	25	32	150	75	12.5	5,0	XC.T 1304..	1,015.45	625	1,015.45	625
ECC 32 R/L 3,00D 17 H	32	40	185	96	16.0	5,0	XC.T 1705..	1,329.09	632	1,329.09	632

- 1) Note! Right-hand insert on right-hand tool → Page 26
- 2) Note! Left-hand insert on left-hand tool → Page 26

10

Spare parts

for Article no.

		Article no. 80 950 ... £		Article no. 70 950 ... £	
70 805 608	T06 - IP	13.68	123	M1,8x3,6 - IP	3.35 862
70 804 608	T06 - IP	13.68	123	M1,8x3,6 - IP	3.35 862
70 805 610 / 70 804 610	T06 - IP	13.68	123	M2x4,3 - IP	2.98 863
70 805 612 / 70 804 612	T07 - IP	13.49	124	M2,2x5 - IP	2.89 856
70 805 614 / 70 804 614	T08 - IP	13.49	125	M2,5x6 - IP	3.72 857
70 805 616 / 70 804 616	T09 - IP	14.77	126	M3x7 - IP	2.85 819
70 805 618 / 70 804 618	T09 - IP	14.77	126	M3x7 - IP	2.85 819
70 805 620 / 70 804 620	T15 - IP	15.77	128	M3,5x8,6 - IP	2.85 859
70 805 625 / 70 804 625	T20 - IP	16.56	129	M4,5x10,5 - IP	2.85 864
70 805 632 / 70 804 632	T20 - IP	16.56	129	M4,5x10,5 - IP	2.85 864



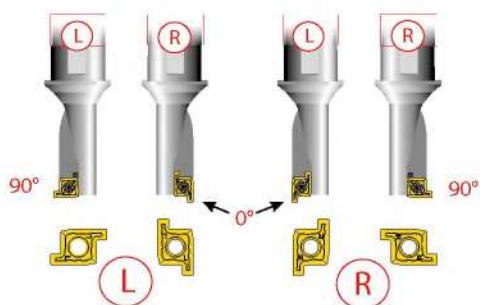
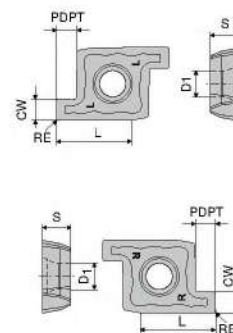
Key D



Clamping screw

PM-R / PM-L

Designation	CW	PDPT	L	S	D1
	mm	mm	mm	mm	mm
PM 10 G 201504	2.0	1.5	5.0	2.10	2.1
PM 12 G 201804	2.0	1.8	6.0	2.30	2.5
PM 16 G 252004	2.5	2.0	8.0	2.80	3.4
PM 20 G 302504	3.0	2.5	10.0	3.70	4.0
PM 25 G 353004	3.5	3.0	12.5	4.50	4.4
PM 32 G 404004	4.0	4.0	16.0	5.60	6.0



PM-R / PM-L



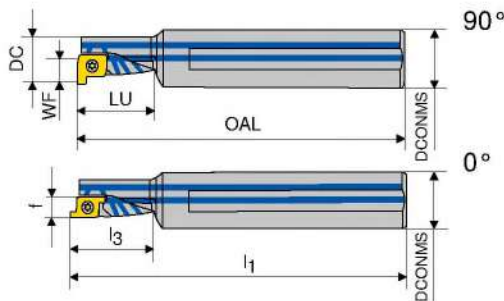
ISO	RE	PM-R		PM-L	
		1F/P2	Article no.	1F/P2	Article no.
	mm		70 289 ...		70 289 ...
		£		£	
PM 10 G 201504	0.4	15.15	511	15.15	510
PM 12 G 201804	0.4	15.27	516	15.27	515
PM 16 G 252004	0.4	15.45	521	15.45	520
PM 20 G 302504	0.4	16.17	526	16.17	525
PM 25 G 353004	0.4	18.00	531	18.00	530
PM 32 G 404004	0.4	19.43	536	19.43	535
Steel		●		●	
Stainless steel		●		●	
Cast iron		○		○	
Non ferrous metals		○		○	
Heat resistant alloys		●		●	

EcoCut – ProfileMaster 1.5xD

▲ Drilling, turning and grooving tool

Scope of supply:

Toolholder with one clamping screw and one screwdriver



Diagrams show right hand versions



Designation	DC	DCONMS	OAL	LU	WF	l ₁ (0°)	l ₃ (0°)	f (0°)	torque moment Nm	Insert	Left-hand 2G/P1		Right-hand 2G/P1	
											Article no. 70 821 ...	£	Article no. 70 820 ...	£
PMC 10 R/L 1,5D	10	12	80	15.0	5.0				0,4	PM 10R/L	155.91	010 ¹⁾	155.91	010 ¹⁾
PMC 12 R/L 1,5D	12	16	90	18.0	6.0				1,0	PM 12R/L	161.64	012 ¹⁾	161.64	012 ¹⁾
PMC 16 R/L 1,5D	16	20	125	24.0	8.0	127.3	26.3	5.7	2,2	PM 16R/L	171.00	016	171.00	016
PMC 20 R/L 1,5D	20	25	150	30.0	10.0	152.8	32.8	7.2	2,2	PM 20R/L	211.00	020	211.00	020
PMC 25 R/L 1,5D	25	32	180	37.5	12.5	183.3	40.8	9.2	3,2	PM 25R/L	239.82	025	239.82	025
PMC 32 R/L 1,5D	32	40	200	48.0	16.0	204.3	52.3	11.7	5,0	PM 32R/L	274.27	032	274.27	032

1) only usable as 90° version



Spare parts

for Article no.

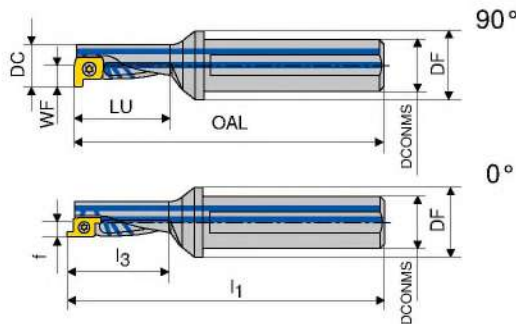
		Article no. 80 950 ...	£		Article no. 70 950 ...	£
70 820 010 / 70 821 010	T06 - IP	13.68	123	M1,8x3,6 - IP	3.35	862
70 820 012 / 70 821 012	T07 - IP	13.49	124	M2,2x4,2 - IP	2.89	137
70 820 016 / 70 821 016	T09 - IP	14.77	126	M3x5,7 - IP	2.85	008
70 820 020 / 70 821 020	T15 - IP	15.77	128	M3x5,7 - IP	2.85	009
70 820 025 / 70 821 025	T15 - IP	15.77	128	M3,5x8,6 - IP	2.85	859
70 820 032 / 70 821 032	T20 - IP	16.56	129	M5x10,8 - IP	7.42	010

EcoCut – ProfileMaster 2.25xD

▲ Drilling, turning and grooving tool

Scope of supply:

Toolholder with one clamping screw and one screwdriver

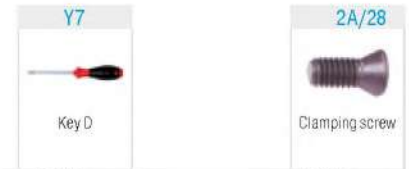


Diagrams show right hand versions



Designation	DC	DCONMS	DF	OAL	LU	WF				torque moment Nm	Insert	Left-hand	Right-hand		
							l_1 (0°)	l_3 (0°)	f (0°)			2G/P1 Article no. 70 821 ...	2G/P1 Article no. 70 820 ...		
												£	£		
PMC 10 R/L 2,25D	10	12	18	72.4	22.5	5.0				0,4	PM 10R/L	229.36	110 ¹⁾	229.36	110 ¹⁾
PMC 12 R/L 2,25D	12	16	22	78.0	27.0	6.0				1,0	PM 12R/L	234.18	112 ¹⁾	234.18	112 ¹⁾
PMC 16 R/L 2,25D	16	20	28	96.5	36.0	8.0	98.8	38.3	5.7	2,2	PM 16R/L	246.73	116	246.73	116
PMC 20 R/L 2,25D	20	25	35	111.0	45.0	10.0	113.8	47.8	7.2	2,2	PM 20R/L	294.82	120	294.82	120
PMC 25 R/L 2,25D	25	32	44	132.6	56.3	12.5	135.9	59.6	9.2	3,2	PM 25R/L	338.55	125	338.55	125
PMC 32 R/L 2,25D	32	40	54	158.0	72.0	16.0	162.3	76.3	11.7	5,0	PM 32R/L	379.82	132	379.82	132

1) only usable as 90° version



Spare parts

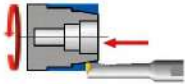
for Article no.

		Article no. 80 950 ...	£		Article no. 70 950 ...	£
70 820 110 / 70 821 110	T06 - IP	13.68	123	M1,8x3,6 - IP	3.35	862
70 820 112 / 70 821 112	T07 - IP	13.49	124	M2,2x4,2 - IP	2.89	137
70 820 116 / 70 821 116	T09 - IP	14.77	126	M3x5,7 - IP	2.85	008
70 820 120 / 70 821 120	T15 - IP	15.77	128	M3x5,7 - IP	2.85	009
70 820 125 / 70 821 125	T15 - IP	15.77	128	M3,5x8,6 - IP	2.85	859
70 820 132 / 70 821 132	T20 - IP	16.56	129	M5x10,8 - IP	7.42	010

Depth of cut and feed rate for EcoCut Mini

Turning

2.25xD



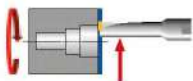
EcoCut Mini Size	Depth of cut a_p in mm										
	0,25	0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0	
Feed rate f in mm/rev.											
ECM 02..	0,02-0,07	0,02-0,07									
ECM 02,5..	0,02-0,07	0,02-0,07	0,02-0,05								
ECM 03..	0,02-0,07	0,02-0,07	0,02-0,05	0,02-0,05							
ECM 03,5..	0,02-0,07	0,02-0,07	0,02-0,05	0,02-0,05	0,02-0,05						
ECM 04..	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,03-0,07	0,01-0,05					
ECM 05..	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,03-0,08	0,02-0,06	0,01-0,04				
ECM 06..	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,03-0,08	0,02-0,06	0,01-0,04			
ECM 07..	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,03-0,08	0,02-0,06	0,01-0,04		
ECM 08..	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,03-0,08	0,02-0,06	0,01-0,04	

4xD

EcoCut Mini Size	Depth of cut a_p in mm										
	0,25	0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0	
Feed rate f in mm/rev.											
ECM 02..	0,02-0,05	0,01-0,05									
ECM 02,5..	0,02-0,05	0,01-0,05									
ECM 03..	0,02-0,05	0,02-0,05	0,01-0,05								
ECM 03,5..	0,02-0,05	0,02-0,05	0,02-0,05	0,01-0,05							
ECM 04..	0,04-0,1	0,04-0,1	0,04-0,1	0,03-0,08	0,01-0,05						
ECM 05..	0,04-0,1	0,04-0,1	0,04-0,1	0,03-0,085	0,02-0,06	0,01-0,04					
ECM 06..	0,04-0,1	0,04-0,1	0,04-0,1	0,03-0,085	0,02-0,06	0,01-0,04					
ECM 07..	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,03-0,08	0,02-0,06	0,01-0,04				
ECM 08..	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,095	0,03-0,8	0,02-0,06	0,01-0,04			

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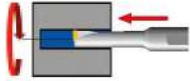
Face turning



EcoCut Mini Size	2,25xD		4xD	
	$a_{p\max}$ in mm	f in mm/rev.	$a_{p\max}$ in mm	f in mm/rev.
ECM 02..	0,30	0,01-0,05	0,30	0,01-0,03
ECM 02,5..	0,30	0,01-0,05	0,30	0,01-0,03
ECM 03..	0,50	0,01-0,06	0,50	0,01-0,04
ECM 03,5..	0,50	0,01-0,06	0,50	0,01-0,04
ECM 04..	0,70	0,03-0,07	0,70	0,02-0,05
ECM 05..	0,70	0,03-0,07	0,70	0,02-0,05
ECM 06..	0,70	0,03-0,07	0,70	0,02-0,05
ECM 07..	1,00	0,04-0,08	1,00	0,03-0,06
ECM 08..	1,00	0,04-0,08	1,00	0,03-0,06

Depth of cut and feed rate for EcoCut Mini

Drilling
Feed rate



EcoCut Mini Size	2,25xD	4xD
	f in mm/rev.	f in mm/rev.
ECM 02..	0,0025-0,0075	0,0025-0,005
ECM 02,5..	0,0025-0,010	0,0025-0,005
ECM 03..	0,0025-0,0125	0,0025-0,010
ECM 03,5..	0,0025-0,0150	0,0025-0,010
ECM 04..	0,005-0,030	0,005-0,0125
ECM 05..	0,005-0,030	0,005-0,015
ECM 06..	0,005-0,030	0,005-0,020
ECM 07..	0,005-0,035	0,005-0,025
ECM 08..	0,005-0,040	0,005-0,030

max. bore depth

EcoCut Mini Size	2,25xD	4xD
	Max. hole depth in mm	Max. hole depth in mm
ECM 02..	4,50	8,0
ECM 02,5..	5,63	10,0
ECM 03..	6,75	12,0
ECM 03,5..	7,88	14,0
ECM 04..	9,0	16,0
ECM 05..	11,25	20,0
ECM 06..	13,5	24,0
ECM 07..	15,75	28,0
ECM 08..	18,0	32,0

Depth of cut and feed rate for EcoCut Classic

Turning

1.5xD



EcoCut Classic Size	Depth of cut a_p in mm											
	1	2	3	4	5	6	7	8	9	10	12	14
	Feed rate f in mm/rev.											
ECC 08	0,06-0,12	0,06-0,12	0,04-0,10	0,02-0,08								
ECC 10	0,07-0,15	0,07-0,15	0,05-0,13	0,04-0,11	0,02-0,09							
ECC 12	0,08-0,16	0,08-0,16	0,08-0,16	0,06-0,14	0,04-0,12	0,02-0,10						
ECC 14	0,09-0,18	0,09-0,18	0,09-0,18	0,09-0,18	0,07-0,16	0,05-0,14	0,02-0,11					
ECC 16	0,10-0,20	0,10-0,20	0,10-0,20	0,10-0,20	0,08-0,18	0,06-0,16	0,04-0,14	0,02-0,12				
ECC 18	0,11-0,22	0,11-0,22	0,11-0,22	0,11-0,22	0,11-0,22	0,09-0,20	0,07-0,18	0,05-0,16	0,03-0,13			
ECC 20	0,12-0,24	0,12-0,24	0,12-0,24	0,12-0,24	0,12-0,24	0,11-0,23	0,09-0,21	0,07-0,19	0,05-0,17	0,03-0,15		
ECC 25	0,13-0,26	0,13-0,26	0,13-0,26	0,13-0,26	0,13-0,26	0,13-0,26	0,13-0,26	0,11-0,24	0,09-0,22	0,07-0,20	0,03-0,16	
ECC 32	0,15-0,30	0,15-0,30	0,15-0,30	0,15-0,30	0,15-0,30	0,14-0,30	0,15-0,30	0,15-0,30	0,13-0,28	0,11-0,26	0,07-0,22	0,03-0,18

i Feed f may be increased by 50-75 % when using M50Q and ALQ.

2.25xD

EcoCut Classic Size	Depth of cut a_p in mm										
	1,0	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	7,0
	Feed rate f in mm/rev.										
ECC 08	0,06-0,12	0,04-0,10	0,02-0,08								
ECC 10	0,07-0,15	0,05-0,13	0,03-0,11	0,02-0,09							
ECC 12	0,08-0,16	0,08-0,16	0,06-0,14	0,04-0,12	0,02-0,10						
ECC 14	0,09-0,18	0,09-0,18	0,07-0,16	0,05-0,14	0,04-0,13	0,02-0,11					
ECC 16	0,10-0,20	0,10-0,20	0,09-0,19	0,07-0,17	0,05-0,15	0,03-0,13					
ECC 18	0,11-0,22	0,11-0,22	0,11-0,22	0,09-0,20	0,07-0,18	0,05-0,16	0,03-0,14				
ECC 20	0,12-0,24	0,12-0,24	0,12-0,24	0,12-0,24	0,10-0,22	0,08-0,20	0,06-0,18	0,04-0,16			
ECC 25	0,13-0,26	0,13-0,26	0,13-0,26	0,13-0,26	0,13-0,26	0,12-0,25	0,10-0,23	0,08-0,21	0,06-0,19	0,04-0,17	
ECC 32	0,15-0,30	0,15-0,30	0,15-0,30	0,15-0,30	0,15-0,30	0,15-0,30	0,14-0,29	0,12-0,27	0,10-0,25	0,08-0,23	0,05-0,20

i Feed f may be increased by 50-75 % when using M50Q and ALQ.

3xD

EcoCut Classic Size	Depth of cut a_p in mm								
	1,0	2,0	2,5	3,0	3,5	4,0	5,0	6,0	7,0
	Feed rate f in mm/rev.								
ECC 08	0,05-0,10	0,02-0,06							
ECC 10	0,06-0,11	0,03-0,07							
ECC 12	0,06-0,12	0,04-0,10	0,02-0,08						
ECC 14	0,07-0,13	0,05-0,11	0,02-0,09						
ECC 16	0,07-0,15	0,06-0,14	0,04-0,12	0,02-0,09					
ECC 18	0,08-0,16	0,08-0,16	0,06-0,14	0,04-0,12					
ECC 20	0,09-0,18	0,09-0,18	0,09-0,18	0,07-0,16	0,05-0,14	0,03-0,12			
ECC 25	0,10-0,19	0,10-0,19	0,10-0,19	0,08-0,17	0,06-0,15	0,03-0,13			
ECC 32	0,11-0,22	0,11-0,22	0,11-0,22	0,11-0,22	0,09-0,20	0,07-0,18	0,03-0,14		

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Depth of cut and feed rate for EcoCut Classic

Face turning



EcoCut Classic Size	1,5xD		2,25xD		3xD	
	a _p in mm	f in mm/rev.	a _p in mm	f in mm/rev.	a _p in mm	f in mm/rev.
ECC 08	2,00	0,05-0,10	1,90	0,04-0,09	1,10	0,04-0,07
ECC 10	2,50	0,06-0,12	2,20	0,05-0,10	1,20	0,04-0,09
ECC 12	3,00	0,07-0,14	2,60	0,06-0,12	1,40	0,05-0,11
ECC 14	3,50	0,08-0,16	3,00	0,07-0,14	1,60	0,06-0,12
ECC 16	4,00	0,09-0,18	3,40	0,08-0,16	1,90	0,06-0,13
ECC 18	4,50	0,10-0,20	3,80	0,09-0,18	2,00	0,07-0,14
ECC 20	5,00	0,11-0,22	4,20	0,10-0,20	2,20	0,08-0,15
ECC 25	6,00	0,12-0,24	5,00	0,11-0,22	2,60	0,09-0,18
ECC 32	8,00	0,13-0,27	6,00	0,12-0,25	3,00	0,10-0,20

Drilling

Feed rate



EcoCut Classic Size	1,5xD	2,25xD	3xD
	f in mm/rev.	f in mm/rev.	f in mm/rev.
ECC 08	0,01-0,04	0,01-0,04	0,01-0,02
ECC 10	0,01-0,05	0,01-0,05	0,01-0,03
ECC 12	0,01-0,05	0,01-0,05	0,01-0,04
ECC 14	0,01-0,07	0,01-0,07	0,01-0,05
ECC 16	0,02-0,08	0,02-0,08	0,02-0,06
ECC 18	0,03-0,09	0,03-0,09	0,03-0,07
ECC 20	0,03-0,10	0,03-0,10	0,03-0,08
ECC 25	0,03-0,12	0,03-0,12	0,04-0,09
ECC 32	0,05-0,15	0,05-0,15	0,05-0,11

max. bore depth

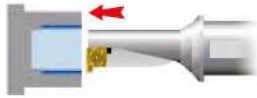


EcoCut Classic Size	1,5xD	2,25xD	3xD
	Max. hole depth in mm	Max. hole depth in mm	Max. hole depth in mm
ECC 08	12,0	18,0	24,0
ECC 10	15,0	22,5	30,0
ECC 12	18,0	27,0	36,0
ECC 14	21,0	31,5	42,0
ECC 16	24,0	36,0	48,0
ECC 18	27,0	40,5	54,0
ECC 20	30,0	45,0	60,0
ECC 25	37,5	56,5	75,0
ECC 32	48,0	72,0	96,0

Depth of cut and feed rate for EcoCut ProfileMaster 90°

Turning

1,5xD



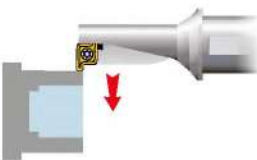
EcoCut ProfileMaster Size	Depth of cut a_p in mm							
	1	2	3	4	5	6	7	8
	Feed rate f in mm/rev.							
PMC 10	0,07-0,20	0,05-0,17	0,02-0,12					
PMC 12	0,07-0,20	0,05-0,17	0,02-0,12					
PMC 16	0,10-0,25	0,07-0,23	0,05-0,21	0,02-0,17				
PMC 20	0,12-0,27	0,10-0,26	0,007-0,24	0,05-0,20	0,02-0,14			
PMC 25	0,15-0,30	0,15-0,30	0,13-0,28	0,10-0,26	0,05-0,22	0,02-0,18		
PMC 32	0,15-0,30	0,15-0,30	0,15-0,30	0,15-0,30	0,10-0,27	0,07-0,24	0,05-0,21	0,02-0,15

2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm							
	1	2	3	4	5	6	7	8
	Feed rate f in mm/rev.							
PMC 10	0,07-0,19	0,02-0,13						
PMC 12	0,07-0,19	0,02-0,13						
PMC 16	0,10-0,25	0,07-0,21	0,02-0,13					
PMC 20	0,12-0,27	0,07-0,24	0,05-0,19					
PMC 25	0,15-0,30	0,10-0,27	0,07-0,23	0,02-0,15				
PMC 32	0,15-0,30	0,15-0,30	0,10-0,27	0,07-0,23	0,02-0,15			

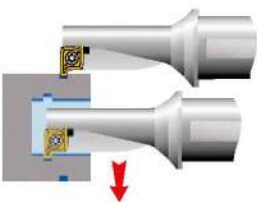
Face turning

1.5xD and 2.25xD



EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
PMC 10	0,02-0,15	0,02-0,15				
PMC 12	0,02-0,15	0,02-0,15				
PMC 16	0,05-0,20	0,05-0,20	0,05-0,20			
PMC 20	0,08-0,22	0,08-0,22	0,08-0,22	0,08-0,22		
PMC 25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25	
PMC 32	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25

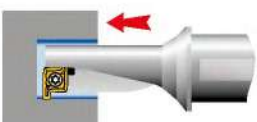
Internal + external – radial grooving



EcoCut ProfileMaster Size	1,5xD	EcoCut ProfileMaster Size	2,25xD
	f in mm/rev.		f in mm/rev.
PMC 10	0,01-0,08	PMC 10	0,01-0,08
PMC 12	0,02-0,10	PMC 12	0,02-0,10
PMC 16	0,04-0,15	PMC 16	0,04-0,15
PMC 20	0,04-0,16	PMC 20	0,04-0,16
PMC 25	0,07-0,20	PMC 25	0,07-0,20
PMC 32	0,08-0,22	PMC 32	0,08-0,22

Drilling

Feed and max. hole depth



EcoCut ProfileMaster Size	1,5xD		EcoCut ProfileMaster Size	2,25xD	
	f in mm/rev.	Max. hole depth in mm		f in mm/rev.	Max. hole depth in mm
PMC 10	0,01-0,05	15,0	PMC 10	0,01-0,05	22,5
PMC 12	0,01-0,06	18,0	PMC 12	0,01-0,06	27,0
PMC 16	0,02-0,09	24,0	PMC 16	0,02-0,09	36,0
PMC 20	0,03-0,10	30,0	PMC 20	0,03-0,10	45,0
PMC 25	0,04-0,12	37,5	PMC 25	0,04-0,12	56,3
PMC 32	0,04-0,14	48,0	PMC 32	0,04-0,14	72,0

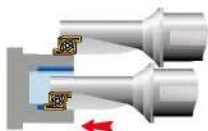
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Depth of cut and feed rate for EcoCut ProfileMaster 0°

i EcoCut ProfileMaster Sizes 10 and 12 can not be used as 0° version.

Turning

1,5xD



EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
PMC 16	0,04-0,20	0,04-0,20	0,04-0,20			
PMC 20	0,06-0,22	0,06-0,22	0,06-0,22	0,06-0,22		
PMC 25	0,08-0,25	0,08-0,25	0,08-0,25	0,08-0,25	0,08-0,25	
PMC 32	0,10-0,28	0,10-0,28	0,10-0,28	0,10-0,28	0,10-0,28	0,10-0,28

2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
PMC 16	0,04-0,20	0,04-0,20	0,04-0,20			
PMC 20	0,06-0,22	0,06-0,22	0,06-0,22	0,06-0,22		
PMC 25	0,08-0,25	0,08-0,25	0,08-0,25	0,08-0,25	0,08-0,25	
PMC 32	0,10-0,28	0,10-0,28	0,10-0,28	0,10-0,28	0,10-0,28	0,10-0,28

Face turning

1,5xD

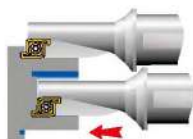


EcoCut ProfileMaster Size	Depth of cut a_p in mm						
	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.						
PMC 16	0,05-0,20	0,05-0,20	0,05-0,20				
PMC 20	0,05-0,20	0,05-0,20	0,05-0,20	0,05-0,20			
PMC 25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25		
PMC 32	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25

2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm						
	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.						
PMC 16	0,05-0,20	0,05-0,20	0,05-0,20				
PMC 20	0,05-0,20	0,05-0,20	0,05-0,20	0,05-0,20			
PMC 25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25		
PMC 32	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25

Axial grooving external + internal



EcoCut ProfileMaster Size	1,5xD
	Feed rate f in mm/rev.
PMC 16	0,02-0,12
PMC 20	0,04-0,14
PMC 25	0,06-0,18
PMC 32	0,08-0,20

EcoCut ProfileMaster Size	2,25xD
	Feed rate f in mm/rev.
PMC 16	0,02-0,12
PMC 20	0,04-0,14
PMC 25	0,06-0,18
PMC 32	0,08-0,20

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	< 1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100-350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300-500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300-500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500-900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270-450 N/mm²	0.8036	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500-650 N/mm²	0.8056	GTW-55	0.8066	GTW-65		
	3.7	Black malleable cast iron	300-450 N/mm²	0.8136	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500-800 N/mm²	0.8156	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5-10 % Si	< 400 N/mm²	3.2315	A-8 S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10-15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18		A-S17 U4		
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cu2 (Beryllium Copper)	2.0855	Cu2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-A11 Fe5 Ni5		Ampco 18 (Cu-A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe- Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30 Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 CS 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4802	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46-55 HRC						
	6.3	Tempered steel	56-60 HRC						
	6.4		61-65 HRC						
	6.5		65-70 HRC						

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Cutting data approximate values

	EcoCut Mini CTWN425 (CWK4425)	EcoCut Mini CTPP435 (HCN1435)	EcoCut Classic CTCP425 (HCR1425)	EcoCut Classic CTCP435 (HCR1435)	EcoCut Classic CTPP430 (HCN2430)	EcoCut Classic H210T (CWK20)	EcoCut Classic H216T (CWK26)	EcoCut ProfileMaster CTPP430 (HCN 2430)
Index	v _c in m/min							
1.1		80-160	120-250	120-240	120-220			120-220
1.2		80-230	150-300	150-300	120-250			120-250
1.3		80-230	120-220	120-220	80-180			80-180
1.4		80-230	100-200	100-180	60-160			60-160
1.5		60-130	120-220	110-200	80-180			80-180
1.6		60-120	100-180	100-180	60-160			60-160
1.7		60-120	120-200	100-180	80-180			80-180
1.8		50-100	80-150	70-140	60-130			60-130
1.9		60-120	110-190	80-150	80-180			80-180
1.10		50-150	100-180	100-180	60-170			60-170
1.11		50-150	80-150	50-150	80-150			80-150
1.12		80-140	90-150	80-150	60-150			60-150
1.13		60-120	70-150	60-140	60-150			60-150
1.14								
1.15		50-150	80-150	80-150	60-150			60-150
1.16		50-150	80-150	80-150	60-150			60-150
2.1		50-200	100-200	100-180	50-160			50-160
2.2		50-180	120-220	100-200	50-180			50-180
2.3		50-180	120-200	100-200	50-150			50-150
2.4		50-180	100-200	100-180	50-160			50-160
2.5		50-100			50-130			50-130
2.6		50-80			50-120			50-120
2.7		50-80			50-120			50-120
3.1	100-150	100-170	130-280	120-250	120-200	140-200	100-150	120-200
3.2	100-150	100-170	130-280	120-250	100-180	100-160	100-150	100-180
3.3	100-140	100-160	120-280	110-250	120-200	160-200	100-140	120-200
3.4	100-140	100-160	120-280	110-250	100-180	110-150	100-140	100-180
3.5	100-160	100-180	110-280	100-250	90-160	160-220	100-160	90-160
3.6	100-160	100-170	110-280	100-250	70-150	140-180	100-160	70-150
3.7	100-160	100-170	110-280	100-250	90-160	160-220	100-160	90-160
3.8	100-160	100-170	110-280	100-250	70-150	140-180	100-160	70-150
4.1	100-2000				100-2000	300-3000	100-500	100-2000
4.2	100-1500				100-1500	200-2500	100-500	100-1500
4.3	100-1500				100-1500	400-2000	100-300	100-1500
4.4	100-1300				100-1300	200-1000	100-300	100-1300
4.5	100-600				100-600	250-800	100-300	100-600
4.6	100-300				100-300	150-400	100-300	100-300
4.7	100-500				100-500	200-400	100-500	100-500
4.8	100-500				100-500	150-400	100-300	100-500
4.9	100-500				100-500	150-400	100-300	100-500
4.10	100-500				100-500	150-400	100-300	100-500
4.11	100-500				100-500	200-800	100-500	100-500
4.12	100-290				100-290	150-600	100-300	100-290
4.13	90-200				90-200	150-280	120-200	90-200
4.14	60-160				60-160	100-220	80-180	60-160
4.15	50-140				50-140	80-200	60-150	50-140
4.16								
4.17								
4.18								
4.19								
5.1		20-50			20-90	30-50		20-90
5.2		15-25			20-90	15-30		20-90
5.3		15-25			20-80	15-25		20-80
5.4		10-20			20-80	15-25		20-80
5.5		10-20			20-80	15-25		20-80
5.6		10-20			20-90	15-30		20-90
5.7		10-20			20-80	15-25		20-80
5.8		10-20			20-80	15-25		20-80
5.9		50-120			40-100	80-140		40-100
5.10		30-50			30-90	40-100		30-90
5.11		30-50				30-60		
6.1	i The cutting data depends largely on the external conditions, e.g. stability of the tools and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.							
6.2								
6.3								
6.4								
6.5								

Chip Breakers Overview

EcoCut Classic

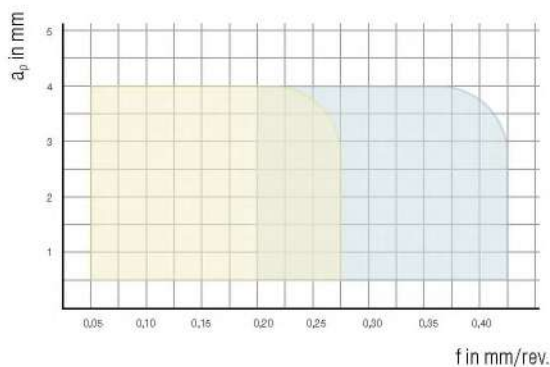
Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration	
				f mm	
-EN ▲ Universal geometry ▲ Excellent chip breakage ▲ Positive cutting edge ▲ Low to medium feeds		CTCP425 (HCR1425)	CTCP435 (HCR1435)	CTPP430 (HCN2430)	
		CTCP435 (HCR1435)	CTPP430 (HCN2430)	CTPP430 (HCN2430)	
		CTCP425 (HCR1425)	CTCP435 (HCR1435)		
		CTPP430 (HCN2430)	CTPP430 (HCN2430)	CTPP430 (HCN2430)	
0,05-0,75					
-M50Q ▲ With wiper geometry ▲ Excellent surface qualities ▲ Good chip formation ▲ Medium to high feeds		CTCP425 (HCR1425)	CTCP425 (HCR1425)		
		CTCP425 (HCR1425)			
		CTCP425 (HCR1425)	CTCP425 (HCR1425)		
0,2-0,425					
-27P ▲ Positive cutting edge ▲ Periphery ground ▲ Polished rake face ▲ First choice for non-ferrous metals					
		H216T (CWK 26)	H216T (CWK 26)	H216T (CWK 26)	
0,1-0,4					
-ALQ ▲ With wiper geometry ▲ Extremely positive geometry ▲ Periphery ground ▲ Low adhesion					
		H210T (CWK 20)	H210T (CWK 20)		
0,2-0,5					

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EcoCut ProfileMaster

-M20 ▲ Positive geometry ▲ Universal application ▲ Low to medium feeds		CTPP430 (HCN2430)	CTPP430 (HCN2430)	CTPP430 (HCN2430)	
		CTPP430 (HCN2430)	CTPP430 (HCN2430)	CTPP430 (HCN2430)	
		CTPP430 (HCN2430)	CTPP430 (HCN2430)	CTPP430 (HCN2430)	
		CTPP430 (HCN2430)	CTPP430 (HCN2430)	CTPP430 (HCN2430)	
		CTPP430 (HCN2430)	CTPP430 (HCN2430)		
0,05-0,25					

Application area of -EN and -M50Q chip breakers



EcoCut Classic 2.25xD – ECC16 – XCNT 080304

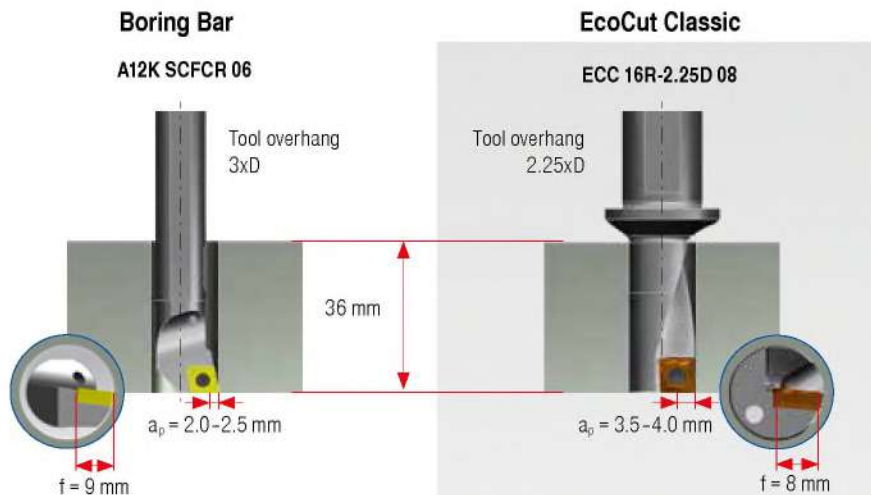
- = -M50Q
- = Standard

EcoCut Classic – Application as the most stable boring tool

EcoCut can be used not only as a multifunctional tool. In comparison with a boring bar EcoCut used as a pure boring tool gives the user enormous benefits.

Example: Machining bores, 16 mm diameter by 36 mm depth

Differences in the tool



Your Advantages

Large, stable toolholder

- ▲ Absorption of high cutting forces
- ▲ Low vibration
- ▲ Chip Booster for perfect cooling and chip evacuation

Benefits

- ▲ High surface quality
- ▲ Perfect chip control
- ▲ Max. process security

Differences in the insert



Large and stable insert

- ▲ Increased process security
- ▲ Enables large depths of cut
- ▲ Higher cutting data
- ▲ Higher tool life

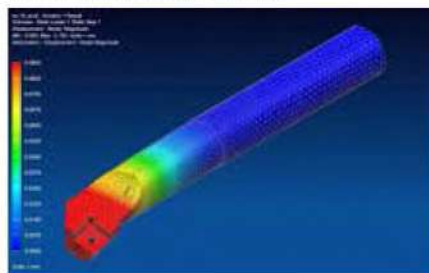
Benefits

- ▲ Reduction in machining time
- ▲ Increased productivity
- ▲ Reduced tooling costs

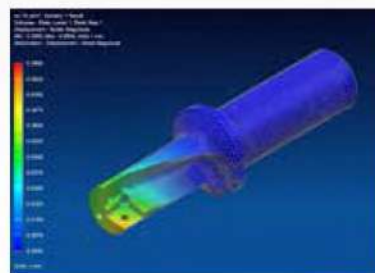
Stability Comparison

Calculation using FEM

A load of 1000 N on the insert seat corresponds to an approx. a_p of 2.0 mm and f 0.2 mm



Deflection 0.19mm



Deflection 0.08mm

Practical experience shows:

- ▲ Reduced machining time by up to **75 %**
- ▲ Increase in tool life by **400 %** possible

Innovative chip removal – Chip-Booster



EcoCut tools are equipped with a unique coolant and chip removal system.

- ① Cooling of the indexable insert
- ② General coolant stream

- ③ Chip booster for improved chip transport
- ④ Chip booster prevents chips from getting stuck between tool and workpiece

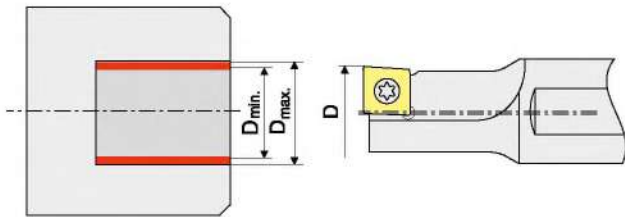
i For maximum chip transport efficiency when drilling, coolant pressure must be 3–6 bar minimum (optimal 7–10 bar).

Application Tips

Drilling Off centre

Due to the special construction of the EcoCut tool and insert, off-centre drilling is possible.

Deviations from the tool nominal \emptyset , can be achieved (see adjacent table).



ProfileMaster 0°
Not suitable for drilling!

EcoCut Mini	Tool nominal- \emptyset	Work piece bore \emptyset	
	D in mm	D _{min.} in mm	D _{max.} in mm
ECM 02 L/R - ...D	2	1,95	2,1
ECM 02,5 L/R - ...D	2,5	2,45	2,6
ECM 03 L/R - ...D	3	2,95	3,15
ECM 03,5 L/R - ...D	3,5	3,45	3,65
ECM 04 R/L - ...D	4	3,90	4,20
ECM 05 R/L - ...D	5	4,90	5,20
ECM 06 R/L - ...D	6	5,90	6,20
ECM 07 R/L - ...D	7	6,90	7,20
ECM 08 R/L - ...D	8	7,90	8,20

EcoCut Classic	Tool nominal- \emptyset	Work piece bore \emptyset	
	D in mm	D _{min.} in mm	D _{max.} in mm
ECC 08 R/L - ... 04	8	7,85	8,30
ECC 10 R/L - ... 05	10	9,85	10,50
ECC 12 R/L - ... 06	12	11,85	12,50
ECC 14 R/L - ... 07	14	13,85	14,50
ECC 16 R/L - ... 08	16	15,85	16,50
ECC 18 R/L - ... 09	18	17,85	18,50
ECC 20 R/L - ... 10	20	19,80	20,50
ECC 25 R/L - ... 13	25	24,80	25,80
ECC 32 R/L - ... 17	32	31,80	33,00

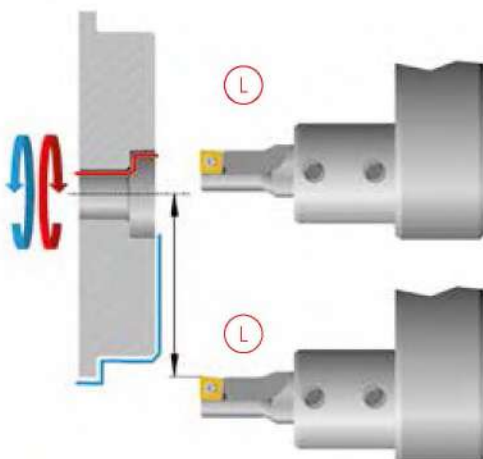
EcoCut ProfileMaster	Tool nominal- \emptyset	Work piece bore \emptyset	
	D in mm	D _{min.} in mm	D _{max.} in mm
PM 10R/L ...	10	9,85	12
PM 12R/L ...	12	11,85	15
PM 16R/L ...	16	15,85	19
PM 20R/L ...	20	19,80	24
PM 25R/L ...	25	24,80	29
PM 32R/L ...	32	31,80	38

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Machining over centre

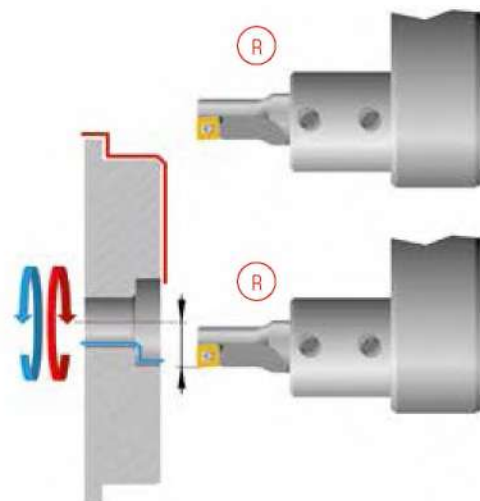
Problem

In case of insufficient movement of the machine across the centre line, the external diameter can not be machined with the same tool.



Solution

Use a right hand EcoCut tool.

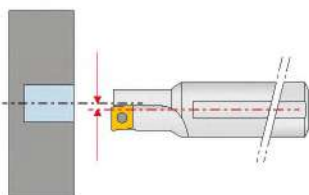


Application Tips

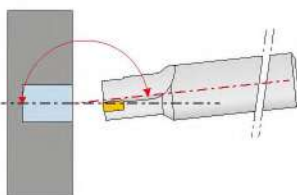
With axial displacement there is the danger of collision!

Problems

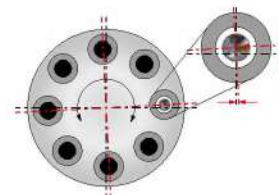
Displacement in x-direction:



Angular error:



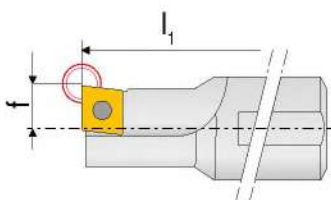
Turret position error:



Remedy

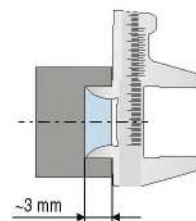
When pre-setting the tool:

- ▲ Definition as an internal turning tool for programming



At the machine:

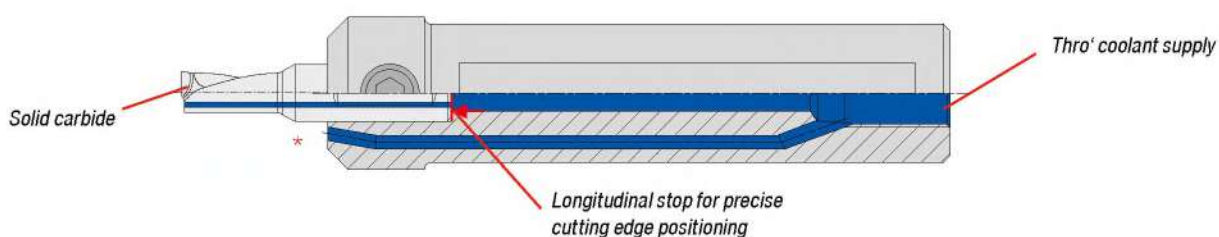
- ▲ Make measuring cut, approx. 3 mm deep
- ▲ Measure drilled diameter produced



- ▲ Enter the tool nominal \varnothing as bore target \varnothing

- ▲ If necessary correct drilling \varnothing
- ▲ Start machining

EcoCut Mini adapter – Design



* Cross-section rotated by 90° for clarity

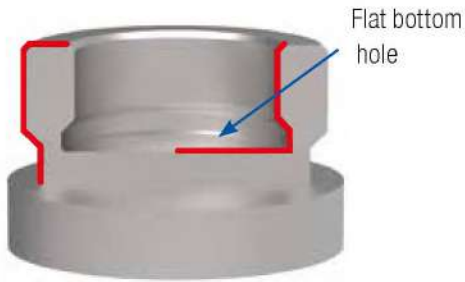
Mounting of the insert for EcoCut Classic

For tools up to \varnothing 8 mm right and left handed inserts are required.
From \varnothing 10–32 mm mm neutral inserts are used.

Note!
Ensure correct installation position.



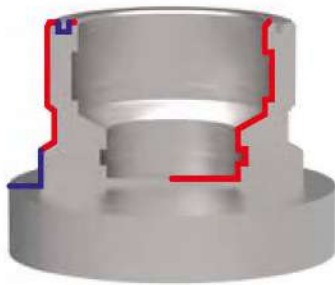
EcoCut ProfileMaster – the highlight with regard to efficiency



Right hand tools



Right hand insert



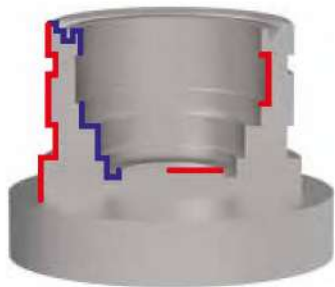
Right hand tools



Left hand insert



Right hand insert



Left hand tool



Right hand tools



Right hand insert

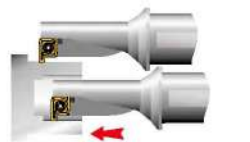
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Version 90°

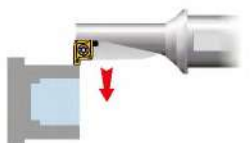


Drilling into solid material with flat bottom hole

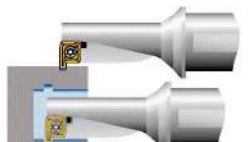
Drilling



Turning External Diameters



Turning Internal Diameters



Turning Profiles



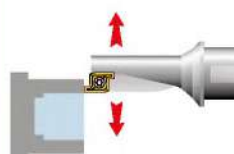
External radial grooving

Internal radial grooving

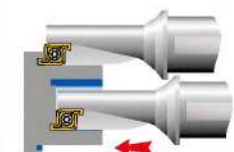
Version 0°



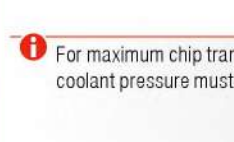
Turning External Diameters



Turning Internal Diameters



Turning Profiles



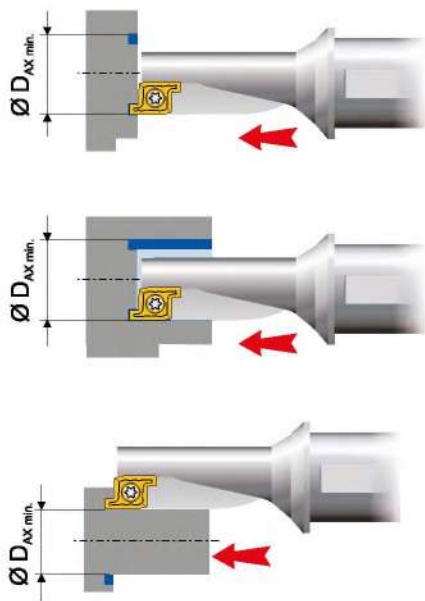
Axial grooving external

Axial grooving internal

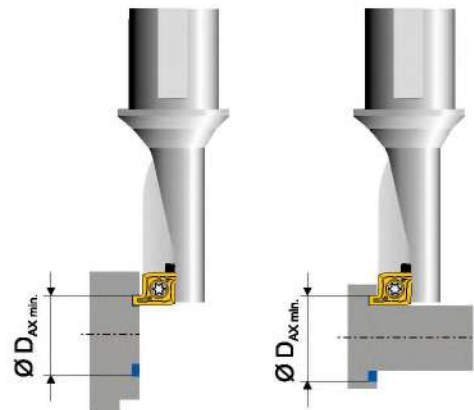
i For maximum chip transport efficiency when drilling, coolant pressure must be 3-6 bar minimum (optimal 7-10 bar).

EcoCut ProfileMaster – Axial Grooving

0° (from Ø 16 mm)

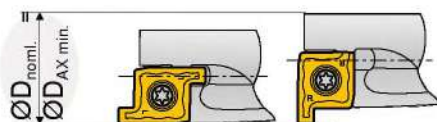


90°

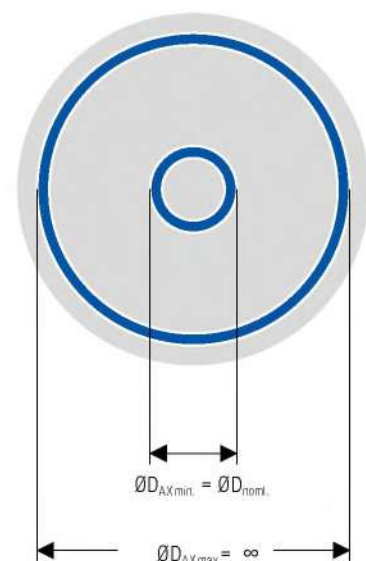


EcoCut ProfileMaster	ØD _{noml.} mm	ØD _{AX min.} mm	ØD _{AX max.} mm
PM 10R/L 1,5D	10	10	> 10
PM 10R/L 2,25D	10	10	> 10
PM 12R/L 1,5D	12	12	> 12
PM 12R/L 2,25D	12	12	> 12
PM 16R/L 1,5D	16	16	> 16
PM 16R/L 2,25D	16	16	> 16
PM 20R/L 1,5D	20	20	> 20
PM 20R/L 2,25D	20	20	> 20
PM 25R/L 1,5D	25	25	> 25
PM 25R/L 2,25D	25	25	> 25
PM 32R/L 1,5D	32	32	> 32
PM 32R/L 2,25D	32	32	> 32

$$\text{ØD}_{\text{AX min.}} = \text{ØD}_{\text{noml.}}$$



- ØD_{noml.} = Nominal tool diameter
- ØD_{AX min.} = Smallest diameter for axial grooving
- ØD_{AX max.} = Largest diameter for axial grooving



Application Tips

Recommendation for Optimum Results

Type of problem									Remedy measures
Type of wear				Work piece problems		Swarf control			
Edge breakage	Built-up edge	Wear on clearance face	Plastic deformation	Vibration	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)		
	▲	▼	▼	▼	▲	▼		Cutting data	Cutting speed
▼		⤿	▼	▲	▼	▲	▼		Feed rate
▲		▲	▲	▼	▲			Insert selection	Corner radius ▲ larger ▼ smaller
▼		▲	▲						Tap Material ▲ wear resistance ▼ toughness
⤿				⤿	⤿			General criteria	Tool clamping
⤿				⤿	⤿				Work piece clamping
⤿				⤿	▼				Overhang
⤿		⤿		⤿	⤿				Tip height
	●	●	●		●	●			Cooling lubricant

▲ raise, increase large influence
 ▲ raise, increase small influence

▼ avoid, reduce large influence
 ▼ avoid, reduce small influence

⤿ control, optimize
 ● use

Grades Overview

EcoCut Classic

CTCP425	<ul style="list-style-type: none"> ▲ Carbide, Ti+Al₂O₃-coated ▲ ISO P25 K30 M20 ▲ The wear-resistant choice for steel and cast iron materials under stable conditions and at high cutting speeds
HCR1425	
CTCP435	<ul style="list-style-type: none"> ▲ Carbide, Ti+Al₂O₃-coated ▲ ISO P35 K40 M30 ▲ The reliable choice for steel and cast iron materials under unstable conditions
HCR1435	
CTPP430	<ul style="list-style-type: none"> ▲ Carbide, TiAlN-coated ▲ ISO P30 M25 S25 K30 N25 ▲ The universal high-performance grade for steel, austenitic steel and heat-resistant alloys
HCN2430	
H210T	<ul style="list-style-type: none"> ▲ Carbide, uncoated ▲ ISO N10 S10 K10 ▲ The wear-resistant carbide grade for machining aluminium and other non-ferrous metals
CWK20	
H216T	<ul style="list-style-type: none"> ▲ Carbide, uncoated ▲ ISO K15 N15 ▲ The uncoated carbide grade for machining aluminium and other non-ferrous metals ▲ Also highly suitable for HSC machining
CWK26	

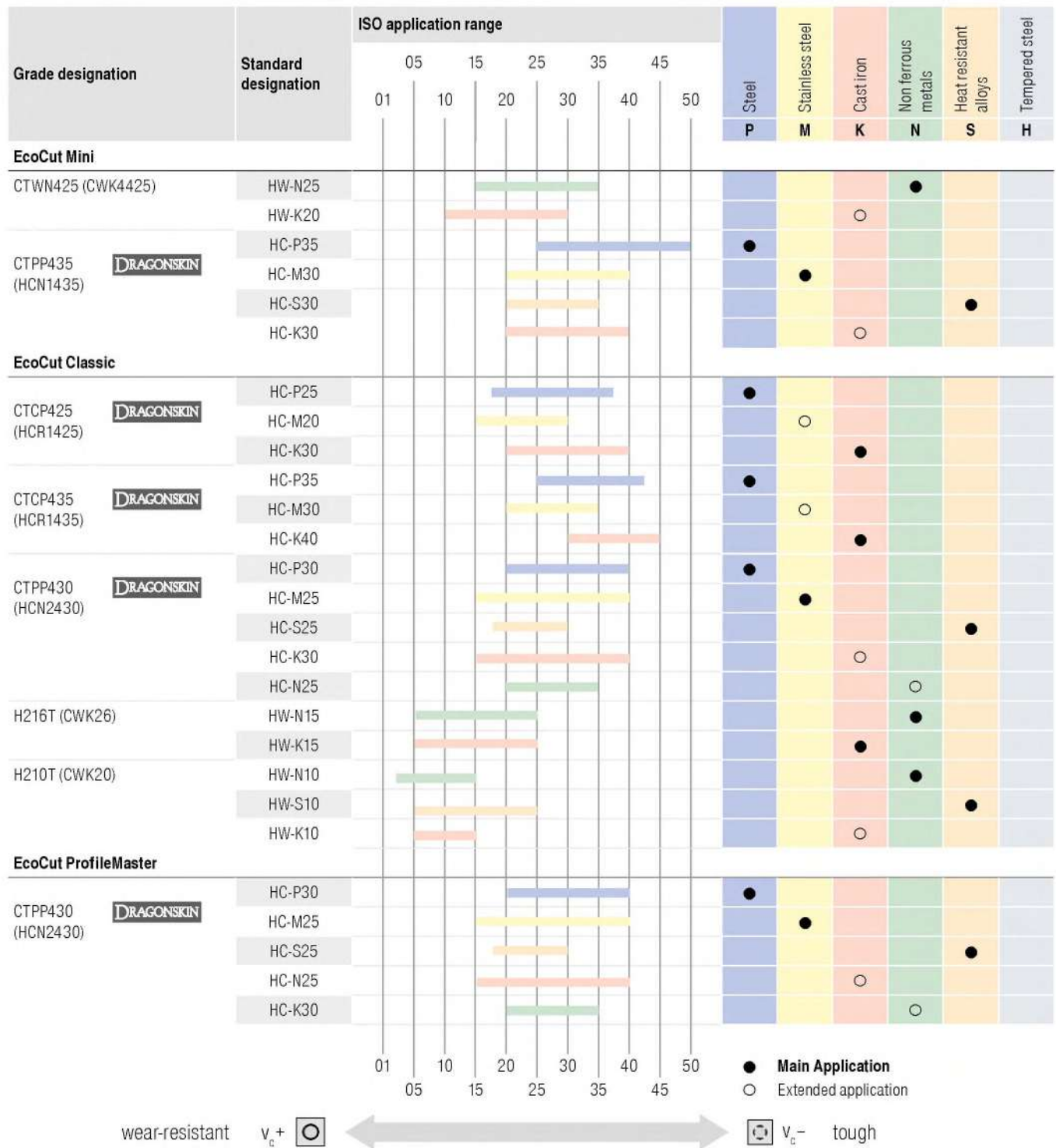
EcoCut Mini

CTPP435	<ul style="list-style-type: none"> ▲ Carbide, TiAlN-coated ▲ ISO P35 M30 S30 K30 ▲ The universal high-performance grade for steel, austenitic steel and heat-resistant alloys
HCN1435	
CTWN425	<ul style="list-style-type: none"> ▲ Carbide, uncoated ▲ ISO N25 K20 ▲ The uncoated carbide grade for machining aluminium and other non-ferrous metals
CWK4425	

EcoCut ProfileMaster

CTPP430	<ul style="list-style-type: none"> ▲ Carbide, TiAlN-coated ▲ ISO P30 M25 S25 K30 N25 ▲ The universal high-performance grade for steel, austenitic steel and heat-resistant alloys
HCN2430	

Application



New products for machining technicians



NEW MonoClamp – Radial Monoholder SX-DC

DirectCooling – dual cooling of the grooving insert via the rake face and flank. For grooving and parting off up to a diameter of 80 mm.

20



NEW MonoClamp – Radial Monoholder SX

Proven single-edged grooving and turning system with a completely updated design. Elastic insert clamping with assembly key.

21



NEW MonoClamp – Axial Monoholder AX

For axial grooves from a diameter of 10 mm. Suitable for 0° and 90° versions with groove depths up to 15 mm.

77+78





Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 EcoCut

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Tool Clamping

16 Adapters

17 Accessories

18 Material examples and article no. index

Table of contents

Symbol explanation	2
Toolfinder – System Overview	3
Toolfinder – External Machining	4+5
Toolfinder – Internal Machining	6+7
Product programme	8–99
Technical Information	
Cutting Data	100–102
Depths of Cut and Feedrates	103–109
TC – Reference values for profile depth and number of passes	110
Comparison threading system with TC and conventional	111
Grooving depth reduction	112+113
Clamping Methods	114+115
Torque Moment ModularClamp Module Screws	116
General references	117
Causes of Wear and Corrective Measures	118–120
Chip Breakers Overview	121–124
Example of Coding Grooving Tools	125
Grade overview and application	126+127

CERATIZIT \ Performance

Premium quality tools for high performance.

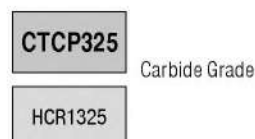
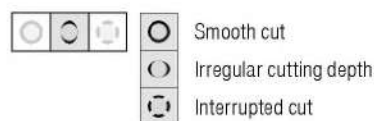
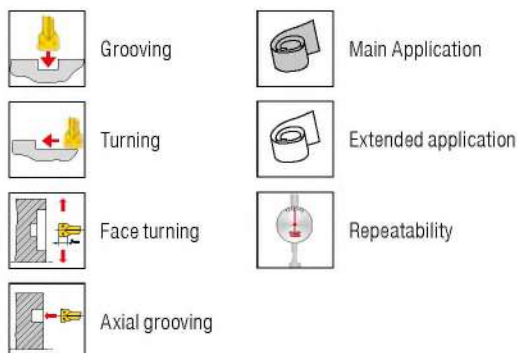
The premium quality tools from the **CERATIZIT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Advantages of the DirectCooling blade

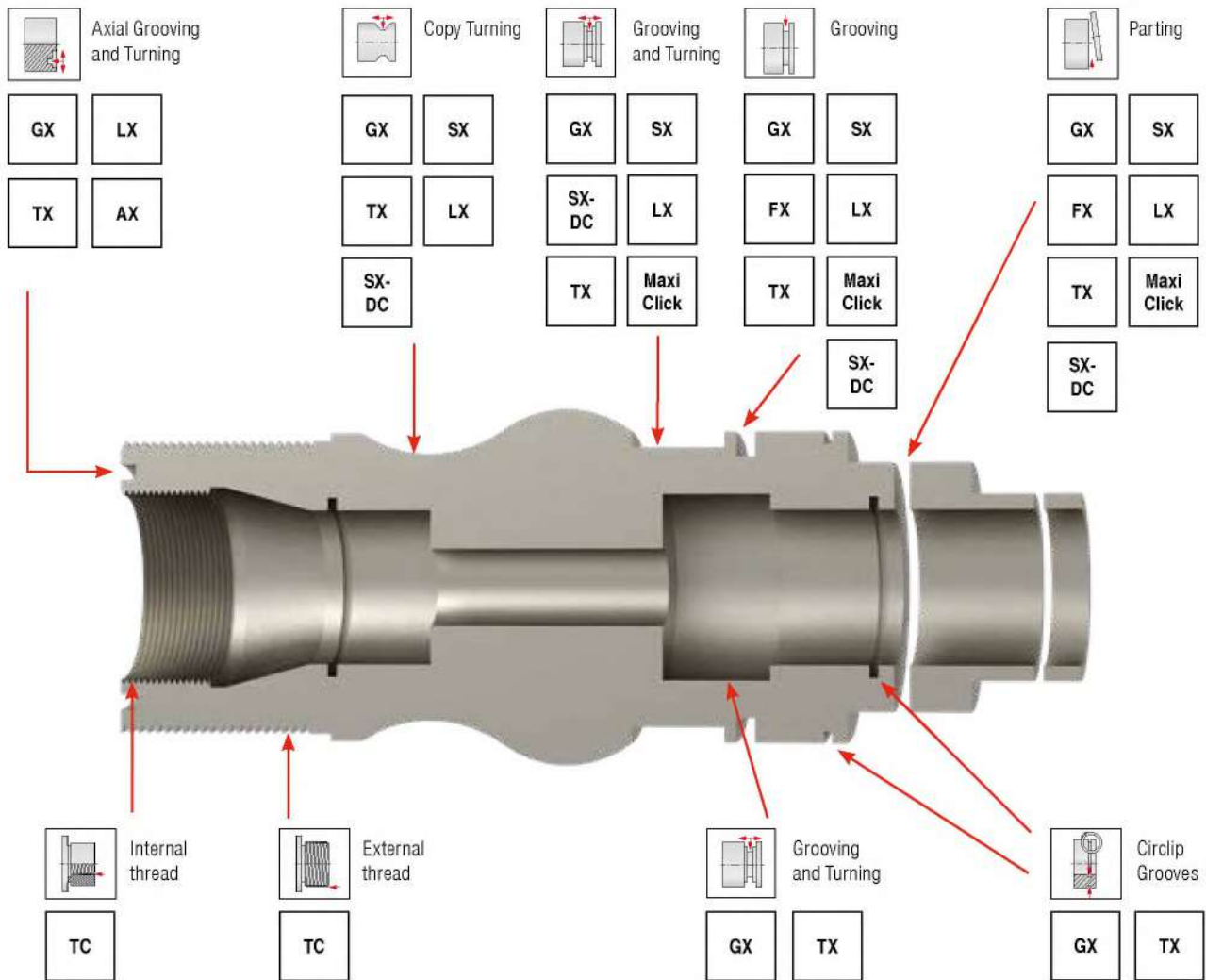
- ▲ The best machining results, even with reduced pump output
Highest flow volume of all thro' coolant blades on the market
- ▲ User friendly
Reinforced blades without sealing screw
- ▲ Process-secure spare part for easy handling and a long service life
Single-piece sealing screw made from steel (for standard blades)



Symbol explanation



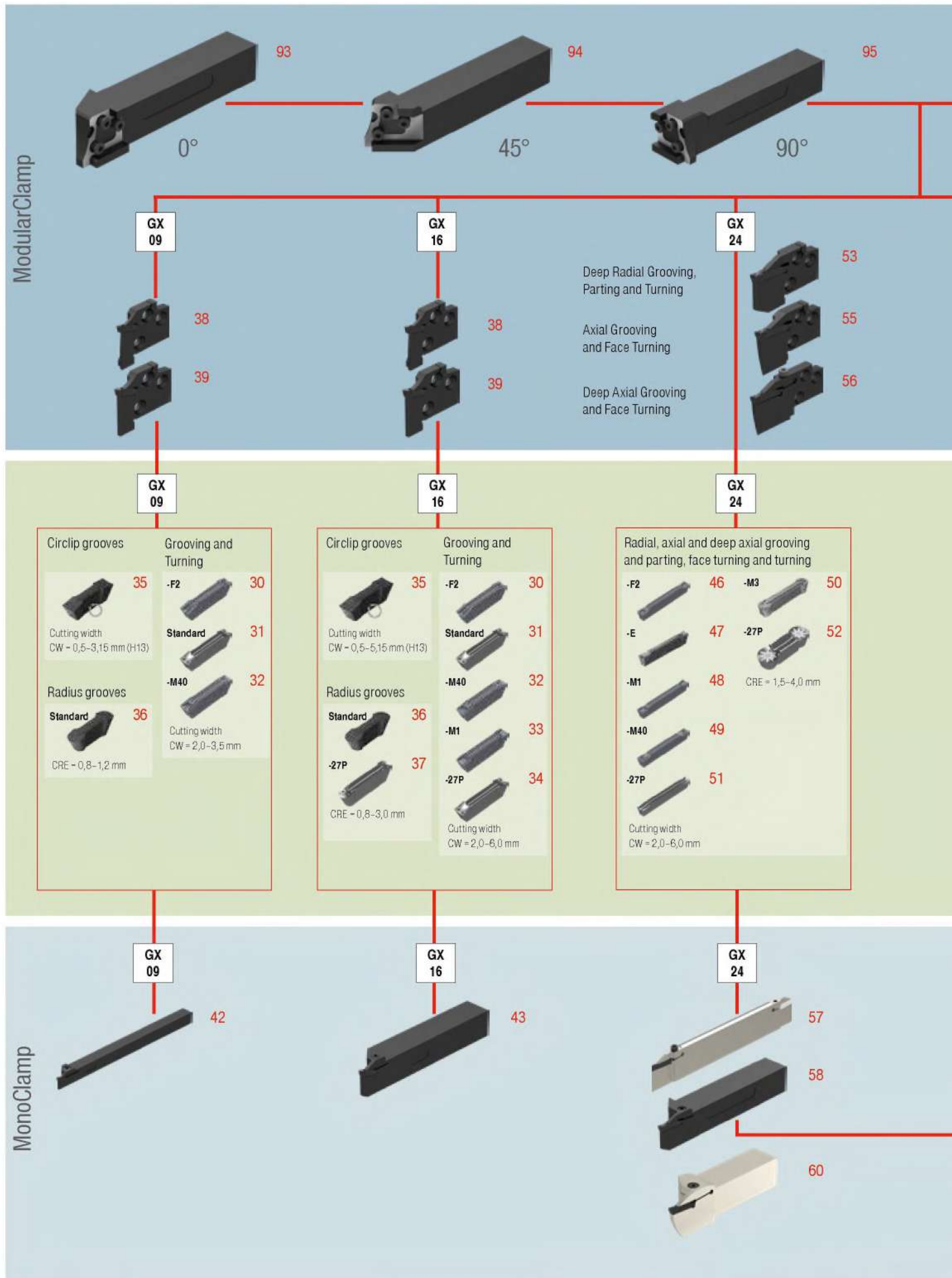
Toolfinder – System Overview

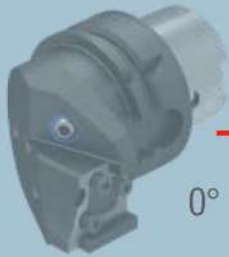


System Description

		Pages
SX	The single edged SX grooving system is even more versatile with the -M3 chip breaker. Besides grooving / parting with the -F2, -M2, or -27P chip breakers, the SX -M3 type also allows copying turning operations with the highest chip control. With this additional option, the SX grooving system can cover all areas of grooving making it a universal grooving tool. Available as a Modular or Mono system.	8-21
SX-DC	Our tried-and-tested single-edged SX grooving system is now available with targeted DirectCooling (DC) thro' coolant supply. The coolant is guided through two coolant holes – one above and one below the grooving insert – straight to the point where it will be most effective: the cutting edge itself.	14-21
FX	A single-edged grooving system with a variety of specialized chip geometries. From fine machining in unstable parts through to high-performance machining under stable conditions. Available as a Modular or Mono system.	22-29
GX	Double edged grooving system for grooving, parting off, turning and for producing circlip grooves. Available in sizes GX 09, GX 16 and GX 24. Available as a Modular or Mono system.	30-60
TX	Three-edged system for parting, grooving, axial grooving, radial grooving, and fine turning. Positive ground cutting geometries, with a very soft cut with minimum cutting forces. Universally applicable for almost all materials. Available as a Monosystem.	61-70
LX	Single edged system for extreme applications starting from a cutting width of 8.0 mm. The LX system is for use in stable conditions. Available as a Modular or Mono system.	71-74
AX	Double-edged Axial grooving system for grooving and groove turning with high precision. Due to the three different depths (5 mm, 10 mm and 15 mm) stable tools are available for each application.	75-78
TC	Double-edged thread turning system for the production of external and internal threads. Advantage is the use without pitch angle correction and in narrow or difficult areas of application. Available as a Modular or Mono system.	79-87
Maxi Click	Five-edged grooving system for grooving and parting.	88-92

Toolfinder – External Machining





0°



90°

* These articles can be found in → Chapter 16

SX



13

FX



27

LX



73

TC



84

AX



76

SX

Parting, Grooving and Turning



8



9



10

Parting and Grooving
Cutting width
CW = 2,0-6,0 mm



11



12



CRE - 1,5-3,0 mm

FX

Parting and Grooving



22



Parting and Grooving
Cutting width
CW = 2,2-9,7 mm

LX

Deep Parting and Grooving



71



Cutting width
CW = 8,0-10,0 mm

TC

Thread turning

Full profile



Partial profile



AX

Axial Grooving and Turning



Groove width
CW = 3,0 mm

TX

Parting



Circlip Grooves



Corner undercut



Fine and copy turning



Axial grooving



Maxi Click

-F2 5 mm



-F2 10 mm



-F3 10 mm



Cutting width
CW = 1,0-2,5 mm

SX

DC



20



14



16+18

FX



28



29

LX



74

TC



85

AX



77



78

TX



66



67



68



69

Maxi Click



91



92



0°



97

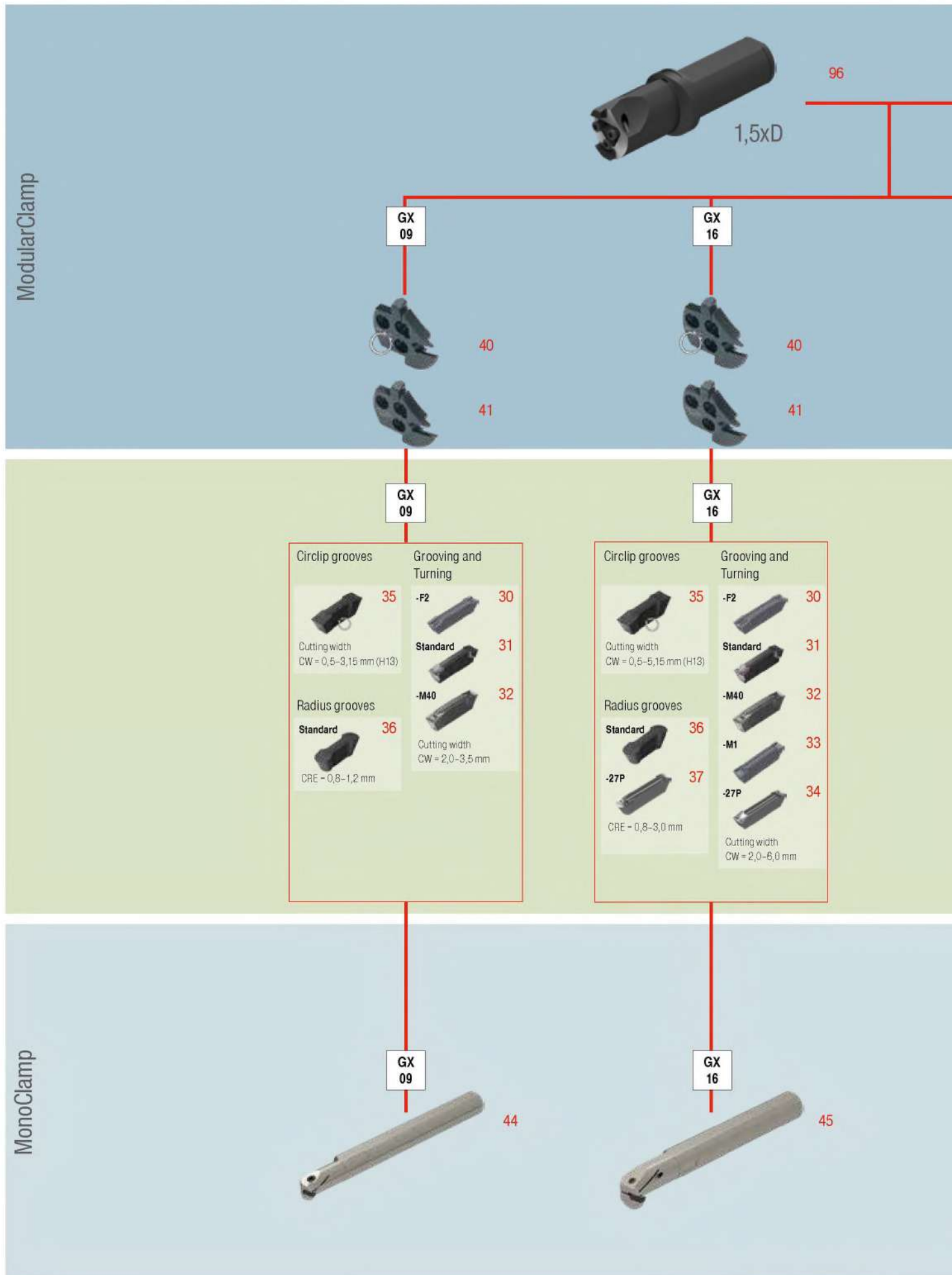


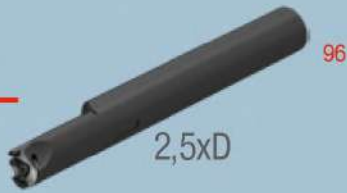
98



99

Toolfinder – Internal Machining





GX
24

TC



GX
24

TC

TX

Radial, axial and deep axial grooving and parting, face turning and turning

-M1	48	-M3	50
-M40	49	-27PF	52
-E	47	CRE - 1,5-4,0 mm	
-F2	46		
-27P	51		

Cutting width
CW - 2,0-6,0 mm

Thread turning

Partial profile 60°	81
Full profile 60°	80
Full profile 55°	82
Partial profile 55°	83

Parting

61

Circlip Grooving Inserts

62

For corner relief

63

Fine and copy turning

64

Axial grooving

65

GX
24

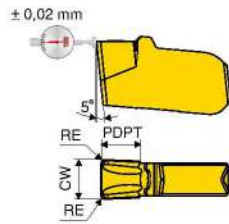
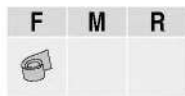
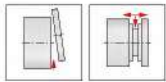
TC

TX



Insert SX

▲ High Precision polished geometry



Designation	CW $\pm 0,02$ mm	RE $\pm 0,05$ mm	PDPT mm	for tool holder	1C/72		1C/72		1C/72		1C/72	
					Article no. 70 346 ... £	923	Article no. 70 346 ... £	523	Article no. 70 346 ... £	822	Article no. 70 346 ... £	622
SX E2.00 N 0.20	2	0.2	1.5	-SX2					16.37	822	16.37	622
SX E3.00 N 0.30	3	0.3	2.0	-SX3	17.60	923	17.60	523	17.60	823	17.60	623
SX E4.00 N 0.40	4	0.4	2.5	-SX4					18.62	824	18.62	624

Steel	●	●	●	●
Stainless steel	○	○	●	●
Cast iron	●	●	●	●
Non ferrous metals				○
Heat resistant alloys			○	●
hardened materials	○			

→ v_c Page 101

→ Application recommendation on page 107

Internal machining

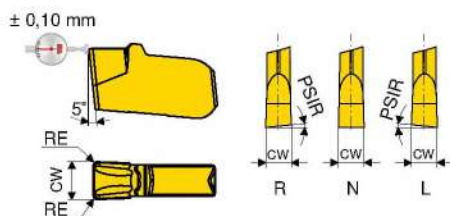
External machining



		→ 13	→ 14-19	→ 20+21			
--	--	------	---------	---------	--	--	--

Insert SX

▲ Specially developed geometry with negative edge-chamfers available in right, left and neutral types



-M1 CTCP325	-M1 CTCP335	-M1 CTPP345	-M1 CTP1340
-M1 HCR1325	-M1 HCR1335	-M1 HCN1345	-M1 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	IH	CW $\pm 0,05$	RE $\pm 0,05$	PSIR	for tool holder	1C/72		1C/72		1C/72		1C/72	
						Article no. 70 342 ...	£	Article no. 70 342 ...	£	Article no. 70 342 ...	£	Article no. 70 342 ...	£
SX E2.00 L 6	L	2	0.2	6°	-SX2							10.98	612
SX E3.00 L 6	L	3	0.2	6°	-SX3	11.69	913					11.69	613
SX E4.00 L 6	L	4	0.3	6°	-SX4							12.31	614
SX E2.00 N 0.20	N	2	0.2		-SX2	10.98	922			10.98	822	10.98	622
SX E3.00 N 0.20	N	3	0.2		-SX3	11.69	923	11.69	523	11.69	823	11.69	623
SX E4.00 N 0.30	N	4	0.3		-SX4	12.31	924	12.31	524	12.31	824	12.31	624
SX E5.00 N 0.30	N	5	0.3		-SX5	13.11	925			13.11	825	13.11	625
SX E6.00 N 0.40	N	6	0.4		-SX6	14.14	926			14.14	826	14.14	626
SX E2.00 R 6	R	2	0.2	6°	-SX2							10.98	602
SX E3.00 R 6	R	3	0.2	6°	-SX3	11.69	903					11.69	603
SX E4.00 R 6	R	4	0.3	6°	-SX4							12.31	604

Steel	●	●	●	●
Stainless steel	○	○	●	●
Cast iron	●	●	●	●
Non ferrous metals				○
Heat resistant alloys			○	●
hardened materials	○			

→ v_s Page 101

→ Application recommendation on page 108

Note: reduce feed rate by 20-50 % with R/L version!

Internal machining

External machining



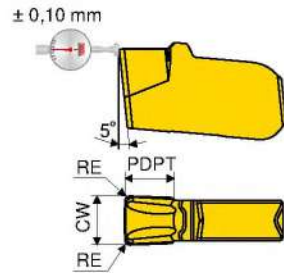
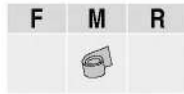
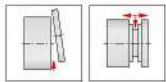
→ 13

→ 14-19

→ 20+21

Insert SX

▲ All purpose geometry for parting, grooving & turning.



-M2 CTCP325	-M2 CTCP335	-M2 CTPP345	-M2 CTP1340
-M2 HCR1325	-M2 HCR1335	-M2 HCN1345	-M2 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○



Designation	CW $\pm 0,05$ mm	RE $\pm 0,05$ mm	PDPT mm	for tool holder	1C/72		1C/72		1C/72		1C/72	
					Article no. 70 343 ...	£	Article no. 70 343 ...	£	Article no. 70 343 ...	£	Article no. 70 343 ...	£
SX E2.00 N 0.20	2	0.2	1.5	-SX2	10.98	922	10.98	522	10.98	822	10.98	622
SX E3.00 N 0.30	3	0.3	2.0	-SX3	11.69	923	11.69	523	11.69	823	11.69	623
SX E4.00 N 0.40	4	0.4	2.5	-SX4	12.31	924	12.31	524	12.31	824	12.31	624
SX E5.00 N 0.40	5	0.4	2.7	-SX5	13.11	925	13.11	525	13.11	825	13.11	625
SX E6.00 N 0.50	6	0.5	3.0	-SX6	14.14	926	14.14	526	14.14	826	14.14	626

Steel	●	●	●	●
Stainless steel	○	○	●	●
Cast iron	●	●	○	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	●
hardened materials	○	○	○	○

→ v_c Page 101
→ Application recommendation on page 107

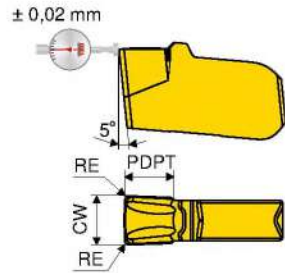
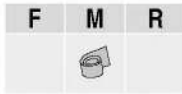
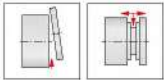
Internal machining

External machining

	→ 13	→ 14-19	→ 20+21				

Insert SX

- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge
- ▲ Specialist for aluminum and other soft long-chipping non-ferrous metals



-27P
H216T

-ALP
CWK26



Designation	CW $\pm 0,02$	RE $\pm 0,05$	PDPT	for tool holder
	mm	mm	mm	
SX E2.00 N 0.20	2	0.2	2.0	-SX2
SX E3.00 N 0.30	3	0.3	2.5	-SX3
SX E4.00 N 0.40	4	0.4	3.0	-SX4

1C/72
Article no. 70 349 ...
£
13.02 122
13.94 123
14.75 124

Steel	
Stainless steel	
Cast iron	•
Non ferrous metals	•
Heat resistant alloys	
hardened materials	

→ v_c Page 101
→ Application recommendation on page 107

Internal machining

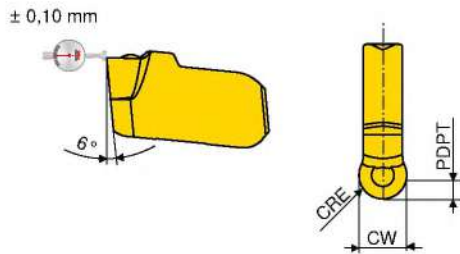
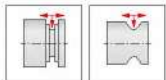
External machining



		→ 13	→ 14-19	→ 20+21			

Radius Grooving Insert SX

- ▲ For grooving and copy turning
- ▲ Very good chip control



-M3 CTCP335	-M3 CTP1340
-M3 HCR1335	-M3 CCN1340
DRAGONSKIN	DRAGONSKIN



Designation	CW $_{+/-0,05}$	CRE	PDPT	for tool holder
	mm	mm	mm	
SX R3.00 N 1.50	3	1.5	1.5	-SX3
SX R4.00 N 2.00	4	2.0	2.0	-SX4
SX R5.00 N 2.50	5	2.5	2.5	-SX5
SX R6.00 N 3.00	6	3.0	3.0	-SX6

1C/72		1C/72	
Article no.		Article no.	
70 344 ...		70 344 ...	
£		£	
12.42	531	12.42	631
13.11	532	13.11	632
13.85	533	13.85	633
		15.05	634

Steel	●	●
Stainless steel	○	●
Cast iron	●	●
Non ferrous metals		○
Heat resistant alloys		●
hardened materials		

→ v_c Page 101
→ Application recommendation on page 108

Internal machining

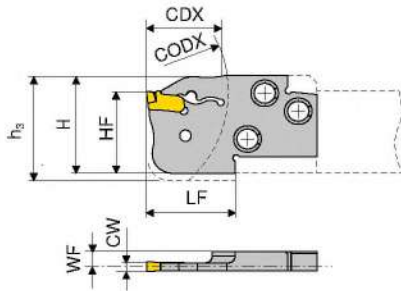
External machining



		→ 13	→ 14-19	→ 20+21			

ModularClamp MSS – Radial grooving module SX

▲ For parting, grooving and finish turning



Illustrations show right-hand versions

Designation	HF mm	CW mm	WF mm	LF mm	H mm	h ₃ mm	CODX mm	CDX mm	for grooving inserts	Left-hand		Right-hand	
										2C/71		2C/71	
										Article no. 70 897 ...	Article no. 70 896 ...	Article no. 70 897 ...	Article no. 70 896 ...
E20 R/L 20-SX2	20	2	3.57	22	24	27	60	20	SX .2..	£ 78.07	020	£ 78.07	020
E20 R/L 20-SX3	20	3	3.20	22	24	27	60	20	SX .3..	£ 78.07	120	£ 78.07	120
E25 R/L 20-SX2	25	2	5.07	22	30		75	20	SX .2..	£ 78.65	025	£ 78.65	025
E25 R/L 25-SX3	25	3	4.70	27	30		75	25	SX .3..	£ 78.65	125	£ 78.65	125
E25 R/L 35-SX3	25	3	4.70	37	30		75	35	SX .3..	£ 79.40	225	£ 79.40	225
E25 R/L 25-SX4	25	4	4.30	27	30		75	25	SX .4..	£ 78.65	325	£ 78.65	325
E25 R/L 35-SX4	25	4	4.30	37	30		75	35	SX .4..	£ 79.40	425	£ 79.40	425
E32 R/L 35-SX3	32	3	4.70	37	38		96	35	SX .3..	£ 80.84	032	£ 80.84	032
E32 R/L 35-SX4	32	4	4.30	37	38		96	35	SX .4..	£ 80.84	132	£ 80.84	132



Spare parts

for grooving inserts

		Article no. 70 950 ...	£	
SX .2..	SX 2-3	24.17	836	
SX .3..	SX 2-3	24.17	836	
SX .4..	SX 4-6	24.66	837	



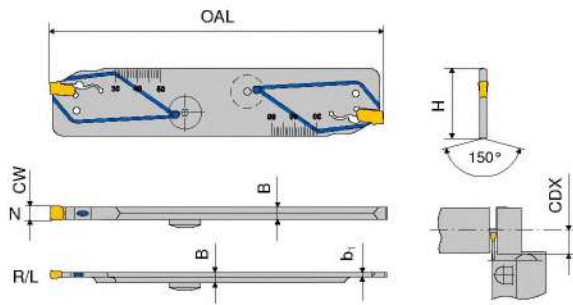
→ 8-12

→ 93-95

→ Chapter 16

i Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX-DC Standard



Designation	CW	H	B	OAL	b ₁	CDX	for grooving inserts	R/L/N	2A/25	
									Article no.	£
XLCF L 2602-DC-SX2	2	26	2.4	110	1.6	25	SX .2..	L	70 884 ...	712
XLCF L 3202-DC-SX2	2	32	2.4	150	1.6	26	SX .2..	L	137.27	702
XLCF R 2602-DC-SX2	2	26	2.4	110	1.6	25	SX .2..	R	148.73	512
XLCF R 3202-DC-SX2	2	32	2.4	150	1.6	26	SX .2..	R	137.27	502
XLCF N 2603-DC-SX3	3	26	2.5	110		35	SX .3..	N	148.73	613
XLCF N 3203-DC-SX3	3	32	2.5	150		50	SX .3..	N	137.27	603
XLCF N 2604-DC-SX4	4	26	3.3	110		40	SX .4..	N	148.73	614
XLCF N 3204-DC-SX4	4	32	3.3	150		50	SX .4..	N	148.73	604
XLCF N 3205-DC-SX5	5	32	4.3	150		55	SX .5..	N	148.73	605
XLCF N 3206-DC-SX6	6	32	5.2	150		60	SX .6..	N	148.73	606

Spare parts

for grooving inserts

		Y7		2A/28		2A/28			
		Key D		Ejector SX		Sealing screw			
		Article no. 80 950 ...		Article no. 70 950 ...		Article no. 70 950 ...			
		£		£		£			
SX .2..	T15-IP	15.77	128	SX 2-3	24.17	836	M4 x 3	11.72	450
SX .3..	T15-IP	15.77	128	SX 2-3	24.17	836	M4 x 3	11.72	450
SX .4..	T15-IP	15.77	128	SX 4-6	24.66	837	M4 x 3	11.72	450
SX .5..	T15-IP	15.77	128	SX 4-6	24.66	837	M4 x 3	11.72	450
SX .6..	T15-IP	15.77	128	SX 4-6	24.66	837	M4 x 3	11.72	450



→ 8-12

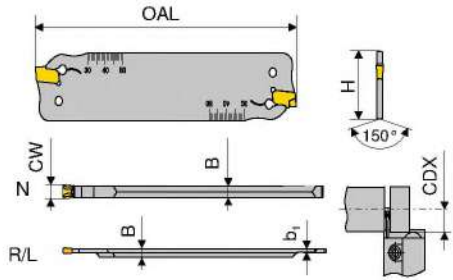
→ 97

→ Chapter 16

→ Chapter 16

i Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX Standard



Designation	CW	H	B	OAL	b ₁	CDX	for grooving inserts	R/L/N	2A/25	
									Article no.	£
XLCF L 2602-SX2	2	26	2.4	110	1.5	25	SX .2..	L	70 884 ...	212
XLCF L 3202-SX2	2	32	2.4	150	1.5	25	SX .2..	L	80.45	202
XLCF R 2602-SX2	2	26	2.4	110	1.5	25	SX .2..	R	84.17	012
XLCF R 3202-SX2	2	32	2.4	150	1.5	25	SX .2..	R	84.17	002
XLCF N 2603-SX3	3	26	2.4	110		35	SX .3..	N	80.45	113
XLCF N 3203-SX3	3	32	2.4	150		50	SX .3..	N	84.17	103
XLCF N 2604-SX4	4	26	3.2	110		40	SX .4..	N	80.45	114
XLCF N 3204-SX4	4	32	3.2	150		50	SX .4..	N	84.17	104
XLCF N 3205-SX5	5	32	4.2	150		55	SX .5..	N	84.17	105
XLCF N 3206-SX6	6	32	5.2	150		60	SX .6..	N	84.17	106



Spare parts

for grooving inserts

		Article no.	£
SX .2..	SX 2-3	70 950 ...	836
SX .3..	SX 2-3	24.17	836
SX .4..	SX 4-6	24.66	837
SX .5..	SX 4-6	24.66	837
SX .6..	SX 4-6	24.66	837



→ 8-12

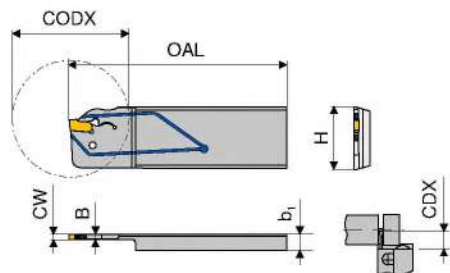
→ 98+99

→ Chapter 16

→ Chapter 16

i Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX-DC reinforced



Illustrations show right-hand versions



Designation	CW	H	B	OAL	b ₁	CODX	CDX	for grooving inserts	R/L/N
	mm	mm	mm	mm	mm	mm	mm		
XLCF L 2608-DC-SX3	3	26	2.5	110	8	66	33	SX .3..	L
XLCF L 3208-DC-SX3	3	32	2.5	110	8	66	33	SX .3..	L
XLCF R 2608-DC-SX3	3	26	2.5	110	8	66	33	SX .3..	R
XLCF R 3208-DC-SX3	3	32	2.5	110	8	66	33	SX .3..	R

2A/25

Article no.
70 879 ...

£
137.27 713
148.73 703

2A/28



Ejector SX

Spare parts

for grooving inserts

		Article no.
SX .2..	SX 2-3	24.17 836
SX .3..	SX 2-3	24.17 836
SX .4..	SX 4-6	24.66 837

Article no.
70 950 ...

£



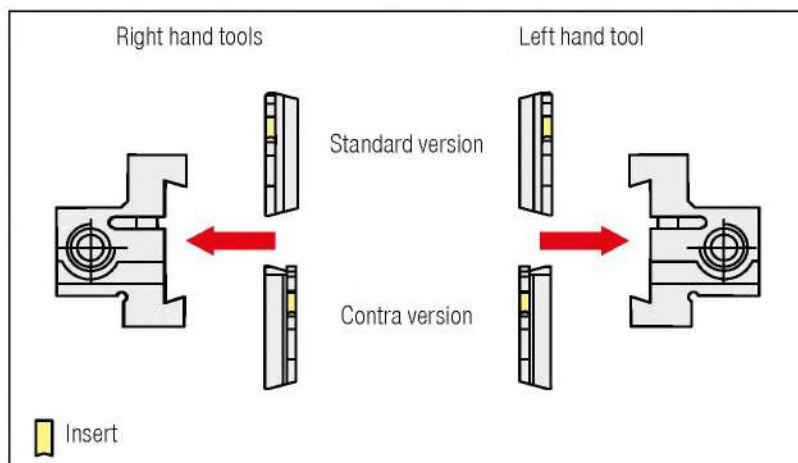
→ 8-12

→ 97

→ Chapter 16

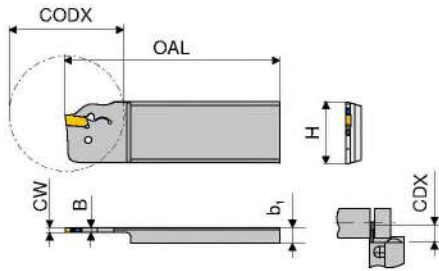
→ Chapter 16

Correct Tool Selection



i Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX reinforced



Illustrations show right-hand versions

Designation	CW	H	B	OAL	b ₁	CODX	CDX	for grooving inserts	R/L/N	2A/25	
										Article no.	70 879 ...
XLCF L 2608-SX2	2	26	1.5	110	8	44	22	SX .2..	L	£	212 ¹⁾
XLCF L 2608-SX3	3	26	2.5	110	8	44	22	SX .3..	L	123.18	213 ¹⁾
XLCF L 3208-SX3	3	32	2.5	110	8	66	33	SX .3..	L	115.82	203
XLCF L 3208-SX4	4	32	3.4	110	8	66	33	SX .4..	L	115.82	204
XLCF R 2608-SX2	2	26	1.5	110	8	44	22	SX .2..	R	123.18	012 ¹⁾
XLCF R 2608-SX3	3	26	2.5	110	8	44	22	SX .3..	R	123.18	013 ¹⁾
XLCF R 3208-SX3	3	32	2.5	110	8	66	33	SX .3..	R	115.82	003
XLCF R 3208-SX4	4	32	3.4	110	8	66	33	SX .4..	R	115.82	004

1) can be used in both directions



Spare parts

for grooving inserts

		Article no.	70 950 ...
SX .2..	SX 2-3	£	836
SX .3..	SX 2-3	24.17	836
SX .4..	SX 4-6	24.66	837



→ 8-12

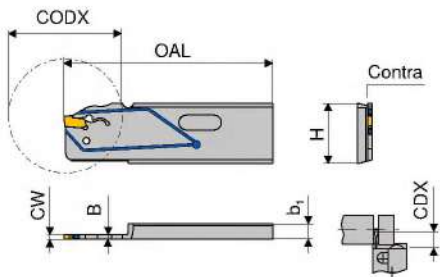
→ 98+99

→ Chapter 16

→ Chapter 16

i Please order SX assembly key separately if required.

MonoClamp – SX-DC reinforced Contra radial blade



Illustrations show right-hand versions

Designation	CW	H	B	OAL	b ₁	CODX	CDX	for grooving inserts	R/L/N
	mm	mm	mm	mm	mm	mm	mm		
XLCF L 3208C-DC-SX3	3	32	2.5	110	8	66	33	SX .3.	L
XLCF R 3208C-DC-SX3	3	32	2.5	110	8	66	33	SX .3.	R

2A/25
Article no. 70 877 ...
£ 148.73
703

Spare parts

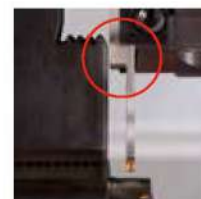
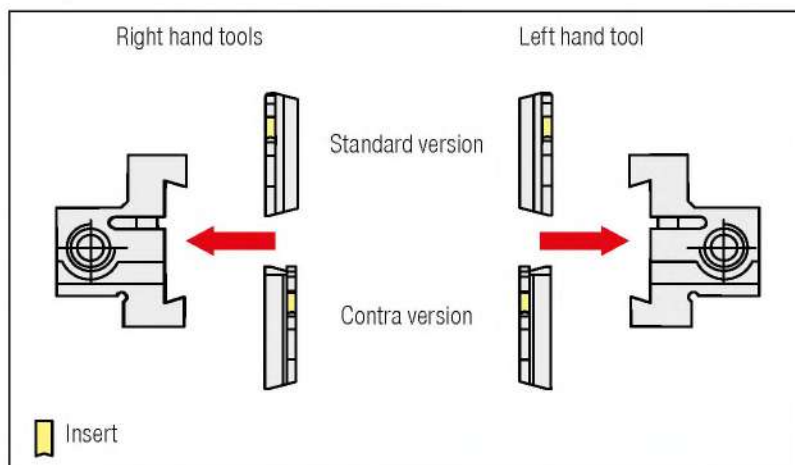
for grooving inserts
SX .3.

2A/28
Ejector SX
Article no. 70 950 ...
£ 24.17
836



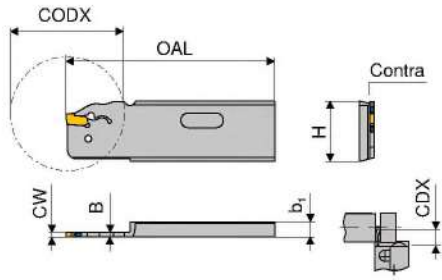
→ 8-12 → 97 → Chapter 16 → Chapter 16

Correct Tool Selection



i Please order SX assembly key separately if required.

MonoClamp – SX reinforced Contra radial blade



Illustrations show right-hand versions

Designation	CW	H	B	OAL	b ₁	CODX	CDX	for grooving inserts	R/L/N	2A/25	
										Article no.	£
XLCF L 3208C-SX3	3	32	2.5	110	8	66	33	SX 3..	L	70 877 ...	115.82
XLCF R 3208C-SX3	3	32	2.5	110	8	66	33	SX 3..	R	203	115.82

Spare parts

for grooving inserts

SX 3..	SX 2-3	Article no.	£
		70 950 ...	24.17
		836	



Article no.	£
70 950 ...	24.17
836	



→ 8-12

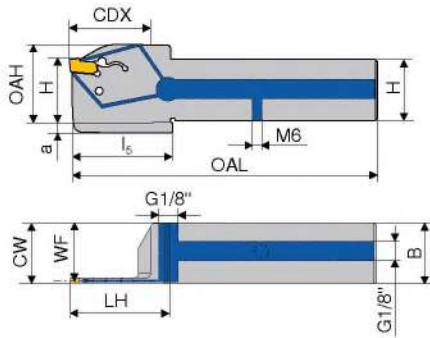
→ 98+99

→ Chapter 16

→ Chapter 16

i Please order SX assembly key separately if required.

MonoClamp – Radial Monoholder SX-DC



Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAL mm	LH mm	l ₅ mm	OAH mm	CDX mm	a mm	for grooving inserts	Left-hand		Right-hand	
												NEW Article no. 70 847 ... £	2C/71 21201	NEW Article no. 70 847 ... £	2C/71 21200
E12 R/L 0022-1212X-K-DC-SX2	12	12	2	11.2	71	27	28	22	22	5	SX 2..	132.82	21201	132.82	21200
E16 R/L 0026-1616X-K-DC-SX2	16	16	2	15.2	87	32	33	26	26	4	SX 2..	140.36	21601	140.36	21600
E20 R/L 0026-2020X-K-DC-SX2	20	20	2	19.2	102	32	33	31	26	5	SX 2..	159.00	22001	159.00	22000
E25 R/L 0033-2525X-K-DC-SX2	25	25	2	24.2	126	41	42	36	33	5	SX 2..	171.18	22501	171.18	22500
E16 R/L 0026-1616X-K-DC-SX3	16	16	3	14.8	87	32	33	26	26	4	SX 3..	140.36	31601	140.36	31600
E20 R/L 0026-2020X-K-DC-SX3	20	20	3	18.8	102	32	33	31	26	5	SX 3..	159.00	32001	159.00	32000
E25 R/L 0026-2525X-K-DC-SX3	25	25	3	23.8	117	33	33	31	26	5	SX 3..	171.18	32501	171.18	32500
E25 R/L 0033-2525X-K-DC-SX3	25	25	3	23.8	126	41	42	36	33	5	SX 3..	171.18	32601	171.18	32600
E20 R/L 0033-2020X-K-DC-SX4	20	20	4	18.3	109	39	40	32	33	5	SX 4..	159.00	42001	159.00	42000
E25 R/L 0033-2525X-K-DC-SX4	25	25	4	23.3	126	41	42	36	33	5	SX 4..	171.18	42501	171.18	42500
E25 R/L 0040-2525X-K-DC-SX4	25	25	4	23.3	133	48	49	38	40	6	SX 4..	171.18	42601	171.18	42600
E25 R/L 0040-2525X-K-DC-SX5	25	25	5	22.9	133	48	49	38	40	6	SX 5..	171.18	52501	171.18	52500
E25 R/L 0040-2525X-K-DC-SX6	25	25	6	22.4	133	48	49	38	40	6	SX 6..	171.18	62501	171.18	62500

Spare parts

for grooving inserts

		Article no. 70 950 ... £		Article no. 70 950 ... £
SX 2..	SX 2-3	24.17 836	G 1/8"	3.24 294
SX 3..	SX 2-3	24.17 836	G 1/8"	3.24 294
SX 4..	SX 4-6	24.66 837	G 1/8"	3.24 294
SX 5..	SX 4-6	24.66 837	G 1/8"	3.24 294
SX 6..	SX 4-6	24.66 837	G 1/8"	3.24 294



Ejector SX



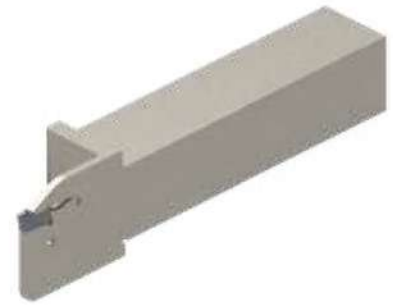
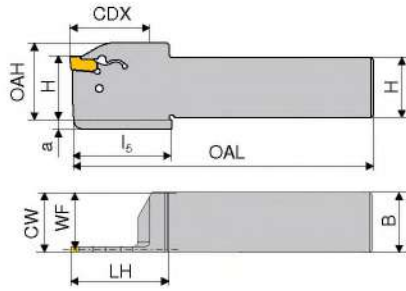
Coolant screw plug



→ 8-12

i Please order SX assembly key separately if required.

MonoClamp – Radial Monoholder SX



Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAL mm	LH mm	l _s mm	OAH mm	CDX mm	a mm	for grooving inserts	Left-hand		Right-hand	
												NEW Article no. 70 846 ... £	2C/71	NEW Article no. 70 846 ... £	2C/71
E12 R/L 0022-1212K-K-SX2	12	12	2	11.2	125	27	28	22	22	5	SX 2..	89.80	21201	89.80	21200
E16 R/L 0026-1616K-K-SX2	16	16	2	15.2	125	33	33	26	26	4	SX 2..	91.64	21601	91.64	21600
E20 R/L 0026-2020K-K-SX2	20	20	2	19.2	125	33	33	31	26	5	SX 2..	107.55	22001	107.55	22000
E25 R/L 0033-2525M-K-SX2	25	25	2	24.2	150	42	42	36	33	5	SX 2..	114.09	22501	114.09	22500
E16 R/L 0026-1616K-K-SX3	16	16	3	14.8	125	33	33	26	26	4	SX 3..	91.64	31601	91.64	31600
E20 R/L 0026-2020K-K-SX3	20	20	3	18.8	125	31	33	31	26	5	SX 3..	107.55	32001	107.55	32000
E25 R/L 0026-2525M-K-SX3	25	25	3	23.8	150	33		31	26		SX 3..	114.09	32501	114.09	32500
E25 R/L 0033-2525M-K-SX3	25	25	3	23.8	150	42	42	36	33	5	SX 3..	114.09	32601	114.09	32600
E20 R/L 0033-2020K-K-SX4	20	20	4	18.3	125	40	40	32	33	5	SX 4..	107.55	42001	107.55	42000
E25 R/L 0033-2525M-K-SX4	25	25	4	23.3	150	42	42	36	33	5	SX 4..	114.09	42501	114.09	42500
E25 R/L 0040-2525M-K-SX4	25	25	4	23.3	150	49	49	38	40	6	SX 4..	114.09	42601	114.09	42600
E25 R/L 0040-2525M-K-SX5	25	25	5	22.9	150	49	49	38	40	6	SX 5..	114.09	52501	114.09	52500
E25 R/L 0040-2525M-K-SX6	25	25	6	22.4	150	49	49	38	40	6	SX 6..	114.09	62501	114.09	62500



Spare parts

for grooving inserts

	Article no.	£	
SX 2..	70 950 ...		
SX 2-3	24.17	836	
SX 3..	24.17	836	
SX 4..	24.66	837	
SX 5..	24.66	837	
SX 6..	24.66	837	

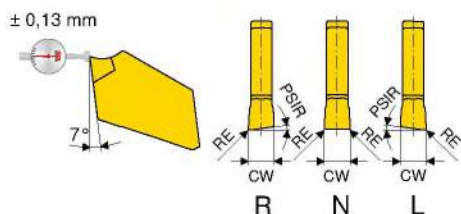
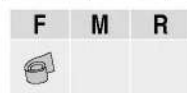
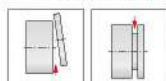


→ 8-12

i Please order SX assembly key separately if required.

Insert FX

- ▲ Excellent cutting geometry with low cutting forces
- ▲ Very good swarf control also with low feed rates
- ▲ Reduced built-up edge



-F1 CTCP325	-F1 CTPP345	-F1 CTP1340
-F1 HCR1325	-F1 HCN1345	-F1 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
○ ○ ○	○ ○ ○	○ ○ ○



Designation	IH	CW _{-0,1} mm	RE _{+/-0,05} mm	PSIR	for tool holder	1A/15		1A/15		1A/15	
						Article no. 70 331 ... £		Article no. 70 331 ... £		Article no. 70 331 ... £	
FX 2.2 L 5-F1	L	2.2	0.15	5°	-FX 2.2			12.51	847	12.51	647
FX 3.1 L 5-F1	L	3.1	0.20	5°	-FX 3.1			12.51	851	12.51	651
FX 3.1 L 8-F1	L	3.1	0.20	8°	-FX 3.1			12.51	855		
FX 2.2 N 0.15-F1	N	2.2	0.15		-FX 2.2	12.51	998	12.51	848	12.51	648
FX 3.1 N 0.40-F1	N	3.1	0.40		-FX 3.1	12.51	906	12.51	856	12.51	656
FX 3.1 N 0.20-F1	N	3.1	0.20		-FX 3.1	12.51	902	12.51	852	12.51	652
FX 4.1 N 0.20-F1	N	4.1	0.20		-FX 4.1			13.43	860	13.43	660
FX 4.1 N 0.50-F1	N	4.1	0.50		-FX 4.1			13.43	864		
FX 2.2 R 5-F1	R	2.2	0.15	5°	-FX 2.2			12.51	849	12.51	649
FX 3.1 R 8-F1	R	3.1	0.20	8°	-FX 3.1			12.51	857		
FX 3.1 R 5-F1	R	3.1	0.20	5°	-FX 3.1			12.51	853	12.51	653

Steel	●	●	●
Stainless steel	○	●	●
Cast iron	●	●	●
Non ferrous metals			○
Heat resistant alloys		○	●
hardened materials	○		

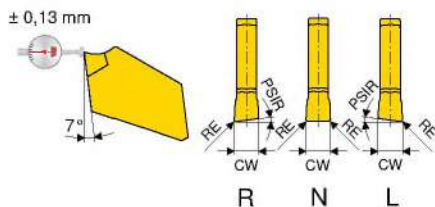
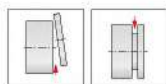
→ v_e Page 101
→ Application recommendation on page 109

Note: reduce feed rate by 20-50 % with R/L version!

Internal machining	External machining		
	→ 27	→ 29	→ 28

Insert FX

▲ Narrow version



-M1 CTCP325	-M1 CTCP335	-M1 CTPP345	-M1 CTP1340
-M1 HCR1325	-M1 HCR1335	-M1 HCN1345	-M1 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	IH	CW _{-0,1} mm	RE _{±0,05} mm	PSIR	for tool holder	1A/15		1A/15		1A/15		1A/15	
						Article no. 70 330 ... £	Article no. 70 330 ... £	Article no. 70 330 ... £	Article no. 70 330 ... £	Article no. 70 330 ... £	Article no. 70 330 ... £		
FX 2.2 L 4-M1	L	2.2	0.1	4°	-FX 2.2		12.51	550	12.51	800	12.51	600	
FX 2.2 N 0.10-M1	N	2.2	0.1		-FX 2.2	12.51	902	12.51	552	12.51	802	12.51	602
FX 2.2 R 4-M1	R	2.2	0.1	4°	-FX 2.2			12.51	554	12.51	804	12.51	604

Steel	●	●	●	●
Stainless steel	○	○	●	●
Cast iron	●	●	●	●
Non ferrous metals				○
Heat resistant alloys			○	●
hardened materials	○			

→ v_c Page 101
→ Application recommendation on page 109

Note: reduce feed rate by 20–50 % with R/L version!

Internal machining

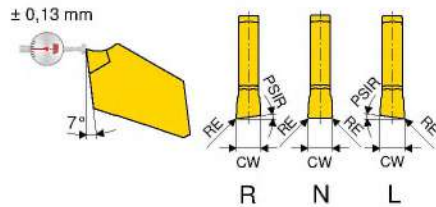
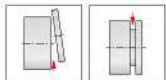
External machining



→ 27 → 29 → 28

Insert FX

▲ Wide version



-M1 CTCP325	-M1 CTCP335	-M1 CTPP345	-M1 CTP1340
-M1 HCR1325	-M1 HCR1335	-M1 HCN1345	-M1 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	IH	CW $\pm 0,05$	RE $\pm 0,05$	PSIR	for tool holder	1A/15		1A/15		1A/15		1A/15	
						Article no. 70 332 ...	£	Article no. 70 332 ...	£	Article no. 70 332 ...	£	Article no. 70 332 ...	£
FX 3.1 L 6-M1	L	3.1	0.15	6°	-FX 3.1	12.51	900	12.51	550	12.51	800	12.51	600
FX 4.1 L 6-M1	L	4.1	0.20	6°	-FX 4.1	13.43	908	13.43	556	13.43	806	13.43	606
FX 3.1 N 0.15-M1	N	3.1	0.15		-FX 3.1	12.51	902	12.51	552	12.51	802	12.51	602
FX 4.1 N 0.20-M1	N	4.1	0.20		-FX 4.1	13.43	908	13.43	558	13.43	808	13.43	608
FX 5.1 N 0.25-M1	N	5.1	0.25		-FX 5.1	14.35	914	14.35	564	14.35	814	14.35	614
FX 6.5 N 0.30-M1	N	6.5	0.30		-FX 6.5	14.75	920	14.75	570			14.75	620
FX 8.2 N 0.40-M1	N	8.2	0.40		blades XLCEN 4608	16.78	924	16.78	574			16.78	624
FX 9.7 N 0.40-M1	N	9.7	0.40		blades XLCEN 4609	24.31	926	24.31	576			24.31	626
FX 3.1 R 6-M1	R	3.1	0.15	6°	-FX 3.1	12.51	904	12.51	554	12.51	804	12.51	604
FX 4.1 R 6-M1	R	4.1	0.20	6°	-FX 4.1	13.43	910	13.43	560	13.43	810	13.43	610
FX 5.1 R 6-M1	R	5.1	0.25	6°	-FX 5.1			14.35	816				

Steel	●	●	●	●
Stainless steel	○	○	●	●
Cast iron	●	●	●	●
Non ferrous metals				○
Heat resistant alloys			○	●
hardened materials	○			

→ v_c Page 101
→ Application recommendation on page 109

Note: reduce feed rate by 20-50 % with R/L version!

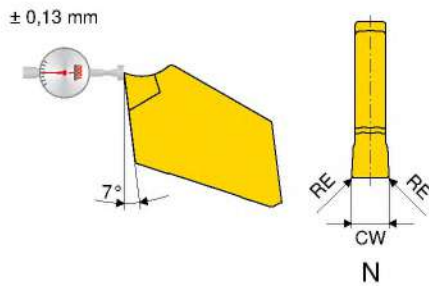
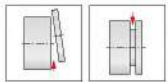
Internal machining

External machining



Insert FX

- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge
- ▲ Reduced built-up edge



Designation	IH	CW _{-0,1}	RE _{+/-0,05}	for tool holder
		mm	mm	
FX 2.2 N 0.10	N	2.2	0.10	-FX 2.2
FX 3.1 N 0.15	N	3.1	0.15	-FX 3.1
FX 4.1 N 0.15	N	4.1	0.15	-FX 4.1

1A/90	
Article no.	70 334 ...
£	
11.69	650
11.69	652
12.51	654

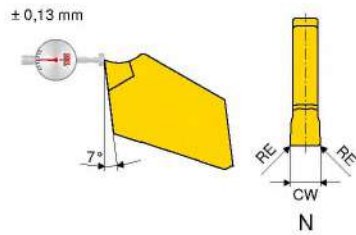
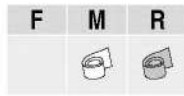
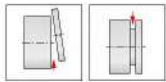
Steel	
Stainless steel	
Cast iron	•
Non ferrous metals	•
Heat resistant alloys	
hardened materials	

→ v_c Page 101
→ Application recommendation on page 109

Internal machining	External machining		
	→ 27	→ 29	→ 28

Insert FX

- ▲ Insert with excellent swarf control for a wide range of feed rates
- ▲ Very stable cutting edge



Designation	IH	CW _{-0.1}	RE _{+/-0.05}	for tool holder
		mm	mm	
FX 3.1 N 0.40-R2	N	3.1	0.4	-FX 3.1
FX 4.1 N 0.50-R2	N	4.1	0.5	-FX 4.1

1A/15		1A/15		1A/15	
Article no. 70 335 ...		Article no. 70 335 ...		Article no. 70 335 ...	
£		£		£	
12.51	902	12.51	852	12.51	652
13.43	908	13.43	858	13.43	658

Steel	●	●	●
Stainless steel	○	●	●
Cast iron	●	●	●
Non ferrous metals			○
Heat resistant alloys		○	●
hardened materials	○		

→ v_c Page 101
→ Application recommendation on page 109

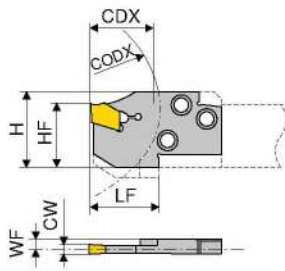
Internal machining

External machining



ModularClamp MSS – Radial grooving module FX short/long

▲ For parting and grooving



Illustrations show right-hand versions

Designation	HF	CW	WF	LF	H	CODX	CDX	for grooving inserts	Left-hand		Right-hand	
									2C/71		2C/71	
	mm	mm	mm	mm	mm	mm	mm		Article no. 70 876 ...	Article no. 70 875 ...	Article no. 70 876 ...	Article no. 70 875 ...
E20 R/L 20-FX 2.2	23	2.2	3.58	22	27	60	20	FX 2.2 ..	78.07	020	78.07	020
E20 R/L 20-FX 3.1	23	3.1	3.20	22	27	60	20	FX 3.1 ..	78.07	120	78.07	120
E20 R/L 20-FX 4.1	23	4.1	2.80	22	27	60	20	FX 4.1 ..	78.07	220	78.07	220
E25 R/L 20-FX 2.2	25	2.2	5.08	22	30	75	20	FX 2.2 ..	78.65	025	78.65	025
E25 R/L 25-FX 3.1	25	3.1	4.70	27	30	75	25	FX 3.1 ..	78.65	125	78.65	125
E25 R/L 25-FX 4.1	25	4.1	4.30	27	30	75	25	FX 4.1 ..	78.65	225	78.65	225
E25 R/L 25-FX 5.1	25	5.1	3.90	27	30	75	25	FX 5.1 ..	78.65	325	78.65	325
E25 R/L 25-FX 6.5	25	6.5	3.30	27	30	75	25	FX 6.5 ..	78.65	425	78.65	425
E25 R/L 35-FX 3.1	25	3.1	4.70	37	30	75	35	FX 3.1 ..	79.40	525	79.40	525
E25 R/L 35-FX 4.1	25	4.1	4.30	37	30	75	35	FX 4.1 ..	79.40	625	79.40	625
E25 R/L 35-FX 5.1	25	5.1	3.90	37	30	75	35	FX 5.1 ..	79.40	725	79.40	725
E25 R/L 35-FX 6.5	25	6.5	3.30	37	30	75	35	FX 6.5 ..	79.40	825	79.40	825
E32 R/L 32-FX 3.1	32	3.1	4.70	34	38	96	32	FX 3.1 ..	80.84	032	80.84	032
E32 R/L 32-FX 4.1	32	4.1	4.30	34	38	96	32	FX 4.1 ..	80.84	132	80.84	132
E32 R/L 32-FX 5.1	32	5.1	3.90	34	38	96	32	FX 5.1 ..	80.84	232	80.84	232
E32 R/L 32-FX 6.5	32	6.5	3.30	34	38	96	32	FX 6.5 ..	80.84	332	80.84	332
E32 R/L 45-FX 3.1	32	3.1	4.70	47	38	96	45	FX 3.1 ..	82.17	432	82.17	432
E32 R/L 45-FX 4.1	32	4.1	4.30	47	38	96	45	FX 4.1 ..	82.17	532	82.17	532
E32 R/L 45-FX 5.1	32	5.1	3.90	47	38	96	45	FX 5.1 ..	82.17	632	82.17	632
E32 R/L 45-FX 6.5	32	6.5	3.30	47	38	96	45	FX 6.5 ..	82.17	732	82.17	732

Spare parts

for grooving inserts

	£	
FX 2.2 ..	3.95	375
FX 3.1 ..	3.95	376
FX 4.1 ..	3.95	376
FX 5.1 ..	3.95	376
FX 6.5 ..	3.95	376



→ 22-26

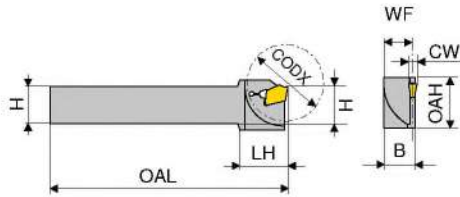
→ 93-95

→ Chapter 16

MonoClamp – Radial Monoholder FX

Scope of supply:

Blade and ejector



Illustrations show right-hand versions

Designation	H mm	B mm	OAL mm	LH mm	OAH mm	CW mm	WF mm	CODX mm	for grooving inserts	Left-hand		Right-hand	
										2A/25		2A/25	
										Article no. 70 837 ...	£	Article no. 70 836 ...	£
XLCE R/L 1010 M-FX2.2	10	10	150	19.4	21	2.2	9.18	30	FX 2.2 ..	90.27	101	90.27	101
XLCE R/L 1212 F-FX2.2	12	12	80	21.0	21	2.2	11.18	30	FX 2.2 ..	90.27	102	85.79	102
XLCE R/L 1212 M-FX2.2	12	12	150	19.4	21	2.2	11.18	30	FX 2.2 ..	90.27	103	90.27	103
XLCE R/L 1414 M-FX2.2	14	14	150	19.4	21	2.2	13.18	30	FX 2.2 ..	93.00	104	93.00	104
XLCE R/L 1612 H-FX2.2	16	12	100	21.0	21	2.2	11.18	30	FX 2.2 ..	85.79	105	85.79	105
XLCF R/L 1612 H-FX3.1	16	12	100	21.4	25	3.1	10.80	35	FX 3.1 ..	85.79	106	85.79	106
XLCF R/L 2016 K-FX3.1	20	16	125	26.4	26	3.1	14.80	40	FX 3.1 ..	95.73	107	95.73	107
XLCF R/L 2520 M-FX3.1	25	20	150	35.2	34	3.1	18.80	50	FX 3.1 ..	98.36	108	98.36	108
XLCF R/L 2016 K-FX4.1	20	16	125	26.4	26	4.1	14.40	40	FX 4.1 ..	95.73	109	95.73	109
XLCF R/L 2520 M-FX4.1	25	20	150	35.2	34	4.1	18.40	50	FX 4.1 ..	98.36	110	98.36	110



2A/28	
Ejector	
Article no.	£
70 950 ...	3.95
	375
	376
	376

Spare parts

for grooving inserts

FX 2.2 ..	3.95	375
FX 3.1 ..	3.95	376
FX 4.1 ..	3.95	376

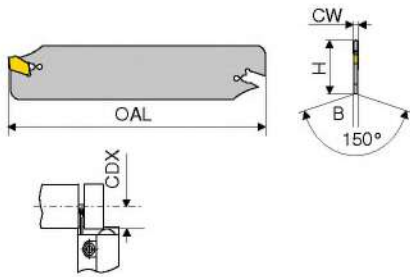


→ 22-26

MonoClamp – Radial Blade FX

Scope of supply:

Blade and ejector



Designation	H	B	OAL	CW	CDX	for grooving inserts	2A/25	
							Article no.	£
	mm	mm	mm	mm	mm		70 832 ...	
XLCEN 2602 J 22 FX	26	1.65	110	2.2	25	FX 2.2 ..	73.59	101
XLCFN 2603 J 31 FX	26	2.40	110	3.1	35	FX 3.1 ..	72.06	102
XLCFN 2604 J 41 FX	26	3.20	110	4.1	40	FX 4.1 ..	72.06	103
XLCEN 3202 M 22 FX	32	1.65	150	2.2	30	FX 2.2 ..	73.59	004
XLCFN 3203 M 31 FX	32	2.40	150	3.1	50	FX 3.1 ..	74.74	104
XLCFN 3204 M 41 FX	32	3.20	150	4.1	50	FX 4.1 ..	80.65	105
XLCFN 3205 M 51 FX	32	4.00	150	5.1	55	FX 5.1 ..	88.45	106
XLCFN 3206 M 65 FX	32	5.20	150	6.5	55	FX 6.5 ..	95.73	107
XLCEN 4608 S 82 FX	46	6.80	250	8.2	80	FX 8.2 ..	228.45	108
XLCEN 4609 S 97 FX	46	8.00	250	9.7	80	FX 9.7 ..	228.45	109

Spare parts

for grooving inserts

	Article no.	£	
FX 2.2 ..	70 950 ...	3.95	375
FX 3.1 ..		3.95	376
FX 4.1 ..		3.95	376
FX 5.1 ..		3.95	376
FX 6.5 ..		3.95	376
FX 8.2 ..		4.95	377
FX 9.7 ..		4.95	377

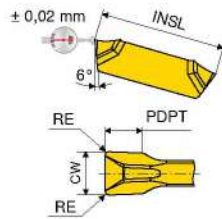
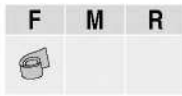
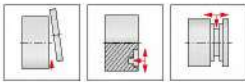


→ 22-26

→ 98+99

Insert GX 09/16

- ▲ Insert with ground periphery
- ▲ Suitable also for parting off tubes and thin-walled workpieces



-F2
CTP1340

-F2
CCN1340

DRAGONSKIN



Designation	INSL	CW $\pm 0,02$	RE $\pm 0,05$	PDPT	for tool holder	1C/72	
						Article no.	Price
GX 09-1 E2.00 N 0.20	9	2.0	0.2	1.5	GX 09-1	70 360 ...	23.55 600
GX 09-1 E2.50 N 0.20	9	2.5	0.2	1.5	GX 09-1		23.55 602
GX 09-2 E3.00 N 0.30	9	3.0	0.3	2.0	GX 09-2		23.55 604
GX 16-1 E2.00 N 0.20	16	2.0	0.2	2.5	GX 16-1		23.95 650
GX 16-2 E3.00 N 0.30	16	3.0	0.3	3.0	GX 16-2		23.95 652
GX 16-3 E4.00 N 0.40	16	4.0	0.4	3.5	GX 16-3		26.22 654
GX 16-3 E5.00 N 0.40	16	5.0	0.4	3.5	GX 16-3		26.22 656

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	●
hardened materials	●

→ v_s Page 101
→ Application recommendation on page 103

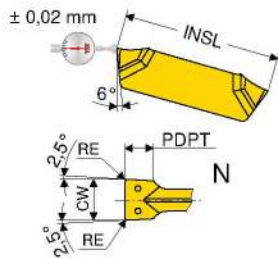
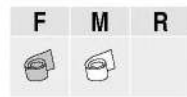
Internal machining

External machining



Insert GX 09/16 – Standard

▲ Suitable for parting thin-walled workpieces



Designation	INSL	CW $\pm 0,02$	RE $\pm 0,05$	PDPT	for tool holder
	mm	mm	mm	mm	
GX 09-1 E2.00 N 0.20	9	2.0	0.2	1.5	GX 09-1
GX 09-1 E2.50 N 0.20	9	2.5	0.2	1.5	GX 09-1
GX 09-2 E3.00 N 0.30	9	3.0	0.3	2.0	GX 09-2
GX 16-1 E2.00 N 0.20	16	2.0	0.2	2.5	GX 16-1
GX 16-1 E2.50 N 0.20	16	2.5	0.2	2.5	GX 16-1
GX 16-2 E3.00 N 0.30	16	3.0	0.3	3.0	GX 16-2
GX 16-2 E3.00 N 0.50	16	3.0	0.5	3.0	GX 16-2
GX 16-2 E3.50 N 0.30	16	3.5	0.3	3.0	GX 16-2
GX 16-3 E4.00 N 0.60	16	4.0	0.6	3.5	GX 16-3
GX 16-3 E4.00 N 0.40	16	4.0	0.4	3.5	GX 16-3
GX 16-3 E5.00 N 0.40	16	5.0	0.4	3.5	GX 16-3
GX 16-4 E6.00 N 0.50	16	6.0	0.5	4.0	GX 16-4
GX 16-4 E6.00 N 0.80	16	6.0	0.8	4.0	GX 16-4

1C/72		1C/72		1C/72	
Article no.	70 350 ...	Article no.	70 350 ...	Article no.	70 350 ...
£		£		£	
23.55	984			23.55	634
23.55	988			23.55	638
23.55	992			23.55	642
23.95	900	23.95	500	23.95	600
23.95	904	23.95	504	23.95	604
23.95	908	23.95	508	23.95	608
23.95	910				
23.95	912	23.95	512	23.95	612
26.22	918				
26.22	916	26.22	516	26.22	616
26.22	924	26.22	524	26.22	624
27.67	928			27.67	628
27.67	930				

Steel	●	●	●
Stainless steel	○	○	●
Cast iron	●	●	●
Non ferrous metals			○
Heat resistant alloys			●
hardened materials	○		

→ v_c Page 101
→ Application recommendation on page 103

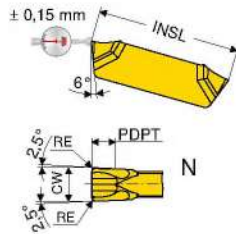
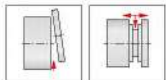
Internal machining

External machining



Insert GX 09/16

▲ Very good swarf control



-M40 CTCP325	-M40 CTPP345	-M40 CTP1340
-M40 HCR1325	-M40 HCN1345	-M40 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



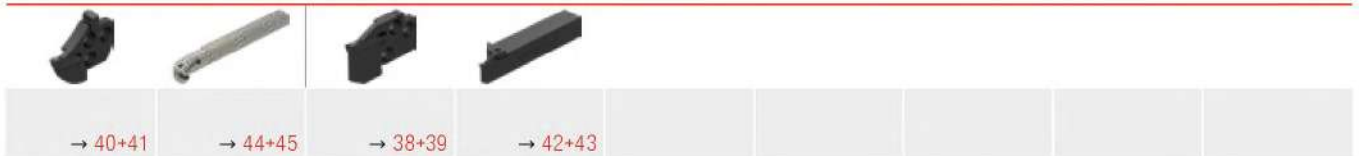
Designation	INSL	CW $_{+/-0.05}$	RE $_{+/-0.05}$	PDPT	for tool holder	1C/72		1C/72		1C/72	
						Article no. 70 351 ...	£	Article no. 70 351 ...	£	Article no. 70 351 ...	£
GX 09-1 E2.00 N 0.20	9	2	0.2	1.5	GX 09-1	15.38	986	15.38	886	15.38	686
GX 09-2 E3.00 N 0.30	9	3	0.3	2.0	GX 09-2	15.38	994	15.38	894	15.38	694
GX 16-1 E2.00 N 0.20	16	2	0.2	2.5	GX 16-1	15.58	902	15.58	802	15.58	602
GX 16-2 E3.00 N 0.30	16	3	0.3	3.0	GX 16-2	15.58	910	15.58	810	15.58	610
GX 16-3 E4.00 N 0.40	16	4	0.4	3.5	GX 16-3	17.35	918	17.35	818	17.35	618
GX 16-3 E5.00 N 0.40	16	5	0.4	3.5	GX 16-3	19.11	926	19.11	826	19.11	626
GX 16-4 E6.00 N 0.50	16	6	0.5	4.0	GX 16-4	20.85	930	20.85	830	20.85	630

Steel	●	●	●
Stainless steel	○	●	●
Cast iron	●	●	●
Non ferrous metals	○	○	○
Heat resistant alloys	○	○	●
hardened materials	○	○	○

→ v_c Page 101
→ Application recommendation on page 103

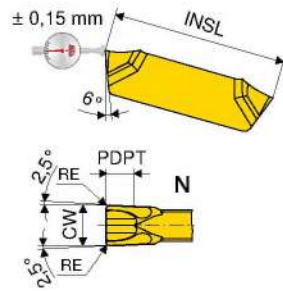
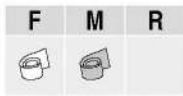
Internal machining

External machining



Insert GX 16

▲ Very good swarf control



-M1 CTCP325	-M1 CTPP345	-M1 CTP1340
-M1 HCR1325	-M1 HCN1345	-M1 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL	CW $_{+/-0,05}$	RE $_{+/-0,05}$	PDPT	for tool holder
	mm	mm	mm	mm	
GX 16-1 E2.00 N 0.20	16	2	0.2	2.0	GX 16-1
GX 16-2 E3.00 N 0.20	16	3	0.2	2.5	GX 16-2
GX 16-3 E4.00 N 0.30	16	4	0.3	3.0	GX 16-3

1C/72		1C/72		1C/72	
Article no.		Article no.		Article no.	
70 362 ...		70 362 ...		70 362 ...	
£		£		£	
15.58	902	15.58	800	15.58	600
17.35	904	15.58	802	17.35	604

Steel	●	●	●
Stainless steel	○	●	●
Cast iron	●	○	●
Non ferrous metals			○
Heat resistant alloys		○	●
hardened materials	○		

→ v_c Page 101

→ Application recommendation on page 104

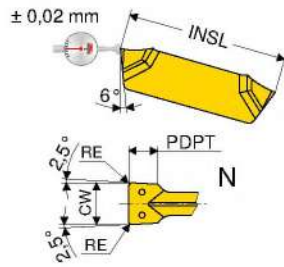
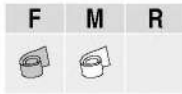
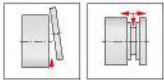
Internal machining

External machining

→ 40+41	→ 45	→ 38+39	→ 43						

Insert GX 16

- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge
- ▲ Ground periphery



-27P
H216T

-ALP
CWK26



Designation	INSL	CW $\pm 0,02$	RE $\pm 0,05$	PDPT	for tool holder
	mm	mm	mm	mm	
GX 16-1 E2.00 N 0.20	16	2	0.2	2.5	GX 16-1
GX 16-2 E3.00 N 0.30	16	3	0.3	3.0	GX 16-2
GX 16-3 E4.00 N 0.40	16	4	0.4	3.5	GX 16-3
GX 16-4 E6.00 N 0.50	16	6	0.5	4.0	GX 16-4

1C/72

Article no.
70 350 ...

£	
18.17	650
18.17	658
19.82	670
20.85	678

Steel	
Stainless steel	
Cast iron	•
Non ferrous metals	•
Heat resistant alloys	
hardened materials	

→ v_c Page 101

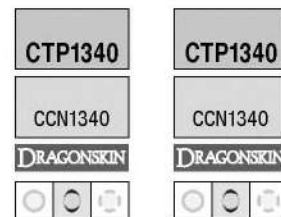
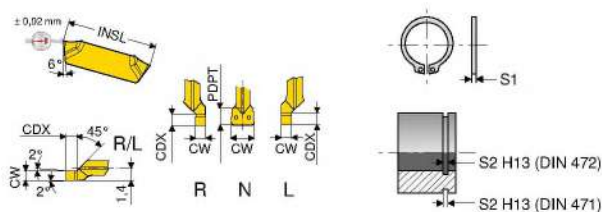
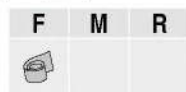
→ Application recommendation on page 103

Internal machining

External machining

→ 40+41	→ 45	→ 38+39	→ 43						

Circlip groove insert GX 09/16 – Standard



Designation	IH	INSL	S ₁		S ₂	CW ± 0.02	RE ± 0.05	CDX	PDPT	for tool holder	1C/72	
			mm	mm							Article no. 70 352 ...	Article no. 70 352 ...
GX 09-1 S0.60 L	L	9	0.40	0.50	0.60		0.75		R/L 02-GX 09-1		23.55	679
GX 09-1 S0.80 L	L	9	0.60	0.70	0.80		0.94		R/L 02-GX 09-1		23.55	681
GX 09-1 S0.90 L	L	9	0.70	0.80	0.90		1.04		R/L 02-GX 09-1		23.55	683
GX 09-1 S1.00 L	L	9	0.80	0.90	1.00		1.14		R/L 02-GX 09-1		23.55	684
GX 09-1 S1.20 L	L	9	1.00	1.10	1.20		1.34		R/L 02-GX 09-1		23.55	686
GX 09-1 S1.40 L	L	9	1.20	1.30	1.40		1.53		R/L 02-GX 09-1		23.55	688
GX 09-1 S1.70 L	L	9	1.50	1.60	1.70		1.82		R/L 02-GX 09-1		23.55	690
GX 16-2 S0.60 L	L	16	0.40	0.50	0.60		0.75		R/L 03-GX 16-2		23.95	607
GX 16-2 S0.80 L	L	16	0.60	0.70	0.80		0.94		R/L 03-GX 16-2		23.95	609
GX 16-2 S0.90 L	L	16	0.70	0.80	0.90		1.04		R/L 03-GX 16-2		23.95	611
GX 16-2 S1.00 L	L	16	0.80	0.90	1.00		1.14		R/L 03-GX 16-2		23.95	612
GX 16-2 S1.20 L	L	16	1.00	1.10	1.20		1.34		R/L 03-GX 16-2		23.95	614
GX 16-2 S1.40 L	L	16	1.20	1.30	1.40		1.53		R/L 03-GX 16-2		23.95	616
GX 16-2 S1.70 L	L	16	1.50	1.60	1.70		1.82		R/L 03-GX 16-2		23.95	618
GX 16-2 S1.95 L	L	16	1.75	1.85	1.95		2.07		R/L 03-GX 16-2		23.95	620
GX 16-2 S2.25 L	L	16	2.00	2.15	2.25		2.36		R/L 03-GX 16-2		23.95	622
GX 09-1 S1.95 N	N	9	1.75	1.85	1.95	0.1		2.0	GX 09-1	23.55	692	
GX 09-1 S2.25 N	N	9	2.00	2.15	2.25	0.1		2.0	GX 09-1	23.55	694	
GX 09-2 S2.75 N	N	9	2.50	2.65	2.75	0.1		2.0	GX 09-2	23.55	696	
GX 09-2 S3.25 N	N	9	3.00	3.15	3.25	0.1		2.0	GX 09-2	23.55	698	
GX 16-2 S2.75 N	N	16	2.50	2.65	2.75	0.1		3.0	GX 16-2	23.95	624	
GX 16-2 S3.25 N	N	16	3.00	3.15	3.25	0.1		3.0	GX 16-2	23.95	626	
GX 16-3 S4.25 N	N	16	4.00	4.15	4.25	0.2		3.5	GX 16-3	26.22	628	
GX 16-4 S5.25 N	N	16	5.00	5.15	5.25	0.2		4.0	GX 16-4	27.67	630	
GX 09-1 S0.60 R	R	9	0.40	0.50	0.60		0.75		R/L 02-GX 09-1		23.55	670
GX 09-1 S0.80 R	R	9	0.60	0.70	0.80		0.94		R/L 02-GX 09-1		23.55	672
GX 09-1 S0.90 R	R	9	0.70	0.80	0.90		1.04		R/L 02-GX 09-1		23.55	674
GX 09-1 S1.00 R	R	9	0.80	0.90	1.00		1.14		R/L 02-GX 09-1		23.55	676
GX 09-1 S1.20 R	R	9	1.00	1.10	1.20		1.34		R/L 02-GX 09-1		23.55	678
GX 09-1 S1.40 R	R	9	1.20	1.30	1.40		1.53		R/L 02-GX 09-1		23.55	680
GX 09-1 S1.70 R	R	9	1.50	1.60	1.70		1.82		R/L 02-GX 09-1		23.55	682
GX 16-2 S0.60 R	R	16	0.40	0.50	0.60		0.75		R/L 03-GX 16-2		23.95	695
GX 16-2 S0.80 R	R	16	0.60	0.70	0.80		0.94		R/L 03-GX 16-2		23.95	697
GX 16-2 S0.90 R	R	16	0.70	0.80	0.90		1.04		R/L 03-GX 16-2		23.95	699
GX 16-2 S1.00 R	R	16	0.80	0.90	1.00		1.14		R/L 03-GX 16-2		23.95	600
GX 16-2 S1.20 R	R	16	1.00	1.10	1.20		1.34		R/L 03-GX 16-2		23.95	602
GX 16-2 S1.40 R	R	16	1.20	1.30	1.40		1.53		R/L 03-GX 16-2		23.95	604
GX 16-2 S1.70 R	R	16	1.50	1.60	1.70		1.82		R/L 03-GX 16-2		23.95	606
GX 16-2 S1.95 R	R	16	1.75	1.85	1.95		2.07		R/L 03-GX 16-2		23.95	608
GX 16-2 S2.25 R	R	16	2.00	2.15	2.25		2.36		R/L 03-GX 16-2		23.95	610

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials	●	●

→ v_c Page 101

→ Application recommendation on page 104

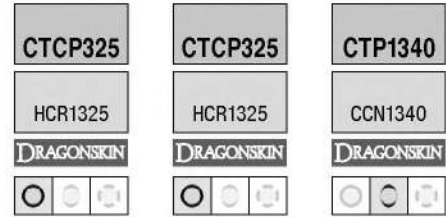
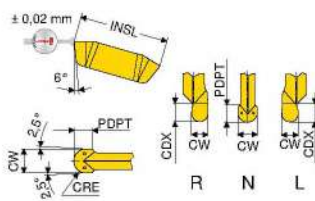
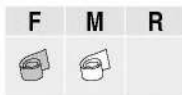
i Attention – applies only to internal machining:
 Right-hand insert → left-hand module or monobloc boring bar
 Left-hand insert → right-hand module or monobloc boring bar

Internal machining

External machining



Radius groove insert GX 09/16



Designation	IH	INSL	CW ± 0.02	CRE	PDPT	CDX	for tool holder	1C/72		1C/72		1C/72	
								Article no. 70 354 ...	£	Article no. 70 354 ...	£	Article no. 70 354 ...	£
GX 09-1 R0.80 L	L	9	1.6	0.8		1.78	R/L 02-GX 09-1	28.39	988				
GX 16-2 R0.80 L	L	16	1.6	0.8		1.78	R/L 03-GX 16-2	29.11	912				
GX 16-2 R1.00 L	L	16	2.0	1.0		2.18	R/L 03-GX 16-2	29.11	916				
GX 16-2 R1.20 L	L	16	2.4	1.2		2.58	R/L 03-GX 16-2	29.11	920				
GX 09-1 R1.00 N	N	9	2.0	1.0	1.0		GX 09-1			28.39	992		
GX 09-1 R1.20 N	N	9	2.4	1.2	1.2		GX 09-1			28.39	996		
GX 16-2 R1.50 N	N	16	3.0	1.5	1.5		GX 16-2			29.11	924	29.11	624
GX 16-3 R2.00 N	N	16	4.0	2.0	2.0		GX 16-3			31.60	928	31.60	628
GX 16-3 R2.50 N	N	16	5.0	2.5	2.5		GX 16-3			31.60	932	31.60	632
GX 16-4 R3.00 N	N	16	6.0	3.0	3.0		GX 16-4			33.05	936	33.05	636
GX 09-1 R0.80 R	R	9	1.6	0.8		1.78	R/L 02-GX 09-1	28.39	984				
GX 16-2 R0.80 R	R	16	1.6	0.8		1.78	R/L 03-GX 16-2	29.11	900				
GX 16-2 R1.00 R	R	16	2.0	1.0		2.18	R/L 03-GX 16-2	29.11	904				
GX 16-2 R1.20 R	R	16	2.4	1.2		2.58	R/L 03-GX 16-2	29.11	908				

Steel	●	●	●
Stainless steel	○	○	●
Cast iron	●	●	●
Non ferrous metals			○
Heat resistant alloys			●
hardened materials	○	○	

→ v_c Page 101

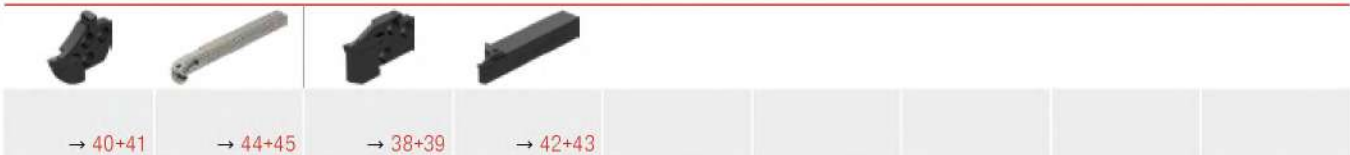
→ Application recommendation on page 104

i Attention – applies only to internal machining:

Right-hand insert → left-hand module or monobloc boring bar
Left-hand insert → right-hand module or monobloc boring bar

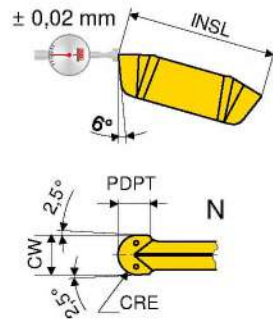
Internal machining

External machining



Radius groove insert GX 16

- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge
- ▲ Ground periphery



-27P
H216T

-ALP
CWK26



Designation	INSL	CW $\pm 0,02$	CRE	PDPT	for tool holder
	mm	mm	mm	mm	
GX 16-2 R1.50 N	16	3	1.5	1.5	GX 16-2
GX 16-3 R2.00 N	16	4	2.0	2.0	GX 16-3
GX 16-3 R2.50 N	16	5	2.5	2.5	GX 16-3

1C/72

Article no.
70 354 ...

£	
21.88	674
23.65	678
23.65	682

Steel	
Stainless steel	
Cast iron	•
Non ferrous metals	•
Heat resistant alloys	
hardened materials	

→ v_c Page 101

→ Application recommendation on page 104

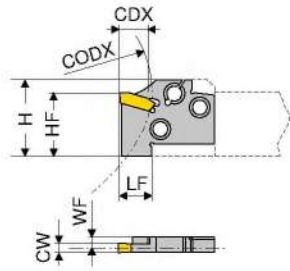
Internal machining

External machining

→ 40+41	→ 45	→ 38+39	→ 43						

ModularClamp MSS – Radial grooving module GX 09/16

- ▲ For circlip grooves = 2,75 mm
- ▲ For radius grooves up to = 1,2 mm
- ▲ For external recessing



Illustrations show right-hand versions



Designation	CW	WF	LF	HF	H	CODX	CDX	for grooving inserts	Left-hand		Right-hand	
									Article no. 70 871 ...	2C/71	Article no. 70 870 ...	2C/71
E12 R/L 02-GX 09-1	<1,95	3.15	8	12	14.5	36	2	GX 09-1 ..R/L	£ 77.21	112	£ 77.21	112
E16 R/L 02-GX 09-1	<1,95	3.15	8	16	19.5	48	2	GX 09-1 ..R/L	£ 78.07	116	£ 78.07	116
E20 R/L 03-GX 16-2	<2,75	3.40	13	20	24.0	60	3	GX 16-2 ..R/L	£ 78.07	120	£ 78.07	120
E25 R/L 03-GX 16-2	<2,75	4.90	13	25	30.0	75	3	GX 16-2 ..R/L	£ 78.65	125	£ 78.65	125
E32 R/L 03-GX 16-2	<2,75	4.90	13	32	38.0	96	3	GX 16-2 ..R/L	£ 79.40	132	£ 79.40	132



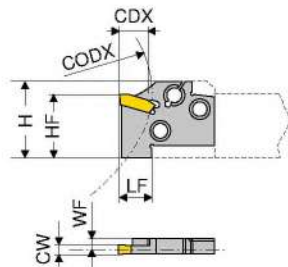
→ 30-37

→ 93-95

→ Chapter 16

ModularClamp MSS – Radial grooving module GX 09/16

- ▲ For grooving and turning
- ▲ For circlip grooves = 5,25 mm
- ▲ For radius grooves up to = 2,5 mm
- ▲ For external recessing



Illustrations show right-hand versions

Designation	CW	WF	LF	HF	H	CODX	CDX	for grooving inserts	Left-hand		Right-hand	
									2C/71	Article no.	2C/71	Article no.
	mm	mm	mm	mm	mm	mm	mm		70 866 ...		70 865 ...	
E12 R/L 07-GX 09-1	2,00 - 2,75	3.15	8	12	14.5	36	7	GX 09-1 ..N	£ 77.21	012	£ 77.21	012
E12 R/L 07-GX 09-2	2,76 - 3,75	3.15	8	12	14.5	36	7	GX 09-2 ..N	£ 77.21	112	£ 77.21	112
E16 R/L 07-GX 09-1	2,00 - 2,75	3.15	8	16	19.5	48	7	GX 09-1 ..N	£ 78.07	016	£ 78.07	016
E16 R/L 07-GX 09-2	2,76 - 3,75	3.15	8	16	19.5	48	7	GX 09-2 ..N	£ 78.07	116	£ 78.07	116
E20 R/L 12-GX 16-1	2,00 - 2,75	3.75	13	20	24.0	60	12	GX 16-1 ..N	£ 78.07	020	£ 78.07	020
E20 R/L 12-GX 16-2	2,76 - 3,75	3.40	13	20	24.0	60	12	GX 16-2 ..N	£ 78.07	120	£ 78.07	120
E20 R/L 12-GX 16-3	3,76 - 5,00	2.93	13	20	24.0	60	12	GX 16-3 ..N	£ 78.07	220	£ 78.07	220
E25 R/L 12-GX 16-1	2,00 - 2,75	5.25	13	25	30.0	75	12	GX 16-1 ..N	£ 78.65	025	£ 78.65	025
E25 R/L 12-GX 16-2	2,76 - 3,75	4.90	13	25	30.0	75	12	GX 16-2 ..N	£ 78.65	125	£ 78.65	125
E25 R/L 12-GX 16-3	3,76 - 5,00	4.43	13	25	30.0	75	12	GX 16-3 ..N	£ 78.65	225	£ 78.65	225
E25 R/L 12-GX 16-4	5,01 - 6,50	3.80	13	25	30.0	75	12	GX 16-4 ..N	£ 78.65	325	£ 78.65	325
E32 R/L 12-GX 16-2	2,76 - 3,75	4.90	13	32	38.0	96	12	GX 16-2 ..N	£ 79.40	132	£ 79.40	132
E32 R/L 12-GX 16-3	3,76 - 5,00	4.43	13	32	38.0	96	12	GX 16-3 ..N	£ 79.40	232	£ 79.40	232
E32 R/L 12-GX 16-4	5,01 - 6,50	3.80	13	32	38.0	96	12	GX 16-4 ..N	£ 79.40	332	£ 79.40	332



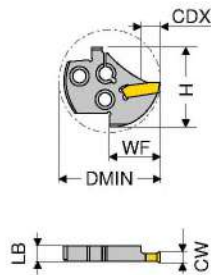
→ 30-37

→ 93-95

→ Chapter 16

ModularClamp MSS – Radial Grooving module GX 09/16 for Internal machining

- ▲ For circlip grooves = 2,75 mm
- ▲ For radius grooves up to = 1,2 mm



Illustrations show right-hand versions

Designation	CW	LB	WF	H	CDX	DMIN	for grooving inserts	Left-hand		Right-hand	
								2C/71		2C/71	
								Article no.		Article no.	
I16 R/L 02-GX 09-1	<1,95	3.8	10.0	16.4	2	20	GX 09-1 ..R/L	70 886 ...	016	70 885 ...	016
I20 R/L 02-GX 09-1	<1,95	3.8	12.0	20.3	2	25	GX 09-1 ..R/L	78.07	020	78.07	020
I25 R/L 02-GX 09-1	<1,95	3.8	15.5	24.9	2	32	GX 09-1 ..R/L	78.65	025	78.65	025
I32 R/L 03-GX 16-2	<2,75	5.9	20.0	32.2	3	40	GX 16-2 ..R/L	79.40	032	79.40	032
I40 R/L 03-GX 16-2	<2,75	5.9	24.5	39.6	3	50	GX 16-2 ..R/L	80.07	040	80.07	040

i Right hand module → left hand insert only
Left hand module → right hand insert only

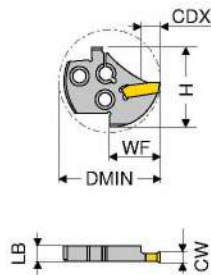


→ 30-37

→ 96

ModularClamp MSS – Radial Grooving module 09/16 for Internal machining

- ▲ For circlip grooves = 5,25 mm
- ▲ For radius grooves up to = 2,5 mm



Illustrations show right-hand versions

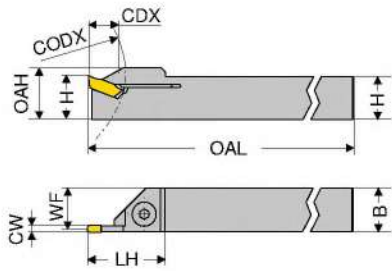
Designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts	Left-hand		Right-hand	
								2C/71		2C/71	
								Article no. 70 881 ...	£	Article no. 70 880 ...	£
I16 R/L 04-GX 09-1	2,00 - 2,75	3.8	10.0	16.4	4	20	GX 09-1 ..N	78.07	017	78.07	017
I16 R/L 04-GX 09-2	2,76 - 3,75	3.8	10.0	16.4	4	20	GX 09-2 ..N	78.07	117	78.07	117
I20 R/L 05-GX 09-1	2,00 - 2,75	3.8	12.0	20.3	5	25	GX 09-1 ..N	78.07	021	78.07	021
I20 R/L 05-GX 09-2	2,76 - 3,75	3.8	12.0	20.3	5	25	GX 09-2 ..N	78.07	121	78.07	121
I25 R/L 06-GX 09-1	2,00 - 2,75	3.8	15.5	24.9	6	32	GX 09-1 ..N	78.65	026	78.65	026
I25 R/L 06-GX 09-2	2,76 - 3,75	3.8	15.5	24.9	6	32	GX 09-2 ..N	78.65	126	78.65	126
I32 R/L 09-GX 16-1	2,00 - 2,75	5.9	20.0	32.2	9	40	GX 16-1 ..N	79.40	033	79.40	033
I32 R/L 09-GX 16-2	2,76 - 3,75	5.9	20.0	32.2	9	40	GX 16-2 ..N	79.40	133	79.40	133
I32 R/L 09-GX 16-3	3,76 - 5,00	5.9	20.0	32.2	9	40	GX 16-3 ..N	79.40	233	79.40	233
I32 R/L 09-GX 16-4	5,01 - 6,50	5.9	20.0	32.2	9	40	GX 16-4 ..N	79.40	333	79.40	333
I40 R/L 10-GX 16-1	2,00 - 2,75	5.9	24.5	39.6	10	50	GX 16-1 ..N	80.07	041	80.07	041
I40 R/L 10-GX 16-2	2,76 - 3,75	5.9	24.5	39.6	10	50	GX 16-2 ..N	80.07	141	80.07	141
I40 R/L 10-GX 16-3	3,76 - 5,00	5.9	24.5	39.6	10	50	GX 16-3 ..N	80.07	241	80.07	241
I40 R/L 10-GX 16-4	5,01 - 6,50	5.9	24.5	39.6	10	50	GX 16-4 ..N	80.07	341	80.07	341



→ 30-37

→ 96

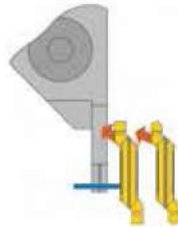
MonoClamp – Radial Monoholder GX 09



Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	CODX mm	CDX mm	for grooving inserts	Left-hand		Right-hand	
											2C/71		2C/71	
E10 R/L 00-1010M-GX09	10	10	2,00 - 3,50	9,35	12	150	18	30	7	GX 09 ..	Article no. 70 863 ...	Article no. 70 862 ...	£	£
											112.27	010	112.27	010

i When using „R“ or „L“ tools the tool must be modified at the end face to ensure cutting clearance.



Spare parts

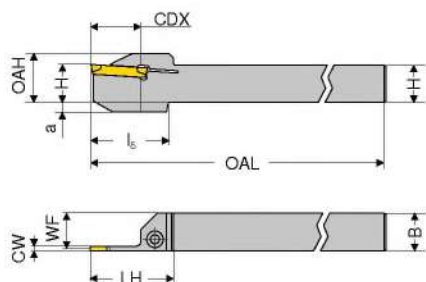
for grooving inserts
GX 09 ..

	Y7	2A/28
	Key D	Clamping screw
	Article no. 80 950 ...	Article no. 70 950 ...
	£	£
T15	12.26 113	M4x11
		9.40 442



→ 30-36

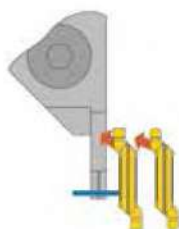
MonoClamp – Radial Monoholder GX 16



Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l _s mm	a mm	CDX mm	for grooving inserts	Left-hand		Right-hand	
												2C/71		2C/71	
												Article no. 70 889 ...	£	Article no. 70 888 ...	£
E12 R/L 0012-1212K-GX16-1	12	12	2,00 - 2,75	11.35	17	125	26	24	4	12	GX 16-1	82.84	212	82.84	212
E12 R/L 0012-1212K-GX16-2	12	12	2,76 - 3,75	11.00	17	125	26	24	4	12	GX 16-2	82.84	312	82.84	312
E16 R/L 0012-1616K-GX16-1	16	16	2,00 - 2,75	15.35	21	125	26	24	4	12	GX 16-1	88.45	216	88.45	216
E16 R/L 0012-1616K-GX16-2	16	16	2,76 - 3,75	15.00	21	125	26	24	4	12	GX 16-2	88.45	316	88.45	316
E16 R/L 0012-1616K-GX16-3	16	16	3,76 - 5,00	14.53	21	125	26	24	4	12	GX 16-3	88.45	416	88.45	416
E20 R/L 0012-2020K-GX16-1	20	20	2,00 - 2,75	19.35	25	125	26			12	GX 16-1	101.82	220	101.82	220
E20 R/L 0012-2020K-GX16-2	20	20	2,76 - 3,75	19.00	25	125	26			12	GX 16-2	101.82	320	101.82	320
E20 R/L 0012-2020K-GX16-3	20	20	3,76 - 5,00	18.53	25	125	26			12	GX 16-3	101.82	420	101.82	420
E25 R/L 0012-2525M-GX16-2	25	25	2,76 - 3,75	24.00	30	150	26			12	GX 16-2	108.27	325	108.27	325
E25 R/L 0012-2525M-GX16-3	25	25	3,76 - 5,00	23.53	30	150	26			12	GX 16-3	108.27	425	108.27	425

i When using „R“ or „L“ tools the tool must be modified at the end face to ensure cutting clearance.



Spare parts

for grooving inserts

	Article no. 80 950 ...	£	Article no. 70 950 ...	£
GX 16-1	T15	12.26 113	M3,5x14	3.72 160
GX 16-2	T15	12.26 113	M3,5x14	3.72 160
GX 16-3	T15	12.26 113	M3,5x14	3.72 160



Key D

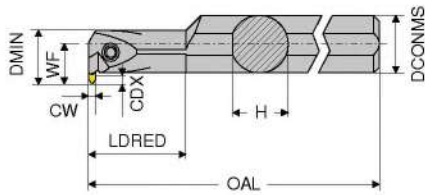


Clamping screw



→ 30-37

MonoClamp – Radial Mono-boring bars GX 09

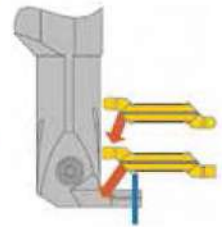


Illustrations show right-hand versions

Designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand		Right-hand	
										2C/71		2C/71	
I12 R/L 90-2,5D-GX09	15.25	16	16	2,00 - 3,75	3	11	150	30	GX 09 ..	Article no. 70 859 ...	Article no. 70 858 ...	£	£
										137.64	012	137.64	012

i Right hand boring bar → left hand insert only
Left hand boring bar → right hand insert only

i When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.



Spare parts

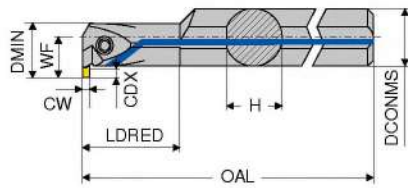
for grooving inserts
GX 09 ..

	Y7	2A/28
	Key D	Clamping screw
	Article no. 80 950 ...	Article no. 70 950 ...
	£	£
T15	12.26 113	M3,5x12,5
		8.15 441



→ 30-36

MonoClamp – Radial Mono-boring bars GX 16

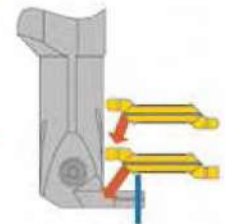


Illustrations show right-hand versions

Designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand		Right-hand	
										2C/71 Article no. 70 893 ...	£	2C/71 Article no. 70 892 ...	£
I16 R/L 90-2.0D-GX16-1	15.25	16	20.5	2,00-2,75	5.0	13.5	150	32	GX 16-1	121.18	516	121.18	516
I16 R/L 90-2.0D-GX16-2	15.25	16	20.5	2,76-3,75	5.0	13.5	150	32	GX 16-2	121.18	616	121.18	616
I20 R/L 90-2.0D-GX16-2	19.00	20	25.0	2,76-3,75	5.5	15.5	180	40	GX 16-2	130.91	620	130.91	620
I25 R/L 90-2.0D-GX16-2	24.00	25	32.0	2,76-3,75	8.0	20.5	200	50	GX 16-2	152.18	625	152.18	625
I25 R/L 90-2.0D-GX16-3	24.00	25	32.0	3,76-5,00	10.0	22.5	200	50	GX 16-3	152.18	725	152.18	725
I32 R/L 90-2.0D-GX16-2	31.00	32	42.0	2,76-3,75	11.0	27.5	250	64	GX 16-2	176.91	632	176.91	632
I32 R/L 90-2.0D-GX16-3	31.00	32	42.0	3,76-5,00	11.0	27.5	250	64	GX 16-3	176.91	732	176.91	732

i Right hand boring bar → left hand insert only
Left hand boring bar → right hand insert only

i When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.



Spare parts

for grooving inserts

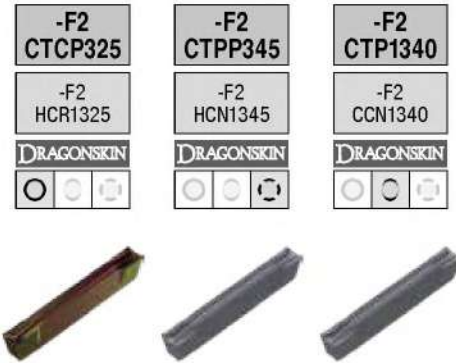
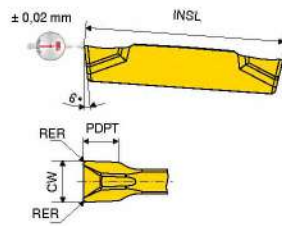
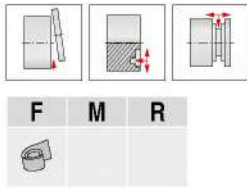
		Article no. 80 950 ...		Article no. 70 950 ...	
		£		£	
GX 16-1	T15	12.26	113	7.80	403
GX 16-2	T15	12.26	113	7.80	403
GX 16-3	T15	12.26	113	7.80	403



→ 30-37

Insert GX 24

- ▲ Insert with ground periphery
- ▲ Suitable also for parting off tubes and thin-walled workpieces



Designation	INSL	CW $_{+/-0.02}$	RE $_{+/-0.05}$	PDPT	for tool holder
GX 24-2 E3.00 N 0.30	24	3.0	0.3	2.5	GX 24-2
GX 24-2 E3.50 N 0.30	24	3.5	0.3	2.5	GX 24-2
GX 24-3 E4.00 N 0.40	24	4.0	0.4	3.0	GX 24-3
GX 24-3 E5.00 N 0.40	24	5.0	0.4	3.5	GX 24-3
GX 24-4 E6.00 N 0.50	24	6.0	0.5	4.0	GX 24-4

1C/72		1C/72		1C/72	
Article no. 70 350 ...		Article no. 70 350 ...		Article no. 70 350 ...	
£		£		£	
24.67	962	24.67	862	24.67	662
		24.67	864		
26.63	966	26.63	866	26.63	666
29.22	970	29.22	870	29.22	671
		32.11	872	32.11	672

Steel	●	●	●
Stainless steel	○	●	●
Cast iron	●		●
Non ferrous metals			○
Heat resistant alloys		○	●
hardened materials	○		

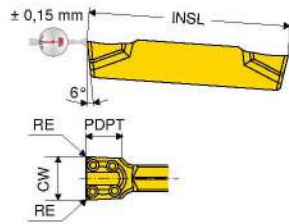
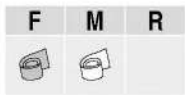
→ v_c Page 101
→ Application recommendation on page 103

Internal machining

External machining



Insert GX 24-E



Designation	INSL mm	CW $\pm 0,05$ mm	RE $\pm 0,05$ mm	PDPT mm	for tool holder	1C/72		1C/72		1C/72		1C/72	
						Article no. 70 350 ...	£	Article no. 70 350 ...	£	Article no. 70 350 ...	£	Article no. 70 350 ...	£
GX 24-2 E3.00 N 0.30	24	3	0.3	2.5	GX 24-2	16.61	932	16.61	532	16.37	832	16.61	632
GX 24-3 E4.00 N 0.40	24	4	0.4	3.0	GX 24-3	18.17	936	18.17	536	18.17	836	18.17	636
GX 24-3 E5.00 N 0.40	24	5	0.4	3.0	GX 24-3	19.82	940	19.82	540	19.82	840	19.82	640
GX 24-4 E6.00 N 0.50	24	6	0.5	3.5	GX 24-4	21.78	944	21.78	544	21.78	844	21.78	644

Steel	●	●	●	●
Stainless steel	○	○	●	●
Cast iron	●	●	●	●
Non ferrous metals				○
Heat resistant alloys				○
hardened materials	○			

→ v_c Page 101
→ Application recommendation on page 103

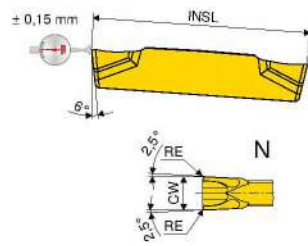
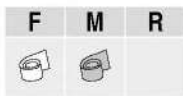
Internal machining

External machining



Insert GX 24

▲ Very good swarf control



Designation	INSL mm	CW $\pm 0,05$ mm	RE $\pm 0,05$ mm	for tool holder	1C/72		1C/72		1C/72	
					Article no. 70 363 ...	£	Article no. 70 363 ...	£	Article no. 70 363 ...	£
GX 24-1 E2.00 N 0.20	24	2	0.2	GX 24-1	16.61 900	16.61	800	16.61	600	
GX 24-2 E3.00 N 0.20	24	3	0.2	GX 24-2	16.61 902	16.61	802	16.61	602	
GX 24-3 E4.00 N 0.30	24	4	0.3	GX 24-3	18.17 904	18.17	804	18.17	604	

Steel	●	●	●
Stainless steel	○	●	●
Cast iron	●	●	●
Non ferrous metals			○
Heat resistant alloys		○	●
hardened materials	○		

→ v_c Page 101

→ Application recommendation on page 104

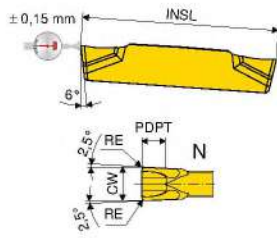
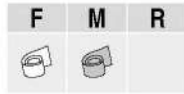
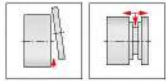
Internal machining

External machining



Insert GX 24

▲ Very good swarf control



Designation	INSL	CW $\pm 0,05$	RE $\pm 0,05$	PDPT	for tool holder	1C/72		1C/72		1C/72	
						Article no.	£	Article no.	£	Article no.	£
GX 24-2 E3.00 N 0.30	24	3	0.3	3.5	GX 24-2	70 364 ...	16.61	900	70 364 ...	16.61	800
GX 24-3 E4.00 N 0.40	24	4	0.4	4.0	GX 24-3	70 364 ...	18.17	902	70 364 ...	18.17	802
GX 24-3 E5.00 N 0.40	24	5	0.4	4.0	GX 24-3	70 364 ...	19.82	904	70 364 ...	19.82	804
GX 24-4 E6.00 N 0.50	24	6	0.5	4.0	GX 24-4	70 364 ...	21.78	906	70 364 ...	21.78	806

Steel	●	●	●
Stainless steel	○	●	●
Cast iron	●	○	●
Non ferrous metals	○	○	○
Heat resistant alloys	○	○	●
hardened materials	○	○	○

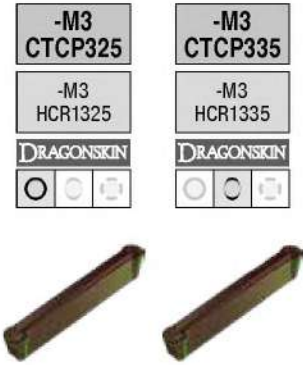
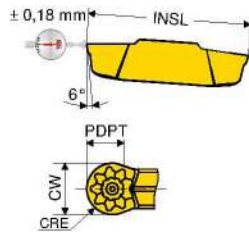
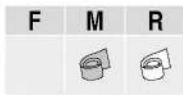
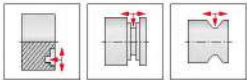
→ v_c Page 101
→ Application recommendation on page 103

Internal machining

External machining



Radius groove insert GX 24



Designation	INSL	CW $\pm 0,05$		CRE	PDPT	for tool holder
		mm	mm			
GX 24-2 R1.50 N	24.4	3		1.5	1.5	GX 24-2
GX 24-3 R2.00 N	24.4	4		2.0	2.5	GX 24-3
GX 24-3 R2.50 N	24.4	5		2.5	3.0	GX 24-3
GX 24-4 R3.00 N	24.4	6		3.0	4.0	GX 24-4

1C/72		1C/72	
Article no. 70 354 ...		Article no. 70 354 ...	
£		£	
22.09	952	22.09	552
23.65	954	23.65	554
24.67	956	24.67	556
26.53	958	26.53	558

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals		
Heat resistant alloys		
hardened materials	○	

→ v_c Page 101
→ Application recommendation on page 104

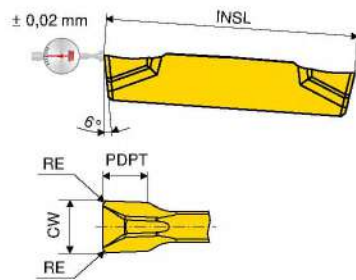
Internal machining

External machining



Insert GX 24

- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge
- ▲ ground periphery



Designation	INSL	CW $\pm 0,02$	RE $\pm 0,05$	PDPT	for tool holder
	mm	mm	mm	mm	
GX 24-2 E3.00 N 0.30	24	3	0.3	2.5	GX 24-2
GX 24-3 E4.00 N 0.40	24	4	0.4	3.0	GX 24-3
GX 24-3 E5.00 N 0.40	24	5	0.4	3.5	GX 24-3
GX 24-4 E6.00 N 0.50	24	6	0.5	4.0	GX 24-4

1C/72
Article no. 70 350 ...
£
19.82 682
21.78 684
22.71 686
23.55 688

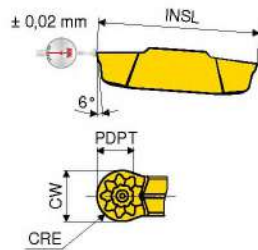
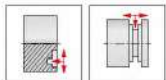
Steel	
Stainless steel	
Cast iron	•
Non ferrous metals	•
Heat resistant alloys	
hardened materials	

→ v_e Page 101
→ Application recommendation on page 103



Radius grooving insert GX 24

- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge
- ▲ Ground periphery



Designation	INSL	CW $_{-0,02}^{+0,02}$	CRE	PDPT	for tool holder
	mm	mm	mm	mm	
GX 24-4 R3.00 N	25.4	6	3	4	GX 24-4
GX 24-5 R4.00 N	25.4	8	4	5	GX 24-5

1C/72
Article no. 70 353 ...
£
29.62 500
31.27 506

Steel	
Stainless steel	
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c Page 101
→ Application recommendation on page 104

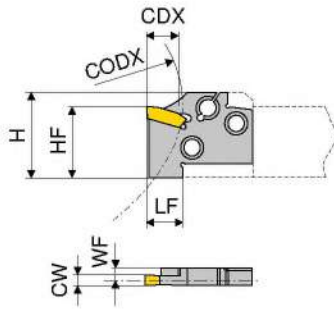
Internal machining

External machining



ModularClamp MSS – Radial grooving module GX 24

- ▲ For deep radial parting and grooving
- ▲ For turning



Illustrations show right-hand versions



Designation	CW	WF	LF	HF	H	CODX	CDX	for grooving inserts	Left-hand		Right-hand	
									2C/71		2C/71	
									Article no.	£	Article no.	£
E20 R/L 21-GX 24-1	2,00 - 2,75	3.85	22	20	24	60	21	GX 24-1	70 868 ...	020	70 867 ...	020
E20 R/L 21-GX 24-2	3	3.40	22	20	24	60	21	GX 24-2	78.07	120	78.07	120
E25 R/L 21-GX 24-1	2,00 - 2,75	5.10	22	25	30	75	21	GX 24-1	78.65	025	78.65	025
E25 R/L 21-GX 24-2	3	4.90	22	25	30	75	21	GX 24-2	78.65	125	78.65	125
E25 R/L 21-GX 24-3	4/5	4.43	22	25	30	75	21	GX 24-3	78.65	225	78.65	225
E25 R/L 21-GX 24-4	6	3.80	22	25	30	75	21	GX 24-4	78.65	325	78.65	325
E25 R/L 21-GX 24-5	8	2.95	22	25	30	75	21	GX 24-5	78.65	425	78.65	425
E32 R/L 21-GX 24-3	4/5	4.43	22	32	38	96	21	GX 24-3	79.40	232	79.40	232
E32 R/L 21-GX 24-4	6	3.80	22	32	38	96	21	GX 24-4	79.40	332	79.40	332



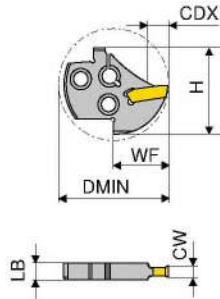
→ 46-52

→ 93-95

→ Chapter 16

ModularClamp MSS – Radial Grooving module GX 24 for Internal machining

▲ For grooving and turning



Neutral

2C/71

Designation	CW	LB	WF	H	CDX	DMIN	for grooving inserts	Article no.	
	mm	mm	mm	mm	mm	mm		£	
I40 N 19-GX 24-2	2,76 - 3,75	6.2	33.5	40.7	19	60	GX 24-2 ..N	90.91	340
I40 N 19-GX 24-3	3,76 - 5,00	6.2	33.5	40.7	19	60	GX 24-3 ..N	90.91	440
I40 N 19-GX 24-4	5,01 - 6,50	6.2	33.5	40.7	19	60	GX 24-4 ..N	90.91	540

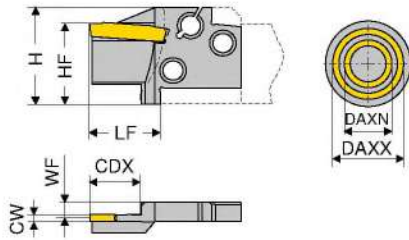


→ 46-52

→ 96

ModularClamp MSS – Axial grooving module GX 24 short

- ▲ For axial grooving
- ▲ For face turning



Illustrations show right-hand versions

Designation	DAXN	DAXX	CW	WF	LF	HF	H	CDX	for grooving inserts	Left-hand		Right-hand	
										2C/71		2C/71	
										Article no. 70 891 ...	£	Article no. 70 890 ...	£
E20 R/L 14-GX 24-2 A	50	70	3	3.40	22	20	24	14	GX 24-2	101.36	100	101.36	100
E20 R/L 14-GX 24-2 A	70	100	3	3.40	22	20	24	14	GX 24-2	101.36	102	101.36	102
E20 R/L 14-GX 24-2 A	100	150	3	3.40	22	20	24	14	GX 24-2	101.36	104	101.36	104
E25 R/L 15-GX 24-2 A	50	70	3	4.90	22	25	30	15	GX 24-2	102.27	200	102.27	200
E25 R/L 15-GX 24-2 A	70	100	3	4.90	22	25	30	15	GX 24-2	102.27	202	102.27	202
E25 R/L 15-GX 24-2 A	100	150	3	4.90	22	25	30	15	GX 24-2	102.27	204	102.27	204
E25 R/L 15-GX 24-3 A	50	70	4/5	4.43	22	25	30	15	GX 24-3	102.27	206	102.27	206
E25 R/L 15-GX 24-3 A	70	100	4/5	4.43	22	25	30	15	GX 24-3	102.27	208	102.27	208
E25 R/L 15-GX 24-3 A	100	150	4/5	4.43	22	25	30	15	GX 24-3	102.27	210	102.27	210
E25 R/L 15-GX 24-3 A	150	300	4/5	4.43	22	25	30	15	GX 24-3	102.27	212	102.27	212
E25 R/L 15-GX 24-4 A	50	70	6	3.80	22	25	30	15	GX 24-4	102.27	214	102.27	214
E25 R/L 15-GX 24-4 A	70	100	6	3.80	22	25	30	15	GX 24-4	102.27	216	102.27	216
E25 R/L 15-GX 24-4 A	100	150	6	3.80	22	25	30	15	GX 24-4	102.27	218	102.27	218
E25 R/L 15-GX 24-4 A	150	300	6	3.80	22	25	30	15	GX 24-4	102.27	220	102.27	220
E32 R/L 15-GX 24-3 A	70	100	4/5	4.43	22	32	38	15	GX 24-3	103.09	300	103.09	300
E32 R/L 15-GX 24-3 A	100	150	4/5	4.43	22	32	38	15	GX 24-3	103.09	302	103.09	302
E32 R/L 15-GX 24-3 A	150	300	4/5	4.43	22	32	38	15	GX 24-3	103.09	304	103.09	304
E32 R/L 15-GX 24-4 A	70	100	6	3.80	22	32	38	15	GX 24-4	103.09	306	103.09	306
E32 R/L 15-GX 24-4 A	100	150	6	3.80	22	32	38	15	GX 24-4	103.09	308	103.09	308
E32 R/L 15-GX 24-4 A	150	300	6	3.80	22	32	38	15	GX 24-4	103.09	310	103.09	310
E32 R/L 15-GX 24-4 A	300	900	6	3.80	22	32	38	15	GX 24-4	103.09	312	103.09	312



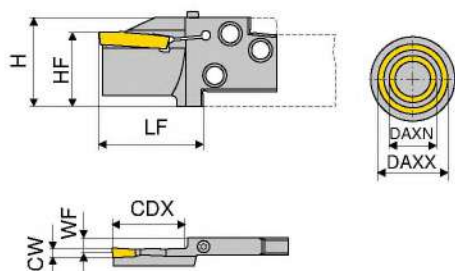
→ 46-52

→ 93-95

→ Chapter 16

ModularClamp MSS – Axial grooving module GX 24 long

- ▲ For axial grooving
- ▲ For face turning



Illustrations show right-hand versions

Designation	DAXN	DAXX	CW	WF	LF	HF	H	CDX	for grooving inserts	Left-hand		Right-hand	
										2C/71		2C/71	
										Article no.	£	Article no.	£
E25 R/L 21-GX 24-3 AS	50	70	4/5	4.53	35	25	30	21	GX 24-3	70 895 ...	200	70 894 ...	200
E25 R/L 21-GX 24-3 AS	70	100	4/5	4.53	35	25	30	21	GX 24-3	104.36	202	104.36	202
E25 R/L 21-GX 24-3 AS	100	150	4/5	4.53	35	25	30	21	GX 24-3	104.36	204	104.36	204
E25 R/L 21-GX 24-3 AS	150	300	4/5	4.53	35	25	30	21	GX 24-3	104.36	206	104.36	206
E25 R/L 25-GX 24-4 AS	50	70	6	3.90	35	25	30	25	GX 24-4	104.36	210	104.36	210
E25 R/L 25-GX 24-4 AS	70	100	6	3.90	35	25	30	25	GX 24-4	104.36	212	104.36	212
E25 R/L 25-GX 24-4 AS	100	150	6	3.90	35	25	30	25	GX 24-4	104.36	214	104.36	214
E25 R/L 25-GX 24-4 AS	150	300	6	3.90	35	25	30	25	GX 24-4	104.36	216	104.36	216

i Axial modules version „GX 24 long“ can be clamped on both sides.

Spare parts

for grooving inserts

		Article no. 80 950 ...		Article no. 70 950 ...	
		£		£	
GX 24-3	T15	12.26	113	3.72	160
GX 24-4	T15	12.26	113	3.72	160



→ 46-52

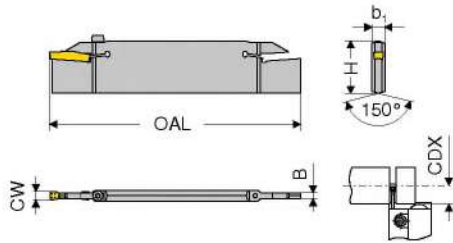
→ 93-95

→ Chapter 16

MonoClamp – Radial Blade GX 24

Scope of supply:

Blade incl. clamping screw and tightening wrench



Designation	CW	H	B	b ₁	OAL	CDX	for grooving inserts	2A/25		
								Article no.	Price	
XLCF N 3203-GX24-1S	2	32	1.05	6.2	180	21	GX 24-1	70 834 ...	76.16	102
XLCF N 3203-GX24-2S	3	32	2.10	6.2	180	21	GX 24-2	70 834 ...	77.31	103
XLCF N 3204-GX24-3S	4/5	32	3.05	6.2	180	21	GX 24-3	70 834 ...	82.45	104
XLCF N 3206-GX24-4S	6	32	4.20	6.2	180	21	GX 24-4	70 834 ...	97.45	106

Spare parts

for grooving inserts

		Y7		2A/28	
		Article no.	Price	Article no.	Price
GX 24-1	T15	80 950 ...	12.26	70 950 ...	3.72
GX 24-2	T15	80 950 ...	12.26	70 950 ...	3.72
GX 24-3	T15	80 950 ...	12.26	70 950 ...	3.72
GX 24-4	T15	80 950 ...	12.26	70 950 ...	3.72

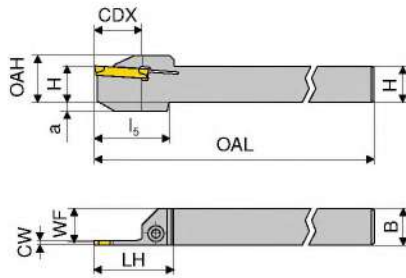


→ 46-52

→ 98+99

→ Chapter 16

MonoClamp – Radial Monoholder GX 24



Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l ₅ mm	CDX mm	a mm	for grooving inserts	Left-hand		Right-hand	
												2C/71		2C/71	
												Article no. 70 863 ...	£	Article no. 70 862 ...	£
E16 R/L 0021-1616K-GX24-1	16	16	2,00 - 2,75	15.20	21	125	35	32	21	4	GX 24-1	95.09	160	95.09	160
E16 R/L 0021-1616K-GX24-2	16	16	2,76 - 3,75	15.00	21	125	35	32	21	4	GX 24-2	95.09	016	95.09	016
E20 R/L 0021-2020K-GX24-1	20	20	2,00 - 2,75	19.20	25	125	35		21		GX 24-1	109.45	200	109.45	200
E20 R/L 0021-2020K-GX24-2	20	20	2,76 - 3,75	19.00	25	125	35		21		GX 24-2	109.45	020	109.45	020
E20 R/L 0021-2020K-GX24-3	20	20	3,76 - 5,00	18.53	25	125	35		21		GX 24-3	109.45	120	109.45	120
E25 R/L 0021-2525M-GX24-2	25	25	2,76 - 3,75	24.00	30	150	35		21		GX 24-2	117.00	025	117.00	025
E25 R/L 0021-2525M-GX24-3	25	25	3,76 - 5,00	23.53	30	150	35		21		GX 24-3	117.00	125	117.00	125
E25 R/L 0021-2525M-GX24-4	25	25	5,01 - 6,50	22.90	30	150	35		21		GX 24-4	117.00	225	117.00	225
E32 R/L 0021-3225P-GX24-2	32	25	2,76 - 3,75	24.00	37	170	35		21		GX 24-2	125.00	032	125.00	032
E32 R/L 0021-3225P-GX24-3	32	25	3,76 - 5,00	23.53	37	170	35		21		GX 24-3	125.00	132	125.00	132
E32 R/L 0021-3225P-GX24-4	32	25	5,01 - 6,50	22.90	37	170	35		21		GX 24-4	125.00	232	125.00	232

Spare parts

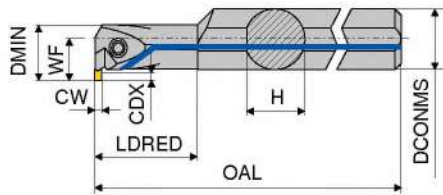
for grooving inserts

		Article no. 80 950 ...		Article no. 70 950 ...	
		£		£	
GX 24-1	T20	13.11	114	4.33	204
GX 24-2	T20	13.11	114	4.33	204
GX 24-3	T20	13.11	114	4.33	204
GX 24-4	T20	13.11	114	4.33	204



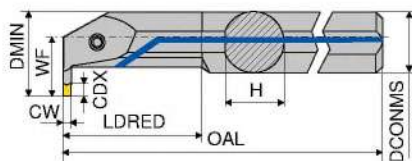
→ 46-52

MonoClamp – Radial Mono-boring bars GX 24



Designation	H	DCONMS	DMIN	CW	CDX	WF	OAL	LDRED	for grooving inserts	Left-hand		Right-hand	
										2C/71		2C/71	
	mm	mm	mm	mm	mm	mm	mm	mm		Article no.	Article no.	Article no.	Article no.
I32 R/L 90-2.0D-GX24-2	31.0	32	42	2,76 - 3,75	11	27.5	250	64	GX 24-2	70 895 ...	70 894 ...	70 895 ...	70 894 ...
I32 R/L 90-2.0D-GX24-3	31.0	32	42	3,76 - 5,00	11	27.5	250	64	GX 24-3	£ 176.91	£ 176.91	132	132
I40 R/L 90-2.0D-GX24-3	38.5	40	53	3,76 - 5,00	12	32.5	300	80	GX 24-3	£ 219.82	£ 219.82	240	240

MonoClamp – Radial Mono-boring bars GX 24



Designation	H	DCONMS	DMIN	CW	CDX	WF	OAL	LDRED	for grooving inserts	Left-hand		Right-hand	
										2C/71		2C/71	
	mm	mm	mm	mm	mm	mm	mm	mm		Article no.	Article no.	Article no.	Article no.
I32 R/L 90-2.0D-GX24-4	31.0	32	47	5,01 - 6,50	17.5	30.4	250	64	GX 24-4	70 895 ...	70 894 ...	70 895 ...	70 894 ...
I40 R/L 90-2.0D-GX24-4	38.5	40	57	5,01 - 6,50	17.5	34.4	300	80	GX 24-4	£ 176.91	£ 176.91	332	332
										£ 219.82	£ 219.82	340	340

11

Spare parts

for grooving inserts

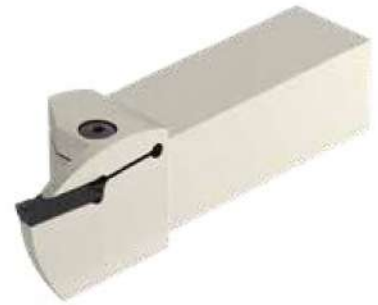
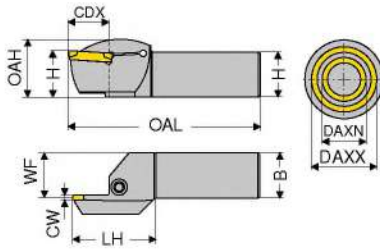
	Y7		2A/28	
	Article no.	Article no.	Article no.	Article no.
GX 24-2	80 950 ...	70 950 ...	80 950 ...	70 950 ...
GX 24-3	£ 13.11	£ 5.20	114	404
GX 24-4	£ 13.11	£ 5.20	114	404



	Y7		2A/28	
	Article no.	Article no.	Article no.	Article no.
GX 24-2	80 950 ...	70 950 ...	80 950 ...	70 950 ...
GX 24-3	£ 13.11	£ 5.20	114	404
GX 24-4	£ 13.11	£ 5.20	114	404



MonoClamp – Axial Monoholder GX24



Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	DAXN mm	DAXX mm	OAH mm	OAL mm	LH mm	CDX mm	for grooving inserts	Left-hand		Right-hand	
												2C/71		2C/71	
												Article no. 70 904 ...	£	Article no. 70 903 ...	£
E25 R/L 0012-2525X-GX24-2	25	25	3	24.7	40	45	32	115	45	12	GX 24-2	119.18	200	119.18	200
E25 R/L 0012-2525X-GX24-2	25	25	3	24.7	45	50	32	115	45	12	GX 24-2	119.18	202	119.18	202
E25 R/L 0016-2525X-GX24-2	25	25	3	24.7	50	60	32	115	45	16	GX 24-2	119.18	204	119.18	204
E25 R/L 0019-2525X-GX24-2	25	25	3	24.7	60	75	32	115	45	19	GX 24-2	119.18	206	119.18	206
E25 R/L 0019-2525X-GX24-2	25	25	3	24.7	75	100	32	115	45	19	GX 24-2	119.18	208	119.18	208
E25 R/L 0022-2525X-GX24-2	25	25	3	24.7	100	130	32	115	45	22	GX 24-2	119.18	210	119.18	210
E25 R/L 0022-2525X-GX24-2	25	25	3	24.7	130	180	32	115	45	22	GX 24-2	119.18	212	119.18	212
E25 R/L 0022-2525X-GX24-2	25	25	3	24.7	180	300	32	115	45	22	GX 24-2	119.18	214	119.18	214
E25 R/L 0012-2525X-GX24-3	25	25	4+5	24.2	40	45	32	115	45	12	GX 24-3	119.18	230	119.18	230
E25 R/L 0012-2525X-GX24-3	25	25	4+5	24.2	45	50	32	115	45	12	GX 24-3	119.18	232	119.18	232
E25 R/L 0020-2525X-GX24-3	25	25	4+5	24.2	50	60	32	115	45	20	GX 24-3	119.18	234	119.18	234
E25 R/L 0020-2525X-GX24-3	25	25	4+5	24.2	60	75	32	115	45	20	GX 24-3	119.18	236	119.18	236
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24.2	75	100	32	115	45	22	GX 24-3	119.18	238	119.18	238
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24.2	100	150	32	115	45	22	GX 24-3	119.18	240	119.18	240
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24.2	150	300	32	115	45	22	GX 24-3	119.18	242	119.18	242
E25 R/L 0020-2525X-GX24-4	25	25	6	23.2	40	50	32	115	45	20	GX 24-4	119.18	260	119.18	260
E25 R/L 0022-2525X-GX24-4	25	25	6	23.2	50	70	32	115	45	22	GX 24-4	119.18	262	119.18	262
E25 R/L 0025-2525X-GX24-4	25	25	6	23.2	70	100	32	115	45	25	GX 24-4	119.18	264	119.18	264
E25 R/L 0025-2525X-GX24-4	25	25	6	23.2	100	150	32	115	45	25	GX 24-4	119.18	266	119.18	266
E25 R/L 0025-2525X-GX24-4	25	25	6	23.2	150	300	32	115	45	25	GX 24-4	119.18	268	119.18	268

Spare parts

for grooving inserts

		Article no. 80 950 ...	£		Article no. 70 950 ...	£
GX 24-2	T15 - IP	15.77	128	M5x18	8.67	865
GX 24-3	T15 - IP	15.77	128	M5x18	8.67	865
GX 24-4	T15 - IP	15.77	128	M5x18	8.67	865



Key D



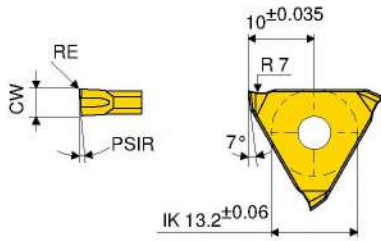
Clamping screw



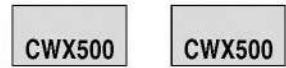
→ 46-52

TX Insert for parting

- ▲ Cutting depth 5.0 mm
- ▲ Cutting width 1.99-2.79 mm



Illustrations show right-hand versions



Left-hand Right-hand

Designation	CW _{.05}	RE	PSIR	for tool holder
	mm	mm		
TX R/L 0518.00.1	1.99	0.1	5°	R/L 207 ... / 780 ... 1
TX R/L 0521.00.2	2.29	0.1	5°	R/L 207 ... / 780 ... 2
TX R/L 0526.00.2	2.79	0.1	5°	R/L 207 ... / 780 ... 2

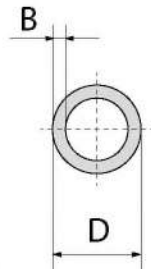
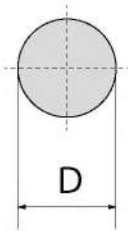
Left-hand		Right-hand	
Y6		Y6	
Article no.		Article no.	
73 302 ...		73 301 ...	
£		£	
46.09	204	44.83	204
44.36	206	46.29	206
44.36	208	46.29	208

→ v_c Page 102

Grooving depth

Full material

Pipe



max. 10 mm

D ≥ 50 mm: Wall thickness B = approx. 5 mm
D ≤ 50 mm: Wall thickness B = approx. 4 mm

Internal machining

External machining

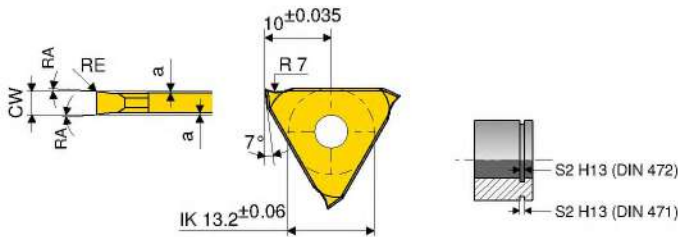


→ 66-70

TX insert for circlip grooves

▲ For circlip grooves according to DIN 471 / 472

CWX500



Neutral

Y6

Article no.
73 300 ...

£

Designation	s ₂ mm	CW _{-0.05} mm	RE mm	RA	a _{+/-0.02} mm	for tool holder	£	
TX N 0050.00.1	0.50	0.57	0.1	1	0.07	R/L...1	30.63	204
TX N 0060.00.1	0.60	0.67	0.1	1	0.07	R/L...1	30.63	206
TX N 0070.00.1	0.70	0.77	0.1	1	0.08	R/L...1	30.63	208
TX N 0080.00.1	0.80	0.87	0.1	1	0.08	R/L...1	30.63	210
TX N 0090.00.1	0.90	0.97	0.1	1	0.08	R/L...1	30.63	212
TX N 0100.00.1	1.00	1.07	0.1	1	0.09	R/L...1	30.63	214
TX N 0110.00.1	1.10	1.24	0.1	3	0.15	R/L...1	30.63	216
TX N 0130.00.1	1.30	1.44	0.1	3	0.15	R/L...1	30.63	218
TX N 0160.00.1	1.60	1.74	0.1	3	0.20	R/L...1	30.63	220
TX N 0185.00.1	1.85	1.99	0.1	3	0.20	R/L...1	30.63	222
TX N 0215.00.2	2.15	2.29	0.1	3	0.20	R/L...2	30.63	224
TX N 0265.00.2	2.65	2.79	0.1	3	0.20	R/L...2	30.63	226
TX N 0315.00.3	3.15	3.29	0.1	3	0.20	R/L...3	34.94	228
TX N 0415.00.4	4.15	4.29	0.1	3	0.20	R/L...4	35.13	230
TX N 0515.00.4	5.15	5.29	0.1	3	0.20	R/L...4	36.25	232

→ v. Page 102

Internal machining

External machining

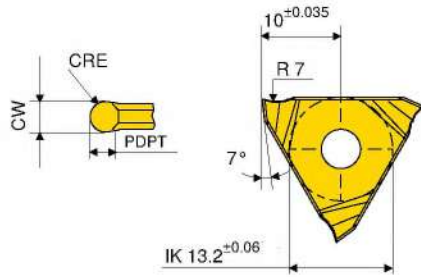


→ 70

→ 66-69

Radial TX insert for corner recessing

▲ Full radius for cutting width 0.5–5.0 mm



CWX500



Neutral

Y6

Article no.
73 304 ...

£

Designation	CRE	CW ± 0.05	PDPT	for tool holder		
	mm	mm	mm			
TX N 0002.05.1	0.25	0.5	0.20	R/L ...1	44.55	212
TX N 0005.10.1	0.50	1.0	0.35	R/L ...1	44.55	214
TX N 0006.12.1	0.60	1.2	0.40	R/L ...1	44.55	216
TX N 0008.16.1	0.80	1.6	0.55	R/L ...1	44.55	218
TX N 0010.20.2	1.00	2.0	0.70	R/L ...2	46.49	204
TX N 0012.25.2	1.25	2.5	0.85	R/L ...2	51.53	220
TX N 0015.30.3	1.50	3.0	1.00	R/L ...3	49.15	206
TX N 0020.40.4	2.00	4.0	1.20	R/L ...4	48.81	208
TX N 0025.50.4	2.50	5.0	1.50	R/L ...4	49.63	210

→ v₆ Page 102

Internal machining

External machining

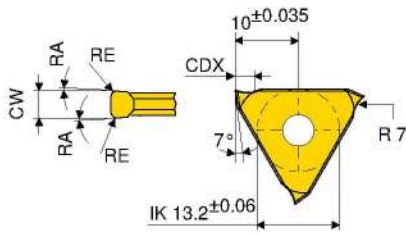


→ 70

→ 66-69

TX insert for fine and copy turning

CWX500



Neutral

Y6

Article no.
73 303 ...

£

Designation	CW _{-0.03} mm	RE mm	RA	for tool holder	£	
					Article no.	Price
TX N 0150.02.1	1.5	0.2	3	R/L 207 ... / 738 ... / 660 ... 1	38.23	204
TX N 0200.02.1	2.0	0.2	3	R/L 207 ... / 738 ... / 660 ... 1	38.23	206
TX N 0200.04.1	2.0	0.4	3	R/L 207 ... / 738 ... / 660 ... 1	39.26	208
TX N 0300.06.2	3.0	0.6	3	R/L 207 ... / 738 ... / 660 ... 2	40.31	212
TX N 0300.08.2	3.0	0.8	3	R/L 207 ... / 738 ... / 660 ... 2	40.31	214
TX N 0300.02.2	3.0	0.2	3	R/L 207 ... / 738 ... / 660 ... 2	39.26	210
TX N 0400.02.3	4.0	0.2	3	R/L 207 ... / 738 ... / 660 ... 3	40.66	216
TX N 0400.12.3	4.0	1.2	3	R/L 207 ... / 738 ... / 660 ... 3	40.66	220
TX N 0400.08.3	4.0	0.8	3	R/L 207 ... / 738 ... / 660 ... 3	40.66	218

→ v_e Page 102

Internal machining

External machining

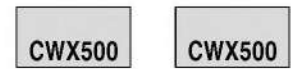
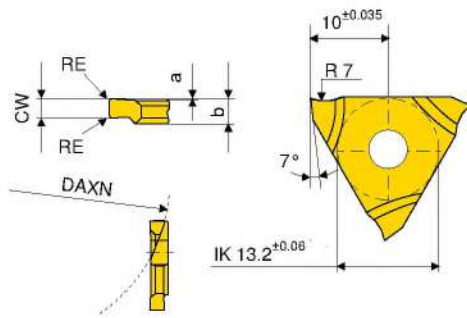


→ 70

→ 66-68

TX insert for axial grooving

- ▲ Up to cutting depth 3.5 mm
- ▲ Cutting width 1.5–5.0 mm
- ▲ Groove-Ø external $D_0 \geq 20$ mm



Illustrations show right-hand versions

Designation	CW mm	b mm	a mm	DAXN mm	RE mm	for tool holder
TX R/L 2015.2.2	1.5	2.7	0.2	20	0.2	R/L 207 ... 2
TX R/L 3020.2.2	2.0	2.7	0.2	30	0.2	R/L 207 ... 2
TX R/L 3030.2.3	3.0	3.7	0.2	30	0.2	R/L 207 ... 3
TX R/L 3040.2.4	4.0	4.3	0.2	30	0.2	R/L 207 ... 4
TX R/L 3050.2.4	5.0	5.3	0.2	30	0.2	R/L 207 ... 4

Left-hand		Right-hand	
Y6		Y6	
Article no.		Article no.	
73 306 ...		73 305 ...	
£		£	
43.83	204	43.83	204
43.83	206	43.83	206
44.33	208	44.33	208
44.83	210	44.83	210
46.88	212	46.88	212

→ v_c Page 102

Internal machining

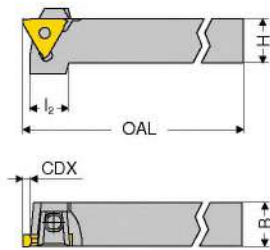
External machining



→ 66

MonoClamp – Radial/Axial TX Grooving Holder 0°, 6 mm cutting depth

- ▲ For radial and axial grooving
- ▲ Cutting width 0.5–6.3 mm



Illustrations show right-hand versions

Designation	H mm	B _{+/-0,1} mm	OAL mm	l ₂ mm	CDX mm	for grooving inserts	Left-hand		Right-hand	
							Y6 Article no. 73 501 ...	£	Y6 Article no. 73 500 ...	£
R/L 207.1212.1	12	12	100	24	4	TX R/N/L ...1	195.90	112	193.78	112
R/L 207.1616.1	16	16	125	22	4	TX R/N/L ...1	174.80	116	172.95	116
R/L 207.2020.1	20	20	125	21	4	TX R/N/L ...1	135.55	120	134.12	120
R/L 207.2525.1	25	25	150		4	TX R/N/L ...1	142.59	125	141.14	125
R/L 207.3232.1	32	32	170		4	TX R/N/L ...1	165.72	132	164.05	132
R/L 207.1212.2	12	12	100	24	6	TX R/N/L ...2	195.90	212	193.78	212
R/L 207.1616.2	16	16	125	22	6	TX R/N/L ...2	174.80	216	172.95	216
R/L 207.2020.2	20	20	125	21	6	TX R/N/L ...2	135.55	220	134.12	220
R/L 207.2525.2	25	25	150		6	TX R/N/L ...2	142.59	225	141.14	225
R/L 207.3232.2	32	32	170		6	TX R/N/L ...2	165.72	232	164.05	232
R/L 207.1212.3	12	12	100	24	6	TX R/N/L ...3	195.90	312	193.78	312
R/L 207.1616.3	16	16	125	22	6	TX R/N/L ...3	174.80	316	172.95	316
R/L 207.2020.3	20	20	125	21	6	TX R/N/L ...3	135.55	320	134.12	320
R/L 207.2525.3	25	25	150		6	TX R/N/L ...3	142.59	325	141.14	325
R/L 207.3232.3	32	32	170		6	TX R/N/L ...3	165.72	332	164.05	332
R/L 207.1616.4	16	16	125	22	6	TX R/N/L ...4	174.80	416	174.80	416
R/L 207.2020.4	20	20	125	21	6	TX R/N/L ...4	135.55	420	135.55	420
R/L 207.2525.4	25	25	150		6	TX R/N/L ...4	142.59	425	142.59	425
R/L 207.3232.4	32	32	170		6	TX R/N/L ...4	165.72	432	165.72	432

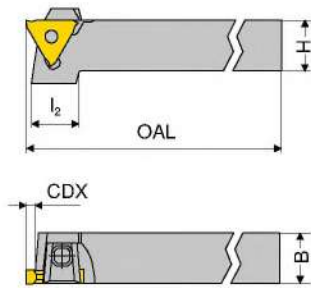
Spare parts	Article no. 70 950 ...	£	Article no. 73 950 ...	£	Article no. 73 950 ...	£	Article no. 73 950 ...	£	Article no. 73 950 ...	£
Key I										
right hand										
left hand										
Clamping screw										
Guide pin										
TX R/N/L ...1	SW03	2.23 176	39.40 020		M6x20	8.29 028	0 4x18	1.00 030		
TX R/N/L ...1	SW03	2.23 176		39.40 024	M6x20	8.29 028	0 4x18	1.00 030		
TX R/N/L ...2	SW03	2.23 176		39.40 024	M6x20	8.29 028	0 4x18	1.00 030		
TX R/N/L ...2	SW03	2.23 176	39.40 020		M6x20	8.29 028	0 4x18	1.00 030		
TX R/N/L ...3	SW03	2.23 176		39.40 024	M6x20	8.29 028	0 4x18	1.00 030		
TX R/N/L ...3	SW03	2.23 176	39.40 020		M6x20	8.29 028	0 4x18	1.00 030		
TX R/N/L ...4	SW03	2.23 176		43.77 026	M6x20	8.29 028	0 4x18	1.00 030		
TX R/N/L ...4	SW03	2.23 176	43.77 022		M6x20	8.29 028	0 4x18	1.00 030		



→ 61-65

MonoClamp – Radial TX Grooving holder 0°, 8 mm cutting depth

- ▲ For radial parting and grooving
- ▲ Cutting width 1.9–6.3 mm



Illustrations show right-hand versions

Designation	H mm	B _{+/-0.1} mm	OAL mm	l ₂ mm	CDX mm	for grooving inserts	Left-hand		Right-hand	
							Article no. 73 503 ...	Y6	Article no. 73 502 ...	Y6
R/L 780.2020.2	20	20	125	24	8	TX R/N/L ...2	144.45	120	144.45	120
R/L 780.2525.2	25	25	150		8	TX R/N/L ...2	152.44	125	152.44	125
R/L 780.3232.2	32	32	170		8	TX R/N/L ...2	181.97	132	181.97	132
R/L 780.2020.3	20	20	125	24	8	TX R/N/L ...3	144.45	220	144.45	220
R/L 780.2525.3	25	25	150		8	TX R/N/L ...3	152.44	225	152.44	225
R/L 780.3232.3	32	32	170		8	TX R/N/L ...3	181.97	232	181.97	232
R/L 780.2020.4	20	20	125	24	8	TX R/N/L ...4	144.45	320	144.45	320
R/L 780.2525.4	25	25	150		8	TX R/N/L ...4	152.44	325	152.44	325
R/L 780.3232.4	32	32	170		8	TX R/N/L ...4	181.97	332	181.97	332

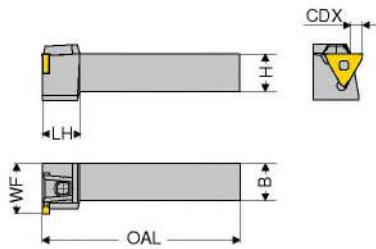
Spare parts	2A/28		Y6		Y6		Y6		Y6		
	Key I	right hand	left hand	Clamping screw	Guide pin	Article no.	Article no.	Article no.	Article no.	Article no.	
for grooving inserts						70 950 ...	73 950 ...	73 950 ...	73 950 ...	73 950 ...	
TX R/N/L ...2	SW03	2.23	176	39.40	020	M6x20	8.29	028	Ø 4x18	1.00	030
TX R/N/L ...2	SW03	2.23	176	39.40	024	M6x20	8.29	028	Ø 4x18	1.00	030
TX R/N/L ...3	SW03	2.23	176	39.40	020	M6x20	8.29	028	Ø 4x18	1.00	030
TX R/N/L ...3	SW03	2.23	176	39.40	024	M6x20	8.29	028	Ø 4x18	1.00	030
TX R/N/L ...4	SW03	2.23	176	43.77	026	M6x20	8.29	028	Ø 4x18	1.00	030
TX R/N/L ...4	SW03	2.23	176	43.77	022	M6x20	8.29	028	Ø 4x18	1.00	030



→ 61-63

MonoClamp – Radial TX Grooving holder 90°, 6 mm cutting depth

- ▲ For radial grooving
- ▲ Cutting width 0.5–6.3 mm



Illustrations show right-hand versions

Designation	H mm	B _{+/-0,1} mm	OAL mm	LH mm	WF _{+/-0,07} mm	CDX mm	for grooving inserts	Left-hand		Right-hand	
								Y6 Article no. 73 505 ...	Y6 Article no. 73 504 ...	Y6 Article no. 73 504 ...	Y6 Article no. 73 505 ...
R/L 738.2020.1	20	20	150	20	27	4	TX R/N/L ...1	168.70	120	168.70	120
R/L 738.2525.1	25	25	150		32	4	TX R/N/L ...1	162.43	125	174.80	125
R/L 738.2020.2	20	20	150	20	27	6	TX R/N/L ...2	168.70	220	168.70	220
R/L 738.2525.2	25	25	150		32	6	TX R/N/L ...2	174.80	225	174.80	225
R/L 738.2020.3	20	20	150	20	27	6	TX R/N/L ...3	171.66	320	168.70	320
R/L 738.2525.3	25	25	150		32	6	TX R/N/L ...3	174.80	325	174.80	325
R/L 738.2020.4	20	20	150	20	27	6	TX R/N/L ...4	168.70	420	164.21	420
R/L 738.2525.4	25	25	150		32	6	TX R/N/L ...4	174.80	425	174.80	425

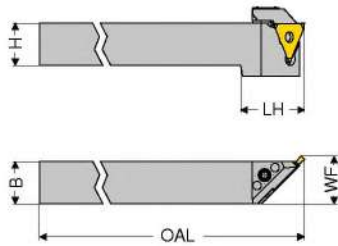
Spare parts for grooving inserts	2A/28		Y6		Y6		Y6		Y6		
	Key I	right hand	left hand	Clamping screw	Guide pin	Article no. 70 950 ...	Article no. 73 950 ...	Article no. 73 950 ...	Article no. 73 950 ...	Article no. 73 950 ...	
TX R/N/L ...1	SW03	2.23	176	39.40	020	M6x20	8.29	028	Ø 4x18	1.00	030
TX R/N/L ...1	SW03	2.23	176			M6x20	8.29	028	Ø 4x18	1.00	030
TX R/N/L ...2	SW03	2.23	176			M6x20	8.29	028	Ø 4x18	1.00	030
TX R/N/L ...2	SW03	2.23	176	39.40	024	M6x20	8.29	028	Ø 4x18	1.00	030
TX R/N/L ...3	SW03	2.23	176			M6x20	8.29	028	Ø 4x18	1.00	030
TX R/N/L ...3	SW03	2.23	176	39.40	020	M6x20	8.29	028	Ø 4x18	1.00	030
TX R/N/L ...4	SW03	2.23	176			M6x20	8.29	028	Ø 4x18	1.00	030
TX R/N/L ...4	SW03	2.23	176	43.77	026	M6x20	8.29	028	Ø 4x18	1.00	030



→ 62-64

MonoClamp – Tool holder TX 45°

- ▲ For recessing
- ▲ Cutting width 1.9–6.3 mm



Illustrations show right-hand versions

Designation	H mm	B _{+/-0,1} mm	OAL mm	LH mm	for grooving inserts	Left-hand		Right-hand	
						Y6 Article no. 73 507 ...	Y6 Article no. 73 506 ...	Y6 Article no. 73 507 ...	Y6 Article no. 73 506 ...
R/L 618.2020.2	20	20	125	30	TX R/N/L ...2	195.90	120	195.90	120
R/L 618.2525.2	25	25	150		TX R/N/L ...2	204.31	125	204.31	125
R/L 618.3232.2	32	32	170		TX R/N/L ...2	229.51	132	229.51	132
R/L 618.2020.3	20	20	125	30	TX R/N/L ...3	195.90	220	182.02	220
R/L 618.2525.3	25	25	150		TX R/N/L ...3	204.31	225	204.31	225
R/L 618.3232.3	32	32	170		TX R/N/L ...3	229.51	232	229.51	232
R/L 618.2020.4	20	20	125	30	TX R/N/L ...4	195.90	320	195.90	320
R/L 618.2525.4	25	25	150		TX R/N/L ...4	204.31	325	204.31	325
R/L 618.3232.4	32	32	170		TX R/N/L ...4	229.51	332	229.51	332

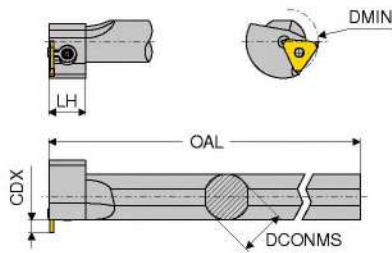
Spare parts	2A/28		Y6		Y6		Y6		Y6	
	Key I	right hand	left hand	Clamping screw	Guide pin					
for grooving inserts	Article no. 70 950 ...	Article no. 73 950 ...	Article no. 73 950 ...	Article no. 73 950 ...	Article no. 73 950 ...	Article no. 73 950 ...		Article no. 73 950 ...		
	£	£	£	£	£	£	£	£	£	
TX R/N/L ...2	2.23 176	57.08 001			8.29 028	M6x20	8.29 028	∅ 4x18	1.00 030	
TX R/N/L ...2	2.23 176		57.08 005		8.29 028	M6x20	8.29 028	∅ 4x18	1.00 030	
TX R/N/L ...3	2.23 176	57.08 001			8.29 028	M6x20	8.29 028	∅ 4x18	1.00 030	
TX R/N/L ...3	2.23 176		57.08 005		8.29 028	M6x20	8.29 028	∅ 4x18	1.00 030	
TX R/N/L ...4	2.23 176		57.08 007		8.29 028	M6x20	8.29 028	∅ 4x18	1.00 030	
TX R/N/L ...4	2.23 176	57.08 002			8.29 028	M6x20	8.29 028	∅ 4x18	1.00 030	



→ 62+63

MonoClamp – Radial Boring bar TX

- ▲ For radial internal grooving
- ▲ Cutting width 0,5–6,3 mm



Illustrations show right-hand versions

Designation	DCONMS _{gr}	DMIN	OAL	LH	CDX	for grooving inserts	Left-hand		Right-hand	
							Y6		Y6	
							Article no. 73 511 ...	£	Article no. 73 510 ...	£
R/L 660.0025.1	25	46	170	20	2	TX R/N/L ...1	238.32	125	233.75	125
R/L 660.0032.1	32	46	200	20	2	TX R/N/L ...1	284.99	132	289.57	132
R/L 660.0040.1	40	46	250		2	TX R/N/L ...1	284.99	140	284.22	140
R/L 660.0025.2	25	46	170	20	2	TX R/N/L ...2	234.18	225	233.75	225
R/L 660.0032.2	32	46	200	20	2	TX R/N/L ...2	284.99	232	289.57	232
R/L 660.0040.2	40	46	250		2	TX R/N/L ...2	284.99	240	284.22	240
R/L 660.0025.3	25	46	170	20	2	TX R/N/L ...3	234.18	325	233.75	325
R/L 660.0032.3	32	46	200	20	2	TX R/N/L ...3	284.99	332	289.57	332
R/L 660.0040.3	40	46	250		2	TX R/N/L ...3	284.99	340	284.22	340
R/L 660.0025.4	25	46	170	20	2	TX R/N/L ...4	234.18	425	233.75	425
R/L 660.0032.4	32	46	200	20	2	TX R/N/L ...4	284.99	432	289.57	432
R/L 660.0040.4	40	46	250		2	TX R/N/L ...4	284.99	440	284.22	440

Bore-Ø _{min} in mm	46	50	60	80	100	for grooving insert
T _{max.} (mm)	2	3	4	4,5	5	TX R/N/L ...1
	2	3	4	4,5	5	TX R/N/L ...2
	2	3	4	4,5	5	TX R/N/L ...3
	2	3	4	4,5	5	TX R/N/L ...4

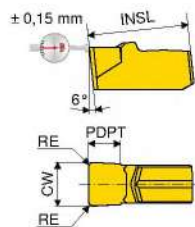
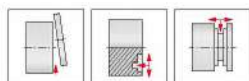
Spare parts		Y6		2A/28		Y6	
for grooving inserts		Article no. 73 950 ...	£	Article no. 70 950 ...	£	Article no. 73 950 ...	£
TX R/N/L ...1	48.62 011	SW03	2.23 176	M6x30	8.29 009		
TX R/N/L ...2	48.62 011	SW03	2.23 176	M6x30	8.29 009		
TX R/N/L ...3	48.62 011	SW03	2.23 176	M6x30	8.29 009		
TX R/N/L ...4	48.62 011	SW03	2.23 176	M6x30	8.29 009		



→ 62-64

Insert LX

- ▲ Grooving width 8 and 10 mm
- ▲ Axial grooving from Ø 500 mm onwards
- ▲ Internal grooving and turning, from Ø 200 mm onwards



-M2 CTCP325	-M2 CTCP335	-M2 CTP1340
-M2 HCR1325	-M2 HCR1335	-M2 CCN1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW $_{-0,08}^{+0,08}$ mm	RE $_{-0,1}$ mm	PDPT mm	for tool holder	1A/15		1A/15		1A/15	
						Article no. 70 337 ...	£	Article no. 70 337 ...	£	Article no. 70 337 ...	£
LXE 8.00N0.80-M2	19	8	0.8	5	E32 N ..-LX	17.08	928	17.08	578	17.08	682
LXE 10.00N0.80-M2	19	10	0.8	5	E32 N ..-LX	22.77	932	22.77	582	22.77	678

Steel	●	●	●
Stainless steel	○	○	●
Cast iron	●	●	●
Non ferrous metals			○
Heat resistant alloys			●
hardened materials	○		

→ v_e Page 101
→ Application recommendation on page 108

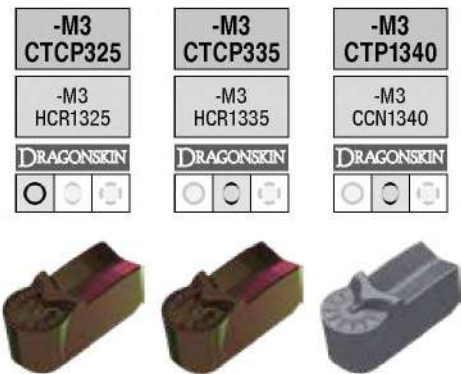
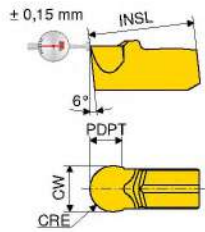
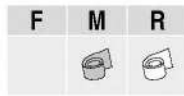
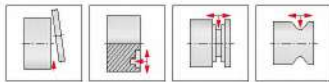
Internal machining

External machining



Radial Grooving Insert LX

- ▲ Grooving width 8 mm
- ▲ Axial grooving from Ø 500 mm
- ▲ Internal grooving and turning, from Ø 200 mm



Designation	INSL	CW $_{-/+0,08}$	CRE	PDPT	for tool holder
	mm	mm	mm	mm	
LXR 4.00N-M3	19	8	4	5	E32 N ..-LX

1A/15	1A/15	1A/15
Article no.	Article no.	Article no.
70 337 ...	70 337 ...	70 337 ...
£	£	£
18.21 908	18.21 518	18.21 618

Steel	●	●	●
Stainless steel	○	○	●
Cast iron	●	●	●
Non ferrous metals			○
Heat resistant alloys			●
hardened materials	○		

→ v_c Page 101

→ Application recommendation on page 108

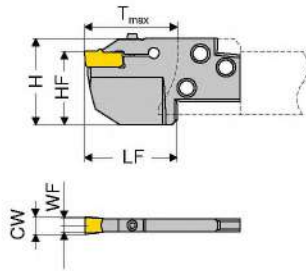
Internal machining

External machining



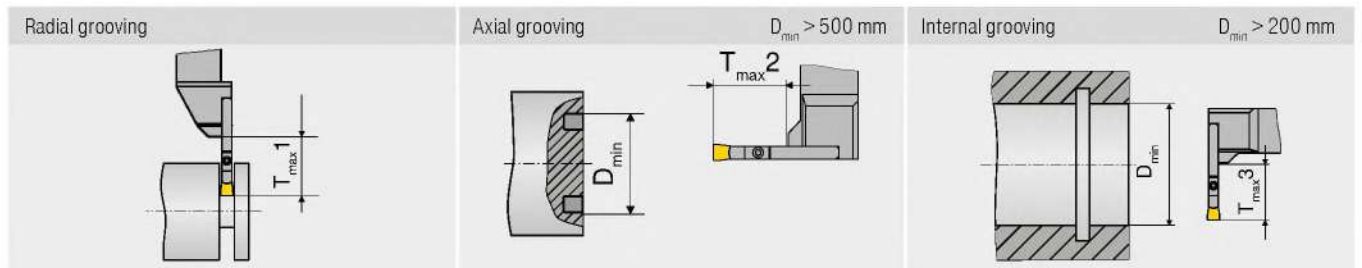
ModularClamp MSS – Axial and radial grooving module LX

- ▲ Grooving width 8 and 10 mm
- ▲ Axial grooving from \varnothing 500 mm onwards
- ▲ Internal grooving and turning, from \varnothing 200 mm onwards



Neutral

Designation	CW mm	WF mm	LF mm	HF mm	H mm	for grooving inserts			Neutral	
						T _{max. 1} mm	T _{max. 2} mm	T _{max. 3} mm	Article no. 70 835 ...	2C/71
E32 N 25-LX	8 / 10	3.4	27	32	44	25	19	14	£ 87.13	032
E32 N 32-LX	8 / 10	3.4	37	32	44	32	26	21	£ 87.13	132
E32 N 45-LX	8 / 10	3.4	47	32	44	45	39	34	£ 87.13	232



Spare parts

for grooving inserts

LX ..	T20	£ 13.11	114	M4x18	£ 4.33	204
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Article no. 80 950 ...



Article no. 70 950 ...



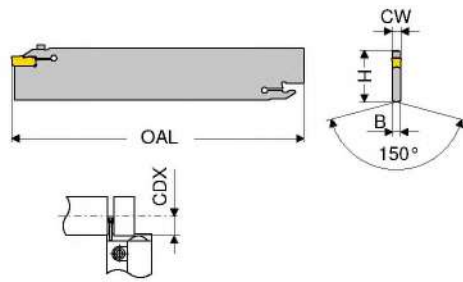
→ 71+72

→ 93-95

MonoClamp – Blade LX

Scope of supply:

Blade incl. clamping screw and tightening wrench



Designation	H	B	OAL	CW	CDX	for grooving inserts	2A/25	
	mm	mm	mm	mm	mm		Article no.	
XLCEN 4608-LX	46	6.8	250	8/10	80	LX ..	70 833 ...	
							£	228.45 108

Spare parts

for grooving inserts

LX ..	T20	Article no.	80 950 ...	£	13.11	114	M4x18	Article no.	70 950 ...	£	4.33	204
-------	-----	-------------	------------	---	-------	-----	-------	-------------	------------	---	------	-----



Y7
Key D



2A/28
Clamping screw



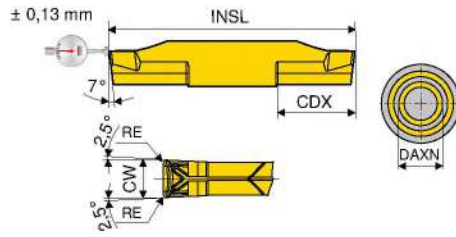
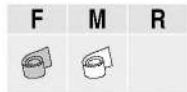
→ 71+72

→ 98+99

→ Chapter 16

Grooving insert AX

- ▲ Very good chip control
- ▲ DAXN minimum groove diameter refers to the outside diameter



-F50
CTP1340

-F50
CCN1340

DRAGONSKIN



Designation	IH	INSL	CW $\pm 0,02$	RE $\pm 0,05$	CDX	DAXN	for tool holder
AX 05 E3.00 N 0.30	N	24	3	0.3	5	10	E.. R/L.. -AX 05
AX 10 E3.00 N 0.30	N	34	3	0.3	10	20	E.. R/L.. -AX 10
AX 15 E3.00 N 0.30	N	44	3	0.3	15	30	E.. R/L.. -AX 15

1C/72

Article no.
70 327 ...

£	
24.99	005
25.92	010
27.25	015

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	●
hardened materials	●

→ v_c Page 101

→ Application recommendation on page 109

Internal machining

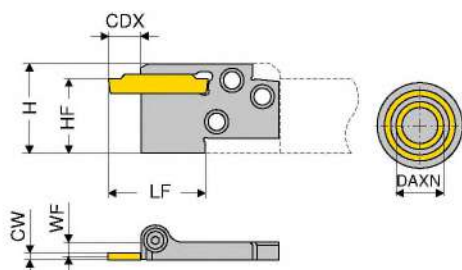
External machining



		→ 76	→ 77	→ 78				

ModularClamp MSS – Axial grooving module AX

▲ For axial grooving and turning



Illustrations show right-hand versions

Designation	HF mm	CW mm	WF mm	LF mm	H mm	DAXN mm	CDX mm	for grooving inserts	Left-hand		Right-hand	
									2C/71		2C/71	
									Article no. 70 827 ...	Article no. 70 828 ...	Article no. 70 827 ...	Article no. 70 828 ...
									£	£	£	£
E16 R/L 05-AX 05	16	3	2.5	24.0	20.5	10	5	AX05	85.79	016	85.79	016
E20 R/L 05-AX 05	20	3	3.1	28.0	25.0	10	5	AX05	85.79	020	85.79	020
E25 R/L 05-AX 05	25	3	4.6	27.5	30.0	10	5	AX05	86.75	025	86.75	025
E20 R/L 10-AX 10	20	3	3.1	33.0	25.0	20	10	AX10	85.79	120	85.79	120
E25 R/L 10-AX 10	25	3	4.6	32.5	30.0	20	10	AX10	86.75	125	86.75	125
E20 R/L 15-AX 15	20	3	3.1	44.0	25.0	30	15	AX15	85.79	220	85.79	220
E25 R/L 15-AX 15	25	3	4.6	43.5	30.0	30	15	AX15	86.75	225	86.75	225

Spare parts

for Article no.

			Article no. 80 950 ...		Article no. 70 950 ...	
			£		£	
70 827 016 / 70 828 016	T15	12.26	113	M3,5x12,5	8.15	441
70 827 020 / 70 828 020	T15	12.26	113	M4x14	7.80	403
70 827 025 / 70 828 025	T20	13.11	114	M5x18	5.20	404
70 827 120 / 70 828 120	T15	12.26	113	M4x14	7.80	403
70 827 125 / 70 828 125	T20	13.11	114	M5x18	5.20	404
70 827 220 / 70 828 220	T15	12.26	113	M4x14	7.80	403
70 827 225 / 70 828 225	T20	13.11	114	M5x18	5.20	404

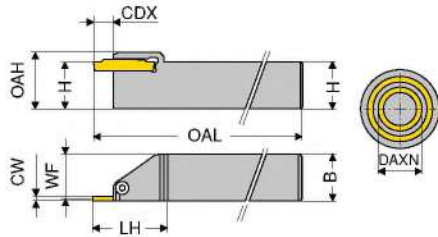


→ 75

→ 93-95

→ Chapter 16

MonoClamp – Axial AX Grooving Holder 0°, up to 15 mm groove depth



Illustrations show right-hand versions

Designation	H mm	B mm	OAL mm	LH mm	OAH mm	CDX mm	CW mm	WF mm	DAXN mm	for grooving inserts	Left-hand		Right-hand	
											NEW	2C/71	NEW	2C/71
											Article no. 70 823 ...	£	Article no. 70 824 ...	£
E20 R/L 0005-2020-AX 05	20	20	140	28	25	5	3	18.7	10	AX05	120.09	02000	120.09	02000
E20 R/L 0010-2020-AX 10	20	20	140	38	25	10	3	18.7	20	AX10	120.09	12000	120.09	12000
E20 R/L 0015-2020-AX 15	20	20	140	49	25	15	3	18.7	30	AX15	120.09	22000	120.09	22000
E25 R/L 0005-2525-AX 05	25	25	160	28	30	5	3	23.7	10	AX05	128.64	02500	128.64	02500
E25 R/L 0010-2525-AX 10	25	25	160	38	30	10	3	23.7	20	AX10	128.64	12500	128.64	12500
E25 R/L 0015-2525-AX 15	25	25	160	49	30	15	3	23.7	30	AX15	128.64	22500	128.64	22500



Spare parts

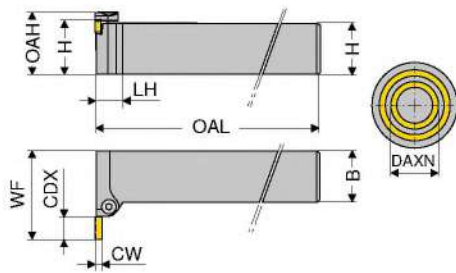
for Article no.

		Article no. 80 950 ...	£		Article no. 70 950 ...	£
70 824 02000 / 70 823 02000	T20	9.61	106	M5x18	5.20	404
70 824 12000 / 70 823 12000	T20	9.61	106	M5x18	5.20	404
70 824 22000 / 70 823 22000	T20	9.61	106	M5x18	5.20	404
70 824 02500 / 70 823 02500	T20	9.61	106	M5x18	5.20	404
70 824 12500 / 70 823 12500	T20	9.61	106	M5x18	5.20	404
70 824 22500 / 70 823 22500	T20	9.61	106	M5x18	5.20	404



→ 75

MonoClamp – Axial AX Grooving Holder 90°, up to 15 mm groove depth



Illustrations show right-hand versions

Designation	H	B	WF	OAH	OAL	LH	CDX	DAXN	CW	Left-hand		Right-hand	
										NEW	2C/71	NEW	2C/71
	mm	mm	mm	mm	mm	mm	mm	mm	mm	Article no. 70 825 ...	£	Article no. 70 826 ...	£
E20 R/L 9005-2020-AX 05	20	20	28	25	110	12	5	10	3	120.09	02000	120.09	02000
E20 R/L 9010-2020-AX 10	20	20	38	25	110	13	10	20	3	120.09	12000	120.09	12000
E20 R/L 9015-2020-AX 15	20	20	49	25	110	13	15	30	3	120.09	22000	120.09	22000
E25 R/L 9005-2525-AX 05	25	25	33	30	140	12	5	10	3	128.64	02500	128.64	02500
E25 R/L 9010-2525-AX 10	25	25	43	30	110	13	10	20	3	128.64	12500	128.64	12500
E25 R/L 9015-2525-AX 15	25	25	49	30	140	13	15	30	3	128.64	22500	128.64	22500

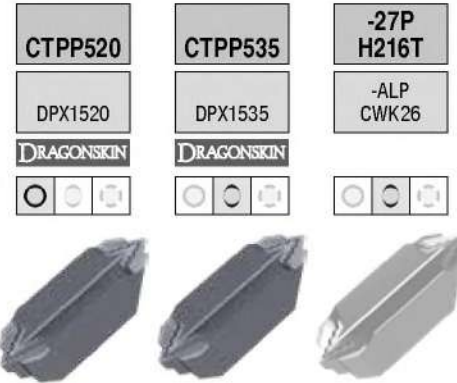
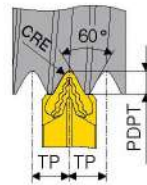
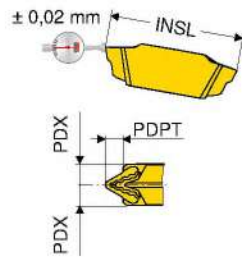


Spare parts for Article no.		Article no. 80 950 ...		Article no. 70 950 ...	
		£		£	
70 825 22000 / 70 826 22000	T20	9.61	106	5.20	404
70 825 12000 / 70 826 12000	T20	9.61	106	5.20	404
70 825 02000 / 70 826 02000	T15	9.36	105	7.80	403
70 825 22500 / 70 826 22500	T20	9.61	106	5.20	404
70 825 12500 / 70 826 12500	T20	9.61	106	5.20	404
70 825 02500 / 70 826 02500	T15	9.36	105	7.80	403



→ 75

Threading inserts TC full profile – External thread 60°



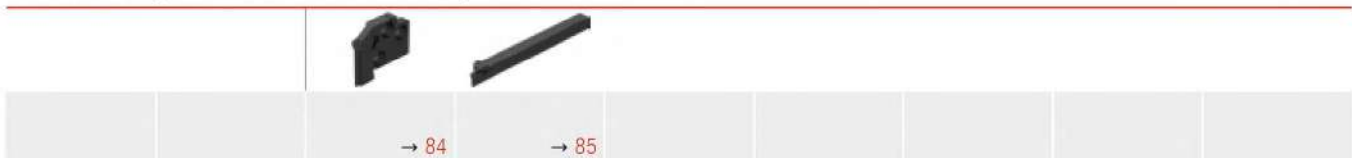
Designation	Size	TP	INSL	PDPT	PDX	CRE	for tool holder	1C/84		1C/84		1C/84	
								Article no. 70 357 ...	£	Article no. 70 357 ...	£	Article no. 70 357 ...	£
TC 16-1 E 0.5 ISO	TC 16-1 ...	0.50	16	0.32	1.05	0.06	E.. R/L TC 16-1	19.82	010	19.82	110	16.00	610
TC 16-1 E 0.75 ISO	TC 16-1 ...	0.75	16	0.48	1.05	0.09	E.. R/L TC 16-1	19.82	012	19.82	112	16.00	612
TC 16-1 E 1.0 ISO	TC 16-1 ...	1.00	16	0.64	1.05	0.12	E.. R/L TC 16-1	19.82	014	19.82	114	16.00	614
TC 16-1 E 1.25 ISO	TC 16-1 ...	1.25	16	0.80	1.05	0.15	E.. R/L TC 16-1	19.82	016	19.82	116	16.00	616
TC 16-1 E 1.5 ISO	TC 16-1 ...	1.50	16	0.95	1.05	0.18	E.. R/L TC 16-1	19.82	018	19.82	118	16.00	618
TC 16-2 E 1.75 ISO	TC 16-2 ...	1.75	16	1.10	2.15	0.22	E.. R/L/N TC 16-2	19.82	030	19.82	130	16.00	630
TC 16-2 E 2.0 ISO	TC 16-2 ...	2.00	16	1.26	2.15	0.25	E.. R/L/N TC 16-2	19.82	032	19.82	132	16.00	632
TC 16-2 E 2.5 ISO	TC 16-2 ...	2.50	16	1.58	2.15	0.32	E.. R/L/N TC 16-2	19.82	034	19.82	134	16.00	634
TC 16-2 E 3.0 ISO	TC 16-2 ...	3.00	16	1.89	2.15	0.38	E.. R/L/N TC 16-2	19.82	036	19.82	136	16.00	636
TC 16-3 E 3.5 ISO	TC 16-3 ...	3.50	16	2.21	3.10	0.44	E25 N TC 16-3	19.82	050	19.82	150		
TC 16-3 E 4.0 ISO	TC 16-3 ...	4.00	16	2.53	3.10	0.50	E25 N TC 16-3	19.82	052	19.82	152		
TC 16-3 E 5.0 ISO	TC 16-3 ...	5.00	16	3.16	3.10	0.63	E25 N TC 16-3	19.82	056	19.82	156		

Steel	●	●	
Stainless steel	●	●	
Cast iron	●		●
Non ferrous metals	○	○	●
Heat resistant alloys	○	●	
hardened materials			

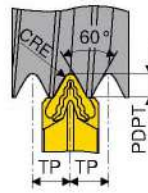
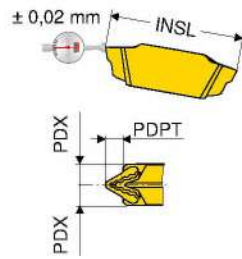
→ v_c Page 101
→ Application recommendation on page 110

Internal machining

External machining



Threading inserts TC full profile – Internal thread 60°



Designation	Size	TP	INSL	PDPT	PDX	CRE	for tool holder	1C/84		1C/84		1C/84	
								Article no. 70 358 ...	£	Article no. 70 358 ...	£	Article no. 70 358 ...	£
TC 16-1 1.0 ISO	TC 16-1 ...	1.00	16	0.59	1.05	0.06	I32 R/L TC 16-1	19.82	114	19.82	014	16.00	614
TC 16-1 1.25 ISO	TC 16-1 ...	1.25	16	0.74	1.05	0.07	I32 R/L TC 16-1	19.82	118	19.82	016	16.00	618
TC 16-1 1.5 ISO	TC 16-1 ...	1.50	16	0.89	1.05	0.09	I32 R/L TC 16-1			19.82	018	16.00	618
TC 16-2 1.75 ISO	TC 16-2 ...	1.75	16	1.02	2.15	0.11	I32 R/L TC 16-2			19.82	030		
TC 16-2 2.0 ISO	TC 16-2 ...	2.00	16	1.17	2.15	0.13	I32 R/L TC 16-2	19.82	132	19.82	032	16.00	632
TC 16-2 3.0 ISO	TC 16-2 ...	3.00	16	1.76	2.15	0.19	I32 R/L TC 16-2	19.82	136	19.82	036	16.00	636
Steel								●		●			
Stainless steel								●		●			
Cast iron										●			●
Non ferrous metals								○		○			●
Heat resistant alloys								●		○			
hardened materials													

→ v_c Page 101

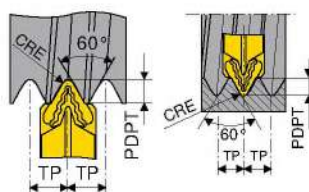
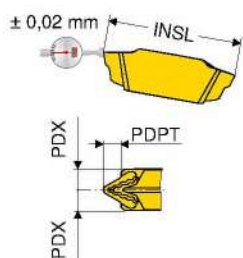
→ Application recommendation on page 110

Internal machining

External machining

→ 86	→ 87												

Threading inserts TC partial profile 60°



Designation	Size	TP	INSL	PDPT	PDX	CRE	for tool holder	1C/84		1C/84		1C/84	
								Article no. 70 355 ...	£	Article no. 70 355 ...	£	Article no. 70 355 ...	£
TC 16-1 EI A 60	TC 16-1 ...	0,5 - 1,5	16	1.27	1.05	0.03	E/l.. R/L TC 16-1	19.82	110	19.82	010	16.00	610
TC 16-2 EI G 60	TC 16-2 ...	1,75 - 3,0	16	2.49	2.15	0.11	E/l.. R/L/N TC 16-2	19.82	130	19.82	030	16.00	630
TC 16-2 EI AG 60	TC 16-2 ...	0,5 - 3,0	16	2.57	2.15	0.03	E/l.. R/L/N TC 16-2	19.82	132	19.82	032	16.00	632
TC 16-3 EI N 60	TC 16-3 ...	3,5 - 5,0	16	4.11	3.10	0.22	E/l.. N TC 16-3	19.82	150	19.82	050	16.00	650
Steel								●		●			
Stainless steel								●		●			
Cast iron										●		●	
Non ferrous metals								○		○		●	
Heat resistant alloys								●		○			
hardened materials													

→ v_c Page 101

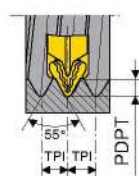
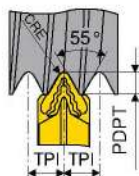
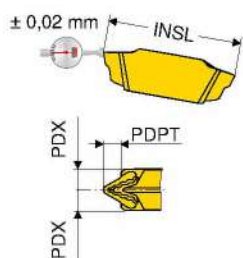
→ Application recommendation on page 110

Internal machining

External machining



Threading inserts TC full profile 55°



Designation	Size	TPI	INSL	PDPT	PDX	CRE	for tool holder	1C/84		1C/84		1C/84	
								Article no. 70 359 ...	£	Article no. 70 359 ...	£	Article no. 70 359 ...	£
TC 16-1 EI 28 W	TC 16-1 ...	28	16	0.60	1.05	0.12	E/l.. R/L TC 16-1	19.82	010	19.82	110		
TC 16-1 EI 20 W	TC 16-1 ...	20	16	0.84	1.05	0.17	E/l.. R/L TC 16-1	19.82	016				
TC 16-1 EI 19 W	TC 16-1 ...	19	16	0.88	1.05	0.17	E/l.. R/L TC 16-1	19.82	018	19.82	118	16.00	618
TC 16-1 EI 16 W	TC 16-1 ...	16	16	1.05	1.05	0.21	E/l.. R/L TC 16-1	19.82	022				
TC 16-2 EI 14 W	TC 16-2 ...	14	16	1.20	2.15	0.23	E/l.. R/L/N TC 16-2	19.82	030	19.82	130	16.00	630
TC 16-2 EI 12 W	TC 16-2 ...	12	16	1.40	2.15	0.27	E/l.. R/L/N TC 16-2			19.82	132		
TC 16-2 EI 11 W	TC 16-2 ...	11	16	1.53	2.15	0.30	E/l.. R/L/N TC 16-2	19.82	034	19.82	134	16.00	634

Steel	●	●	
Stainless steel	●	●	
Cast iron	●		●
Non ferrous metals	○	○	●
Heat resistant alloys	○	●	
hardened materials			

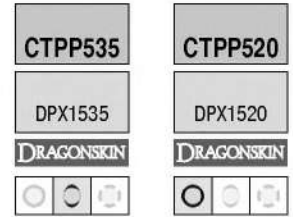
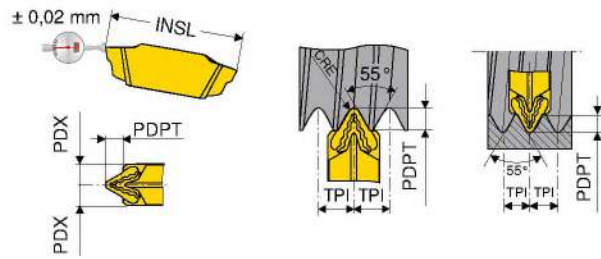
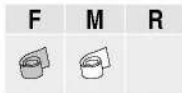
→ v_c Page 101
→ Application recommendation on page 110

Internal machining

External machining



Threading inserts TC partial profile 55°



Designation	Size	TPI	INSL	PDPT	PDX	CRE	for tool holder	1C/84			
								Article no. 70 356 ...	Article no. 70 356 ...		
		1/"	mm	mm	mm	mm		£	£		
TC 16-1 EI A 55	TC 16-1 ...	28 - 16	16	1.39	1.05	0.12	E/l.. R/L TC 16-1	19.82	110	19.82	010
TC 16-2 EI AG 55	TC 16-2 ...	28 - 8	16	2.91	2.15	0.12	E/l.. R/L/N TC 16-2	19.82	132	19.82	032
TC 16-2 EI G 55	TC 16-2 ...	14 - 8	16	2.78	2.15	0.23	E/l.. R/L/N TC 16-2	19.82	130	19.82	030
TC 16-3 EI N 55	TC 16-3 ...	7 - 5	16	4.34	3.10	0.46	E/l.. N TC 16-3	19.82	150	19.82	050
Steel								•		•	
Stainless steel								•		•	
Cast iron										•	
Non ferrous metals								○		○	
Heat resistant alloys								•		○	
hardened materials											

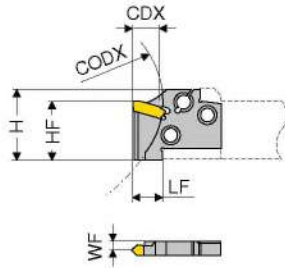
→ v_c Page 101
→ Application recommendation on page 110

Internal machining

External machining



ModularClamp MSS – Threading module TC for external threads



Designation	TP mm	TPI 1/''	WF mm	HF mm	LF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand	Neutral	Right-hand	
										2C/82	2C/82	2C/82	
										Article no. 70 872 ...	Article no. 70 872 ...	Article no. 70 872 ...	
E20 R/L TC 16-1	0,5 - 1,5	28 - 16	3.45	13	20	24	60	8	TC 16-1 ...	£ 78.07	120	£ 78.07	020
E20 N TC 16-2	1,75 - 3,0	14 - 8	2.20	13	20	24		12	TC 16-2 ...		£ 78.07	220	
E25 R/L TC 16-1	0,5 - 1,5	28 - 16	5.20	13	25	30	75	8	TC 16-1 ...	£ 78.65	125	£ 78.65	025
E25 R/L TC 16-2	1,75 - 3,0	14 - 8	4.10	13	25	30	75	10	TC 16-2 ...	£ 78.65	325	£ 78.65	225
E25 N TC 16-3	3,5 - 5,0	7 - 5	3.10	13	25	30		12	TC 16-3 ...		£ 78.65	425	

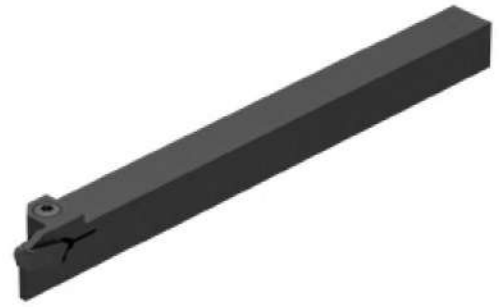
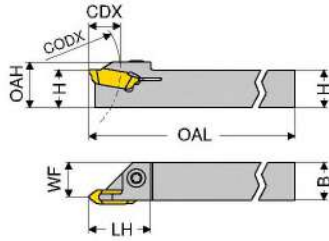


→ 79-83

→ 93-95

→ Chapter 16

MonoClamp – Monobloc tool TC for external thread cutting



Illustrations show right-hand versions

Designation	TP	TPI	H	B	OAL	LH	OAH	WF	CODX	for grooving inserts	Left-hand		Right-hand	
											2C/83		2C/83	
	mm	1/''	mm	mm	mm	mm	mm	mm	mm		Article no.	Article no.		
E12 R/L 00-1212 TC16	0,5 - 3	28 - 8	12	12	150	20	14.5	11	30	TC16-1/2..	70 883 ...	70 882 ...	£	£
											115.82	012	115.82	012

Spare parts

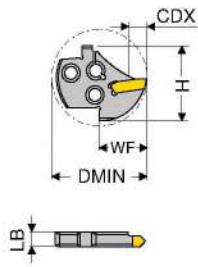
for grooving inserts
TC16-1/2..

	Y7	2A/28
	Key D	Clamping screw
	Article no.	Article no.
	80 950 ...	70 950 ...
	£	£
T15	12.26 113	M4x11 9.40 442



→ 79-83

ModularClamp MSS – Threading module TC for internal threads

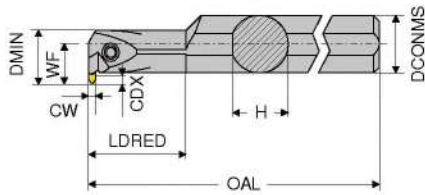


Designation	TP mm	TPI 1/''	LB mm	WF mm	H mm	DMIN mm	CDX mm	for grooving inserts	Left-hand	Neutral	Right-hand
									2C/82 Article no. 70 887 ... £	2C/82 Article no. 70 887 ... £	2C/82 Article no. 70 887 ... £
I32 R/L TC 16-1	0,5 - 1,5	28 - 16	6.2	5.2	32.2	40	7	TC 16-1 ...	79.40 132		79.40 032
I32 R/L TC 16-2	1,75 - 3,0	14 - 8	6.2	4.1	32.2	40	7	TC 16-2 ...	79.40 332		79.40 232
I32 N TC 16-3	3,5 - 5,0	7 - 5	6.2	3.1	32.2	40	7	TC 16-3 ...		79.40 432	



→ 79-83	→ 96										
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MonoClamp – Monobloc Boring bar TC for internal thread cutting



Illustrations show right-hand versions

Designation	WF	DCONMS	H	OAL	LDRED	CDX	DMIN	for grooving inserts	Left-hand		Right-hand	
									2C/83		2C/83	
	mm	mm	mm	mm	mm	mm	mm		Article no.	Article no.	Article no.	Article no.
I16 R/L 90-2D TC16	14.0	20	18	180	32	4	20	TC16-1/2..	70 857 ...	70 856 ...	70 857 ...	70 856 ...
I20 R/L 90-2D TC16	17.5	25	23	200	40	5	25	TC16-..	£ 126.09	£ 126.09	016	016
I25 R/L 90-2D TC16	22.0	32	30	250	50	6	32	TC16-..	£ 138.91	£ 138.91	020	020
									£ 157.18	£ 157.18	025	025

Spare parts

for Article no.

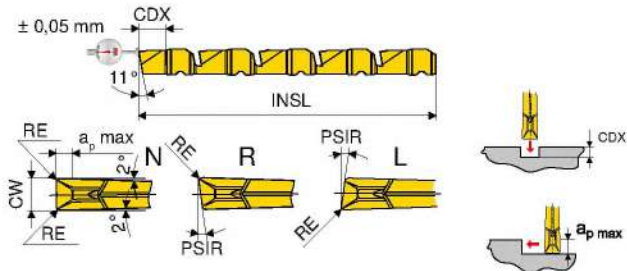
	Y7		2A/28	
	Key D		Clamping screw	
	Article no. 80 950 ...		Article no. 70 950 ...	
	£		£	
70 857 016 / 70 856 016	12.26	113	7.80	403
70 857 020 / 70 856 020	13.11	114	5.20	404
70 857 025 / 70 856 025	13.49	115	3.85	405



→ 79-83

MaxiClick – Insert – Cutting depth 5 mm

▲ 5 cutting edges



-F2
CTP1340

-F2
CCN1340

DRAGONSKIN



Designation	IH	CW	RE	PSIR	INSL	a _{p max}	CDX	for tool holder	1C/72	
									Article no.	£
MC 05-5-1.00 L 07-F2	L	1.0	0.1	7°	59.2		5	MC 05 R/L	70 338 ...	250
MC 05-5-1.50 L 07-F2	L	1.5	0.1	7°	59.2		5	MC 05 R/L	31.64	260
MC 05-5-1.00 N 0.10-F2	N	1.0	0.1		59.2	0.5	5	MC 05 R/L	31.64	210
MC 05-5-1.50 N 0.10-F2	N	1.5	0.1		59.2	1.0	5	MC 05 R/L	31.64	220
MC 05-5-1.00 R 07-F2	R	1.0	0.1	7°	59.2		5	MC 05 R/L	31.64	230
MC 05-5-1.50 R 07-F2	R	1.5	0.1	7°	59.2		5	MC 05 R/L	31.64	240

- Steel ●
- Stainless steel ●
- Cast iron ●
- Non ferrous metals ○
- Heat resistant alloys ●
- hardened materials ●

→ v₀ Page 106

Internal machining

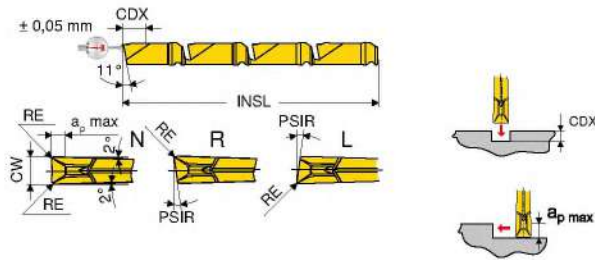
External machining



→ 91

MaxiClick insert – Cutting depth 10 mm

▲ 4 cutting edges



-F2
CTP1340

-F2
CCN1340

DRAGONSKIN



Designation	IH	CW	RE	PSIR	INSL	a _{p max}	CDX	for tool holder	1C/72	
									Article no.	£
MC 10-4-1.50 L 07-F2	L	1.5	0.1	7°	59.2		10	MC 10 R/L	70 339 ...	270
MC 10-4-2.00 L 07-F2	L	2.0	0.1	7°	59.2		10	MC 10 R/L	26.04	280
MC 10-4-2.50 L 07-F2	L	2.5	0.1	7°	59.2		10	MC 10 R/L	26.04	290
MC 10-4-1.50 N 0.10-F2	N	1.5	0.1		59.2	1.0	10	MC 10 R/L	26.04	210
MC 10-4-2.00 N 0.10-F2	N	2.0	0.1		59.2	1.5	10	MC 10 R/L	26.04	220
MC 10-4-2.50 N 0.10-F2	N	2.5	0.1		59.2	2.0	10	MC 10 R/L	26.04	230
MC 10-4-1.50 R 07-F2	R	1.5	0.1	7°	59.2		10	MC 10 R/L	26.04	240
MC 10-4-2.00 R 07-F2	R	2.0	0.1	7°	59.2		10	MC 10 R/L	26.04	250
MC 10-4-2.50 R 07-F2	R	2.5	0.1	7°	59.2		10	MC 10 R/L	26.04	260

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	●
hardened materials	●

→ v_c Page 106

Internal machining

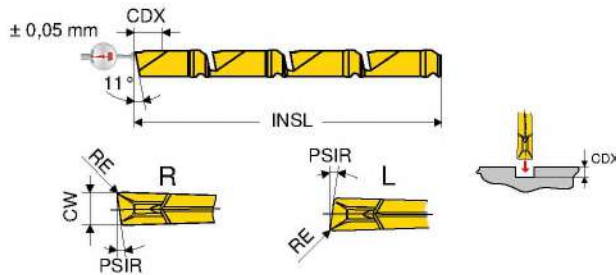
External machining



→ 92

MaxiClick insert – Cutting depth 10 mm

▲ 4 cutting edges



Designation	IH	CW	RE	PSIR	INSL	CDX	for tool holder	1C/72	
								Article no.	£
MC 10-4-1.50 L 12-F3	L	1.5	0.1	12°	59.2	10	MC 10 R/L	70 340 ...	270
MC 10-4-2.00 L 12-F3	L	2.0	0.1	12°	59.2	10	MC 10 R/L	26.04	280
MC 10-4-2.50 L 12-F3	L	2.5	0.1	12°	59.2	10	MC 10 R/L	26.04	290
MC 10-4-1.50 R 12-F3	R	1.5	0.1	12°	59.2	10	MC 10 R/L	26.04	240
MC 10-4-2.00 R 12-F3	R	2.0	0.1	12°	59.2	10	MC 10 R/L	26.04	250
MC 10-4-2.50 R 12-F3	R	2.5	0.1	12°	59.2	10	MC 10 R/L	26.04	260

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	●
hardened materials	●

→ v. Page 106

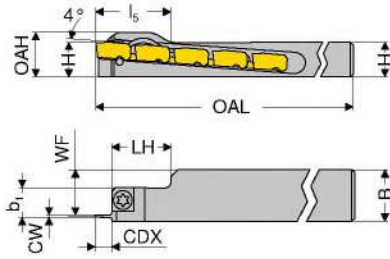
Internal machining

External machining



→ 92

MaxiClick – Toolholder – Cutting depth 5 mm



Illustrations show right-hand versions

Designation	H mm	OAH mm	B mm	b ₁ mm	CW mm	CDX mm	WF mm	OAL mm	LH mm	l ₅ mm	for grooving inserts	Left-hand 2C/71		Right-hand 2C/71	
												Article no. 70 873 ...	£	Article no. 70 873 ...	£
MC 05 R/L -1010K	10	13	10	10	1,00 - 1,50	5	8.5	125	23	27	MC 05	80.55	210	80.55	110
MC 05 R/L -1212K	12	15	12	12	1,00 - 1,50	5	10.5	125	23	27	MC 05	80.55	212	80.55	112
MC 05 R/L -1616K	16	19	16	12	1,00 - 1,50	5	14.5	125	23	20	MC 05	80.55	216	80.55	116
MC 05 R/L -2020K	20	23	20	12	1,00 - 1,50	5	18.8	125	23	20	MC 05	93.64	220	93.64	120
MC 05 R/L -2525M	25	28	25	12	1,00 - 1,50	5	23.5	150	23	21	MC 05	99.73	225	99.73	125

Spare parts

for grooving inserts

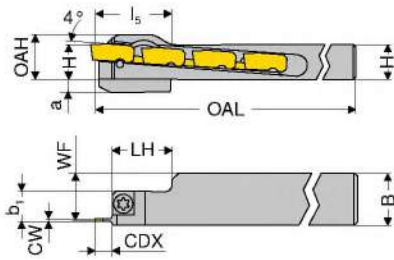
MC 05

2A/28		2A/28	
Key-T		Clamping screw	
Article no.	70 950 ...	Article no.	70 950 ...
£	5.83	£	3.09
T15	738	M4x11	174



→ 88

MaxiClick – Toolholder – Cutting depth 10 mm



Illustrations show right-hand versions

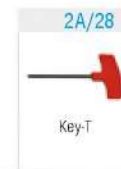
Designation	H mm	OAH mm	B mm	b ₁ mm	a mm	CW mm	CDX mm	WF mm	OAL mm	LH mm	I ₅ mm	for grooving inserts	Left-hand		Right-hand	
													2C/71		2C/71	
													Article no. 70 874 ...	£	Article no. 70 874 ...	£
MC 10 R/L -1010K	10	13	10	10		1,50 - 2,50	10	8.5	125	28		MC 10	80.55	210	80.55	110
MC 10 R/L -1010K-S	10	13	10	10	6	1,50 - 2,50	10	8.5	125	28	27	MC 10	80.55	410 ¹⁾	80.55	310 ¹⁾
MC 10 R/L -1212K	12	15	12	12		1,50 - 2,50	10	10.5	125	28		MC 10	80.55	212	80.55	112
MC 10 R/L -1212K-S	12	15	12	12	4	1,50 - 2,50	10	10.5	125	28	27	MC 10	80.55	412 ¹⁾	80.55	312 ¹⁾
MC 10 R/L -1616K	16	19	16	12		1,50 - 2,50	10	14.5	125	28	20	MC 10	80.55	216	80.55	116
MC 10 R/L -2020K	20	23	20	12		1,50 - 2,50	10	18.8	125	28	20	MC 10	93.64	220	93.64	120
MC 10 R/L -2525M	25	28	25	12		1,50 - 2,50	10	23.5	150	28	21	MC 10	99.73	225	99.73	125

1) -S = strengthened variant

Spare parts

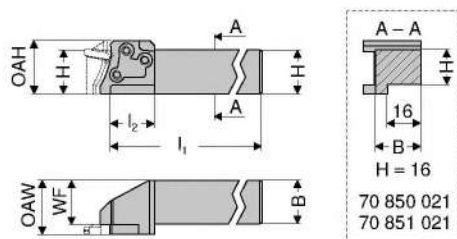
for grooving inserts

MC 10	T15	£	738	M4x11	£	174
		5.83			3.09	



→ 89+90

ModularClamp MSS – Tool holder 0°



Illustrations show right-hand versions

Designation	H mm	B mm	OAW mm	OAH mm	WF mm	l ₁ mm	l ₂ mm	for modules	Left-hand		Right-hand	
									2C/71		2C/71	
									Article no. 70 851 ...	£	Article no. 70 850 ...	£
E12 R/L 00-1212E	12	12	15.25	14.5	11.75	70	12	E12 R/L ...	119.27	012	119.27	012
E16 R/L 00-1616G	16	16	19.25	19.5	15.75	90	16	E16 R/L ...	120.45	016	120.45	016
E20 R/L 00-1620G	16	20	24.25	24.0	20.15	90	20	E20 R/L ...	121.55	021 ¹⁾	121.55	021 ¹⁾
E20 R/L 00-2020J	20	20	24.25	24.0	20.15	110	20	E20 R/L ...	121.55	020	121.55	020
E25 R/L 00-2525L	25	25	31.00	30.0	25.50	140	25	E25 R/L ...	124.09	025	124.09	025
E32 R/L 00-3225N	32	25	31.00	38.0	25.50	160	32	E32 R/L ...	127.45	032	127.45	032

1) see view A-A



Spare parts

for Article no.

		Article no. 80 950 ...	£		Article no. 70 950 ...	£
70 851 012 / 70 850 012	T08	10.30	110	M2,5x10	6.45	440
70 851 016 / 70 850 016	T15	12.26	113	M3,5x12,5	8.15	441
70 851 021 / 70 850 021	T15	12.26	113	M4x14	7.80	403
70 851 020 / 70 850 020	T15	12.26	113	M4x14	7.80	403
70 851 025 / 70 850 025	T20	13.11	114	M5x18	5.20	404
70 851 032 / 70 850 032	T25	13.49	115	M6x20	3.85	405

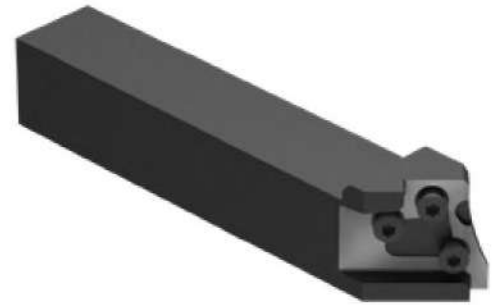
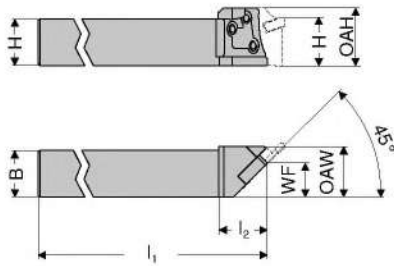
Module Overview



→ 4+5

i ModularClamp Holder with HSK-T interface can be found in → Chapter 16.

ModularClamp MSS – Tool holder 45°



Illustrations show right-hand versions

Designation	H mm	B mm	OAW mm	OAH mm	WF mm	l ₁ mm	l ₂ mm	for modules	Left-hand		Right-hand	
									2C/71		2C/71	
									Article no. 70 853 ...		Article no. 70 852 ...	
									£		£	
E20 R/L 45-2020J	20	20	21.5	24	14.5	110	20	E20 R/L ...	121.55	020	121.55	020
E25 R/L 45-2525L	25	25	26.0	30	18.0	140	25	E25 R/L ...	124.09	025	124.09	025

i For right hand holder → left hand module only
For left hand holder → right hand module only

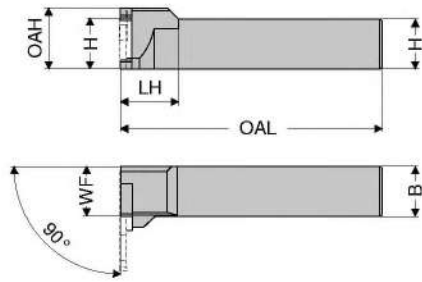
Spare parts	for Article no.	T15	Y7		M4x11	2A/28		M4x14	2A/28	
			Article no. 80 950 ...	£		Article no. 70 950 ...	£		Article no. 70 950 ...	£
	70 853 020 / 70 852 020		12.26	113		9.40	442		7.80	403
	70 853 025 / 70 852 025	T20	13.11	114	M5x13,5	9.77	513	M5x18	5.20	404

Module Overview



→ 4+5

ModularClamp MSS – Tool holder 90°



Illustrations show right-hand versions

Designation	H	B	OAH	WF	OAL	LH	for modules	Left-hand		Right-hand	
								2C/71		2C/71	
	mm	mm	mm	mm	mm	mm		Article no.	Article no.	Article no.	Article no.
E20 R/L 90-2020J	20	20	24	20	110	20	E20 R/L ...	70 855 ...	70 854 ...	70 855 ...	70 854 ...
E25 R/L 90-2525L	25	25	30	25	140	28	E25 R/L ...	£ 121.55	£ 121.55	020	020
E32 R/L 90-3225N	32	25	38	32	160	34	E32 R/L ...	£ 124.09	£ 124.09	025	025
								£ 127.45	£ 127.45	032	032

i For right hand holder → left hand module only
For left hand holder → right hand module only

Spare parts	for Article no.		Y7		2A/28		
			Article no.	Article no.	Article no.	Article no.	
			80 950 ...	70 950 ...			
			£	£			
	70 855 020 / 70 854 020	T15	12.26	113	M4x14	7.80	403
	70 855 025 / 70 854 025	T20	13.11	114	M5x18	5.20	404
	70 855 032 / 70 854 032	T25	13.49	115	M6x20	3.85	405

Module Overview

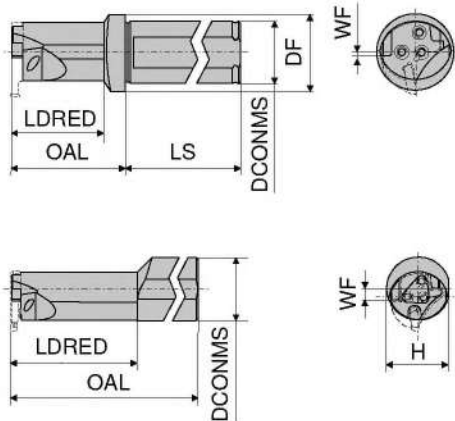


→ 4+5

i ModularClamp Holder with HSK-T interface can be found in → **Chapter 16.**

ModularClamp MSS – Boring bars GX / TC

▲ With internal coolant supply



Illustrations show right-hand versions

	Designation	DCONMS	DF	WF	H	OAL	LDRED	LS	for modules	Left-hand		Right-hand	
										Article no.	Price	Article no.	Price
≤ 1,5xD	I16 R/L 90-1,5 D-N	20	25	1.0		32	24	50	I16 R/L	70 861 ...	£	70 860 ...	£
	I20 R/L 90-1,5 D-N	20	25	1.0		37	30	50	I20 R/L	133.09 017	163.09	133.09 017	163.09
	I25 R/L 90-1,5 D-N	25	32	1.5		46	38	56	I25 R/L	186.91 026	186.91	186.91 026	186.91
	I32 R/L 90-1,5 D-N	32	40	2.0		59	48	60	I32 R/L	241.00 033 1)	241.00	241.00 033 1)	241.00
	I40 R/L 90-1,5 D-N	40	50	2.5		72	60	70	I40 R/L/N	300.55 041	300.55	300.55 041	300.55
≤ 2,5xD	I16 R/L 90-2,5 D-N	20		4.5	19.0	180	40		I16 R/L	143.45 117	143.45	143.45 117	143.45
	I20 R/L 90-2,5 D-N	25		6.0	24.0	200	50		I20 R/L	174.45 121	174.45	174.45 121	174.45
	I25 R/L 90-2,5 D-N	32		7.0	31.0	250	63		I25 R/L	199.64 126	199.64	199.64 126	199.64
	I32 R/L 90-2,5 D-N	40		9.5	38.0	300	80		I32 R/L	260.36 133 1)	260.36	260.36 133 1)	260.36
	I40 R/L 90-2,5 D-N	50		11.5	48.5	350	100		I40 R/L/N	331.55 141	331.55	331.55 141	331.55

1) with 2 clamping surfaces

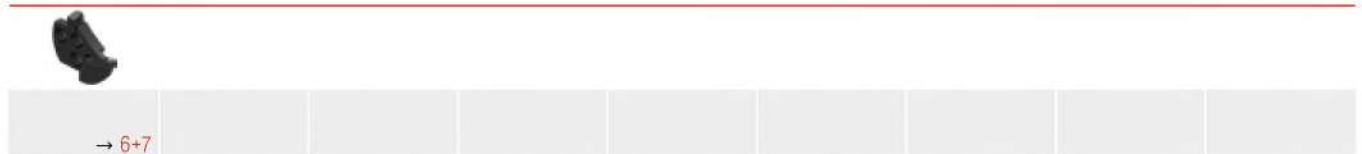
Spare parts

for modules

		Article no.	Price	Article no.	Price
I16 R/L	T08	80 950 ...	10.30 110	70 950 ...	6.45 440
I20 R/L	T10		12.05 112		6.68 444
I25 R/L	T15		12.26 113		8.15 441
I32 R/L	T20		13.11 114		7.42 445
I40 R/L/N	T20		13.11 114		5.20 404



Module Overview

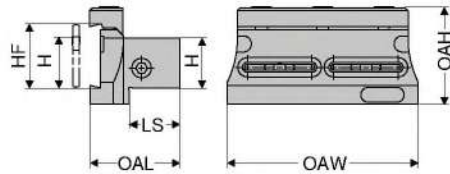


i ModularClamp Holder with HSK-T interface can be found in → Chapter 16.

Split clamping block for blades DC

Scope of supply:

Complete clamping block, but without blade



Designation	H	HF	OAH	LS	OAL	OAW	for blades	2A/25	
								Article no.	Price
SBN 2020-26-DC	20	26	43.0	20	40.0	82	XLC.. 26..	70 829 ...	217.27
SBN 2020-32-DC	20	32	43.0	20	40.0	95	XLC.. 32..	70 829 ...	217.27
SBN 2525-32-DC	25	32	48.5	25	44.5	95	XLC.. 32..	70 829 ...	224.09
SBN 3232-32-DC	32	32	52.0	32	51.0	95	XLC.. 32..	70 829 ...	234.55

Spare parts	for Article no.	2A/28		2A/28		2A/28	
		Article no.	Price	Article no.	Price	Article no.	Price
		70 950 ...	£	70 950 ...	£	70 950 ...	£
	70 829 020	G 1/8"	3.24 294	CU70	29.36 290	M6x12	2.02 861
	70 829 120	G 1/8"	3.24 294	CU85	29.36 291	M6x12	2.02 861
	70 829 025	G 1/8"	3.24 294	CU85	29.36 291	M6x12	2.02 861
	70 829 032	G 1/8"	3.24 294	CU85	29.36 291	M6x12	2.02 861

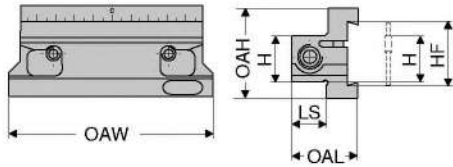
Spare parts	for Article no.	2A/28		2A/28		2A/28	
		Article no.	Price	Article no.	Price	Article no.	Price
		70 950 ...	£	70 950 ...	£	70 950 ...	£
	70 829 020	SW5	3.35 265	19x2,5	3.91 293	23x2,5	3.91 292
	70 829 120	SW5	3.35 265	19x2,5	3.91 293	23x2,5	3.91 292
	70 829 025	SW5	3.35 265			23x2,5	3.91 292
	70 829 032	SW5	3.35 265			23x2,5	3.91 292

11

Clamping block for blades GX/LX/FX/SX

Scope of supply:

Clamping block complete, but without blade and coolant set



Designation	H	HF	OAH	LS	OAL	OAW	for blades	2A/25		
								Article no.	Price	
SBN 2020-26-K	20	26	39	20	33.0	90	XLC.. 26..	70 830 ...	£ 149.18	020
SBN 2520-32-K	25	32	48	20	36.0	110	XLC.. 32..	70 830 ...	£ 149.18	025
SBN 3229-32-K	32	32	48	29	44.5	120	XLC.. 32..	70 830 ...	£ 152.45	032
SBN 3229-46-K	32	46	70	29	52.0	150	XLC.. 46..	70 830 ...	£ 252.36	132
SBN 4037-46-K	40	46	70	37	60.0	150	XLC.. 46..	70 830 ...	£ 306.36	140

Spare parts

for blades

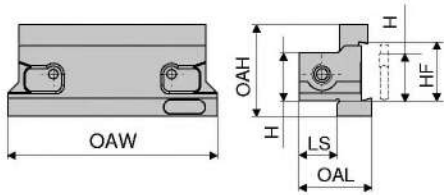
		2A/28 Key I		2A/28 Cooling agent set		2A/28 clamping screw			
		Article no.	Price	Article no.	Price	Article no.	Price		
XLC.. 26..	SW5	70 950 ...	£ 3.35	265	37.99	278	M6x25	£ 1.87	269
XLC.. 32..	SW5	70 950 ...	£ 3.35	265	37.99	278	M6x25	£ 1.87	269
XLC.. 46..	SW6	70 950 ...	£ 4.70	266	37.00	279	M8x35	£ 1.87	282

i Clamping Block for Blades with HSK-T interface can be found in → **Chapter 16.**

Split clamping block for blades GX/LX/FX/SX

Scope of supply:

Clamping block complete, but without blade and coolant set



Designation	H	HF	OAH	LS	OAL	OAW	for blades	2A/25		
								Article no.	£	
SBN 2020-26-KS	20	26	39	20	35.0	90	XLC.. 26..	70 831 ...	181.27	020
SBN 2520-32-KS	25	32	48	20	38.0	110	XLC.. 32..	186.91	025	
SBN 3229-32-KS	32	32	48	29	46.5	120	XLC.. 32..	193.91	032	

Spare parts

for blades

		2A/28 Key I Article no. 70 950 ... £		2A/28 Cooling agent set Article no. 70 950 ... £		2A/28 clamping screw Article no. 70 950 ... £	
XLC.. 26..	SW5	3.35	265	37.99	278	M6x25	1.87 269
XLC.. 32..	SW5	3.35	265	37.99	278	M6x25	1.87 269

i Clamping Block for Blades with HSK-T interface can be found in → **Chapter 16.**

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	< 1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100-350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300-500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300-500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500-900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270-450 N/mm²	0.8036	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500-650 N/mm²	0.8056	GTW-55	0.8066	GTW-65		
	3.7	Black malleable cast iron	300-450 N/mm²	0.8136	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500-800 N/mm²	0.8156	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5-10 % Si	< 400 N/mm²	3.2315	A-8 S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10-15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18		A-S17 U4		
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cu2 (Beryllium Copper)	2.0855	Cu2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-A11 Fe5 Ni5		Ampco 18 (Cu-A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe- Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30 Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 CS 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4802	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (T117)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46-55 HRC						
	6.3	Tempered steel	56-60 HRC						
	6.4		61-65 HRC						
	6.5		65-70 HRC						

Cutting data values for grooving inserts GX/LX/FX/SX/AX/TC/MaxiClick

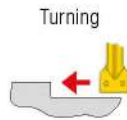
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
	CTCP325 (HCR1325)	CTCP335 (HCR1335)	CTPP345 (HCN1345)	CTPP520 (DPX1520)	CTPP535 (DPX1535)	CTP1340 (CCN1340)	H216T (CWK26)
Index	v _c in m/min.						
1.1	130-260	110-190	80-150	150-200	80-150	80-180	
1.2	150-300	130-250	110-190	150-240	110-170	120-250	
1.3	130-260	110-190	80-150	100-200	80-150	60-150	
1.4	140-240	80-170	70-140	130-180	70-130	120-200	
1.5	150-300	70-170	70-140	140-220	70-130	80-180	
1.6	130-200	70-170	60-180	100-160	60-170	60-150	
1.7	150-230	110-220	70-130	140-190	70-130	80-180	
1.8	100-180	90-210	60-110	100-150	60-110	50-120	
1.9	120-180	90-180	70-130	120-170	60-100	80-150	
1.10	120-180	70-160	60-110	120-170	70-120	50-120	
1.11	100-160	70-160	60-110	100-150	60-110	50-120	
1.12	100-160	70-160	60-110	100-150	60-110	50-120	
1.13	60-110				60-110		
1.14	60-110						
1.15	60-110	70-160	60-100	60-100	60-100	50-120	
1.16	60-110	70-160	60-100	60-100	60-100	50-120	
2.1	140-230	120-200	100-180	110-180	50-150	50-200	
2.2	140-230	120-190	100-180	110-180	50-140	50-180	
2.3	120-210	120-170	80-150	70-140	50-130	50-180	
2.4	60-110	60-90	60-90	70-100	50-80	50-80	
2.5	80-140	70-110	70-110	70-100	50-90	50-100	
2.6	80-140	70-110	70-110	70-100	50-90	50-100	
2.7	60-110	60-90	60-90		50-80	50-80	
3.1	120-210	90-180		180-220		100-200	110-180
3.2	100-170	80-150		140-180		80-160	90-150
3.3	130-210	100-160		160-200		90-190	110-180
3.4	100-170	70-140		120-180		70-160	80-140
3.5	120-250	100-200		180-240		110-230	100-200
3.6	90-190	80-150		160-200		80-160	70-160
3.7	120-240	100-200		180-240		110-230	100-200
3.8	90-190	80-150		160-200		80-160	70-160
4.1				100-1000	100-500	100-500	100-800
4.2				100-800	100-500	100-500	80-800
4.3				100-500	100-500	100-500	50-500
4.4				100-500	100-300	100-300	
4.5				100-350	100-300	100-200	
4.6					100-300	100-300	80-300
4.7					100-300	100-300	200-600
4.8					100-300	100-300	150-400
4.9					100-300	100-300	150-400
4.10					100-300	100-300	150-400
4.11				80-250	100-500	100-500	200-600
4.12					100-370	100-370	200-600
4.13							
4.14				80-500	80-180	80-180	80-500
4.15				80-200	60-150	60-150	60-150
4.16							
4.17							
4.18							
4.19							
5.1				25-45			
5.2			20-40	20-40	20-35	20-35	
5.3			20-30	15-25	20-40	20-40	
5.4			20-30	15-25	20-40	20-40	
5.5				10-20	15-25	15-25	
5.6				10-20	15-25	15-25	
5.7				10-20	10-20	10-20	
5.8				10-20	10-20	10-20	
5.9					50-120	50-120	
5.10					30-50	30-50	
5.11					30-50	30-50	
6.1	10-20						
6.2	10-20						
6.3							
6.4							
6.5							

Cutting data values for TX grooving inserts

CWX500			
Index	V_c m/min.	f mm/rev.	Coolant
1.1	80-200	0,03-0,1	Emulsion
1.2	80-200	0,03-0,1	Emulsion
1.3	80-200	0,03-0,1	Emulsion
1.4	80-160	0,03-0,1	Emulsion
1.5	80-160	0,03-0,1	Emulsion
1.6	80-160	0,03-0,1	Emulsion
1.7	80-160	0,03-0,1	Emulsion
1.8	80-150	0,03-0,1	Emulsion
1.9	80-200	0,03-0,1	Emulsion
1.10	70-140	0,03-0,07	Emulsion
1.11	70-140	0,03-0,07	Emulsion
1.12	70-140	0,03-0,07	Emulsion
1.13	40-60	0,03-0,07	Emulsion
1.14	40-60	0,03-0,07	Emulsion
1.15	40-60	0,03-0,07	Emulsion
1.16	40-60	0,03-0,07	Emulsion
2.1	80-160	0,02-0,06	Emulsion
2.2	80-160	0,02-0,06	Emulsion
2.3	80-160	0,02-0,06	Emulsion
2.4	20-85	0,02-0,06	Emulsion
2.5	20-75	0,02-0,06	Emulsion
2.6	20-65	0,02-0,06	Emulsion
2.7	20-65	0,02-0,06	Emulsion
3.1	30-180	0,03-0,1	Emulsion
3.2	30-150	0,03-0,1	Emulsion
3.3	30-180	0,03-0,1	Emulsion
3.4	30-120	0,03-0,1	Emulsion
3.5	30-90	0,03-0,1	Emulsion
3.6	20-80	0,03-0,1	Emulsion
3.7	30-90	0,03-0,1	Emulsion
3.8	20-80	0,03-0,1	Emulsion
4.1	120-600	0,05-0,12	Petroleum
4.2	120-600	0,05-0,12	Petroleum
4.3	100-450	0,05-0,12	Petroleum
4.4	70-300	0,05-0,12	Petroleum
4.5	60-150	0,05-0,12	Petroleum
4.6	60-150	0,05-0,12	Petroleum
4.7	100-180	0,05-0,12	Petroleum
4.8	90-180	0,05-0,12	Petroleum
4.9	80-180	0,05-0,12	Emulsion
4.10	80-180	0,05-0,12	Emulsion
4.11	120-220	0,05-0,12	Emulsion
4.12	70-150	0,05-0,12	Emulsion
4.13	80-180	0,05-0,12	Emulsion
4.14	80-180	0,05-0,12	Emulsion
4.15	80-180	0,05-0,12	Emulsion
4.16	80-180	0,05-0,12	Emulsion
4.17	80-180	0,05-0,12	Emulsion
4.18	80-180	0,05-0,12	Emulsion
4.19	80-180	0,05-0,12	Emulsion
5.1	30-80	0,01-0,04	Emulsion
5.2	18-75	0,01-0,04	Emulsion
5.3	18-75	0,01-0,04	Emulsion
5.4	18-40	0,01-0,04	Emulsion
5.5	18-40	0,01-0,04	Emulsion
5.6	18-40	0,01-0,04	Emulsion
5.7	15-30	0,01-0,04	Emulsion
5.8	15-30	0,01-0,04	Emulsion
5.9	15-30	0,01-0,04	Emulsion
5.10	100-150	0,01-0,04	Emulsion
5.11	100-150	0,01-0,04	Emulsion
6.1			
6.2			
6.3			
6.4			
6.5			

GX – Speeds and Feeds

GX Standard / GX-E



GX Standard / GX-E	Depth of Cut a_p , in mm						
	0,5	1,0	1,5	2,0	2,5	3,0	3,5
Cutting width in mm	Feed rate f in mm/rev.						
2	0,10-0,15	0,05-0,15	0,05-0,12	0,05-0,10			
3	0,10-0,17	0,05-0,17	0,05-0,17	0,05-0,15	0,05-0,12		
4	0,10-0,20	0,07-0,20	0,07-0,20	0,07-0,20	0,07-0,17	0,07-0,15	
5	0,10-0,25	0,10-0,25	0,07-0,25	0,07-0,25	0,07-0,22	0,07-0,20	
6	0,15-0,30	0,15-0,30	0,15-0,30	0,15-0,30	0,15-0,30	0,15-0,25	0,15-0,22

GX Standard / GX-E
Feed rate f in mm/rev.
0,05-0,20
0,10-0,25
0,10-0,25
0,10-0,30
0,15-0,35

i When axial grooving reduce feed by 40 %.

GX-F2



GX-F2	Depth of Cut a_p , in mm								
	0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,25	2,50
Cutting width in mm	Feed rate f in mm/rev.								
2	0,03-0,15	0,03-0,15	0,03-0,15	0,03-0,10					
3	0,04-0,17	0,04-0,17	0,04-0,17	0,04-0,15	0,04-0,13	0,04-0,12			
4	0,05-0,20	0,05-0,20	0,05-0,20	0,05-0,20	0,05-0,20	0,05-0,17	0,05-0,15		
5	0,07-0,20	0,07-0,20	0,07-0,20	0,07-0,20	0,07-0,20	0,07-0,20	0,07-0,17	0,07-0,15	
6	0,10-0,23	0,10-0,23	0,10-0,23	0,10-0,23	0,10-0,23	0,10-0,23	0,10-0,23	0,10-0,19	0,10-0,15

GX-F2
Feed rate f in mm/rev.
0,05-0,15
0,075-0,20
0,10-0,25
0,10-0,30
0,15-0,325

i When axial grooving reduce feed by 40 %.

GX-M40



GX-M40	Depth of Cut a_p , in mm							
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0
Cutting width in mm	Feed rate f in mm/rev.							
2	0,10-0,20	0,05-0,20	0,05-0,17	0,05-0,15				
3	0,10-0,22	0,10-0,22	0,10-0,21	0,10-0,20	0,10-0,17			
4	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,22	0,10-0,17		
5	0,10-0,30	0,10-0,30	0,10-0,30	0,10-0,30	0,10-0,27	0,10-0,23	0,10-0,20	
6	0,10-0,35	0,10-0,35	0,10-0,35	0,10-0,35	0,10-0,32	0,10-0,27	0,10-0,23	0,10-0,20

GX-M40
Feed rate f in mm/rev.
0,05-0,15
0,075-0,20
0,10-0,25
0,10-0,30
0,15-0,325

i When axial grooving reduce feed by 40 %.

GX-27P



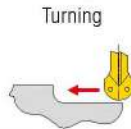
GX-27P	Depth of Cut a_p , in mm							
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0
Cutting width in mm	Feed rate f in mm/rev.							
2	0,05-0,23	0,05-0,23	0,05-0,23	0,05-0,20				
3	0,05-0,25	0,05-0,25	0,05-0,25	0,05-0,25	0,05-0,20			
4	0,10-0,30	0,10-0,30	0,10-0,30	0,10-0,30	0,10-0,30	0,10-0,25		
5	0,10-0,35	0,10-0,35	0,10-0,35	0,10-0,35	0,10-0,35	0,10-0,32	0,10-0,30	
6	0,10-0,40	0,10-0,40	0,10-0,40	0,10-0,40	0,10-0,40	0,10-0,36	0,10-0,33	0,10-0,30

GX-27P
Feed rate f in mm/rev.
0,05-0,20
0,05-0,25
0,05-0,30
0,10-0,35
0,10-0,40

i When axial grooving reduce feed by 40 %.

GX – Depths of cut and feed rates

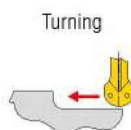
GX-M3



GX-M3	Depth of Cut a_p in mm							
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0
Radius RE in mm	Feed rate f in mm/rev.							
1,5	0,15-0,35	0,15-0,35	0,15-0,30					
2	0,15-0,40	0,15-0,40	0,15-0,40	0,15-0,30				
2,5	0,15-0,50	0,15-0,50	0,15-0,50	0,15-0,40	0,15-0,35			
3	0,20-0,70	0,20-0,70	0,20-0,70	0,20-0,60	0,20-0,50	0,20-0,40		

GX-M3
Feed rate f in mm/rev.
0,05-0,20
0,10-0,25
0,10-0,25
0,10-0,35

GX-27P Full Radius



GX-27P Full Radius	Depth of Cut a_p in mm							
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0
Radius RE in mm	Feed rate f in mm/rev.							
1,5	0,10-0,45	0,05-0,45	0,05-0,40					
2	0,15-0,50	0,10-0,50	0,10-0,50	0,10-0,40				
2,5	0,15-0,60	0,10-0,60	0,10-0,60	0,10-0,50	0,10-0,45			
3	0,25-0,70	0,20-0,70	0,15-0,70	0,15-0,70	0,15-0,65	0,15-0,60	0,15-0,55	
4	0,25-0,80	0,20-0,80	0,15-0,80	0,15-0,80	0,15-0,80	0,15-0,80	0,15-0,75	0,15-0,70

GX-27P Full Radius
Feed rate f in mm/rev.
0,05-0,15
0,075-0,20
0,10-0,25
0,10-0,30
0,15-0,35

GX-M1

GX Radius grooving inserts

GX circlip grooving



GX-M1		GX Radius grooving insert		GX circlip grooves	
Cutting width in mm	Feed rate f in mm/rev.	Radius RE in mm	Feed rate f in mm/rev.	Cutting width in mm	Feed rate f in mm/rev.
2	0,05-0,15	0,80	0,05-0,10	0,60-1,70	0,02-0,09
3	0,10-0,20	1,00	0,05-0,15	1,95-2,25	0,05-0,10
4	0,10-0,25	1,20	0,05-0,15	2,75-3,25	0,05-0,12

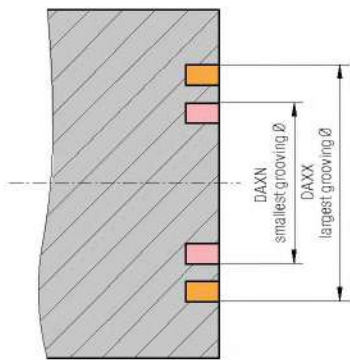
Feed guide and machining instructions for axial grooving and face turning with GX 24 axial

Approximate feed rates

GX

Designation	f in mm/rev.		a _{max} mm
	Plunge	Face turning	
GX 24-2 E 3.00 ..	0,05-0,15	0,05-0,20	2,5
GX 24-3 E 4.00 ..	0,05-0,15	0,05-0,25	3,0
GX 24-3 E 5.00 ..	0,05-0,15	0,10-0,25	3,0
GX 24-4 E 6.00 ..	0,05-0,20	0,10-0,30	3,5

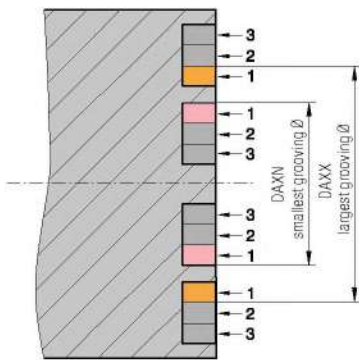
Axial grooving



It is only possible to plunge within the fixed diameter range of the axial grooving module or monoholder (e.g. 50-70 mm).

Important: The indicated diameter range is always valid for the external diameter of the groove!

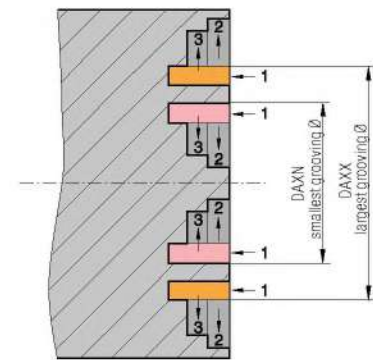
Axial grooving – Groove widening



In case of face turning it is possible to widen the groove above and below the diameter range indicated on the Axial grooving module or monoholder.

Important: Only the first groove must lie within the diameter range of the axial grooving module or axial monoholder. The depth of the widening groove must not be larger than the depth of the original groove.

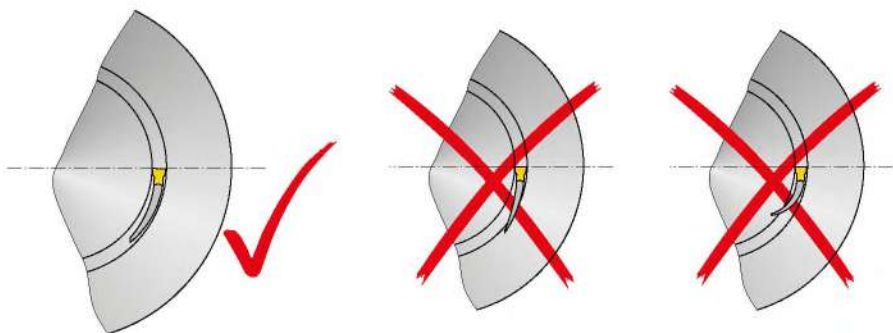
Axial grooving and face turning



Groove widening by face turning in the diameter range above and below the values specified for the Axial grooving module and Axial monoholder are possible.

Important: Only the first groove must lie within the diameter range of the module.

i Attention: The diameter of face grooves must lie within the diameter range indicated on the axial grooving module and axial monoholder. Not following this range will result in the tool being damaged or destroyed.



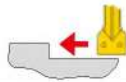
Correct Axial mono holder

Incorrect Axial mono holder

MaxiClick – Depths of cut and feed rates

MaxiClick 05

Turning



Depth of Cut a_p in mm

MaxiClick 05	0,25	0,50	0,75
Cutting width in mm	Feed rate f in mm/rev.		
1	0,02-0,15	0,02-0,10	
1,5	0,02-0,20	0,02-0,20	0,02-0,14

Parting / Grooving



MaxiClick 05

MaxiClick 05
Feed rate f in mm/rev.
0,03-0,10
0,03-0,11

MaxiClick 10

Turning



Depth of Cut a_p in mm

MaxiClick 10	0,50	0,75	1,00	1,25	1,50
Cutting width in mm	Feed rate f in mm/rev.				
1,5	0,02-0,20	0,02-0,15	0,02-0,10		
2	0,02-0,20	0,02-0,20	0,02-0,14	0,02-0,10	
2,5	0,02-0,20	0,02-0,20	0,02-0,17	0,02-0,13	0,02-0,10

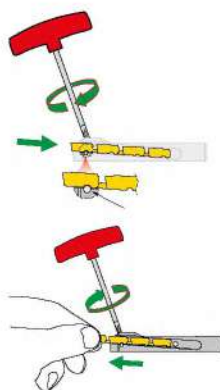
Parting / Grooving



MaxiClick 10

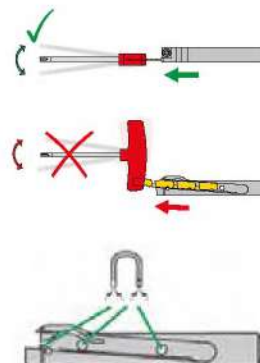
MaxiClick 10
Feed rate f in mm/rev.
0,03-0,11
0,03-0,12
0,03-0,15

MaxiClick – System function



correct insert location in the seat

Withdraw cutting insert

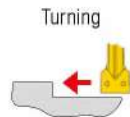


Worn-out cutting edge is broken off towards the left or right side

Magnets prevent the cutting insert from falling out of the tool holder during positioning

SX – Depths of cut and feed rates

SX-F2



SX-F2	Depth of Cut a_p in mm								
	0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,25	2,50
Cutting width in mm	Feed rate f in mm/rev.								
2	0,03-0,15	0,03-0,15	0,03-0,15	0,03-0,10					
3	0,04-0,17	0,04-0,17	0,04-0,17	0,04-0,15	0,04-0,13	0,04-0,12			
4	0,05-0,20	0,05-0,20	0,05-0,20	0,05-0,20	0,05-0,20	0,05-0,17	0,05-0,15		

SX-F2
Feed rate f in mm/rev.
0,05-0,15
0,075-0,20
0,10-0,25

SX-M2



SX-M2	Depth of Cut a_p in mm							
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0
Cutting width in mm	Feed rate f in mm/rev.							
2	0,05-0,17	0,05-0,13	0,05-0,10					
3	0,07-0,20	0,07-0,20	0,07-0,18	0,07-0,15				
4	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,22	0,10-0,18			
5	0,12-0,27	0,12-0,27	0,12-0,27	0,12-0,25	0,12-0,22			
6	0,15-0,30	0,15-0,30	0,15-0,30	0,15-0,30	0,15-0,25	0,15-0,20		

SX-M2
Feed rate f in mm/rev.
0,05-0,15
0,075-0,20
0,10-0,25
0,10-0,30
0,15-0,35

SX-27P



SX-27P	Depth of Cut a_p in mm							
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0
Cutting width in mm	Feed rate f in mm/rev.							
2	0,05-0,23	0,05-0,23	0,05-0,23	0,05-0,20				
3	0,05-0,25	0,05-0,25	0,05-0,25	0,05-0,25	0,05-0,20			
4	0,10-0,30	0,10-0,30	0,10-0,30	0,10-0,30	0,10-0,30	0,10-0,25		

SX-27P
Feed rate f in mm/rev.
0,05-0,20
0,05-0,25
0,05-0,30

SX/LX – Depths of cut and feed rates

SX-M1

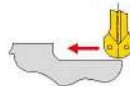
Parting / Grooving



SX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2	0,05-0,15
3	0,10-0,20
4	0,10-0,25
5	0,15-0,30
6	0,15-0,35

SX-M3

Turning



SX-M3	Depth of Cut a_p in mm							
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0
Radius in mm	Feed rate f in mm/rev.							
1,5	0,15-0,35	0,15-0,35	0,15-0,30					
2	0,15-0,40	0,15-0,40	0,15-0,40	0,15-0,30				
2,5	0,15-0,50	0,15-0,50	0,15-0,50	0,15-0,40	0,15-0,35			
3	0,20-0,70	0,20-0,70	0,20-0,70	0,20-0,60	0,20-0,50	0,20-0,40		

Parting / Grooving



SX-M3	
Feed rate f in mm/rev.	
	0,05-0,20
	0,10-0,25
	0,10-0,25
	0,10-0,35

LX-M2

Turning



LX-M2	Depth of Cut a_p in mm							
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0
Cutting width in mm	Feed rate f in mm/rev.							
8	0,17-0,45	0,17-0,45	0,17-0,45	0,17-0,45	0,17-0,40	0,17-0,37	0,17-0,35	
10	0,20-0,50	0,20-0,50	0,20-0,50	0,20-0,50	0,20-0,46	0,20-0,42	0,20-0,38	0,20-0,35

Parting / Grooving



LX-M2	
Feed rate f in mm/rev.	
	0,20-0,50
	0,20-0,50

LX-M3

Turning



LX-M3	Depth of Cut a_p in mm							
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0
Radius in mm	Feed rate f in mm/rev.							
4	0,25-0,80	0,25-0,80	0,25-0,80	0,25-0,80	0,25-0,80	0,25-0,70	0,25-0,60	0,25-0,50

Parting / Grooving

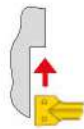


LX-M3	
Feed rate f in mm/rev.	
	0,15-0,35

AX/FX – Depths of cut and feed rates

AX-F50

Face turning



AX-F50	Depth of Cut a_p in mm			
	0,5	1,0	1,5	2,3
Size	Feed rate f in mm/rev.			
AX 05	0,03-0,10	0,03-0,10		
AX 10	0,03-0,13	0,03-0,13	0,03-0,135	
AX 15	0,03-0,15	0,03-0,15	0,03-0,15	0,03-0,15

Axial grooving



1. Plunging	
Feed rate f in mm/rev.	Feed rate f in mm/rev.
0,025-0,080	0,025-0,20
0,025-0,065	0,05-0,25
0,025-0,050	0,05-0,30

FX-F1

Parting / Grooving



FX-F1	Feed rate f in mm/rev.
Cutting width in mm	
2,2	0,025-0,10
3,1	0,05-0,15
4,1	0,05-0,20

FX-M1

Parting / Grooving



FX-M1	Feed rate f in mm/rev.
Cutting width in mm	
2,20	0,05-0,15
3,10	0,08-0,18
4,10	0,10-0,20
5,10	0,15-0,28
6,50	0,15-0,33
8,20	0,20-0,40
9,70	0,20-0,40

FX-27P

Parting / Grooving



FX-27P	Feed rate f in mm/rev.
Cutting width in mm	
2,20	0,01-0,10
3,10	0,015-0,125
4,10	0,05-0,15

FX-R2

Grooving



FX-R2	Feed rate f in mm/rev.
Cutting width in mm	
3,10	0,10-0,275
4,10	0,15-0,35

TC – Reference values for profile depth and number of passes

i All listed values are guide values for steel machining

Metric ISO 60° external thread

Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4-6	4-7	4-8	5-9	6-10	7-11	8-12	9-14	10-18	10-18	12-20	12-20	12-20
Thread profile depth in mm	0,32	0,48	0,64	0,8	0,95	1,10	1,26	1,58	1,89	2,21	2,53	2,84	3,16

Metric ISO 60° internal thread

Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4-6	4-7	4-8	5-9	6-10	7-11	8-12	9-14	10-18	10-18	12-20	12-20	12-20
Thread profile depth in mm	0,30	0,45	0,59	0,74	0,89	1,02	1,17	1,46	1,76	2,02	2,35	2,64	2,93

Whitworth 55° external and internal thread

TPI	28	26	24	20	19	18	16	14	12	11	10	9	8	7	6	5
Number/cuts	5-8	5-8	5-9	5-9	6-10	6-10	7-11	8-12	9-14	9-14	10-17	10-18	10-18	12-20	12-20	12-20
Thread profile depth in mm	0,60	0,65	0,70	0,84	0,88	0,93	1,05	1,20	1,40	1,53	1,68	1,87	2,11	2,41	2,81	3,37

Partial profile 60° external and internal thread

External	TC 16-2EI-AG60																
	TC 16-1EI-A60								TC 16-2EI-G60				TC 16-3EI-N60				
Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4-6	4-7	5-9	6-10	7-11	8-12	9-14	10-15	12-19	8-12	9-14	10-15	12-20	12-20	13-21	14-22	14-22
Thread profile depth in mm	0,33	0,52	0,71	0,90	1,09	1,28	1,47	1,84	2,22	1,23	1,42	1,79	2,17	2,45	2,83	3,21	3,59

Internal	TC 16-2EI-AG60																
	TC 16-1EI-A60								TC 16-2EI-G60				TC 16-3EI-N60				
Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4-6	4-7	5-9	6-10	7-11	8-12	9-14	10-15	12-19	8-12	9-14	10-15	12-20	12-20	13-21	14-22	14-22
Thread profile depth in mm	0,27	0,44	0,60	0,76	0,92	1,09	1,25	1,57	1,90	1,04	1,20	1,52	1,85	2,07	2,40	2,72	3,05

Partial profile 55° external and internal thread

External	TC 16-2EI-AG55													
	TC 16-1EI-A55													
TPI	28	26	24	20	19	18	16	14	12	11	10	9	8	
Number/cuts	5-8	5-8	6-9	6-9	7-12	7-12	8-14	9-14	10-16	10-16	11-18	12-20	12-20	
Thread profile depth in mm	0,66	0,72	0,79	0,95	1,01	1,07	1,21	1,39	1,63	1,79	1,97	2,20	2,48	

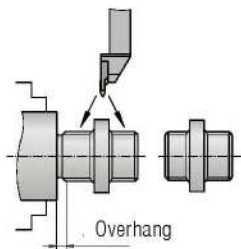
Internal	TC 16-2EI-G55							TC 16-3EI-N55		
	TPI	14	12	11	10	9	8	7	6	5
Number/cuts	8-12	9-14	10-15	11-18	12-20	12-20	12-20	12-20	14-22	
Thread profile depth in mm	1,22	1,46	1,56	1,80	2,03	2,31	2,40	2,89	3,56	

Comparison threading system with TC and conventional

TC

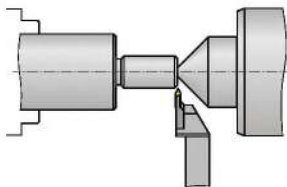


- ▲ Neutral configuration of insert makes operation in both directions possible
- ▲ Only one threading insert per pitch for partial profile and Whitworth thread; only two threading inserts (internal – external) per pitch for ISO threads
- ▲ Reduced stock holding
- ▲ Good chip formation due to chip breaker with rake angle + 10°

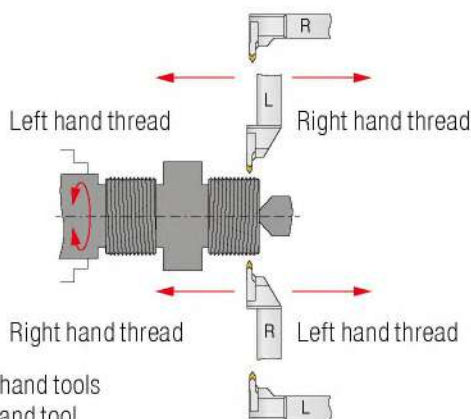


Greater efficiency through:

- ▲ Shorter operating time
- ▲ Less tool changing
- ▲ High stability with small overhang
- ▲ Material saving
- ▲ Thread turning between shoulders
- ▲ Fewer tools and indexable inserts



- ▲ Very good access to workpiece, therefore use of tailstock also possible with small thread diameters



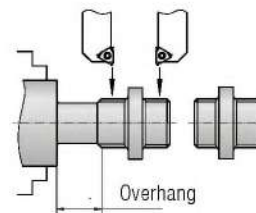
R = Right hand tools
L = Left hand tool

- ▲ Ease of use, as the tools have no pitch angle correction they can be used in both directions

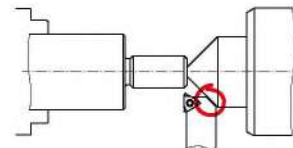
Conventional



- ▲ Right-hand and left-hand version of indexable insert, therefore operation only in one direction
- ▲ For every pitch 4 threading inserts are necessary (right – left, internal – external)



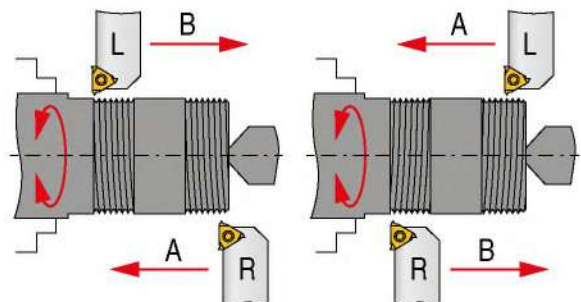
- ▲ For this machining method 2 tools are required
- ▲ Additional material and stability loss with large overhang



- ▲ Poor accessibility
- ▲ Collision danger

Right hand thread

Left hand thread

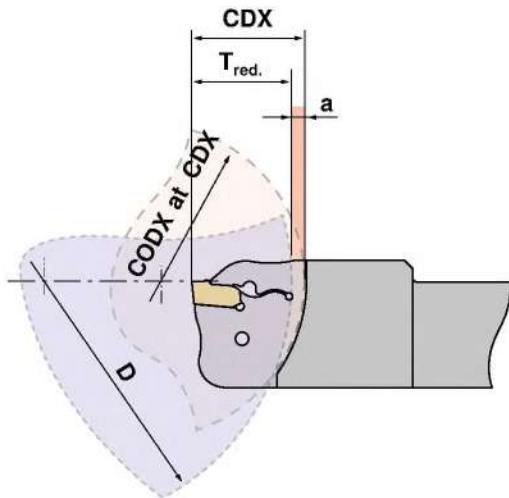


- ▲ With conventional thread turning the correction of the helix angle is necessary, therefore a high degree of application know-how is required
- ▲ Can only be operated in one direction

ModularClamp



The ModularClamp grooving modules are matched according to size on a particular workpiece diameter CODX. If the diameter of the workpiece is greater than CODX of the grooving Modules, this reduces the achievable penetration depth by the dimension „a“. The extent of reduction can be determined with the following table.



- CDX** maximum plunge depth in mm
- CODX** maximum workpiece Ø with full penetration depth in mm
- a** Reduction amount in mm

$$T_{red.} = CDX - a$$

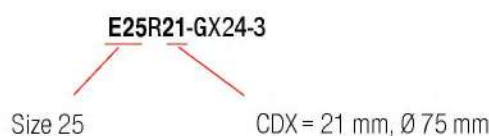
Grooving depth reduction

Size	Reduction a (mm) of the maximum grooving depth (CDX)																
	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	6,5	7,0	7,5	8,0	
E12	35	40	45	60	75	115	>250										
E16	50	55	60	70	80	100	130	200	>420								
E20	60	65	70	75	85	95	110	130	165	220	>330						
E25	75	80	85	90	100	110	125	140	160	190	240	320	>500				
E32	95	100	105	110	120	125	135	145	160	180	200	225	270	320	400	530	>800

Workpiece diameter D (mm)

Maximum workpiece diameter (CODX) with full penetration depth (CDX) in mm

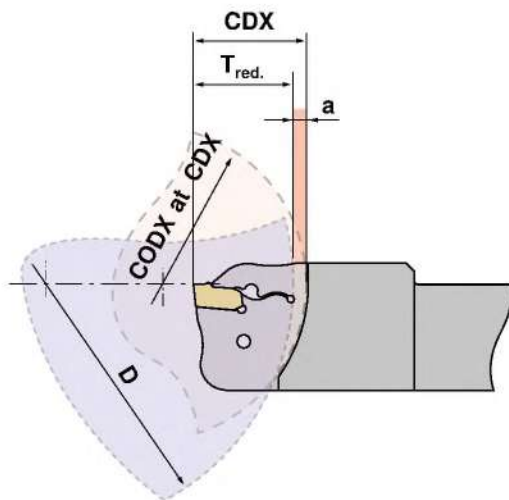
Calculation example:



D = Ø 100 mm CDX - a = T_{red.}
21 - 2 = 19 mm

MonoClamp

SX



Depending on the groove width and shank size, the MonoClamp tools are designed for use with a specific workpiece diameter CDOX. If the workpiece diameter is larger than the CDOX of the grooving module, the achievable groove depth is reduced by the dimension „a“. The extent of the reduction is determined using the following table.

- CDX** maximum plunge depth in mm
- CDOX** maximum workpiece Ø with full penetration depth in mm
- a** Reduction amount in mm

$$T_{red} = CDX - a$$

Grooving depth reduction

Shank	Reduction a (mm) of the maximum grooving depth (CDX)																	
	0	0,5	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7	7,5	8	
E12R/L0022...	44	70	80	95	115	150	225	>450										
E16R/L0026...	52	90	105	125	155	210	305	>600										
E20R/L0026...	52	110	125	140	160	195	240	320	475	>950								
E20R/L0033...	66	110	125	140	160	195	240	320	475	>950								
E25R/L0026...	52	140	160	190	235	310	465	>930										
E25R/L0033...	66	155	175	200	230	275	340	450	675	>1350								
E25R/L0040...	80	155	175	200	230	275	340	450	675	>1350								

Workpiece diameter D (mm)

Maximum workpiece diameter (CDOX) with full penetration depth (CDX) in mm

Calculation example:

E25R0033...

CDX = 33 mm, Ø 66 mm

$$D = \text{Ø } 200 \text{ mm} \qquad CDX - a = T_{red} \\ 33 - 1,5 = 31,5 \text{ mm}$$

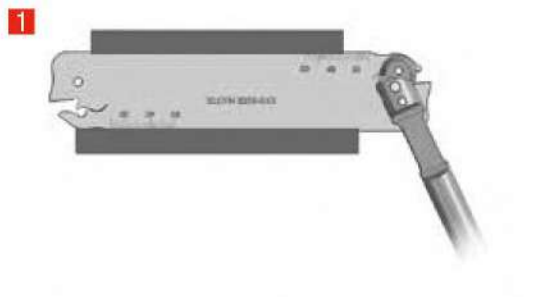
Clamping Method – SX-System

System function – inserting and removing the cutting inserts

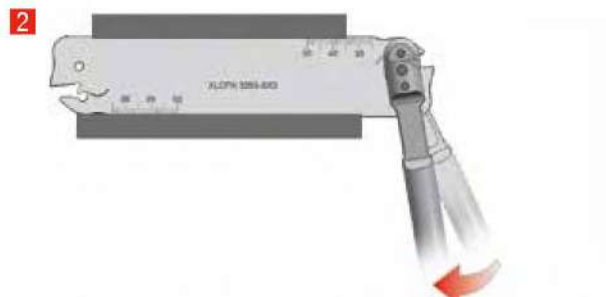
Precision system for internal and external grooving.

The key has been designed in such a way that it will not stress the material beyond its 'elastic limit'.

With this alternate system the material always remains in its flexible range and provides a substantial increase in tool life.



1 Locate wrench into blade with pins located in two holes



2 Movement of the fitting key in the direction of the insert seat opens the tool.



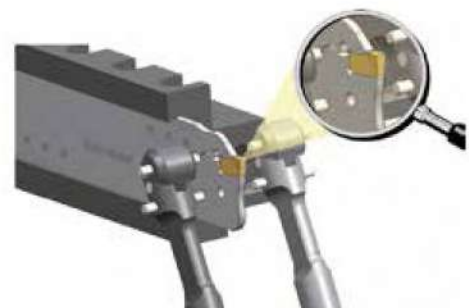
3 Load the grooving insert into position and press against the seat.



4 Moving the key forward causes the insert seat to close and clamp the insert.

i When changing the inserts, always maintain tension on the key!

The clamp is designed so that the wrench can be inserted from both sides of the blade according to the accessibility.



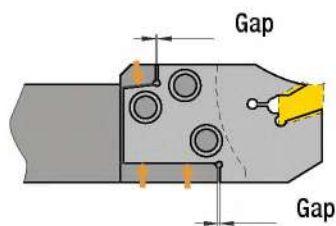
Maximum blade projection when turning

Blade	max. overhang
SX 2 - SX 3	25 mm
SX 4 - SX 5	30 mm
SX 6	35 mm



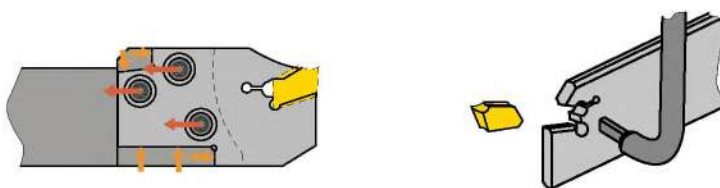
Clamping function – ModularClamp-Module

Module unclamped

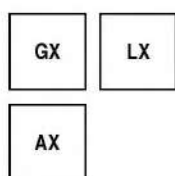


▲ Gap between module and support face for axial clamping

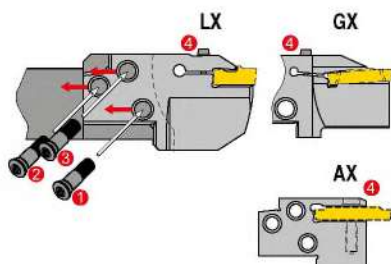
Module clamped



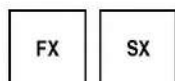
▲ Axial clamping with support face
▲ Connection free from play, therefore maximum stability



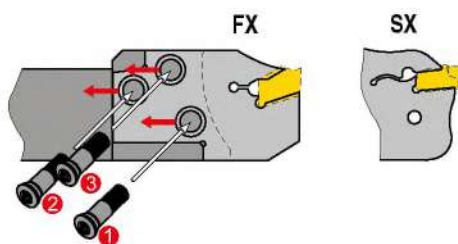
Active insert clamping



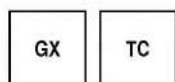
Clamping screws 1, 2 and 3 are used to clamp the modules.
The insert is clamped in the module via the additional screw 4.



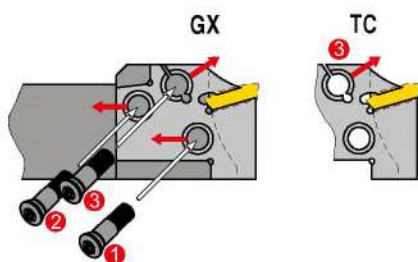
Self clamping of the insert



Clamping screws 1, 2 and 3 are used for clamping the module.
The insert is self-clamping.



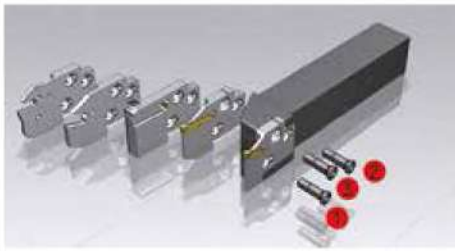
Active insert clamping



Clamping screws 1 and 2 are used for clamping the module.
Important: first tighten clamp screws 1 and 2.
Then clamp the insert with screw 3.

Torque Moment ModularClamp Module Screws

ModularClamp – Tool holder



i Order for the pre-and tightening of the screws!

ModularClamp – Tool holder	Screw	Torx	Torque	
			Nm	in.lbs
E12..	M2,5x10	T08	1,2	10,6
E16..	M3,5x12,5	T15	3,2	28,3
E20..	M4x14	T15	4,0	35,4
E25..	M5x18	T20	5,0	44,3
E32..	M6x20	T25	6,0	53,1

ModularClamp – Boring bar



i Order for the pre-and tightening of the screws!

ModularClamp – Boring bar	Screw	Torx	Torque	
			Nm	in.lbs
I16..	M2,5x10	T08	1,2	10,6
I20..	M3x11	T10	2,0	17,7
I25..	M3,5x12,5	T15	3,2	28,3
I32..	M4,5x17	T20	4,0	35,4
I40..	M5x18	T20	5,0	44,3

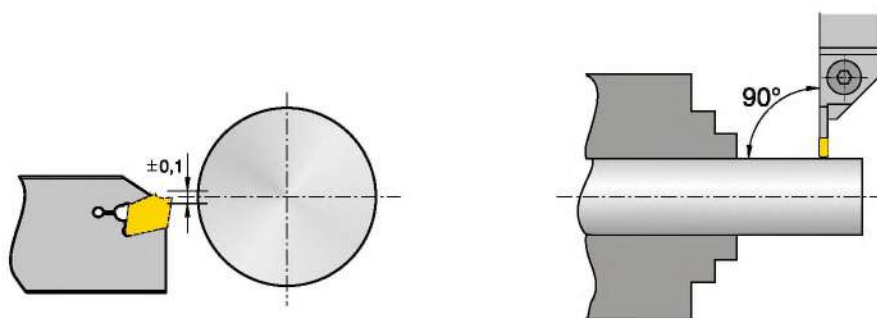
Tightening torque for the insert clamping

Recommended tightening torque

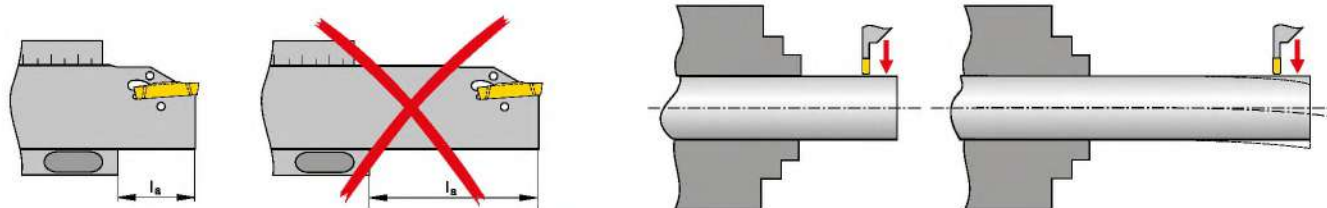
Grooving systems	Screw	Torx	Torque	
			Nm	in.lbs
GX / AX / LX	M3,5	T15	3,2	28,3
	M4,0	T15/T20	4,0	35,4
	M5,0	T20	5,0	44,3

General references

Tool position

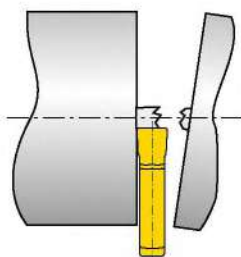


Tool overhang

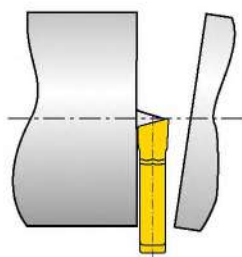


i As a rule of thumb: Overhang l_s should not be greater than 8xs (Groove width).

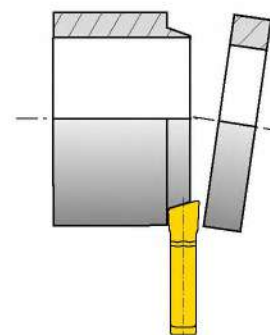
References for Parting off



From \varnothing 5 mm on, reduce feed „f“ by approx. 50 %. No parting across centre (risk of breakage).



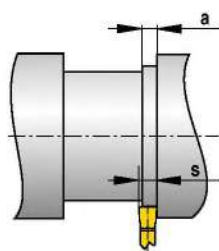
For parting pip-free, use R or L inserts. In order to minimize lateral deflection reduce feed by approx. 20–50 %.



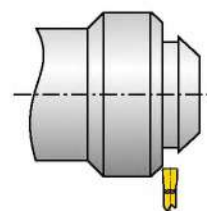
In order to prevent ring formation, use R or L inserts. Reduce feed „f“ because of lateral deflection by approx. 20–50 %.

11

References for grooving



When grooving with an axial displacement the width „a“ should amount to at least 70 % of the grooving width „s“.



When grooving oblique surfaces the feed should be reduced by approx. 20–50 % until fully engaged.

Trouble shooting guide for grooving FX/SX/GX/LX

Type of problem															
Type of wear				Work piece problems				Swarf control							
Edge breakage	Built-up edge	Wear on clearance face	Plastic deformation	Vibration	Formation of pits and burrs	Chattered surface	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)						
	↑	↓	↓	↓			↑	↓		Cutting speed	Cutting data				
↓			↓	↑		↓	↓	↑	↓	Feed rate					
↓		↓	↓		↓	↓	↓			Feed rate at centre -R ↑ ↓ -F ↑ ↓ -M ↑ ↓					
↑	↓		⤿	⤿	↓	↓	↓	↓	↑	Chip groove	Insert selection	Remedy measures			
					●					R/L execution					
↑	↑	↑	↑	↓	↓	↓	↑			Corner radius ↑ larger ↓ smaller					
↓	↑	↑								Tap Material ↑ wear resistance ↓ toughness	General criteria				
				↓		↑	↑			Groove width					
⤿				⤿		⤿	⤿			Tool clamping					
⤿				⤿		⤿	⤿			Work piece clamping					
⤿				⤿			↓			Overhang					
⤿		⤿		⤿	⤿		⤿			Tip height					
	●	●	●		●		●	●		Cooling lubricant					

↑ raise, increase large influence
↑ raise, increase small influence

↓ avoid, reduce large influence
↓ avoid, reduce small influence

⤿ check, optimise
● use

Trouble shooting guide for TC threading

Type of problem														
Type of wear			Workpiece				Swarf control							
Wear on clearance face	Break out cut	Plastic deformation	Built-up edge	Formation of a shoulder at the external thread Ø	Profile	Surface quality	Chatter marks, vibrations	Chip too thick	Chip too thin	Chip shape (snarl chip)				
↓		↓	↑			↑	↓				Cutting speed	Cutting data	Remedy measures	
a, b	a, b		a, b	a, b		a, b	a, b	a, b		a, b	Feed			a – over the flanks b – Alternating flanks
↑	↓	↓		↓	↓	↓	↓	↓	↑	↔	Feed (Cutting depth)			
↓	↑	↑		↔	↔	↑	↔	↑	↓	↓	Number of passes	Indexable insert selection	Remedy measures	
				●	●	●					Spring cut (Air cut)			
			●			●	●			●	Chip groove			
↑	↓	↑									Tap Material	Various criteria	Remedy measures	
				●	●	●					Full profile			wear resistance ↑ toughness ↓
											Partial profile			
	↔					↔	↔				Stable tool holder / insert	Various criteria	Remedy measures	
	↔					↔	↔				Stable workpiece			
	↓					↓	↓				Overhang			
↔	↔	↔			↔	↔	↔				Tip height	Various criteria	Remedy measures	
●	●	●	●	●		●					Cooling lubricant			

↑ raise, increase large influence
↑ raise, increase small influence

↓ avoid, reduce large influence
↓ avoid, reduce small influence

↔ check, optimise
● use

Wear causes

Wear on clearance face



Abrasion on the flank, normal wear after a given operation time.

Cause

- ▲ cutting speed too high
- ▲ grade with too low wear resistance
- ▲ insufficient coolant

Remedy

- ▲ Reduce the cutting speed
- ▲ select a more wear resistant grade
- ▲ Improve/check coolant feed

Edge chipping



Excessive mechanical stress on the cutting edge causing carbide particles to break out.

Cause

- ▲ too hard grade
- ▲ vibration
- ▲ too high feed and depth of cut
- ▲ chip impact

Remedy

- ▲ use tougher grade
- ▲ use negative geometry with chip breaker
- ▲ reduce overhang, check center height
- ▲ stabilize the cutting edge

Cratering



The outgoing hot chip causes cratering of the insert on the clamping surface.

Cause

- ▲ too high cutting speed, feed, or both
- ▲ too low rake angle
- ▲ grade with too low wear resistance
- ▲ incorrectly supplied cooling

Remedy

- ▲ Reduce cutting speed and / or feed
- ▲ Check coolant flow and / or increase pressure
- ▲ Use harder grade

Plastic deformation



Large mechanical load produces high temperature machining, this can lead to plastic deformation.

Cause

- ▲ too high operating temperature, thus softening the base material
- ▲ unsuitable grade
- ▲ inadequate coolant supply

Remedy

- ▲ Reduce the cutting speed
- ▲ select a more wear resistant grade
- ▲ use coolant

Built-up edge



Weld deposits of material on the cutting edge occurs when the chip does not flow caused by low average temperature.

Cause

- ▲ too low cutting speed
- ▲ too low rake angle
- ▲ Incorrect grade
- ▲ lack of cooling / lubrication

Remedy

- ▲ Increase the cutting speed
- ▲ Increase rake angle
- ▲ Use TiN coating
- ▲ increase coolant strength

Notch wear



Contraction at maximum cutting depth.





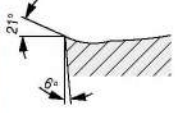

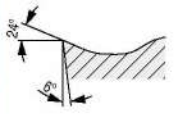

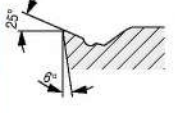

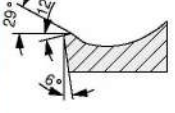

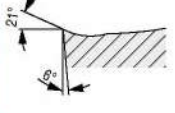
Cause

- ▲ Oxidation at the cutting edge
- ▲ Too high a temperature at the edge





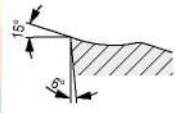

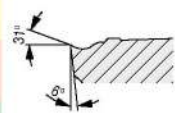

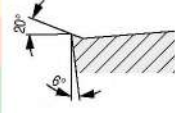
Remedy

- ▲ Use different cutting depths
- ▲ Reduce cutting speed
- ▲ Improve/check coolant feed


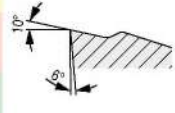
Chip breakers / Applications

System GX		smooth cut 	irregular cut 	interrupted cut 	Model	f in mm/rev.
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		CTCP325 (HCR1325)	CTP1340 (CCN1340)	CTPP345 (HCN1345)		0,05-0,15
		CTP1340 (CCN1340)	CTP1340/CTPP345 (CCN1340/HCN1345)	CTPP345 (HCN1345)		
		CTCP325 (HCR1325)	CTP1340 (CCN1340)			
		CTP1340 (CCN1340)	CTP1340 (CCN1340)	CTPP345 (HCN1345)		
-Standard / -E ▲ positive geometry ▲ low-medium feed rates ▲ low cutting forces ▲ universal application ▲ first choice for axial grooving		CTCP325 (HCR1325)	CTCP335/CTP1340 (HCR1335/CCN1340)	CTPP345 (HCN1345)		0,05-0,17
		CTP1340 (CCN1340)	CTP1340/CTPP345 (CCN1340/HCN1345)	CTPP345 (HCN1345)		
		CTCP325 (HCR1325)	CTCP335/CTP1340 (HCR1335/CCN1340)	CTP1340 (CCN1340)		
		CTP1340 (CCN1340)	CTP1340 (CCN1340)	CTPP345 (HCN1345)		
-M40 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		CTCP325 (HCR1325)	CTP1340 (CCN1340)	CTPP345 (HCN1345)		0,075-0,20
		CTP1340 (CCN1340)	CTP1340/CTPP345 (CCN1340/HCN1345)	CTPP345 (HCN1345)		
		CTCP325 (HCR1325)	CTCP325/CTP1340 (HCR1325/CCN1340)	CTP1340 (CCN1340)		
		CTP1340 (CCN1340)	CTP1340 (CCN1340)	CTPP345 (HCN1345)		
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for interrupted cut ▲ for high tensile materials ▲ first choice for parting off		CTCP325 (HCR1325)	CTP1340 (CCN1340)	CTPP345 (HCN1345)		0,1-0,20
		CTP1340 (CCN1340)	CTP1340/CTPP345 (CCN1340/HCN1345)	CTPP345 (HCN1345)		
		CTCP325 (HCR1325)	CTCP325/CTP1340 (HCR1325/CCN1340)	CTP1340 (CCN1340)		
		CTP1340 (CCN1340)	CTP1340 (CCN1340)	CTPP345 (HCN1345)		
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals						0,05-0,25
		H216T (CWK26)	H216T (CWK26)	H216T (CWK26)		


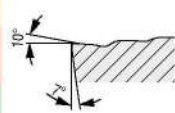
Chip breakers / Applications

System GX		smooth cut 	irregular cut 	interrupted cut 	Model	f in mm/rev.
Standard – Radius ▲ positive geometry ▲ honed cutting edge ▲ low-medium feed rates ▲ low cutting forces ▲ Radius grooving/copy turning		CTCP325 (HCR1325)	CTCP325/CTP1340 (HCR1325/CCN1340)	CTP1340 (CCN1340)		0,05-0,20
		CTP1340 (CCN1340)	CTP1340 (CCN1340)	CTP1340 (CCN1340)		
		CTCP325 (HCR1325)	CTCP325/CTP1340 (HCR1325/CCN1340)	CTP1340 (CCN1340)		
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving/copy turning		CTCP325 (HCR1325)	CTCP325/CTCP335 (HCR1325/HCR1335)	CTCP335 (HCR1335)		0,07-0,20
		CTCP335 (HCR1335)	CTCP335 (HCR1335)			
		CTCP325 (HCR1325)	CTCP325/CTCP335 (HCR1325/HCR1335)	CTCP335 (HCR1335)		
-27P – Radius ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals						0,05-0,30
		H216T (CWK26)	H216T (CWK26)	H216T (CWK26)		





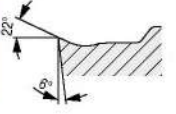



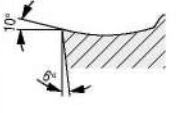

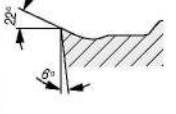

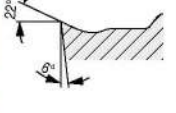
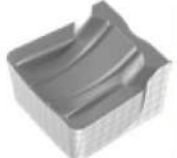
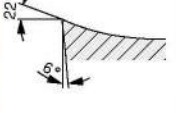

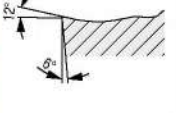
Circlip grooving

Standard ▲ positive geometry ▲ honed cutting edge ▲ low feed rates ▲ small corner radius ▲ Circlip grooves		CTP1340 (CCN1340)	CTP1340 (CCN1340)			0,05-0,30
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			
		CCN1340 (CCN1340)	CTP1340 (CCN1340)			
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			





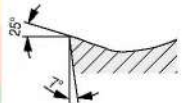



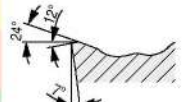
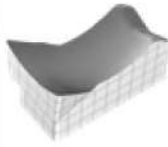
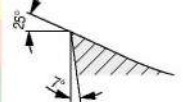
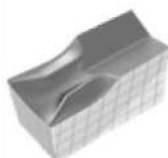
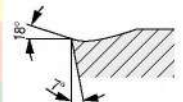

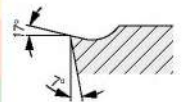
System AX

-F50 ▲ positive geometry ▲ honed cutting edge ▲ low feed rates ▲ small corner radius ▲ Circlip grooves		CTP1340 (CCN1340)	CTP1340 (CCN1340)			0,025-0,125
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			
		CCN1340 (CCN1340)	CCN1340 (CCN1340)			
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			

Chip breakers / Applications

System SX		smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
						
-F2		CTP1340 (CCN1340)	CTP1340 (CCN1340)	CTPP345 (HCN1345)		0,05-0,15
		CTP1340 (CCN1340)	CTP1340/CTPP345 (CCN1340/HCN1345)	CTPP345 (HCN1345)		
		CTCP325 (HCR1325)	CTP1340 (CCN1340)			
		CTP1340 (CCN1340)	CTP1340/CTPP345 (CCN1340/HCN1345)			
-M1		CTCP325 (HCR1325)	CTCP335/CTP1340 (HCR1335/CCN1340)	CTPP345 (HCN1345)		0,10-0,20
		CTCP335 (HCR1335)	CTP1340 (CCN1340)	CTPP345 (HCN1345)		
		CTCP325 (HCR1325)	CTCP325 (HCR1325)	CTCP325 (HCR1325)		
		CTP1340 (CCN1340)	CTP1340 (CCN1340)	CTPP345 (HCN1345)		
-M2		CTCP325 (HCR1325)	CTCP335/CTP1340 (HCR1335/CCN1340)	CTPP345 (HCN1345)		0,075-0,20
		CTCP335 (HCR1335)	CTP1340 (CCN1340)	CTPP345 (HCN1345)		
		CTCP325 (HCR1325)	CTCP325 (HCR1325)	CTCP335 (HCR1335)		
		CTP1340 (CCN1340)	CTP1340 (CCN1340)	CTPP345 (HCN1345)		
-27P						0,05-0,25
		H216T (CWK26)	H216T (CWK26)	H216T (CWK26)		
-M3 - Radius		CTCP335 (HCR1335)	CTCP335/CTP1340 (HCR1335/CCN1340)	CTP1340 (CCN1340)		0,05-0,20
		CTCP335 (HCR1335)	CTCP335/CTP1340 (HCR1335/CCN1340)	CTP1340 (CCN1340)		
		CTCP335 (HCR1335)	CTCP335/CTP1340 (HCR1335/CCN1340)	CTP1340 (CCN1340)		
		CTP1340 (CCN1340)	CTP1340 (CCN1340)	CTP1340 (CCN1340)		
-M2		CTCP325 (HCR1325)	CTCP335/CTP1340 (HCR1335/CCN1340)	CTCP335 (HCR1335)		0,20-0,50
		CTCP335 (HCR1335)	CTP1340 (CCN1340)	CTP1340 (CCN1340)		
		CTCP325 (HCR1325)	CTCP325 (HCR1325)	CTCP335 (HCR1335)		
		CTP1340 (CCN1340)	CTP1340 (CCN1340)	CTP1340 (CCN1340)		
-M3 - Radius		CTCP325 (HCR1325)	CTCP335/CTP1340 (HCR1335/CCN1340)	CTP1340 (CCN1340)		0,15-0,35
		CTCP335 (HCR1335)	CTCP335/CTP1340 (HCR1335/CCN1340)	CTP1340 (CCN1340)		
		CTCP325 (HCR1325)	CTCP335/CTP1340 (HCR1335/CCN1340)	CTP1340 (CCN1340)		
		CTP1340 (CCN1340)	CTP1340 (CCN1340)	CTP1340 (CCN1340)		

Chip breakers / Applications

System FX		smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
						
-F1 ▲ very positive geometry ▲ low-medium feed rates ▲ low cutting forces ▲ good chip control ▲ low cutting edge build up		CTCP325 (HCR1325)	CTP1340 (CCN1340)	CTPP345 (HCN1345)		0,05-0,15
		CTP1340 (CCN1340)	CTP1340/CTPP345 (CCN1340/HCN1345)	CTPP345 (HCN1345)		
		CTCP325 (HCR1325)	CTCP325/CTP1340 (HCR1325/CCN1340)			
		CTP1340 (CCN1340)	CTP1340/CTPP345 (CCN1340/HCN1345)	CTPP345 (HCN1345)		
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for interrupted cut ▲ for high tensile materials ▲ first choice for parting off		CTCP325 (HCR1325)	CTCP335/CTP1340 (HCR1335/CCN1340)	CTPP345 (HCN1345)		0,08-0,20
		CTCP335 (HCR1335)	CTP1340 (CCN1340)	CTPP345 (HCN1345)		
		CTCP325 (HCR1325)	CTCP325 (HCR1325)	CTCP325 (HCR1325)		
		CTP1340 (CCN1340)	CTP1340 (CCN1340)	CTPP345 (HCN1345)		
-R2 ▲ very stable cutting edge ▲ high feed rates ▲ good chip control		CTCP325 (HCR1325)	CTP1340 (CCN1340)	CTPP345 (HCN1345)		0,10-0,27
		CTP1340 (CCN1340)	CTP1340/CTPP345 (CCN1340/HCN1345)	CTPP345 (HCN1345)		
		CTCP325 (HCR1325)	CTCP325/CTP1340 (HCR1325/CCN1340)			
		CTP1340 (CCN1340)	CTP1340/CTPP345 (CCN1340/HCN1345)	CTPP345 (HCN1345)		
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals						0,03-0,13
		H216T (CWK26)	H216T (CWK26)	H216T (CWK26)		
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		CTP1340 (CCN1340)	CTP1340 (CCN1340)	CTP1340 (CCN1340)		0,05-0,10
		CTP1340 (CCN1340)	CTP1340 (CCN1340)	CTP1340 (CCN1340)		
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			
		CTP1340 (CCN1340)	CTP1340 (CCN1340)	CTP1340 (CCN1340)		
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			
-F3 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ reduced burrs / edge build up		CTP1340 (CCN1340)	CTP1340 (CCN1340)			0,02-0,06
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			
		CTP1340 (CCN1340)	CTP1340 (CCN1340)			

Example of Coding Grooving Tools

Grooving insert

GX	16	E	2	3.00	N	0.50
Grooving system (GX)	Insert length (16 mm)	Type of insert, application	Width class of the holder / module or support surface (2 mm)	Groove width (3.0 mm)	Insert seat N = Neutral L = Left-Handed R = Right-Handed	Corner radius size (0.5 mm)

Module

E	25	R	12	GX	16	2
Application E = external I = internal	Size (25 mm)	Module version R = Right-Handed L = Left-Handed	Maximum groove depth (12 mm)	Grooving system (GX)	Insert size (16 mm)	Width class 2

Basic holder

E	25	R	00	2525	L
Application E = external I = internal	Size (25 mm)	Holder version R = Right-Handed L = Left-Handed	Approach angle 0°	Shank type 25x25mm	Shank length L - (sh, ISO)

Monobloc tool holder

E	25	R	00	2525	M	K	DC	SX3
Application E = external I = internal	Size (25 mm)	Holder version R = Right-Handed L = Left-Handed	Approach angle 0°	Shank type 25x25 mm	Shank length M = (sh, ISO)	Insert clamping K = Key	Cooling system DC = DirectCooling	Grooving system / width (3.0 mm)



Compilation

Basic holder

Module

Grooving insert

E25 R 00 - 2525L

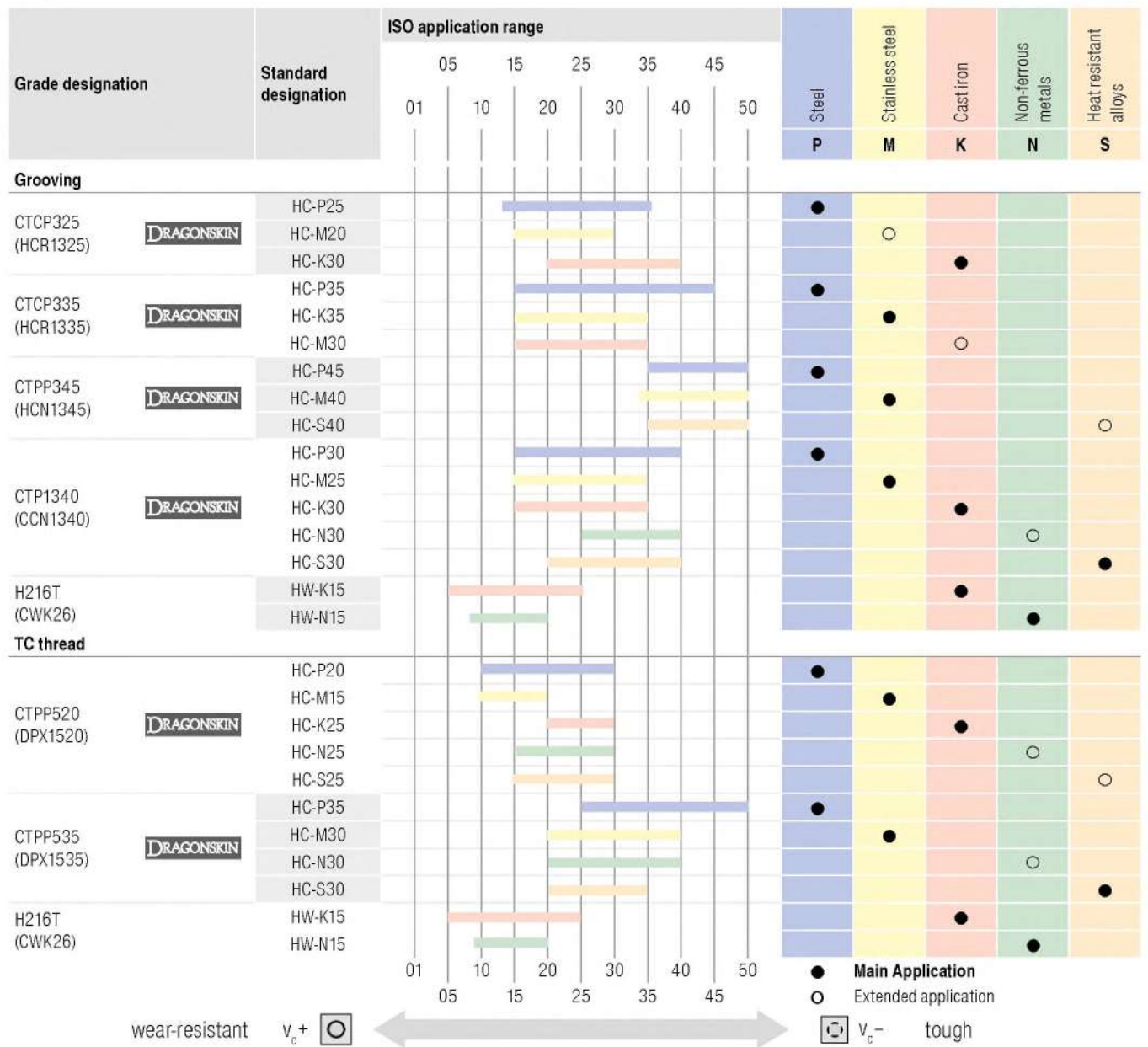
E25 R 12 - GX 16-2

GX 16-2 E3.00 N 0.50

Grades Overview

CTCP325	<ul style="list-style-type: none"> ▲ Carbide, TiCN-Al₂O₃-coated ▲ ISO P25 K30 M20 ▲ The wear-resistant solution for steel and cast iron materials at high cutting speeds 	CTPP520	<ul style="list-style-type: none"> ▲ Carbide, TiAlTaN-coated ▲ ISO P20 M15 K25 N25 S25 ▲ The wear-resistant grade for wet machining of steels
HCR1325		DPX1520	
CTCP335	<ul style="list-style-type: none"> ▲ Carbide, TiCN-Al₂O₃-coated ▲ ISO P35 M30 K35 ▲ The reliable choice for machining steel and cast iron materials 	CTPP535	<ul style="list-style-type: none"> ▲ Carbide, AlTiN-coated ▲ ISO P35 M30 S30 N30 ▲ The tough thread turning grade for universal application
HCR1335		DPX1535	
CTPP345	<ul style="list-style-type: none"> ▲ Carbide, TiAlTaN-coated ▲ ISO P45 M40 S40 ▲ The reliable solution for steel materials and austenitic steels under unstable conditions 	H216T	<ul style="list-style-type: none"> ▲ Carbide, uncoated ▲ ISO K15 N15 ▲ The uncoated carbide grade for machining aluminium and other non-ferrous metals ▲ Also highly suitable for HSC machining
HCN1345		CWK26	
CTP1340	<ul style="list-style-type: none"> ▲ Carbide, TiAlTaN-coated ▲ ISO P30 M25 K30 S30 N30 ▲ The universal high-performance grade for steel materials, austenitic steel, cast iron materials and heat-resistant alloys 	CWX500	<ul style="list-style-type: none"> ▲ Carbide, TiAlN-coated ▲ ISO K30 ▲ The universal carbide grade for almost all materials
CCN1340			

Application







Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 EcoCut

11 Grooving Tools

12 Miniature turning tools

12

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Tool Clamping

16 Adapters

17 Accessories

18 Material examples and article no. index

Table of contents

System overview	3
Toolfinder	2+3
Product programme	
UltraMini	4-35
MiniCut	36-54
UltraMini + MiniCut Hard Turning	8+37
SlotCut - Broaching	55-58
Technical Information	
Coatings and thread types	59-61
Broaching - Recommendations for Correct Use	62
Cutting Data	63

WNT \ Performance

Premium quality tools for high performance.

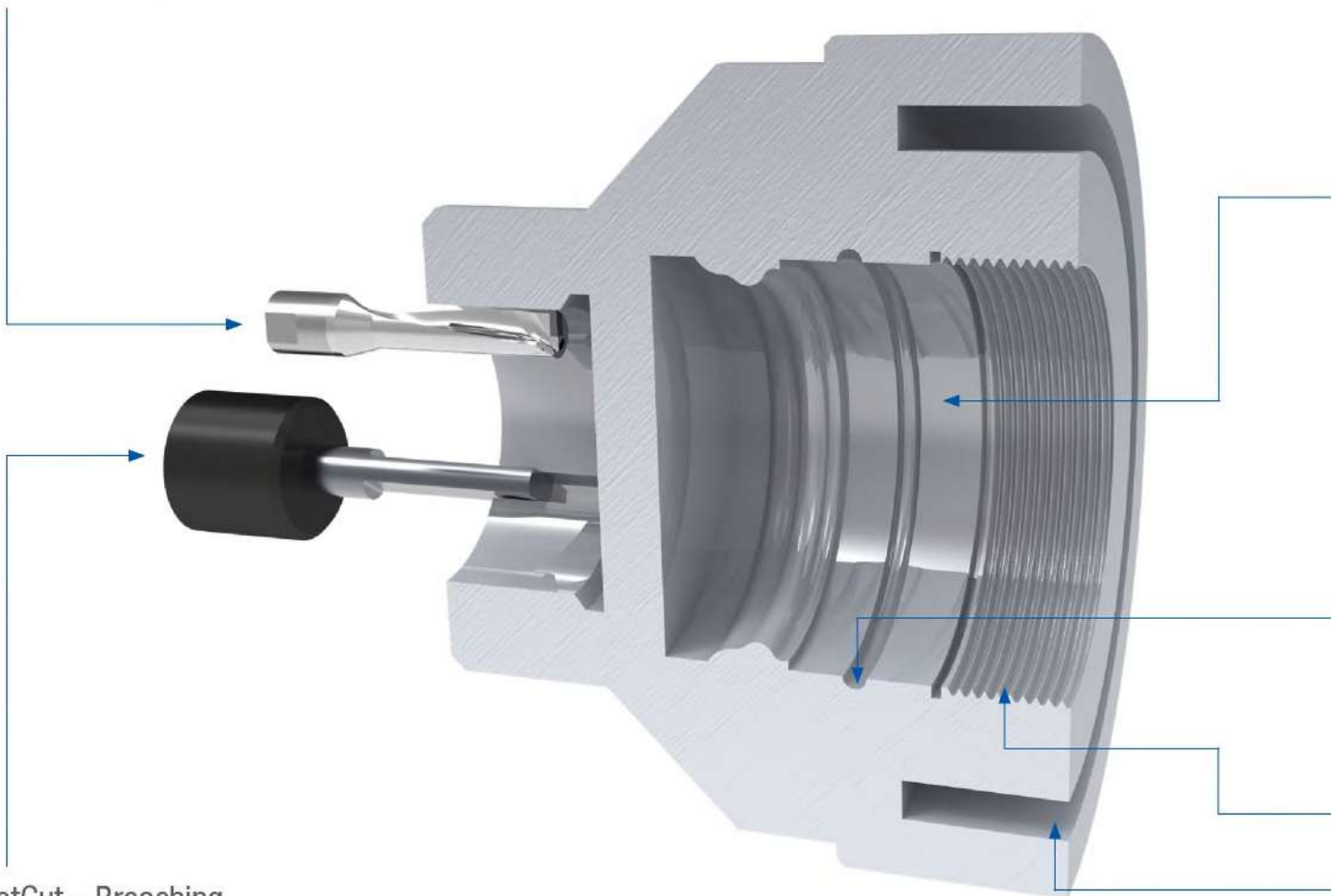
The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Toolfinder

EcoCut Mini

From Ø 2 mm

Inserts and tool holders can be found in → **Chapter 10 – EcoCut**



SlotCut - Broaching

Inserts + Holder DIN138

55-58

System overview

UltraMini



- ▲ from Ø 0.5 mm
- ▲ flexible system
- ▲ ground inserts
- ▲ high repeatability
- ▲ coolant supply to the cutting edge

MiniCut



- ▲ from Ø 7.8 mm
- ▲ stable three-rib interface
- ▲ easy handling
- ▲ coolant supply to the cutting edge
- ▲ precise cutting edge position

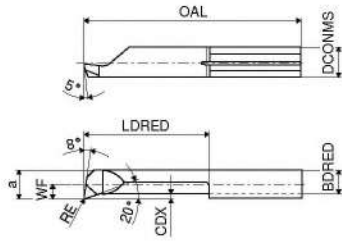
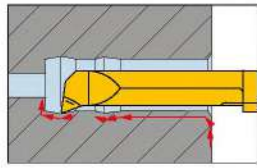
SlotCut



- ▲ broaching directly on the machine
- ▲ usable from Ø 6 mm
- ▲ low machine load
- ▲ variety of tolerance classes

Hole diameter in mm	UltraMini										MiniCut						
	≥ 0,5	≥ 2	≥ 2,4	≥ 2,8	≥ 3	≥ 4	≥ 5	≥ 6	≥ 8	≥ 16	≥ 8	≥ 9	≥ 11	≥ 14	≥ 16		
Internal turning and profiling		4-7	4-7	4-7	4-7		4-7	4-7	4-7			36	36	36	36	36	
Internal turning and profiling - hard turning			8		8		8	8	8			37		37	37	37	
High-feed turning			10			10	10	10	10								
Turning and profile turning - super alloys			9		9		9	9	9								
Internal turning					11		11	11				38	38	38	38	38	
Back boring						12	12	12	12			39	39	39	39		
Turning and chamfering								13	13			39	39	39	39		
Pre-parting and chamfering							13	13	13			40	40	40	40	40	
Groove turning			14-16			14-16	14-16	14-16	14-16			41+42	40	40	40	40	
Internal Undercuts			17		17		17	17	17			43	43	43	43	43	
Groove and profile turning							18	18	18			44	44	44	44	44	
Internal thread turning				19-22			19-22	19-22	19-22			45-48	45-48	45-48	45-48	45-48	
Axial grooving								23-28	23-28	23-28	23-28		49+50	49+50	49+50	49+50	49+50
Suitable holder							31-35							51-54			
Sets							29+30							50			

UltraMini – Inserts for internal turning and profiling

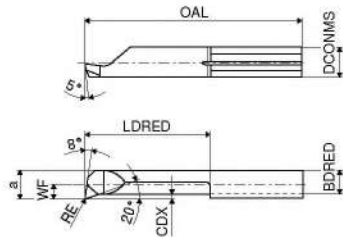
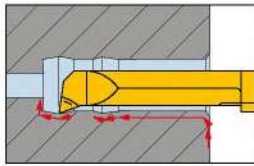


Illustrations show right-hand versions

Designation	DCONMS _{h6} mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BORED mm	RE mm	Standard tool holder	Left-hand Y5		Right-hand Y5		Left-hand Y5		Right-hand Y5	
											Article no.		Article no.		Article no.		Article no.	
											73 005 ...	£	73 004 ...	£	73 005 ...	£	73 004 ...	£
R/L 050.05-2	4		0.5	0.4	20	2	0.03	0.32	0.02	645.00..D	61.71	500	61.71	500				
R/L 050.06-2	4		0.6	0.5	20	2	0.05	0.40	0.04	645.00..D	61.71	510	61.71	510				
R/L 050.06-3	4		0.6	0.5	20	3	0.05	0.40	0.04	645.00..D	63.71	511	63.71	511				
R/L 050.08-4	4		0.8	0.7	20	4	0.05	0.60	0.04	645.00..D					62.10	812	62.10	812
R/L 050.1-8	4		1.0	0.9	22	8	0.10	0.75	0.05	645.00..D					61.51	813	61.51	813
R/L 050.15-5	4		1.5	1.3	19	5	0.10	1.15	0.05	645.00..D	58.86	515	58.86	515				
R/L 050.15-10	4		1.5	1.3	24	10	0.10	1.15	0.05	645.00..D	59.42	516	59.42	516				
R/L 050.15-12	4		1.5	1.3	26	12	0.10	1.15	0.05	645.00..D					61.51	818	61.51	818
R/L 050.2-5	4		2.0	1.7	19	5	0.10	1.50	0.05	645.00..D	50.02	520	45.89	520				
R/L 050.2-10	4		2.0	1.7	24	10	0.10	1.50	0.05	645.00..D	50.60	521	50.02	521				
R/L 050.2-15	4		2.0	1.7	29	15	0.10	1.50	0.05	645.00..D	54.32	522	49.60	522				
R/L 050.3-10	4	0.6	2.8	2.6	24	10	0.20	2.30	0.10	645.00..D	54.32	531	52.74	531				
R/L 050.3-16	4	0.6	2.8	2.6	30	16	0.20	2.30	0.10	645.00..D	59.57	530	57.86	530				
R/L 050.3-20	4	0.6	2.8	2.6	34	20	0.20	2.30	0.10	645.00..D	56.58	532	57.78	532				
R/L 050.35-10	4	1.1	3.5	3.1	24	10	0.25	2.80	0.10	645.00..D					48.65	835	48.65	835
R/L 050.35-16	4	1.1	3.5	3.1	30	16	0.25	2.80	0.10	645.00..D					51.28	836	51.28	836
R/L 050.35-20	4	1.1	3.5	3.1	34	20	0.25	2.80	0.10	645.00..D					61.62	837	61.62	837
R/L 050.35-24	4	1.1	3.5	3.1	38	24	0.25	2.80	0.10	645.00..D					67.50	838	67.50	838
R/L 050.4-10	4	1.5	4.0	3.5	24	10	0.30	3.00	0.10	645.00..D	54.59	541	52.01	541	49.89	841	49.89	841
R/L 050.4-16	4	1.5	4.0	3.5	30	16	0.30	3.00	0.10	645.00..D	54.59	540	52.01	540	52.74	840	52.74	840
R/L 050.4-20	4	1.5	4.0	3.5	34	20	0.30	3.00	0.10	645.00..D	55.78	542	55.44	542	58.99	842	58.99	842
R/L 050.4-24	4	1.5	4.0	3.5	38	24	0.30	3.00	0.10	645.00..D	66.97	545	64.98	545	66.97	845	66.97	845
R/L 050.4-28	4	1.5	4.0	3.5	42	28	0.30	3.00	0.10	645.00..D	74.54	546	71.16	546	74.54	846	74.54	846
R/L 050.5-10	5	1.9	5.0	4.4	25	10	0.50	3.80	0.15	645.00..D	53.97	551	49.21	551	46.74	851	46.74	851
R/L 050.5-15	5	1.9	5.0	4.4	30	15	0.50	3.80	0.15	645.00..D	54.80	552	52.43	552	49.89	852	49.89	852
R/L 050.5-20	5	1.9	5.0	4.4	35	20	0.50	3.80	0.15	645.00..D	55.23	550	53.82	550	57.43	850	57.43	850
R/L 050.5-25	5	1.9	5.0	4.4	40	25	0.50	3.80	0.15	645.00..D	63.61	553	60.80	553	64.98	853	64.98	853
R/L 050.5-30	5	1.9	5.0	4.4	45	30	0.50	3.80	0.15	645.00..D	68.55	554	66.84	554	73.26	854	73.26	854
R/L 050.5-35	5	1.9	5.0	4.4	50	35	0.50	3.80	0.15	645.00..D	81.23	556	77.59	556	81.23	856	81.23	856
R/L 050.5-40	5	1.9	5.0	4.4	55	40	0.50	3.80	0.15	645.00..D					88.29	857	88.29	857
R/L 050.6-15	6	2.3	6.0	5.3	30	15	0.50	4.50	0.15	676.00..D	56.14	561	51.46	561	49.89	861	49.89	861
R/L 050.6-22	6	2.3	6.0	5.3	37	22	0.50	4.50	0.15	676.00..D	57.57	560	56.02	560	57.43	860	57.43	860
R/L 050.6-25	6	2.3	6.0	5.3	40	25	0.50	4.50	0.15	676.00..D	65.15	562	59.57	562	64.98	862	64.98	862
R/L 050.6-30	6	2.3	6.0	5.3	45	30	0.50	4.50	0.15	676.00..D	69.57	563	67.70	563	73.26	863	73.26	863
R/L 050.6-35	6	2.3	6.0	5.3	50	35	0.50	4.50	0.15	676.00..D	81.23	564	77.59	564	81.23	864	81.23	864
R/L 050.6-42	6	2.3	6.0	5.3	57	42	0.50	4.50	0.15	676.00..D	90.79	565	88.23	565	90.79	865	90.79	865
R/L 050.7-20	7	2.8	6.8	6.3	35	20	0.60	5.50	0.15	676.00..D	58.86	572	57.16	572	56.62	872	56.62	872
R/L 050.7-25	7	2.8	6.8	6.3	40	25	0.60	5.50	0.15	676.00..D	73.67	573	70.68	573	65.70	873	65.70	873
R/L 050.7-30	7	2.8	6.8	6.3	45	30	0.60	5.50	0.15	676.00..D	73.40	574	71.68	574	72.96	874	72.96	874
R/L 050.7-35	7	2.8	7.0	6.3	50	35	0.60	5.50	0.15	676.00..D	82.64	575	82.64	575	82.64	875	82.64	875
R/L 050.7-40	7	2.8	7.0	6.3	55	40	0.60	5.50	0.15	676.00..D	92.06	576	92.06	576	92.06	876	92.06	876
R/L 050.7-45	7	2.8	7.0	6.3	60	45	0.60	5.50	0.15	676.00..D	95.76	577	95.76	577	95.76	877	95.76	877
R/L 050.7-50	7	2.8	7.0	6.3	65	50	0.60	5.50	0.15	676.00..D	105.02	578	105.02	578	105.02	878	105.02	878

Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	○	○	●	●
Non ferrous metals	○	○	●	●
Heat resistant alloys	○	○	●	●
hardened materials	○	○	●	●

UltraMini – Inserts for internal turning and profiling

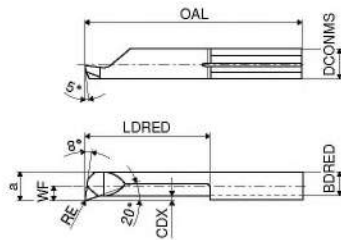
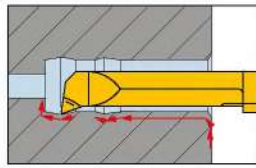


Illustrations show right-hand versions

Designation	DCONMS _{h6} mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	Left-hand Y5		Right-hand Y5	
											Article no. 73 005 ...	£	Article no. 73 004 ...	£
R/L 050.2-5	4		2.0	1.7	19	5	0.1	1.5	0.05	645.00..D	39.99	020	39.99	020
R/L 050.2-10	4		2.0	1.7	24	10	0.1	1.5	0.05	645.00..D	41.91	021	41.91	021
R/L 050.2-15	4		2.0	1.7	29	15	0.1	1.5	0.05	645.00..D	44.75	022	44.75	022
R/L 050.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	0.10	645.00..D	42.34	031	42.34	031
R/L 050.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	0.10	645.00..D	48.79	030	48.79	030
R/L 050.3-20	4	0.6	2.8	2.6	34	20	0.2	2.3	0.10	645.00..D	50.00	032	50.00	032
R/L 050.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	0.10	645.00..D	42.47	041	42.47	041
R/L 050.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	0.10	645.00..D	44.05	040	44.05	040
R/L 050.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	0.10	645.00..D	46.74	042	46.16	042
R/L 050.5-10	5	1.9	5.0	4.4	25	10	0.5	3.8	0.15	645.00..D	42.77	051	42.77	051
R/L 050.5-15	5	1.9	5.0	4.4	30	15	0.5	3.8	0.15	645.00..D	45.03	052	45.03	052
R/L 050.5-20	5	1.9	5.0	4.4	35	20	0.5	3.8	0.15	645.00..D	46.60	050	46.60	050
R/L 050.5-25	5	1.9	5.0	4.4	40	25	0.5	3.8	0.15	645.00..D	53.97	053	53.97	053
R 050.5-30	5	1.9	5.0	4.4	45	30	0.5	3.8	0.05	645.00..D			59.21	054
L 050.5-30	5	1.9	5.0	4.4	45	30	0.5	3.8	0.15	645.00..D	58.43	054		
R/L 050.6-15	6	2.3	6.0	5.3	30	15	0.5	4.5	0.15	676.00..D	46.16	061	46.16	061
R/L 050.6-22	6	2.3	6.0	5.3	37	22	0.5	4.5	0.15	676.00..D	46.97	060	46.97	060
R/L 050.6-25	6	2.3	6.0	5.3	40	25	0.5	4.5	0.15	676.00..D	55.78	062	55.78	062
R/L 050.6-30	6	2.3	6.0	5.3	45	30	0.5	4.5	0.15	676.00..D	60.14	063	59.28	063
R/L 050.7-20	7	2.8	6.8	6.3	35	20	0.6	5.5	0.15	676.00..D	49.60	072	49.60	072
R/L 050.7-25	7	2.8	6.8	6.3	40	25	0.6	5.5	0.15	676.00..D	56.62	073	56.62	073
R/L 050.7-30	7	2.8	6.8	6.3	45	30	0.6	5.5	0.15	676.00..D	66.12	074	60.80	074
Steel												○		○
Stainless steel														
Cast iron												○		○
Non ferrous metals												●		●
Heat resistant alloys														
hardened materials														

UltraMini – Inserts for internal turning and profiling

▲ with corner radius ≤ 0.05 mm



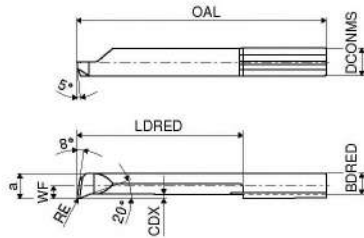
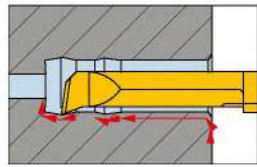
Illustrations show right-hand versions

Designation	DCONMS _{h6} mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	Left-hand Y5		Right-hand Y5		Left-hand Y5		Right-hand Y5	
											Article no. 73 021 ...	£	Article no. 73 020 ...	£	Article no. 73 023 ...	£	Article no. 73 022 ...	£
R/L 053.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	0.03	645.00..D	53.87	310	53.87	310				
R/L 053.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	0.03	645.00..D	56.71	316	56.71	316				
R/L 053.3-20	4	0.6	2.8	2.6	34	20	0.2	2.3	0.03	645.00..D	65.99	320	65.99	320				
R/L 053.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	0.03	645.00..D	53.87	410	53.87	410				
R/L 053.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	0.03	645.00..D	56.71	416	56.71	416				
R/L 053.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	0.03	645.00..D	64.14	420	64.14	420				
R/L 053.4-24	4	1.5	4.0	3.5	38	24	0.3	3.0	0.03	645.00..D	70.98	424	70.98	424				
R/L 053.4-28	4	1.5	4.0	3.5	42	28	0.3	3.0	0.03	645.00..D	77.17	428	77.17	428				
R/L 055.2-10	4		2.0	1.7	24	10	0.1	1.5	0.05	645.00..D					54.39	210	54.39	210
R/L 055.2-15	4		2.0	1.7	29	15	0.1	1.5	0.05	645.00..D					58.14	215	58.14	215
R/L 055.2-5	4		2.0	1.7	19	5	0.1	1.5	0.05	645.00..D					53.87	205	53.87	205
R/L 055.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	0.05	645.00..D					53.87	310	53.87	310
R/L 055.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	0.05	645.00..D					56.71	316	56.71	316
R/L 055.3-20	4	0.6	2.8	2.6	34	20	0.2	2.3	0.05	645.00..D					67.41	320	67.41	320
R/L 055.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	0.05	645.00..D					53.87	410	53.87	410
R/L 055.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	0.05	645.00..D					56.71	416	56.71	416
R/L 055.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	0.05	645.00..D					64.14	420	64.14	420
R/L 055.4-24	4	1.5	4.0	3.5	38	24	0.3	3.0	0.05	645.00..D					70.98	424	70.98	424
R/L 055.4-28	4	1.5	4.0	3.5	42	28	0.3	3.0	0.05	645.00..D					77.17	428	77.17	428
R/L 055.5-10	5	1.9	5.0	4.4	25	10	0.5	3.8	0.05	645.00..D					50.86	510	48.47	510
R/L 055.5-15	5	1.9	5.0	4.4	30	15	0.5	3.8	0.05	645.00..D					53.87	515	53.87	515
R/L 055.5-20	5	1.9	5.0	4.4	35	20	0.5	3.8	0.05	645.00..D					61.29	520	61.29	520
R/L 055.5-25	5	1.9	5.0	4.4	40	25	0.5	3.8	0.05	645.00..D					67.80	525	67.80	525
R/L 055.5-30	5	1.9	5.0	4.4	45	30	0.5	3.8	0.05	645.00..D					77.11	530	77.11	530
R/L 055.5-35	5	1.9	5.0	4.4	50	35	0.5	3.8	0.05	645.00..D					85.22	535	85.22	535
R/L 055.6-15	6	2.3	6.0	5.3	30	15	0.5	4.5	0.05	676.00..D					53.87	615	53.87	615
R/L 055.6-22	6	2.3	6.0	5.3	37	22	0.5	4.5	0.05	676.00..D					59.98	622	59.98	622
R/L 055.6-25	6	2.3	6.0	5.3	40	25	0.5	4.5	0.05	676.00..D					67.80	625	67.80	625
R/L 055.6-30	6	2.3	6.0	5.3	45	30	0.5	4.5	0.05	676.00..D					77.11	630	77.11	630
R/L 055.6-35	6	2.3	6.0	5.3	50	35	0.5	4.5	0.05	676.00..D					85.22	635	85.22	635
R/L 055.6-42	6	2.3	6.0	5.3	57	42	0.5	4.5	0.05	676.00..D					92.97	642	92.97	642
Steel											●		●		●		●	
Stainless steel											●		●		●		●	
Cast iron											●		●		●		●	
Non ferrous metals											●		●		●		●	
Heat resistant alloys											●		●		●		●	
hardened materials											●		●		●		●	

→ v₀ Page 60

UltraMini – Inserts for internal turning and profiling

▲ with chip former



Illustrations show right-hand versions



Left-hand

Right-hand

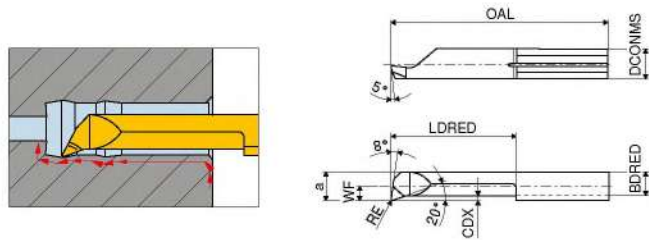
Designation	DCONMS _{ns} mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BRED mm	RE mm	Standard tool holder	Left-hand Y5		Right-hand Y5	
											Article no. 73 017 ...	£	Article no. 73 016 ...	£
R/L 050.4-10C	4	1.5	4	3.5	24	10	0.3	3.0	0.2	645.00..-D	49.89	410	49.89	410
R/L 050.4-16C	4	1.5	4	3.5	30	16	0.3	3.0	0.2	645.00..-D	52.74	416	52.74	416
R/L 050.4-20C	4	1.5	4	3.5	34	20	0.3	3.0	0.2	645.00..-D	58.99	420	58.99	420
R/L 050.4-24C	4	1.5	4	3.5	38	24	0.3	3.0	0.2	645.00..-D	66.97	424	66.97	424
R/L 050.4-28C	4	1.5	4	3.5	42	28	0.3	3.0	0.2	645.00..-D	74.54	428	74.54	428
R/L 050.5-10C	5	1.9	5	4.4	25	10	0.5	3.8	0.2	645.00..-D	46.74	510	46.74	510
R/L 050.5-15C	5	1.9	5	4.4	30	15	0.5	3.8	0.2	645.00..-D	49.89	515	49.89	515
R/L 050.5-20C	5	1.9	5	4.4	35	20	0.5	3.8	0.2	645.00..-D	57.43	520	57.43	520
R/L 050.5-25C	5	1.9	5	4.4	40	25	0.5	3.8	0.2	645.00..-D	64.98	525	64.98	525
R/L 050.5-30C	5	1.9	5	4.4	45	30	0.5	3.8	0.2	645.00..-D	73.26	530	73.26	530
R/L 050.5-35C	5	1.9	5	4.4	50	35	0.5	3.8	0.2	645.00..-D	81.23	535	81.23	535
R/L 050.6-15C	6	2.3	6	5.3	30	15	0.5	4.5	0.2	676.00..-D	49.89	615	49.89	615
R/L 050.6-22C	6	2.3	6	5.3	37	22	0.5	4.5	0.2	676.00..-D	57.43	622	57.43	622
R/L 050.6-25C	6	2.3	6	5.3	40	25	0.5	4.5	0.2	676.00..-D	64.98	625	64.98	625
R/L 050.6-30C	6	2.3	6	5.3	45	30	0.5	4.5	0.2	676.00..-D	73.26	630	73.26	630
R/L 050.6-35C	6	2.3	6	5.3	50	35	0.5	4.5	0.2	676.00..-D	81.23	635	81.23	635
R/L 050.6-42C	6	2.3	6	5.3	57	42	0.5	4.5	0.2	676.00..-D	90.79	642	90.79	642
R/L 050.7-20C	7	2.8	7	6.3	35	20	0.6	5.5	0.2	676.00..-D	56.62	720	56.62	720
R/L 050.7-25C	7	2.8	7	6.3	40	25	0.6	5.5	0.2	676.00..-D	65.70	725	65.70	725
R/L 050.7-30C	7	2.8	7	6.3	45	30	0.6	5.5	0.2	676.00..-D	72.96	730	72.96	730
R/L 050.7-35C	7	2.8	7	6.3	50	35	0.6	5.5	0.2	676.00..-D	82.64	735	82.64	735
R/L 050.7-40C	7	2.8	7	6.3	55	40	0.6	5.5	0.2	676.00..-D	92.06	740	92.06	740
R/L 050.7-45C	7	2.8	7	6.3	60	45	0.6	5.5	0.2	676.00..-D	95.76	745	95.76	745
R/L 050.7-50C	7	2.8	7	6.3	65	50	0.6	5.5	0.2	676.00..-D	105.02	750	105.02	750

Steel	•	•
Stainless steel	•	•
Cast iron	•	•
Non ferrous metals	•	•
Heat resistant alloys	•	•
hardened materials	•	•

→ v₆ Page 60

UltraMini – Inserts for internal turning and profiling – hard turning

▲ 46 to 65 HRC



Illustrations show right-hand versions

Left-hand

Right-hand

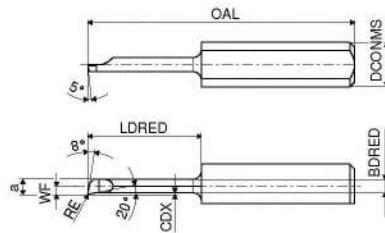
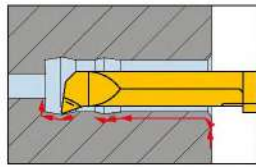
Designation	DCONMS _{rh} mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRD mm	RE mm	Standard tool holder	Left-hand Y5		Right-hand Y5	
											Article no. 73 025 ...	£	Article no. 73 024 ...	£
R/L 050.2-5	4		2.0	1.7	19	5	0.1	1.5	0.05	645.00..-D	74.22	920	74.22	920
R/L 050.2-10	4		2.0	1.7	24	10	0.1	1.5	0.05	645.00..-D	75.59	921	75.59	921
R/L 050.2-15	4		2.0	1.7	29	15	0.1	1.5	0.05	645.00..-D	78.43	922	78.43	922
R/L 050.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	0.10	645.00..-D	73.97	931	73.97	931
R/L 050.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	0.10	645.00..-D	77.09	930	77.09	930
R/L 050.3-20	4	0.6	2.8	2.6	34	20	0.2	2.3	0.10	645.00..-D	88.21	932	88.21	932
R/L 050.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	0.10	645.00..-D	73.97	941	73.97	941
R/L 050.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	0.10	645.00..-D	77.09	940	77.09	940
R/L 050.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	0.10	645.00..-D	84.87	942	84.87	942
R/L 050.4-24	4	1.5	4.0	3.5	38	24	0.3	3.0	0.10	645.00..-D	92.30	945	92.30	945
R/L 050.4-28	4	1.5	4.0	3.5	42	28	0.3	3.0	0.10	645.00..-D	100.20	946	100.20	946
R/L 050.5-10	5	1.9	5.0	4.4	25	10	0.5	3.8	0.15	645.00..-D	71.74	951	71.74	951
R/L 050.5-15	5	1.9	5.0	4.4	30	15	0.5	3.8	0.15	645.00..-D	75.09	952	75.09	952
R/L 050.5-20	5	1.9	5.0	4.4	35	20	0.5	3.8	0.15	645.00..-D	83.14	950	83.14	950
R/L 050.5-25	5	1.9	5.0	4.4	40	25	0.5	3.8	0.15	645.00..-D	91.30	953	91.30	953
R/L 050.5-30	5	1.9	5.0	4.4	45	30	0.5	3.8	0.15	645.00..-D	100.09	954	100.09	954
R/L 050.5-35	5	1.9	5.0	4.4	50	35	0.5	3.8	0.15	645.00..-D	108.50	956	108.50	956
R/L 050.6-15	6	2.3	6.0	5.3	30	15	0.5	4.5	0.15	676.00..-D	76.19	961	76.19	961
R/L 050.6-22	6	2.3	6.0	5.3	37	22	0.5	4.5	0.15	676.00..-D	84.24	960	84.24	960
R/L 050.6-25	6	2.3	6.0	5.3	40	25	0.5	4.5	0.15	676.00..-D	92.41	962	92.41	962
R/L 050.6-30	6	2.3	6.0	5.3	45	30	0.5	4.5	0.15	676.00..-D	101.19	963	101.19	963
R/L 050.6-35	6	2.3	6.0	5.3	50	35	0.5	4.5	0.15	676.00..-D	109.86	964	109.86	964
R/L 050.6-42	6	2.3	6.0	5.3	57	42	0.5	4.5	0.15	676.00..-D	119.64	965	119.64	965
R/L 050.7-20	7	2.8	6.8	6.3	35	20	0.6	5.5	0.15	676.00..-D	85.12	972	85.12	972
R/L 050.7-25	7	2.8	6.8	6.3	40	25	0.6	5.5	0.15	676.00..-D	93.77	973	93.77	973
R/L 050.7-30	7	2.8	6.8	6.3	45	30	0.6	5.5	0.15	676.00..-D	102.94	974	102.94	974
R/L 050.7-35	7	2.8	6.8	6.3	50	35	0.6	5.5	0.15	676.00..-D	111.60	975	111.60	975
R/L 050.7-40	7	2.8	6.8	6.3	55	40	0.6	5.5	0.15	676.00..-D	121.86	976	121.86	976
R/L 050.7-45	7	2.8	6.8	6.3	60	45	0.6	5.5	0.15	676.00..-D	127.68	977	127.68	977
R/L 050.7-50	7	2.8	6.8	6.3	65	50	0.6	5.5	0.15	676.00..-D	135.72	978	135.72	978

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	
Heat resistant alloys	
hardened materials	● ●

→ v_c Page 60

UltraMini – Inserts for internal turning and profiling

▲ Specially designed for super alloys



Illustrations show right-hand versions

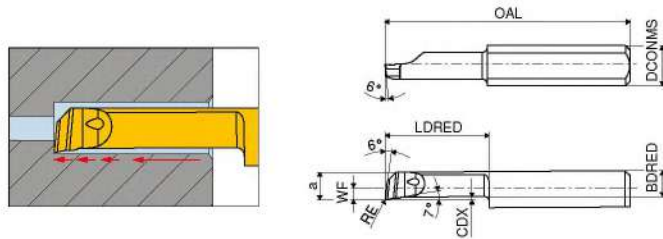
Designation	DCONMS ₁₆		WF	DMIN		a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder	Left-hand		Right-hand		
	mm	mm		mm	mm								mm	mm	mm	mm	Y5
													Article no.	Article no.			
R/L M050.05-2	4	0.20	0.5	0.40	20	2	0.02	0.02	0.02	645.00..-D	£ 51.90	052	73 027 ...	£ 51.90	052		
R/L M050.08-4	4	0.35	0.8	0.70	20	4	0.08	0.03	0.02	645.00..-D	52.98	082		52.98	082		
R/L M050.1-5	4	0.40	1.0	0.90	20	5	0.05	0.05	0.02	645.00..-D	48.66	102		48.66	102		
R/L M050.1-7	4	0.40	1.0	0.90	22	7	0.05	0.05	0.02	645.00..-D	50.82	103		50.82	103		
R/L M050.15-5	4	0.60	1.5	1.15	19	5	0.08	0.08	0.02	645.00..-D	48.66	151		48.66	151		
R/L M050.15-10	4	0.60	1.5	1.15	24	10	0.08	0.08	0.02	645.00..-D	50.82	154		50.82	154		
R/L M050.2-5	4	0.80	2.0	1.70	19	5	0.08	0.08	0.02	645.00..-D	42.17	201		42.17	201		
R/L M050.2-10	4	0.80	2.0	1.70	24	10	0.08	0.08	0.02	645.00..-D	43.25	204		43.25	204		
R/L M050.25-5	4	0.20	2.5	2.20	19	5	0.10	0.10	0.02	645.00..-D	42.17	251		42.17	251		
R/L M050.25-10	4	0.20	2.5	2.20	24	10	0.10	0.10	0.02	645.00..-D	43.25	254		43.25	254		
R/L M050.3-10	4	0.60	3.0	2.60	24	10	0.15	0.15	0.02	645.00..-D	42.17	304		42.17	304		
R/L M050.3-16	4	0.60	3.0	2.60	30	16	0.15	0.15	0.02	645.00..-D	44.33	307		44.33	307		
R/L M050.35-10	4	1.10	3.5	3.10	24	10	0.17	0.17	0.02	645.00..-D	42.17	350		42.17	350		
R/L M050.35-16	4	1.10	3.5	3.10	30	16	0.17	0.17	0.02	645.00..-D	44.33	353		44.33	353		
R/L M050.35-20	4	1.10	3.5	3.10	34	20	0.17	0.17	0.02	645.00..-D	52.98	354		52.98	354		
R/L M050.4-10	4	1.50	4.0	3.50	24	10	0.20	0.20	0.02	645.00..-D	42.17	400		42.17	400		
R/L M050.4-16	4	1.50	4.0	3.50	30	16	0.20	0.20	0.02	645.00..-D	44.33	403		44.33	403		
R/L M050.4-20	4	1.50	4.0	3.50	34	20	0.20	0.20	0.02	645.00..-D	49.74	404		49.74	404		
R/L M050.4-24	4	1.50	4.0	3.50	38	24	0.20	0.20	0.02	645.00..-D	56.23	406		56.23	406		

Steel	•	•
Stainless steel	•	•
Cast iron	•	•
Non ferrous metals	•	•
Heat resistant alloys	•	•
hardened materials	•	•

→ v. Page 60

UltraMini – Inserts for internal turning

- ▲ with chip breaker
- ▲ high feed boring



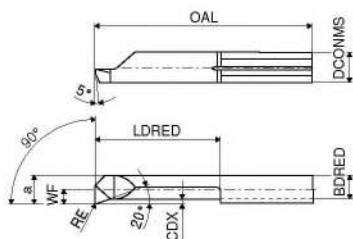
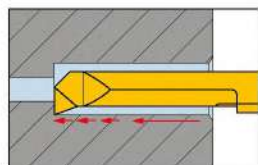
Illustrations show right-hand versions



Designation	DCONMS _{ns} mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	Left-hand		Right-hand	
											Y5 Article no. 73 001 ... £		Y5 Article no. 73 000 ... £	
R/L X050.1-5	4		1.0	0.90	20	5	0.03	0.85	0.05	645.00..-D	44.66	121	44.66	121
R/L X050.15-7	4		1.5	1.35	22	7	0.05	1.25	0.10	645.00..-D	51.04	233	51.04	233
R/L X050.2-5	4		2.0	1.80	19	5	0.10	1.60	0.15	645.00..-D	38.83	245	38.83	245
R/L X050.2-10	4		2.0	1.80	24	10	0.10	1.60	0.05	645.00..-D	39.85	215	39.85	215
R/L X050.2-10	4		2.0	1.80	24	10	0.10	1.60	0.15	645.00..-D	39.85	241	39.85	241
R/L X050.3-10	4	0.7	3.0	2.70	24	10	0.15	2.55	0.05	645.00..-D	38.72	341	38.72	341
R/L X050.3-10	4	0.7	3.0	2.70	24	10	0.15	2.55	0.20	645.00..-D	38.72	347	38.72	347
R/L X050.3-16	4	0.7	3.0	2.70	30	16	0.15	2.55	0.05	645.00..-D	40.85	371	40.85	371
R/L X050.3-16	4	0.7	3.0	2.70	30	16	0.15	2.55	0.10	645.00..-D	40.85	373	40.85	373
R/L X050.3-16	4	0.7	3.0	2.70	30	16	0.15	2.55	0.20	645.00..-D	40.85	377	40.85	377
R/L X050.4-10	4	1.6	4.0	3.60	24	10	0.20	3.20	0.10	645.00..-D	38.72	403	38.72	403
R/L X050.4-10	4	1.6	4.0	3.60	24	10	0.20	3.20	0.20	645.00..-D	38.72	407	38.72	407
R/L X050.4-16	4	1.6	4.0	3.60	30	16	0.20	3.20	0.05	645.00..-D	40.85	431	40.85	431
R/L X050.4-16	4	1.6	4.0	3.60	30	16	0.20	3.20	0.10	645.00..-D	40.85	433	40.85	433
R/L X050.4-16	4	1.6	4.0	3.60	30	16	0.20	3.20	0.20	645.00..-D	40.85	437	40.85	437
R/L X050.4-24	4	1.6	4.0	3.60	38	24	0.20	3.20	0.10	645.00..-D	51.92	463	51.92	463
R/L X050.4-24	4	1.6	4.0	3.60	38	24	0.20	3.20	0.20	645.00..-D	51.92	467	51.92	467
R/L X050.5-15	5	2.1	5.0	4.60	30	15	0.30	4.05	0.05	645.00..-D	38.72	511	38.72	511
R/L X050.5-15	5	2.1	5.0	4.60	30	15	0.30	4.05	0.10	645.00..-D	38.72	513	38.72	513
R/L X050.5-15	5	2.1	5.0	4.60	30	15	0.30	4.05	0.20	645.00..-D	38.72	517	38.72	517
R/L X050.5-25	5	2.1	5.0	4.60	40	25	0.30	4.05	0.10	645.00..-D	50.47	543	50.47	543
R/L X050.5-25	5	2.1	5.0	4.60	40	25	0.30	4.05	0.20	645.00..-D	50.47	547	50.47	547
R/L X050.5-30	5	2.1	5.0	4.60	45	30	0.30	4.05	0.10	645.00..-D	57.08	553	57.08	553
R/L X050.5-30	5	2.1	5.0	4.60	45	30	0.30	4.05	0.20	645.00..-D	57.08	557	57.08	557
R/L X050.6-15	6	2.5	6.0	5.50	30	15	0.40	4.90	0.05	676.00..-D	38.72	611	38.72	611
R/L X050.6-15	6	2.5	6.0	5.50	30	15	0.40	4.90	0.10	676.00..-D	38.72	613	38.72	613
R/L X050.6-15	6	2.5	6.0	5.50	30	15	0.40	4.90	0.20	676.00..-D	38.72	617	38.72	617
R/L X050.6-22	6	2.5	6.0	5.50	37	22	0.40	4.90	0.20	676.00..-D	44.54	637	44.54	637
R/L X050.6-30	6	2.5	6.0	5.50	45	30	0.40	4.90	0.20	676.00..-D	57.08	657	57.08	657
R/L X050.6-35	6	2.5	6.0	5.50	50	35	0.40	4.90	0.20	676.00..-D	63.11	667	63.11	667
R/L X050.6-50	6	2.5	6.0	5.50	65	50	0.40	4.90	0.20	676.00..-D	78.57	697	78.57	697
R/L X050.7-25	7	3.0	7.0	6.50	40	25	0.50	5.90	0.20	676.00..-D	51.25	747	51.25	747
R/L X050.7-30	7	3.0	7.0	6.50	45	30	0.50	5.90	0.20	676.00..-D	57.75	757	57.75	757

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials	●	●

UltraMini – Inserts for internal turning



Illustrations show right-hand versions

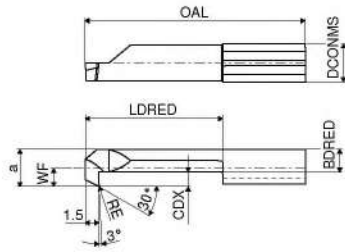
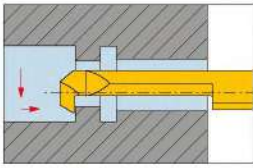


Designation	DCONMS _{ns}	WF	DMIN	a	OAL	LDRED	CDX	BDFRED	RE	Standard tool holder	Left-hand Y5		Right-hand Y5	
											Article no. 73 015 ...	Article no. 73 014 ...	Article no. 73 015 ...	Article no. 73 014 ...
R/L 090.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	0.2	645.00..-D	49.89	541	49.89	541
R/L 090.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	0.2	645.00..-D	52.87	542	52.87	542
R/L 090.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	0.2	645.00..-D	49.89	545	49.89	545
R/L 090.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	0.2	645.00..-D	52.87	546	52.87	546
R/L 090.5-10	5	1.9	5.0	4.4	25	10	0.5	3.8	0.2	645.00..-D	49.89	550	49.89	550
R/L 090.5-15	5	1.9	5.0	4.4	30	15	0.5	3.8	0.2	645.00..-D	52.87	551	52.87	551
R/L 090.5-20	5	1.9	5.0	4.4	35	20	0.5	3.8	0.2	645.00..-D	57.43	552	57.43	552

Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

→ v_c Page 60

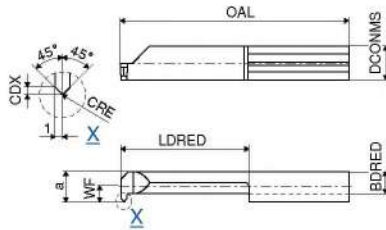
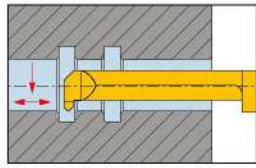
UltraMini – Inserts for back boring



Illustrations show right-hand versions

Designation	DCONMS _{1/8} mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BRED mm	RE mm	Standard tool holder	Left-hand Y5		Right-hand Y5	
											Article no. 73 013 ...	£	Article no. 73 012 ...	£
R/L 080.0003-15	4	0.6	3	2.6	29	15	0.5	2.0	0.10	645.00..-D	60.99	542	60.99	542
R/L 080.0003-20	4	0.6	3	2.6	34	20	0.5	2.0	0.10	645.00..-D	72.69	544	72.69	544
R/L 080.0004-15	4	1.5	4	3.5	29	15	0.8	2.4	0.15	645.00..-D	60.99	546	60.99	546
R/L 080.0004-25	4	1.5	4	3.5	39	25	0.8	2.4	0.15	645.00..-D	68.37	548	68.37	548
R/L 080.0005-20	5	1.9	5	4.4	35	20	1.0	3.3	0.20	645.00..-D	62.30	554	62.30	554
R/L 080.0005-30	5	1.9	5	4.4	45	30	1.0	3.3	0.20	645.00..-D	64.71	558	64.71	558
R/L 080.0006-20	6	2.3	6	5.3	35	20	1.8	3.4	0.20	676.00..-D	64.98	564	64.98	564
R/L 080.0006-30	6	2.3	6	5.3	45	30	1.8	3.4	0.20	676.00..-D	77.80	568	77.80	568
R/L 080.0007-20	7	2.7	7	6.3	35	20	2.5	3.8	0.20	676.00..-D	64.98	574	64.98	574
R/L 080.0007-30	7	2.7	7	6.3	45	30	2.5	3.8	0.20	676.00..-D	77.80	578	77.80	578
Steel												●		●
Stainless steel												●		●
Cast iron												○		○
Non ferrous metals												○		○
Heat resistant alloys												○		○
hardened materials												○		○

UltraMini – Inserts for internal turning and chamfering



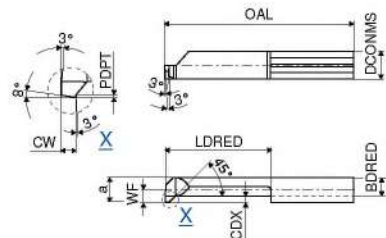
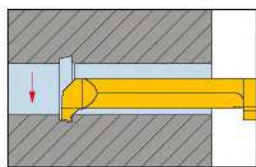
Illustrations show right-hand versions

Designation	DCONMS _{ns} mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BORED mm	CRE mm	Standard tool holder	Left-hand Y5		Right-hand Y5	
											Article no. 73 007 ...	£	Article no. 73 006 ...	£
R/L 060.5-15	5	1.9	5.0	4.4	30	15	0.7	3.3	0.2	645.00..-D	50.60	551	47.01	551
R/L 060.5-20	5	1.9	5.0	4.4	35	20	0.7	3.3	0.2	645.00..-D	52.55	550	52.32	550
R/L 060.7-20	7	2.7	6.8	6.3	35	20	0.7	3.8	0.2	676.00..-D	58.99	570	54.59	570

Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

→ V_c Page 60

UltraMini – Inserts for internal chamfering for subsequent parting off



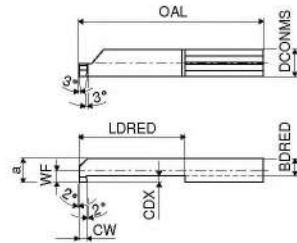
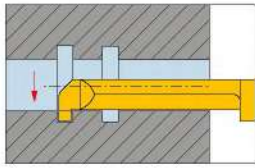
Illustrations show right-hand versions

Designation	DCONMS _{ns} mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BORED mm	CW mm	PDPT mm	Standard tool holder	Left-hand Y5		Right-hand Y5	
												Article no. 73 009 ...	£	Article no. 73 008 ...	£
R/L 070.4-10	4	1.5	4	3.5	25	10	0.8	2.4	1	0.2	645.00..-D	52.37	410	52.37	410
R/L 070.4-16	4	1.5	4	3.5	30	16	0.8	2.4	1	0.2	645.00..-D	53.94	416	53.94	416
R/L 070.5-15	5	1.9	5	4.4	30	15	1.0	3.3	1	0.2	645.00..-D	51.73	551	51.73	551
R/L 070.5-20	5	1.9	5	4.4	35	20	1.0	3.3	1	0.2	645.00..-D	54.59	550	54.59	550
R/L 070.5-30	5	1.9	5	4.4	45	30	1.0	3.3	1	0.2	645.00..-D	72.91	530	72.91	530
R/L 070.6-30	6	2.3	6	5.3	45	30	1.0	4.2	1	0.2	676.00..-D	72.91	630	72.91	630
R/L 070.6-42	6	2.3	6	5.3	57	42	1.0	4.2	1	0.2	676.00..-D	85.29	642	85.29	642

Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

→ V_c Page 60

UltraMini – Inserts for Internal Grooving



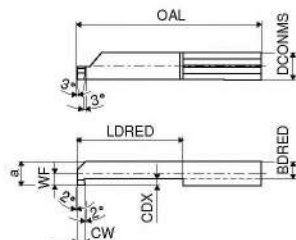
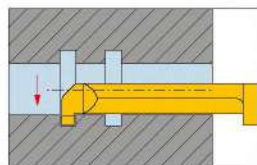
Illustrations show right-hand versions



Designation	DCONMS _{sh}	WF	DMIN	a	OAL	LDRED	CDX	BORED	CW	Standard tool holder	Left-hand Y5		Right-hand Y5		Left-hand Y6		Right-hand Y6	
											Article no. 73 003 ...	£	Article no. 73 002 ...	£	Article no. 73 003 ...	£	Article no. 73 002 ...	£
R/L 004.0100-10	4	1.5	4.0	3.5	24	10	0.8	2.4	1.0	645.00..-D	38.91	040	38.91	040	47.39	540	46.33	540
R/L 004.0100-16	4	1.5	4.0	3.5	30	16	0.8	2.4	1.0	645.00..-D	48.60	041	48.60	041	58.14	541	56.58	541
R/L 004.0100-20	4	1.5	4.0	3.5	34	20	0.8	2.4	1.0	645.00..-D	52.45	042	52.45	042	62.72	542	60.99	542

Steel	○	○	●	●
Stainless steel	○	○	●	●
Cast iron	○	○	○	○
Non ferrous metals	●	●	○	○
Heat resistant alloys			○	○
hardened materials				

UltraMini – Inserts for Internal Grooving



Illustrations show right-hand versions

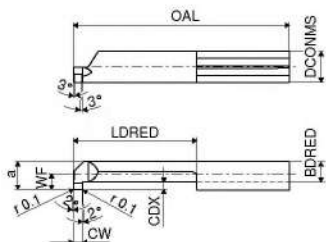
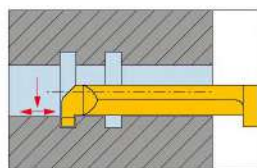


Designation	DCONMS _{hd} mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	CW mm	Standard tool holder	Left-hand Y5		Right-hand Y5	
											Article no. 73 003 ...	£	Article no. 73 002 ...	£
R/L 002.0050-5	4		2	1.8	19	5	0.4	1.2	0.5	645.00.-D	59.57	820	59.57	820
R/L 002.0050-10	4		2	1.8	24	10	0.4	1.2	0.5	645.00.-D	59.98	821	59.98	821
R/L 002.0050-15	4		2	1.8	29	15	0.4	1.2	0.5	645.00.-D	65.99	822	65.99	822
R/L 003.0070-5	4	0.7	3	2.7	19	5	0.6	1.9	0.7	645.00.-D	55.23	830	55.23	830
R/L 003.0070-10	4	0.7	3	2.7	24	10	0.6	1.9	0.7	645.00.-D	63.71	831	63.71	831
R/L 003.0070-16	4	0.7	3	2.7	30	16	0.6	1.9	0.7	645.00.-D	70.98	832	70.98	832
Steel												•		•
Stainless steel												•		•
Cast iron												•		•
Non ferrous metals												•		•
Heat resistant alloys												•		•
hardened materials														•

→ v. Page 60

UltraMini – Inserts for Internal Grooving

▲ with corner radius



Illustrations show right-hand versions

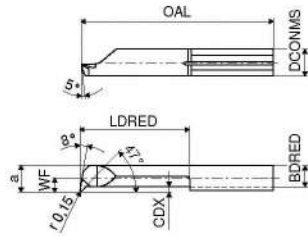
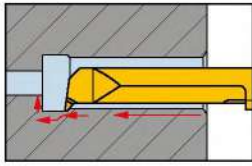


Left-hand Right-hand

Designation	DCONMS ₁₆ mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	CW mm	Standard tool holder	Y5			
											Article no. 73 203 ...	Article no. 73 202 ...		
R/L 004M0100-10	4	1.5	4.0	3.5	24	10	0.8	2.4	1.0	645.00.-D	£ 50.93	800	£ 50.93	800
R/L 004M0100-16	4	1.5	4.0	3.5	30	16	0.8	2.4	1.0	645.00.-D	£ 58.14	802	£ 58.14	802
R/L 004M0100-20	4	1.5	4.0	3.5	34	20	0.8	2.4	1.0	645.00.-D	£ 64.04	804	£ 64.04	804
R/L 005M0100-10	5	1.9	5.0	4.4	25	10	1.0	3.3	1.0	645.00.-D	£ 48.07	806	£ 48.07	806
R/L 005M0150-10	5	1.9	5.0	4.4	25	10	1.0	3.3	1.5	645.00.-D	£ 48.07	816	£ 48.07	816
R/L 005M0200-10	5	1.9	5.0	4.4	25	10	1.0	3.3	2.0	645.00.-D	£ 48.07	826	£ 48.07	826
R/L 005M0100-15	5	1.9	5.0	4.4	30	15	1.0	3.3	1.0	645.00.-D	£ 55.10	808	£ 55.10	808
R/L 005M0150-15	5	1.9	5.0	4.4	30	15	1.0	3.3	1.5	645.00.-D	£ 55.10	818	£ 55.10	818
R/L 005M0200-15	5	1.9	5.0	4.4	30	15	1.0	3.3	2.0	645.00.-D	£ 55.10	828	£ 55.10	828
R/L 005M0100-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.0	645.00.-D	£ 61.57	810	£ 61.57	810
R/L 005M0150-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.5	645.00.-D	£ 61.57	820	£ 61.57	820
R/L 005M0200-20	5	1.9	5.0	4.4	35	20	1.0	3.3	2.0	645.00.-D	£ 61.57	830	£ 61.57	830
R/L 005M0100-25	5	1.9	5.0	4.4	40	25	1.0	3.3	1.0	645.00.-D	£ 66.88	812	£ 66.88	812
R/L 005M0150-25	5	1.9	5.0	4.4	40	25	1.0	3.3	1.5	645.00.-D	£ 66.88	822	£ 66.88	822
R/L 005M0200-25	5	1.9	5.0	4.4	40	25	1.0	3.3	2.0	645.00.-D	£ 66.88	832	£ 66.88	832
R/L 005M0100-30	5	1.9	5.0	4.4	45	30	1.0	3.3	1.0	645.00.-D	£ 74.12	814	£ 74.12	814
R/L 005M0150-30	5	1.9	5.0	4.4	45	30	1.0	3.3	1.5	645.00.-D	£ 74.12	824	£ 74.12	824
R/L 005M0200-30	5	1.9	5.0	4.4	45	30	1.0	3.3	2.0	645.00.-D	£ 74.12	834	£ 74.12	834
R/L 006M0100-10	6	2.3	6.0	5.3	25	10	1.8	3.4	1.0	676.00.-D	£ 48.07	836	£ 48.07	836
R/L 006M0150-10	6	2.3	6.0	5.3	25	10	1.8	3.4	1.5	676.00.-D	£ 48.07	846	£ 48.07	846
R/L 006M0200-10	6	2.3	6.0	5.3	25	10	1.8	3.4	2.0	676.00.-D	£ 48.07	856	£ 48.07	856
R/L 006M0100-15	6	2.3	6.0	5.3	30	15	1.8	3.4	1.0	676.00.-D	£ 55.10	838	£ 55.10	838
R/L 006M0150-15	6	2.3	6.0	5.3	30	15	1.8	3.4	1.5	676.00.-D	£ 55.10	848	£ 55.10	848
R/L 006M0200-15	6	2.3	6.0	5.3	30	15	1.8	3.4	2.0	676.00.-D	£ 55.10	858	£ 55.10	858
R/L 006M0100-20	6	2.3	6.0	5.3	35	22	1.8	3.4	1.0	676.00.-D	£ 61.57	840	£ 61.57	840
R/L 006M0150-20	6	2.3	6.0	5.3	37	22	1.8	3.4	1.5	676.00.-D	£ 61.57	850	£ 61.57	850
R/L 006M0200-20	6	2.3	6.0	5.3	37	22	1.8	3.4	2.0	676.00.-D	£ 61.57	860	£ 61.57	860
R/L 006M0100-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.0	676.00.-D	£ 66.88	842	£ 66.88	842
R/L 006M0150-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.5	676.00.-D	£ 66.88	852	£ 66.88	852
R/L 006M0200-25	6	2.3	6.0	5.3	40	25	1.8	3.4	2.0	676.00.-D	£ 66.88	862	£ 66.88	862
R/L 006M0100-30	6	2.3	6.0	5.3	45	30	1.8	3.4	1.0	676.00.-D	£ 74.12	844	£ 74.12	844
R/L 006M0150-30	6	2.3	6.0	5.3	45	30	1.8	3.4	1.5	676.00.-D	£ 74.12	854	£ 74.12	854
R/L 006M0200-30	6	2.3	6.0	5.3	45	30	1.8	3.4	2.0	676.00.-D	£ 74.12	864	£ 74.12	864
R/L 007M0100-10	7	2.7	6.8	6.3	25	10	2.5	3.7	1.0	676.00.-D	£ 48.07	866	£ 48.07	866
R/L 007M0150-10	7	2.7	6.8	6.3	25	10	2.5	3.7	1.5	676.00.-D	£ 48.07	876	£ 48.07	876
R/L 007M0200-10	7	2.7	6.8	6.3	25	10	2.5	3.7	2.0	676.00.-D	£ 48.07	886	£ 48.07	886
R/L 007M0100-15	7	2.7	6.8	6.3	30	15	2.5	3.7	1.0	676.00.-D	£ 55.10	868	£ 55.10	868
R/L 007M0150-15	7	2.7	6.8	6.3	30	15	2.5	3.7	1.5	676.00.-D	£ 55.10	878	£ 55.10	878
R/L 007M0200-15	7	2.7	6.8	6.3	30	15	2.5	3.7	2.0	676.00.-D	£ 55.10	888	£ 55.10	888
R/L 007M0100-22	7	2.7	6.8	6.3	37	22	2.5	3.7	1.0	676.00.-D	£ 61.57	870	£ 61.57	870
R/L 007M0150-22	7	2.7	6.8	6.3	37	22	2.5	3.7	1.5	676.00.-D	£ 61.57	880	£ 61.57	880
R/L 007M0200-22	7	2.7	6.8	6.3	37	22	2.5	3.7	2.0	676.00.-D	£ 61.57	890	£ 61.57	890
R/L 007M0100-25	7	2.7	6.8	6.3	40	25	2.5	3.7	1.0	676.00.-D	£ 66.88	872	£ 66.88	872
R/L 007M0150-25	7	2.7	6.8	6.3	40	25	2.5	3.7	1.5	676.00.-D	£ 66.88	882	£ 66.88	882
R/L 007M0200-25	7	2.7	6.8	6.3	40	25	2.5	3.7	2.0	676.00.-D	£ 66.88	892	£ 66.88	892
R/L 007M0100-30	7	2.7	6.8	6.3	45	30	2.5	3.7	1.0	676.00.-D	£ 74.68	874	£ 74.68	874
R/L 007M0150-30	7	2.7	6.8	6.3	45	30	2.5	3.7	1.5	676.00.-D	£ 74.68	884	£ 74.68	884
R/L 007M0200-30	7	2.7	6.8	6.3	45	30	2.5	3.7	2.0	676.00.-D	£ 74.68	894	£ 74.68	894

Steel	•	•
Stainless steel	•	•
Cast iron	•	•
Non ferrous metals	•	•
Heat resistant alloys	•	•
hardened materials	•	•

UltraMini – Inserts for internal undercuts



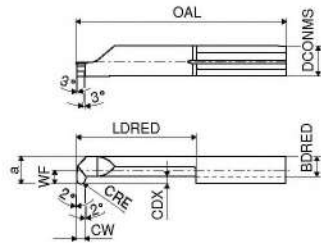
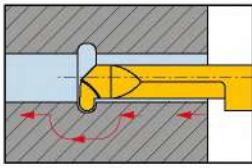
Illustrations show right-hand versions



Designation	DCONMS _{ns} mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	Standard tool holder	Left-hand Y5		Right-hand Y5		Left-hand Y5		Right-hand Y5	
										Article no. 73 011 ...	£	Article no. 73 010 ...	£	Article no. 73 011 ...	£	Article no. 73 010 ...	£
R/L 047.2-10	4		2.0	1.7	24	10	0.4	1.2	645.00.-D					56.09	221	56.09	221
R/L 047.3-15	4	0.6	2.8	2.6	29	15	0.6	1.9	645.00.-D					58.38	231	58.38	231
R/L 047.4-10	4	1.5	4.0	3.5	24	10	0.6	2.8	645.00.-D					53.46	241	53.46	241
R/L 047.T4-20	4	1.5	4.0	3.5	34	20	0.6	2.8	645.00.-D					62.70	242	62.70	242
R/L 047.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	645.00.-D	60.29	542	59.43	542				
R/L 047.5-15	5	1.9	5.0	4.4	30	15	0.8	3.5	645.00.-D					60.17	251	60.17	251
R/L 047.T5-25	5	1.9	5.0	4.4	40	25	0.8	3.5	645.00.-D					63.66	252	63.66	252
R/L 047.5-25	5	1.9	5.0	4.4	40	25	0.5	3.8	645.00.-D	59.98	552	59.98	552				
R/L 047.T6-22	6	2.3	6.0	5.3	37	22	1.8	3.4	676.00.-D					61.62	262	61.62	262
R/L 047.T6-30	6	2.3	6.0	5.3	45	30	1.8	3.4	676.00.-D					82.04	263	65.11	263
R/L 047.6-30	6	2.3	6.0	5.3	45	30	0.5	4.5	676.00.-D	61.37	562	62.30	562				
Steel											●		●		●		●
Stainless steel											●		●		●		●
Cast iron											○		○		●		●
Non ferrous metals											○		○		●		●
Heat resistant alloys											○		○		●		●
hardened materials															●		●

→ v. Page 60

UltraMini – Inserts for internal grooving and turning



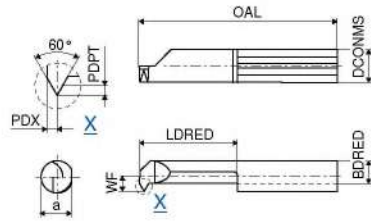
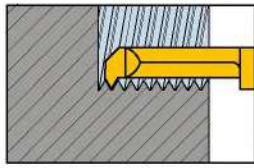
Illustrations show right-hand versions



Left-hand Y5 Right-hand Y5

Designation	DCONMS _{ns} mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	CW mm	CRE mm	Standard tool holder	Left-hand Y5		Right-hand Y5	
												Article no. 73 019 ...	£	Article no. 73 018 ...	£
R/L 006-0.75-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.5	0.75	676.00..-D	63.28	564	63.28	564
R/L 006-0.50-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.0	0.50	676.00..-D	63.28	562	63.28	562
R/L 006-1.00-25	6	2.3	6.0	5.3	40	25	1.8	3.4	2.0	1.00	676.00..-D	63.28	566	62.30	566
R/L 005-1.00-20	5	1.9	5.0	4.4	35	20	1.0	3.3	2.0	1.00	645.00..-D	61.86	556	61.86	556
R/L 007-0.50-30	7	2.7	6.8	6.3	45	30	2.5	3.8	1.0	0.50	676.00..-D	65.26	572	62.22	572
R/L 005-0.75-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.5	0.75	645.00..-D	61.86	554	61.86	554
R/L 007-0.75-30	7	2.7	6.8	6.3	45	30	2.5	3.8	1.5	0.75	676.00..-D	65.26	574	65.26	574
R/L 005-0.50-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.0	0.50	645.00..-D	61.86	552	61.86	552
R/L 007-1.00-30	7	2.7	6.8	6.3	45	30	2.5	3.8	2.0	1.00	676.00..-D	65.26	576	65.26	576
R/L 004-0.50-16	4	1.5	4.0	3.5	30	16	0.8	2.4	1.0	0.50	645.00..-D	58.56	541	56.02	541
Steel													●		●
Stainless steel													●		●
Cast iron													○		○
Non ferrous metals													○		○
Heat resistant alloys													○		○
hardened materials															

UltraMini – Inserts for internal threading (Partial profile)



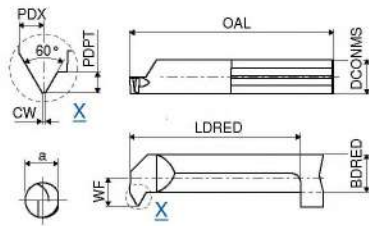
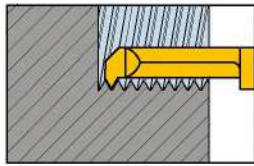
Left-hand Right-hand Left-hand Right-hand

Illustrations show right-hand versions

Designation	DCONMS _{ns} mm	TP mm	WF mm	DMIN mm		OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	Standard tool holder	Y5 Article no. 73 101 ...		Y5 Article no. 73 100 ...		Y5 Article no. 73 101 ...		Y5 Article no. 73 100 ...	
				a	a							£		£		£		£	
R/L 003.0105-8	4	0.50	0.30	2.4	2.3	22	8	1.8	0.27	0.33	645.00..-D								
R/L 004.0408-15	4	0.80	1.75	4.0	3.5	30	15	2.4	0.43	0.45	645.00..-D								
R/L 005.0510-15	5	1.00	1.90	4.8	4.4	30	15	3.3	0.55	0.55	645.00..-D	53.91	545	52.26	545				
R/L 005.0510-20	5	1.00	1.90	4.8	4.4	35	20	3.3	0.55	0.55	645.00..-D	54.66	544	54.44	544				
R/L 006.0612-15	6	1.25	2.30	6.0	5.3	30	15	3.4	0.68	0.65	676.00..-D	52.85	547	52.26	547				
R/L 006.0612-22	6	1.25	2.30	6.0	5.3	37	22	3.4	0.68	0.65	676.00..-D	55.38	546	54.04	546				
R/L 006.0815-15	6	1.50	2.30	6.0	5.3	30	15	3.4	0.81	0.75	676.00..-D	53.91	549	52.93	549				
R/L 006.0815-22	6	1.50	2.30	6.0	5.3	37	22	3.4	0.81	0.75	676.00..-D	55.38	548	54.04	548				
R/L 007.0815-15	7	1.50	2.70	7.0	6.3	30	15	3.8	0.81	0.75	676.00..-D	53.59	550	54.04	550				
Steel												●		●		●		●	
Stainless steel												●		●		●		●	
Cast iron												○		○		●		●	
Non ferrous metals												○		○		●		●	
Heat resistant alloys												○		○		●		●	
hardened materials												○		○		●		●	

→ v_c Page 60

UltraMini – Inserts for Internal thread turning (Full profile)



Left-hand

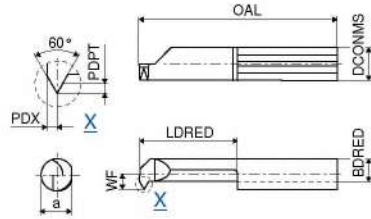
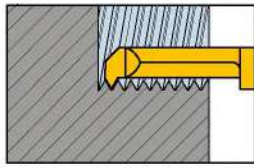
Right-hand

Illustrations show right-hand versions

Designation	DCONMS _{ns} mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	CW mm	Standard tool holder	Y5		Y5	
													Article no. 73 209 ...	Article no. 73 208 ...	Article no. 73 209 ...	Article no. 73 208 ...
R/L 105.0408-15	5	0.80	1.9	4.8	4.4	30	15	3.3	0.43	0.50	0.10	645.00..-D	£ 61.27	799	£ 61.27	799
R/L 105.510-15	5	1.00	1.9	4.8	4.4	30	15	3.3	0.54	0.55	0.12	645.00..-D	£ 56.62	800	£ 56.62	800
R/L 106.612-15	6	1.25	2.3	6.0	5.3	30	15	3.4	0.67	0.65	0.15	676.00..-D	£ 56.62	802	£ 56.62	802
R/L 106.815-15	6	1.50	2.3	6.0	5.3	30	15	3.4	0.81	0.75	0.18	676.00..-D	£ 56.62	804	£ 56.62	804
R/L 106.815-15	7	1.50	2.7	7.0	6.3	30	15	3.8	0.81	0.75	0.18	676.00..-D	£ 56.62	806	£ 56.62	806
Steel														•		•
Stainless steel														•		•
Cast iron														•		•
Non ferrous metals														•		•
Heat resistant alloys														•		•
hardened materials																

→ v_c Page 60

UltraMini – Inserts for internal thread turning (Partial profile)



Left-hand Right-hand Left-hand Right-hand

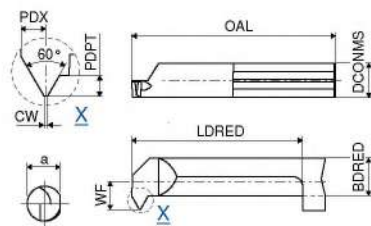
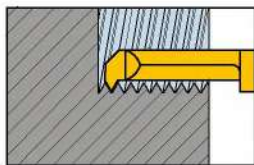
Illustrations show right-hand versions

Designation	DCONMS _{ns} mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	Standard tool holder	Y5 Article no. 73 103 ...		Y5 Article no. 73 102 ...	
												£		£	
R/L 004.0105-10	4	0.50	1.0	3.2	3.0	24	10	2.3	0.27	0.44	645.00..-D	55.83	510	55.83	510
R/L 004.0205-15	4	0.50	1.5	4.0	3.5	30	15	2.4	0.27	0.35	645.00..-D				
R/L 005.0205-15	5	0.50	1.9	5.0	4.4	30	15	3.3	0.27	0.35	645.00..-D	53.91	539	53.91	539
R/L 005.0205-20	5	0.50	1.9	5.0	4.4	35	20	3.3	0.27	0.35	645.00..-D	54.66	540	54.66	540
R/L 005.0407-15	5	0.75	1.9	5.0	4.4	30	15	3.3	0.40	0.45	645.00..-D	53.91	541	53.91	541
R/L 005.0407-20	5	0.75	1.9	5.0	4.4	35	20	3.3	0.40	0.45	645.00..-D	54.66	542	54.66	542
R/L 006.0510-15	6	1.00	2.3	6.0	5.3	30	15	3.4	0.55	0.55	676.00..-D	53.91	543	53.91	543
R/L 006.0510-22	6	1.00	2.3	6.0	5.3	37	22	3.4	0.55	0.55	676.00..-D	55.38	544	55.38	544

Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	○	○	●	●
Non ferrous metals	○	○	●	●
Heat resistant alloys	○	○	●	●
hardened materials				

→ v_c Page 60

UltraMini – Inserts for Internal thread turning (Full profile)



Left-hand Right-hand

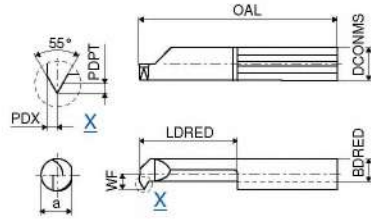
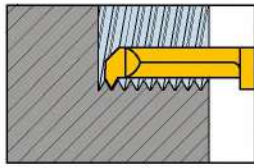
Illustrations show right-hand versions

Designation	DCONMS _{ns} mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	CW mm	Standard tool holder	Y5 Article no. 73 207 ...		Y5 Article no. 73 206 ...	
													£		£	
R/L 104.0205-15	5	0.50	1.5	4	3.5	30	15	2.4	0.27	0.35	0.06	645.00..-D	59.68	800	59.68	800
R/L 105.0205-15	5	0.50	1.9	5	4.4	30	15	3.3	0.27	0.35	0.06	645.00..-D	56.62	802	56.62	802
R/L 105.0407-15	5	0.75	1.9	5	4.4	30	15	3.3	0.40	0.45	0.09	645.00..-D	56.62	804	56.62	804
R/L 106.0510-15	6	1.00	2.3	6	5.3	30	15	3.4	0.54	0.55	0.12	676.00..-D	56.62	806	56.62	806

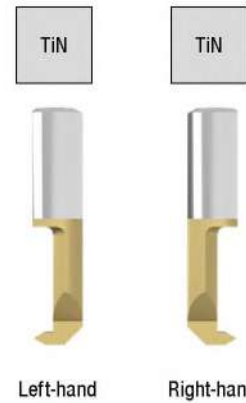
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 60

UltraMini – Inserts for internal thread turning (Partial profile)



Illustrations show right-hand versions



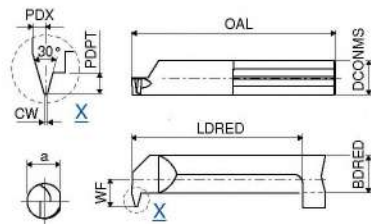
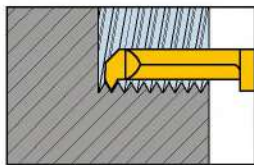
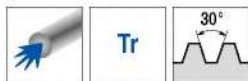
Designation	DCONMS _{ns} mm	TPI 1/*	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	Standard tool holder	Y5		Y5	
												Article no. 73 105 ...	£	Article no. 73 104 ...	£
R/L 005.5548-15	5	48 - 24	1.9	4.8	4.4	30	15	3.3	0.40	0.45	645.00.-D	73 105 ...	552	73 104 ...	552
R/L 006.5548-15	6	48 - 24	2.3	6.0	5.3	30	15	3.4	0.40	0.45	676.00.-D	73 105 ...	562	73 104 ...	562
R/L 006.5524-15	6	24 - 16	2.3	6.0	5.3	30	15	3.4	0.81	0.75	676.00.-D	73 105 ...	563	73 104 ...	563
R/L 007.5524-15	7	24 - 16	2.7	7.0	6.3	30	15	3.8	0.81	0.75	676.00.-D	73 105 ...	572	73 104 ...	572

Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

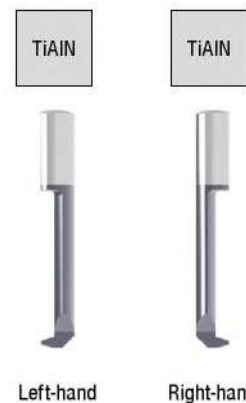
→ v_c Page 60

UltraMini – Inserts for internal thread turning (Partial profile)

▲ Trapezoidal thread DIN 103



Illustrations show right-hand versions

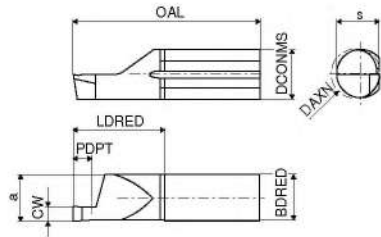
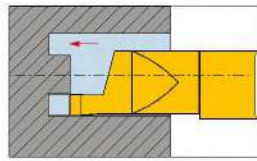


Designation	DCONMS _{ns} mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	CW mm	Standard tool holder	Y5		Y5	
													Article no. 73 211 ...	£	Article no. 73 210 ...	£
R/L 007.1220-22	7	2	2.8	7	6.3	37	22	3.8	1.25	0.75	0.6	676.00.-D	73 211 ...	222	73 210 ...	222
R/L 007.1220-30	7	2	2.8	7	6.3	45	30	3.8	1.25	0.75	0.6	676.00.-D	73 211 ...	230	73 210 ...	230
R/L 007.1730-22	7	3	2.8	7	6.3	37	22	3.8	1.75	1.10	1.0	676.00.-D	73 211 ...	322	73 210 ...	322
R/L 007.1730-30	7	3	2.8	7	6.3	45	30	3.8	1.75	1.10	1.0	676.00.-D	73 211 ...	330	73 210 ...	330

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials	●	●

→ v_c Page 60

UltraMini – Inserts for axial grooving



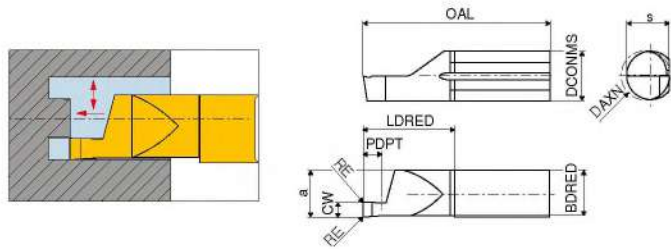
Illustrations show right-hand versions

Designation	DCONMS _{ns} mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	Standard tool holder	Left-hand Y5		Right-hand Y5		Left-hand Y5		Right-hand Y5	
											Article no. 73 051 ...		Article no. 73 050 ...		Article no. 73 053 ...		Article no. 73 052 ...	
											£		£		£		£	
R/L 010.1006-10	6	5.2	6	5.3	26	11	1.5	4.9	1.0	676.00..-D	59.85	561	58.14	561	59.57	561	59.57	561
R/L 010.1506-10	6	5.2	6	5.3	26	11	2.0	4.9	1.5	676.00..-D	59.85	563	58.14	563	59.57	563	59.57	563
R/L 010.1008-10	7	5.9	8	6.3	26	11	1.5	5.6	1.0	676.00..-D	59.98	571	59.43	571	60.99	571	60.99	571
R/L 010.1008-20	7	5.9	8	6.3	35	20	1.5	5.6	1.0	676.00..-D	65.26	671	63.55	671	65.15	671	65.15	671
R/L 010.1008-30	7	5.9	8	6.3	45	30	1.5	5.6	1.0	676.00..-D	68.84	771	66.97	771	67.39	771	67.39	771
R/L 010.1508-10	7	5.9	8	6.3	26	11	2.5	5.6	1.5	676.00..-D	59.98	573	57.60	573	60.99	573	60.99	573
R/L 010.1508-20	7	5.9	8	6.3	35	20	2.5	5.6	1.5	676.00..-D	65.26	673	61.37	673	65.15	673	65.15	673
R/L 010.1508-30	7	5.9	8	6.3	45	30	2.5	5.6	1.5	676.00..-D	68.84	773	66.97	773	67.39	773	67.39	773
R/L 010.2008-10	7	5.9	8	6.3	26	11	3.0	5.6	2.0	676.00..-D	59.98	575	57.60	575	60.99	575	60.99	575
R/L 010.2008-20	7	5.9	8	6.3	35	20	3.0	5.6	2.0	676.00..-D	65.26	675	61.37	675	65.15	675	65.15	675
R/L 010.2008-30	7	5.9	8	6.3	45	30	3.0	5.6	2.0	676.00..-D	68.84	775	66.97	775	67.39	775	67.39	775
R/L 010.2508-10	7	5.9	8	6.3	26	11	3.5	5.6	2.5	676.00..-D	59.98	577	59.43	577	60.99	577	60.99	577
R/L 010.2508-20	7	5.9	8	6.3	35	20	3.5	5.6	2.5	676.00..-D	65.26	677	63.55	677	65.15	677	65.15	677
R/L 010.2508-30	7	5.9	8	6.3	45	30	3.5	5.6	2.5	676.00..-D	68.84	777	66.97	777	67.39	777	67.39	777
R/L 010.3008-10	7	5.9	8	6.3	26	11	3.5	5.6	3.0	676.00..-D	59.98	579	59.43	579	60.99	579	60.99	579
R/L 010.3008-20	7	5.9	8	6.3	35	20	3.5	5.6	3.0	676.00..-D	65.26	679	61.37	679	65.15	679	65.15	679
R/L 010.3008-30	7	5.9	8	6.3	45	30	3.5	5.6	3.0	676.00..-D	68.84	779	66.97	779	67.39	779	67.39	779
Steel											●		●		●		●	
Stainless steel											●		●		●		●	
Cast iron											○		○		●		●	
Non ferrous metals											○		○		●		●	
Heat resistant alloys											○		○		●		●	
hardened materials											○		○		●		●	

→ v. Page 60

UltraMini – Inserts for axial grooving

▲ with corner radius



Illustrations show right-hand versions



Designation	DCONMS _{1/2} mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	RE mm	Standard tool holder	Left-hand Y5		Right-hand Y5	
												Article no. 73 253 ...	£	Article no. 73 252 ...	£
R/L 510M1008-10	5	4.3	5	6.3	26	11	2	4.0	1.0	0.05	645.00..-D	72.68	510	72.68	510
R/L 510M1008-20	5	4.3	5	6.3	35	20	2	4.0	1.0	0.05	645.00..-D	76.75	610	76.75	610
R/L 510M1508-10	5	4.3	5	6.3	26	11	3	4.0	1.5	0.05	645.00..-D	72.68	515	72.68	515
R/L 510M1508-20	5	4.3	5	6.3	35	20	3	4.0	1.5	0.05	645.00..-D	76.75	615	76.75	615
R/L 510M2008-10	5	4.3	5	6.3	26	11	4	4.0	2.0	0.05	645.00..-D	72.68	520	72.68	520
R/L 510M2008-20	5	4.3	5	6.3	35	20	4	4.0	2.0	0.05	645.00..-D	76.75	620	76.75	620
R/L 010M1008-10	7	5.9	8	6.3	26	11	2	5.6	1.0	0.10	676.00..-D	67.26	800	67.26	800
R/L 010M1008-20	7	5.9	8	6.3	35	20	2	5.6	1.0	0.10	676.00..-D	71.05	810	71.05	810
R/L 010M1008-30	7	5.9	8	6.3	45	30	2	5.6	1.0	0.10	676.00..-D	74.29	820	74.29	820
R/L 010M1508-10	7	5.9	8	6.3	26	11	3	5.6	1.5	0.10	676.00..-D	67.26	802	67.26	802
R/L 010M1508-20	7	5.9	8	6.3	35	20	3	5.6	1.5	0.10	676.00..-D	71.05	812	71.05	812
R/L 010M1508-30	7	5.9	8	6.3	45	30	3	5.6	1.5	0.10	676.00..-D	74.29	822	74.29	822
R/L 010M2008-10	7	5.9	8	6.3	26	11	4	5.6	2.0	0.10	676.00..-D	67.26	804	67.26	804
R/L 010M2008-20	7	5.9	8	6.3	35	20	4	5.6	2.0	0.10	676.00..-D	71.05	814	71.05	814
R/L 010M2008-30	7	5.9	8	6.3	45	30	4	5.6	2.0	0.10	676.00..-D	74.29	824	74.29	824
R/L 010M2508-10	7	5.9	8	6.3	26	11	5	5.6	2.5	0.10	676.00..-D	67.26	806	67.26	806
R/L 010M2508-20	7	5.9	8	6.3	35	20	5	5.6	2.5	0.10	676.00..-D	71.05	816	71.05	816
R/L 010M2508-30	7	5.9	8	6.3	45	30	5	5.6	2.5	0.10	676.00..-D	74.29	826	74.29	826
R/L 010M3008-10	7	5.9	8	6.3	26	11	6	5.6	3.0	0.10	676.00..-D	67.26	808	67.26	808
R/L 010M3008-20	7	5.9	8	6.3	35	20	6	5.6	3.0	0.10	676.00..-D	71.05	818	71.05	818
R/L 010M3008-30	7	5.9	8	6.3	45	30	6	5.6	3.0	0.10	676.00..-D	74.29	828	74.29	828

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials	●	●

→ v_c Page 60

UltraMini – Inserts for axial grooving (Full radius)



Left-hand

Right-hand

Y5

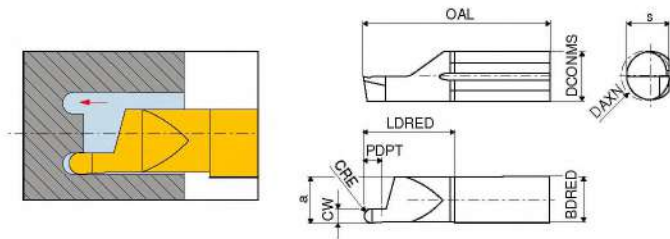
Y5

Article no.
73 059 ...

Article no.
73 058 ...

£

£

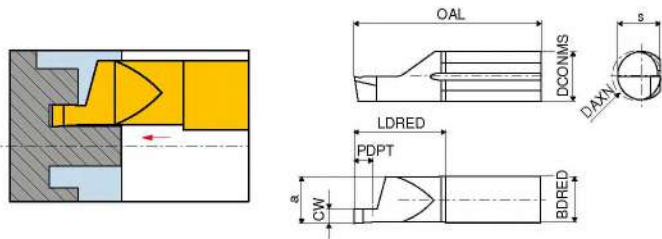


Illustrations show right-hand versions

Designation	DCONMS _{ns}		DAXN	s	OAL	LDRED	PDPT	BDRED	CW	CRE	Standard tool holder	Left-hand		Right-hand	
	mm	a										mm	mm	mm	mm
R/L 610.1005-10	6	5.2	6	5.3	26	11	2	4.9	1.0	0.50	676.00..-D	73.98	071	73.98	071
R/L 610.1005-20	6	5.2	6	5.3	35	20	2	4.9	1.0	0.50	676.00..-D	78.32	171	78.32	171
R/L 610.1608-10	6	5.2	6	5.3	26	11	3	4.9	1.6	0.80	676.00..-D	73.98	073	73.98	073
R/L 610.1608-20	6	5.2	6	5.3	35	20	3	4.9	1.6	0.80	676.00..-D	78.32	173	78.32	173
R/L 610.2010-10	6	5.2	6	5.3	26	11	4	4.9	2.0	1.00	676.00..-D	73.98	075	73.98	075
R/L 610.2010-20	6	5.2	6	5.3	35	20	4	4.9	2.0	1.00	676.00..-D	78.32	175	78.32	175
R/L 610.2512-10	6	5.2	6	5.3	26	11	5	4.9	2.5	1.25	676.00..-D	73.98	077	73.98	077
R/L 610.2512-20	6	5.2	6	5.3	35	20	5	4.9	2.5	1.25	676.00..-D	78.32	177	78.32	177
R/L 610.3015-10	6	5.2	6	5.3	26	11	6	4.9	3.0	1.50	676.00..-D	73.98	079	73.98	079
R/L 610.3015-20	6	5.2	6	5.3	35	20	6	4.9	3.0	1.50	676.00..-D	78.32	179	78.32	179
R/L 010.1005-10	7	5.9	8	6.3	26	11	2	5.6	1.0	0.50	676.00..-D	70.98	571	70.98	571
R/L 010.1005-20	7	5.9	8	6.3	35	20	2	5.6	1.0	0.50	676.00..-D	75.11	671	75.11	671
R/L 010.1608-10	7	5.9	8	6.3	26	11	3	5.6	1.6	0.80	676.00..-D	70.98	573	70.98	573
R/L 010.1608-20	7	5.9	8	6.3	35	20	3	5.6	1.6	0.80	676.00..-D	75.11	673	75.11	673
R/L 010.2010-10	7	5.9	8	6.3	26	11	4	5.6	2.0	1.00	676.00..-D	70.98	575	70.98	575
R/L 010.2010-20	7	5.9	8	6.3	35	20	4	5.6	2.0	1.00	676.00..-D	75.11	675	75.11	675
R/L 010.2512-10	7	5.9	8	6.3	26	11	5	5.6	2.5	1.25	676.00..-D	70.98	577	70.98	577
R/L 010.2512-20	7	5.9	8	6.3	35	20	5	5.6	2.5	1.25	676.00..-D	75.11	677	75.11	677
R/L 010.3015-10	7	5.9	8	6.3	26	11	6	5.6	3.0	1.50	676.00..-D	70.98	579	70.98	579
R/L 010.3015-20	7	5.9	8	6.3	35	20	6	5.6	3.0	1.50	676.00..-D	75.11	679	75.11	679
Steel													•		•
Stainless steel													•		•
Cast iron													•		•
Non ferrous metals													•		•
Heat resistant alloys													•		•
hardened materials													•		•

→ v₀ Page 60

UltraMini – Inserts for axial grooving over a spigot



Illustrations show right-hand versions



Left-hand		Right-hand	
Y5		Y5	
Article no.		Article no.	
73 061 ...		73 060 ...	
£		£	
75.11	561	75.11	561
75.11	563	75.11	563
75.11	565	75.11	565
75.11	567	75.11	567
75.11	569	75.11	569

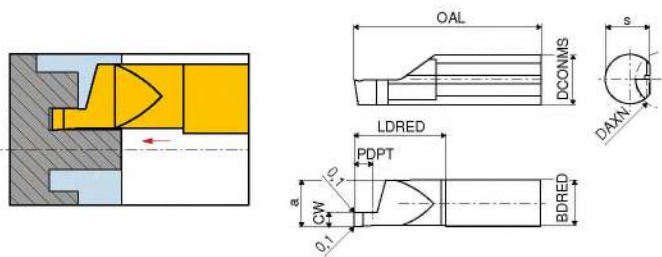
Designation	DCONMS _{ns}	a	DAXN	s	OAL	LDRED	PDPT	BDRED	CW	Standard tool holder
	mm	mm	mm	mm	mm	mm	mm	mm	mm	
R/L 620.1006-20	6	5.2	6	5.3	35	20	2	4.9	1.0	676.00..-D
R/L 620.1506-20	6	5.2	6	5.3	35	20	3	4.9	1.5	676.00..-D
R/L 620.2006-20	6	5.2	6	5.3	35	20	4	4.9	2.0	676.00..-D
R/L 620.2506-20	6	5.2	6	5.3	35	20	5	4.9	2.5	676.00..-D
R/L 620.3006-20	6	5.2	6	5.3	35	20	6	4.9	3.0	676.00..-D

Steel	•	•
Stainless steel	•	•
Cast iron	•	•
Non ferrous metals	•	•
Heat resistant alloys	•	•
hardened materials	•	•

→ v₆ Page 60

UltraMini – Inserts for axial grooving over a spigot

▲ with corner radius



Illustrations show right-hand versions



Left-hand		Right-hand	
Y5		Y5	
Article no.		Article no.	
73 261 ...		73 260 ...	
£		£	
71.83	800	71.83	800
71.83	802	71.83	802
71.83	804	71.83	804
71.83	806	71.83	806
71.83	808	71.83	808

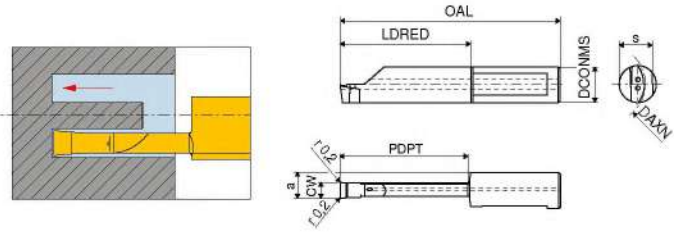
Designation	DCONMS _{ns}	a	DAXN	s	OAL	LDRED	PDPT	BDRED	CW	Standard tool holder
	mm	mm	mm	mm	mm	mm	mm	mm	mm	
R/L 620M1006-20	6	5.2	6	5.3	35	20	2	4.9	1.0	676.00..-D
R/L 620M1506-20	6	5.2	6	5.3	35	20	3	4.9	1.5	676.00..-D
R/L 620M2006-20	6	5.2	6	5.3	35	20	4	4.9	2.0	676.00..-D
R/L 620M2506-20	6	5.2	6	5.3	35	20	5	4.9	2.5	676.00..-D
R/L 620M3006-20	6	5.2	6	5.3	35	20	6	4.9	3.0	676.00..-D

Steel	•	•
Stainless steel	•	•
Cast iron	•	•
Non ferrous metals	•	•
Heat resistant alloys	•	•
hardened materials	•	•

→ v₆ Page 60

UltraMini – Inserts for axial grooving

- ▲ up to 100 bar
- ▲ dual cooling channel



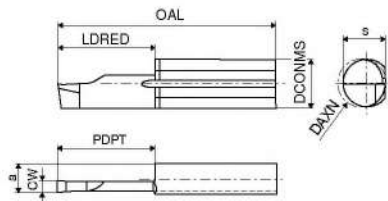
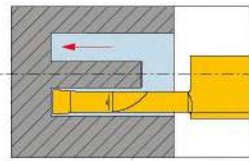
Illustrations show right-hand versions

Designation	DCONMS _{ns} mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	CW mm	Standard tool holder	Left-hand		Right-hand	
										Y5		Y5	
										Article no. 73 263 ...	Article no. 73 262 ...	Article no. 73 263 ...	Article no. 73 262 ...
R/L 012.0200-10	8	5.00	12	7.3	30	10	10	2.0	687.00..-D	£ 66.46	700	£ 66.46	700
R/L 012.0200-15	8	5.00	12	7.3	35	15	15	2.0	687.00..-D	£ 67.75	702	£ 67.75	702
R/L 012.0250-10	8	5.25	12	7.3	30	10	10	2.5	687.00..-D	£ 66.46	704	£ 66.46	704
R/L 012.0250-20	8	5.25	12	7.3	40	20	20	2.5	687.00..-D	£ 68.96	706	£ 68.96	706
R/L 016.0300-10	8	5.50	16	7.3	30	10	10	3.0	687.00..-D	£ 94.23	800	£ 94.23	800
R/L 016.0300-20	8	5.50	16	7.3	40	20	20	3.0	687.00..-D	£ 96.73	802	£ 96.73	802
R/L 020.0300-25	8	5.50	20	7.3	45	25	25	3.0	687.00..-D	£ 98.05	804	£ 98.05	804
R/L 020.0300-30	8	5.50	20	7.3	50	30	30	3.0	687.00..-D	£ 98.05	806	£ 98.05	806
R/L 020.0300-35	8	5.50	20	7.3	55	35	35	3.0	687.00..-D	£ 100.32	808	£ 100.32	808
R/L 020.0300-40	8	5.50	20	7.3	60	40	40	3.0	687.00..-D	£ 100.32	810	£ 100.32	810
R/L 016.0400-10	8	6.00	16	7.3	30	10	10	4.0	687.00..-D	£ 94.23	812	£ 94.23	812
R/L 016.0400-20	8	6.00	16	7.3	40	20	20	4.0	687.00..-D	£ 96.73	814	£ 96.73	814
R/L 020.0400-25	8	6.00	20	7.3	45	25	25	4.0	687.00..-D	£ 98.05	816	£ 98.05	816
R/L 020.0400-30	8	6.00	20	7.3	50	30	30	4.0	687.00..-D	£ 98.05	818	£ 98.05	818
R/L 020.0400-35	8	6.00	20	7.3	55	35	35	4.0	687.00..-D	£ 100.32	820	£ 100.32	820
R/L 020.0400-40	8	6.00	20	7.3	60	40	40	4.0	687.00..-D	£ 100.32	822	£ 100.32	822
R/L 020.0500.20	8	6.50	20	7.3	40	20	20	5.0	687.00..-D	£ 94.23	824	£ 94.23	824
R/L 020.0500.25	8	6.50	20	7.3	45	25	25	5.0	687.00..-D	£ 95.38	826	£ 95.38	826
R/L 020.0500.30	8	6.50	20	7.3	50	30	30	5.0	687.00..-D	£ 95.38	828	£ 95.38	828
R/L 020.0500.35	8	6.50	20	7.3	55	35	35	5.0	687.00..-D	£ 98.05	830	£ 98.05	830
R/L 020.0500.40	8	6.50	20	7.3	60	40	40	5.0	687.00..-D	£ 95.34	832	£ 95.34	832

Steel	•	•
Stainless steel	•	•
Cast iron	•	•
Non ferrous metals	•	•
Heat resistant alloys	•	•
hardened materials	•	•

→ v₆ Page 60

UltraMini – Inserts for axial grooving



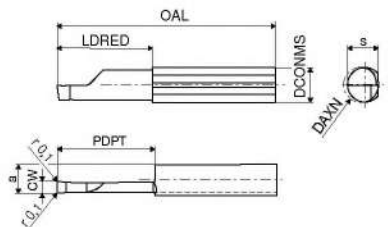
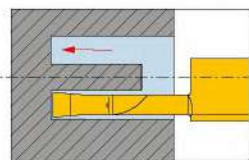
Illustrations show right-hand versions

Designation	DCONMS _{ns} mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	CW mm	Standard tool holder	Left-hand Y5		Right-hand Y5		Left-hand Y5		Right-hand Y5	
										Article no. 73 055 ...	£	Article no. 73 054 ...	£	Article no. 73 057 ...	£	Article no. 73 056 ...	£
R/L 015.2515-20	7	5.9	15	6.3	35	20	20	2.5	676.00..-D	82.08	572	76.96	572	81.80	572	81.80	572
R/L 015.3015-20	7	5.9	15	6.3	35	20	20	3.0	676.00..-D	76.96	574	76.96	574	81.80	574	81.80	574
R/L 015.3015-30	7	5.9	15	6.3	45	30	30	3.0	676.00..-D	90.36	674	90.36	674	90.20	674	90.20	674
Steel										●		●		●		●	
Stainless steel										●		●		●		●	
Cast iron										○		○		○		○	
Non ferrous metals										○		○		●		●	
Heat resistant alloys										○		○		●		●	
hardened materials																	

→ v_c Page 60

UltraMini – Inserts for axial grooving

▲ with corner radius



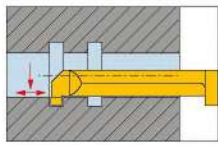
Illustrations show right-hand versions

Designation	DCONMS _{ns} mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	CW mm	Standard tool holder	Left-hand Y5		Right-hand Y5	
										Article no. 73 257 ...	£	Article no. 73 256 ...	£
R/L 015M2515-20	7	5.9	8	6.3	35	20	20	2.5	676.00..-D	78.67	800	78.67	800
R/L 015M3015-20	7	5.9	8	6.3	35	20	20	3.0	676.00..-D	78.67	802	78.67	802
R/L 015M3015-30	7	5.9	8	6.3	45	30	30	3.0	676.00..-D	86.07	804	86.07	804
Steel										●		●	
Stainless steel										●		●	
Cast iron										●		●	
Non ferrous metals										●		●	
Heat resistant alloys										●		●	
hardened materials													

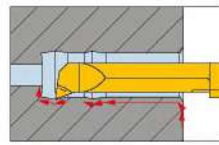
→ v_c Page 60

Set 1: Internal turning, grooving and chamfering, right hand

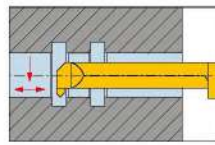
- ▲ extensive assortment of right-hand tools
- ▲ K10F - TiN



Grooving (E)



Profile turn (A)



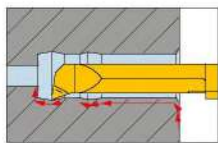
Chamfers (F)



Tool	Designation	Article No.	Bore Ø mm	Boring depth mm	Grooving depth mm	Groove width mm	Piece	fig.	Y5 Article no. 73 085 ... £	
Inserts	R 004.0100-16	73 002 541	4	16	0,8	1,0	1	E	999	
Inserts	R 005.0150-20	73 002 552	5	20	1,0	1,5	1	E		
Inserts	R 005.0200-20	73 002 553	5	20	1,0	2,0	1	E		
Inserts	R 006.0150-22	73 002 562	6	22	1,8	1,5	1	E		
Inserts	R 006.0200-22	73 002 563	6	22	1,8	2,0	1	E		
Inserts	R 050.3-16	73 004 530	3	16			1	A		953.18
Inserts	R 050.4-16	73 004 540	4	16			1	A		
Inserts	R 050.5-20	73 004 550	5	20			1	A		
Inserts	R 050.6-22	73 004 560	6	22			1	A		
Inserts	R 060.5-20	73 006 550	5	20			1	F		
Tool holder	645.0016-D	73 080 164					1			
Tool holder	676.0016-D	73 080 166					1			
Tightening Key	110.645	70 950 175					1			

Set 3: Internal Turning

- ▲ extensive assortment of right-hand tools
- ▲ K10F - TiN



Tool	Designation	Article No.	Bore Ø mm	Boring depth mm	Piece	Y5 Article no. 73 085 ... £	
Inserts	R 050.3-16	73 004 530	3	16	1	994	
Inserts	R 050.4-16	73 004 540	4	16	1		
Inserts	R 050.5-20	73 004 550	5	20	1		599.07
Inserts	R 050.6-22	73 004 560	6	22	1		
Tool holder	645.0016-D	73 080 164			1		
Tool holder	676.0016-D	73 080 166			1		
Tightening Key	110.645	70 950 175			1		

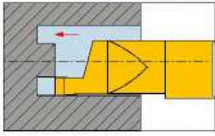
Set 4: Holder



Tool	Designation	Article No.	for cutting insert Ø mm	Piece	Y5 Article no. 73 085 ... £	
Tool holder	645.0016-D	73 080 164	3 / 4 / 5	1	990	
Tool holder	676.0016-D	73 080 166	6 / 7	1		373.50
Tightening Key	110.645	70 950 175		1		

Set 6: Axial Grooving

- ▲ extensive assortment of right-hand tools
- ▲ K10F - TiN



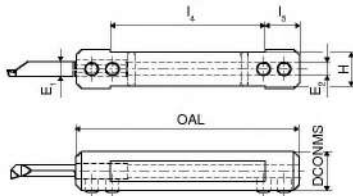
Tool	Designation	Article No.	Bore Ø mm	Boring depth mm	Grooving depth mm	Groove width mm	Piece	Y5 Article no. 73 085 ... £	
Inserts	R 010.1008-10	73 050 571	8	10	1,5	1,0	1		
Inserts	R 010.1508-10	73 050 573	8	10	2,5	1,5	1		
Inserts	R 010.2008-10	73 050 575	8	10	3,0	2,0	1	483.64	996
Inserts	R 010.2508-20	73 050 677	8	20	3,5	2,5	1		
Inserts	R 010.3008-20	73 050 679	8	20	3,5	3,0	1		
Tool holder	676.0016-D	73 080 166					1		
Tightening Key	110.645	70 950 175					1		

UltraMini – Standard tool holder for cutting inserts

- ▲ double ended
- ▲ Machining diameter from $\varnothing 0.2$ mm

Scope of supply:

Tool holder with allen key



Designation	$\varnothing E_1$ mm	$\varnothing E_2$ mm	DCONMS mm	OAL mm	l_1 mm	l_2 mm	H mm	Y5	
								Article no. 73 080 ...	£
645.0012-D	4	5	12.00	75	55	10	10.3	172.99	163
645.0016-D	4	5	16.00	75	55	10	14.0	181.70	164
645.001905-D	4	5	19.05	90	70	10	17.2	151.38	170
645.0020-D	4	5	20.00	90	70	10	18.0	195.67	165
645.0022-D	4	5	22.00	90	70	10	20.0	157.87	171
645.00254-D	4	5	25.40	95	75	10	23.4	167.60	172
676.0016-D	6	7	16.00	75	55	10	14.0	181.70	166
676.001905-D	6	7	19.05	90	70	10	17.2	151.38	173
676.0020-D	6	7	20.00	90	70	10	18.0	195.67	167
676.0022-D	6	7	22.00	90	70	10	20.0	157.87	174
676.00254-D	6	7	25.40	95	75	10	23.4	167.60	175
687.0016-D	7	8	16.00	75	55	10	14.0	210.72	168
687.0020-D	7	8	20.00	90	70	10	18.0	225.53	169

Spare parts

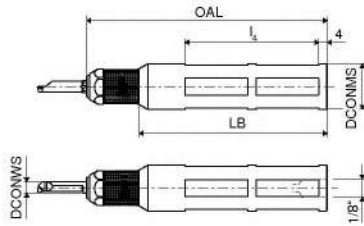
for Article no.

for Article no.		2A/28 Key I		Y5 Clamping screw	
		Article no. 70 950 ...	£	Article no. 73 082 ...	£
73 080 163	SW2,5	2.23	175	M5x4	6.99 013
73 080 164	SW2,5	2.23	175	M5x6	5.74 001
73 080 170	SW2,5	2.23	175	M5x6	5.74 001
73 080 165	SW2,5	2.23	175	M5x8	6.96 008
73 080 171	SW2,5	2.23	175	M5x8	6.96 008
73 080 172	SW2,5	2.23	175	M5x8	6.96 008
73 080 166	SW2,5	2.23	175	M5x6	5.74 001
73 080 173	SW2,5	2.23	175	M5x6	5.74 001
73 080 167	SW2,5	2.23	175	M5x8	6.96 008
73 080 174	SW2,5	2.23	175	M5x8	6.96 008
73 080 175	SW2,5	2.23	175	M5x8	6.96 008
73 080 168	SW2,5	2.23	175	M6x6	8.17 014
73 080 169	SW2,5	2.23	175	M6x6	8.17 014

UltraMini – Quick change tool holder for cutting inserts

Scope of supply:

Tool holder, lock nut and clamping wedge



Designation	DCONWS	DCONMS _{ps}	OAL	LB	l _k	Y5	
						Article no.	£
	mm	mm	mm	mm	mm	73 089 ...	
UM600H.0012.4	4	12.00	115	90	64	326.55	124
UM600H.0016.4	4	16.00	115	90	64	296.27	164
UM600H.001905.4	4	19.05	115	90	64	317.90	194
UM600H.0020.4	4	20.00	115	90	64	313.58	204
UM600H.0022.4	4	22.00	115	90	64	318.98	224
UM600H.0025.4	4	25.00	115	90	64	325.47	254
UM600H.00254.4	4	25.40	115	90	64	331.96	264
UM600H.0028.4	4	28.00	115	90	64	331.96	284
UM600H.0012.5	5	12.00	115	90	64	326.55	125
UM600H.0016.5	5	16.00	115	90	64	296.27	165
UM600H.001905.5	5	19.05	115	90	64	317.90	195
UM600H.0020.5	5	20.00	115	90	64	313.58	205
UM600H.0022.5	5	22.00	115	90	64	318.98	225
UM600H.0025.5	5	25.00	115	90	64	325.47	255
UM600H.00254.5	5	25.40	115	90	64	331.96	265
UM600H.0028.5	5	28.00	115	90	64	331.96	285
UM600H.0012.6	6	12.00	115	90	64	326.55	126
UM600H.0016.6	6	16.00	115	90	64	296.27	166
UM600H.001905.6	6	19.05	115	90	64	317.90	196
UM600H.0020.6	6	20.00	115	90	64	313.58	206
UM600H.0022.6	6	22.00	115	90	64	318.98	226
UM600H.0025.6	6	25.00	115	90	64	325.47	256
UM600H.00254.6	6	25.40	115	90	64	331.96	266
UM600H.0028.6	6	28.00	115	90	64	331.96	286
UM600H.0012.7	7	12.00	115	90	64	326.55	127
UM600H.0016.7	7	16.00	115	90	64	296.27	167
UM600H.001905.7	7	19.05	115	90	64	317.90	197
UM600H.0020.7	7	20.00	115	90	64	313.58	207
UM600H.0022.7	7	22.00	115	90	64	318.98	227
UM600H.0025.7	7	25.00	115	90	64	325.47	257
UM600H.00254.7	7	25.40	115	90	64	331.96	267
UM600H.0028.7	7	28.00	115	90	64	331.96	287

i Avoid pulling cuts. Ensure a suitable clamping force is used when using thro' coolant supply. Can be tightened using a key.

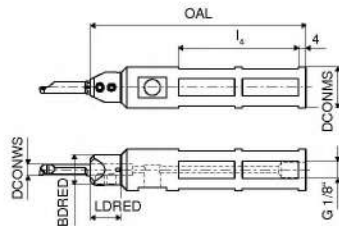
Spare parts
DCONWS

		Y5		Y5	
		Article no.	£	Article no.	£
4	M4	73 950 ...	104	73 950 ...	111
5	M5	73.53	105	47.58	111
6	M6	73.53	106	47.58	111
7	M7	73.53	107	47.58	111



UltraMini – Toolholder for inserts

▲ Tool holder suitable for high coolant pressures



Designation	DCONWS mm	BDRED mm	DCONMS _ø mm	OAL mm	LDRED mm	l ₄ mm	Y5	
							Article no. 73 088 ...	£
UMST.0016.4	4	16	16.00	115	24	42	349.26	164
UMST.001905.4	4	16	19.05	115	24	42	378.45	194
UMST.0020.4	4	16	20.00	115	24	42	356.83	204
UMST.0022.4	4	16	22.00	115	24	42	367.64	224
UMST.00254.4	4	16	25.40	115	24	42	378.45	264
UMST.0028.4	4	16	28.00	115	24	42	378.45	284
UMST.0016.5	5	16	16.00	115	24	42	349.26	165
UMST.001905.5	5	16	19.05	115	24	42	378.45	195
UMST.0020.5	5	16	20.00	115	24	42	356.83	205
UMST.0022.5	5	16	22.00	115	24	42	367.64	225
UMST.00254.5	5	16	25.40	115	24	42	378.45	265
UMST.0028.5	5	16	28.00	115	24	42	378.45	285
UMST.0016.6	6	16	16.00	115	24	42	349.26	166
UMST.001905.6	6	16	19.05	115	24	42	378.45	196
UMST.0020.6	6	16	20.00	115	24	42	356.83	206
UMST.0022.6	6	16	22.00	115	24	42	367.64	226
UMST.00254.6	6	16	25.40	115	24	42	378.45	266
UMST.0028.6	6	16	28.00	115	24	42	378.45	286
UMST.0016.7	7	16	16.00	115	24	42	349.26	167
UMST.001905.7	7	16	19.05	115	24	42	378.45	197
UMST.0020.7	7	16	20.00	115	24	42	356.83	207
UMST.0022.7	7	16	22.00	115	24	42	367.64	227
UMST.00254.7	7	16	25.40	115	24	42	378.45	267
UMST.0028.7	7	16	28.00	115	24	42	378.45	287
UMST.0016.8	8	16	16.00	115	24	42	349.26	168
UMST.001905.8	8	16	19.05	115	24	42	378.45	198
UMST.0020.8	8	16	20.00	115	24	42	356.83	208
UMST.0022.8	8	16	22.00	115	24	42	367.64	228
UMST.00254.8	8	16	25.40	115	24	42	378.45	268
UMST.0028.8	8	16	28.00	115	24	42	378.45	288

i up to 150 bar



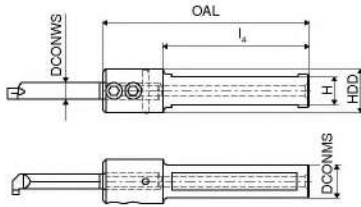
Spare parts DCONWS	Y7 Key D			Y5 Clamping screw		
	Article no. 80 950 ...	£	104	Article no. 73 950 ...	£	050
4	T10	9.09	104	M5x0,5x6T10	10.81	050
5	T10	9.09	104	M5x0,5x6T10	10.81	050
6	T10	9.09	104	M5x0,5x6T10	10.81	050
7	T10	9.09	104	M5x0,5x6T10	10.81	050
8	T10	9.09	104	M5x0,5x6T10	10.81	050

UltraMini – Toolholder for inserts

▲ single ended

Scope of supply:

Tool holder with allen key



Designation	DCONWS	HDD	DCONMS	OAL	l_s	H	Y5	
	mm	mm	mm	mm	mm	mm	Article no.	
640.0012-D	4	16	12	75	53	10.2	73 081 ...	£
650.0012-D	5	16	12	75	53	10.2	178.41	264
660.0012-D	6	16	12	75	53	10.2	178.41	265
670.0012-D	7	16	12	75	53	10.2	255.12	266
680.0012-D	8	16	12	75	53	10.2	255.12	267
							255.12	268

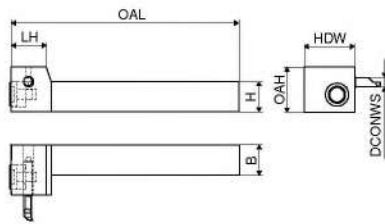
Spare parts

DCONWS	2A/28 Key I			Y5 Clamping screw		
	Article no.	£		Article no.	£	
4	70 950 ...	2.23	175	73 082 ...	4.60	010
5	SW2,5	2.23	175	M5x0,5x6	4.60	010
6	SW2,5	2.23	175	M5x0,5x6	4.60	010
7	SW2,5	2.23	175	M5x0,5x6	4.60	010
8	SW2,5	2.23	175	M5x0,5x6	4.60	010

UltraMini – Toolholder for inserts

Scope of supply:

Tool holder with allen key



Illustrations show right-hand versions

Designation	DCONWS	OAL	LH	B	HDW	H	OAH	Left-hand		Right-hand	
								Y5		Y5	
	mm	mm	mm	mm	mm	mm	mm	Article no.	Article no.	Article no.	Article no.
R/L .UHCM.1212.4	4	90	17	12	20	12	18	73 083 ...	73 084 ...	73 083 ...	73 084 ...
R/L .UHCM.1212.5	5	90	17	12	20	12	18	£ 324.30 124	£ 324.30 124	£ 324.30 125	£ 324.30 125
R/L .UHCM.1212.6	6	90	17	12	20	12	21	£ 324.30 126	£ 324.30 126	£ 324.30 126	£ 324.30 126
R/L .UHCM.1212.7	7	90	17	12	20	12	21	£ 324.30 127	£ 324.30 127	£ 324.30 127	£ 324.30 127

Spare parts
DCONWS



Clamping key - T



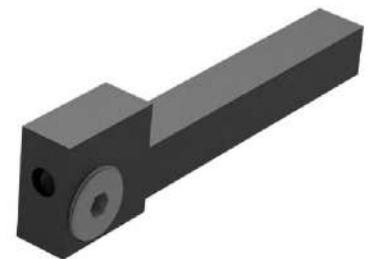
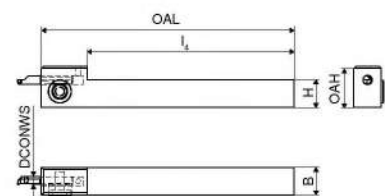
Clamping screw

DCONWS	SW5	Article no.	£	050	UM 12	Article no.	£	011
4	SW5	80 397 ...	£ 6.09	050	UM 12	73 082 ...	£ 38.49	011
5	SW5	80 397 ...	£ 6.09	050	UM 12	73 082 ...	£ 38.49	011
6	SW5	80 397 ...	£ 6.09	050	UM 16	73 082 ...	£ 38.49	012
7	SW5	80 397 ...	£ 6.09	050	UM 16	73 082 ...	£ 38.49	012

UltraMini – Toolholder for inserts

Scope of supply:

Tool holder with allen key



12

Designation	DCONWS	OAL	l _k	B	H	OAH	Y5	
							Article no.	Article no.
	mm	mm	mm	mm	mm	mm	73 086 ...	73 086 ...
UM.1010.4	4	100	75	10	10	20	£ 324.30 104	£ 324.30 104
UM.1010.5	5	100	75	10	10	20	£ 324.30 105	£ 324.30 105
UM.1212.4	4	100	75	12	12	22	£ 324.30 124	£ 324.30 124
UM.1212.5	5	100	75	12	12	22	£ 324.30 125	£ 324.30 125
UM.1212.6	6	100	75	12	12	22	£ 324.30 126	£ 324.30 126

Spare parts
DCONWS



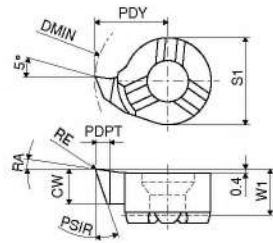
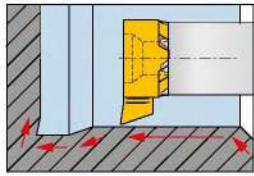
Clamping key - T



Clamping screw

DCONWS	SW5	Article no.	£	050	UM 12	Article no.	£	011
4	SW5	80 397 ...	£ 6.09	050	UM 12	73 082 ...	£ 38.49	011
5	SW5	80 397 ...	£ 6.09	050	UM 12	73 082 ...	£ 38.49	011
6	SW5	80 397 ...	£ 6.09	050	UM 16	73 082 ...	£ 38.49	012

MiniCut – Insert for turning and profiling



Illustrations show right-hand versions

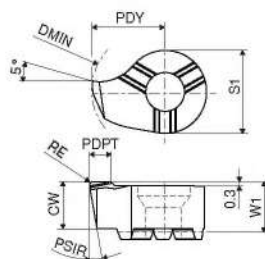
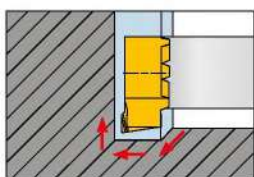
Size	Designation	DMIN	CW	W1	PDY	S1	RE	PDPT	PSIR	RA	Left-hand Y5		Right-hand Y5			
											Article no.	£	Article no.	£		
08	8,00. R/L .3,30.18°	7.8	3.3	3.5	4.65	6.0	0.20	0.6	18	8	73 324 ...	£ 37.06	033	73 322 ...	£ 37.06	033
	8,00. R/L .3,50.18°	7.8	3.5	3.5	4.65	6.0	0.05	0.6	18	8	40.25	035	40.25	035		
	8,00. R/L .3,50.20°	7.8	3.5	3.5	4.65	6.0	0.20	0.6	20	20	38.92	135	38.92	135		
09	9,00. R/L .3,60.18°	9.0	3.6	3.6	5.50	6.2	0.20	0.8	18	8	35.07	136	35.07	136		
	9,00. R/L .3,60.20°	9.0	3.6	3.6	5.50	6.2	0.20	0.8	20	20	39.64	236	39.64	236		
11	9,80. R/L .3,90.18°	9.8	3.9	4.2	5.50	8.0	0.20	1.0	18	8	37.06	139	37.06	139		
	11,00. R/L .3,90.18°	11.0	3.9	4.2	6.70	8.0	0.20	1.0	18	8	36.65	339	36.65	339		
	11,00. R/L .4,20.20°	11.0	4.2	4.2	6.70	8.0	0.20	1.0	20	20	39.64	342	39.64	342		
14	14,00. R/L .5,00.18°	13.8	5.0	5.1	8.70	9.0	0.20	1.5	18	8	36.65	550	36.65	550		
	14,00. R/L .5,30.20°	14.0	5.3	5.3	8.70	9.0	0.20	1.5	20	20	39.64	553	39.64	553		
16	15,50. R/L .5,00.18°	15.5	5.0	5.4	9.70	11.0	0.20	1.5	18	8	40.05	750	40.05	750		

Steel	•	•
Stainless steel	•	•
Cast iron	•	•
Non ferrous metals	•	•
Heat resistant alloys	•	•
hardened materials	•	•

→ v_c Page 60

MiniCut – Insert for copy turning

▲ with chip breaker



Illustrations show right-hand versions

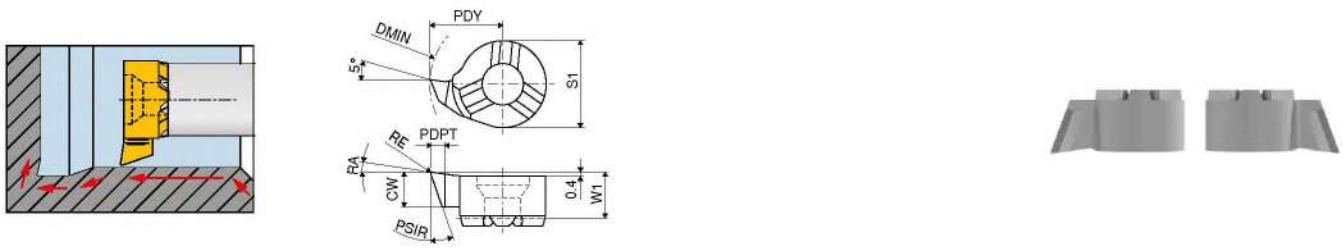
Size	Designation	DMIN	CW	W1	PDY	S1	RE	PDPT	PSIR	Left-hand Y5		Right-hand Y5			
										Article no.	£	Article no.	£		
08	8,00. R/L .3,40.10°	8	3.4	3.5	4.65	6.0	0.2	0.5	10	73 388 ...	£ 30.97	13400	73 386 ...	£ 30.97	13400
09	9,00. R/L .3,50.10°	9	3.5	3.6	5.50	6.2	0.2	0.5	10	32.27	136	32.27	136		
11	11,00. R .4,10.10°	11	4.1	4.2	6.70	8.0	0.2	0.5	10	30.97	14100	30.97	14100		

Steel	•	•
Stainless steel	•	•
Cast iron	•	•
Non ferrous metals	•	•
Heat resistant alloys	•	•
hardened materials	•	•

→ v_c Page 60

MiniCut – CBN insert for profiling – hard turning

▲ 56 to 65 HRC



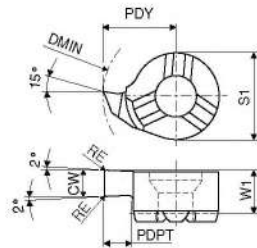
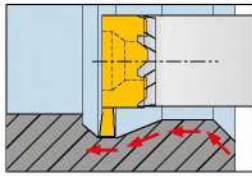
Illustrations show right-hand versions

Size	Designation	DMIN mm	CW mm	W1 mm	PDY mm	S1 mm	RE mm	PDPT mm	PSIR °	RA °	Left-hand CBN	Right-hand CBN
											Y5	Y5
											Article no. 73 368 ...	Article no. 73 366 ...
											£	£
08	8,00. R/L .3,30.18°	7.8	3.3	3.5	4.65	6	0.2	0.39	18	8	167.56	167.56
											033	033
11	11,00. R/L .3,90.18°	11.0	3.9	4.2	6.70	8	0.2	0.55	18	8	175.37	175.37
											139	139
14	14,00. R/L .5,00.18°	13.8	5.0	5.3	8.70	9	0.2	0.69	18	8	185.81	185.81
											550	550
16	16,00. R/L .5,00.18°	15.5	5.0	5.4	9.70	11	0.2	0.77	18	8	193.75	193.75
											750	750

- Steel
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- hardened materials

→ v_c Page 60

MiniCut – Internal turning insert



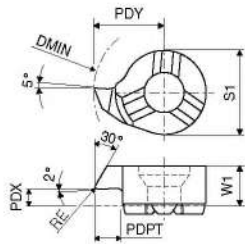
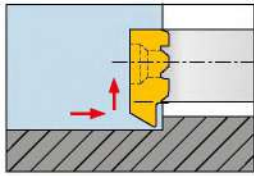
Illustrations show right-hand versions

Size	Designation	DMIN mm	CW _{+0.05} mm	PDPT mm	W1 mm	PDY mm	S1 mm	RE mm	CDX mm	Left-hand Y5		Right-hand Y5	
										Article no. 73 316 ...	Article no. 73 314 ...	Article no. 73 316 ...	Article no. 73 314 ...
08	8,00. R/L .1,50.1,0	8	1.5	1.0	3.3	4.8	6.0	0.2	0.2	£ 37.49	015	£ 37.49	015
	8,00. R/L .2,00.1,0	8	2.0	1.0	3.3	4.8	6.0	0.2	0.2	£ 35.78	020	£ 35.78	020
09	9,00. R/L .1,50.2,0	9	1.5	2.0	3.6	5.5	6.2	0.2	0.2	£ 38.32	115	£ 38.32	115
	9,00. R/L .1,50.3,0	10	1.5	3.0	3.6	6.5	6.2	0.2	0.2	£ 38.32	121	£ 38.32	121
	9,00. R/L .2,00.2,0	9	2.0	2.0	3.6	5.5	6.2	0.2	0.2	£ 33.98	120	£ 33.98	120
	9,00. R/L .2,00.3,0	10	2.0	3.0	3.6	6.5	6.2	0.2	0.2	£ 33.98	122	£ 33.98	122
11	11,00. R/L .1,50.2,3	11	1.5	2.3	4.2	6.7	8.0	0.2	0.2	£ 39.48	315	£ 39.48	315
	11,00. R/L .2,00.2,3	11	2.0	2.3	4.2	6.7	8.0	0.2	0.2	£ 37.06	320	£ 37.06	320
14	14,00. R/L .1,50.4,0	14	1.5	4.0	5.3	9.0	9.0	0.2	0.2	£ 36.19	515	£ 36.19	515
	14,00. R/L .1,50.5,5	16	1.5	5.5	5.2	10.5	9.0	0.2	0.2	£ 46.05	516	£ 46.05	516
	14,00. R/L .1,50.6,5	17	1.5	6.5	5.2	11.5	9.0	0.2	0.2	£ 46.05	517	£ 46.05	517
	14,00. R/L .2,00.4,0	14	2.0	4.0	5.3	9.0	9.0	0.2	0.2	£ 37.06	520	£ 37.06	520
	14,00. R/L .2,00.5,5	16	2.0	5.5	5.2	10.5	9.0	0.2	0.2	£ 46.05	521	£ 46.05	521
	14,00. R/L .2,00.6,5	17	2.0	6.5	5.2	11.5	9.0	0.2	0.2	£ 46.05	522	£ 46.05	522
	14,00. R/L .2,50.5,5	16	2.5	5.5	5.2	10.5	9.0	0.2	0.2	£ 46.05	525	£ 46.05	525
	14,00. R/L .2,50.6,5	17	2.5	6.5	5.2	11.5	9.0	0.2	0.2	£ 46.05	526	£ 46.05	526
	14,00. R/L .3,00.5,5	16	3.0	5.5	5.2	10.5	9.0	0.2	0.2	£ 46.05	530	£ 46.05	530
	14,00. R/L .3,00.6,5	17	3.0	6.5	5.2	11.5	9.0	0.2	0.2	£ 46.05	531	£ 46.05	531
16	16,00. R/L .2,00.4,3	16	2.0	4.3	5.4	10.2	11.0	0.2	0.2	£ 40.41	720	£ 40.41	720

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials	●	●

→ v_c Page 60

MiniCut – Back boring insert

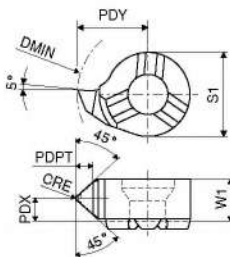
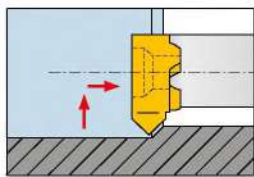


Illustrations show right-hand versions

Size	Designation	DMIN	PDPT	W1	PDX	PDY	S1	RE	CDX	Left-hand	Right-hand		
										Y5	Y5		
										Article no.	Article no.		
										73 332 ...	73 330 ...		
										£	£		
08	8,00. R/L .30°:1,3	7.8	1.3	3.50	1.0	4.65	6.0	0.2	0.6	42.64	013	42.64	013
09	9,00. R/L .30°:1,7	9.0	1.7	3.55	1.2	5.50	6.2	0.2	0.8	38.92	117	38.92	117
	9,00. R/L .30°:2,3	10.0	2.3	3.55	1.2	6.50	6.2	0.2	0.8	38.92	123	38.92	123
11	11,00. R/L .30°:2,3	11.0	2.3	4.30	1.6	6.70	8.0	0.2	1.0	41.75	323	41.75	323
14	14,00. R/L .30°:3,5	13.8	3.5	5.40	2.4	8.70	9.0	0.2	1.5	42.64	535	42.64	535
Steel										•	•		
Stainless steel										•	•		
Cast iron										•	•		
Non ferrous metals										•	•		
Heat resistant alloys										•	•		
hardened materials										•	•		

→ v₀ Page 60

MiniCut – Internal turning and chamfering insert



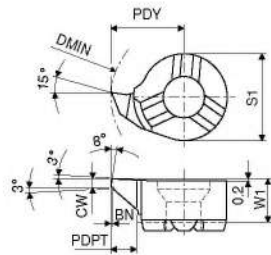
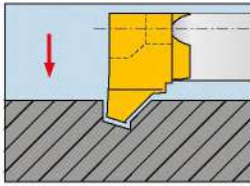
12

Illustrations show right-hand versions

Size	Designation	DMIN	PDPT	W1	PDX	PDY	S1	CRE	CDX	Left-hand	Right-hand		
										Y5	Y5		
										Article no.	Article no.		
										73 336 ...	73 334 ...		
										£	£		
08	8,00. R/L .45°:1,4	8	1.4	3.50	1.8	4.8	6.0	0.2	0.6	35.62	010	35.62	010
09	9,00. R/L .45°:1,3	9	1.3	3.55	1.8	5.5	6.2	0.2	0.8	33.38	110	33.38	110
	11,00. R/L .45°:1,5	11	1.5	4.30	2.2	6.7	8.0	0.2	1.0	35.62	310	35.62	310
14	14,00. R/L .45°:1,5	14	1.5	5.40	2.8	9.0	9.0	0.2	1.2	38.48	510	38.48	510
Steel										•	•		
Stainless steel										•	•		
Cast iron										•	•		
Non ferrous metals										•	•		
Heat resistant alloys										•	•		
hardened materials										•	•		

→ v₀ Page 60

MiniCut – Insert for pregrooving and chamfering

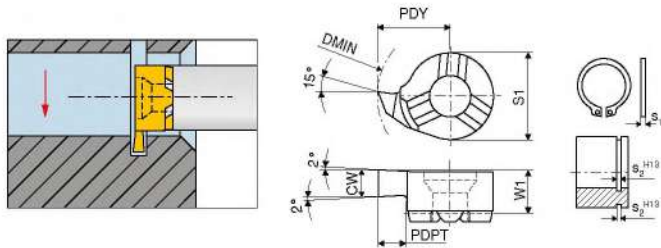


Illustrations show right-hand versions

Size	Designation	DMIN	CW	PDPT	W1	PDY	S1	BN	Left-hand		Right-hand	
									Y5		Y5	
		mm	mm	mm	mm	mm	mm	mm	Article no.	£	Article no.	£
08	8,00. R/L .1,00.45°	8	1	1.0	3.3	4.8	6.0	0.2	73 340 ...	36.20	73 338 ...	36.20
									100		100	
09	9,00. R/L .1,00.45°	9	1	1.5	3.6	5.5	6.2	0.2		34.48		34.48
									215		215	
11	11,00. R/L .1,00.45°	11	1	1.5	4.2	6.7	8.0	0.2		36.20		36.20
									315		315	
14	14,00. R/L .1,00.45°	14	1	1.5	5.3	9.0	9.0	0.2		36.20		36.20
									515		515	
16	16,00. R/L .1,00.45°	16	1	1.5	5.4	10.2	11.0	0.2		36.20		36.20
									715		715	
Steel										•		•
Stainless steel										•		•
Cast iron										•		•
Non ferrous metals										•		•
Heat resistant alloys										•		•
hardened materials										•		•

→ v_c Page 60

MiniCut – Grooving insert



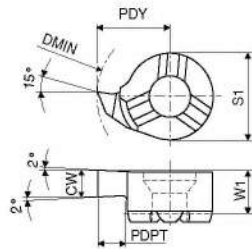
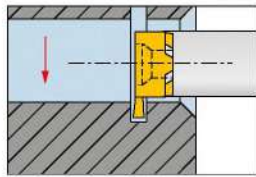
Illustrations show right-hand versions

Size	Designation	DMIN	CW	PDPT	W1	S1	S2 H19	PDY	S1	Left-hand		Right-hand	
										Y5		Y5	
										Article no. 73 312 ...		Article no. 73 310 ...	
										£		£	
08	8,00 R/L 0,73.1,0	8	0,73	1,0	3,3	0,6	0,7	4,8	6,0	32.02	073	32.02	073
	8,00 R/L 0,83.1,0	8	0,83	1,0	3,3	0,7	0,8	4,8	6,0	32.02	083	32.02	083
	8,00 R/L 0,93.1,0	8	0,93	1,0	3,3	0,8	0,9	4,8	6,0	32.02	093	32.02	093
	8,00 R/L 1,00.1,0	8	1,00	1,0	3,3			4,8	6,0	32.02	110	32.02	110
	8,00 R/L 1,20.1,0	8	1,20	1,0	3,3	1,0	1,1	4,8	6,0	32.02	112	32.02	112
	8,00 R/L 1,40.1,0	8	1,40	1,0	3,3	1,2	1,3	4,8	6,0	32.02	114	32.02	114
	8,00 R/L 1,50.1,0	8	1,50	1,0	3,3			4,8	6,0	32.02	115	32.02	115
	8,00 R/L 1,70.1,0	8	1,70	1,0	3,3	1,5	1,6	4,8	6,0	32.02	117	32.02	117
	8,00 R/L 2,00.1,0	8	2,00	1,0	3,3			4,8	6,0	32.02	120	32.02	120
09	9,00 R/L 0,73.1,2	9	0,73	1,2	3,6	0,6	0,7	5,5	6,2	31.23	173	31.23	173
	9,00 R/L 0,83.1,3	9	0,83	1,3	3,6	0,7	0,8	5,5	6,2	31.23	183	31.23	183
	9,00 R/L 0,93.1,5	9	0,93	1,5	3,6	0,8	0,9	5,5	6,2	31.23	193	31.23	193
	9,00 R/L 1,00.1,8	9	1,00	1,8	3,6			5,5	6,2	31.23	210	31.23	210
	9,00 R/L 1,20.1,8	9	1,20	1,8	3,6	1,0	1,1	5,5	6,2	31.23	212	31.23	212
	9,00 R/L 1,40.1,8	9	1,40	1,8	3,6	1,2	1,3	5,5	6,2	31.23	214	31.23	214
	9,00 R/L 1,50.1,8	9	1,50	1,8	3,6			5,5	6,2	31.23	215	31.23	215
	9,00 R/L 1,70.1,8	9	1,70	1,8	3,6	1,5	1,6	5,5	6,2	31.23	217	31.23	217
	9,00 R/L 2,00.1,8	9	2,00	1,8	3,6			5,5	6,2	31.23	220	31.23	220
	9,00 R/L 2,50.1,8	9	2,50	1,8	3,6			5,5	6,2	31.23	225	31.23	225
9,00 R/L 3,00.1,8	9	3,00	1,8	3,6			5,5	6,2	31.23	230	31.23	230	
11	11,00 R/L 0,73.1,2	11	0,73	1,2	4,2	0,6	0,7	6,7	8,0	32.02	373	32.02	373
	11,00 R/L 0,83.1,3	11	0,83	1,3	4,2	0,7	0,8	6,7	8,0	32.02	383	32.02	383
	11,00 R/L 0,93.1,5	11	0,93	1,5	4,2	0,8	0,9	6,7	8,0	32.02	393	32.02	393
	11,00 R/L 1,00.2,3	11	1,00	2,3	4,2			6,7	8,0	32.02	310	32.02	310
	11,00 R/L 1,20.2,3	11	1,20	2,3	4,2	1,0	1,1	6,7	8,0	32.02	312	32.02	312
	11,00 R/L 1,40.2,3	11	1,40	2,3	4,2	1,2	1,3	6,7	8,0	32.02	314	32.02	314
	11,00 R/L 1,50.2,3	11	1,50	2,3	4,2			6,7	8,0	32.02	315	32.02	315
	11,00 R/L 1,70.2,3	11	1,70	2,3	4,2	1,5	1,6	6,7	8,0	32.02	317	32.02	317
	11,00 R/L 2,00.2,3	11	2,00	2,3	4,2			6,7	8,0	32.02	320	32.02	320
	11,00 R/L 2,50.2,3	11	2,50	2,3	4,2			6,7	8,0	32.02	325	32.02	325
11,00 R/L 3,00.2,3	11	3,00	2,3	4,2			6,7	8,0	32.02	330	32.02	330	
14	14,00 R/L 0,73.1,2	14	0,73	1,2	5,3	0,6	0,7	9,0	9,0	32.02	573	32.02	573
	14,00 R/L 0,83.1,3	14	0,83	1,3	5,3	0,7	0,8	9,0	9,0	32.02	583	32.02	583
	14,00 R/L 0,93.1,5	14	0,93	1,5	5,3	0,8	0,9	9,0	9,0	32.02	593	32.02	593
	14,00 R/L 1,20.4,0	14	1,20	4,0	5,3	1,0	1,1	9,0	9,0	32.02	512	32.02	512
	14,00 R/L 1,40.4,0	14	1,40	4,0	5,3	1,2	1,3	9,0	9,0	32.02	514	32.02	514
	14,00 R/L 1,50.4,0	14	1,50	4,0	5,3			9,0	9,0	32.02	515	32.02	515
	14,00 R/L 1,70.4,0	14	1,70	4,0	5,3	1,5	1,6	9,0	9,0	32.02	517	32.02	517
	14,00 R/L 2,00.4,0	14	2,00	4,0	5,3			9,0	9,0	32.02	520	32.02	520
	14,00 R/L 2,50.4,0	14	2,50	4,0	5,3			9,0	9,0	32.02	525	32.02	525
	14,00 R/L 3,00.4,0	14	3,00	4,0	5,3			9,0	9,0	32.02	530	32.02	530
16	16,00 R/L 0,73.1,2	16	0,73	1,2	5,4	0,6	0,7	10,2	11,0	39.00	773	39.00	773
	16,00 R/L 0,83.1,3	16	0,83	1,3	5,4	0,7	0,8	10,2	11,0	39.00	783	39.00	783
	16,00 R/L 0,93.1,5	16	0,93	1,5	5,4	0,8	0,9	10,2	11,0	39.00	793	39.00	793
	16,00 R/L 1,20.4,3	16	1,20	4,3	5,4	1,0	1,1	10,2	11,0	35.23	712	35.23	712
	16,00 R/L 1,40.4,3	16	1,40	4,3	5,4	1,2	1,3	10,2	11,0	35.23	714	35.23	714
	16,00 R/L 1,50.4,3	16	1,50	4,3	5,4			10,2	11,0	35.23	715	35.23	715
	16,00 R/L 1,70.4,3	16	1,70	4,3	5,4	1,5	1,6	10,2	11,0	35.23	717	35.23	717
	16,00 R/L 2,00.4,3	16	2,00	4,3	5,4			10,2	11,0	35.23	720	35.23	720
	16,00 R/L 2,50.4,3	16	2,50	4,3	5,4			10,2	11,0	35.23	725	35.23	725
	16,00 R/L 3,00.4,3	16	3,00	4,3	5,4			10,2	11,0	35.23	730	35.23	730
	16,00 R/L 3,50.4,3	16	3,50	4,3	5,4			10,2	11,0	35.23	735	35.23	735
	16,00 R/L 4,00.4,3	16	4,00	4,3	5,4			10,2	11,0	35.23	740	35.23	740

Steel	•	•
Stainless steel	•	•
Cast iron	•	•
Non ferrous metals	•	•
Heat resistant alloys	•	•
hardened materials	•	•

MiniCut – Grooving insert

▲ large groove depth (T_{max} 5.5 mm)



Illustrations show right-hand versions

Size	Designation	DMIN	CW -0.03	PDPT	W1	PDY	S1
		mm	mm	mm	mm	mm	mm
14	14,00. R/L .1,50.5,5	16	1.5	5.5	5.2	10.5	9
	14,00. R/L .2,00.5,5	16	2.0	5.5	5.2	10.5	9
	14,00. R/L .2,50.5,5	16	2.5	5.5	5.2	10.5	9
	14,00. R/L .3,00.5,5	16	3.0	5.5	5.2	10.5	9

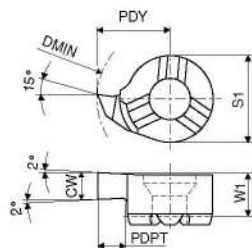
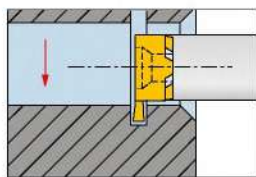
Left-hand Y5		Right-hand Y5	
Article no. 73 372 ...		Article no. 73 370 ...	
£		£	
37.18	715	37.18	715
37.18	720	37.18	720
37.18	725	37.18	725
37.18	730	37.18	730

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 60

MiniCut – Grooving insert

▲ large groove depth (T_{max} 6.5 mm)



Illustrations show right-hand versions

Size	Designation	DMIN	CW -0.03	PDPT	W1	PDY	S1
		mm	mm	mm	mm	mm	mm
14	14,00. R/L .1,50.6,5	17	1.5	6.5	5.2	11.5	9
	14,00. R/L .2,00.6,5	17	2.0	6.5	5.2	11.5	9
	14,00. R/L .2,50.6,5	17	2.5	6.5	5.2	11.5	9
	14,00. R/L .3,00.6,5	17	3.0	6.5	5.2	11.5	9

Left-hand Y5		Right-hand Y5	
Article no. 73 384 ...		Article no. 73 382 ...	
£		£	
37.18	515	37.18	515
37.18	520	37.18	520
37.18	525	37.18	525
37.18	530	37.18	530

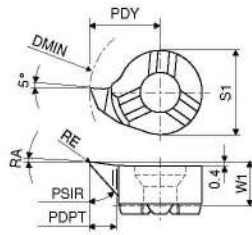
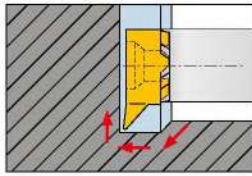
Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials		

→ v_c Page 60

MiniCut – Internal undercut insert

CWX500

CWX500

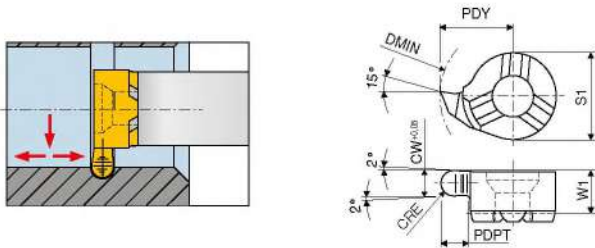


Illustrations show right-hand versions

Size	Designation	DMIN	PDPT	W1	PDY	S1	RE	CDX	PSIR	RA	Left-hand Y5		Right-hand Y5	
											Article no. 73 328 ...	Article no. 73 326 ...	Article no. 73 328 ...	Article no. 73 326 ...
08	8,00. R/L .30°1,0	7.8	1.0	3.5	4.65	6.0	0.2	0.4	30	3	£ 42.80	010	£ 42.80	010
	8,00. R/L .47°1,2	7.8	1.2	3.5	4.65	6.0	0.2	0.4	47	3	£ 37.18	012	£ 37.18	012
09	9,00. R/L .47°1,5	9.0	1.5	3.6	5.50	6.2	0.2	0.5	47	3	£ 34.48	115	£ 34.48	115
11	11,00. R/L .30°2,3	11.0	2.3	4.2	6.70	8.0	0.2	0.6	30	3	£ 41.80	423	£ 41.80	423
	11,00. R/L .47°2,3	11.0	2.3	4.2	6.70	8.0	0.2	0.6	47	3	£ 36.20	323	£ 36.20	323
14	13,70. R/L .47°3,0	13.7	3.0	5.3	8.70	9.0	0.2	0.8	47	3	£ 37.18	530	£ 37.18	530
	13,70. R/L .30°4,0	13.7	4.0	5.3	8.70	9.0	0.2	0.8	30	3	£ 42.80	540	£ 42.80	540
16	15,80. R/L .30°4,3	15.8	4.3	5.4	10.20	11.0	0.2	1.0	30	3	£ 41.54	744	£ 41.54	744
Steel												●	●	
Stainless steel												●	●	
Cast iron												●	●	
Non ferrous metals												●	●	
Heat resistant alloys												●	●	
hardened materials												●	●	

→ v_c Page 60

MiniCut – Full radius grooving and turning insert

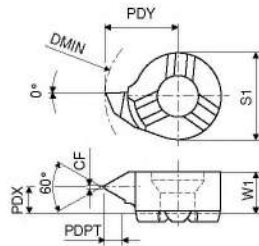
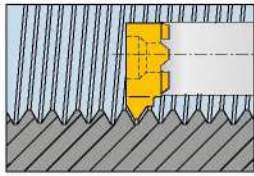


Illustrations show right-hand versions

Size	Designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	CRE mm	Left-hand Y5		Right-hand Y5	
									Article no. 73 320 ...	Article no. 73 318 ...	Article no. 73 320 ...	Article no. 73 318 ...
08	8,00. R/L .0,80.1,0	8	0.8	1.0	3.3	4.8	6.0	0.4	39.91	008	39.91	008
	8,00. R/L .1,20.1,0	8	1.2	1.0	3.3	4.8	6.0	0.6	39.91	012	39.91	012
	8,00. R/L .1,80.1,0	8	1.8	1.0	3.3	4.8	6.0	0.9	39.91	018	39.91	018
	8,00. R/L .2,00.1,0	8	2.0	1.0	3.3	4.8	6.0	1.0	36.99	020	36.99	020
09	9,00. R/L .0,80.1,6	9	0.8	1.6	3.6	5.5	6.2	0.4	38.32	108	38.32	108
	9,00. R/L .1,20.1,6	9	1.2	1.6	3.6	5.5	6.2	0.6	38.32	112	38.32	112
	9,00. R/L .1,80.1,6	9	1.8	1.6	3.6	5.5	6.2	0.9	38.32	118	38.32	118
	9,00. R/L .2,00.1,6	9	2.0	1.6	3.6	5.5	6.2	1.0	38.32	120	38.32	120
11	11,00. R/L .0,80.2,3	11	0.8	2.3	4.2	6.7	8.0	0.4	40.41	308	40.41	308
	11,00. R/L .1,20.2,3	11	1.2	2.3	4.2	6.7	8.0	0.6	40.41	312	40.41	312
	11,00. R/L .1,60.2,3	11	1.6	2.3	4.2	6.7	8.0	0.8	38.32	316	38.32	316
	11,00. R/L .1,80.2,3	11	1.8	2.3	4.2	6.7	8.0	0.9	40.41	318	40.41	318
	11,00. R/L .2,00.2,3	11	2.0	2.3	4.2	6.7	8.0	1.0	40.41	320	40.41	320
	11,00. R/L .2,40.2,3	11	2.4	2.3	4.2	6.7	8.0	1.2	38.32	324	38.32	324
	11,00. R/L .3,00.2,3	11	3.0	2.3	4.2	6.7	8.0	1.5	40.41	330	40.41	330
14	14,00. R/L .0,80.4,0	14	0.8	4.0	5.3	9.0	9.0	0.4	39.89	508	39.89	508
	14,00. R/L .1,20.4,0	14	1.2	4.0	5.3	9.0	9.0	0.6	42.77	512	42.77	512
	14,00. R/L .1,80.4,0	14	1.8	4.0	5.3	9.0	9.0	0.9	42.77	518	42.77	518
	14,00. R/L .2,00.4,0	14	2.0	4.0	5.3	9.0	9.0	1.0	42.77	520	42.77	520
	14,00. R/L .2,20.4,0	14	2.2	4.0	5.3	9.0	9.0	1.1	42.77	522	42.77	522
	14,00. R/L .3,00.4,0	14	3.0	4.0	5.3	9.0	9.0	1.5	42.77	530	42.77	530
16	16,00. R/L .1,60.4,3	16	1.6	4.3	5.4	10.2	11.0	0.8	40.96	716	40.96	716
	16,00. R/L .1,80.4,3	16	1.8	4.3	5.4	10.2	11.0	0.9	43.21	718	43.21	718
	16,00. R/L .2,00.4,3	16	2.0	4.3	5.4	10.2	11.0	1.0	40.96	720	40.96	720
	16,00. R/L .2,20.4,3	16	2.2	4.3	5.4	10.2	11.0	1.1	43.21	722	43.21	722
	16,00. R/L .2,40.4,3	16	2.4	4.3	5.4	10.2	11.0	1.2	40.96	724	40.96	724
	16,00. R/L .3,00.4,3	16	3.0	4.3	5.4	10.2	11.0	1.5	43.21	730	43.21	730
	16,00. R/L .3,20.4,3	16	3.2	4.3	5.4	10.2	11.0	1.6	40.96	732	40.96	732
	16,00. R/L .4,00.4,3	16	4.0	4.3	5.4	10.2	11.0	2.0	43.21	740	43.21	740
Steel										●		●
Stainless steel										●		●
Cast iron										●		●
Non ferrous metals										●		●
Heat resistant alloys										●		●
hardened materials										●		●

→ v₂ Page 60

MiniCut – Threading insert (Partial profile)



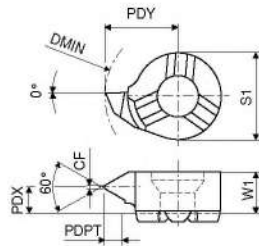
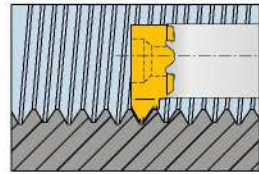
Illustrations show right-hand versions

Size	Designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand		Right-hand	
										Y5		Y5	
										Article no. 73 344 ...		Article no. 73 342 ...	
										£		£	
08	8,00. R/L .0,5/0,75.60°	8	0,5 - 0,75	0,06	0,43	3,50	2,7	4,8	6,0	43.21	012	43.21	012
	8,00. R/L .1,0/1,25.60°	8	1,0 - 1,25	0,12	0,70	3,50	2,7	4,8	6,0	43.21	014	43.21	014
	8,00. R/L .1,5/1,75.60°	8	1,5 - 1,75	0,18	0,95	3,50	2,5	4,8	6,0	43.21	010	43.21	010
09	9,00. R/L .0,5/0,75.60°	9	0,5 - 0,75	0,06	0,27	3,55	3,2	5,5	6,2	40.96	112	40.96	112
	9,00. R/L .1,0/1,25.60°	9	1,0 - 1,25	0,12	0,54	3,55	3,0	5,5	6,2	40.96	114	40.96	114
	9,00. R/L .1,5/1,75.60°	9	1,5 - 1,75	0,18	0,81	3,55	2,8	5,5	6,2	40.96	116	40.96	116
	9,00. R/L .1,75/2,0.60°	9	1,75 - 2,0	0,20	0,95	3,55	2,6	5,5	6,2	40.96	118	40.96	118
	9,00. R/L .2,0/2,5.60°	9	2,0 - 2,5	0,25	1,08	3,55	2,5	5,5	6,2	40.96	120	40.96	120
	9,00. R/L .2,5/3,0.60°	9	2,5 - 3,0	0,31	1,35	3,55	2,1	5,5	6,2	40.96	122	40.96	122
	9,00. R/L .3,0/3,5.60°	9	3,0 - 3,5	0,37	1,62	3,55	1,9	5,5	6,2	40.96	124	40.96	124
11	11,00. R/L .0,5/0,75.60°	11	0,5 - 0,75	0,06	0,75	4,30	3,5	6,7	8,0	43.21	312	43.21	312
	11,00. R/L .1,0/1,25.60°	11	1,0 - 1,25	0,12	0,55	4,30	3,5	6,7	8,0	43.21	314	43.21	314
	11,00. R/L .1,5/1,75.60°	11	1,5 - 1,75	0,18	0,81	4,30	3,5	6,7	8,0	43.21	316	43.21	316
	11,00. R/L .2,0/2,5.60°	11	2,0 - 2,5	0,25	1,08	4,30	3,0	6,7	8,0	43.21	310	43.21	310
	11,00. R/L .2,5/3,0.60°	11	2,5 - 3,0	0,31	1,35	4,30	3,0	6,7	8,0	43.21	320	43.21	320
14	14,00. R/L .1,0/1,25.60°	14	1,0 - 1,25	0,12	0,55	5,40	4,7	9,0	9,0	43.21	512	43.21	512
	14,00. R/L .1,5/1,75.60°	14	1,5 - 1,75	0,18	0,81	5,40	4,5	9,0	9,0	43.21	514	43.21	514
	14,00. R/L .2,0/2,5.60°	14	2,0 - 2,5	0,25	1,08	5,40	4,2	9,0	9,0	43.21	510	43.21	510
	14,00. R/L .2,5/3,0.60°	14	2,5 - 3,0	0,31	1,35	5,40	4,7	9,0	9,0	43.21	520	43.21	520
16	16,00. R/L .1,0/1,25.60°	16	1,0 - 1,25	0,12	0,55	5,50	4,7	10,2	11,0	43.21	712	43.21	712
	16,00. R/L .1,5/1,75.60°	16	1,5 - 1,75	0,18	0,81	5,50	4,5	10,2	11,0	43.21	714	43.21	714
	16,00. R/L .2,0/2,5.60°	16	2,0 - 2,5	0,25	1,08	5,50	4,2	10,2	11,0	43.21	716	43.21	716
	16,00. R/L .2,5/3,0.60°	16	2,5 - 3,0	0,31	1,35	5,50	4,2	10,2	11,0	43.21	710	43.21	710

Steel	•	•
Stainless steel	•	•
Cast iron	•	•
Non ferrous metals	•	•
Heat resistant alloys	•	•
hardened materials	•	•

→ v_c Page 60

MiniCut – Threading insert (Full profile)



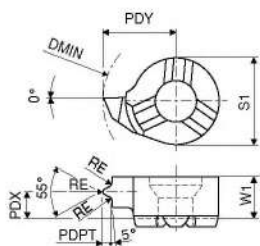
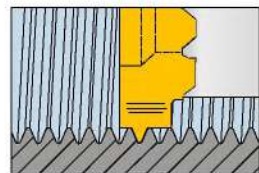
Illustrations show right-hand versions

Size	Designation	DMIN	TP	CF	PDPT	W1	PDX	PDY	S1	Left-hand Y5		Right-hand Y5	
										Article no. 73 348 ...	Article no. 73 346 ...	Article no. 73 348 ...	Article no. 73 346 ...
09	9,00. R/L .0,5.60°	9	0.50	0.06	0.27	3.55	3.25	5.5	6.2	45.65	405	45.65	405
	9,00. R/L .1,0.60°	9	1.00	0.12	0.54	3.55	3.00	5.5	6.2	45.65	410	45.65	410
	9,00. R/L .1,5.60°	9	1.50	0.18	0.81	3.55	2.80	5.5	6.2	45.65	415	45.65	415
	9,00. R/L .1,75.60°	9	1.75	0.20	0.95	3.55	2.70	5.5	6.2	45.65	418	45.65	418
	9,00. R/L .2,0.60°	9	2.00	0.25	1.08	3.55	2.60	5.5	6.2	45.65	420	45.65	420
	9,00. R/L .2,5.60°	9	2.50	0.31	1.35	3.55	2.50	5.5	6.2	45.65	425	45.65	425
	9,00. R/L .3,0.60°	9	3.00	0.37	1.62	3.55	2.20	5.5	6.2	45.65	430	45.65	430
11	11,00. R/L .1,0.60°	11	1.00	0.12	0.54	4.30	3.50	6.7	8.0	49.02	314	49.02	314
	11,00. R/L .1,5.60°	11	1.50	0.18	0.81	4.30	3.50	6.7	8.0	48.24	316	49.02	316
	11,00. R/L .2,0.60°	11	2.00	0.25	1.08	4.30	3.20	6.7	8.0	49.02	310	49.02	310
	11,00. R/L .2,5.60°	11	2.50	0.31	1.35	4.30	3.00	6.7	8.0	49.02	320	49.02	320
	11,00. R/L .3,0.60°	11	3.00	0.37	1.62	4.30	2.90	6.7	8.0	49.02	330	49.02	330
14	14,00. R/L .0,5.60°	14	0.50	0.06	0.27	5.40	3.50	9.0	9.0	49.63	510	49.63	510
	14,00. R/L .1,0.60°	14	1.00	0.12	0.54	5.40	3.50	9.0	9.0	45.18	512	45.18	512
	14,00. R/L .1,5.60°	14	1.50	0.18	0.81	5.40	3.30	9.0	9.0	45.18	514	45.18	514
	14,00. R/L .2,0.60°	14	2.00	0.25	1.08	5.40	4.20	9.0	9.0	45.18	610	45.18	610
	14,00. R/L .2,5.60°	14	2.50	0.31	1.35	5.40	4.70	9.0	9.0	45.18	520	45.18	520
16	16,00. R/L .1,0.60°	16	1.00	0.12	0.54	5.50	4.70	10.2	11.0	54.59	712	54.59	712
	16,00. R/L .1,5.60°	16	1.50	0.18	0.81	5.50	4.50	10.2	11.0	54.59	714	54.59	714
	16,00. R/L .2,0.60°	16	2.00	0.25	1.08	5.50	4.20	10.2	11.0	54.59	716	54.59	716
	16,00. R/L .2,5.60°	16	2.50	0.31	1.35	5.50	4.20	10.2	11.0	54.59	710	54.59	710
	16,00. R/L .3,0.60°	16	3.00	0.37	1.62	5.50	4.00	10.2	11.0	54.59	720	54.59	720
	16,00. R/L .3,5.60°	16	3.50	0.43	1.89	5.50	3.80	10.2	11.0	54.59	730	54.59	730
	16,00. R/L .4,0.60°	16	4.00	0.50	2.16	5.50	3.60	10.2	11.0	54.59	740	54.59	740

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	●	●
Heat resistant alloys	●	●
hardened materials	●	●

→ v_c Page 60

MiniCut – Threading insert (Full profile)



Illustrations show right-hand versions

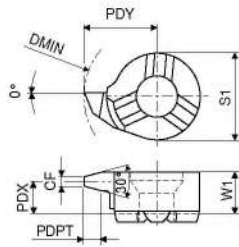
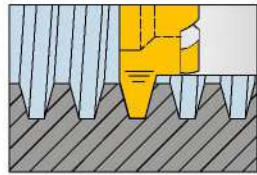
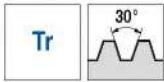
Size	Designation	DMIN mm	TP mm	TPI 1/"	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	RE mm	Left-hand Y5		Right-hand Y5	
											Article no. 73 352 ...	Article no. 73 350 ...	Article no. 73 352 ...	Article no. 73 350 ...
11	11,00. R/L .1,814.55°	11	1.814	14	1.16	4.30	3.0	6.7	8	0.24	£ 63.61	306	£ 63.61	306
	11,00. R/L .1,337.55°	11	1.337	19	0.85	4.30	2.7	6.7	8	0.18	£ 63.61	304	£ 63.61	304
14	14,00. R/L .1,814.55°	14	1.814	14	1.16	5.35	3.6	9.0	9	0.24	£ 62.77	506	£ 62.77	506
	14,00. R/L .1,337.55°	14	1.337	19	0.85	5.35	3.8	9.0	9	0.18	£ 62.77	504	£ 62.77	504
16	16,00. R/L .2,309.55°	16	2.309	11	1.48	5.50	3.5	10.2	11	0.31	£ 69.26	708	£ 69.26	708
	16,00. R/L .1,814.55°	16	1.814	14	1.16	5.50	3.9	10.2	11	0.24	£ 69.26	706	£ 69.26	706

Steel	•	•
Stainless steel	•	•
Cast iron	•	•
Non ferrous metals	•	•
Heat resistant alloys	•	•
hardened materials	•	•

→ v_c Page 60

MiniCut – Threading insert (Partial profile)

▲ Trapezoidal thread DIN 103



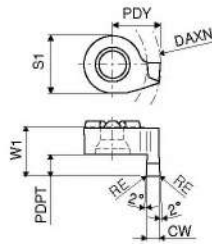
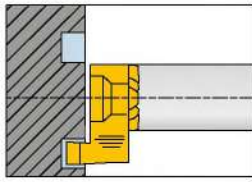
Illustrations show right-hand versions

Size	Designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand Y5		Right-hand Y5	
										Article no. 73 356 ...	£	Article no. 73 354 ...	£
09	9,00. R/L .1,5.30°	9	1.5	0.47	0.90	3.55	3.00	5.5	6.2	42.16	415	42.16	415
	9,00. R/L .2,0.30°	9	2.0	0.60	1.25	3.55	2.85	5.5	6.2	42.16	420	42.16	420
	9,00. R/L .3,0.30°	9	3.0	0.96	1.75	3.55	2.25	5.5	6.2	42.16	430	42.16	430
	9,00. R/L .4,0.30°	10	4.0	1.33	2.25	3.55	2.25	5.5	6.2	42.16	440	42.16	440
11	11,00. R/L .1,5.30°	11	1.5	0.47	0.90	4.30	3.70	6.7	8.0	44.62	315	44.62	315
	11,00. R/L .2,0.30°	11	2.0	0.60	1.25	4.30	3.50	6.7	8.0	44.62	320	44.62	320
	11,00. R/L .3,0.30°	11	3.0	0.96	1.75	4.30	3.20	6.7	8.0	44.62	330	44.62	330
	11,00. R/L .4,0.30°	11	4.0	1.33	2.25	3.95	2.60	6.7	8.0	42.64	340	42.64	340
14	14,00. R/L .2,0.30°	14	2.0	0.60	1.25	5.30	4.30	9.0	9.0	44.75	520	44.75	520
	14,00. R/L .3,0.30°	14	3.0	0.96	1.75	5.30	4.00	9.0	9.0	44.75	530	44.75	530
	14,00. R/L .4,0.30°	14	4.0	1.33	2.25	5.30	3.60	9.0	9.0	44.75	540	44.75	540
	14,00. R/L .5,0.30°	14	5.0	1.69	2.75	5.30	3.30	9.0	9.0	44.75	550	44.75	550
16	16,00. R/L .2,0.30°	16	2.0	0.60	1.25	5.50	4.50	9.7	11.0	51.73	720	51.73	720
	16,00. R/L .3,0.30°	16	3.0	0.96	1.75	5.50	4.30	9.7	11.0	51.73	730	51.73	730
	16,00. R/L .4,0.30°	16	4.0	1.33	2.25	5.50	4.00	9.7	11.0	51.73	740	51.73	740
	16,00. R/L .5,0.30°	16	5.0	1.69	2.75	5.50	3.55	9.7	11.0	48.36	750	48.36	750
	16,00. R/L .6,0.30°	16	6.0	1.92	3.50	5.50	3.30	10.2	11.0	45.23	760	45.23	760

Steel	•	•
Stainless steel	•	•
Cast iron	•	•
Non ferrous metals	•	•
Heat resistant alloys	•	•
hardened materials		

→ v_c Page 60

MiniCut – Axial grooving insert



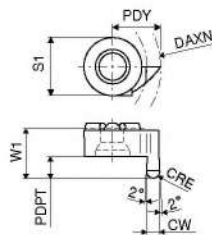
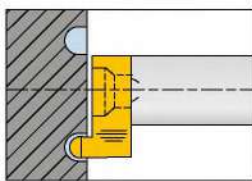
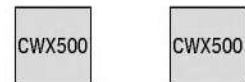
Illustrations show right-hand versions

Size	Designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	RE mm	S1 mm	Left-hand Y5		Right-hand Y5	
									Article no. 73 364 ...	£	Article no. 73 362 ...	£
14	14,00. R/L .1,0,1,5	14	1.0	1.5	8.3	9		9	34.81	510	34.81	510
	14,00. R/L .1,5,2,5	14	1.5	2.5	8.3	9	0.2	9	34.81	515	34.81	515
	14,00. R/L .2,0,3,0	14	2.0	3.0	8.3	9	0.2	9	34.81	520	34.81	520
	14,00. R/L .2,0,5,0	14	2.0	5.0	10.3	9	0.2	9	40.41	620	40.41	620
	14,00. R/L .2,5,3,0	14	2.5	3.0	8.3	9	0.2	9	34.81	525	34.81	525
	14,00. R/L .2,5,5,0	14	2.5	5.0	10.3	9	0.2	9	40.41	625	40.41	625
	14,00. R/L .3,0,3,0	14	3.0	3.0	8.3	9	0.2	9	34.81	530	34.81	530
	14,00. R/L .3,0,5,0	14	3.0	5.0	10.3	9	0.2	9	40.41	630	40.41	630

Steel	•	•
Stainless steel	•	•
Cast iron	•	•
Non ferrous metals	•	•
Heat resistant alloys	•	•
hardened materials	•	•

→ v_c Page 60

MiniCut – Full radius axial grooving insert



12

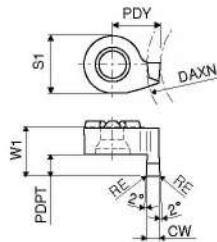
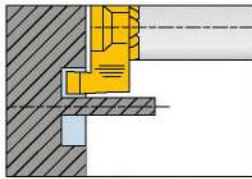
Illustrations show right-hand versions

Size	Designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	CRE mm	S1 mm	Left-hand Y5		Right-hand Y5	
									Article no. 73 376 ...	£	Article no. 73 374 ...	£
14	14,00. R/L .1,0,1,5	14	1.0	1.5	8.3	9	0.5	9	40.25	510	40.25	510
	14,00. R/L .1,6,2,5	14	1.6	2.5	8.3	9	0.8	9	40.25	516	40.25	516
	14,00. R/L .2,0,3,0	14	2.0	3.0	8.3	9	1.0	9	40.25	520	40.25	520
	14,00. R/L .2,5,3,0	14	2.5	3.0	8.3	9	1.2	9	40.25	525	40.25	525
	14,00. R/L .3,0,3,0	14	3.0	3.0	8.3	9	1.5	9	40.25	530	40.25	530

Steel	•	•
Stainless steel	•	•
Cast iron	•	•
Non ferrous metals	•	•
Heat resistant alloys	•	•
hardened materials	•	•

→ v_c Page 60

MiniCut – Axial grooving insert over a spigot



Illustrations show right-hand versions

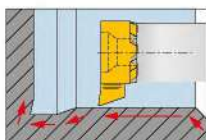
Size	Designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	RE mm	S1 mm	Left-hand Y5		Right-hand Y5	
									Article no. 73 360 ...	£	Article no. 73 358 ...	£
12	12,00. R/L .1,0,1,5	12	1.0	1.5	8.3	7.0		9	36.20	310	36.20	310
	12,00. R/L .1,5,2,5	12	1.5	2.5	8.3	7.5	0.2	9	37.06	315	37.06	315
	12,00. R/L .2,0,3,0	12	2.0	3.0	8.3	8.0	0.2	9	37.06	320	37.06	320
	12,00. R/L .2,0,5,0	12	2.0	5.0	10.3	8.0	0.2	9	43.20	420	43.20	420
	12,00. R/L .2,5,3,0	12	2.5	3.0	8.3	8.5	0.2	9	37.06	325	37.06	325
	12,00. R/L .2,5,5,0	12	2.5	5.0	10.3	8.5	0.2	9	43.20	425	43.20	425
	12,00. R/L .3,0,3,0	12	3.0	3.0	8.3	9.0	0.2	9	37.06	330	37.06	330
	12,00. R/L .3,0,5,0	12	3.0	5.0	10.3	9.0	0.2	9	43.20	430	43.20	430

Steel	•	•
Stainless steel	•	•
Cast iron	•	•
Non ferrous metals	•	•
Heat resistant alloys	•	•
hardened materials	•	•

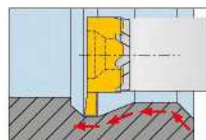
→ v_c Page 60

Set: MiniCut size 9

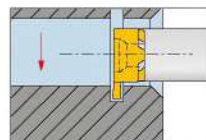
- ▲ Extensive range of size 9 inserts
- ▲ CWX 500



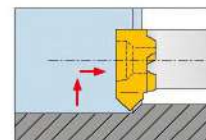
Profile turning (K)



Profile turn (A)



Grooving (E)

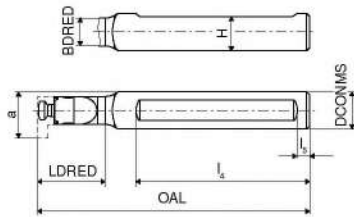


Chamfers (F)



Tool	Designation	Article number	Bore Ø mm	Width mm	Grooving depth mm	Piece	fig.	Y5	
								Article no. 73 528 ...	£
Grooving insert	9,00. R .1,00,1,8	73 310 210	9	1,00	1,8	1	E		
NC fine turning insert	9,00. R .2,00,2,0	73 314 120	9	2,0+0,05	2,0	1	A		
Profiling insert	9,00. R .3,60,10°	73 386 136	9	3,6		1	K		
Profiling insert	9,00. R .3,60,20°	73 322 236	9	3,6		1	K	260.65	125
Chamfering insert	9,00. R .45°,1,3	73 334 110	9		1,3	1	F		
Tool holder	9,00/16.N.25.1,0	73 522 125				1			
Tightening Key		70 950 105				1			

MiniCut – Steel Tool holder



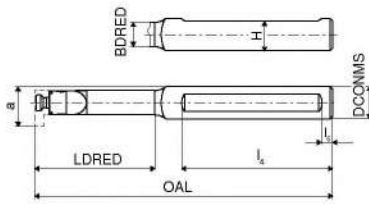
Size	Designation	a mm	DCONMS ₁₇ mm	OAL mm	l ₄ mm	LDRED mm	BDRED mm	H mm	l ₅ mm	Y5	
										Article no. 73 522 ...	£
08	8,00/16.N.12.1,0	7.8	16	80	60	12	6.0	15.0	5	191.50	012
	8,00/16.N.22.1,0	7.8	16	90	60	22	6.0	15.0	5	219.74	122
09	9,00/16.N.14.1,8	8.6	16	95	60	14	7.4	15.0	5	173.69	014
	9,00/16.N.25.1,8	8.6	16	105	60	25	7.4	15.0	5	199.15	125
11	11,00/16.N.16.2,3	10.7	16	97	60	16	8.0	14.5	5	191.50	016
	11,00/16.N.29.2,3	10.7	16	110	60	29	8.0	14.5	5	219.74	129
14	14,00/16.N.18.4,0	13.8	16	100	60	18	11.0	14.5	5	219.74	018
	14,00/16.N.38.4,0	13.8	16	120	60	38	11.0	14.5	5	219.74	138
16	16,00/16.N.22.4,3	15.7	16	100	60	22	11.0	14.5	5	191.50	022
	16,00/16.N.42.4,3	15.7	16	120	60	42	11.0	14.5	5	219.74	142



Spare parts

Size	Y7 Article no. 80 950 ...		Y5 Article no. 73 082 ...	
	£		£	
08	10.30	110	7.14	002
09	10.30	110	7.14	002
11	12.05	112	7.14	003
14	12.26	113	7.14	004
16	13.11	114	7.14	005

MiniCut – Solid Carbide Tool holder – vibration damped



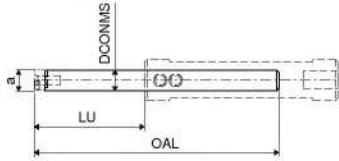
Size	Designation	a mm	DCONMS ₁₇ mm	OAL mm	l ₄ mm	LDRED mm	BDRED mm	H mm	l ₅ mm	Y5	
										Article no. 73 520 ...	£
08	8,00/12.N.21.1,0 HM	7.8	12	80	48	21	6.0	11.0	5	309.81	021
	8,00/12.N.30.1,0 HM	7.8	12	90	48	30	6.0	11.0	5	335.03	030
	8,00/12.N.42.1,0 HM	7.8	12	100	48	42	6.0	11.0	5	394.16	042
	8,00/12.N.50.1,0 HM	7.8	12	115	48	50	6.0	11.0	5	450.29	050
09	9,00/12.N.22.1,0 HM	8.6	12	90	60	22	7.4	11.0	5	311.34	222
	9,00/12.N.30.2,0 HM	8.6	12	98	60	30	7.4	11.0	5	363.22	230
	9,00/12.N.42.3,0 HM	8.6	12	110	60	42	7.4	11.0	5	408.63	242
	9,00/12.N.56.4,0 HM	8.6	12	122	60	56	7.4	11.0	5	462.68	256
11	11,00/12.N.29.2,3 HM	10.7	12	95	60	29	8.0	10.5	5	309.81	129
	11,00/12.N.42.2,3 HM	10.7	12	110	60	42	8.0	10.5	5	335.03	142
	11,00/12.N.56.2,3 HM	10.7	12	120	60	56	8.0	10.5	5	394.16	156
	11,00/12.N.64.2,3 HM	10.7	12	130	60	64	8.0	10.5	5	450.29	164
14	14,00/12.N.34.4,0 HM	13.8	12	100	60	34	11.0	10.5	5	377.05	234
	14,00/12.N.45.4,0 HM	13.8	12	110	60	45	11.0	10.5	5	424.92	245
	14,00/12.N.64.4,0 HM	13.8	12	130	60	64	11.0	10.5	5	501.02	264
	14,00/16.N.34.4,0 HM	13.8	16	100	60	34	11.0	14.5	5	441.90	334
	14,00/16.N.45.4,0 HM	13.8	16	110	60	45	11.0	14.5	5	503.75	345
	14,00/16.N.64.4,0 HM	13.8	16	130	60	64	11.0	14.5	5	579.41	364
	14,00/16.N.75.4,0 HM	13.8	16	145	60	75	11.0	14.5	5	618.99	375
16	16,00/12.N.40.4,3 HM	15.7	12	130	60	40	11.0	10.5	5	399.71	440
	16,00/12.N.56.4,3 HM	15.7	12	130	60	56	11.0	10.5	5	424.92	456
	16,00/12.N.80.4,3 HM	15.7	12	150	60	80	11.0	10.5	5	501.02	480
	16,00/16.N.40.4,3 HM	15.7	16	130	60	40	11.0	14.5	5	486.93	540
	16,00/16.N.56.4,3 HM	15.7	16	130	60	56	11.0	14.5	5	503.75	556
	16,00/16.N.80.4,3 HM	15.7	16	150	60	80	11.0	14.5	5	579.41	580

Spare parts

Size	Article no. 80 950 ...	£	Y7		Y5	
			Article no. 73 082 ...	£	Article no.	£
08	T08	10.30	110	M2,6	7.14	002
09	T08	10.30	110	M2,6	7.14	002
11	T10	12.05	112	M3,5	7.14	003
14	T15	12.26	113	M4	7.14	004
16	T20	13.11	114	M5	7.14	005



MiniCut – HM – Flexholder



Size	Designation	DCONMS mm	OAL mm	LU mm	a mm	Y5	
						Article no.	£
08	8,0/6.N16/2	6	65	18	8	73 525 ...	818
	8,0/6.N40/4	6	103	40	8	73 525 ...	840
11	11,0/8.N20/2	8	79	20	11	73 525 ...	120 ¹⁾
	11,0/8.N50/4	8	129	50	11	73 525 ...	150 ¹⁾

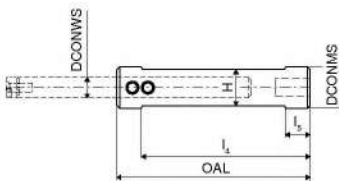
1) with thro' coolant

Spare parts

Size	Article no.	£	Quantity	Article no.	£	Quantity
08	T08	10.30	110	M2,6	7.14	002
11	T10	12.05	112	M3,5	7.14	003



MiniCut – Base holder for solid carbide Flexholder



Size	Designation	DCONWS mm	DCONMS mm	H mm	OAL mm	l ₁ mm	l ₂ mm	Y5	
								Article no.	£
08	8/16.75	6	16	14	75	55	10	73 526 ...	816
	8/20.90	6	20	18	90	70	10	73 526 ...	820
11	11/16.75	8	16	14	75	55	10	73 526 ...	116
	11/20.90	8	20	18	90	70	10	73 526 ...	120

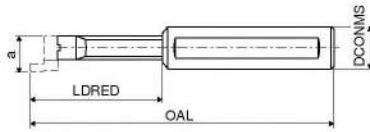
Spare parts

for Article no.	Article no.	£	Quantity	Article no.	£	Quantity
73 526 816	SW2,5	2.23	175	M5x0,5x6	4.60	010
73 526 820	SW2,5	2.23	175	M5x0,5x6	4.60	010
73 526 116	SW2,5	2.23	175	M5x0,5x4	4.60	009
73 526 120	SW2,5	2.23	175	M5x0,5x6	4.60	010



MiniCut – Steel holder

▲ for axial machining



Illustrations show right-hand versions

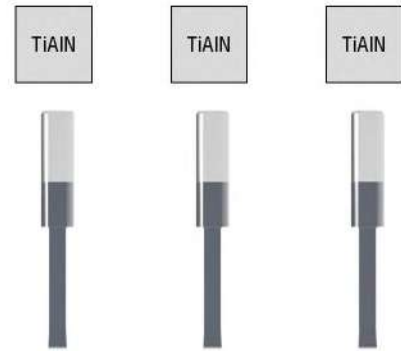
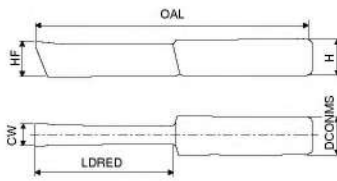
Size	Designation	a mm	DCONMS mm	OAL mm	LDRED mm	Left-hand		Right-hand	
						Y5	Y5	Y5	Y5
14	14,0/16. R/L .25.1,0	13.5	16	90	25	Article no. 73 523 ...	Article no. 73 524 ...	Article no. 73 523 ...	Article no. 73 524 ...
	14,0/16. R/L .45.1,0	13.5	16	110	45	£ 235.67	£ 235.67	£ 250.79	£ 250.79
						025	025	145	145

Spare parts

Size	Key D	Clamping screw
14	Article no. 80 950 ... £ 12.26	Article no. 73 082 ... £ 7.14
	T15 113	M4 004

SlotCut - Inserts - DIN 138

▲ b₁ = Groove width



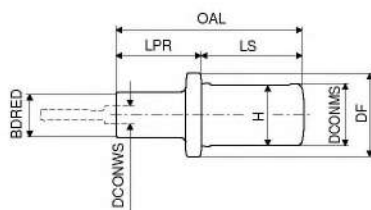
Designation	b ₁ #90/92/11 mm	CW mm	HF mm	RE mm	OAL mm	LDRED mm	DAXN mm	DCONMS _{h8} mm	H mm	clamping holder	Y5 Article no. 73 600 ...		Y5 Article no. 73 601 ...		Y5 Article no. 73 602 ...	
											£		£		£	
NPU.0198.01.1	2	1.98	5.5	0.10	38	12.5	6	7	6.3	NHU						
NPU.0200.01.1	2	2.01	5.5	0.10	38	12.5	6	7	6.3	NHU						
NPU.0210.03.1	2	2.10	5.5	0.35	38	12.5	6	7	6.3	NHU	81.23	098				
NPU.0298.01.1	3	2.98	6.2	0.10	38	12.5	7	7	6.3	NHU			81.23	099		
NPU.0300.01.1	3	3.01	6.2	0.10	38	12.5	7	7	6.3	NHU			81.23	100		
NPU.0310.03.1	3	3.10	6.2	0.35	38	12.5	7	7	6.3	NHU	81.23	099				
NPU.0310.05.1	3	3.10	6.2	0.50	38	12.5	7	7	6.3	NHU	81.23	100				
NPU.0398.01.1	4	3.98	6.2	0.10	40	15.0	7	7	6.3	NHU					71.27	101
NPU.0398.02.2	4	3.98	6.2	0.20	50	25.0	7	7	6.3	NHU					93.50	102
NPU.0400.01.1	4	4.01	6.2	0.10	40	15.0	7	7	6.3	NHU						
NPU.0400.02.1	4	4.01	6.2	0.20	40	15.0	7	7	6.3	NHU						
NPU.0400.02.2	4	4.01	6.2	0.20	50	25.0	7	7	6.3	NHU					71.27	101
NPU.0410.05.1	4	4.10	6.2	0.50	40	15.0	7	7	6.3	NHU					71.27	102
NPU.0410.05.2	4	4.10	6.2	0.50	50	25.0	7	7	6.3	NHU	71.27	101				
NPU.0498.02.2	5	4.98	5.8	0.20	50	25.0	7	7	6.3	NHU	93.50	102				
NPU.0500.02.2	5	5.01	5.8	0.20	50	25.0	8	7	6.3	NHU					93.50	103

i Tolerance **C 11** for 73 600 ..., Tolerance **JS 9** for 73 601 ..., Tolerance **P 9** for 73 602 ...

SlotCut - Toolholder for broaching inserts

Scope of supply:

Tool holder with clamping screw, without insert



12

Designation	DCONWS mm	BORED mm	DCONMS _{g8} mm	DF mm	OAL mm	LS mm	LPR mm	H mm	Inserts	Y5 Article no. 73 610 ...	
										£	
NHU.25	7	18	25	33	73	40	33	23	NPU	389.33	025
NHU.32	7	20	32	40	73	40	33	30	NPU	407.98	032

Spare parts

for Article no.

Article no.	£		Article no.	£
73 610 025	2.23	175	73 610 025	5.74
73 610 032	2.23	175	73 610 032	5.74



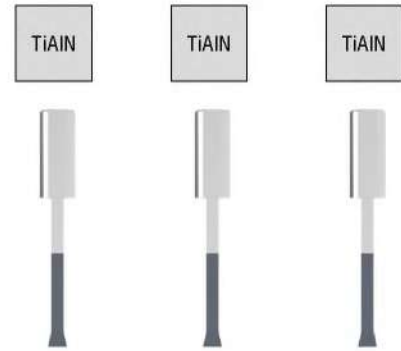
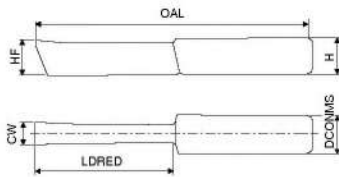
Article no.
70 950 ...



Article no.
73 082 ...

SlotCut - Inserts - DIN 138

▲ b₁ = Groove width



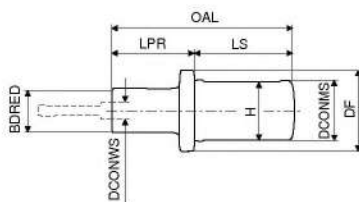
Designation	D _{1.5 SP/NC 11} mm	CW mm	HF mm	RE mm	OAL mm	LDRED mm	DAXN mm	DCONMS _{gb} mm	H mm	clamping holder	Y5 Article no. 73 606 ...		Y5 Article no. 73 607 ...		Y5 Article no. 73 608 ...	
											£		£		£	
NP10.398.02.2	4	3.98	9	0.2	50	25	10	10	9.2	NH 10			114.01	101		
NP10.398.02.3	4	3.98	9	0.2	66	41	10	10	9.2	NH 10			142.50	102		
NP10.400.02.2	4	4.01	9	0.2	50	25	10	10	9.2	NH 10					114.01	101
NP10.400.02.3	4	4.01	9	0.2	66	41	10	10	9.2	NH 10					142.50	102
NP10.410.05.2	4	4.10	9	0.5	50	25	10	10	9.2	NH 10	114.01	101				
NP10.410.05.3	4	4.10	9	0.5	66	41	10	10	9.2	NH 10	142.50	102				
NP10.498.02.2	5	4.98	9	0.2	50	25	10	10	9.2	NH 10			114.01	103		
NP10.498.02.3	5	4.98	9	0.2	66	41	10	10	9.2	NH 10			142.50	104		
NP10.500.02.2	5	5.01	9	0.2	50	25	10	10	9.2	NH 10					114.01	103
NP10.500.02.3	5	5.01	9	0.2	66	41	10	10	9.2	NH 10					142.50	104
NP10.510.05.2	5	5.10	9	0.5	50	25	10	10	9.2	NH 10	114.01	103				
NP10.510.05.3	5	5.10	9	0.5	66	41	10	10	9.2	NH 10	142.50	104				

i Tolerance **C 11** for 73 606 ..., Tolerance **P 9** for 73 607 ..., Tolerance **JS 9** for 73 608 ...

SlotCut - Toolholder for Cutting Inserts

Scope of supply:

Tool holder with clamping screw, without insert



Designation	DCONWS mm	BORED mm	DCONMS _{gb} mm	DF mm	OAL mm	LS mm	LPR mm	H mm	Inserts	Y5 Article no. 73 612 ...	
										£	
NH10.0025.1	10	20	25	33	73	40	33	23	NP10	443.18	025
NH10.0032.1	10	20	32	40	73	40	33	30	NP10	443.18	032

Spare parts

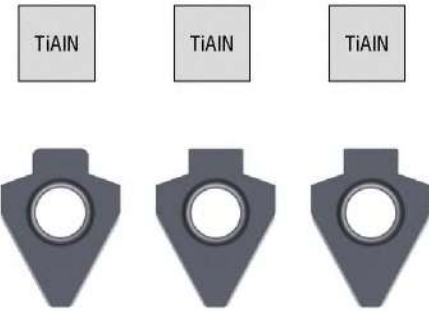
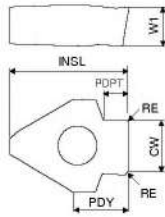
for Article no.

Article no.	SW03	£	176	M6x5,5	£	7.14	031
73 612 032	SW03	2.23	176	M6x5,5	7.14	031	
73 612 025	SW03	2.23	176	M6x5,5	7.14	031	



SlotCut - Inserts - DIN 138

▲ b₁ = Groove width



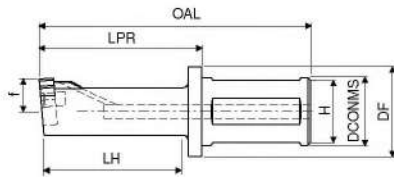
Designation	D ₁ P9059C11 mm	CW mm	RE mm	PDY mm	INSL mm	PDPT mm	DAXN mm	W1 mm	clamping holder	Y5		Y5		Y5	
										Article no. 73 603 ... £		Article no. 73 604 ... £		Article no. 73 605 ... £	
NV15.0398.02	4	3.98	0.20	6.5	13.0	2.3	15	3.2	NHV 15						
NV15.0401.02	4	4.01	0.20	6.5	13.0	2.3	15	3.2	NHV 15			74.84	110		
NV15.0410.050	4	4.10	0.50	6.5	13.0	2.2	15	3.2	NHV 15	74.84	108				
NV15.0498.02	5	4.98	0.20	6.5	13.0	2.8	15	3.2	NHV 15					74.84	111
NV15.0501.02	5	5.01	0.20	6.5	13.0	2.8	15	3.2	NHV 15			74.84	111		
NV15.0510.050	5	5.10	0.50	6.5	13.0	2.5	15	3.2	NHV 15	74.84	109				
NV15.0598.02	6	5.98	0.20	6.5	13.0	3.3	15	3.2	NHV 15					74.84	112
NV15.0601.02	6	6.01	0.20	6.5	13.0	3.3	15	3.2	NHV 15			74.84	112		
NV15.0612.085	6	6.12	0.85	6.5	13.0	2.6	15	3.2	NHV 15	74.84	110				
NPV.0498.02	5	4.98	0.20	8.0	17.3	2.7	22	5.3	NHV 22					72.69	100
NPV.0501.02	5	5.01	0.20	8.0	17.3	2.7	22	5.3	NHV 22			72.69	100		
NPV.0598.02	6	5.98	0.20	8.0	17.3	3.4	22	5.3	NHV 22					65.83	101
NPV.0601.02	6	6.01	0.20	8.0	17.3	3.4	22	5.3	NHV 22			65.83	101		
NPV.0612.085	6	6.12	0.85	8.0	17.3	2.6	22	5.3	NHV 22	65.83	101				
NPV.0713.085	7	7.13	0.85	8.0	17.3	3.3	22	5.3	NHV 22	65.83	102				
NPV.0798.02	8	7.98	0.20	8.0	17.3	4.1	22	5.3	NHV 22/30					65.83	102
NPV.0801.02	8	8.01	0.20	8.0	17.3	4.1	22	5.3	NHV 22/30			65.83	102		
NPV.0813.105	8	8.13	1.05	8.0	17.3	3.4	22	5.3	NHV 22/30	65.83	103				
NPV.0998.03	10	9.98	0.30	8.0	17.3	4.2	30	5.3	NHV 30					65.83	103
NPV.1001.03	10	10.01	0.30	8.0	17.3	4.2	30	5.3	NHV 30			65.83	103		
NPV.1013.105	10	10.13	1.05	10.9	20.2	4.2	40	5.3	NHV 38	65.83	104				
NPV.1197.03	12	11.97	0.30	10.9	20.2	5.7	40	5.3	NHV 38					72.69	104
NPV.1202.05	20	12.02	0.50	10.9	20.2	8.5	40	5.3	NHV 38			72.69	105		
NPV.1202.03	12	12.02	0.30	10.9	20.2	5.7	40	5.3	NHV 38			72.69	104		
NPV.1215.135	12	12.15	1.35	10.9	20.2	5.1	40	5.3	NHV 38	72.69	105				
NPV.1215.175	16	12.15	1.75	10.9	20.2	6.6	40	5.3	NHV 38	72.69	106				
NPV.1215.225	24	12.15	2.25	10.9	20.2	8.5	40	5.3	NHV 38	72.69	107				
NPV.1397.03	14	13.97	0.30	10.9	20.1	7.5	45	5.3	NHV 45					84.79	106
NPV.1402.03	14	14.02	0.30	10.9	20.1	7.5	45	5.3	NHV 45			84.79	106		
NPV.1597.03	16	15.97	0.30	10.9	20.1	7.5	45	5.3	NHV 45					84.79	107
NPV.1602.03	16	16.02	0.30	10.9	20.1	7.5	45	5.3	NHV 45			84.79	107		
NPV.1797.05	18	17.97	0.50	10.9	20.1	9.5	45	5.3	NHV 45					84.79	108
NPV.1802.05	18	18.02	0.50	10.9	20.1	9.5	45	5.3	NHV 45			84.79	108		
NPV.1997.05	20	19.97	0.50	10.9	20.1	10.0	45	5.3	NHV 45					84.79	109
NPV.2002.05	20	20.02	0.50	10.9	20.1	10.0	45	5.3	NHV 45			84.79	109		

i Tolerance **C 11** for 73 603 ..., Tolerance **JS 9** for 73 604 ..., Tolerance **P 9** for 73 605 ...

SlotCut – Toolholder for inserts

Scope of supply:

Tool holder with clamping screw, without insert

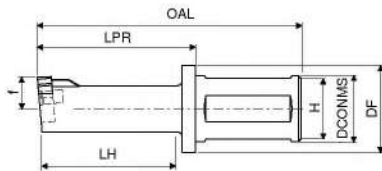


Designation	DCONMS _{g6}	DAXN	DF	OAL	LH	LPR	H	f	Inserts	Y5	
										Article no.	£
NHV.15.1	25	15	33	75	25	35	23	8.4	NV15	73 613 ...	025
NHV.15.2	25	15	33	90	40	50	23	8.4	NV15	380.51	125
NHV.15.3	25	15	33	110	60	70	23	8.4	NV15	417.27	225
										475.65	

SlotCut – Toolholder for inserts

Scope of supply:

Tool holder with clamping screw, without insert



Designation	DCONMS _{g6}	DAXN	DF	OAL	LH	LPR	H	f	Inserts	Y5	
										Article no.	£
NHV.22	25	22	33	100	50	60	23	12.0	NPV	73 611 ...	025
NHV.30	32	30	45	100	50	60	30	16.5	NPV	365.07	032
NHV.30	32	30	45	125	75	85	30	16.5	NPV	416.13	532
NHV.38	32	38	45	100	50	60	30	22.0	NPV	365.07	132
NHV.38	32	38	45	125	75	85	30	22.0	NPV	416.13	632
NHV.45	40	45	55	120	50	60	38	24.0	NPV	562.14	040
NHV.45	40	45	55	175	105	115	38	24.0	NPV	761.03	140
NHV.45	40	45	55	225	155	165	38	24.0	NPV	858.32	240



Spare parts
DCONMS_{g6}

DCONMS _{g6}	Article no.	£	114	M5x13	Article no.	£	007
25	80 950 ...	13.11	114	M5x13	73 082 ...	7.50	007
32		13.11	114	M5x13		7.50	007
40		13.11	114	M5x13		7.50	007

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	< 1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100-350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300-500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300-500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500-900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270-450 N/mm²	0.8036	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500-650 N/mm²	0.8056	GTW-55	0.8066	GTW-65		
	3.7	Black malleable cast iron	300-450 N/mm²	0.8136	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500-800 N/mm²	0.8156	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5-10 % Si	< 400 N/mm²	3.2315	A-8 S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10-15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18		A-S17 U4		
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cu2 (Beryllium Copper)	2.0855	Cu2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1625	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-A11 Fe5 Ni5		Ampco 18 (Cu-A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe- Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30 Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 CS 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4802	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46-55 HRC						
	6.3	Tempered steel	56-60 HRC						
	6.4		61-65 HRC						
	6.5		65-70 HRC						

Cutting data approximate values

	UltraMini K10F	UltraMini K10F-TiN	UltraMini K10-TiAlN	UltraMini DPX 57S	MiniCut CWX500	UltraMini TiAlN+	MiniCut CBN
Index	v_c in m/min						
1.1	30-130	30-180	80-200	80-200	80-200		
1.2	30-130	40-200	80-200	80-200	80-200		
1.3	30-130	40-180	80-200	80-200	80-200		
1.4	15-90	30-140	80-160	80-160	80-160		
1.5	15-90	30-100		80-140			
1.6	15-90	30-100	80-160	80-160	80-160		
1.7	30-130	30-100	80-160	80-160	80-160		
1.8	15-90	30-100	80-150	80-150	80-150		
1.9	30-130	40-200	80-200	80-200	80-200		
1.10	15-90	30-100	70-140	70-140	70-140		
1.11	15-90	30-100	70-140	70-140	70-140		
1.12	15-90	30-100	70-140	70-140	70-140		
1.13							
1.14							
1.15	15-45	30-100					
1.16	15-45	30-100					
2.1		30-100	80-160	80-160	80-160		
2.2		30-100	80-160	80-160	80-160		
2.3		30-100	80-160	80-160	80-160		
2.4		20-90	20-85	20-85	20-85		
2.5		20-65	20-75	20-75	20-75		
2.6		20-80	20-65	20-65	20-65		
2.7		20-80	20-65	20-65	20-65		
3.1	30-110	70-150	30-180	30-180	30-180		
3.2	30-90	50-120	30-150	30-150	30-150		
3.3	25-110	30-130	30-180	30-180	30-180		
3.4	25-80	30-110	30-120	30-120	30-120		
3.5	30-110	30-100	30-90	30-90	30-90		
3.6	30-90	30-90	20-80	20-80	20-80		
3.7	30-110	30-100	30-90	30-90	30-90		
3.8	30-90	30-90	20-80	20-80	20-80		
4.1	110-210	100-600	120-600	120-600	120-600		
4.2	90-200	100-600	120-600	120-600	120-600		
4.3	90-200	100-500	100-450	100-450	100-450		
4.4	50-140	80-350	70-300	70-300	70-300		
4.5		80-200	60-150	60-150	60-150		
4.6	50-140	70-160	60-150	60-150	60-150		
4.7	60-150	80-180	100-180	100-180	100-180		
4.8	50-140	80-180	90-180	90-180	90-180		
4.9	50-140	80-180	80-180	80-180	80-180		
4.10	50-140	80-180	80-180	80-180	80-180		
4.11	80-160	100-200	120-220	120-220	120-220		
4.12	50-120	80-180	70-150	70-150	70-150		
4.13	40-120	70-160	80-180	80-180	80-180		
4.14							
4.15							
4.16							
4.17							
4.18	15-70						
4.19							
5.1		30-80	30-80	30-80	30-80		
5.2		18-75	18-75	18-75	18-75		
5.3		18-75	18-75	18-75	18-75		
5.4				40-70		55-75	
5.5		18-40	18-40	40-70	18-40	55-75	
5.6		18-40	18-40	40-70	18-40	55-75	
5.7		15-30	15-30	40-70	15-30	55-75	
5.8		15-30	15-30	40-70	15-30	55-75	
5.9		15-30	15-30	70-150	15-30		
5.10				70-150			
5.11				70-150			
6.1							
6.2						70-100	
6.3						70-100	50
6.4						70-100	50
6.5							

	UltraMini	MiniCut
	f in mm/rev.	

Internal turning and profiling	0,02-0,05	0,03-0,10
Internal turning and profiling - hard turning	0,02-0,06	0,03-0,10
Turning and profile turning - super alloys	0,02-0,08	
Internal turning	0,02-0,05	0,01-0,03
Back boring	0,02-0,04	0,03-0,10
Turning and chamfering	0,01-0,03	0,03-0,10
Pre-parting and chamfering	0,01-0,02	0,01-0,03
Groove turning	0,01-0,02	0,01-0,03
Internal Undercuts	0,01-0,03	0,03-0,08
Groove and profile turning	0,01-0,02	0,01-0,03
Axial grooving	0,02-0,05	0,02-0,05

i The cutting data depends largely on the external conditions, e.g. stability of the tools and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values – 73 000 ... / 73 001 ...

Index	UltraMini DPX77S v _c in m/min	Corner radius in mm			
		0,05	0,1	0,15	0,2
		f in mm/rev.			
1.1	80-200	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
1.2	80-200	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
1.3	80-200	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
1.4	80-160	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
1.5	80-140	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
1.6	80-160	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
1.7	80-160	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
1.8	80-150	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
1.9	80-200	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
1.10	70-140	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
1.11	70-140	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
1.12	70-140	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
1.13					
1.14					
1.15					
1.16					
2.1	80-160	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
2.2	80-160	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
2.3	80-160	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
2.4	20-85	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
2.5	20-75	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
2.6	20-65	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
2.7	20-65	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
3.1	30-180	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
3.2	30-150	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
3.3	30-180	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
3.4	30-120	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
3.5	30-90	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
3.6	20-80	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
3.7	30-90	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
3.8	20-80	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
4.1	120-600	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
4.2	120-600	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
4.3	100-450	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
4.4	70-300	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
4.5	60-150	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
4.6	60-150	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
4.7	100-180	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
4.8	90-180	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
4.9	80-180	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
4.10	80-180	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
4.11	120-220	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
4.12	70-150	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
4.13	80-180	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
4.14					
4.15					
4.16					
4.17					
4.18					
4.19					
5.1	30-80	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
5.2	18-75	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
5.3	18-75	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
5.4	40-70	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
5.5	40-70	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
5.6	40-70	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
5.7	40-70	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
5.8	40-70	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
5.9	40-70	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
5.10	40-70	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
5.11	40-70	0,015-0,03	0,02-0,06	0,02-0,08	0,02-0,12
6.1					
6.2					
6.3					
6.4					
6.5					

i The cutting data depends largely on the external conditions, e.g. stability of the tools and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Broaching – Recommendations for Correct Use

SlotCut

More and more often small and medium sized batch sizes are manufactured with precision grooves.

To directly machine such grooves in one set-up on one machine, it requires a special application of "Broaching" tools.

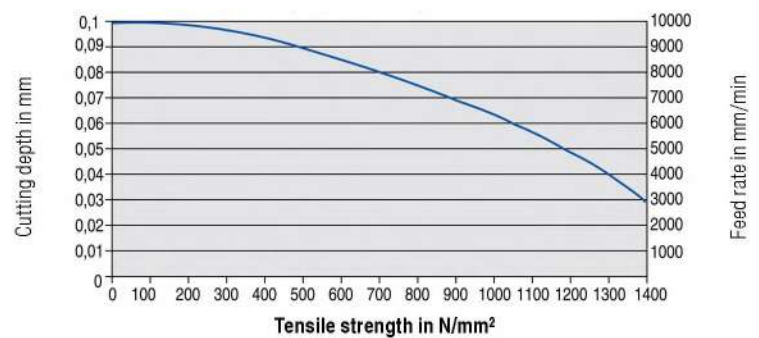
The SlotCut system can produce grooves with the most common groove tolerances.

To this end, there are four options. Two concepts are based on a solid carbide solution, which gives great success with small diameters.

For larger diameters, the concept with screw-on inserts is more suitable.

Broaching, on both lathes and machining centers is now economical, and provides highly accurate results in the shortest possible time.

Approximate values when broaching



i The data depends strongly on the conditions and represent only an approximate value, factors such as machine stability, application and material may require adjustment of the data upward or downward.



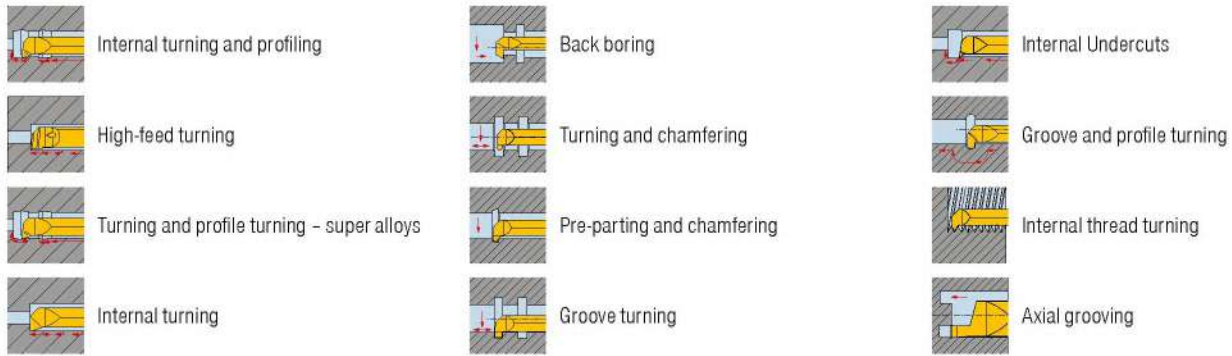
Tips for the User

- ▲ Avoid interrupted cuts.
- ▲ Lift the tool out of the groove when retracting.
- ▲ Where possible, orientate the part so the groove is at the top, so the chips fall away!
- ▲ Use coolant. This will increase tool life and surface quality.
- ▲ Ensure there is a relief at the end of the groove.
- ▲ Adjustment of the tool is essential, therefore the tool diameter must be considered.

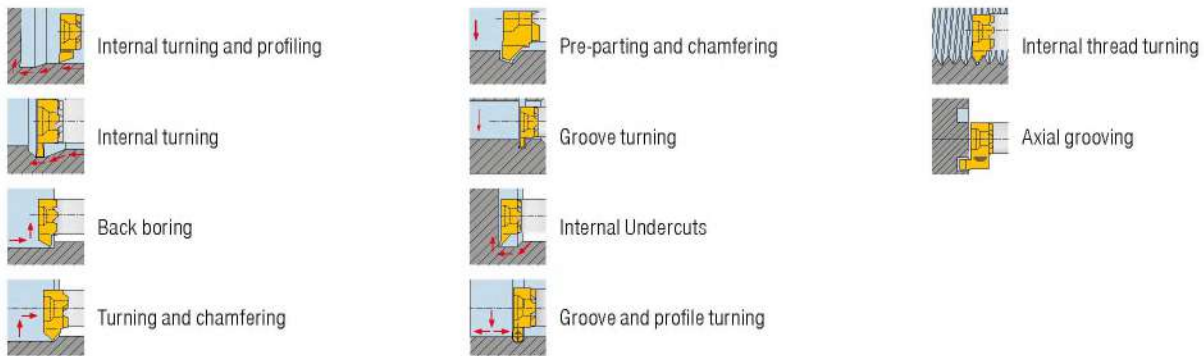


Symbol explanation

UltraMini



MiniCut



Coatings

TiAlN+	<ul style="list-style-type: none"> ▲ TiAlN multilayer coating ▲ Maximum application temperature: 1000 °C
TiN	<ul style="list-style-type: none"> ▲ TiN coating ▲ Maximum application temperature: 450 °C
TiAlN	<ul style="list-style-type: none"> ▲ TiAlN multilayer coating ▲ Maximum application temperature: 900 °C

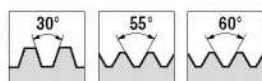
CWX500	<ul style="list-style-type: none"> ▲ Carbide, TiAlN-coated ▲ ISO K30 ▲ The universal carbide grade for almost all materials
DXP77S	<ul style="list-style-type: none"> ▲ TiAlN+X-coating ▲ Maximum application temperature: 900 °C
DPX57S	<ul style="list-style-type: none"> ▲ TiCrN coating ▲ Maximum application temperature: 900 °C

12

Thread types

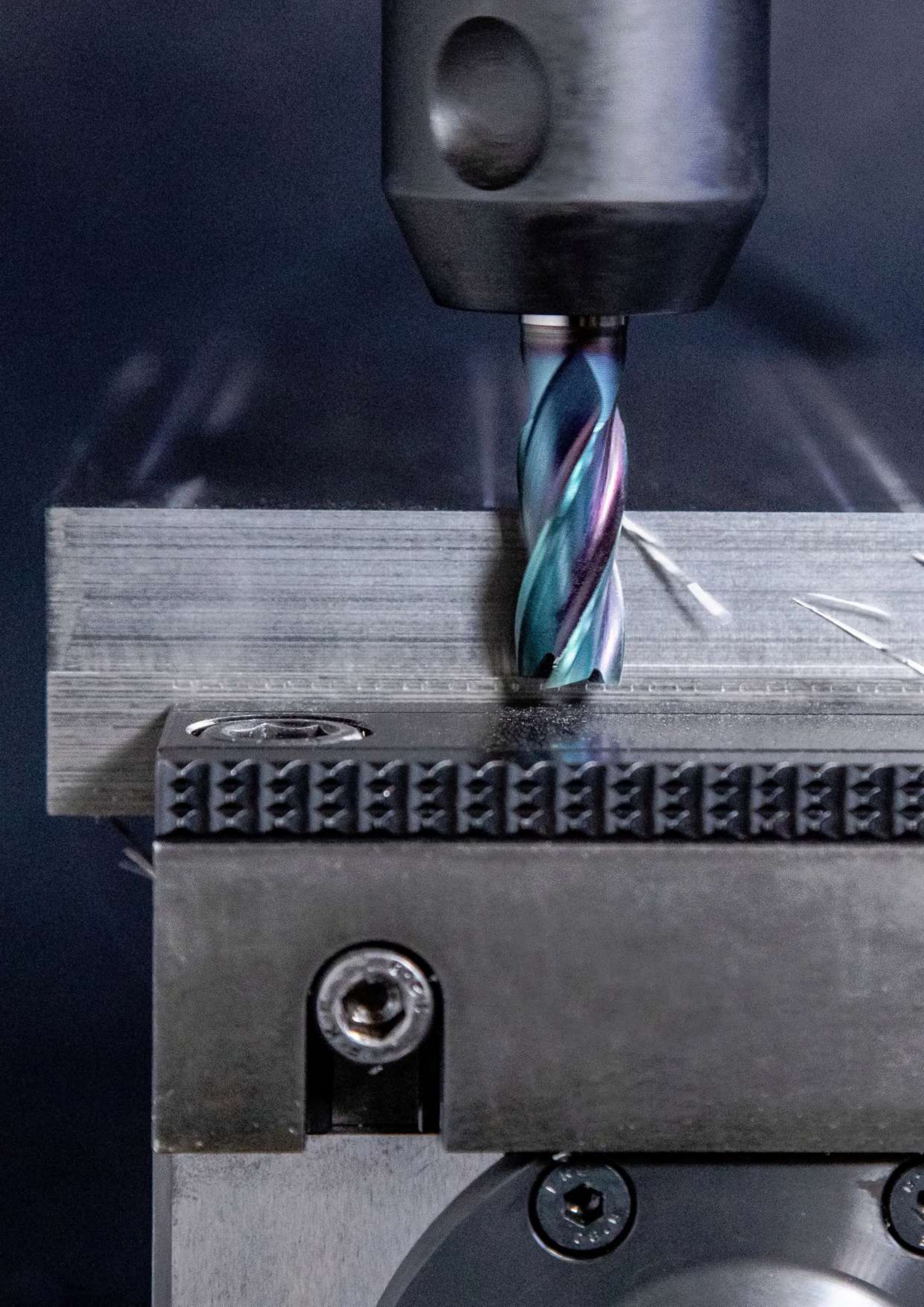


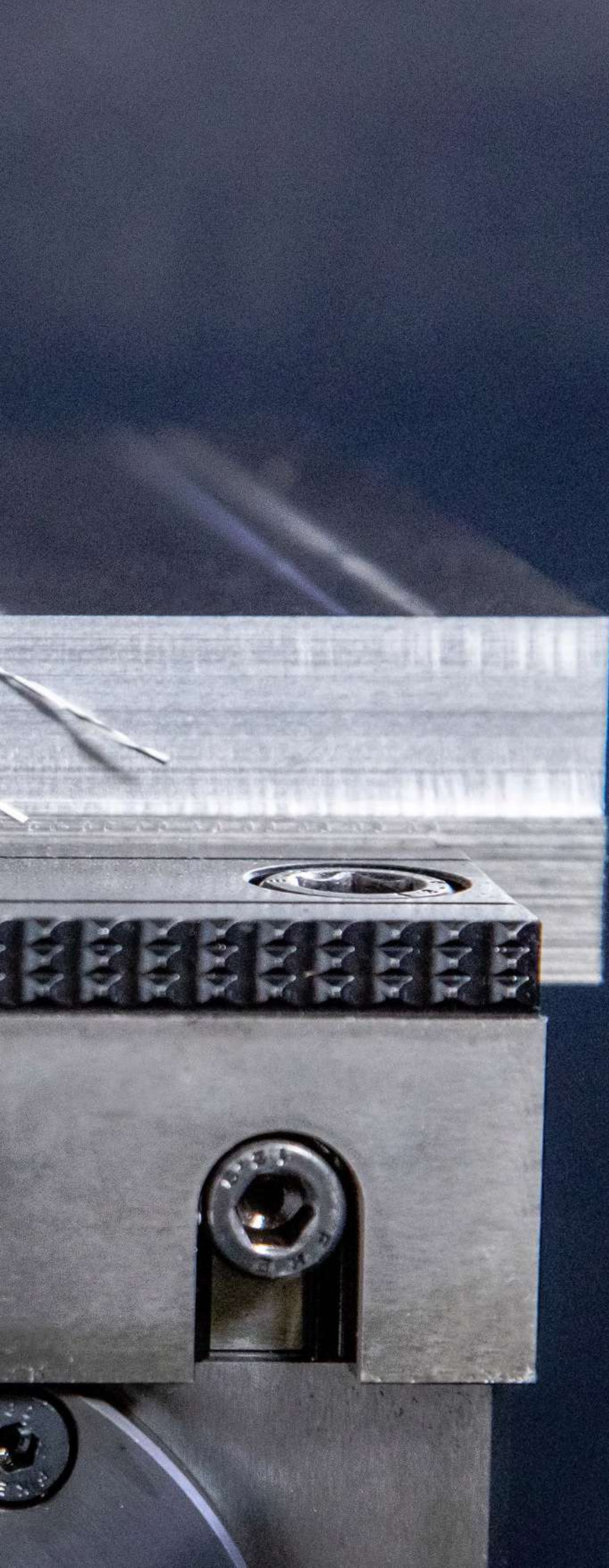
Thread flank angle



Coolant







Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 EcoCut

11 Grooving Tools

12 Miniature turning tools

13 HSS Milling Cutters

13

Milling

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Tool Clamping

16 Adapters

17 Accessories

18 Material examples and article no. index

Table of contents

Symbol explanation	2
Toolfinder	3
Contents Overview	4+5
Product programme	6-38
Technical Information	
Cutting Data	39-46
Formula for cutting data calculation	47
Coating	47

WNT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Symbol explanation

Shank



Shank type



Length: extra short / short / medium / long / extra long



Cutting edge preparation



Sharp



Chamfer (CHW = chamfer width in mm)



Full Radius



Application



Machining example



The red arrows describe the possible feed directions



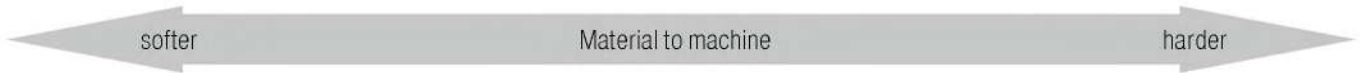
Number of teeth



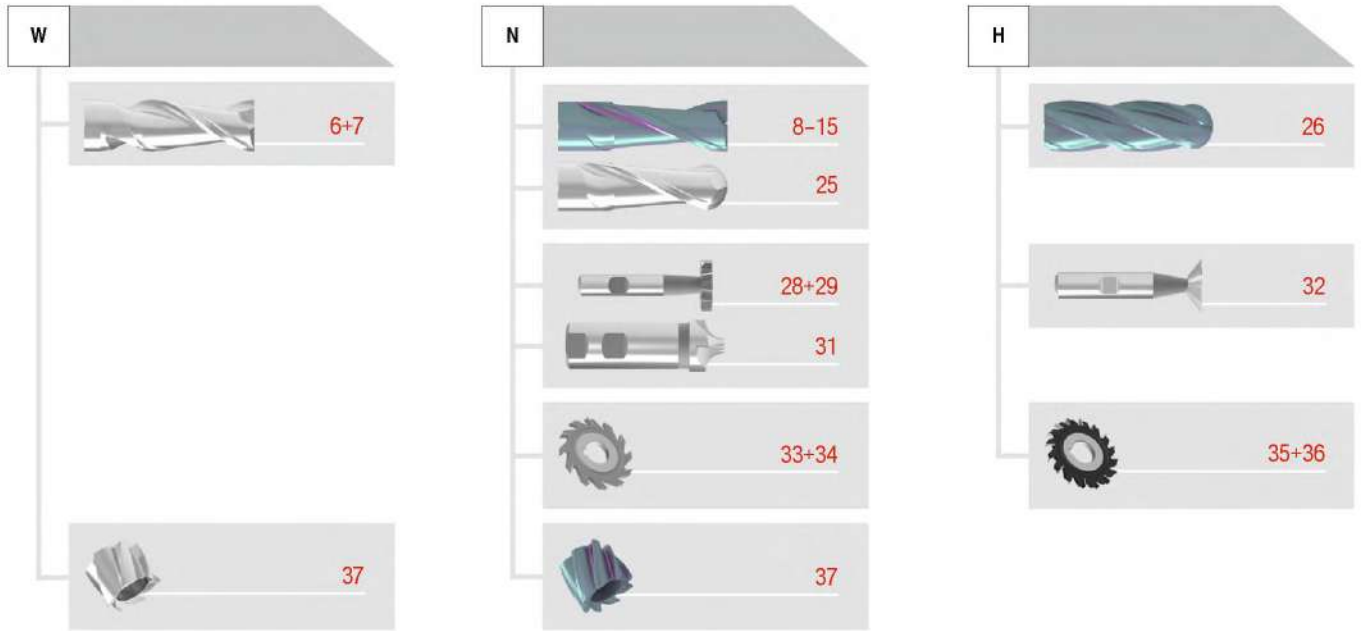
Cutting geometry
 $\lambda_s = 30^\circ$ = helix angle
 $\gamma_s = 12^\circ$ = rake angle

- = Main Application
- = Extended application

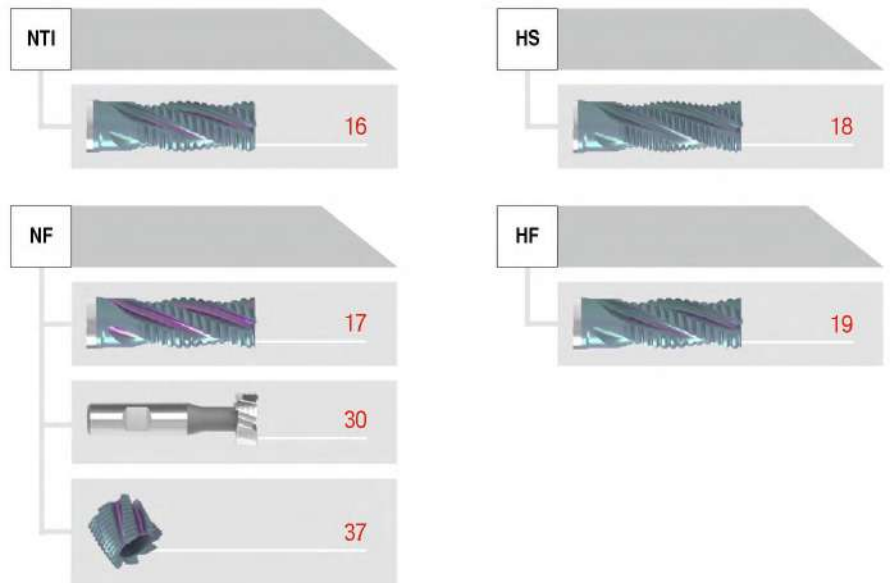
Toolfinder



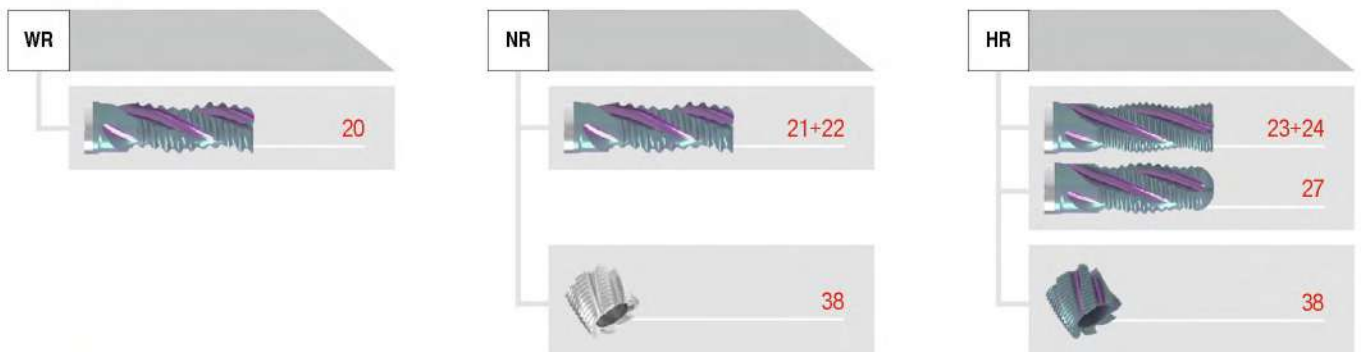
Finish milling



Rough and finish machining

















Rough machining



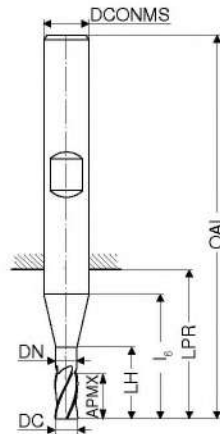
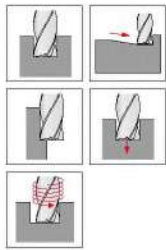
Overview HSS milling cutters

Tool type	Number of teeth	Diameter in mm Ø DC	Material					Geometry				Length	Material, e.g. PM = Powdersteel	Coating		WNT \ Performance	
			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Sharp	Chamfer	Radius			Full Radius	coated		uncoated
Finishing cutter																	
	W	2	2-22	■	■	■	●	■	■	■	■	■	■	HSS-E	<input type="checkbox"/>	<input type="checkbox"/>	6
	W	3-4	2-40	■	■	■	●	■	■	■	■	■	■	HSS-E	<input type="checkbox"/>	<input type="checkbox"/>	7
	N	2	1-26	●	●	●	○	○	■	■	■	■	■	HSS-E	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8+9
	N	3	1-10	●	●	●	○	○	■	■	■	■	■	HSS-E	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10
	N	3	1,8-24,7	●	●	●	○	○	■	■	■	■	■	HSS-E	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11+12
	N	4-5	4-25	○	○	○	○	●	■	■	■	■	■	HSS-E	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13
	N	4-8	2-50	●	●	●	○	○	■	■	■	■	■	HSS-E	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14+15
Rough and finish milling cutters																	
	NTI	4-6	6-40	○	●	○	○	●	■	■	■	■	■	PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	16
	NF	4-5	6-28	●	○	○	○	○	■	■	■	■	■	HSS-E	<input checked="" type="checkbox"/>	<input type="checkbox"/>	17
	HS	4-6	6-40	○	●	○	○	●	■	■	■	■	■	PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	18
	HF	4	6-25	●	○	○	○	○	■	■	■	■	■	PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	19
Rough milling cutters																	
	WR	3	6-32	■	■	■	●	■	■	■	■	■	■	HSS-E	<input checked="" type="checkbox"/>	<input type="checkbox"/>	20
	NR	3	6-25	●	○	○	○	○	■	■	■	■	■	HSS-E	<input checked="" type="checkbox"/>	<input type="checkbox"/>	21
	NR	4-6	6-40	●	○	○	○	○	■	■	■	■	■	HSS-E	<input checked="" type="checkbox"/>	<input type="checkbox"/>	22
	HR	4-6	6-32	●	●	○	○	○	■	■	■	■	■	PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	23
	HR	3-6	4-32	●	●	○	○	○	■	■	■	■	■	HSS-E	<input checked="" type="checkbox"/>	<input type="checkbox"/>	24

Overview HSS milling cutters

Tool type	Number of teeth	Diameter in mm	Material					Geometry				Length	Material, e.g. PM = Powdersteel	Coating		WNT \ Performance	
			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Sharp	Chamfer	Radius			Full Radius	coated		uncoated
Ball nose end milling cutters																	
	N	2	2-30	●	○	●	○	○						HSS-E	<input checked="" type="checkbox"/>	<input type="checkbox"/>	25
	H	4-5	6-25	●	○	●	○	○						HSS-E	<input checked="" type="checkbox"/>	<input type="checkbox"/>	26
	HR	4	6-20	●	○	●	○	○						HSS-E	<input checked="" type="checkbox"/>	<input type="checkbox"/>	27
Form / Side and Face / Shell milling cutters																	
	N	6-10	11-60	●	○	●	○	○						HSS-E	<input type="checkbox"/>	<input type="checkbox"/>	28
	N	6-12	10,5-45,5	●	○	●	○	○						HSS-E	<input type="checkbox"/>	<input type="checkbox"/>	29
	NF	6-8	21-45	●	○	●	○	○						HSS-E	<input type="checkbox"/>	<input type="checkbox"/>	30
	N	4-6	1-16	●	○	●	○	○						HSS-E	<input type="checkbox"/>	<input type="checkbox"/>	31
	H	10	16-25	●	○	●	○	○						HSS-E	<input type="checkbox"/>	<input type="checkbox"/>	32
	N	14-28		●	○	●	○	○						HSS	<input type="checkbox"/>	<input type="checkbox"/>	33
		12-52		●	○	●	○	○						HSS-E	<input type="checkbox"/>	<input type="checkbox"/>	34-36
		6-12		●	○	●	○	○						HSS-E	<input checked="" type="checkbox"/>	<input type="checkbox"/>	37+38

Slot milling cutter HSS-E Co 8



DIN 844



U6

Article no.
50 144 ...

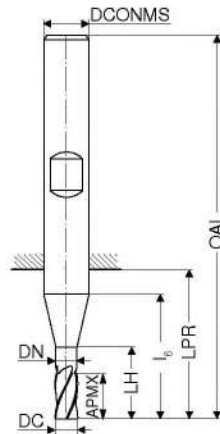
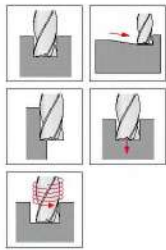
£	
27.79	020
26.51	025
25.87	030
29.22	035
26.51	040
30.32	045
27.18	050
30.99	055
27.18	060
36.91	065
34.87	070
31.22	080
39.70	090
37.93	100
43.62	120
50.59	140
55.64	160
70.77	180
86.88	200
126.32	220

DC _{es}	APMX	DN	LH	l ₆	LPR	OAL	DCONMS _{h6}	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
2.0	7		7	13	15	51	6	2
2.5	8		8	14	16	52	6	2
3.0	8		8	14	16	52	6	2
3.5	10		10	16	18	54	6	2
4.0	11		11	17	19	55	6	2
4.5	11		11	17	19	55	6	2
5.0	13		13	19	21	57	6	2
5.5	13		13	19	21	57	6	2
6.0	13		13	19	21	57	6	2
6.5	16	6.0	22	24	26	66	10	2
7.0	16	6.5	22	24	26	66	10	2
8.0	19	7.5	25	27	29	69	10	2
9.0	19	8.5	26	27	29	69	10	2
10.0	22	9.5	30	30	32	72	10	2
12.0	26	11.5	36	36	38	83	12	2
14.0	26	11.5	36	36	38	83	12	2
16.0	32	15.0	42	42	44	92	16	2
18.0	32	15.0	42	42	44	92	16	2
20.0	38	19.0	52	52	54	104	20	2
22.0	38	19.0	52	52	54	104	20	2

Steel
Stainless steel
Cast iron
Non ferrous metals
Heat resistant alloys
hardened materials

→ v_s/f_z Page 40-42

End milling cutter HSS-E Co 8



DIN 69844

DIN 844



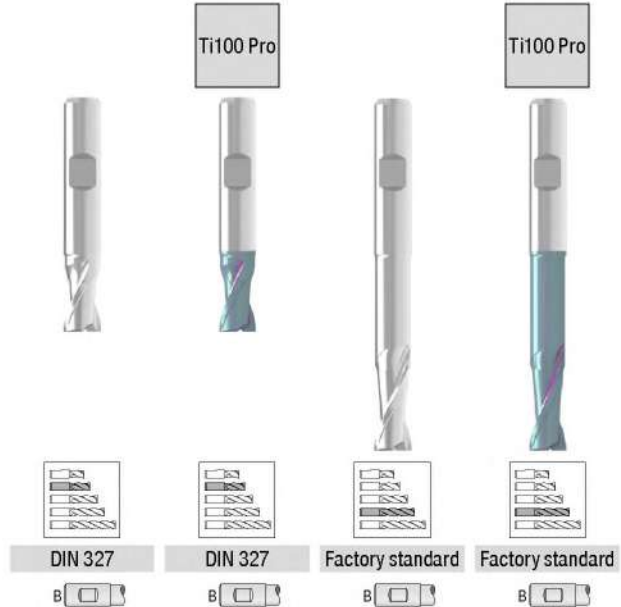
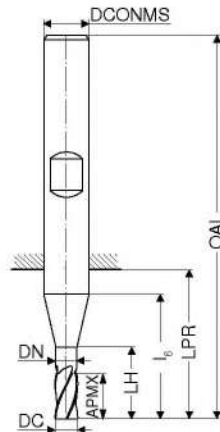
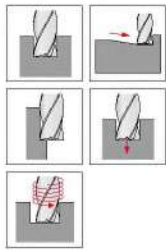
DC _{k10}	APMX	DN	LH	l ₆	LPR	OAL	DCONMS _{h6}	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
2	7		7	13	15	51	6	3
3	8		8	14	16	52	6	3
3	12		12	18	20	56	6	3
4	11		11	17	19	55	6	3
4	19		19	25	27	63	6	3
5	13		13	19	21	57	6	3
5	24		24	30	32	68	6	3
6	13	5.5	19	19	21	57	6	3
6	24	5.5	30	30	32	68	6	3
7	16	6.5	22	24	26	66	10	3
7	30	6.5	36	38	40	80	10	3
8	19	7.5	25	27	29	69	10	3
8	38	7.5	44	46	48	88	10	3
9	19	8.5	26	27	29	69	10	3
9	38	8.5	45	46	48	88	10	3
10	22	9.5	30	30	32	72	10	3
10	45	9.5	53	53	55	95	10	3
12	26	11.5	36	36	38	83	12	3
12	53	11.5	63	63	65	110	12	3
14	26	11.5	36	36	38	83	12	3
14	53	11.5	63	63	65	110	12	3
16	32	15.0	42	42	44	92	16	3
16	63	15.0	73	73	75	123	16	3
18	32	15.0	42	42	44	92	16	3
18	63	15.0	73	73	75	123	16	3
20	38	19.0	52	52	54	104	20	3
20	75	19.0	89	89	91	141	20	3
22	38	19.0	52	52	54	104	20	3
22	75	19.0	89	89	91	141	20	3
24	90	23.0	106	108	110	166	25	3
25	45	24.0	63	45	65	121	25	4
25	90	24.0	108	108	110	166	25	4
28	90	24.0	108	108	110	166	25	4
30	90	24.0	108	108	110	166	25	4
32	106	31.0	123	123	126	186	32	4
36	106	31.0	123	123	126	186	32	4
40	125	38.0	142	142	147	217	40	4

U8		U8	
Article no.	Article no.	Article no.	Article no.
50 120 ...	50 121 ...	50 120 ...	50 121 ...
£	£	£	£
33.50			
26.16			
	32.41		030
26.51			
	32.20		040
26.98			
	32.20		050
27.40			
	33.40		060
28.81			
	42.29		070
30.95			
	35.92		080
32.98			
	48.09		090
33.98			
	39.66		100
37.93			
	44.75		120
44.04			
	51.27		140
44.47			
	52.02		160
73.40			
	90.07		180
72.34			
	84.84		200
99.95			
	117.24		220
	161.25		240
130.60			
	152.97		250
	185.22		280
	220.23		300
	241.74		320
	354.31		360
	428.82		400

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	•
Heat resistant alloys	•
hardened materials	

→ v_c/f_z Page 40-42

Slot milling cutter HSS-E Co 8

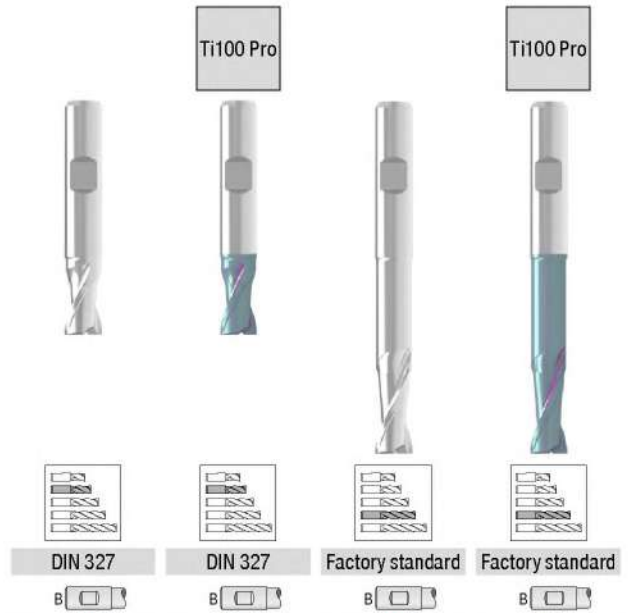
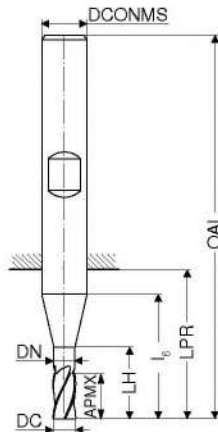
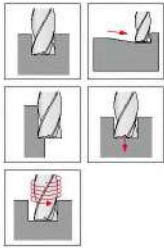


DC	Tol.	APMX	DN	LH	l ₆	LPR	OAL	DCONMS _{h6}	ZEFP	U8 Article no. 50 100 ...	U8 Article no. 54 025 ...	U8 Article no. 50 122 ...	U8 Article no. 54 020 ...
mm		mm	mm	mm	mm	mm	mm	mm		£	£	£	£
1.00	h10	2.5		2.5	9	11	47	6	2	23.25 010	22.97 010		
1.50	h10	3.0		3.0	9	11	47	6	2	21.95 015	22.09 015		
1.80	h10	4.0		4.0	10	12	48	6	2	15.64 018	29.07 018		
2.00	e8	4.0		4.0	10	12	48	6	2	13.66 020	25.76 020		
2.50	e8	5.0		5.0	11	13	49	6	2	13.66 025	25.76 025		
2.80	h10	5.0		5.0	11	13	49	6	2	14.52 028	21.21 028		
3.00	e8	5.0		5.0	11	13	49	6	2	13.66 030	20.82 030		
3.00	e8	8.0		8.0	18	20	56	6	2			22.00 030	40.69 030
3.50	h10	6.0		6.0	12	14	50	6	2	13.66 035	19.47 035		
3.50	h10	10.0		10.0	21	23	59	6	2			26.31 035	43.73 035
3.80	h10	7.0		7.0	13	15	51	6	2	14.39 038	27.22 038		
4.00	e8	7.0		7.0	13	15	51	6	2	13.66 040	17.64 040		
4.00	e8	11.0		11.0	25	27	63	6	2			23.09 040	27.41 040
4.50	h10	7.0		7.0	13	15	51	6	2	15.56 045	19.47 045		
4.50	h10	11.0		11.0	25	27	63	6	2			28.61 045	30.51 045
4.80	h10	8.0		8.0	14	16	52	6	2	16.95 048	28.09 048		
5.00	e8	8.0		8.0	14	16	52	6	2	13.98 050	19.86 050		
5.00	e8	13.0		13.0	30	32	68	6	2			23.09 050	27.41 050
5.50	h10	8.0		8.0	14	16	52	6	2	15.56 055	20.74 055		
5.50	h10	13.0		13.0	30	32	68	6	2			28.61 055	30.51 055
5.75	h10	8.0		8.0	14	16	52	6	2	15.99 057	28.09 057		
6.00	e8	8.0	5.50	14.0	14	16	52	6	2	13.98 060	19.56 060		
6.00	e8	13.0	5.50	30.0	30	32	68	6	2			24.64 060	28.78 060
6.50	h10	10.0	6.00	16.0	18	20	60	10	2	18.69 065	25.49 065		
6.50	h10	16.0	6.35	36.0	38	40	80	10	2			33.98 065	37.97 065
6.75	h10	10.0	6.50	16.0	18	20	60	10	2	19.24 067	25.49 067		
7.00	e8	10.0	6.50	16.0	18	20	60	10	2	17.97 070	25.49 070		
7.00	e8	16.0	6.35	36.0	38	40	80	10	2			31.22 070	36.42 070
7.50	h10	10.0	7.00	16.0	18	20	60	10	2	19.39 075	25.57 075		
7.50	h10	16.0	7.35	36.0	38	40	80	10	2			33.98 075	37.97 075
7.75	h10	11.0	7.50	17.0	19	21	61	10	2	19.39 077	40.69 077		
8.00	e8	11.0	7.50	17.0	19	21	61	10	2	18.25 080	27.22 080		
8.00	e8	19.0	7.35	44.0	46	48	88	10	2			27.26 080	34.19 080
8.50	h10	11.0	8.00	18.0	19	21	61	10	2	23.54 085	28.78 085		
8.50	h10	19.0	8.35	45.0	46	48	88	10	2			36.47 085	40.08 085
8.70	h10	11.0	8.50	18.0	19	21	61	10	2	24.70 087	43.16 087		
9.00	h10	11.0	8.50	18.0	19	21	61	10	2	21.73 090	40.77 090		
9.00	h10	19.0	8.35	45.0	46	48	88	10	2			33.98 090	55.87 090
9.50	h10	11.0	9.00	18.0	19	21	61	10	2	23.23 095	41.61 095		
9.50	h10	19.0	9.35	45.0	46	48	88	10	2			55.50 095	54.14 095
9.70	h10	13.0	9.50	21.0	21	23	63	10	2	23.23 097	43.12 097		
10.00	e8	13.0	9.50	21.0	21	23	63	10	2	22.57 100	27.04 100		
10.00	e8	22.0	9.35	53.0	53	55	95	10	2			29.89 100	36.21 100
10.50	h10	13.0	10.00	21.0	23	25	70	12	2	41.11 105	43.49 105		
10.70	h10	13.0	10.50	21.0	23	25	70	12	2	44.54 107	46.11 107		
11.00	h10	13.0	10.50	21.0	23	25	70	12	2	30.22 110	39.32 110		
11.00	h10	22.0	10.50	53.0	55	57	102	12	2			38.94 110	43.77 110
11.50	h10	13.0	11.00	21.0	23	25	70	12	2	41.93 115	44.17 115		

Steel	●	●	●	●
Stainless steel	○	●	○	●
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

1) Factory standard

Slot milling cutter HSS-E Co 8



DC	Tol.	APMX	DN	LH	l ₆	LPR	OAL	DCONMS _{h6}	ZEPF	U8 Article no. 50 100 ... £	U8 Article no. 54 025 ... £	U8 Article no. 50 122 ... £	U8 Article no. 54 020 ... £
11.70	h10	16.0	11.50	26.0	26	28	73	12	2	32.41	117	46.70	117
12.00	e8	16.0	11.50	26.0	26	28	73	12	2	27.96	120	35.36	120
12.00	e8	26.0	11.50	63.0	63	65	110	12	2			33.91	120
12.70	h10	16.0	11.50	26.0	26	28	73	12	2	57.28	127	62.97	127
13.00	h10	16.0	11.50	26.0	26	28	73	12	2	47.59	130	56.27	130
13.00	h10	26.0	11.50	63.0	63	65	110	12	2			52.75	130
13.70	h10	16.0	11.50	26.0	26	28	73	12	2	39.71	137	52.69	137
14.00	e8	16.0	11.50	26.0	26	28	73	12	2	34.87	140	47.16	140
14.00	e8	26.0	11.50	63.0	63	65	110	12	2			42.77	140
14.70	h10	16.0	11.50	26.0	26	28	73	12	2	53.60	147		
15.00	h10	16.0	11.50	26.0	26	28	73	12	2	44.17	150	52.30	150
15.00	h10	26.0	11.50	63.0	63	65	110	12	2			53.75	150
15.70	h10	19.0	15.00	29.0	29	31	79	16	2	45.05	157	72.34	157
16.00	e8	19.0	15.00	29.0	29	31	79	16	2	42.88	160	50.76	160
16.00	e8	32.0	15.00	73.0	73	75	123	16	2			51.19	160
16.70	h10	19.0	15.00	29.0	29	31	79	16	2	72.92	167		
17.00	h10	19.0	15.00	29.0	29	31	79	16	2	69.32	170	81.07	170
17.00	h10	32.0	15.00	73.0	73	75	123	16	2			113.30	170
17.70	h10	19.0	15.00	29.0	29	31	79	16	2	53.60	177	80.78	177
18.00	e8	19.0	15.00	29.0	29	31	79	16	2	52.87	180	61.91	180
18.00	e8	32.0	15.00	73.0	73	75	123	16	2			68.73	180
19.00	h10	19.0	15.00	29.0	29	31	79	16	2	81.78	190	86.59	190
19.00	h10	32.0	15.00	73.0	73	75	123	16	2			118.70	190
19.70	h10	22.0	19.00	36.0	36	38	88	20	2	65.36	197	95.13	197
20.00	e8	22.0	19.00	36.0	36	38	88	20	2	61.47	200	74.58	200
20.00	e8	38.0	19.00	89.0	89	91	141	20	2			67.39	200
21.70	h10	22.0	19.00	36.0	36	38	88	20	2	116.64	217	124.95	217
22.00	e8	22.0	19.00	36.0	36	38	88	20	2	77.19	220	114.19	220
22.00	e8	38.0	19.00	89.0	89	91	141	20	2			103.14	220
23.70	h10	26.0	23.00	42.0	44	46	102	25	2	151.78	237	150.51	237
24.00	e8	26.0	23.00	42.0	44	46	102	25	2	86.14	240	142.26	240
24.00	e8	45.0	23.00	106.0	108	110	166	25	2			127.99	240
24.70	h10	26.0	24.00	44.0	44	46	102	25	2	151.78	247	145.47	247
25.00	e8	26.0	24.00	44.0	44	46	102	25	2	84.84	250	143.15	250
25.00	e8	45.0	24.00	108.0	108	110	166	25	2			127.99	250
26.00	h10	26.0	24.00	44.0	44	46	102	25	2	105.75	260	158.91	260

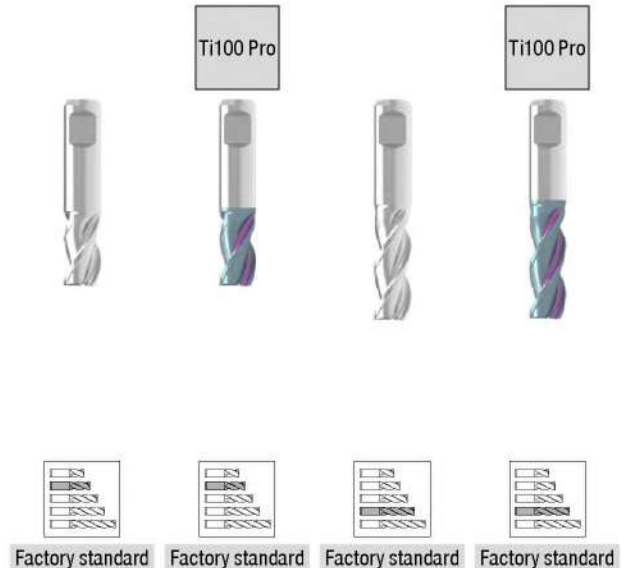
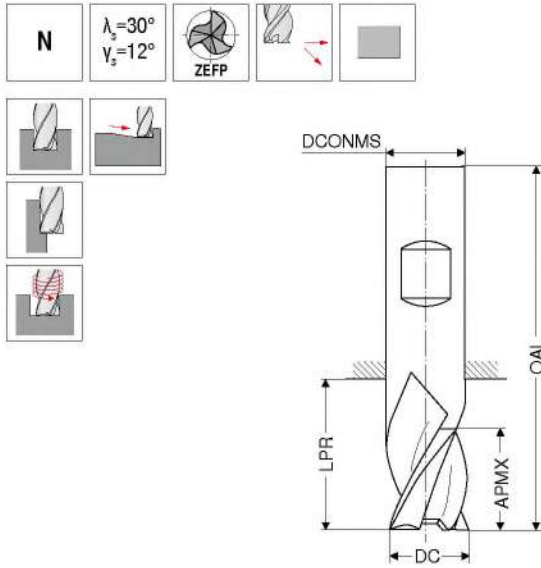
Steel	●	●	●	●
Stainless steel	○	●	○	●
Cast iron	●	●	●	●
Non ferrous metals	●	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials				

1) Factory standard

→ v_c/f_z Page 40-42

Throw-away milling cutter, HSS-E Co 8

▲ Shank similar to DIN 1835 B



DC _{es}	APMX	LPR	OAL	DCONMS _{ns}	ZEFP	U6		U8		U6		U8	
						Article no.	£	Article no.	£	Article no.	£	Article no.	£
1.00	2	8	34	6	3	50 092 ...	12.10	54 014 ...	15.56	50 093 ...			
1.50	3	8	34	6	3	010	12.10	015	15.56				
1.50	4	10	35	6	3					13.93	015 ¹⁾	17.21	015 ¹⁾
1.80	3	8	34	6	3	018	12.10	018	15.56				
2.00	4	9	35	6	3	020	12.10	020	15.56			17.21	020
2.00	7	12	38	6	3					13.93	020 ¹⁾		
2.30	4	9	35	6	3	023	12.10	023	15.56				
2.50	5	10	36	6	3	025	12.10	025	15.56			17.21	025
2.50	8	13	39	6	3					13.93	025 ¹⁾		
2.80	5	10	36	6	3	028	12.10	028	15.56				
3.00	5	10	36	6	3	030	12.10	030	15.56			17.21	030
3.00	8	13	39	6	3					13.93	030 ¹⁾		
3.30	6	11	37	6	3	033	12.10	033	15.56				
3.50	6	11	37	6	3	035	12.10	035	15.56				
3.50	10	15	41	6	3					13.93	035 ¹⁾	17.21	035
3.80	7	12	38	6	3	038	12.10	038	15.56				
4.00	7	12	38	6	3	040	12.10	040	15.56			17.21	040
4.00	11	16	42	6	3					13.93	040 ¹⁾		
4.30	7	12	38	6	3	043	12.10	043	15.56				
4.50	7	12	38	6	3	045	12.10	045	15.56				
4.50	11	16	42	6	3					13.93	045 ¹⁾	17.21	045
4.80	8	13	39	6	3	048	12.10	048	15.56				
5.00	8	13	39	6	3	050	12.10	050	15.56				
5.00	13	18	44	6	3					13.93	050 ¹⁾	17.21	050
5.30	8	13	39	6	3	053	12.10	053	15.56				
5.50	8	13	39	6	3	055	12.10	055	15.56				
5.50	13	18	44	6	3					13.93	055 ¹⁾	17.21	055
5.75	8	13	39	6	3	057	12.10	057	15.56				
6.00	8	13	39	6	3	060	12.10	060	15.56				
6.00	13	18	44	6	3					13.93	060 ¹⁾	17.21	060
6.50	10	14	42	8	3	065	14.01	065	20.50				
6.50	16	20	48	8	3					16.71	065 ¹⁾	22.82	065
7.00	10	14	42	8	3	070	14.01	070	20.50				
7.00	16	20	48	8	3					16.71	070 ¹⁾	22.82	070
7.50	10	14	42	8	3	075	14.01	075	20.50				
7.50	16	20	48	8	3					16.71	075 ¹⁾	22.82	075
8.00	11	15	43	8	3	080	14.01	080	20.50				
8.00	19	23	51	8	3					16.71	080 ¹⁾	22.82	080
8.50	11	16	48	10	3	085	18.14	085	24.20				
8.50	19	24	56	10	3					21.01	085 ¹⁾	25.89	085
9.00	11	16	48	10	3	090	18.14	090	24.20				
9.00	19	24	56	10	3					21.01	090 ¹⁾	25.89	090
9.50	11	16	48	10	3	095	18.14	095	24.20				
9.50	19	24	56	10	3					21.01	095 ¹⁾	25.89	095
10.00	13	18	50	10	3	100	18.14	100	24.20				
10.00	22	27	59	10	3					21.01	100 ¹⁾	25.89	100

Steel	●	●	●	●
Stainless steel	○	●	○	●
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials				

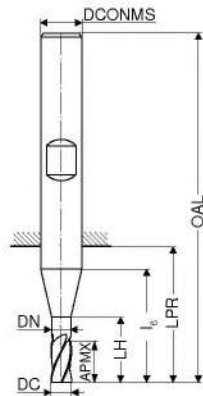
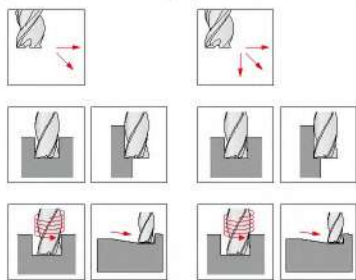
1) Shank tolerance -0,025 / -0,0323

End milling cutter HSS-E Co 8

▲ Ø ≤ 6 mm, 3 teeth cutting to centre



≤ Ø DC 6.0 mm > Ø DC 6.0 mm



DIN 327

DIN 327

DIN 844 K

DIN 844 K



DC mm	ToI.	APMX mm	DN mm	LH mm	l ₆ mm	LPR mm	OAL mm	DCONMS _{h6} mm	ZEFP	U8		U8		U8		U8	
										Article no. 50 105 ...	£	Article no. 54 021 ...	£	Article no. 50 106 ...	£	Article no. 54 016 ...	£
1.80	h10	4		4	10	12	48	6	3	24.37	018	24.99	018				
2.00	e8	4		4	10	12	48	6	3	17.54	020	22.18	020				
2.50	e8	5		5	11	13	49	6	3	17.54	025	22.18	025				
2.80	h10	5		5	11	13	49	6	3	24.37	028	27.31	028				
2.80	h10	8		8	18	20	56	6	3			29.48	028 1)	32.35	028 1)		
3.00	e8	5		5	11	13	49	6	3	17.54	030	22.18	030				
3.00	e8	8		8	14	16	52	6	3			21.46	030	26.83	030		
3.50	h10	6		6	12	14	50	6	3	17.54	035	25.97	035				
3.50	h10	10		10	16	18	54	6	3			29.33	035	32.27	035		
3.80	h10	7		7	13	15	51	6	3	24.37	038	27.41	038				
3.80	h10	11		11	25	27	63	6	3			29.48	038 1)	32.35	038 1)		
4.00	e8	7		7	13	15	51	6	3	17.54	040	22.18	040				
4.00	e8	11		11	17	19	55	6	3			21.46	040	19.95	040		
4.50	h10	7		7	13	15	51	6	3	17.54	045	25.97	045				
4.50	h10	11		11	17	19	55	6	3			29.48	045	22.58	045		
4.80	h10	8		8	14	16	52	6	3	24.37	048	27.31	048				
5.00	e8	8		8	14	16	52	6	3	17.54	050	22.18	050				
5.00	e8	13		13	19	21	57	6	3			21.46	050	19.95	050		
5.50	h10	8		8	14	16	52	6	3	17.54	055	25.97	055				
5.50	h10	13		13	19	21	57	6	3			29.33	055	22.58	055		
5.75	h10	8		8	14	16	52	6	3	24.37	057	27.31	057				
6.00	e8	8	5.5	14	14	16	52	6	3	17.54	060	22.18	060				
6.00	e8	13	5.5	19	19	21	57	6	3			21.46	060	19.95	060		
6.50	h10	10	6.0	16	18	20	60	10	3	27.95	065	31.20	065				
6.50	h10	16	6.0	22	24	26	66	10	3			37.22	065	41.55	065		
6.75	h10	10	6.5	16	18	20	60	10	3	35.16	067	36.88	067				
7.00	e8	10	6.5	16	18	20	60	10	3	27.95	070	34.30	070				
7.00	e8	16	6.5	22	24	26	66	10	3			37.22	070	41.55	070		
7.50	h10	10	7.0	16	18	20	60	10	3	27.95	075	36.21	075				
7.50	h10	16	7.0	22	24	26	66	10	3			38.76	075	42.22	075		
7.75	h10	11	7.5	17	19	21	61	10	3	30.87	077	39.41	077				
8.00	e8	11	7.5	17	19	21	61	10	3	26.16	080	33.98	080				
8.00	e8	19	7.5	25	27	29	69	10	3			30.32	080	28.40	080		
8.50	h10	11	8.0	18	19	21	61	10	3	26.16	085	36.21	085				
8.50	h10	19	8.0	26	27	29	69	10	3			46.09	085	47.47	085		
8.70	h10	11	8.5	18	19	21	61	10	3	32.67	087	36.88	087				
9.00	h10	11	8.5	18	19	21	61	10	3	29.23	090	36.21	090				
9.00	h10	19	8.5	26	27	29	69	10	3			36.26	090	40.87	090		
9.50	h10	11	9.0	18	19	21	61	10	3	29.23	095	36.21	095				
9.50	h10	19	9.0	26	27	29	69	10	3			39.70	095	40.08	095		
9.70	h10	13	9.5	21	21	23	63	10	3	29.23	097	40.87	097				
10.00	e8	13	9.5	21	21	23	63	10	3	24.86	100	33.91	100				
10.00	e8	22	9.5	30	30	32	72	10	3			30.32	100	29.34	100		
10.50	h10	13	10.0	21	23	25	70	12	3	44.97	105	46.40	105				
10.70	h10	13	10.5	21	23	25	70	12	3	46.09	107	46.97	107				
11.00	h10	13	10.5	21	23	25	70	12	3	33.98	110	37.58	110				

Steel	●	●	●	●
Stainless steel	○	●	○	●
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials				

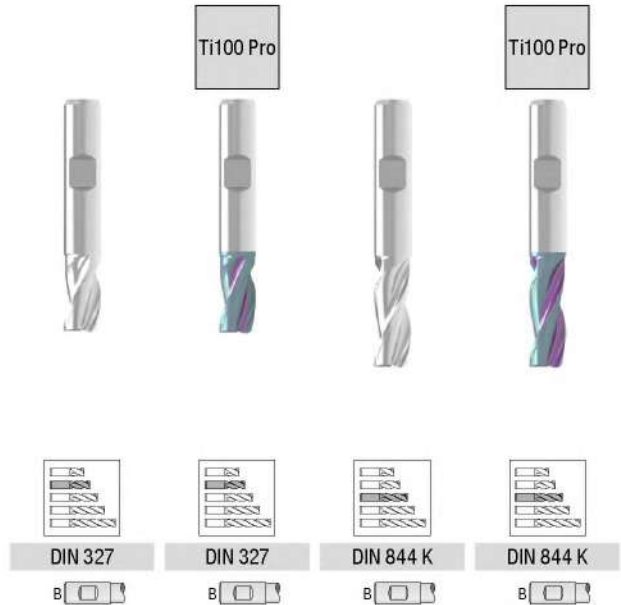
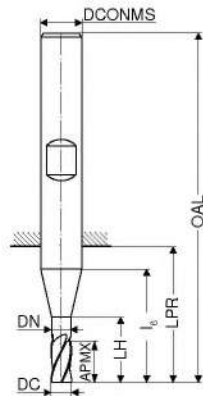
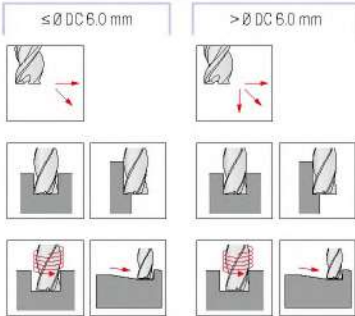
1) Factory standard

→ v_c/f_z Page 40-42

13

End milling cutter HSS-E Co 8

▲ $\varnothing \leq 6$ mm, 3 teeth cutting to centre



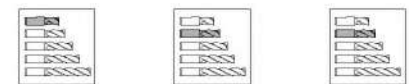
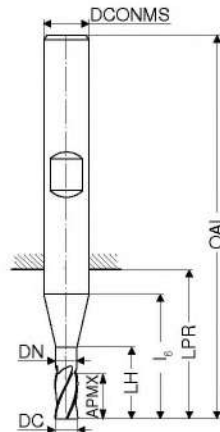
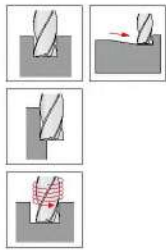
DC	ToI.	APMX	DN	LH	l ₆	LPR	OAL	DCONMS _{h6}	ZEFP	U8		U8		U8		U8	
										Article no.	£	Article no.	£	Article no.	£	Article no.	£
11.00	h10	22	10.5	30	32	34	79	12	3	50 105 ...	44.97	54 021 ...	46.40	50 106 ...	42.34	54 016 ...	47.16
11.50	h10	13	11.0	21	23	25	70	12	3	115	117	115	115	110	110	115	115
11.50	h10	22	11.0	30	32	34	79	12	3	117	117	117	117	115	115	115	115
11.70	h10	16	11.5	26	26	28	73	12	3	38.88	45.63	117	117	115	115	115	115
12.00	e8	16	11.5	26	26	28	73	12	3	32.54	38.94	120	120	120	120	120	120
12.00	e8	26	11.5	36	36	38	83	12	3	120	120	120	120	120	120	120	120
12.70	h10	16	11.5	26	26	28	73	12	3	61.02	65.10	127	127	127	127	127	127
13.00	h10	16	11.5	26	26	28	73	12	3	43.62	52.49	130	130	130	130	130	130
13.00	h10	26	11.5	36	36	38	83	12	3	130	130	130	130	130	130	130	130
13.70	h10	16	11.5	26	26	28	73	12	3	50.99	53.58	137	137	137	137	137	137
14.00	e8	16	11.5	26	26	28	73	12	3	43.62	47.36	140	140	140	140	140	140
14.00	e8	26	11.5	36	36	38	83	12	3	140	140	140	140	140	140	140	140
15.00	h10	16	11.5	26	26	28	73	12	3	46.07	62.09	150	150	150	150	150	150
15.00	h10	26	11.5	36	36	38	83	12	3	150	150	150	150	150	150	150	150
15.50	h10	32	15.0	42	42	44	92	16	3	155	155	155	155	155	155	155	155
15.70	h10	19	15.0	29	29	31	79	16	3	50.99	71.38	157	157	157	157	157	157
16.00	e8	19	15.0	29	29	31	79	16	3	43.62	65.64	160	160	160	160	160	160
16.00	e8	32	15.0	42	42	44	92	16	3	160	160	160	160	160	160	160	160
17.00	h10	19	15.0	29	29	31	79	16	3	73.05	83.38	170	170	170	170	170	170
17.00	h10	32	15.0	42	42	44	92	16	3	170	170	170	170	170	170	170	170
17.70	h10	19	15.0	29	29	31	79	16	3	70.77	82.43	177	177	177	177	177	177
18.00	e8	19	15.0	29	29	31	79	16	3	58.30	74.38	180	180	180	180	180	180
18.00	e8	32	15.0	42	42	44	92	16	3	180	180	180	180	180	180	180	180
19.00	h10	19	15.0	29	29	31	79	16	3	88.27	94.13	190	190	190	190	190	190
19.00	h10	32	15.0	42	42	44	92	16	3	190	190	190	190	190	190	190	190
19.50	h10	38	19.0	52	52	54	104	20	3	195	195	195	195	195	195	195	195
19.70	h10	22	19.0	36	36	38	88	20	3	77.69	94.13	197	197	197	197	197	197
20.00	e8	22	19.0	36	36	38	88	20	3	68.28	86.59	200	200	200	200	200	200
20.00	e8	38	19.0	52	52	54	104	20	3	200	200	200	200	200	200	200	200
21.70	h10	22	19.0	36	36	38	88	20	3	124.51	123.98	217	217	217	217	217	217
22.00	e8	22	19.0	36	36	38	88	20	3	97.46	111.77	220	220	220	220	220	220
22.00	e8	38	19.0	52	52	54	104	20	3	220	220	220	220	220	220	220	220
23.70	h10	26	23.0	42	44	46	102	25	3	150.53	157.66	237	237	237	237	237	237
24.00	e8	26	23.0	42	44	46	102	25	3	113.88	138.02	240	240	240	240	240	240
24.70	h10	26	24.0	44	44	46	102	25	3	161.73	157.66	247	247	247	247	247	247

Steel	●	●	●	●
Stainless steel	○	●	○	●
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

1) Factory standard

→ v_c/f_z Page 40-42

End milling cutter HSS-E Co 8



Factory standard DIN 844 DIN 844

B

DC	Tol.	APMX	DN	LH	l_6	LPR	OAL	DCONMS _{h6}	ZEPF
mm		mm	mm	mm	mm	mm	mm	mm	
4	k10	11		11	17	19	55	6	4
5	k10	13		13	19	21	57	6	4
6	e8	8	5.5	14	14	16	52	6	4
6	k10	13	5.5	19	19	21	57	6	4
8	e8	11	7.5	17	19	21	61	10	4
8	k10	19	7.5	25	27	29	69	10	4
9	k10	19	8.5	26	27	29	69	10	4
10	e8	13	9.5	21	21	23	63	10	4
10	k10	22	9.5	30	30	32	72	10	4
12	e8	16	11.5	26	26	28	73	12	4
12	k10	26	11.5	36	36	38	83	12	4
14	e8	16	11.5	26	26	28	73	12	4
14	k10	26	11.5	36	36	38	83	12	4
15	k10	26	11.5	36	36	38	83	12	4
16	e8	19	15.0	29	29	31	79	16	4
16	k10	32	15.0	42	42	44	92	16	4
17	k10	32	15.0	42	42	44	92	16	4
18	e8	19	15.0	29	29	31	79	16	4
18	k10	32	15.0	42	42	44	92	16	4
20	e8	22	19.0	36	36	38	88	20	4
20	k10	38	19.0	52	52	54	104	20	4
25	k10	45	24.0	63	63	65	121	25	5

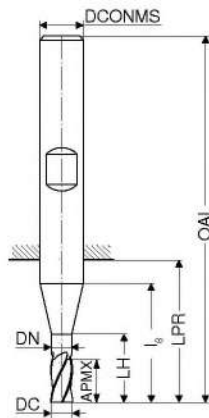
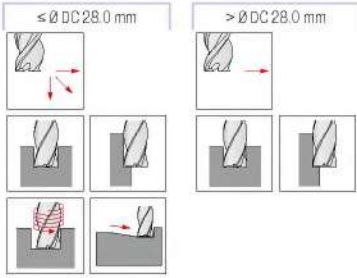
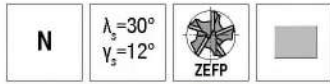
U8		U8		U8	
Article no.	£	Article no.	£	Article no.	£
54 017 ...		50 124 ...		54 011 ...	
040	29.51	040	37.14	040	37.14
050	29.51	050	38.82	050	38.82
060	18.01	060	32.11	060	39.87
080	24.61	080	35.45	080	47.66
100	25.37	090	40.84	090	52.20
120	30.79	100	38.80	100	47.66
140	42.52	120	44.62	120	62.47
160	44.36	140	59.22	140	85.13
180	51.62	150	64.08	150	
200	62.09	160	60.57	160	87.31
		170	74.11	170	123.16
		180	82.40	180	121.48
		200	94.31	200	126.24
		250	146.66	250	198.15

Steel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stainless steel	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Cast iron	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Non ferrous metals	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Heat resistant alloys	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
hardened materials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

→ v_c/f_z Page 40-42

End milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre



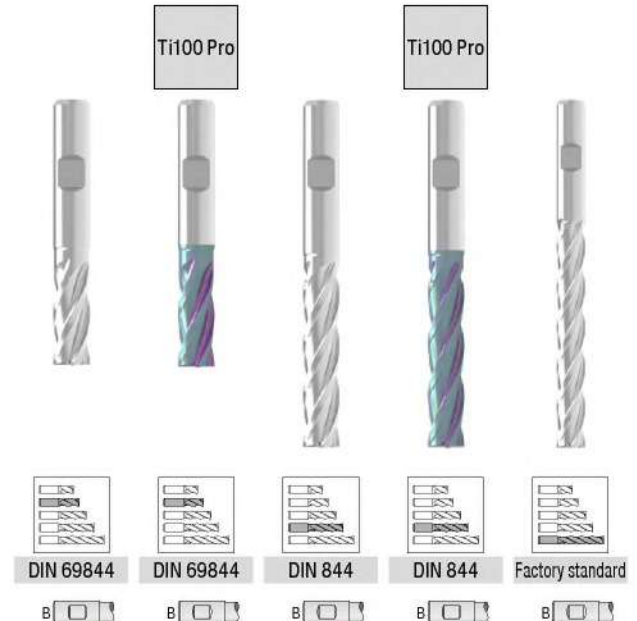
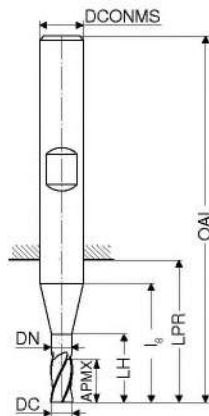
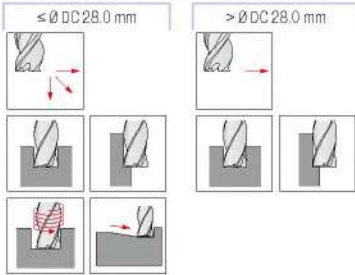
DC _{k10}	APMX	DN	LH	l _s	LPR	OAL	DCONMS _{h6}	ZEFP	DIN 69844		DIN 844		Factory standard	
									U8 Article no. 50 110 ...	U8 Article no. 54 018 ...	U8 Article no. 50 111 ...	U8 Article no. 54 019 ...	U6 Article no. 50 104 ...	
mm	mm	mm	mm	mm	mm	mm	mm		£	£	£	£	£	
2.0	7		7	13	15	51	6	4	15.56 020	22.39 020				
2.5	8		8	14	16	52	6	4	15.56 025	22.39 025				
3.0	8		8	14	16	52	6	4	15.56 030	22.39 030				
3.0	12		12	18	20	56	6	4			25.72 030	29.65 030		
3.5	10		10	16	18	54	6	4	15.56 035	22.39 035				
4.0	11		11	17	19	55	6	4	15.56 040	22.14 040				
4.0	19		19	25	27	63	6	4			26.43 040	30.03 040		
4.5	11		11	17	19	55	6	4	15.56 045	22.39 045				
5.0	13		13	19	21	57	6	4	15.56 050	22.14 050				
5.0	24		24	30	32	68	6	4			23.23 050	30.03 050		
5.5	13		13	19	21	57	6	4	15.56 055	22.39 055				
6.0	13	5.5	19	19	21	57	6	4	15.56 060	22.51 060				
6.0	24	5.5	30	30	32	68	6	4			23.23 060	28.09 060		
6.0	56	5.5	62	62	64	100	6	4						54.87 060
6.5	16	6.0	22	24	26	66	10	4	19.82 065	36.63 065				
7.0	16	6.5	22	24	26	66	10	4	19.82 070	27.84 070				
7.0	30	6.5	36	38	40	80	10	4			33.86 070	43.68 070		
7.5	16	7.0	22	24	26	66	10	4	19.82 075	36.63 075				
8.0	19	7.5	25	27	29	69	10	4	19.23 080	31.19 080				
8.0	38	7.5	44	46	48	88	10	4			33.86 080	39.41 080		
8.0	70	7.5	73	73	75	115	10	4						65.10 080
8.5	19	8.0	26	27	29	69	10	4	19.82 085	29.09 085				
9.0	19	8.5	26	27	29	69	10	4	21.67 090	37.49 090				
9.0	38	8.5	45	46	48	88	10	4			33.86 090	46.70 090		
9.5	19	9.0	26	27	29	69	10	4	21.67 095	42.55 095				
10.0	22	9.5	30	30	32	72	10	4	21.67 100	32.91 100				
10.0	45	9.5	53	53	55	95	10	4			33.86 100	42.13 100		
10.0	75	9.5	79	79	81	121	10	4						78.46 100
10.5	22	10.0	30	32	34	79	12	4	33.86 105	48.13 105				
11.0	22	10.5	30	32	34	79	12	4	32.25 110	37.37 110				
11.0	45	10.5	53	55	57	102	12	4			44.17 110	50.84 110		
11.5	22	11.0	30	32	34	79	12	4	29.78 115	37.37 115				
12.0	26	11.5	36	36	38	83	12	4	29.78 120	35.88 120				
12.0	53	11.5	63	63	65	110	12	4			44.83 120	45.91 120		
12.0	85		85	85	85	130	12	4						85.13 120
13.0	26	11.5	36	36	38	83	12	4	42.29 130	51.21 130				
14.0	26	11.5	36	36	38	83	12	4	38.22 140	42.18 140				
14.0	53	11.5	63	63	65	110	12	4			51.61 140	54.34 140		

Steel	●	●	●	●	●
Stainless steel	○	●	○	●	○
Cast iron	●	●	●	●	●
Non ferrous metals	○	○	○	○	○
Heat resistant alloys	○	○	○	○	○
hardened materials					

→ v_c/f_z Page 40-42

End milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre

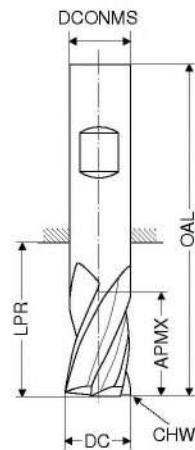
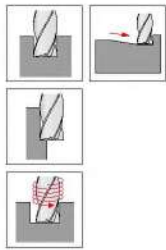


DC _{k10}	APMX	DN	LH	l _s	LPR	OAL	DCONMS _{h8}	ZEFP	DIN 69844	DIN 69844	DIN 844	DIN 844	Factory standard		
mm	mm	mm	mm	mm	mm	mm	mm		U8	U8	U8	U8	U6		
									Article no. 50 110 ...	Article no. 54 018 ...	Article no. 50 111 ...	Article no. 54 019 ...	Article no. 50 104 ...		
									£	£	£	£	£		
14.0	85		85	85	85	130	12	4					103.57	140	
15.0	26	11.5	36	36	38	83	12	4	44.47	150	53.20	150			
15.0	53	11.5	63	63	65	110	12	4			46.66	150	73.97	150	
16.0	32	15.0	42	42	44	92	16	4	42.29	160	59.50	160			
16.0	63	15.0	73	73	75	123	16	4			62.69	160	73.69	160	
16.0	90	15.0	95	95	97	145	16	4						112.77	160
18.0	32	15.0	42	42	44	92	16	4	57.25	180	68.31	180			
18.0	63	15.0	73	73	75	123	16	4			76.79	180	88.81	180	
18.0	100	15.0	110	110	112	160	16	5						158.37	180
20.0	38	19.0	52	52	54	104	20	4	63.06	200	74.97	200			
20.0	75	19.0	89	89	91	141	20	4			74.82	200	99.95	200	
20.0	110	19.0	128	128	130	180	20	5						163.29	200
22.0	38	19.0	52	52	54	104	20	5	74.82	220	93.77	220			
22.0	75	19.0	89	89	91	141	20	5			97.93	220	143.82	220	
22.0	110	19.0	128	128	130	180	20	5						208.43	220
24.0	45	23.0	61	63	65	121	25	5	93.83	240	116.04	240			
24.0	90	23.0	106	108	110	166	25	5			122.60	240	201.53	240	
25.0	45	24.0	63	63	65	121	25	5	93.83	250	115.31	250			
25.0	90	24.0	108	108	110	166	25	5			122.60	250	200.38	250	
25.0	125	24.0	142	142	144	200	25	6						213.35	250
28.0	45	24.0	63	63	65	121	25	5	98.64	280	130.26	280			
28.0	90	24.0	108	108	110	166	25	5			152.12	280	236.99	280	
28.0	140	24.0	147	147	149	205	25	6						294.16	280
30.0	45	24.0	63	63	65	121	25	5	145.85	300	188.43	300			
30.0	90	24.0	108	108	110	166	25	5			170.24	300	259.63	300	
32.0	53	31.0	70	70	73	133	32	6	145.85	320					
32.0	53	31.0	70	70	73	133	32	5			149.59	320			
32.0	106	31.0	123	123	126	186	32	6			179.44	320	285.97	320	
32.0	160	31.0	167	167	170	230	32	6						355.04	320
36.0	53	31.0	70	70	73	133	32	6	186.93	360	249.04	360			
40.0	63	38.0	80	80	85	155	40	6	243.35	400	295.32	400			
40.0	125	38.0	142	142	147	217	40	6				324.52	400	352.70	400
40.0	180	31.0	197	197	200	260	32	8						597.30	400
45.0	125	38.0	142	142	147	217	40	8			640.70	450	611.08	450	
50.0	150	48.0	172	172	172	252	50	8			780.56	500	753.92	500	

Steel	●	●	●	●	●
Stainless steel	○	●	○	●	○
Cast iron	●	●	●	●	●
Non ferrous metals	○	○	○	○	○
Heat resistant alloys	○	○	○	○	○
hardened materials					

→ v_c/f_z Page 40-42

Powdersteel roughing finishing cutter



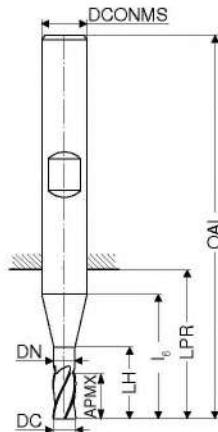
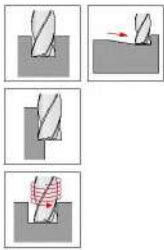
DC _{k12}	APMX	LPR	OAL	DCONMS _{n6}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	
6	13	21	57	6	0.3	4
6	24	32	68	6	0.3	4
7	16	26	66	10	0.3	4
8	19	29	69	10	0.3	4
8	38	48	88	10	0.3	4
9	19	29	69	10	0.5	4
10	22	32	72	10	0.5	4
10	45	55	95	10	0.5	4
12	26	38	83	12	0.7	4
12	53	65	110	12	0.7	4
14	26	38	83	12	0.8	4
14	53	65	110	12	0.8	4
16	32	44	92	16	0.8	4
16	63	75	123	16	0.8	4
18	32	44	92	16	0.8	4
18	63	75	123	16	0.8	4
20	38	54	104	20	0.8	4
20	75	91	141	20	0.8	4
25	45	65	121	25	1.0	5
25	90	110	166	25	1.0	4
30	90	110	166	25	1.3	5
32	53	73	133	32	1.3	6
32	106	126	186	32	1.3	5
40	63	85	155	40	1.3	6
40	125	147	217	40	1.3	6

DIN 69844		DIN 844	
U8		U8	
Article no.		Article no.	
54 007 ...		54 008 ...	
£		£	
82.94	060	121.16	060
119.70	070		
110.98	080	143.38	080
127.99	090		
119.70	100	150.21	100
122.90	120	167.20	120
155.31	140	199.75	140
175.93	160	227.07	160
220.23	180	288.21	180
233.76	200	312.18	200
346.32	250	506.40	250
		796.21	300
463.68	320	736.50	320
796.21	400	1,145.71	400

Steel	<input type="radio"/>	<input type="radio"/>
Stainless steel	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Cast iron	<input type="radio"/>	<input type="radio"/>
Non ferrous metals	<input type="radio"/>	<input type="radio"/>
Heat resistant alloys	<input checked="" type="radio"/>	<input checked="" type="radio"/>
hardened materials	<input checked="" type="radio"/>	<input checked="" type="radio"/>

→ v_c/f_z Page 40-42

Roughing-finishing milling cutter HSS-E Co 5



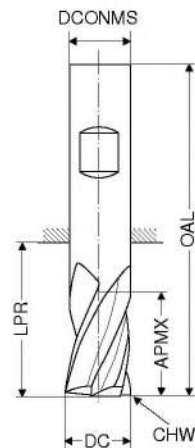
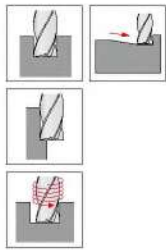
DC _{k12}	APMX	DN	LH	l ₆	LPR	OAL	DCONMS _{h6}	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
6	13	5.5	19	19	21	57	6	4
6	24	5.5	30	30	32	68	6	4
7	16	6.5	22	24	26	66	10	4
8	19	7.5	25	27	29	69	10	4
8	38	7.5	44	46	48	88	10	4
9	19	8.5	26	27	29	69	10	4
10	22	9.5	30	30	32	72	10	4
10	45	9.5	53	53	55	95	10	4
11	22	10.5	30	32	32	79	12	4
11	45	10.5	53	55	57	102	12	4
12	26	11.5	36	36	38	83	12	4
12	53	11.5	63	63	65	110	12	4
13	26	11.5	36	36	38	83	12	4
14	26	11.5	36	36	38	83	12	4
15	26	11.5	36	36	38	83	12	4
15	53	11.5	63	63	65	110	12	4
16	32	15.0	42	42	44	92	16	4
16	63	15.0	73	73	75	123	16	4
18	32	15.0	42	42	44	92	16	4
20	38	19.0	52	52	54	104	20	4
20	75	19.0	89	89	91	141	20	4
22	75	19.0	89	89	91	141	20	4
22	38	19.0	52	52	54	104	20	4
25	90	24.0	108	108	110	166	25	4
25	45	24.0	63	63	65	121	25	4
28	90	24.0	108	108	110	166	25	5

	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant alloys	hardened materials
	●	○	●	○	○	○

DIN 69844		DIN 844	
U8		U8	
Article no.	£	Article no.	£
54 028 ...	33.02	54 029 ...	46.70
060		060	
070	42.13	080	64.12
080	40.39	090	
090	49.11	100	67.13
100	46.01	110	81.07
110	56.66	120	73.23
120	51.35	130	
130	64.02	140	
140	58.60	150	103.64
150	75.17	160	106.34
160	75.54	180	
180	93.57	200	139.44
200	100.92	220	251.02
220	125.41	250	271.92
250	154.29	280	302.44

→ v_c/f_z Page 40-42

Powdersteel roughing finishing cutter



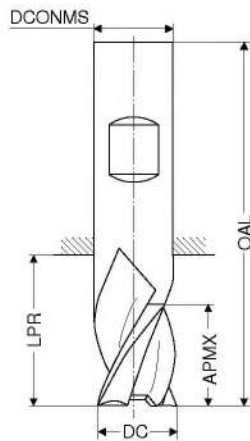
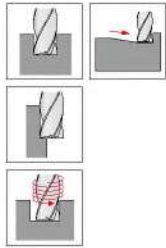
DIN 69844		DIN 844	
U8		U8	
Article no.		Article no.	
54 009 ...		54 012 ...	
£		£	
82.94	060	121.16	060
110.98	080	143.38	080
119.70	100	150.21	100
122.90	120	167.20	120
155.31	140	199.75	140
175.93	160	227.07	160
220.23	180	288.21	180
233.76	200	312.18	200
307.09	220		
346.32	250	506.40	250
434.77	280	763.95	280
502.91	300	796.21	300
463.68	320	736.50	320
796.21	400		

DC _{k12}	APMX	LPR	OAL	DCONMS _{h6}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	
6	13	21	57	6	0.45	4
6	24	32	68	6	0.45	4
8	19	29	69	10	0.45	4
8	38	48	88	10	0.45	4
10	22	32	72	10	0.45	4
10	45	55	95	10	0.45	4
12	26	38	83	12	0.45	4
12	53	65	110	12	0.45	4
14	26	38	83	12	0.45	4
14	53	65	110	12	0.45	4
16	32	44	92	16	0.60	4
16	63	75	123	16	0.60	4
18	32	44	92	16	0.60	4
18	63	75	123	16	0.60	4
20	38	54	104	20	0.60	4
20	75	91	141	20	0.60	4
22	38	54	104	20	0.60	5
25	45	65	121	25	0.75	5
25	90	110	166	25	0.75	5
28	45	65	121	25	0.75	5
28	90	110	166	25	0.75	5
30	45	65	121	25	0.75	5
30	90	110	166	25	0.75	5
32	53	73	133	32	0.75	6
32	106	126	186	32	0.75	5
40	63	85	155	40	0.90	6

Steel	○	○
Stainless steel		
Cast iron	●	●
Non ferrous metals		
Heat resistant alloys	●	●
hardened materials		

→ v_c/f_z Page 40-42

Powdersteel roughing finishing cutter



Ti100 Pro



DIN 844

B U8

U8

Article no.
54 034 ...

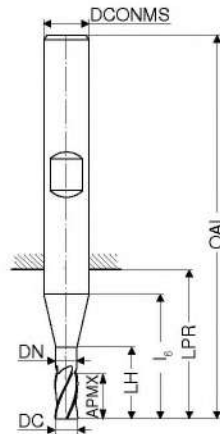
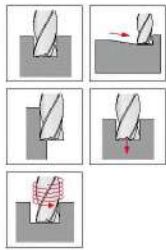
£	
38.61	060
52.63	080
54.79	100
60.51	120
68.81	140
91.42	160
125.80	180
115.71	200
174.74	250

DC _{k12}	APMX	LPR	OAL	DCONMS _{h6}	ZEFP
mm	mm	mm	mm	mm	
6	13	21	57	6	4
8	19	29	69	10	4
10	22	32	72	10	4
12	26	38	83	12	4
14	26	38	83	12	4
16	32	44	92	16	4
18	32	44	92	16	4
20	38	54	104	20	4
25	45	65	121	25	4

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_s/f_z Page 40-42

Rough milling cutter HSS-E Co 8

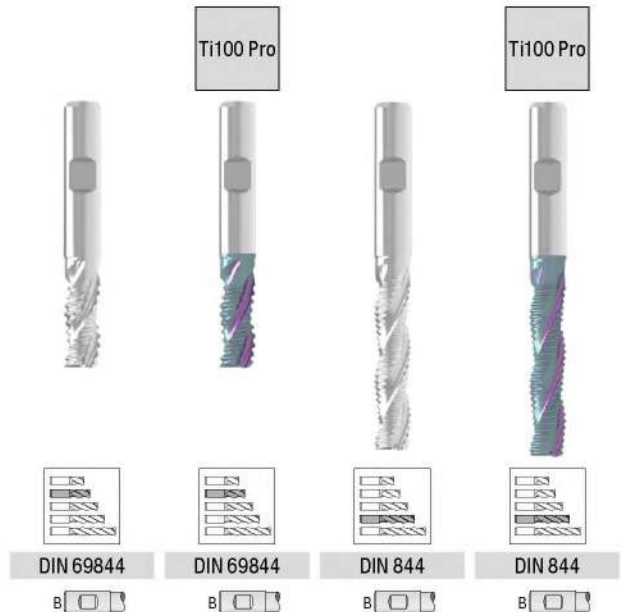
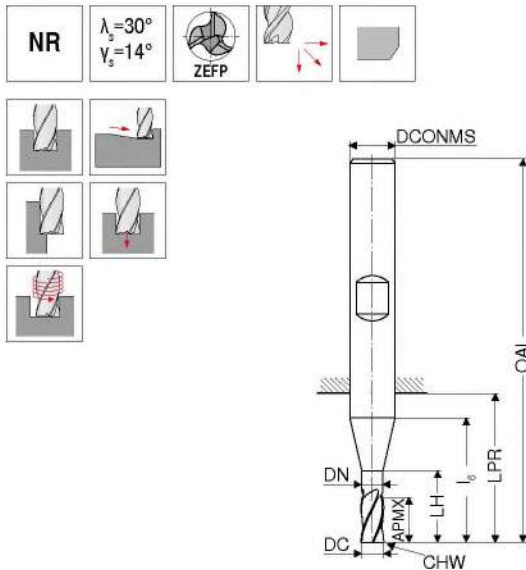


DC _{k12}	APMX	DN	LH	l ₆	LPR	OAL	DCONMS _{h6}	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
6	13	5.5	19	19	21	57	6	3
6	19	5.5	25	25	27	63	6	3
8	19	7.5	25	27	29	69	10	3
8	28	7.5	34	36	38	78	10	3
10	22	9.5	30	30	32	72	10	3
10	34	9.5	42	42	44	84	10	3
12	26	11.5	36	36	38	83	12	3
12	40	11.5	50	50	52	97	12	3
16	32	15.0	42	42	44	92	16	3
16	48	15.0	58	58	60	108	16	3
20	38	19.0	52	52	54	104	20	3
20	56	19.0	70	70	72	122	20	3
25	45	24.0	63	63	65	121	25	3
25	68	24.0	86	86	88	144	25	3
32	80	31.0	97	97	100	160	32	3

Material	U8	U8
Steel	Article no. 54 013 ...	Article no. 54 010 ...
Stainless steel	£ 65.42	£ 85.37
Cast iron	060	060
Non ferrous metals	87.23	102.57
Heat resistant alloys	080	080
hardened materials	97.20	105.91
	100	100
	104.31	119.70
	120	120
	145.13	160.40
	160	160
	194.66	228.52
	200	200
	279.78	364.90
	250	250
		509.89
		320

→ v_c/f_z Page 40-42

Rough milling cutter HSS-E Co 8



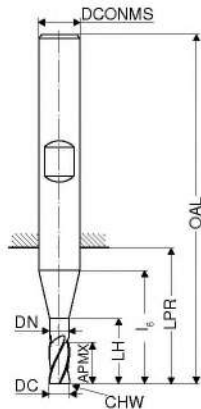
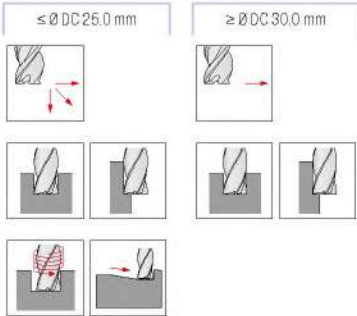
DC _{k12}	APMX	DN	LH	l ₆	LPR	OAL	DCONMS _{h6}	CHW	ZEPF	DIN 69844	DIN 69844	DIN 844	DIN 844
mm	mm	mm	mm	mm	mm	mm	mm	mm		Article no. 50 153 ...	Article no. 54 026 ...	Article no. 50 157 ...	Article no. 54 027 ...
										£	£	£	£
6	13	5.5	19	19	21	57	6	0.5	3	39.28	40.01	46.49	48.23
6	24	5.5	30	30	32	68	6	0.5	3				
7	16	6.5	22	24	26	66	10	0.5	3	44.04	50.56		
8	19	7.5	25	27	29	69	10	0.7	3	44.62	51.04		
8	38	7.5	44	46	48	88	10	0.7	3			50.22	62.85
9	19	8.5	26	27	29	69	10	0.7	3	48.09	54.23		
9	38	8.5	45	46	48	88	10	0.7	3			55.93	65.10
10	22	9.5	30	30	32	72	10	0.7	3	44.47	51.62		
10	45	9.5	53	53	55	95	10	0.7	3			57.25	66.05
11	22	10.5	30	32	34	79	12	0.7	3	50.59	58.79		
11	45	10.5	53	55	55	102	12	0.7	3			63.48	74.28
12	26	11.5	36	36	38	83	12	0.7	3	51.61	62.28		
12	53	11.5	63	63	65	110	12	0.7	3			61.14	75.45
14	26	11.5	36	36	38	83	12	0.9	3	60.45	66.15		
14	53	11.5	63	63	65	110	12	0.9	3			74.82	85.02
15	26	11.5	36	36	38	83	12	0.9	3	62.93	68.01		
15	53	11.5	63	63	65	110	12	0.9	3			85.84	85.80
16	32	15.0	42	42	44	92	16	0.9	3	66.84	88.32		
16	63	15.0	73	73	75	123	16	0.9	3			84.25	114.87
18	32	15.0	42	42	44	92	16	0.9	3	83.84	101.51		
18	63	15.0	73	73	75	123	16	0.9	3			105.18	125.80
20	38	19.0	52	52	54	104	20	0.9	3	101.00	119.70		
20	75	19.0	89	89	91	141	20	0.9	3			121.73	146.71
25	45	24.0	63	63	65	121	25	0.9	3	142.94	174.41		
25	90	24.0	108	108	110	166	25	0.9	3			180.85	224.03

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

→ v_c/f_z Page 40-42

Rough milling cutter HSS-E Co 5

▲ > Ø 25,0 mm recessed centre



Ti100 Pro



DIN 69844

DIN 69844



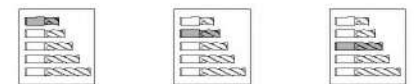
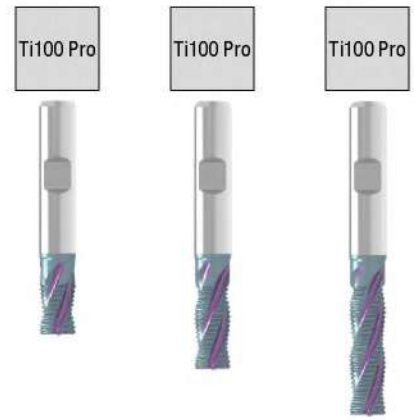
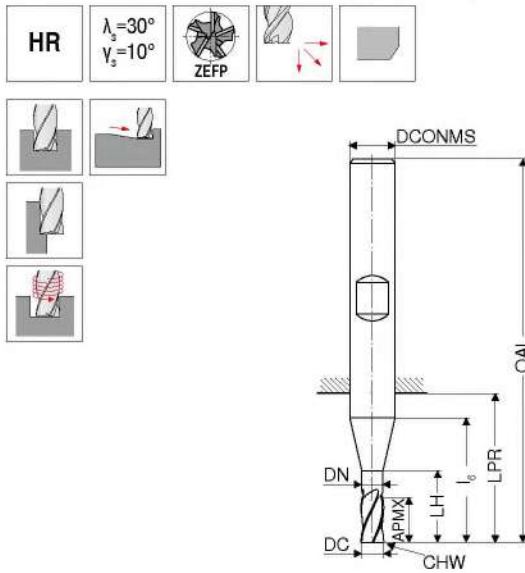
DC _{k12}	APMX	DN	LH	l_6	LPR	OAL	DCONMS _{h6}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	mm	
6	13	5.5	19	19	21	57	6	0.5	4
7	16	6.5	22	24	26	66	10	0.5	4
8	19	7.5	25	27	29	69	10	0.7	4
9	19	8.5	26	27	29	69	10	0.7	4
10	22	9.5	30	30	32	72	10	0.7	4
11	22	10.5	30	32	32	79	12	0.7	4
12	26	11.5	36	36	38	83	12	0.7	4
13	26	11.5	36	36	38	83	12	0.7	4
14	26	11.5	36	36	38	83	12	0.9	4
15	26	11.5	36	36	38	83	12	0.9	4
16	32	15.0	42	42	44	92	16	0.9	4
18	32	15.0	42	42	44	92	16	0.9	4
20	38	19.0	52	52	54	104	20	0.9	4
22	38	19.0	52	52	54	104	20	0.9	4
24	45	23.0	61	63	65	121	25	0.9	4
25	45	24.0	63	63	65	121	25	0.9	4
30	45	24.0	63	63	65	121	25	1.1	5
32	53	31.0	70	70	73	133	32	1.1	6
40	63	38.0	80	80	85	155	40	1.1	6

U8		U8	
Article no.		Article no.	
50 125 ...		54 030 ...	
£		£	
34.03	060	33.02	060
41.52	070	44.66	070
34.87	080	40.39	080
43.17	090	50.76	090
34.87	100	46.01	100
51.47	110	56.66	110
48.41	120	51.35	120
		64.02	130
50.79	140	57.73	140
		75.17	150
57.70	160	75.54	160
64.62	180	84.94	180
80.25	200	101.01	200
		124.05	220
		155.15	240
118.02	250	154.29	250
		203.37	300
		209.96	320
		415.65	400

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

→ v_c/f_z Page 40-42

Powdersteel Fine rough milling cutter



Factory standard DIN 844 Factory standard

Factory standard		DIN 844		Factory standard	
U8		U8		U8	
Article no.	£	Article no.	£	Article no.	£
54 031 ...	48.90	54 032 ...	35.88	54 033 ...	62.69
060		060		080	
080	54.47	080	48.62	100	77.19
100	55.30	100	50.59	120	91.53
120	66.11	120	55.79	140	116.12
140	84.78	140	63.59	160	149.32
160	91.42	160	84.49	180	188.34
180	110.94	180	97.62	200	227.23
200	123.48	200	108.50	220	284.94
220	166.87	220	174.56	250	332.78
250	195.29	250	163.57	280	271.86
280	271.86	300	259.55	320	330.99
320	330.99	320	230.36		

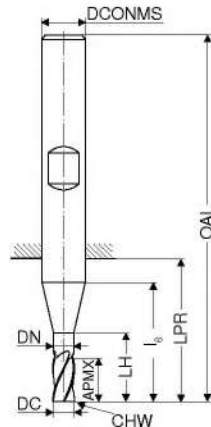
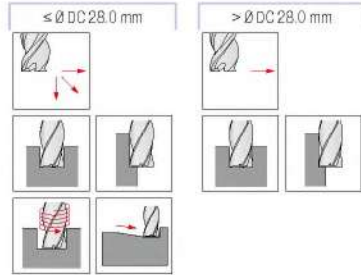
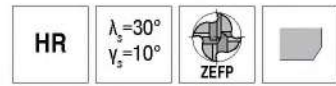
DC _{k12}	APMX	DN	LH	l ₆	LPR	OAL	DCONMS _{h6}	CHW	ZEPF
mm	mm	mm	mm	mm	mm	mm	mm	mm	
6	8	5.5	14	14	16	52	6	0.35	4
6	13	5.5	19	19	21	57	6	0.35	4
8	11	7.5	17	19	21	61	10	0.45	4
8	19	7.5	25	27	29	69	10	0.45	4
8	28	7.5	34	36	38	78	10	0.45	4
10	13	9.5	21	21	23	63	10	0.45	4
10	22	9.5	30	30	32	72	10	0.45	4
10	34	9.5	42	42	44	84	10	0.45	4
12	16	11.5	26	26	28	73	12	0.60	4
12	26	11.5	36	36	38	83	12	0.60	4
12	40	11.5	50	50	52	97	12	0.60	4
14	16	11.5	26	26	28	73	12	0.60	4
14	26	11.5	36	36	38	83	12	0.60	4
14	40	11.5	50	50	52	97	12	0.60	4
16	19	15.0	29	29	31	79	16	0.70	4
16	32	15.0	42	42	44	92	16	0.70	4
16	48	15.0	58	58	60	108	16	0.70	4
18	19	15.0	29	29	31	79	16	0.70	4
18	32	15.0	42	42	44	92	16	0.70	4
18	48	15.0	58	58	60	108	16	0.70	4
20	22	19.0	36	36	38	88	20	0.70	4
20	38	19.0	52	52	54	104	20	0.70	4
20	56	19.0	70	70	72	122	20	0.70	4
22	22	19.0	36	36	38	88	20	0.70	4
22	38	19.0	52	52	54	104	20	0.70	4
22	56	19.0	70	70	72	122	20	0.70	4
25	26	24.0	44	44	46	102	25	0.70	4
25	45	24.0	63	63	65	121	25	0.70	4
25	68	24.0	86	86	88	144	25	0.70	4
28	26	24.0	44	44	46	102	25	0.90	5
30	45	24.0	63	63	65	121	25	0.90	5
32	32	31.0	49	49	52	112	32	0.90	6
32	53	31.0	70	70	73	133	32	0.90	6

Steel	●	●	●
Stainless steel	●	●	●
Cast iron	●	●	●
Non ferrous metals	○	○	○
Heat resistant alloys	○	○	○
hardened materials			

→ v_c/f_z Page 40-42

Fine profile milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre

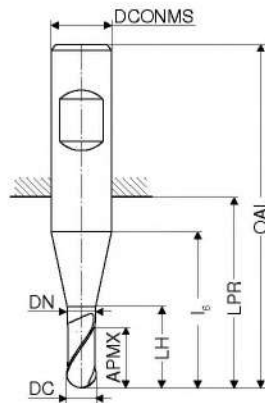


DC _{k12}	APMX	DN	LH	l _s	LPR	OAL	DCONMS _{h6}	CHW	ZEFP	Ti100 Pro							
										Factory standard	DIN 69844	DIN 69844	DIN 844	DIN 844			
mm	mm	mm	mm	mm	mm	mm	mm	mm		U8	U8	U8	U8	U8			
										Article no.	Article no.	Article no.	Article no.	Article no.			
										54 022 ...	50 140 ...	54 023 ...	50 141 ...	54 024 ...			
										£	£	£	£	£			
4	11		11	17	19	55	6	0.35	3								
5	13		13	19	21	57	6	0.35	3								
6	8	5.5	14	14	16	52	6	0.35	4	34.96	060						
6	13	5.5	19	19	21	57	6	0.35	4			35.57	060	24.74	060		
6	24	5.5	30	30	32	68	6	0.35	4					61.86	060	47.31	060
8	11	7.5	17	19	21	61	10	0.45	4	40.97	080						
8	19	7.5	25	27	29	69	10	0.45	4			37.78	080	29.95	080		
8	38	7.5	44	46	48	88	10	0.45	4					72.09	080	66.00	080
10	13	9.5	21	21	23	63	10	0.45	4	37.48	100						
10	22	9.5	30	30	32	72	10	0.45	4			40.69	100	33.28	100		
10	45	9.5	53	53	55	95	10	0.45	4					77.19	100	68.82	100
12	16	11.5	26	26	28	73	12	0.60	4	44.75	120						
12	26	11.5	36	36	38	83	12	0.60	4			48.57	120	36.86	120		
12	53	11.5	63	63	65	110	12	0.60	4					86.06	120	75.54	120
14	16	11.5	26	26	28	73	12	0.60	4	59.47	140						
14	26	11.5	36	36	38	83	12	0.60	4			54.10	140	49.12	140		
14	53	11.5	63	63	65	110	12	0.60	4					93.55	140	99.04	140
16	19	15.0	29	29	31	79	16	0.70	4	60.63	160						
16	32	15.0	42	42	44	92	16	0.70	4			61.02	160	53.32	160		
16	63	15.0	73	73	75	123	16	0.70	4					112.61	160	109.65	160
18	19	15.0	29	29	31	79	16	0.70	4	80.30	180						
18	32	15.0	42	42	44	92	16	0.70	4			68.78	180	70.27	180		
18	63	15.0	73	73	75	123	16	0.70	4					130.33	180	129.42	180
20	22	19.0	36	36	38	88	20	0.70	4	81.64	200						
20	38	19.0	52	52	54	104	20	0.70	4			85.78	200	73.85	200		
20	75	19.0	89	89	91	141	20	0.70	4					154.27	200	142.37	200
22	38	19.0	52	52	54	114	20	0.70	4			109.31	220	95.15	220		
22	75	19.0	89	89	91	141	20	0.70	4					185.81	220	177.46	220
25	45	24.0	63	63	65	121	25	0.70	4			123.29	250	112.10	250		
25	90	24.0	108	108	110	166	25	0.70	4							283.15	250
28	45	24.0	63	63	65	121	25	0.90	5					132.75	280		
28	90	24.0	108	108	110	166	25	0.90	5							317.17	280
30	45	24.0	63	63	65	121	25	0.90	5					145.12	300		
30	90	24.0	108	108	110	166	25	0.90	5							331.20	300
32	53	31.0	70	70	73	133	32	0.90	6					162.94	320		
32	106	31.0	123	123	126	186	32	0.90	6							334.53	320

Steel	●	●	●	●	●
Stainless steel	●	○	●	○	●
Cast iron	●	●	●	●	●
Non ferrous metals	○	○	○	○	○
Heat resistant alloys	○	○	○	○	○
hardened materials					

→ v_c/f, Page 40-42

Ball nosed end milling cutter HSS-E Co 8



Ti100 Pro



Factory standard Factory standard Factory standard

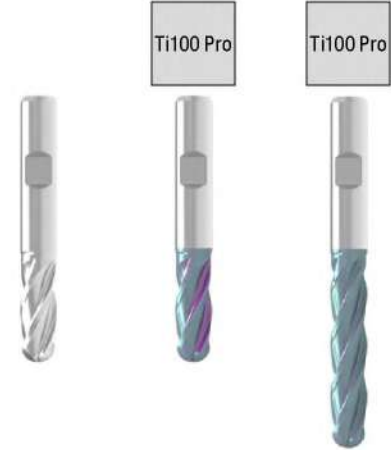
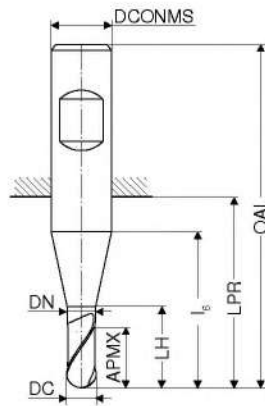


DC _{h10}	APMX	DN	LH	l _b	LPR	OAL	DCONMS _{h6}	ZEFP	U8	U8	U8
mm	mm	mm	mm	mm	mm	mm	mm		Article no.	Article no.	Article no.
2	4		4	10	12	48	6	2	50 320 ...	54 041 ...	50 321 ...
3	5		5	11	13	49	6	2	£ 33.35 020	£ 31.47 020	
3	8		8	18	20	56	6	2	£ 31.69 030	£ 30.33 030	£ 36.91 030
4	7		7	13	15	51	6	2	£ 31.69 040	£ 30.33 040	£ 36.91 040
4	11		11	25	27	63	6	2			
5	8		8	14	16	52	6	2	£ 31.69 050	£ 30.33 050	£ 37.94 050
5	13		13	30	32	68	6	2			
6	8	5.50	14	14	16	52	6	2	£ 31.40 060	£ 30.22 060	£ 38.80 060
6	13	5.50	30	30	32	68	6	2			
7	10	6.50	16	18	20	60	10	2	£ 38.94 070	£ 57.68 070	£ 46.07 070
7	16	6.35	36	38	40	80	10	2			
8	11	7.50	17	19	21	61	10	2	£ 34.74 080	£ 53.60 080	£ 42.57 080
8	19	7.35	44	46	48	88	10	2			
9	11	8.50	18	19	21	61	10	2	£ 41.24 090	£ 62.03 090	£ 47.89 090
9	19	8.35	45	46	48	88	10	2			
10	13	9.50	21	21	23	63	10	2	£ 39.59 100	£ 40.08 100	£ 47.89 100
10	22	9.35	53	53	55	95	10	2			
11	13	10.50	21	23	25	70	12	2	£ 46.19 110		£ 53.33 110
11	22	10.50	53	55	57	102	12	2			
12	16	11.50	26	26	28	73	12	2	£ 44.54 120	£ 46.11 120	£ 54.18 120
12	26	11.50	63	63	65	110	12	2			
13	16	11.50	26	26	28	73	12	2	£ 53.68 130	£ 82.94 130	£ 64.37 140
14	16	11.50	26	26	28	73	12	2	£ 51.61 140	£ 59.17 140	
14	26	11.50	63	63	65	110	12	2			
15	16	11.50	26	26	28	73	12	2	£ 60.75 150	£ 98.37 150	£ 81.53 150
15	26	11.50	63	63	65	110	12	2			
16	19	15.50	29	29	31	79	16	2	£ 63.23 160	£ 100.68 160	£ 81.53 160
16	32	15.00	73	73	75	123	16	2			
18	19	15.50	29	29	31	79	16	2	£ 78.46 180	£ 87.45 180	£ 102.27 180
18	32	15.00	73	73	75	123	16	2			
20	22	19.00	36	36	38	88	20	2	£ 83.70 201	£ 91.05 201	
22	22	19.00	36	36	38	88	20	2	£ 114.27 220		
24	26	23.00	42	44	46	102	25	2	£ 109.31 240	£ 181.88 240	
24	45	23.00	106	108	110	166	25	2			£ 154.00 240
25	26	24.00	44	44	46	102	25	2	£ 109.31 250		
25	45	24.00	108	108	110	166	25	2			£ 144.41 250
26	26	24.00	44	44	46	102	25	2	£ 149.85 260		
28	26	24.00	44	44	46	102	25	2	£ 149.97 280		
30	26	24.00	44	44	46	102	25	2	£ 163.85 300		
30	45	24.00	108	108	110	166	25	2			£ 208.61 300

Steel	●	●	●
Stainless steel	○	○	○
Cast iron	●	●	●
Non ferrous metals	○	○	○
Heat resistant alloys	○	○	○
hardened materials			

→ v_c/f_z Page 40-42

Ball nosed cutter HSS-E Co 8



DIN 1889 B



U8

Article no. 50 308 ...

£ 89.11

060



DIN 1889 B



U8

Article no. 54 038 ...

£ 68.47

060



DIN 1889 B



U8

Article no. 54 039 ...

£ 80.18

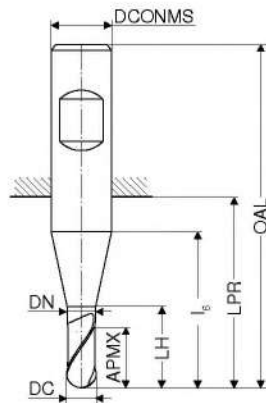
060 ¹⁾

DC _{k12}	APMX	DN	LH	l ₆	LPR	OAL	DCONMS _{h6}	ZEPF
mm	mm	mm	mm	mm	mm	mm	mm	
6	13	5.5	19	19	21	57	6	4
6	24	5.5	30	30	32	68	6	4
8	19	7.5	25	27	29	69	10	4
8	38	7.5	44	46	48	88	10	4
10	22	9.5	30	30	32	72	10	4
10	45	9.5	53	53	55	95	10	4
12	26	11.5	36	36	38	83	12	4
12	53	11.5	63	63	65	110	12	4
16	32	15.0	42	42	44	92	16	4
16	63	15.0	73	73	75	123	16	4
20	38	19.0	52	52	54	104	20	4
20	75	19.0	89	89	91	141	20	4
25	45	24.0	63	63	65	121	25	5

Steel	●	●	●
Stainless steel	○	○	○
Cast iron	●	●	●
Non ferrous metals	○	○	○
Heat resistant alloys	○	○	○
hardened materials			

1) Factory standard

Ball nosed fine rough milling cutter HSS-E Co 8



Ti100 Pro



DIN 1889 B



U8

Article no.
54 040 ...

£

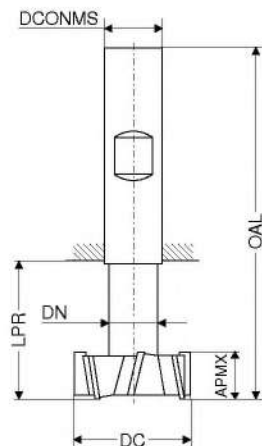
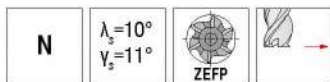
DC _{ist4}	APMX	DN	LH	l _b	LPR	OAL	DCONMS _{h6}	ZEFP	
mm	mm	mm	mm	mm	mm	mm	mm		
6	13	5.5	19	19	21	57	6	4	80.18 060
8	19	7.5	25	27	29	69	10	4	98.87 080
10	22	9.5	30	30	32	72	10	4	99.27 100
12	26	11.5	36	36	38	83	12	4	115.35 120
16	32	15.0	42	42	44	92	16	4	170.64 160
20	38	19.0	52	52	54	104	20	4	208.23 200

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 40-42

T-slot milling cutter HSS-E Co 5, cross pitched

▲ for slots according to DIN 650



DIN 851 A



U6

Article no.
50 240 ...

£

DC _{d11}	APMX _{d11}	DN _{h12}	LPR	OAL	DCONMS _{h6}	ZEFP	£	
11.0	4	4	13.5	53.5	10	6	88.03	110
12.5	6	5	17.0	57.0	10	6	85.84	125
16.0	8	7	22.0	62.0	10	6	97.20	160
18.0	8	8	25.0	70.0	12	6	110.44	180
19.0	9	8	26.0	71.0	12	6	140.78	190 1)
21.0	9	10	29.0	74.0	12	6	126.39	210
22.0	10	10	30.0	75.0	12	6	164.44	220 1)
25.0	11	12	34.0	82.0	16	8	148.61	250
28.0	12	13	37.0	85.0	16	8	200.47	280 1)
32.0	14	15	42.0	90.0	16	8	213.54	320
36.0	16	17	47.0	103.0	25	8	325.69	360 1)
40.0	18	19	52.0	108.0	25	10	435.25	400
45.0	20	21	57.0	113.0	25	10	463.25	450 1)
50.0	22	25	64.0	124.0	32	10	556.30	500
60.0	28	30	79.0	139.0	32	10	727.06	600

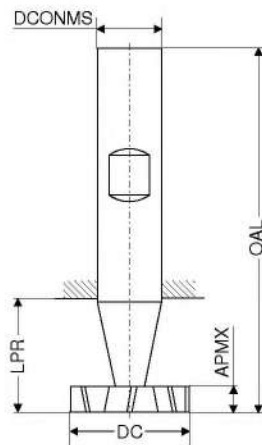
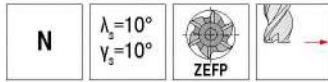
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	

1) Factory standard

Slot milling cutter HSS-E Co 5, cross-pitched

▲ for slots according to DIN 6888

▲ $CDX = a_{pmax}$



DIN 850



U6

Article no.
50 234 ...

DC _{h12}	APMX _{e8}	LPR	OAL	DCONMS _{h5}	CDX	ZEFP	£	
10.5	2.0	14	50	6	3.25	6	66.11	100
10.5	2.5	14	50	6	3.15	6	66.11	101
10.5	3.0	14	50	6	3.15	6	66.11	102
13.5	2.0	16	56	10	4.45	6	66.05	130 1)
13.5	3.0	16	56	10	4.45	6	66.05	132
13.5	4.0	16	56	10	4.45	6	66.05	133
16.5	3.0	16	56	10	5.95	6	71.68	161
16.5	4.0	16	56	10	5.95	6	71.68	162
16.5	5.0	16	56	10	5.75	6	71.68	163
19.5	3.0	23	63	10	6.95	8	79.61	190 1)
19.5	4.0	23	63	10	6.95	8	79.61	191
19.5	5.0	23	63	10	6.75	8	79.61	192
22.5	4.0	23	63	10	8.25	8	93.92	220 1)
22.5	5.0	23	63	10	8.25	8	93.92	221
22.5	6.0	23	63	10	8.00	8	93.92	222
25.5	5.0	23	63	10	9.00	10	97.93	250 1)
25.5	6.0	23	63	10	9.00	10	97.93	251
28.5	6.0	23	63	10	10.00	10	136.46	281
28.5	8.0	23	63	10	10.00	10	136.46	283
32.5	6.0	26	71	12	12.00	10	139.26	321 1)
32.5	8.0	26	71	12	12.00	10	139.26	322
38.5	8.0	26	71	12	13.35	10	202.08	381 1)
45.5	10.0	26	71	12	16.85	12	246.85	450

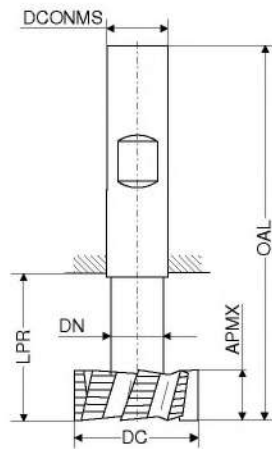
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

1) Factory standard

→ v_d/f_z Page 43

T-slot milling cutter HSS-E Co 5

▲ for slots according to DIN 650



DIN 851 A



U6

Article no.
50 241 ...

£

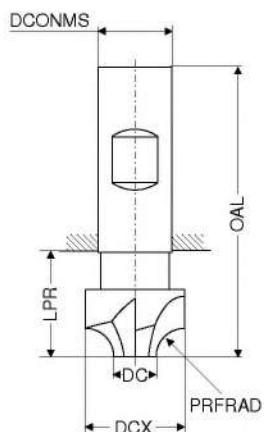
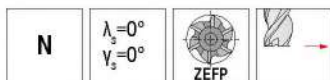
DC _{d11}	APMX	DN _{h12}	LPR	OAL	DCONMS _{n6}	ZEFP	£	
21	9	10	29	74	12	6	184.16	210
22	10	10	30	75	12	6	217.36	220 ¹⁾
25	11	12	34	82	16	6	220.52	250
28	12	13	37	85	16	6	235.92	280 ¹⁾
32	14	15	42	90	16	6	304.77	320
36	16	17	47	103	25	6	376.87	360 ¹⁾
40	18	19	52	108	25	8	458.16	400
45	20	21	57	113	25	8	552.70	450 ¹⁾

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

1) Factory standard

→ v_c/f_z Page 43

Quarter-round profile milling cutter HSS-E Co 5, concave



DIN 6518



U6

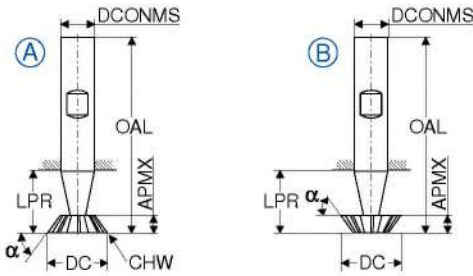
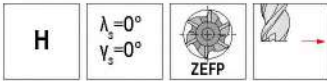
Article no.
50 248 ...

PRFRAD _{H11}	DCX	DC	LPR	OAL	DCONMS _{h6}	ZEFP	£	
1.0	8	6	20	60	10	4	74.30	010
1.5	9	6	20	60	10	4	78.01	015
2.0	10	6	20	60	10	4	74.30	020
2.5	11	6	20	60	10	4	78.01	025
3.0	12	6	15	60	12	4	78.01	030
4.0	14	6	15	60	12	4	83.67	040
5.0	16	6	15	60	12	4	99.23	050
6.0	20	8	19	67	16	4	115.64	060
8.0	24	8	23	71	16	4	136.52	080
9.0	26	8	29	85	25	4	189.96	090
10.0	28	8	29	85	25	4	172.60	100
12.0	34	10	34	90	25	4	247.37	120
15.0	46	16	44	100	25	6	461.51	150
16.0	48	16	44	100	25	6	484.59	160

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 43

Single angle milling cutters HSS-E Co 5



α°	DC	APMX	LPR	OAL	DCONMS _{n6}	CHW	ZEPF	Fig.
	mm	mm	mm	mm	mm	mm		
45	16	4.0	15	60	12	0.3	10	A
	16	4.0	15	60	12		10	B
	20	5.0	18	63	12	0.3	10	A
	20	5.0	18	63	12		10	B
	25	6.3	22	67	12	0.3	10	A
	25	6.3	22	67	12		10	B
60	16	6.3	15	60	12	0.3	10	A
	16	6.3	15	60	12		10	B
	20	8.0	18	63	12	0.3	10	A
	20	8.0	18	63	12		10	B
	25	10.0	22	67	12	0.3	10	A
	25	10.0	22	67	12		10	B
70	16	7.0	15	60	12	0.3	10	A
	20	9.0	18	63	12	0.3	10	A
	25	11.0	19	67	16	0.3	10	A

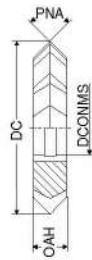
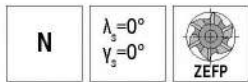
DIN 1833	DIN 1833
B	B
U6	U6
Article no. 50 246 ...	Article no. 50 245 ...
£	£
84.17	73.65
110.87	110.87
131.82	131.82
	84.17
	110.87
	115.35
	112.07
	141.11
	188.58
	216 ¹⁾
	220 ¹⁾
	225 ¹⁾

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

1) Factory standard

Double angle milling cutter HSS

▲ with keyway to DIN 138



DIN 847

PNA °	DC mm	OAH mm	DCONMS mm	ZEFP	DIN 847	
					Article no. 50 360 ...	£
45	50	8	16	22	139.10	045
	63	10	22	24	173.49	145
	80	12	27	26	267.94	245
	100	18	32	28	401.43	345
60	50	10	16	18	139.10	060
	63	14	22	20	193.35	160
	80	18	27	22	310.95	260
90	50	14	16	16	164.97	090
	63	20	22	18	210.32	190
	80	22	27	20	342.26	290
	100	32	32	24	571.91	390
120	50	14	16	16	186.10	120 1)
	63	20	22	16	264.42	121 1)

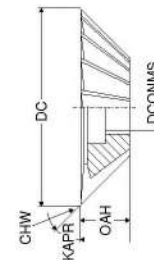
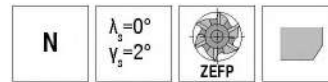
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

1) Factory standard

→ v_c/f_z Page 44

Shell type single angle milling cutter HSS

▲ with keyway to DIN 138



DIN 842 A

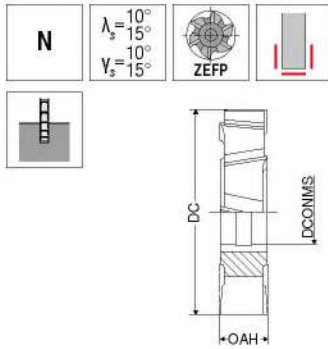
KAPR °	DC mm	OAH mm	DCONMS mm	CHW mm	ZEFP	DIN 842 A	
						Article no. 50 362 ...	£
45	40	10	10	0.3	14	155.44	045
	50	13	13	0.3	16	213.69	145
	63	18	16	0.3	18	270.16	245
	80	22	22	0.3	20	381.53	345
	100	28	27	0.3	22	576.11	445
50	50	16	13	0.3	16	213.69	150
60	40	13	10	0.3	14	139.26	060
	50	16	13	0.3	16	171.05	160
	63	20	16	0.3	18	239.25	260
	80	25	22	0.3	20	383.83	360
	100	32	27	0.3	22	584.70	460
125	40	32	0.3	28	985.04	560	

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 44

Side and face milling cutter HSS-E Co 5

- ▲ Coarse cross-pitched
- ▲ with keyway to DIN 138



DIN 885 A

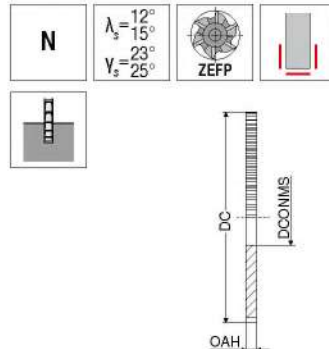
DC _{js16}	OAH _{k11}	DCONMS _{H7}	ZEFF	U6	
				Article no.	£
50	4	16	12	50 348 ...	100
50	5	16	12	50 348 ...	102
50	6	16	12	50 348 ...	104
50	8	16	12	50 348 ...	106
50	10	16	12	50 348 ...	108
63	4	22	12	50 348 ...	200
63	5	22	12	50 348 ...	202
63	6	22	12	50 348 ...	204
63	8	22	12	50 348 ...	206
63	10	22	12	50 348 ...	208
63	12	22	12	50 348 ...	210
63	14	22	12	50 348 ...	212
80	5	27	14	50 348 ...	300
80	6	27	14	50 348 ...	302
80	8	27	14	50 348 ...	304
80	10	27	14	50 348 ...	306
80	12	27	14	50 348 ...	308
80	14	27	14	50 348 ...	310
80	16	27	14	50 348 ...	312
80	18	27	14	50 348 ...	314
80	20	27	14	50 348 ...	316
100	6	32	14	50 348 ...	400
100	8	32	14	50 348 ...	402
100	10	32	14	50 348 ...	404
100	12	32	14	50 348 ...	406
100	14	32	14	50 348 ...	408
100	16	32	14	50 348 ...	410
100	18	32	14	50 348 ...	412
100	20	32	14	50 348 ...	414
100	25	32	14	50 348 ...	418
125	8	32	16	50 348 ...	500
125	10	32	16	50 348 ...	502
125	12	32	16	50 348 ...	504
125	14	32	16	50 348 ...	506
125	16	32	16	50 348 ...	508
125	18	32	16	50 348 ...	510
125	20	32	16	50 348 ...	512
125	25	32	16	50 348 ...	516
160	10	40	18	50 348 ...	600
160	12	40	18	50 348 ...	602
160	14	40	18	50 348 ...	604
160	16	40	18	50 348 ...	606
160	18	40	18	50 348 ...	608
160	20	40	18	50 348 ...	610
160	25	40	18	50 348 ...	614
160	32	40	18	50 348 ...	618

Steel	○
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c/f_z Page 45

Narrow side and face milling cutter HSS-E Co 5

- ▲ Coarse cross-pitched
- ▲ with keyway to DIN 138



Factory standard

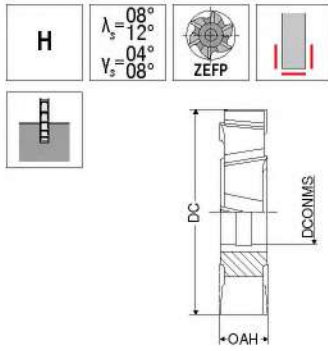
DC _{js16}	OAH _{k11}	DCONMS _{H7}	ZEFF	U6	
				Article no.	£
63	1.6	22	16	50 342 ...	200
63	2.0	22	16	50 342 ...	202
63	2.5	22	16	50 342 ...	204
63	3.0	22	16	50 342 ...	206
80	1.6	27	20	50 342 ...	300
80	2.0	27	20	50 342 ...	302
80	2.5	27	20	50 342 ...	304
80	3.0	27	20	50 342 ...	306
80	4.0	27	20	50 342 ...	310
100	1.6	32	24	50 342 ...	400
100	2.0	32	24	50 342 ...	402
100	2.5	32	24	50 342 ...	404
100	3.0	32	24	50 342 ...	406
100	4.0	32	24	50 342 ...	410
100	5.0	32	24	50 342 ...	414
125	1.6	32	26	50 342 ...	500
125	2.0	32	26	50 342 ...	502
125	2.5	32	26	50 342 ...	504
125	3.0	32	26	50 342 ...	506
125	4.0	32	26	50 342 ...	510
125	5.0	32	26	50 342 ...	514
125	6.0	32	26	50 342 ...	516
160	2.0	40	30	50 342 ...	600
160	2.5	40	30	50 342 ...	602
160	3.0	40	30	50 342 ...	604
160	4.0	40	30	50 342 ...	606
160	5.0	40	30	50 342 ...	608
160	6.0	40	30	50 342 ...	610
160	8.0	40	22	50 342 ...	612

Steel	
Stainless steel	●
Cast iron	
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c/f_z Page 45

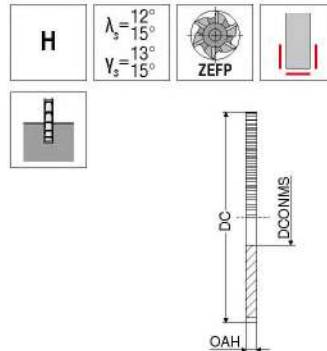
Side and face milling cutter HSS-E Co 5

- ▲ Fine cross-pitched version
- ▲ with keyway to DIN 138



Narrow side and face milling cutter HSS-E Co 5

- ▲ Fine cross-pitched version
- ▲ with keyway to DIN 138



				DIN 885 A	
				U6	
DC _{js16}	OAH _{k11}	DCONMS _{H7}	ZEFP	Article no.	
mm	mm	mm		50 349 ...	£
50	4	16	16	174.59	100
50	5	16	16	175.72	102
50	6	16	16	184.84	104
50	8	16	16	198.67	106
50	10	16	16	217.47	108
63	4	22	18	191.22	200
63	5	22	18	205.46	202
63	6	22	18	197.15	204
63	8	22	18	221.07	206
63	10	22	18	246.66	208
63	12	22	18	280.16	210
63	14	22	18	314.61	212
80	5	27	20	258.16	300
80	6	27	20	266.73	302
80	8	27	20	277.66	304
80	10	27	18	284.59	306
80	12	27	18	320.57	308
80	14	27	18	370.22	310
80	16	27	18	401.33	312
80	18	27	18	462.65	314
80	20	27	18	462.91	316
100	6	32	22	372.43	400
100	8	32	22	370.08	402
100	10	32	20	399.56	404
100	12	32	20	430.96	406
100	14	32	20	480.61	408
100	16	32	20	506.90	410
100	18	32	20	595.59	412
100	20	32	20	599.60	414
100	25	32	20	742.08	418
125	8	32	24	494.46	500
125	10	32	22	530.15	502
125	12	32	22	570.26	504
125	14	32	22	642.75	506
125	16	32	22	666.29	508
125	18	32	22	767.53	510
125	20	32	22	783.31	512
125	25	32	22	937.85	516
160	10	40	26	788.58	600
160	12	40	26	858.57	602
160	14	40	26	921.96	604
160	16	40	26	991.81	606
160	18	40	26	1,089.06	608
160	20	40	26	1,090.18	610
160	25	40	26	1,361.04	614
160	32	40	26	1,710.78	618

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c/f_z Page 45

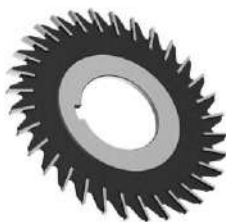
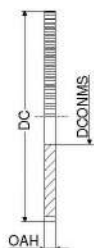
				DIN 1834 A	
				U6	
DC _{js16}	OAH _{k11}	DCONMS _{H7}	ZEFP	Article no.	
mm	mm	mm		50 340 ...	£
63	1.6	22	28	132.64	200
63	2.0	22	28	130.47	202
63	2.5	22	28	133.25	204
63	3.0	22	28	136.96	206
80	1.6	27	32	157.60	300
80	2.0	27	32	153.02	302
80	2.5	27	32	155.65	304
80	3.0	27	32	160.08	306
80	4.0	27	32	171.27	310
100	1.6	32	36	188.44	400
100	2.0	32	36	187.34	402
100	2.5	32	36	187.34	404
100	3.0	32	36	190.64	406
100	4.0	32	36	205.46	410
100	5.0	32	36	225.51	414
125	1.6	32	40	246.82	500
125	2.0	32	40	237.28	502
125	2.5	32	40	244.38	504
125	3.0	32	40	249.16	506
125	4.0	32	40	266.88	510
125	5.0	32	40	285.83	514
125	6.0	32	40	276.31	516
160	2.0	40	48	395.54	600
160	2.5	40	48	380.88	602
160	3.0	40	48	388.08	604
160	4.0	40	48	410.21	606
160	5.0	40	48	434.28	608
160	6.0	40	48	466.25	610
160	8.0	40	36	532.23	612

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c/f_z Page 45

Narrow side and face milling cutter HSS-E Co 5

- ▲ straight cut
- ▲ with keyway to DIN 138



DIN 1834 B

U6

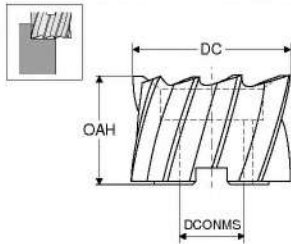
DC _{js16}	OAH _{kt11}	DCONMS _{H7}	ZEFP	Article no.	£
63	1.6	22	32	50 341 ...	173.64 200
63	2.0	22	32		153.73 202
63	2.5	22	32		156.88 204
63	3.0	22	32		161.31 206
80	1.6	27	36		185.67 300
80	2.0	27	36		180.41 302
80	2.5	27	36		183.45 304
80	3.0	27	36		188.29 306
80	4.0	27	36		201.85 310
100	1.6	32	40		222.05 400
100	2.0	32	40		220.80 402
100	2.5	32	40		220.67 404
100	3.0	32	40		224.68 406
100	4.0	32	40		242.26 410
100	5.0	32	40		256.77 414
125	1.6	32	44		299.65 500
125	2.0	32	44		288.19 502
125	2.5	32	44		295.22 504
125	3.0	32	44		302.57 506
125	4.0	32	44		324.01 510
125	5.0	32	44		346.84 514
125	6.0	32	44		335.27 516
160	2.0	40	52		464.01 600
160	2.5	40	52		446.72 602
160	3.0	40	52		455.43 604
160	4.0	40	52		481.18 606
160	5.0	40	52		509.55 608
160	6.0	40	52		547.02 610
160	8.0	40	40		624.37 612

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c/f_z, Page 45

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138



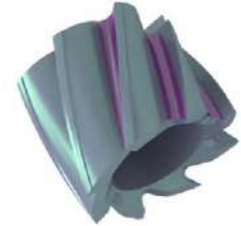
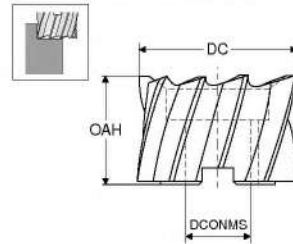
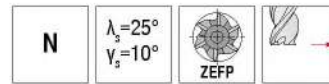
				DIN 1880	
				U8	
				Article no.	
				50 255 ...	
DC _{k10}	OAH	DCONMS	ZEFP	£	
mm	mm	mm			
40	32	16	6	159.50	040
50	36	22	6	203.06	050
63	40	27	6	271.50	063
80	45	27	6	400.66	080
100	50	32	6	649.63	100

Steel	•
Stainless steel	•
Cast iron	•
Non ferrous metals	•
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 46+47

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138



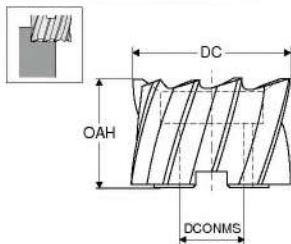
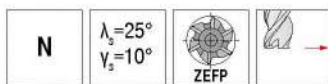
				DIN 1880	
				U8	
				Article no.	
				54 035 ...	
DC _{k10}	OAH	DCONMS	ZEFP	£	
mm	mm	mm			
40	32	16	8	222.42	040
50	36	22	8	272.81	050
63	40	27	8	251.43	063
80	45	27	10	390.86	080
100	50	32	12	655.03	100

Steel	•
Stainless steel	•
Cast iron	•
Non ferrous metals	•
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 46+47

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138



				DIN 1880	
				U8	
				Article no.	
				50 250 ...	
DC _{k10}	OAH	DCONMS	ZEFP	£	
mm	mm	mm			
40	32	16	8	151.52	040
50	36	22	8	194.24	050
63	40	27	8	276.00	063
80	45	27	10	404.86	080
100	50	32	12	644.10	100

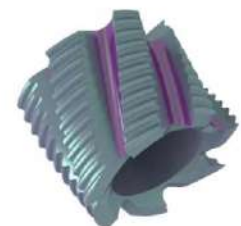
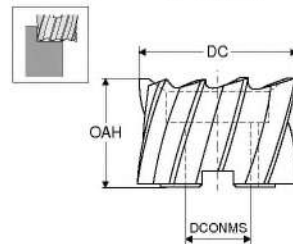
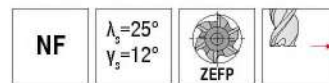
Steel	•
Stainless steel	•
Cast iron	•
Non ferrous metals	•
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 46+47

Roughing-finishing face milling cutters HSS-Co 5

▲ with keyway to DIN 138

▲ Manufacturing tolerance lies on the plus range of the tolerance js14



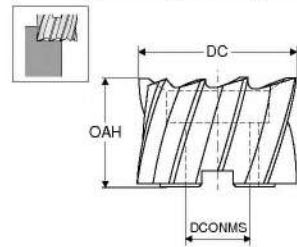
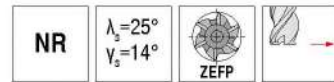
				DIN 1880	
				U8	
				Article no.	
				54 036 ...	
DC _{js14}	OAH	DCONMS	ZEFP	£	
mm	mm	mm			
40	32	16	7	150.11	040
50	36	22	8	192.62	050
63	40	27	8	393.96	063
80	45	27	10	594.28	080
100	50	32	12	886.70	100

Steel	•
Stainless steel	•
Cast iron	•
Non ferrous metals	•
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 46+47

Roughing face milling cutters HSS-E Co 5

- ▲ with keyway to DIN 138
- ▲ Manufacturing tolerance lies on the plus range of the tolerance js14



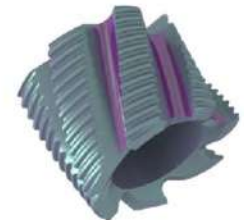
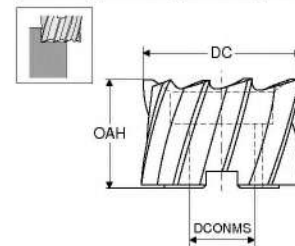
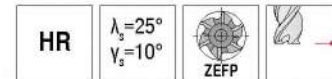
				DIN 1880	
				U8	
				Article no.	
				50 260 ...	
DC _{js14}	OAH	DCONMS	ZEFP	£	
40	32	16	7	154.39	040
50	36	22	8	204.75	050
63	40	27	8	274.08	063
80	45	27	10	378.52	080
100	50	32	12	574.22	100

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c/f_z Page 46+47

Roughing-finishing face milling cutters HSS-E Co 8

- ▲ with keyway to DIN 138
- ▲ Manufacturing tolerance lies on the plus range of the tolerance js14



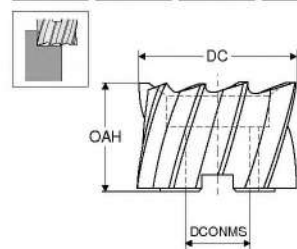
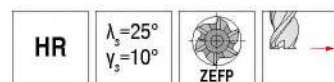
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				U8	
				Article no.	
				54 037 ...	
DC _{js14}	OAH	DCONMS	ZEFP	£	
40	32	16	7	159.02	040
50	36	22	8	196.60	050
63	40	27	8	425.62	063
80	45	27	10	422.63	080
100	50	32	12	678.10	100

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c/f_z Page 46+47

Roughing-finishing face milling cutters HSS-E Co 8

- ▲ with keyway to DIN 138
- ▲ Manufacturing tolerance lies on the plus range of the tolerance js14



				DIN 1880	
				U8	
				Article no.	
				50 297 ...	
DC _{js14}	OAH	DCONMS	ZEFP	£	
40	32	16	7	154.39	040
50	36	22	8	204.75	050
63	40	27	8	274.08	063
80	45	27	10	378.52	080
100	50	32	12	587.71	100

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c/f_z Page 46+47

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	< 1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100-350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300-500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300-500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500-900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270-450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500-650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300-450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500-800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5-10 % Si	< 400 N/mm²	3.2315	A-8 S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10-15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18		A-S17 U4		
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cu b2 (Beryllium Copper)	2.0855	Cu N2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-A11 Fe5 Ni5		Ampco 18 (Cu-A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe- Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30 Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30 Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 CS 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4868	Ni Cr19NbMo (Inconel 718)	2.4802	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46-55 HRC						
	6.3	Tempered steel	56-60 HRC						
	6.4		61-65 HRC						
	6.5		65-70 HRC						

13

Cutting data – slot and end milling cutters

Index	Kf _{fz}	uncoated	Ti100 Pro	Powder steel	● 1st choice	○ suitable
		v _c in m/min			Emulsion	Compressed air
1.1	1,2	30-40	60-80	65-90	●	
1.2	1,2	25-35	50-65	55-75	●	
1.3	1,2	20-30	45-55	50-65	●	
1.4	1	15-25	40-55	45-65	●	
1.5	1,2	20-30	45-55	50-60	●	
1.6	1	15-20	30-35	35-45	●	
1.7	1,2	20-30	40-55	45-65	●	
1.8	0,8	15-20	30-35	35-45	●	
1.9	1,2	20-30	45-55	50-60	●	
1.10	1	15-20	30-35	35-45	●	
1.11	0,8	15-20	30-35	35-45	●	
1.12	0,8	15-20	30-35	35-45	●	
1.13						
1.14						
1.15	0,8	12-18	25-30	30-40	●	
1.16	0,8	10-15	20-25	25-35	●	
2.1	1	10-15	20-30	25-35	●	
2.2	1	10-15	20-30	25-35	●	
2.3	1	8-12	15-25	20-30	●	
2.4	0,9	7-10	15-20	20-30	●	
2.5	1	5-8	10-15	15-20	●	
2.6	1	10-15	20-30	25-35	●	
2.7						
3.1	1	18-25	35-45	40-55	●	
3.2	1	18-25	25-30	30-40	●	
3.3	1	15-20	30-35	35-45	●	
3.4	1	15-20	30-35	35-45	●	
3.5	1	15-25	35-40	40-50	●	
3.6	1	15-20	35-40	40-50	●	
3.7	1	15-20	30-35	35-45	●	
3.8	0,8	12-18	25-30	30-40	●	
4.1	1,9	150-180	240-280	260-300	●	
4.2	1,9	100-130	130-160	150-180	●	
4.3	1,8		100-140	140-160	●	
4.4	1,7		60-130	80-150	●	
4.5						
4.6	1,2	30-50	60-80	80-100	●	
4.7	1,1		110-150	130-170	●	
4.8	0,9	5-10	10-15	20-25	●	
4.9						
4.10						
4.11	1,1		100-140	130-170	●	
4.12	1,1	80-120	120-150	140-180	●	
4.13	2	20-30	25-45	40-60	●	
4.14	2	30-40	50-70	70-90	●	
4.15						
4.16	1,8	90-120	140-170	160-190		●
4.17	1		30-40	40-50		●
4.18	1,1		10-20	15-25	●	
4.19						
5.1	1,1	5-10	10-15	15-20	●	
5.2						
5.3						
5.4						
5.5						
5.6						
5.7						
5.8						
5.9	1	10-15	15-25	25-35	●	
5.10	1,1	10-15	15-20	25-35	●	
5.11						
6.1						
6.2						
6.3						
6.4						
6.5						

i For full slot milling reduce the cutting speed (v_c), indicated in this table by approx. 15-20 %!

Kff_z = Correction factor for feed per tooth

Feed per tooth for HSS end mills

Approximate values (in mm) for the feed per tooth (f_z)

Peripheral milling												Full slot milling	
Ø DC mm	f_z in mm		f_z in mm		f_z in mm		f_z in mm		f_z in mm		f_z in mm		
	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	
2	0,008	0,009	0,008	0,009	0,008	0,009							
3	0,011	0,012	0,010	0,012	0,009	0,010							
4	0,017	0,018	0,014	0,015	0,013	0,014	0,015	0,016	0,013	0,014	0,011	0,012	
5	0,024	0,026	0,018	0,020	0,014	0,015	0,019	0,021	0,016	0,018	0,014	0,016	
6	0,032	0,035	0,022	0,024	0,015	0,017	0,024	0,027	0,020	0,022	0,018	0,019	
8	0,047	0,051	0,029	0,032	0,020	0,022	0,032	0,036	0,027	0,030	0,024	0,026	
10	0,065	0,072	0,037	0,041	0,026	0,028	0,042	0,047	0,035	0,039	0,031	0,034	
12	0,084	0,091	0,044	0,049	0,031	0,034	0,051	0,057	0,043	0,047	0,037	0,041	
14	0,100	0,106	0,054	0,059	0,037	0,041	0,063	0,069	0,053	0,058	0,045	0,050	
16	0,111	0,121	0,061	0,067	0,042	0,046	0,072	0,079	0,060	0,066	0,052	0,057	
18	0,126	0,136	0,070	0,077	0,048	0,053	0,084	0,093	0,071	0,078	0,061	0,067	
20	0,141	0,151	0,076	0,083	0,052	0,057	0,092	0,101	0,077	0,084	0,066	0,073	
22	0,160	0,166	0,085	0,094	0,059	0,065	0,104	0,114	0,087	0,096	0,075	0,082	
25	0,170	0,188	0,095	0,104	0,065	0,072	0,117	0,129	0,098	0,108	0,084	0,093	
28	0,196	0,210	0,109	0,120	0,075	0,083	0,136	0,150	0,114	0,125	0,098	0,108	
32	0,212	0,240	0,124	0,137	0,086	0,094	0,157	0,173	0,131	0,145	0,113	0,125	
36	0,224	0,240	0,144	0,159	0,099	0,109	0,170	0,194	0,142	0,162	0,126	0,140	
40	0,240	0,240	0,157	0,173	0,108	0,119	0,184	0,202	0,154	0,169	0,132	0,146	
45	0,240	0,240	0,157	0,173	0,108	0,119	0,200	0,220	0,170	0,180	0,140	0,160	
50	0,240	0,240	0,157	0,173	0,108	0,119	0,200	0,220	0,170	0,180	0,140	0,160	

i Attention:
In the case of uncoated milling cutters climb milling is preferred to conventional milling. When using coated milling cutters climb milling is necessary in order to achieve optimum results.

i Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor $K_f f_z$** from the table on → **page 40**.

In general the following is valid:
 f_z (milling) = $f_z \times K_f f_z$
 f_z (drilling) = f_z (milling) ÷ no. of teeth

Feed per tooth when milling parallel key slots with HSS slot drills

Approximate values (in mm) for the feed per tooth (f_z)

Ø DC mm	Full slot milling (in one cut)		Profile slot milling (internal profile milling)				Circular ramping			
			Roughing cut		Finishing cut					
	f_z in mm		f_z in mm				f_z in mm			
	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated
2	0,005	0,006	0,005	0,006	0,008	0,009	0,003	0,003	0,002	0,002
3	0,009	0,010	0,009	0,010	0,015	0,016	0,004	0,005	0,003	0,003
4	0,012	0,013	0,012	0,013	0,022	0,024	0,006	0,007	0,004	0,004
5	0,016	0,017	0,016	0,017	0,030	0,033	0,008	0,009	0,005	0,006
6	0,020	0,022	0,020	0,022	0,039	0,043	0,010	0,011	0,007	0,007
8	0,026	0,029	0,026	0,029	0,055	0,061	0,013	0,014	0,009	0,010
10	0,034	0,037	0,034	0,037	0,075	0,082	0,017	0,019	0,011	0,012
12	0,040	0,044	0,040	0,044	0,093	0,101	0,020	0,022	0,013	0,015
14	0,049	0,054	0,049	0,054	0,117	0,118	0,024	0,027	0,016	0,018
16	0,056	0,062	0,056	0,062	0,135	0,135	0,028	0,031	0,019	0,021
18	0,065	0,072	0,065	0,072	0,151	0,151	0,033	0,036	0,022	0,024
20	0,071	0,078	0,071	0,078	0,167	0,167	0,035	0,039	0,024	0,026
22	0,080	0,088	0,080	0,088	0,184	0,184	0,040	0,044	0,027	0,029
25	0,089	0,098	0,089	0,098	0,208	0,208	0,044	0,049	0,030	0,033
28	0,103	0,113	0,103	0,113	0,233	0,233	0,051	0,056	0,034	0,037
32	0,118	0,130	0,118	0,130	0,260	0,260	0,060	0,065	0,040	0,043
36	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
40	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
45	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
50	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043

Attention:
In the case of uncoated milling cutters climb milling is preferred to conventional milling. When using coated milling cutters climb milling is necessary in order to achieve optimum results.

Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor $K_f f_z$** from the table on → **page 40**.

In general the following is valid:
 f_z (milling) = f_z x $K_f f_z$
 f_z (drilling) = f_z (milling) ÷ no. of teeth

Cutting data – form cutters

Index	50 241 ...					50 240 ...					50 234 ...					50 248 ...					● 1st choice		○ suitable	
	V _c m/min	f _z mm				V _c m/min	f _z mm				V _c m/min	f _z mm				V _c m/min	f _z mm				Emulsion	Compressed air	MMS	
		∅ DC 21-25 mm	∅ DC 28-36 mm	∅ DC 40-45 mm	∅ DC 11-16 mm		∅ DC 18-22 mm	∅ DC 25-32 mm	∅ DC 36-45 mm	∅ DC 50-60 mm		∅ DC 10-17 mm	∅ DC 19-26 mm	∅ DC 28-33 mm	∅ DC 33-46 mm		∅ DC 8-11 mm	∅ DC 12-24 mm	∅ DC 26-34 mm	∅ DC 46-48 mm				
1.1	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●					
1.2	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●					
1.3	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●					
1.4	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●					
1.5	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●					
1.6	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●					
1.7	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●					
1.8																								
1.9	20	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	20	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●					
1.10																								
1.11																								
1.12																								
1.13																								
1.14																								
1.15																								
1.16																								
2.1	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●					
2.2	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●					
2.3	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●					
2.4																								
2.5																								
2.6	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●					
2.7																								
3.1	28	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	24	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●					
3.2																								
3.3	22	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	22	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●					
3.4	20	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	20	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●					
3.5	20	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	20	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●					
3.6	15	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	15	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●					
3.7	20	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	20	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●					
3.8	15	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	15	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●					
4.1	100	0,1	0,12	0,15	0,02	0,045	0,045	0,045	0,055	90	0,03	0,04	0,06	0,07	0,035	0,07	0,14	0,15						
4.2	100	0,1	0,12	0,15	0,02	0,045	0,045	0,045	0,055	90	0,03	0,04	0,06	0,07	0,035	0,07	0,14	0,15	●					
4.3	80	0,09	0,11	0,13	0,015	0,04	0,035	0,04	0,045	80	0,03	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●					
4.4	60	0,09	0,11	0,13	0,015	0,04	0,035	0,04	0,045	60	0,03	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●					
4.5																								
4.6	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03	0,035	25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●					
4.7	20	0,08	0,1	0,12	0,015	0,04	0,035	0,03	0,035	20	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●					
4.8																								
4.9																								
4.10																								
4.11	50	0,09	0,11	0,13	0,015	0,03	0,03	0,03	0,04	45	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●					
4.12	25	0,09	0,11	0,13	0,015	0,03	0,03	0,03	0,04	25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●					
4.13	80	0,12	0,15	0,18	0,025	0,06	0,055	0,055	0,07	80	0,04	0,05	0,07	0,09	0,045	0,1	0,18	0,18	●					
4.14	65	0,12	0,15	0,18	0,025	0,06	0,055	0,055	0,07	65	0,04	0,05	0,07	0,09	0,045	0,1	0,18	0,18	●					
4.15																								
4.16	70	0,1	0,12	0,15	0,018	0,04	0,03	0,035	0,045	70	0,03	0,035	0,05	0,06	0,025	0,06	0,1	0,12	●					
4.17																								
4.18																								
4.19																								
5.1																								
5.2																								
5.3																								
5.4																								
5.5																								
5.6																								
5.7																								
5.8																								
5.9	20	0,06	0,08	0,1	0,012	0,025	0,025	0,025	0,035	20	0,015	0,025	0,035	0,045	0,02	0,05	0,07	0,09						
5.10																								
5.11																								
6.1																								
6.2																								
6.3																								
6.4																								
6.5																								

i The cutting data depends largely on the external conditions, e.g. stability of the tools and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data – form cutters

Index	50 245 ... / 50 246 ...				50 360 ...				50 362 ...				● 1st choice		○ suitable	
	V _c m/min	f _z mm			V _c m/min	f _z mm			V _c m/min	f _z mm			Emulsion	Compressed air	MMS	
		∅ DC 16 mm a _e =3,2	∅ DC 20 mm a _e =4	∅ DC 25 mm a _e =5		∅ DC 50 mm a _e =5	∅ DC 63 mm a _e =6,3	∅ DC 80 mm a _e =8		∅ DC 100 mm a _e =10	∅ DC 40-50 mm	∅ DC 63 mm				∅ DC 80 mm
1.1	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
1.2	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
1.3	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
1.4	28	0,01	0,015	0,018	22	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
1.5	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
1.6	22	0,01	0,015	0,018	20	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
1.7	22	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
1.8																
1.9	20	0,01	0,015	0,015	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
1.10																
1.11																
1.12																
1.13																
1.14																
1.15																
1.16																
2.1	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
2.2	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
2.3	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
2.4																
2.5																
2.6	10	0,007	0,01	0,015										●		
2.7																
3.1	24	0,01	0,012	0,015	19	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
3.2					12	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
3.3	22	0,01	0,012	0,015	15	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
3.4	20	0,01	0,012	0,015	12	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
3.5	20	0,01	0,012	0,015	16	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
3.6	15	0,01	0,012	0,015												
3.7	20	0,01	0,012	0,015	13	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
3.8	15	0,01	0,012	0,015												
4.1	90	0,01	0,015	0,02												
4.2	90	0,01	0,015	0,02	70	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
4.3	80	0,01	0,015	0,02	60	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
4.4	60	0,01	0,015	0,02	60	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
4.5																
4.6	25	0,01	0,015	0,02	18	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
4.7	20	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
4.8																
4.9																
4.10																
4.11	45	0,01	0,015	0,02	40	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
4.12	25	0,01	0,015	0,015	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
4.13	80	0,018	0,02	0,025	65	0,015	0,02	0,025	0,03	0,008	0,012	0,018	0,022	●		
4.14	65	0,018	0,02	0,025	60	0,015	0,02	0,025	0,03	0,008	0,012	0,018	0,022	●		
4.15																
4.16	70	0,01	0,015	0,0175	45	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,01	●		
4.17																
4.18																
4.19																
5.1																
5.2																
5.3																
5.4																
5.5																
5.6																
5.7																
5.8																
5.9	20	0,008	0,01	0,015	20	0,008	0,01	0,012	0,016	0,005	0,007	0,009	0,012	●		
5.10																
5.11																
6.1																
6.2																
6.3																
6.4																
6.5																

i The cutting data depends largely on the external conditions, e.g. stability of the tools and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data – side and face cutters

Index	v _c in m/min	uncoated						1st choice		suitable	
		∅ DC 50 mm	∅ DC 63 mm	∅ DC 80 mm	∅ DC 100 mm	∅ DC 125 mm	∅ DC 160 mm	Emulsion	Compressed air	MMS	
		f _z mm									
1.1	30-40	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,095-0,11	0,1-0,12	●			
1.2	30-40	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,095-0,11	0,1-0,12	●			
1.3	30-40	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,095-0,11	0,1-0,12	●			
1.4	20-30	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
1.5	20-25	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,095-0,11	0,1-0,12	●			
1.6	15-30	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
1.7	20-25	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
1.8	10-15	0,03-0,04	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	●			
1.9	18-25	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
1.10	15-30	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
1.11	12-18	0,03-0,04	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	●			
1.12	15-20	0,03-0,04	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	●			
1.13											
1.14											
1.15	10-15	0,03-0,04	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	●			
1.16	10-15	0,03-0,04	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	●			
2.1	12-18	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
2.2	10-15	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
2.3	8-12	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
2.4	7-10	0,03-0,04	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	●			
2.5	5-8	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
2.6	10-15	0,03-0,04	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	●			
2.7											
3.1	20-30	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
3.2	18-25	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
3.3	18-25	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
3.4	15-20	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
3.5	25-35	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
3.6	18-25	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
3.7	25-35	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
3.8	18-25	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
4.1	150-180	0,06-0,075	0,075-0,09	0,009-0,1	0,01-0,12	0,12-0,135	0,135-0,15	●			
4.2	100-130	0,06-0,075	0,075-0,09	0,009-0,1	0,01-0,12	0,12-0,135	0,135-0,15	●			
4.3	80-100	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,095-0,11	0,1-0,12	●			
4.4	40-60	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,095-0,11	0,1-0,12	●			
4.5											
4.6	30-50	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,095-0,11	0,1-0,12	●			
4.7	90-110	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
4.8	5-10	0,03-0,04	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	●			
4.9											
4.10											
4.11	80-100	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
4.12	80-120	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
4.13	20-30	0,08-0,1	0,1-0,12	0,12-0,14	0,14-0,16	0,16-0,18	0,18-0,2	●			
4.14	30-40	0,08-0,1	0,1-0,12	0,12-0,14	0,14-0,16	0,16-0,18	0,18-0,2	●			
4.15											
4.16	90-120	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,095-0,11	0,1-0,12		●		
4.17											
4.18											
4.19											
5.1	5-10	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
5.2											
5.3											
5.4											
5.5											
5.6											
5.7											
5.8											
5.9	10-15	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
5.10	10-15	0,04-0,05	0,05-0,06	0,06-0,07	0,07-0,08	0,08-0,09	0,09-0,1	●			
5.11											
6.1											
6.2											
6.3											
6.4											
6.5											

i Feed correction factor (Kf f_z) for side and face cutters in relation to the cutting depth (a_e)

a _e	Kf f _z
0,05 x DC	1,4
0,1 x DC	1,0
0,15 x DC	0,8
0,2 x DC	0,7
0,25 x DC	0,6

i The indicated feed rates apply to straight pitched cutters with a cutting depth of 0,1 x DC! With cross-pitched cutters the feed rate is to be reduced by 50 %!

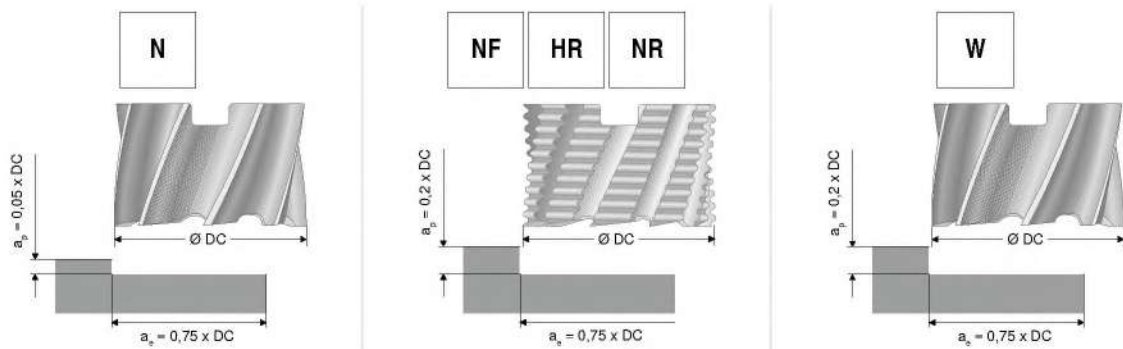
Cutting data – face mills

Index	Kf f _z	v _c in m/min		● 1st choice		○ suitable	
		uncoated	Ti100 Pro	Emulsion	Compressed air	MMS	
1.1	1,2	25–30	50–60	●			
1.2	1,2	25–30	45–55	●			
1.3	1,2	25–30	45–55	●			
1.4	1	20–25	40–50	●			
1.5	1,2	20–25	40–50	●			
1.6	1	15–30	30–40	●			
1.7	1,2	20–25	40–50	●			
1.8	0,8	10–15	20–30	●			
1.9	1,2	18–25	35–45	●			
1.10	1	15–30	30–40	●			
1.11	0,8	12–18	25–35	●			
1.12	0,8	15–20	30–40	●			
1.13							
1.14							
1.15	0,8	10–15	20–30	●			
1.16	0,8	10–15	20–30	●			
2.1	1	12–18	20–25	●			
2.2	1	10–15	15–20	●			
2.3	1	8–12	20–25	●			
2.4	0,9	7–10	15–20	●			
2.5	1	5–8	10–15	●			
2.6	1	10–15	15–20	●			
2.7							
3.1	1	20–30	30–40	●			
3.2	1	18–25	30–35	●			
3.3	1	18–25	30–35	●			
3.4	1	15–20	25–30	●			
3.5	1	25–35	35–40	●			
3.6	1	18–25	30–35	●			
3.7	1	25–35	35–40	●			
3.8	1	18–25	30–35	●			
4.1	1,5	150–180		●			
4.2	1,5	100–130		●			
4.3	1,3	80–100		●			
4.4	1,3	40–60		●			
4.5							
4.6	1,2	30–50	60–80	●			
4.7	1,1	90–110	120–150	●			
4.8	0,9	5–10	10–15	●			
4.9							
4.10							
4.11	1,1	80–100	110–140	●			
4.12	1,1	80–120	120–150	●			
4.13	2	20–30	25–45	●			
4.14	2	30–40	50–70	●			
4.15							
4.16	1,3	90–120	120–140		●		
4.17	1		30–40		●		
4.18	1,1		15–25	●			
4.19							
5.1	1,1	5–10	10–15	●			
5.2							
5.3							
5.4							
5.5							
5.6							
5.7							
5.8							
5.9	1	10–15	15–25	●			
5.10	1,1	10–15	15–20	●			
5.11	0,8		10–15	●			
6.1							
6.2							
6.3							
6.4							
6.5							

i Kf f_z = Correction factor for feed per tooth

Feed per tooth for HSS face mills

Approximate values (in mm) for the feed per tooth (f_z)



Ø DC mm	f _z in mm		f _z in mm		f _z in mm
	uncoated	Ti100 Pro	uncoated	Ti100 Pro	uncoated
40	0,049	0,054	0,064	0,070	0,060
50	0,055	0,060	0,071	0,078	0,066
63	0,061	0,067	0,079	0,087	0,074
80	0,065	0,071	0,084	0,092	0,078
100	0,059	0,065	0,076	0,084	0,071

i Feed rate correction:

Please multiply the f_z value in the table above with the corresponding **correction factor Kf** f_z from the table on → **page 46**.

In general the following is valid:

$$f_z \text{ (milling)} = f_z \times Kf f_z$$

$$f_z \text{ (drilling)} = f_z \text{ (milling)} \div \text{no. of teeth}$$

Formula for cutting data calculation

Designation	Abbreviation	Unit	Formula
Number of revolutions	n	min ⁻¹	$n = \frac{v_c \times 1000}{DC \times \pi}$
Cutting speed	v_c	m/min	$v_c = \frac{DC \times \pi \times n}{1000}$
Feed per tooth	f_z	mm	$f_z = \frac{v_f}{Z \times n}$ $f_z = h_m \times \sqrt{\frac{DC}{a_e}}$
Feed per revolution	f	mm	$f = f_z \times Z$
Feed rate	v_f	mm/min	$v_f = f_z \times Z \times n$
Average chip thickness	h_m	mm	$h_m = f_z \times \sqrt{\frac{a_e}{DC}}$

Z = Number of teeth

a_e = Cutting width (for side milling cutter cutting depth)

DC = Cutting diameter

Coating

Ti100 Pro	<ul style="list-style-type: none"> ▲ Ti multilayer coating ▲ HV0.05 = 3500 ▲ Coefficient of friction (against steel) = 0.7 ▲ Maximum application temperature: 900 °C
-----------	--

New products for machining technicians

NEW MonsterMill – TCR



TCR

→ Page 23-27

High-performance milling cutter for machining titanium and heat-resistant materials

NEW MonsterMill – HCR



HCR

→ Page 28-33

The specialist for hardened steels

NEW CircularLine – CCR-Ti



CCR
Ti

→ Page 46

Trochoidal milling cutter for titanium and heat-resistant materials

NEW CircularLine – CCR-H



CCR
H

→ Page 47

Trochoidal milling cutter for hardened steels

NEW MultiChange – Torus cutter



AL

→ Page 119

High-volume milling cutter for aluminium machining

NEW MultiChange – Shoulder mill



PCR
UNI

PCR
ALU

→ Page 120

PCR plunge milling cutter – now also with MultiChange interface

NEW Circular saw blades



→ Page 228-230





Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 EcoCut

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

14

15 Milling tools with indexable inserts

Tool Clamping

16 Adapters

17 Accessories

18 Material examples and article no. index

Table of contents

Symbol explanation	2
Toolfinder	3-5
List of contents	6-12
Product programme	13-242
Technical Information	
Selection guide for cutters for plastic, fiberglass, carbon fibre	231
Cutting Data	243-355
Approximate feed rates	356
Slot milling via Trochoidal procedures	357
General references	358-362
Coatings	363

WNT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

WNT \ Standard

Quality tools for standard applications.

The quality tools of the **WNT Standard** product line are high quality, powerful and reliable and enjoy the highest trust of our customers worldwide. Tools from this product line are the first choice for many standard applications and guarantee optimal results.

Symbol explanation

Shank



Shank type



Length: extra short / short / medium / long / extra long



Central internal coolant



Lateral internal coolant

Cutting edge preparation



Sharp



Chamfer (CHW = chamfer width in mm)



Radius



Full Radius

Application



High volume machining



High-feed milling



Hard materials



Machining example



The red arrows describe the possible feed directions



Number of teeth



Cutting geometry
 $\lambda_s = 48^\circ$
 λ_s = Helix Angle
 $\gamma_s = 10^\circ$
 γ_s = Rake Angle

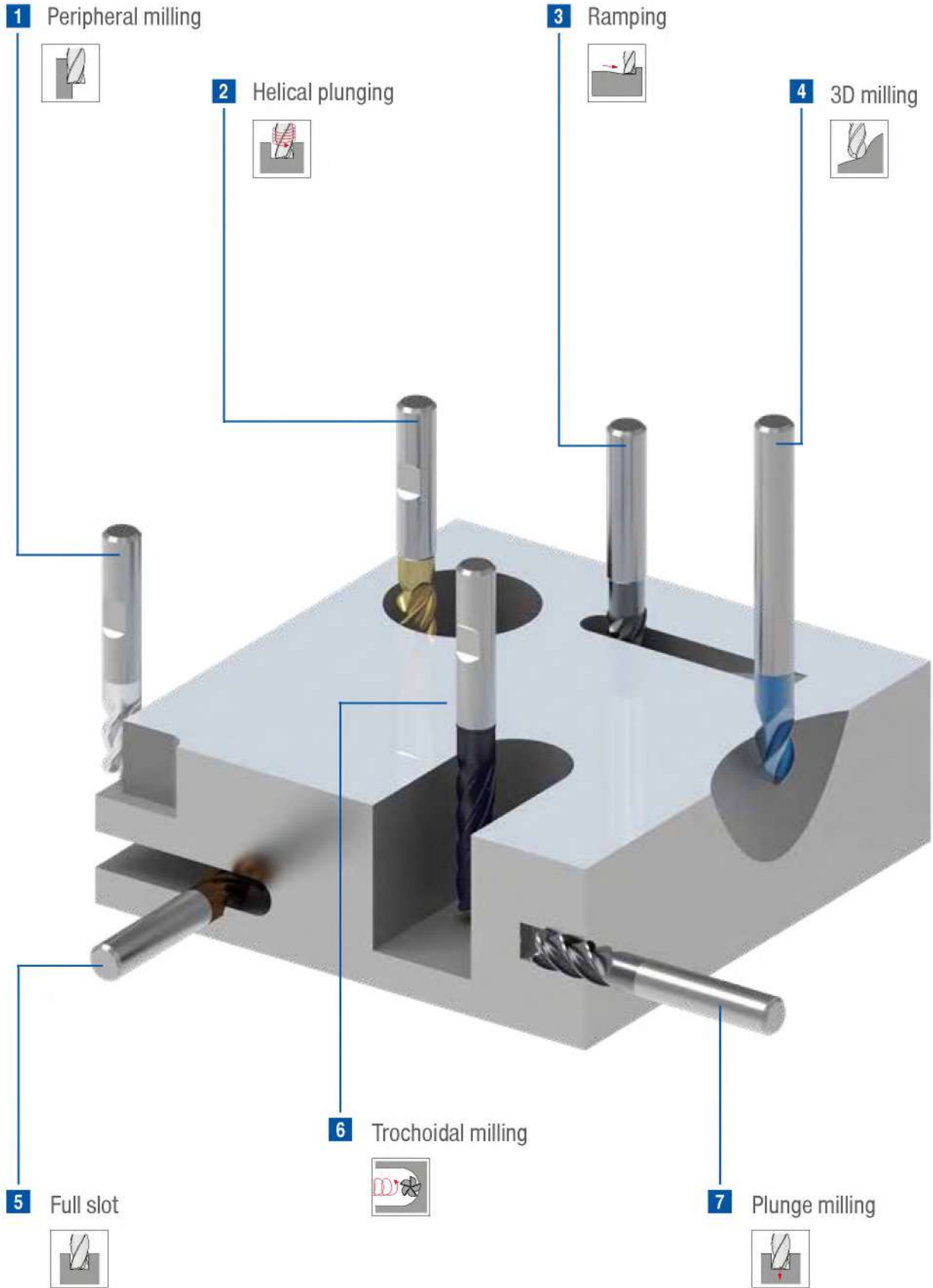


Trochoidal milling



- = Main Application
- = Extended application

Toolfinder for High Performance Milling Cutters



Toolfinder for High Performance Milling Cutters

	1	2	3	4
	Peripheral milling	Helical plunging	Ramping	3D milling
Steel	S-Cut MonsterMill – SCR SilverLine	MCR MonsterMill – PCR	MCR MonsterMill – PCR	MonsterMill – SCR SilverLine
Stainless steel	S-Cut MonsterMill – ICR SilverLine	MonsterMill – PCR MonsterMill – ICR	MonsterMill – PCR MonsterMill – ICR	SilverLine
Cast iron	S-Cut MonsterMill – SCR SilverLine	MCR MonsterMill – PCR	MCR MonsterMill – PCR	MonsterMill – SCR SilverLine
Non-ferrous metals	AluLine	MonsterMill – PCR AluLine	MonsterMill – PCR AluLine	AluLine
Heat resistant alloys	MonsterMill – ICR MonsterMill – TCR	MonsterMill – ICR MonsterMill – TCR	MonsterMill – ICR MonsterMill – TCR	MonsterMill – TCR
Hardened steel < 55 HRC	BlueLine	BlueLine	BlueLine	BlueLine
Hardened steel > 55 HRC	MonsterMill – HCR	MonsterMill – HCR	MonsterMill – HCR	MonsterMill – HCR

MonsterMill – SCR Page 13-20

▲ THE specialist for machining steel

SCR















MonsterMill – ICR Page 21+22

▲ THE specialist for machining stainless steel

ICR


















MonsterMill – TCR Page 23-27


▲ THE specialist for machining titanium


TCR

















MonsterMill – HCR Page 28-33

▲ THE specialist for finish machining up to 70 HRC hardness

HCR















MonsterMill – PCR Page 34-36

▲ THE specialist for ramping and helical milling
▲ Available versions: PCR-UNI, PCR-ALU

PCR















MonsterMill – MCR Page 37

▲ THE specialist for rough machining

MCR


















	5	6	7
	Full slot 	Trochoidal milling 	Plunge milling 
	S-Cut MonsterMill – SCR SilverLine	CircularLine	MonsterMill – PCR
	S-Cut MonsterMill – ICR SilverLine	CircularLine	
	S-Cut MonsterMill – SCR SilverLine	CircularLine	MonsterMill – PCR
	AluLine	CircularLine	MonsterMill – PCR
	MonsterMill – ICR MonsterMill – TCR	CircularLine	
	BlueLine	CircularLine	
		CircularLine	

CircularLine Page 38-47

- ▲ THE specialist for trochoidal milling
- ▲ Available versions: CCR-UNI, CCR-AL, CCR-Ti, CCR-H

CCR 



 HB

 Ø DC mm
4-6 6-20

SilverLine Page 70-81

- ▲ THE all-rounder for universal use

N 



 HA HB

 Ø DC mm
3-6 3-25

BlueLine Page 88-113

- ▲ For all types of machining in hardened steels up to 65 HRC

H 




 HA HB

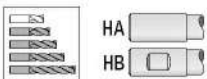
 Ø DC mm
2-10 0,1-20

AluLine Page 48-69

- ▲ THE specialist for machining non-ferrous metals

W 



 HA HB

 Ø DC mm
2-6 2-25

S-Cut Page 82-87

- ▲ All-rounder with soft cut and low power consumption

SC UNI 




















 HB

 Ø DC mm
4-5 3-25

Overview High Performance Milling Cutters

Tool type	Number of teeth	Diameter in mm Ø DC	Material					Edge				Length	Tool design	Coating		WNT \ Performance	
			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Sharp	Chamfer	Radius			Full Radius	coated		uncoated
MonsterMill																	
	SCR	4-6	3-20	●	○	●	○	○	○					HPC	■		13-18
	SCR	3-4	3-16	●	○	●	○	○	○					HPC	■		19
	SCR	4	3-16	●	○	●	○	○	○					HPC	■		20
	ICR	3-5	1,5-20	○	●	○	●	○	○					HPC	■		21+22
	TCR	4-5	4-20		○			●						HPC	■	□	23-25
	TCR	4	2-16		○			●							■	□	26
	TCR	2-5	2-16		○			●						HPC	■	□	27
	HCR	2-4	0,2-12	○				●							■		28-30
	HCR	2-4	0,2-12	○				●							■		31-33
	PCR UNI	4	5,7-20	●	○	●								HPC	■		34+35
	PCR ALU	4	5-20			●								HPC	■		36
	MCR	3-4	1-20	●	○	●	○	○	○					HPC	■		37
CircularLine																	
	CCR UNI	5-6	6-20	●	○	●								HPC	■		38-42
	CCR AL	4	6-20			●									■		43-45
	CCR Ti	5	6-20		○			●						HPC	■	□	46
	CCR H	6	6-20					●							■		47

Overview High Performance Milling Cutters

Tool type	Number of teeth	Diameter in mm Ø DC	Material					Sharp	Chamfer	Radius	Full Radius	Length	Tool design	Coating		WNT \ Performance
			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys							hardened materials	coated	
AluLine																
	W	2	2-20	HA										<input checked="" type="checkbox"/>	<input type="checkbox"/>	48+49
	W	3	3-20	HA										<input checked="" type="checkbox"/>	<input type="checkbox"/>	50+51
	W	3	3-20	HA								HPC		<input checked="" type="checkbox"/>	<input type="checkbox"/>	52-54
	W	3	5-20	HA										<input type="checkbox"/>	<input type="checkbox"/>	55+56
	W	3	3-20	HA								HPC		<input checked="" type="checkbox"/>	<input type="checkbox"/>	57-59
	WF	3	5-20	HA										<input checked="" type="checkbox"/>	<input type="checkbox"/>	60
	WR	3	6-20	HA								HPC		<input checked="" type="checkbox"/>	<input type="checkbox"/>	61+62
	W	4	3-25	HA								HPC		<input checked="" type="checkbox"/>	<input type="checkbox"/>	63-67
	W	6	6-20	HA								HPC		<input checked="" type="checkbox"/>	<input type="checkbox"/>	68
	W	2	3-20	HA										<input type="checkbox"/>	<input type="checkbox"/>	69
SilverLine																
	N	3	3-20									HPC		<input checked="" type="checkbox"/>	<input type="checkbox"/>	70+71
	N	4	3-20									HPC		<input checked="" type="checkbox"/>	<input type="checkbox"/>	72-77
	N	6	6-25	HA										<input checked="" type="checkbox"/>	<input type="checkbox"/>	78
	N	3	4-20	HA								HPC		<input checked="" type="checkbox"/>	<input type="checkbox"/>	79
	H	4	6-20	HA								HPC		<input checked="" type="checkbox"/>	<input type="checkbox"/>	80+81
S-Cut																
	SC UNI	4	3-25									HPC		<input checked="" type="checkbox"/>	<input type="checkbox"/>	82-86
	SC UNI	5	6-20									HPC		<input checked="" type="checkbox"/>	<input type="checkbox"/>	87

Overview High Performance Milling Cutters

Tool type	Number of teeth	Diameter in mm Ø DC	Material					Edge				Length	Tool design	Coating		WNT \ Performance	
			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Sharp	Chamfer	Radius			Full Radius	coated		uncoated
BlueLine																	
	H	2	0,2-3	●	●	●	●	●	●	HA	■					■	88-90
	H	2	0,2-3	●	●	●	●	●	●	HA			■		■	91-93	
	H	2	0,4-3	●	●	●	●	●	●	HA		■		■	■	94-97	
	H	2	0,5-20	●	●	●	●	●	●	HA	■			■	■	98	
	H	4-6	1-20	●	●	●	●	●	●	HA		■		■	■	99-101	
	H	4-10	2-20	●	●	●	●	●	●	HA	■	■		■	■	102+103	
	H	2	0,1-20	●	●	●	●	●	●	HA			■	■	■	104-108	
	H	3	3-12	●	●	●	●	●	●	HA			■	■	■	109	
	H	4	2-20	○	●	●	●	●	●	HA			■	■	■	110	
	H	2	0,5-16	●	●	●	●	●	●	HA		■		■	■	111-113	
Micro-Cutter																	
	N	2	0,2-2	●	●	●	●	●	●	HA	■			■	■	114	
	N	2	0,2-2	●	●	●	●	●	●	HA			■	■	■	115+116	
	N	2	0,5-2	●	●	●	●	●	●	HA		■		■	■	117	
MultiChange																	
	PDC	2	8-16	●	●	●	●	●	●		■				□	119	
	AL	3	10-20	●	●	●	●	●	●			■			■	119	
	PCR	4	9,7-20	●	○	●	●	●	●			■		HPC	■	120	
	N	3-6	8-20	●	○	●	●	●	○		■	■	■	■	HPC	■	119-123

End Mills Overview

Tool type	Number of teeth	Diameter in mm Ø DC	Material					Geometry				Length	Tool design	Coating		WNT \ Standard
			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Sharp	Chamfer	Radius			Full Radius	coated	













End Mills with Finishing Geometry

	W	2	0,2-25	HA	HB						HPC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	124-132
	W	3	3-25	HA	HB						HPC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	133-135
	W	4	6-20	HA	HB						HPC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	136+137
	W	5-7	6-20	HA	HB						HPC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	138
	N	2	0,2-20	HA	HB							<input checked="" type="checkbox"/>	<input type="checkbox"/>	139-146
	N	3	3-20	HA	HB							<input type="checkbox"/>	<input type="checkbox"/>	147
	N	3	0,5-20	HA	HB							<input checked="" type="checkbox"/>	<input type="checkbox"/>	148-152
	N	4	1,5-20	HA	HB						HPC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	153-155
	N	4	3-25	HA	HB							<input checked="" type="checkbox"/>	<input type="checkbox"/>	156
	N	4	2-12	HA	HB						HPC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	157
	N	4	3-20	HA	HB							<input checked="" type="checkbox"/>	<input type="checkbox"/>	158
	N	4	3-20	HA	HB						HPC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	159-163
	N	6-8	4-32	HA	HB							<input checked="" type="checkbox"/>	<input type="checkbox"/>	164-166
	N	5-13	4-25	HA	HB							<input checked="" type="checkbox"/>	<input type="checkbox"/>	167
	N	8-16	6-20	HA	HB							<input checked="" type="checkbox"/>	<input type="checkbox"/>	168
	H	4	4-20	HA	HB							<input checked="" type="checkbox"/>	<input type="checkbox"/>	169+170
	H	6-8	4-32	HA	HB							<input checked="" type="checkbox"/>	<input type="checkbox"/>	171+172

Overview of end milling, ball-nosed and torus cutters

Tool type	Number of teeth	Diameter in mm Ø DC	Material compatibility					Geometry				Length	Tool design	coated <input checked="" type="checkbox"/>	uncoated <input type="checkbox"/>	WNT \ Standard	
			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Sharp	Chamfer	Radius						Full Radius
End Mills with Roughing and Finishing Geometry																	
	WF	4	5-20	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	173
	NTR	3-4	6-20	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	174
End Mills with Roughing Geometry																	
	WR	3	3-20	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HPC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	175
	NR	4-6	4-25	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	176-178
	HR	4-5	6-25	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	179-181
Ball Nosed End Mills with Finishing Geometry																	
	W	2	0,2-20	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HPC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	182-187
	N	2	0,1-20	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	188-193
	N	2	1-12	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	194
	N	2	3-20	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HPC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	195
	N	4	3-20	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HPC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	196-198
	H	2	0,2-20	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	199-201
Ball Nosed End Mills with Roughing Geometry																	
	NR	4	6-20	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	202
Torus Milling Cutters with Finishing Geometry																	
	W	2	0,2-12	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	203-206
	W	2	2-12	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	207
	W	4	4-12	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	208+209
	N	2	0,5-16	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	210
	H	2	0,2-12	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	211-214
	H	4-8	3-16	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	215

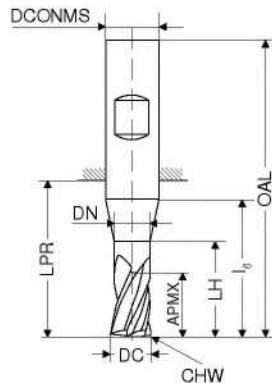
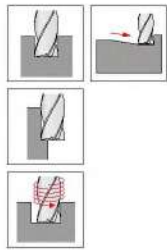
Overview Special Milling Cutters

Tool type	Number of teeth	Diameter in mm	Material compatibility					Geometry				Length	Tool design	Coating		WNT Performance	WNT Standard	
			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Sharp	Chamfer	Radius			Full Radius	coated			uncoated
Intermediate Size Torus End Mills																		
	H	4	7-17	○	●	○	○	○	○						<input checked="" type="checkbox"/>	<input type="checkbox"/>		216
High Feed Cutter																		
	N	4	6-16	●	○	○	○	○	○					HFC	<input checked="" type="checkbox"/>	<input type="checkbox"/>		217+218
Form / Chamfering and Die Sinking / Deburring Cutters																		
	W	1	3-6	○	○	○	○	○	○						<input type="checkbox"/>	<input type="checkbox"/>		219
	N	4	4-12	●	○	○	○	○	○						<input checked="" type="checkbox"/>	<input type="checkbox"/>		220
	N	4	4-12	●	○	○	○	○	○						<input checked="" type="checkbox"/>	<input type="checkbox"/>		221
	N	4	3-12	●	○	○	○	○	○						<input checked="" type="checkbox"/>	<input type="checkbox"/>		222
	N	4	PRFRAD 0,5-6	●	○	○	○	○	○						<input checked="" type="checkbox"/>	<input type="checkbox"/>		223
	N	4-6	2-16	●	○	○	○	○	○						<input checked="" type="checkbox"/>	<input type="checkbox"/>		224+225
			3-16	●	○	○	○	○	○						<input type="checkbox"/>	<input type="checkbox"/>		226+227
Circular saw blades																		
	NR	24-160	15-63	●	○	○	○	○	○						<input type="checkbox"/>	<input type="checkbox"/>		228-230

Overview Special Milling Cutters

Tool type	Number of teeth	Diameter in mm	Material compatibility					Edge design				Length	Tool design	Coating		WNT \ Standard	
			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat resistant alloys	hardened materials	Sharp	Chamfer	Radius			Full Radius	coated		uncoated
Plastics-, GFK-, CFK-Cutters																	
	W	2-20	HA													<input type="checkbox"/>	232
	W	2-20	HA													<input type="checkbox"/>	233
	W	2-20	HA												<input checked="" type="checkbox"/>	234	
	W	5-44	HA							<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	235+236	
	W	2	2-12	HA											<input checked="" type="checkbox"/>	237	
	W	1	1,5-20	HA											<input type="checkbox"/>	238	
	W	1	1,5-12	HA											<input checked="" type="checkbox"/>	239	
	W	2	2-12	HA											<input checked="" type="checkbox"/>	240	
	W	3	3-20	HA							<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	241	
	N	2	2-12												<input type="checkbox"/>	242	

MonsterMill – End milling cutter

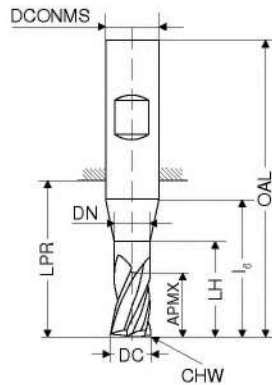
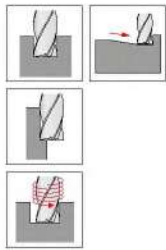


DC _{fs}	APMX	DN	LH	l ₆	LPR	OAL	DCONMS _{h5}	CHW	ZEFP	V1	Article no.	Price (£)	V1	Article no.	Price (£)	V1	Article no.	Price (£)	V1	Article no.	Price (£)
mm	mm	mm	mm	mm	mm	mm	mm	mm		52 600 ...	£		52 601 ...	£		52 602 ...	£		52 603 ...	£	
3.0	5	2.9	9	14	14	50	6	0.07	4	030	54.42	030	54.42	030	54.42	030	54.42	030	54.42	030	
3.0	8	2.9	14	20	22	58	6	0.07	4	035	54.42	035	54.42	035	54.42	035	54.42	035	54.42	035	
3.5	5	3.4	9	14	14	50	6	0.07	4	040	54.42	040	54.42	040	54.42	040	54.42	040	54.42	040	
3.5	8	3.4	14	20	22	58	6	0.07	4	045	55.61	045	55.61	045	55.61	045	55.61	045	55.61	045	
4.0	8	3.8	12	18	18	54	6	0.07	4	050	55.61	050	55.61	050	55.61	050	55.61	050	55.61	050	
4.0	11	3.8	18	20	22	58	6	0.07	4	055	53.76	055	53.76	055	53.76	055	53.76	055	53.76	055	
4.5	9	4.3	12	18	18	54	6	0.07	4	060	53.76	060	53.76	060	53.76	060	53.76	060	53.76	060	
4.5	13	4.3	18	20	22	58	6	0.07	4	065	71.55	065	71.55	065	71.55	065	71.55	065	71.55	065	
5.0	9	4.8	16	18	18	54	6	0.07	4	070	71.55	070	71.55	070	71.55	070	71.55	070	71.55	070	
5.0	13	4.8	19	20	22	58	6	0.07	4	075	71.55	075	71.55	075	71.55	075	71.55	075	71.55	075	
5.5	9	5.3	16	18	18	54	6	0.07	4	080	71.55	080	71.55	080	71.55	080	71.55	080	71.55	080	
5.5	13	5.3	19	20	22	58	6	0.07	4	085	93.41	085	93.41	085	93.41	085	93.41	085	93.41	085	
6.0	10	5.8		16	18	54	6	0.07	4	090	93.41	090	93.41	090	93.41	090	93.41	090	93.41	090	
6.0	13	5.8		20	22	58	6	0.07	4	095	93.41	095	93.41	095	93.41	095	93.41	095	93.41	095	
6.5	12	6.3	18	20	23	59	8	0.07	4	100	93.41	100	93.41	100	93.41	100	93.41	100	93.41	100	
6.5	19	6.3	23	25	28	64	8	0.07	4	110	147.71	110	147.71	110	147.71	110	147.71	110	147.71	110	
7.0	12	6.8	18	20	23	59	8	0.07	4	115	147.71	115	147.71	115	147.71	115	147.71	115	147.71	115	
7.0	19	6.8	23	25	28	64	8	0.07	4	120	147.71	120	147.71	120	147.71	120	147.71	120	147.71	120	
7.5	12	7.3	18	20	23	59	8	0.12	4	140	189.61	140	189.61	140	189.61	140	189.61	140	189.61	140	
7.5	19	7.3	23	25	28	64	8	0.12	4	150	234.27	150	234.27	150	234.27	150	234.27	150	234.27	150	
8.0	12	7.7		20	23	59	8	0.12	4	155	234.27	155	234.27	155	234.27	155	234.27	155	234.27	155	
8.0	19	7.7		25	28	64	8	0.12	4												
8.5	15	8.2	22	24	27	67	10	0.20	4												
8.5	22	8.2	28	30	33	73	10	0.20	4												
9.0	15	8.7	22	24	27	67	10	0.20	4												
9.0	22	8.7	28	30	33	73	10	0.20	4												
9.5	15	9.2	22	24	27	67	10	0.20	4												
9.5	22	9.2	28	30	33	73	10	0.20	4												
10.0	15	9.5		24	27	67	10	0.20	4												
10.0	22	9.5		30	33	73	10	0.20	4												
11.0	18	10.5	24	26	28	73	12	0.20	4												
11.0	26	10.5	32	35	39	84	12	0.20	4												
11.5	18	11.0	24	26	28	73	12	0.20	4												
11.5	26	11.0	32	35	39	84	12	0.20	4												
12.0	18	11.5		26	28	73	12	0.20	4												
12.0	26	11.5		35	39	84	12	0.20	4												
14.0	21	13.5		28	30	75	14	0.20	4												
14.0	26	13.5		35	39	84	14	0.20	4												
15.0	24	14.5	30	32	35	83	16	0.20	4												
15.0	32	14.5	38	40	45	93	16	0.20	4												
15.5	24	15.0	30	32	35	83	16	0.20	4												
15.5	32	15.0	38	40	45	93	16	0.20	4												

Steel	●	●	●	●
Stainless steel	○	●	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

MonsterMill – End milling cutter

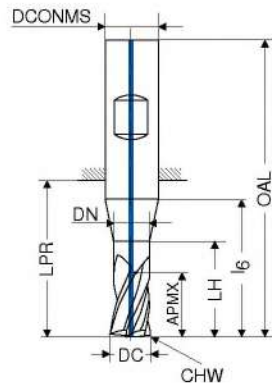
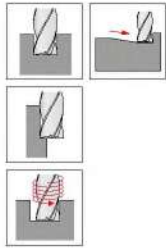


DC _{fs}	APMX	DN	LH	I ₆	LPR	OAL	DCONMS _{h5}	CHW	ZEPF	V1	V1	V1	V1		
mm	mm	mm	mm	mm	mm	mm	mm	mm		Article no. 52 600 ...	Article no. 52 601 ...	Article no. 52 602 ...	Article no. 52 603 ...		
										£	£	£	£		
16.0	24	15.5		32	35	83	16	0.20	4	234.27	160	234.27	160		
16.0	24	15.5		32	35	83	16	0.20	5	246.54	161 ¹⁾	246.54	161 ¹⁾		
16.0	32	15.5		40	45	93	16	0.20	5			246.54	161 ¹⁾	246.54	161 ¹⁾
16.0	32	15.5		40	45	93	16	0.20	4			234.27	160	234.27	160
17.0	27	16.5	32	34	37	85	18	0.20	4	318.59	170	318.59	170		
17.0	32	16.5	48	50	52	100	18	0.20	4			318.59	170	318.59	170
18.0	27	17.5		34	37	85	18	0.20	4	318.59	180	318.59	180		
18.0	27	17.5		34	37	85	18	0.20	5	335.45	181 ¹⁾	335.45	181 ¹⁾		
18.0	32	17.5		50	52	100	18	0.20	5			335.45	181 ¹⁾	335.45	181 ¹⁾
18.0	32	17.5		50	52	100	18	0.20	4			318.59	180	318.59	180
19.0	30	18.5	38	40	43	93	20	0.30	4	361.41	190	361.41	190		
19.0	38	18.5	48	50	54	104	20	0.30	4			361.41	190	361.41	190
19.5	30	19.0	38	40	43	93	20	0.30	4	361.41	195	361.41	195		
19.5	38	19.0	48	50	54	104	20	0.30	4			361.41	195	361.41	195
20.0	30	19.5		40	43	93	20	0.30	4	361.41	200	361.41	200		
20.0	30	19.5		40	43	93	20	0.30	5	380.38	201 ¹⁾	380.38	201 ¹⁾		
20.0	38	19.5		50	54	104	20	0.30	5			380.38	201 ¹⁾	380.38	201 ¹⁾
20.0	38	19.5		50	54	104	20	0.30	4			361.41	200	361.41	200

Steel	●	●	●	●
Stainless steel	○	●	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

MonsterMill – End milling cutter



Ti1200



DIN 6527

HB

V1

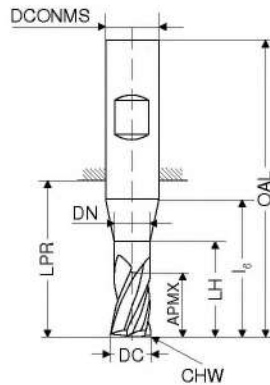
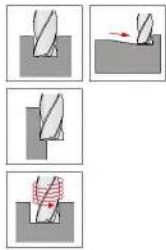
Article no.	
52 606 ...	
£	
030	66.68
040	66.68
050	67.86
060	66.01
080	86.18
100	110.67
120	175.51
140	241.78
160	296.46
180	410.17
200	475.79

DC _{fs}	APMX	DN	LH	l ₆	LPR	OAL	DCONMS _{h5}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	mm	
3	8	2.9	14	20	22	58	6	0.07	4
4	11	3.8	18	20	22	58	6	0.07	4
5	13	4.8	19	20	22	58	6	0.07	4
6	13	5.8		20	22	58	6	0.07	4
8	19	7.7		25	28	64	8	0.12	4
10	22	9.5		30	33	73	10	0.20	4
12	26	11.5		35	39	84	12	0.20	4
14	26	13.5		35	39	84	14	0.20	4
16	32	15.5		40	45	93	16	0.20	4
18	32	17.5		50	52	100	18	0.20	4
20	38	19.5		50	54	104	20	0.30	4

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 244+245

MonsterMill – End milling cutter



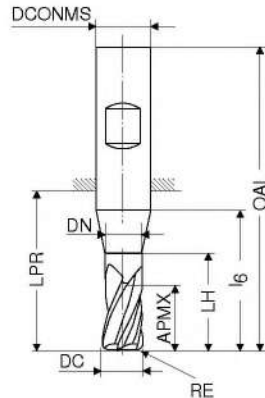
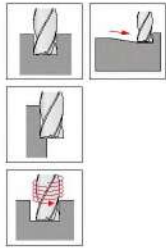
DC _{fs}	APMX	DN	LH	l ₆	LPR	OAL	DCONMS _{ns}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	mm	
3	5	2.9	14	20	22	58	6	0.07	4
3	5	2.9	19	23	26	62	6	0.07	4
4	8	3.8	18	20	22	58	6	0.07	4
4	8	3.8	23	25	26	62	6	0.07	4
5	9	4.8	19	20	22	58	6	0.07	4
5	9	4.8	24	25	26	62	6	0.07	4
6	10	5.8		20	22	58	6	0.07	4
6	10	5.8		25	26	62	6	0.07	4
8	12	7.7		25	28	64	8	0.12	4
8	12	7.7		30	32	68	8	0.12	4
10	15	9.5		30	33	73	10	0.20	4
10	15	9.5		35	40	80	10	0.20	4
12	18	11.5		35	39	84	12	0.20	4
12	18	11.5		45	48	93	12	0.20	4
14	21	13.5		35	39	84	14	0.20	4
14	21	13.5		50	54	99	14	0.20	4
16	24	15.5		40	45	93	16	0.20	4
16	24	15.5		40	45	93	16	0.20	5
16	24	15.5		55	60	108	16	0.20	4
16	24	15.5		55	60	108	16	0.20	5
18	27	17.5		50	52	100	18	0.20	4
18	27	17.5		50	52	100	18	0.20	5
18	27	17.5		60	66	114	18	0.20	4
18	27	17.5		60	66	114	18	0.20	5
20	30	19.5		50	54	104	20	0.30	4
20	30	19.5		50	54	104	20	0.30	5
20	30	19.5		70	76	126	20	0.30	4
20	30	19.5		70	76	126	20	0.30	5

Material	Series 1	Series 2
Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

→ v_c/f, Page 244-247

MonsterMill – End milling cutter with corner radius



Ti1200



Factory standard

HB

V1



DC _{f8}	RE _{±0,01}	APMX	DN	LH	l ₆	LPR	OAL	DCONMS _{h5}	ZEFP	Article no.	£
3	0.10	8	2.9	14	20	22	58	6	4	52 607 ...	61.68
3	0.30	8	2.9	14	20	22	58	6	4	030	61.68
3	0.50	8	2.9	14	20	22	58	6	4	032	61.68
4	0.10	11	3.8	18	20	22	58	6	4	040	61.68
4	0.40	11	3.8	18	20	22	58	6	4	041	61.68
4	0.50	11	3.8	18	20	22	58	6	4	042	61.68
5	0.10	13	4.8	19	20	22	58	6	4	050	62.99
5	0.50	13	4.8	19	20	22	58	6	4	051	62.99
5	1.00	13	4.8	19	20	22	58	6	4	052	62.99
6	0.10	13	5.8		20	22	58	6	4	060	61.00
6	0.50	13	5.8		20	22	58	6	4	061	61.00
6	1.00	13	5.8		20	22	58	6	4	062	61.00
8	0.15	19	7.7		25	28	64	8	4	080	81.03
8	0.50	19	7.7		25	28	64	8	4	081	81.03
8	1.00	19	7.7		25	28	64	8	4	082	81.03
8	2.00	19	7.7		25	28	64	8	4	083	81.03
10	0.15	22	9.5		30	33	73	10	4	100	105.95
10	0.50	22	9.5		30	33	73	10	4	101	105.95
10	1.00	22	9.5		30	33	73	10	4	102	105.95
10	1.50	22	9.5		30	33	73	10	4	103	105.95
10	2.00	22	9.5		30	33	73	10	4	104	105.95
12	0.20	26	11.5		35	39	84	12	4	120	167.47
12	0.50	26	11.5		35	39	84	12	4	121	167.47
12	1.00	26	11.5		35	39	84	12	4	122	167.47
12	1.50	26	11.5		35	39	84	12	4	123	167.47
12	2.00	26	11.5		35	39	84	12	4	124	167.47
14	1.00	26	13.5		35	39	84	14	4	140	215.02
16	0.30	32	15.5		40	45	93	16	4	160	265.63
16	0.50	32	15.5		40	45	93	16	4	161	265.63
16	1.00	32	15.5		40	45	93	16	4	162	265.63
16	2.00	32	15.5		40	45	93	16	4	163	265.63
16	4.00	32	15.5		40	45	93	16	4	164	265.63
20	0.30	38	19.5		50	54	104	20	4	200	409.78
20	0.50	38	19.5		50	54	104	20	4	201	409.78
20	1.00	38	19.5		50	54	104	20	4	202	409.78
20	2.00	38	19.5		50	54	104	20	4	203	409.78

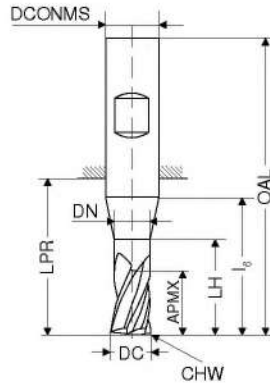
Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_d/f_z Page 244+245

MonsterMill – End milling cutter

SCR $\lambda_s = 35^\circ$
 $\lambda_s = 38^\circ$
 $\nu_s = 7^\circ$



DIN 6527	DIN 6527	DIN 6527	Factory standard
HA <input type="checkbox"/>	HA <input type="checkbox"/>	HB <input type="checkbox"/>	HA <input type="checkbox"/>

DC _{fs}	APMX	DN	LH	l_6	LPR	OAL	DCONMS _{h5}	CHW	ZAFP
mm	mm	mm	mm	mm	mm	mm	mm	mm	
5	9	4.8	16	18	18	54	6	0.12	6
5	13	4.8	19	20	22	58	6	0.12	6
5	13	4.8	24	25	26	62	6	0.12	6
6	10	5.8		16	18	54	6	0.12	6
6	13	5.8		20	22	58	6	0.12	6
6	13	5.8		25	26	62	6	0.12	6
8	12	7.7		20	23	59	8	0.12	6
8	19	7.7		25	28	64	8	0.12	6
8	19	7.7		30	32	68	8	0.12	6
10	15	9.5		24	27	67	10	0.20	6
10	22	9.5		30	33	73	10	0.20	6
10	22	9.5		35	40	80	10	0.20	6
12	18	11.5		26	28	73	12	0.20	6
12	26	11.5		35	39	84	12	0.20	6
12	26	11.5		45	48	93	12	0.20	6
16	24	15.5		32	35	83	16	0.20	6
16	32	15.5		40	45	93	16	0.20	6
16	32	15.5		55	60	108	16	0.20	6
20	30	19.5		40	43	93	20	0.30	6
20	38	19.5		50	54	104	20	0.30	6
20	38	19.5		70	76	126	20	0.30	6

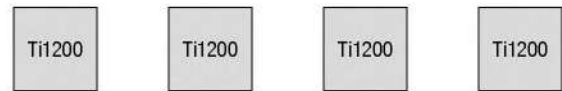
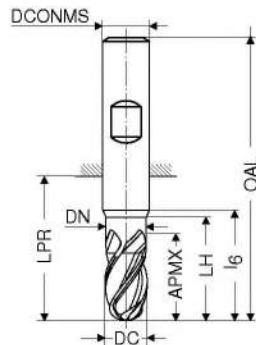
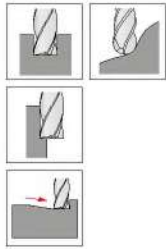
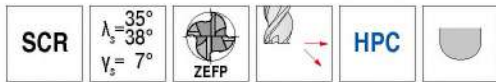
V1	V1	V2	V1
Article no. 52 608 ...	Article no. 52 608 ...	Article no. 52 608 ...	Article no. 52 608 ...
£	£	£	£
72.87	050		
72.87	051		
82.77	052		
70.62	060		
70.62	061		
80.38	062		
93.80	080		
93.80	081		
106.20	082		
122.53	100		
122.53	101	122.53	103
137.57	102		
193.82	120		
193.82	121	193.82	123
216.49	122		
307.39	160		
307.39	161	307.39	163
355.22	162		
474.32	200		
474.32	201	474.32	203
566.44	202		

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

→ v_d/f_z Page 244-247

MonsterMill – Ball nosed cutter

▲ Radius accuracy: -0,015 mm for $\varnothing \leq 6,0$ mm / -0,02 mm for $\varnothing > 6,0$ mm



DIN 6527	DIN 6527	DIN 6527	DIN 6527
HA	HB	HA	HB

DC _{f6}	APMX	DN	LH	l ₆	LPR	OAL	DCONMS ₁₅	ZEPF
mm	mm	mm	mm	mm	mm	mm	mm	
3	5	2.9	9	14	14	50	6	3
3	8	2.9	14	20	22	58	6	3
4	11	3.8	18	20	22	58	6	3
4	8	3.8	12	18	18	54	6	3
5	13	4.8	19	20	22	58	6	3
5	9	4.8	16	18	18	54	6	3
6	10	5.8		16	18	54	6	4
6	13	5.8		20	22	58	6	4
8	19	7.7		25	28	64	8	4
8	12	7.7		20	23	59	8	4
10	22	9.5		30	33	73	10	4
10	15	9.5		24	27	67	10	4
12	26	11.5		35	39	84	12	4
12	18	11.5		26	28	73	12	4
16	32	15.5		40	45	93	16	4
16	24	15.5		32	35	83	16	4

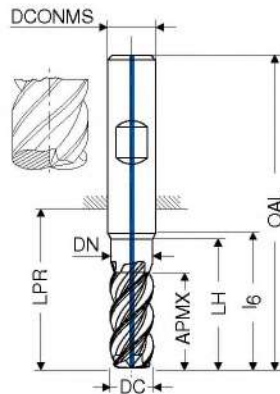
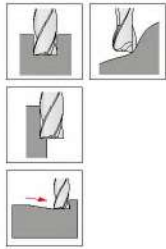
V2	V2	V2	V2
Article no. 52 611 ...	Article no. 52 611 ...	Article no. 52 612 ...	Article no. 52 612 ...
£	£	£	£
55.50			
		57.64	
55.50		57.64	
56.50		58.64	
56.37			
	56.37		
		58.59	
		77.81	
74.96			
	74.96		
97.81		101.59	
	97.81		
154.58		161.08	
	154.58		
245.51		254.60	
	245.51		

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

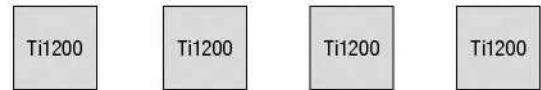
→ v₀/f_z Page 244+245

MonsterMill – Torus face milling cutter

▲ r_{30} = programmed corner radius



LPR with Shank DIN 6535 HB



DIN 6527 DIN 6527 DIN 6527 DIN 6527

HA HB HA HB

V2 V2 V2 V2

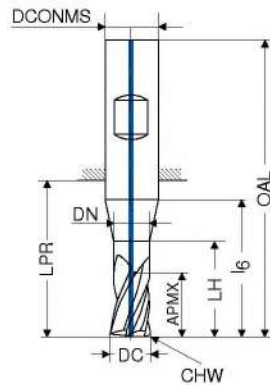
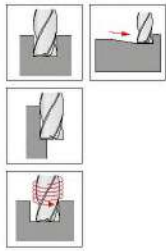
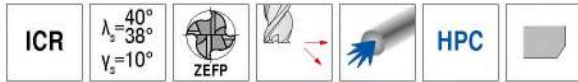
DC _{-0,04}	r_{30}	APMX	DN	LH	LPR	OAL	l_s	DCONMS _{ns}	t_{max}	ZEFP	Article no. 52 609 ...	Article no. 52 609 ...	Article no. 52 610 ...	Article no. 52 610 ...
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		£	£	£	£
3	0.4	3	2.9	14.00	21	57	20	6	0.10	4	118.17 030	118.17 031		
4	0.5	4	3.8	18.00	21	57	20	6	0.15	4	121.13 040	121.13 041		
5	0.6	5	4.8	18.00	21	57	20	6	0.20	4	133.62 050	133.62 051		
6	0.8	13	5.8	19.90	21	57	20	6	0.20	4	122.74 060	122.74 061		
8	1.0	19	7.7	24.85	27	63	25	8	0.30	4	141.03 080	141.03 081		
8	1.0	19	7.7	29.85	32	68	30	8	0.30	4			167.01 080	167.01 081
10	1.2	22	9.5	29.75	32	72	30	10	0.40	4	167.01 100	167.01 101		
10	1.2	22	9.5	34.75	40	80	35	10	0.40	4			176.91 100	176.91 101
12	1.6	26	11.5	34.75	38	83	35	12	0.40	4	212.77 120	212.77 121		
12	1.6	26	11.5	44.75	47	93	45	12	0.40	4			232.58 120	232.58 121
16	2.2	32	15.5	39.75	44	92	40	16	0.50	4	335.27 160	335.27 161		
16	2.2	32	15.5	54.75	60	108	55	16	0.50	4			353.84 160	353.84 161

Steel	●	●	●	●
Stainless steel				
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys				
hardened materials	○	○	○	○

→ v_c/f_z Page 248-251

MonsterMill – End milling cutter

▲ with axial through coolant



Ti1500



DIN 6527



HB

V1
Article no.
52 786 ...

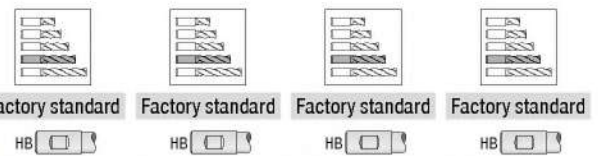
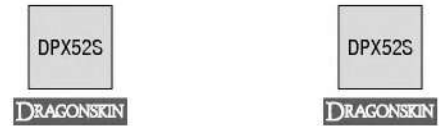
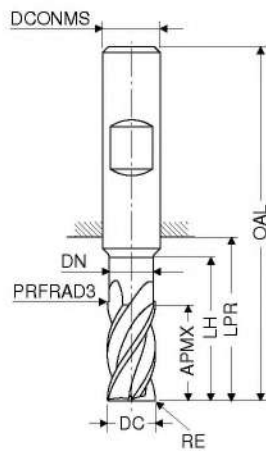
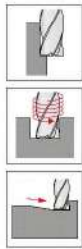
DC _{ø8}	APMX	DN	LH	l ₆	LPR	OAL	DCONMS _{h6}	CHW	ZEFP	£	
mm	mm	mm	mm	mm	mm	mm	mm	mm			
3	8	2.9	14	18	21	57	6	0.07	3	74.12	034
4	11	3.8	18	20	21	57	6	0.07	3	74.12	044
5	13	4.8	19	20	21	57	6	0.12	3	77.63	054
6	13	5.8	20		21	57	6	0.12	4	101.79	064
8	19	7.7	25		27	63	8	0.12	4	122.14	084
10	22	9.5	30		32	72	10	0.20	4	152.00	104
12	26	11.5	35		38	83	12	0.20	4	218.49	124
14	26	13.5	35		38	83	14	0.20	4	299.26	144
16	32	15.5	40		44	92	16	0.20	4	337.02	163
16	32	15.5	40		44	92	16	0.20	5	327.75	164 1)
18	32	17.5	40		44	92	18	0.20	4	444.92	183
18	32	17.5	40		44	92	18	0.20	5	448.86	184 1)
20	38	19.5	50		54	104	20	0.30	4	525.26	203
20	38	19.5	50		54	104	20	0.30	5	498.75	204 1)

Steel	○
Stainless steel	●
Cast iron	○
Non ferrous metals	○
Heat resistant alloys	●
hardened materials	○

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm



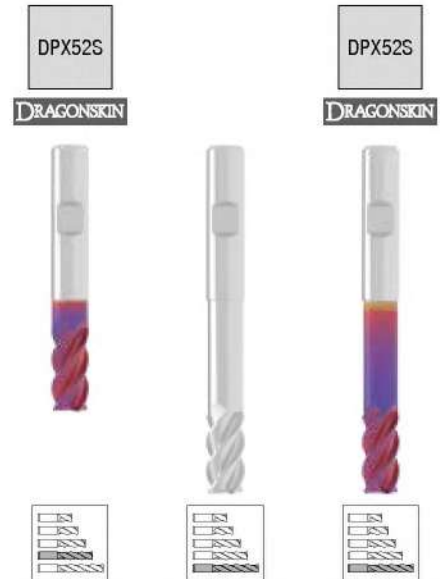
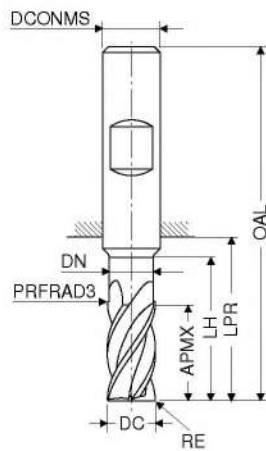
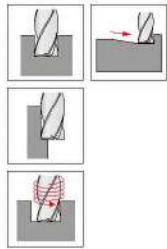
DC _{e8}	RE	APMX	DN	LH	LPR	OAL	DCONMS _{h5}	ZEFP	NEW V1		NEW V1		NEW V1		NEW V1	
									Article no.	£	Article no.	£	Article no.	£	Article no.	£
4	0.1	11		14	21	57	6	4	52 503 ...	56.85	04000	52 504 ...	64.48	04000		
4	0.1	11	3.8	17	21	57	6	5				61.91	04000 ¹⁾	69.54	04000 ¹⁾	
5	0.1	13	4.8	19	21	57	6	5				64.74	05000 ¹⁾	72.37	05000 ¹⁾	
5	0.1	13		16	21	57	6	4	56.85	05000	64.48	05000				
6	0.1	13	5.8	19	21	57	6	5				64.74	06000 ¹⁾	72.37	06000 ¹⁾	
6	0.1	13		21	21	57	6	4	56.85	06000	64.48	06000				
8	0.2	21	7.7	25	27	63	8	5				78.86	08000 ¹⁾	89.63	08000 ¹⁾	
8	0.2	21		27	27	63	8	4	78.86	08000	89.63	08000				
10	0.2	22	9.7	30	32	72	10	5				113.40	10000 ¹⁾	126.68	10000 ¹⁾	
10	0.2	22		32	32	72	10	4	95.83	10000	109.13	10000				
12	0.2	26	11.6	36	38	83	12	5				142.85	12000 ¹⁾	157.74	12000 ¹⁾	
12	0.2	26		38	38	83	12	4	102.63	12000	117.67	12000				
16	0.3	36	15.5	42	44	92	16	5				197.01	16000 ¹⁾	215.48	16000 ¹⁾	
16	0.3	36		44	44	92	16	4	178.18	16000	196.54	16000				
20	0.3	41	19.5	52	54	104	20	5				316.99	20000 ¹⁾	339.62	20000 ¹⁾	
20	0.3	41		54	54	104	20	4	259.59	20000	282.23	20000				

Material	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant alloys	hardened materials
Steel						
Stainless steel						
Cast iron						
Non ferrous metals						
Heat resistant alloys						
hardened materials						

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm



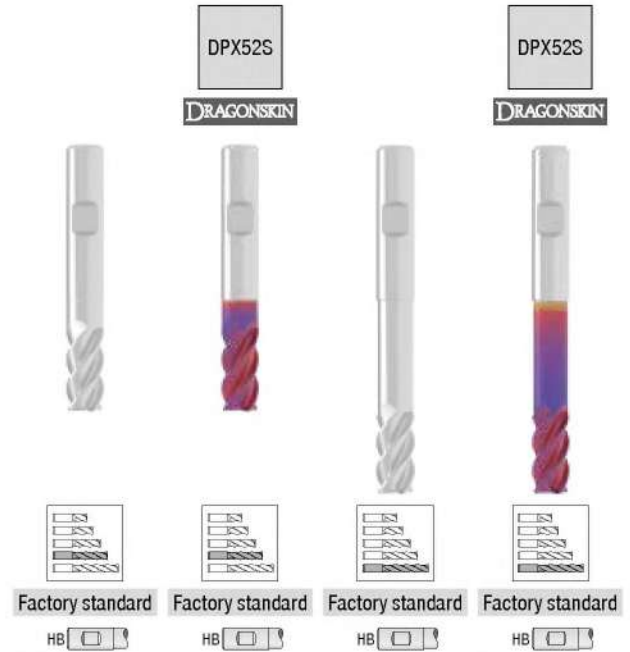
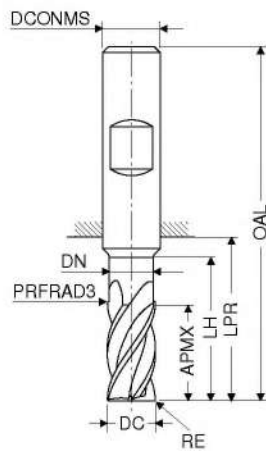
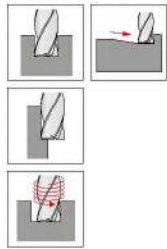
Factory standard HB Factory standard HB Factory standard HB Factory standard HB

DC _{e8}	RE	APMX	DN	LH	LPR	OAL	DCONMS _{h5}	ZEFP	NEW V1 Article no. 52 507 ...	NEW V1 Article no. 52 508 ...	NEW V1 Article no. 52 507 ...	NEW V1 Article no. 52 508 ...
mm	mm	mm	mm	mm	mm	mm	mm		£	£	£	£
4	0.4	8.5	3.8	20	26	62	6	4			59.66 04104	67.29 04104
4	0.5	8.5	3.8	20	26	62	6	4			59.66 04105	67.29 04105
4	0.8	8.5	3.8	20	26	62	6	4			59.66 04108	67.29 04108
4	0.2	11.0		14	21	57	6	4	56.85 04002	64.48 04002		
4	0.4	11.0		14	21	57	6	4	56.85 04004	64.48 04004		
4	0.5	11.0		14	21	57	6	4	56.85 04005	64.48 04005		
5	0.5	10.5	4.8	25	34	70	6	4			67.01 05105	74.64 05105
5	0.8	10.5	4.8	25	34	70	6	4			67.01 05108	74.64 05108
5	0.5	13.0		16	21	57	6	4	59.66 05005	67.29 05005		
5	1.0	13.0		16	21	57	6	4	59.66 05010	67.29 05010		
6	0.4	13.0			21	57	6	4	59.66 06004	67.29 06004		
6	0.5	13.0			21	57	6	4	59.66 06005	67.29 06005		
6	0.6	13.0			21	57	6	4	59.66 06006	67.29 06006		
6	0.6	13.0	5.8	30	34	70	6	4			70.99 06106	78.62 06106
6	0.8	13.0			21	57	6	4	59.66 06008	67.29 06008		
6	0.8	13.0	5.8	30	34	70	6	4			70.99 06108	78.62 06108
6	1.0	13.0	5.8	30	34	70	6	4			70.99 06110	78.62 06110
6	1.0	13.0			21	57	6	4	62.77 06010	70.40 06010		
6	1.5	13.0			21	57	6	4	62.77 06015	70.40 06015		
8	0.8	17.0	7.7	40	44	80	8	4			98.96 08108	109.70 08108
8	1.0	17.0	7.7	40	44	80	8	4			98.96 08110	109.70 08110
8	1.5	17.0	7.7	40	44	80	8	4			98.96 08115	109.70 08115
8	2.0	17.0	7.7	40	44	80	8	4			98.96 08120	109.70 08120
8	0.5	21.0			27	63	8	4	78.86 08005	89.63 08005		
8	0.8	21.0			27	63	8	4	78.86 08008	89.63 08008		
8	1.0	21.0			27	63	8	4	82.28 08010	93.02 08010		
8	1.2	21.0			27	63	8	4	82.28 08012	93.02 08012		
8	1.5	21.0			27	63	8	4	82.28 08015	93.02 08015		
8	2.0	21.0			27	63	8	4	82.28 08020	93.02 08020		
10	0.5	21.0	9.7	50	54	94	10	4			121.83 10105	135.11 10105
10	1.0	21.0	9.7	50	54	94	10	4			121.83 10110	135.11 10110
10	1.5	21.0	9.7	50	54	94	10	4			121.83 10115	135.11 10115
10	2.0	21.0	9.7	50	54	94	10	4			121.83 10120	135.11 10120
10	0.5	22.0			32	72	10	4	95.83 10005	109.13 10005		
10	1.0	22.0			32	72	10	4	98.96 10010	112.26 10010		
10	1.2	22.0			32	72	10	4	98.96 10012	112.26 10012		
10	1.5	22.0			32	72	10	4	98.96 10015	112.26 10015		
10	1.6	22.0			32	72	10	4	98.96 10016	112.26 10016		
10	2.0	22.0			32	72	10	4	98.96 10020	112.26 10020		
12	0.5	25.0	11.6	60	65	110	12	4			153.01 12105	167.91 12105
12	1.0	25.0	11.6	60	65	110	12	4			153.01 12110	167.91 12110
12	1.5	25.0	11.6	60	65	110	12	4			153.01 12115	167.91 12115
12	2.0	25.0	11.6	60	65	110	12	4			153.01 12120	167.91 12120

Material	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant alloys	hardened materials
Steel						
Stainless steel						
Cast iron						
Non ferrous metals						
Heat resistant alloys						
hardened materials						

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

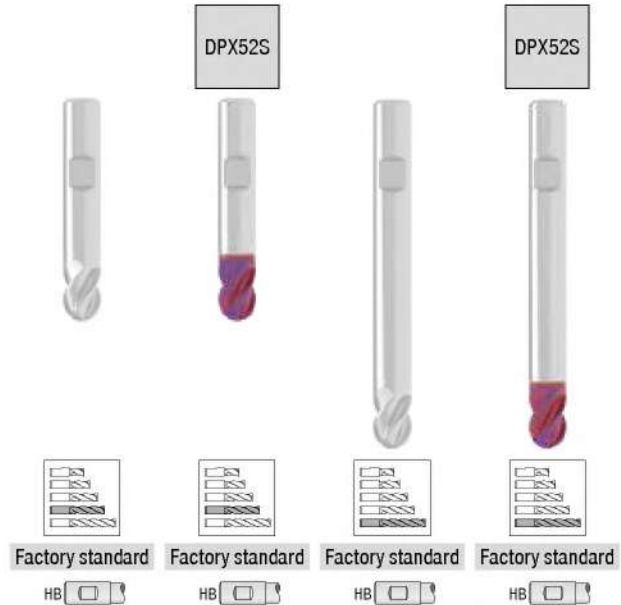
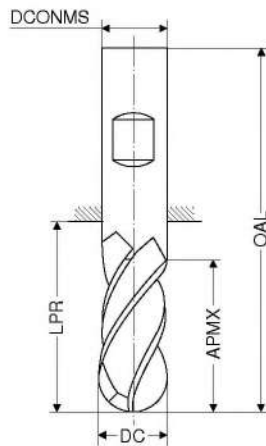


DC _{e8}	RE	APMX	DN	LH	LPR	OAL	DCONMS _{h5}	ZEFP	NEW V1 Article no. 52 507 ...	NEW V1 Article no. 52 508 ...	NEW V1 Article no. 52 507 ...	NEW V1 Article no. 52 508 ...
mm	mm	mm	mm	mm	mm	mm	mm		£	£	£	£
12	3.0	25.0	11.6	60	65	110	12	4			156.59	12130
12	4.0	25.0	11.6	60	65	110	12	4			156.59	12140
12	0.5	26.0			38	83	12	4	102.63	12005	117.67	12005
12	1.0	26.0			38	83	12	4	106.04	12010	121.02	12010
12	1.2	26.0			38	83	12	4	106.04	12012	121.02	12012
12	1.5	26.0			38	83	12	4	106.04	12015	121.02	12015
12	1.6	26.0			38	83	12	4	106.04	12016	121.02	12016
12	2.0	26.0			38	83	12	4	106.04	12020	121.02	12020
12	2.5	26.0			38	83	12	4	106.04	12025	121.02	12025
12	3.0	26.0			38	83	12	4	106.04	12030	121.02	12030
14	1.0	29.0	13.6	70	75	120	14	4			212.02	14110
14	2.0	29.0	13.6	70	75	120	14	4			212.02	14120
14	3.0	29.0	13.6	70	75	120	14	4			215.71	14130
14	4.0	29.0	13.6	70	75	120	14	4			215.71	14140
16	1.0	33.0	15.5	80	84	132	16	4			254.51	16110
16	2.0	33.0	15.5	80	84	132	16	4			254.51	16120
16	3.0	33.0	15.5	80	84	132	16	4			257.86	16130
16	4.0	33.0	15.5	80	84	132	16	4			257.86	16140
16	1.0	36.0			44	92	16	4	186.04	16010	204.40	16010
16	1.6	36.0			44	92	16	4	186.04	16016	204.40	16016
16	2.0	36.0			44	92	16	4	186.04	16020	204.40	16020
16	2.5	36.0			44	92	16	4	186.04	16025	204.40	16025
16	3.0	36.0			44	92	16	4	186.04	16030	204.40	16030
16	3.2	36.0			44	92	16	4	190.54	16032	208.90	16032
16	4.0	36.0			44	92	16	4	190.54	16040	208.90	16040
18	1.0	38.0	17.5	90	94	142	18	4			331.65	18110
18	2.0	38.0	17.5	90	94	142	18	4			331.65	18120
18	3.0	38.0	17.5	90	94	142	18	4			335.35	18130
18	4.0	38.0	17.5	90	94	142	18	4			335.35	18140
20	2.0	41.0			54	104	20	4	259.59	20020	282.23	20020
20	3.0	41.0			54	104	20	4	259.59	20030	282.23	20030
20	4.0	41.0			54	104	20	4	264.33	20040	286.96	20040
20	5.0	41.0			54	104	20	4	264.33	20050	286.96	20050
20	6.3	41.0			54	104	20	4	268.02	20063	290.66	20063
20	1.0	42.0	19.5	100	104	154	20	4			362.49	20110
20	2.0	42.0	19.5	100	104	154	20	4			362.49	20120
20	3.0	42.0	19.5	100	104	154	20	4			365.83	20130
20	4.0	42.0	19.5	100	104	154	20	4			365.83	20140

Steel				
Stainless steel		○	○	○
Cast iron				○
Non ferrous metals				
Heat resistant alloys		●	●	○
hardened materials				○

→ v_c/f_c Page 258+259

MonsterMill – Ball nosed cutter



DC _{es}	APMX	LPR	OAL	DCONMS _{h5}	ZFP	Factory standard	Factory standard	Factory standard	Factory standard
mm	mm	mm	mm	mm		NEW V1	NEW V1	NEW V1	NEW V1
						Article no.	Article no.	Article no.	Article no.
						52 513 ...	52 514 ...	52 513 ...	52 514 ...
						£	£	£	£
2	4	18	54	6	4	48.36 02000	59.66 02000		
2	4	44	80	6	4			70.40 02100	84.28 02100
3	5	44	80	6	4			70.40 03100	84.28 03100
3	5	18	54	6	4	48.36 03000	59.66 03000		
4	8	44	80	6	4			70.40 04100	84.28 04100
4	8	18	54	6	4	48.36 04000	59.66 04000		
5	9	44	80	6	4			74.64 05100	88.19 05100
5	9	18	54	6	4	52.32 05000	66.46 05000		
6	10	44	80	6	4			74.64 06100	88.19 06100
6	10	18	54	6	4	52.32 06000	66.46 06000		
8	12	64	100	8	4			76.03 08100	94.44 08100
8	12	22	58	8	4	58.23 08000	75.50 08000		
10	14	60	100	10	4			98.65 10100	121.02 10100
10	14	26	66	10	4	78.03 10000	99.79 10000		
12	16	55	100	12	4			126.91 12100	151.51 12100
12	16	28	73	12	4	100.10 12000	130.61 12000		
16	20	52	100	16	4			174.95 16100	216.87 16100
16	20	34	82	16	4	154.97 16000	195.97 16000		

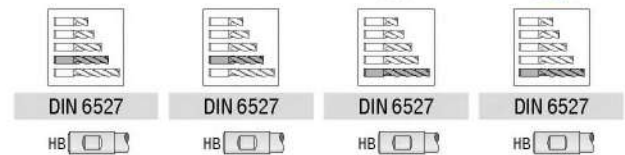
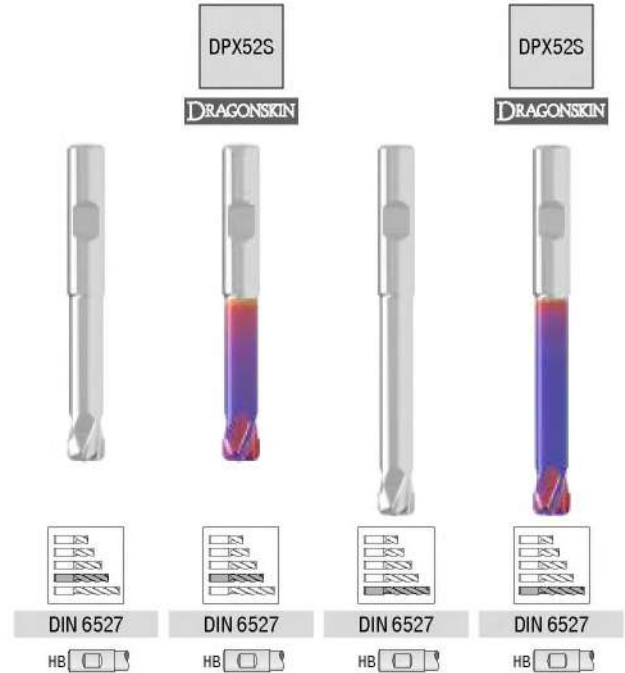
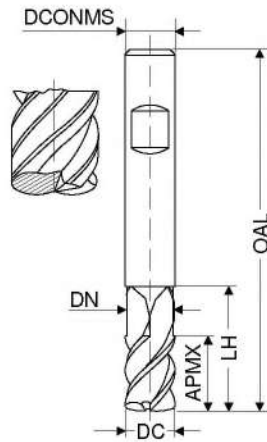
Steel				
Stainless steel	•	•	•	•
Cast iron				
Non ferrous metals				
Heat resistant alloys	•	•	•	•
hardened materials				

→ v_c/f_z Page 260+261

MonsterMill – Torus face milling cutter

▲ r_{30} = programmed corner radius

▲ APMX does not correspond to the maximum cutting depth



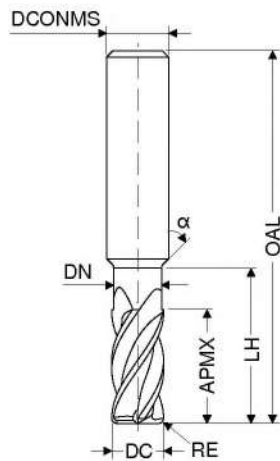
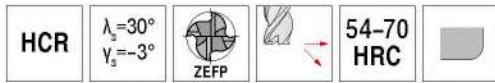
DC _{e8} mm	r ₃₀ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS _{h5} mm	ZEFP	NEW V1		NEW V1		NEW V1		NEW V1	
									Article no. 52 511 ...	£	Article no. 52 512 ...	£	Article no. 52 511 ...	£	Article no. 52 512 ...	£
2	0.3	1.5	1.7	13	18	54	6	2	57.69	02000	65.32	02000	61.65	02100	69.29	02100
2	0.3	1.5	1.7	18	39	75	6	2								
3	0.3	1.5	2.7	15	18	54	6	2	57.69	03000	65.32	03000	61.65	03100	69.29	03100
3	0.3	1.5	2.7	20	39	75	6	2								
4	0.5	2.5	3.6	16	22	58	6	2	57.69	04000	65.32	04000	64.74	04100	72.37	04100
4	0.5	2.5	3.6	24	49	85	6	2								
5	0.5	3.5	4.6	18	29	65	6	4	62.48	05000	70.12	05000	73.51	05100	81.14	05100
5	0.5	3.5	4.6	28	64	100	6	4								
6	1.0	3.5	5.2	20	29	65	6	4	62.48	06000	70.12	06000	73.51	06100	81.14	06100
6	1.0	3.5	5.2	28	64	100	6	4								
8	1.5	4.8	7.0	24	34	70	8	5	73.22	08000	83.97	08000	95.57	08100	106.28	08100
8	1.5	4.8	7.0	40	64	100	8	5								
10	2.0	5.8	9.0	26	45	85	10	5	99.24	10000	112.54	10000	135.11	10100	148.50	10100
10	2.0	5.8	9.0	48	60	100	10	5								
12	2.0	6.8	11.0	30	48	93	12	5	135.11	12000	150.12	12000	174.95	12100	189.96	12100
12	2.0	6.8	11.0	56	75	120	12	5								
16	2.5	8.8	14.5	35	52	100	16	5	161.67	16000	180.15	16000	212.94	16100	231.30	16100
16	2.5	8.8	14.5	65	102	150	16	5								

Steel																
Stainless steel																
Cast iron																
Non ferrous metals																
Heat resistant alloys																
hardened materials																

→ v_c/f_z Page 260+261

MonsterMill – Finish milling cutter with corner radius

- ▲ Radius accuracy +/- 0.01 mm
- ▲ T_x = maximum depth of cut
- ▲ DC Tolerance
up to $\varnothing 6$ mm: 0 / -0.01 mm
from $\varnothing 6$ mm: 0 / -0.02 mm

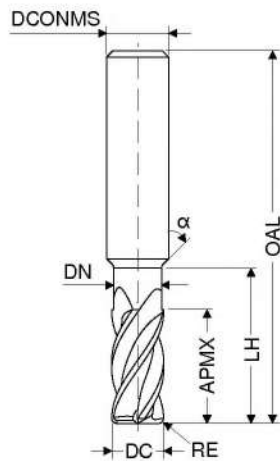


DC	RE	APMX	DN	LH	α°	OAL	DCONMS _{ns}	T_x	ZEFP	NEW V1	NEW V1
mm	mm	mm	mm	mm		mm	mm			Article no.	Article no.
										53 603 ...	53 604 ...
										£	£
0.2	0.05	0.5		0.5	30	48	4	2,5 x DC	2	69.29	30205
0.2	0.05	0.5	0.18	1.0	30	48	4	5 x DC	2	69.29	40205
0.3	0.05	0.6	0.27	1.0	30	48	4	3,3 x DC	2	65.65	30305
0.3	0.05	0.6	0.27	2.0	30	48	4	6,7 x DC	2	65.65	40305
0.4	0.05	0.7	0.35	1.0	30	48	4	2,5 x DC	2	65.65	30405
0.4	0.05	0.7	0.35	2.0	30	48	4	5 x DC	2	65.65	40405
0.4	0.05	0.7	0.35	3.0	30	48	4	7,5 x DC	2	65.65	50405
0.5	0.05	0.7	0.45	1.0	30	48	4	2 x DC	2	63.79	30505
0.5	0.05	0.7	0.45	2.0	30	48	4	4 x DC	2	63.79	40505
0.5	0.05	0.7	0.45	2.5	30	48	4	5 x DC	2	63.79	50505
0.5	0.05	0.7	0.45	3.0	30	48	4	6 x DC	2	63.79	60505
0.5	0.05	0.7	0.45	4.0	30	48	4	8 x DC	2	63.79	70505
0.6	0.05	0.8	0.55	2.0	30	48	4	3,3 x DC	2	62.06	30605
0.6	0.05	0.8	0.55	3.0	30	48	4	5 x DC	2	62.06	40605
0.6	0.05	0.8	0.55	4.5	30	48	4	7,5 x DC	2	62.06	50605
0.6	0.05	0.8	0.55	6.0	30	48	4	10 x DC	2		
0.8	0.05	1.0	0.75	2.0	30	48	4	2,5 x DC	2	62.06	30805
0.8	0.05	1.0	0.75	4.0	30	48	4	5 x DC	2	62.06	40805
0.8	0.05	1.0	0.75	6.0	30	48	4	7,5 x DC	2	62.06	50805
0.8	0.05	1.0	0.75	8.0	30	48	4	10 x DC	2		
0.8	0.05	1.0	0.75	10.0	30	48	4	12,5 x DC	2		
1.0	0.10	1.5	0.95	2.0	30	48	4	2 x DC	4	70.25	31001
1.0	0.10	1.5	0.95	4.0	30	48	4	4 x DC	4	71.74	41001
1.0	0.10	1.5	0.95	6.0	30	48	4	6 x DC	4	71.74	51001
1.0	0.10	1.5	0.95	8.0	30	48	4	8 x DC	4	73.56	61001
1.0	0.10	1.5	0.95	10.0	30	48	4	10 x DC	4		
1.0	0.10	1.5	0.95	14.0	30	48	4	14 x DC	4		
1.5	0.10	2.0	1.45	4.0	30	48	4	2,7 x DC	4	71.37	31501
1.5	0.10	2.0	1.45	6.0	30	48	4	4 x DC	4	72.99	41501
1.5	0.10	2.0	1.45	10.0	30	48	4	6,7 x DC	4	72.99	51501
1.5	0.10	2.0	1.45	12.0	30	48	4	8 x DC	4	74.59	61501
1.5	0.10	2.0	1.45	15.0	30	60	4	10 x DC	4		
1.5	0.10	2.0	1.45	20.0	30	60	4	13,3 x DC	4		
2.0	0.20	2.5	1.90	4.0	30	48	4	2 x DC	4	71.37	32002
2.0	0.20	2.5	1.90	6.0	30	48	4	3 x DC	4	72.99	42002
2.0	0.20	2.5	1.90	8.0	30	48	4	4 x DC	4	72.99	52002
2.0	0.20	2.5	1.90	10.0	30	48	4	5 x DC	4	72.99	62002
2.0	0.20	2.5	1.90	12.0	30	48	4	6 x DC	4	74.59	72002
2.0	0.20	2.5	1.90	16.0	30	60	4	8 x DC	4	75.49	82002
2.0	0.20	2.5	1.90	20.0	30	60	4	10 x DC	4		
2.0	0.20	2.5	1.90	25.0	30	60	4	12,5 x DC	4		
3.0	0.20	3.5	2.90	8.0	30	60	6	2,7 x DC	4	81.53	33002

Steel	○	○
hardened < 45 HRC	○	○
hardened 46-55 HRC	○	○
hardened 56-60 HRC	○	○
hardened 61-65 HRC	●	●
hardened 65-70 HRC	●	●

MonsterMill – Finish milling cutter with corner radius

- ▲ Radius accuracy +/- 0.01 mm
- ▲ T_x = maximum depth of cut
- ▲ DC Tolerance
up to $\varnothing 6$ mm: 0 / -0.01 mm
from $\varnothing 6$ mm: 0 / -0.02 mm



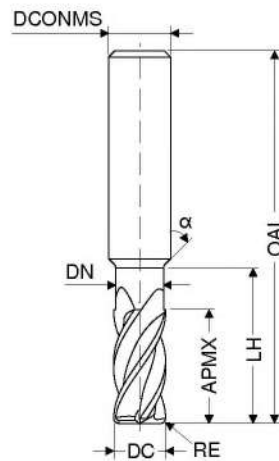
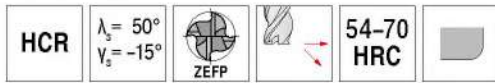
DC	RE	APMX	DN	LH	α°	OAL	DCONMS _{ns}	T_x	ZEFP
mm	mm	mm	mm	mm		mm	mm		
3.0	0.20	3.5	2.90	12.0	30	60	6	4 x DC	4
3.0	0.20	3.5	2.90	16.0	30	60	6	5,3 x DC	4
3.0	0.20	3.5	2.90	20.0	30	70	6	6,7 x DC	4
3.0	0.20	3.5	2.90	24.0	30	70	6	8 x DC	4
4.0	0.20	4.5	3.90	8.0	30	60	6	2 x DC	4
4.0	0.20	4.5	3.90	12.0	30	60	6	3 x DC	4
4.0	0.20	4.5	3.90	16.0	30	60	6	4 x DC	4
4.0	0.20	4.5	3.90	20.0	30	70	6	5 x DC	4
4.0	0.20	4.5	3.90	24.0	30	70	6	6 x DC	4
4.0	0.20	4.5	3.90	28.0	30	70	6	7 x DC	4
4.0	0.50	4.5	3.90	8.0	30	60	6	2 x DC	4
4.0	0.50	4.5	3.90	12.0	30	60	6	3 x DC	4
4.0	0.50	4.5	3.90	16.0	30	60	6	4 x DC	4
4.0	0.50	4.5	3.90	20.0	30	70	6	5 x DC	4
4.0	0.50	4.5	3.90	24.0	30	70	6	6 x DC	4
4.0	0.50	4.5	3.90	28.0	30	70	6	7 x DC	4
4.0	1.00	4.5	3.90	8.0	30	60	6	2 x DC	4
4.0	1.00	4.5	3.90	12.0	30	60	6	3 x DC	4
4.0	1.00	4.5	3.90	16.0	30	60	6	4 x DC	4
4.0	1.00	4.5	3.90	20.0	30	70	6	5 x DC	4
4.0	1.00	4.5	3.90	24.0	30	70	6	6 x DC	4
4.0	1.00	4.5	3.90	28.0	30	70	6	7 x DC	4
6.0	0.20	6.5	5.90	12.0		60	6	2 x DC	4
6.0	0.20	6.5	5.90	16.0		60	6	2,7 x DC	4
6.0	0.20	6.5	5.90	20.0		60	6	3,3 x DC	4
6.0	0.50	6.5	5.90	12.0		60	6	2 x DC	4
6.0	0.50	6.5	5.90	16.0		60	6	2,7 x DC	4
6.0	0.50	6.5	5.90	20.0		60	6	3,3 x DC	4
6.0	1.00	6.5	5.90	12.0		60	6	2 x DC	4
6.0	1.00	6.5	5.90	16.0		60	6	2,7 x DC	4
6.0	1.00	6.5	5.90	20.0		60	6	3,3 x DC	4
8.0	0.50	8.5	7.90	16.0		60	8	2 x DC	4
8.0	0.50	8.5	7.90	40.0		80	8	5 x DC	4
8.0	1.00	8.5	7.90	16.0		60	8	2 x DC	4
8.0	1.00	8.5	7.90	40.0		80	8	5 x DC	4
10.0	0.50	10.5	9.90	20.0		70	10	2 x DC	4
10.0	0.50	10.5	9.90	40.0		90	10	4 x DC	4
10.0	1.00	10.5	9.90	20.0		70	10	2 x DC	4
10.0	1.00	10.5	9.90	40.0		90	10	4 x DC	4
12.0	1.00	12.5	11.90	24.0		70	12	2 x DC	4
12.0	1.00	12.5	11.90	40.0		90	12	3,3 x DC	4

NEW V1	Article no.	NEW V1	Article no.
	53 603 ...		53 604 ...
	£		£
	83.31		43002
	83.31		53002
	84.83		63002
	86.81		73002
	84.99		34002
	86.91		44002
	86.91		54002
	88.45		64002
	90.38		74002
	90.38		84002
	84.99		34005
	86.91		44005
	86.91		54005
	88.45		64005
	90.38		74005
	90.38		84005
	84.99		34010
	86.91		44010
	86.91		54010
	88.45		64010
	90.38		74010
	90.38		84010
	89.69		36002
	92.57		46002
	92.57		56002
	89.69		36005
	92.57		46005
	92.57		56005
	89.69		36010
	92.57		46010
	92.57		56010
	113.54		38005
	120.57		48005
	113.54		38010
	120.57		48010
	142.26		10005
	151.96		10105
	142.26		10010
	151.96		10110
	184.15		12010
	197.22		12110

Steel	○	○
hardened < 45 HRC	○	○
hardened 46–55 HRC	○	○
hardened 56–60 HRC	●	●
hardened 61–65 HRC	●	●
hardened 65–70 HRC	●	●

MonsterMill – Finish milling cutter with corner radius

- ▲ Radius accuracy +/- 0.02 mm
- ▲ T_x = maximum depth of cut
- ▲ DC Tolerance
up to \varnothing 6 mm: 0 / -0.01 mm
from \varnothing 6 mm: 0 / -0.02 mm



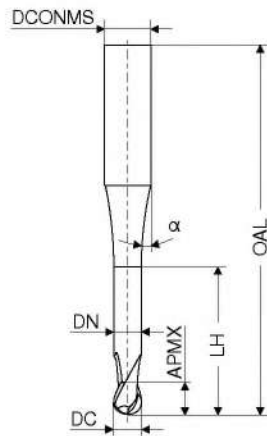
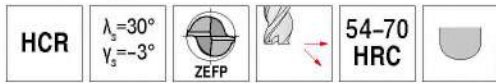
DC	RE	APMX	DN	LH	α°	OAL	DCONMS _{ns}	T_x	ZEFP	NEW V1 Article no. 53 605 ...	NEW V1 Article no. 53 606 ...
mm	mm	mm	mm	mm		mm	mm			£	£
1	0.03	2			30	48	4	2 x DC	4	74.83	410
1	0.03	3	0.95	4	30	48	4	3 x DC	4		90.35 410
2	0.03	6	1.90	8	30	48	4	3 x DC	4		91.55 420
2	0.03	4			30	48	4	2 x DC	4	76.08	420
3	0.03	6			30	60	6	2 x DC	4	88.09	030
3	0.03	9	2.90	12	30	60	6	3 x DC	4		105.19 030
4	0.05	8			30	60	6	2 x DC	4	92.83	040
4	0.05	12	3.90	16	30	60	6	3 x DC	4		107.71 040
6	0.05	12				60	6	2 x DC	4	89.09	060
6	0.05	18	5.90	24		60	6	3 x DC	4		105.19 060
8	0.05	16				60	8	2 x DC	4	129.98	080
8	0.05	24	7.90	32		70	8	3 x DC	4		148.58 080
10	0.05	20				70	10	2 x DC	4	157.29	100
10	0.05	30	9.90	40		80	10	3 x DC	4		179.51 100
12	0.05	24				70	12	2 x DC	4	178.25	120
12	0.05	36	11.90	44		90	12	3 x DC	4		205.51 120

Steel	○	○
hardened < 45 HRC	○	○
hardened 46–55 HRC	○	○
hardened 56–60 HRC	●	●
hardened 61–65 HRC	●	●
hardened 65–70 HRC	●	●

→ v_c/f_z Page 270

MonsterMill – Ball Nosed Cutter

- ▲ Radius accuracy: ±0.01 mm
- ▲ T_x = maximum depth of cut
- ▲ DC Tolerance
up to Ø 6 mm: 0 / -0.01 mm
from Ø 6 mm: 0 / -0.02 mm



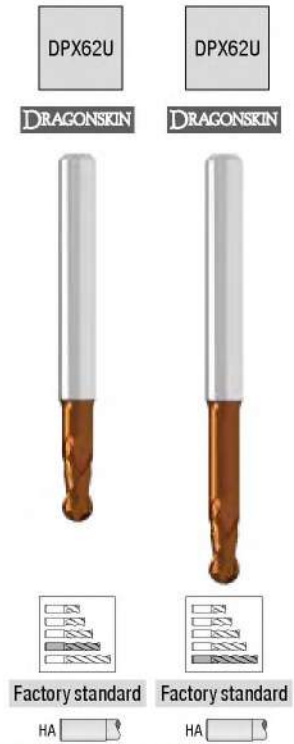
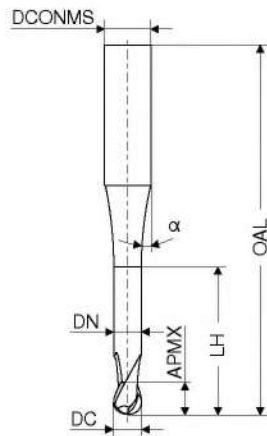
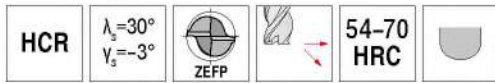
DC	APMX	DN	LH	α°	OAL	DCONMS _{ns}	T_x	ZEFP	NEW V1	NEW V1
mm	mm	mm	mm		mm	mm			Article no.	Article no.
0.2	0.5		0.5	30	48	4	2,5 x DC	2	53 600 ...	
0.2	0.5	0.18	1.0	30	48	4	5 x DC	2	69.29	302
0.3	0.5	0.27	1.0	30	48	4	3,3 x DC	2	69.29	402
0.3	0.5	0.27	2.0	30	48	4	6,7 x DC	2	65.65	303
0.4	0.5	0.35	1.0	30	48	4	2,5 x DC	2	65.65	403
0.4	0.5	0.35	2.0	30	48	4	5 x DC	2	65.65	304
0.4	0.5	0.35	3.0	30	48	4	7,5 x DC	2	65.65	404
0.5	0.5	0.45	1.0	30	48	4	2 x DC	2	65.65	504
0.5	0.5	0.45	2.0	30	48	4	4 x DC	2	63.79	305
0.5	0.5	0.45	2.5	30	48	4	5 x DC	2	63.79	405
0.5	0.5	0.45	3.0	30	48	4	6 x DC	2	63.79	505
0.5	0.5	0.45	4.0	30	48	4	8 x DC	2	63.79	605
0.6	0.6	0.55	2.0	30	48	4	3,3 x DC	2	63.79	705
0.6	0.6	0.55	3.0	30	48	4	5 x DC	2	63.79	306
0.6	0.6	0.55	4.5	30	48	4	7,5 x DC	2	63.79	406
0.6	0.6	0.55	6.0	30	48	4	10 x DC	2	63.79	506
0.8	1.0	0.75	2.0	30	48	4	2,5 x DC	2		63.79 308
0.8	1.0	0.75	4.0	30	48	4	5 x DC	2	62.06	308
0.8	1.0	0.75	6.0	30	48	4	7,5 x DC	2	62.06	408
0.8	1.0	0.75	8.0	30	48	4	10 x DC	2	62.06	508
0.8	1.0	0.75	10.0	30	48	4	12,5 x DC	2		62.06 308
1.0	1.5	0.95	2.0	30	48	4	2 x DC	2		62.06 408
1.0	1.5	0.95	4.0	30	48	4	4 x DC	2	59.98	310
1.0	1.5	0.95	6.0	30	48	4	6 x DC	2	59.98	410
1.0	1.5	0.95	8.0	30	48	4	8 x DC	2	59.98	510
1.0	1.5	0.95	10.0	30	48	4	10 x DC	2	59.98	610
1.0	1.5	0.95	14.0	30	48	4	14 x DC	2		59.98 310
1.5	1.5	1.45	4.0	30	48	4	2,7 x DC	2		61.85 410
1.5	1.5	1.45	6.0	30	48	4	4 x DC	2	60.96	315
1.5	1.5	1.45	8.0	30	48	4	5,3 x DC	2	60.96	415
1.5	1.5	1.45	10.0	30	48	4	6,7 x DC	2	60.96	515
1.5	1.5	1.45	15.0	30	60	4	10 x DC	2	60.96	615
1.5	1.5	1.45	20.0	30	60	4	13,3 x DC	2		62.06 315
2.0	2.5	1.90	4.0	30	48	4	2 x DC	2		62.94 415
									60.96	320

Material	○	○
Steel	○	○
hardened < 45 HRC	○	○
hardened 46–55 HRC	○	○
hardened 56–60 HRC	●	●
hardened 61–65 HRC	●	●
hardened 65–70 HRC	●	●

→ v_c/f_z , Page 262+263

MonsterMill – Ball Nosed Cutter

- ▲ Radius accuracy: ±0.01 mm
- ▲ T_x = maximum depth of cut
- ▲ DC Tolerance
up to Ø 6 mm: 0 / -0.01 mm
from Ø 6 mm: 0 / -0.02 mm



DC	APMX	DN	LH	α°	OAL	DCONMS _{ns}	T_x	ZEFP
mm	mm	mm	mm		mm	mm		
2.0	2.5	1.90	6.0	30	48	4	3 x DC	2
2.0	2.5	1.90	8.0	30	48	4	4 x DC	2
2.0	2.5	1.90	10.0	30	48	4	5 x DC	2
2.0	2.5	1.90	12.0	30	48	4	6 x DC	2
2.0	2.5	1.90	16.0	30	60	4	8 x DC	2
2.0	2.5	1.90	20.0	30	60	4	10 x DC	2
2.0	2.5	1.90	25.0	30	60	4	12.5 x DC	2
3.0	3.5	2.90	8.0	30	60	6	2,7 x DC	2
3.0	3.5	2.90	12.0	30	60	6	4 x DC	2
3.0	3.5	2.90	16.0	30	60	6	5,3 x DC	2
3.0	3.5	2.90	20.0	30	70	6	6,7 x DC	2
3.0	3.5	2.90	24.0	30	70	6	8 x DC	2
4.0	4.5	3.90	8.0	30	60	6	2 x DC	2
4.0	4.5	3.90	12.0	30	60	6	3 x DC	2
4.0	4.5	3.90	16.0	30	60	6	4 x DC	2
4.0	4.5	3.90	20.0	30	70	6	5 x DC	2
4.0	4.5	3.90	24.0	30	70	6	6 x DC	2
4.0	4.5	3.90	28.0	30	70	6	7 x DC	2
6.0	6.5	5.90	12.0		60	6	2 x DC	2
6.0	6.5	5.90	16.0		60	6	2,7 x DC	2
6.0	6.5	5.90	20.0		60	6	3,3 x DC	2
8.0	8.5	7.90	16.0		60	8	2 x DC	2
8.0	8.5	7.90	40.0		80	8	5 x DC	2
10.0	10.5	9.90	20.0	30	70	10	2 x DC	2
10.0	10.5	9.90	40.0		90	10	4 x DC	2
12.0	12.5	11.90	24.0		75	12	2 x DC	2
12.0	12.5	11.90	40.0		90	12	3,3 x DC	2

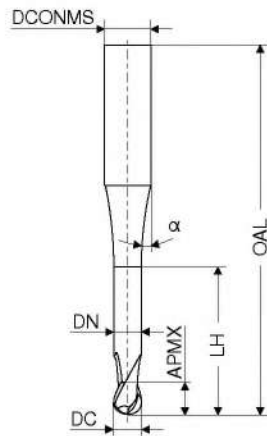
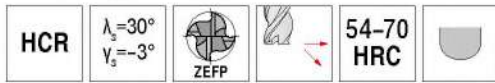
Material	NEW V1	NEW V1
Steel	○	○
hardened < 45 HRC	○	○
hardened 46–55 HRC	○	○
hardened 56–60 HRC	●	●
hardened 61–65 HRC	●	●
hardened 65–70 HRC	●	●

Article no.	Price (£)	Article no.	Price (£)
53 600 ...	60.96	53 601 ...	65.08
	420		320
	520		420
	620		
	720		
	820		
	65.65		
	330		
	430		
	530		
	630		
	730		
	340		
	440		
	540		
	640		
	740		
	840		
	360		
	460		
	560		
	380		
	480		
	100		
	101		
	120		
	121		

→ v_c/f_z Page 262+263

MonsterMill – Ball nosed cutter

- ▲ Radius accuracy: ±0.01 mm
- ▲ T_x = maximum depth of cut
- ▲ DC Tolerance
up to Ø 6 mm: 0 / -0.01 mm
from Ø 6 mm: 0 / -0.02 mm



DPX62U

DRAGONSKIN



Factory standard

HA

NEW V1

Article no.

53 602 ...

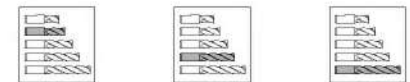
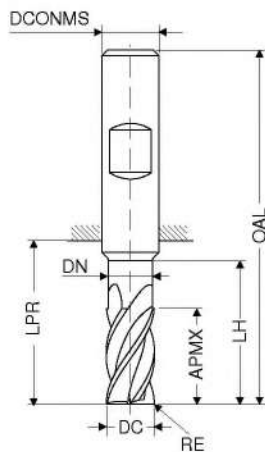
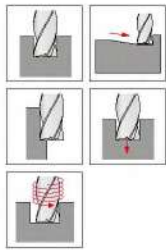
£

DC	APMX	DN	LH	α°	OAL	DCONMS _{ns}	T_x	ZEFP	
mm	mm	mm	mm		mm	mm			
3	3.5	2.9	8	30	60	6	2,7 x DC	4	75.06 330
3	3.5	2.9	12	30	60	6	4 x DC	4	75.06 430
3	3.5	2.9	16	30	60	6	5,3 x DC	4	75.06 530
3	3.5	2.9	20	30	70	6	6,7 x DC	4	76.61 630
3	3.5	2.9	24	30	70	6	8 x DC	4	78.51 730
4	4.5	3.9	8	30	60	6	2 x DC	4	77.08 340
4	4.5	3.9	12	30	60	6	3 x DC	4	78.45 440
4	4.5	3.9	16	30	60	6	4 x DC	4	78.45 540
4	4.5	3.9	20	30	70	6	5 x DC	4	79.95 640
4	4.5	3.9	24	30	70	6	6 x DC	4	81.88 740
4	4.5	3.9	28	30	70	6	7 x DC	4	81.88 840
6	6.5	5.9	12		60	6	2 x DC	4	81.77 360
6	6.5	5.9	16		60	6	2,7 x DC	4	84.63 460
6	6.5	5.9	20		60	6	3,3 x DC	4	84.63 560
8	8.5	7.9	16		60	8	2 x DC	4	107.71 380
8	8.5	7.9	40		80	8	5 x DC	4	114.70 480
10	10.5	9.9	20		70	10	2 x DC	4	127.51 100
10	10.5	9.9	40		90	10	4 x DC	4	137.27 101
12	12.5	11.9	24		75	12	2 x DC	4	167.84 120
12	12.5	11.9	40		90	12	3,3 x DC	4	178.25 121

Steel	<input type="radio"/>
hardened < 45 HRC	<input type="radio"/>
hardened 46–55 HRC	<input type="radio"/>
hardened 56–60 HRC	<input type="radio"/>
hardened 61–65 HRC	<input checked="" type="radio"/>
hardened 65–70 HRC	<input checked="" type="radio"/>

→ v_c/f_z Page 271

MonsterMill – Plunge milling cutter with corner radius

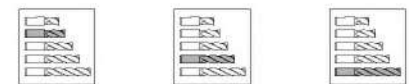
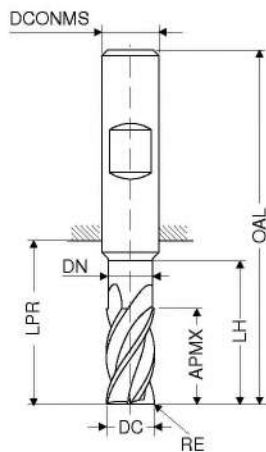
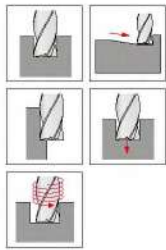


DC _{f8}	RE _{±0,03}	APMX	DN	LH	LPR	OAL	DCONMS _{h6}	ZEPF
mm	mm	mm	mm	mm	mm	mm	mm	
5.7	0.20	10			18	54	6	4
5.7	0.20	13	5.5	19	21	57	6	4
5.7	0.20	13	5.5	24	26	62	6	4
6.0	0.20	10			18	54	6	4
6.0	0.20	13	5.8	19	21	57	6	4
6.0	0.20	13	5.8	24	26	62	6	4
6.7	0.20	11			22	58	8	4
6.7	0.20	16	6.5	25	27	63	8	4
6.7	0.20	16	6.4	30	32	68	8	4
7.0	0.20	11			22	58	8	4
7.0	0.20	16	6.8	25	27	63	8	4
7.0	0.20	16	6.7	30	32	68	8	4
7.7	0.20	12			22	58	8	4
7.7	0.20	19	7.5	25	27	63	8	4
7.7	0.20	21	7.4	30	32	68	8	4
8.0	0.20	12			22	58	8	4
8.0	0.20	19	7.8	25	27	63	8	4
8.0	0.20	21	7.7	30	32	68	8	4
8.7	0.32	13			26	66	10	4
8.7	0.32	19	8.5	30	32	72	10	4
8.7	0.32	22	8.4	38	40	80	10	4
9.0	0.32	13			26	66	10	4
9.0	0.32	19	8.8	30	32	72	10	4
9.0	0.32	22	8.7	38	40	80	10	4
9.7	0.32	14			26	66	10	4
9.7	0.32	22	9.5	30	32	72	10	4
9.7	0.32	22	9.4	38	40	80	10	4
10.0	0.32	14			26	66	10	4
10.0	0.32	22	9.8	30	32	72	10	4
10.0	0.32	22	9.7	38	40	80	10	4
11.7	0.32	16			28	73	12	4
11.7	0.32	26	11.5	36	38	83	12	4
11.7	0.32	26	11.3	46	48	93	12	4
12.0	0.32	16			28	73	12	4
12.0	0.32	26	11.8	36	38	83	12	4
12.0	0.32	26	11.6	46	48	93	12	4
13.7	0.32	18			30	75	14	4
13.7	0.32	26	13.5	36	38	83	14	4
13.7	0.32	26	13.3	52	54	99	14	4
14.0	0.32	18			30	75	14	4
14.0	0.32	26	13.8	36	38	83	14	4

DIN 6527	DIN 6527	DIN 6527
V1	V1	V1
Article no.	Article no.	Article no.
52 613 ...	52 614 ...	52 615 ...
£	£	£
49.87 057	50.12 057	58.91 057
49.87 060	52.23 060	60.67 060
59.82 067	59.19 067	80.41 067
59.82 070	59.19 070	80.41 070
59.82 077	60.93 077	80.41 077
59.82 080	63.05 080	84.03 080
77.73 087	88.54 087	100.47 087
77.73 090	88.54 090	100.47 090
77.73 097	88.54 097	100.47 097
77.73 100	84.19 100	95.67 100
101.47 117	113.41 117	137.28 117
101.47 120	108.18 120	130.70 120
128.08 137	134.30 137	165.64 137
128.08 140	139.27 140	

Steel	●	●	●
Stainless steel	○	○	○
Cast iron	●	●	●
Non ferrous metals			
Heat resistant alloys			
hardened materials			

MonsterMill – Plunge milling cutter with corner radius



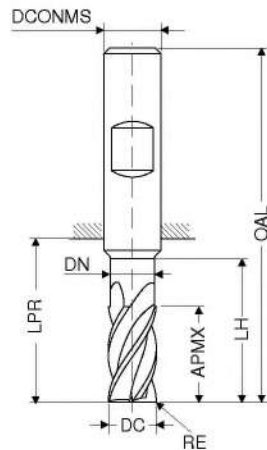
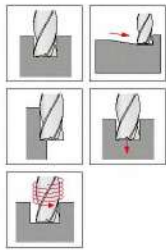
DC _{f8}	RE _{0,03}	APMX	DN	LH	LPR	OAL	DCONMS _{h8}	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
14.0	0.32	26	13.6	52	54	99	14	4
15.5	0.32	22			34	82	16	4
15.5	0.32	32	15.3	42	44	92	16	4
15.5	0.32	36	15.0	58	60	108	16	4
16.0	0.32	22			34	82	16	4
16.0	0.32	32	15.8	42	44	92	16	4
16.0	0.32	36	15.5	58	60	108	16	4
17.5	0.32	24			36	84	18	4
17.5	0.32	32	17.3	42	44	92	18	4
17.5	0.32	36	17.0	67	69	117	18	4
18.0	0.32	24			36	84	18	4
18.0	0.32	32	17.8	42	44	92	18	4
18.0	0.32	36	17.5	67	69	117	18	4
19.5	0.50	26			42	92	20	4
19.5	0.50	38	19.3	52	54	104	20	4
19.5	0.50	41	19.0	74	76	126	20	4
20.0	0.50	26			42	92	20	4
20.0	0.50	38	19.8	52	54	104	20	4
20.0	0.50	41	19.5	74	76	126	20	4

DIN 6527	DIN 6527	DIN 6527
V1	V1	V1
Article no. 52 613 ...	Article no. 52 614 ...	Article no. 52 615 ...
£	£	£
162.90	182.79	161.41
162.90	189.01	231.04
193.98	213.88	225.70
193.98	259.77	259.77
239.99	220.10	259.27
239.99	288.49	381.13
	298.44	374.29

Steel	●	●	●
Stainless steel	○	○	○
Cast iron	●	●	●
Non ferrous metals			
Heat resistant alloys			
hardened materials			

→ v_c/f_z Page 272+273

MonsterMill – Plunge milling cutter with corner radius



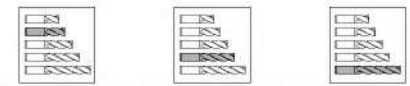
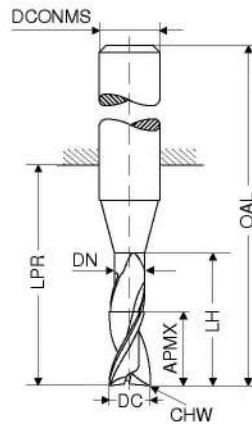
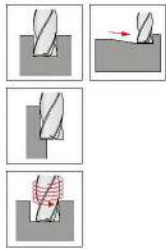
DIN 6527 HB V1

DC _{f8}	RE _{±0,03}	APMX	DN	LH	LPR	OAL	DCONMS _{h6}	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
5.0	0.20	13	4.8	19	21	57	6	4
5.0	0.20	13	4.8	24	26	62	6	4
5.7	0.20	13	5.5	19	21	57	6	4
5.7	0.20	13	5.5	24	26	62	6	4
6.0	0.20	13	5.8	19	21	57	6	4
6.0	0.20	13	5.8	24	26	62	6	4
6.7	0.20	16	6.5	25	27	63	8	4
6.7	0.20	16	6.4	30	32	68	8	4
7.0	0.20	16	6.8	25	27	63	8	4
7.0	0.20	16	6.7	30	32	68	8	4
7.7	0.20	19	7.5	25	27	63	8	4
7.7	0.20	21	7.4	30	32	68	8	4
8.0	0.20	19	7.8	25	27	63	8	4
8.0	0.20	21	7.7	30	32	68	8	4
8.7	0.32	19	8.5	30	32	72	10	4
8.7	0.32	22	8.4	38	40	80	10	4
9.0	0.32	19	8.8	30	32	72	10	4
9.0	0.32	22	8.7	38	40	80	10	4
9.7	0.32	22	9.5	30	32	72	10	4
9.7	0.32	22	9.4	38	40	80	10	4
10.0	0.32	22	9.8	30	32	72	10	4
10.0	0.32	22	9.7	38	40	80	10	4
11.7	0.32	26	11.5	36	38	83	12	4
11.7	0.32	26	11.3	46	48	93	12	4
12.0	0.32	26	11.8	36	38	83	12	4
12.0	0.32	26	11.6	46	48	93	12	4
13.7	0.32	26	13.5	36	38	83	14	4
13.7	0.32	26	13.3	52	54	99	14	4
14.0	0.32	26	13.8	36	38	83	14	4
14.0	0.32	26	13.6	52	54	99	14	4
15.5	0.32	32	15.3	42	44	92	16	4
15.5	0.32	36	15.0	58	60	108	16	4
16.0	0.32	32	15.8	42	44	92	16	4
16.0	0.32	36	15.5	58	60	108	16	4
17.5	0.32	32	17.3	42	44	92	18	4
17.5	0.32	36	17.0	67	69	117	18	4
18.0	0.32	32	17.8	42	44	92	18	4
18.0	0.32	36	17.5	67	69	117	18	4
19.5	0.50	38	19.3	52	54	104	20	4
19.5	0.50	41	19.0	74	76	126	20	4
20.0	0.50	38	19.8	52	54	104	20	4
20.0	0.50	41	19.5	74	76	126	20	4

Material	Article no.	Price (£)	Article no.	Price (£)
Steel	52 616 ...	62.09	52 617 ...	68.49
Stainless steel	050		050	
Cast iron	057	62.09	057	68.49
Non ferrous metals	060	63.94	060	70.53
Heat resistant alloys	067	73.63	067	92.04
hardened materials	070	73.63	070	92.04
	077	73.63	077	92.04
	080	78.00	080	96.08
	087	102.96	087	113.23
	090	102.96	090	113.23
	097	102.96	097	113.23
	100	99.84	100	108.86
	117	133.51	117	155.32
	120	127.27	120	149.09
	137	159.08	137	189.31
	140	164.66	140	185.03
	155	213.97	155	260.81
	160	220.58	160	255.23
	175	248.87	175	292.34
	180	254.84	180	291.69
	195	333.47	195	424.30
	200	344.76	200	417.03

MonsterMill – Rough milling cutter

▲ Cutting edges with irregular pitch



Factory standard Factory standard Factory standard



DC _{m1}	APMX	DN	LH	LPR	OAL	DCNMS _{ns}	CHW	ZEFP	V1	V1	V1	
mm	mm	mm	mm	mm	mm	mm	mm		Article no.	Article no.	Article no.	
									52 752 ...	52 752 ...	52 752 ...	
									£	£	£	
1	1.5	0.9	3	10	38	3	0.09	3	165.73	010		
2	3.0	1.9	8	21	57	6	0.17	3	164.04	020		
3	5.0	2.9	14	21	57	6	0.17	3	176.98	030		
3	8.0	2.9	14	21	57	6	0.17	3		190.39	031	
3	5.0	2.9	19	26	62	6	0.17	3			180.86	032
4	8.0	3.8	18	21	57	6	0.17	3	174.98	040		
4	11.0	3.8	18	21	57	6	0.17	3		188.40	041	
4	8.0	3.8	23	26	62	6	0.17	3			178.84	042
5	9.0	4.8	19	21	57	6	0.17	3	171.14	050		
5	13.0	4.8	19	21	57	6	0.17	3		184.55	051	
5	9.0	4.8	24	26	62	6	0.17	3			174.98	052
6	10.0	5.8	20	21	57	6	0.17	4	167.31	060		
6	13.0	5.8	20	21	57	6	0.17	4		180.86	061	
6	10.0	5.8	25	26	62	6	0.17	4			171.14	062
8	12.0	7.7	25	27	63	8	0.28	4	186.27	080		
8	19.0	7.7	25	27	63	8	0.28	4		218.88	081	
8	12.0	7.7	30	32	68	8	0.28	4			189.96	082
10	15.0	9.5	30	32	72	10	0.28	4	208.33	100		
10	22.0	9.5	30	32	72	10	0.28	4		229.40	101	
10	15.0	9.5	35	40	80	10	0.28	4			216.04	102
12	18.0	11.5	35	38	83	12	0.28	4	256.08	120		
12	26.0	11.5	35	38	83	12	0.28	4		278.60	121	
12	18.0	11.5	45	48	93	12	0.28	4			269.03	122
14	21.0	13.5	35	38	83	14	0.28	4	298.84	140		
14	26.0	13.5	35	38	83	14	0.28	4		311.65	141	
14	21.0	13.5	50	54	99	14	0.28	4			322.61	142
16	24.0	15.5	40	44	92	16	0.43	4	418.66	160		
16	32.0	15.5	40	44	92	16	0.43	4		451.89	161	
16	24.0	15.5	55	60	108	16	0.43	4			450.15	162
20	30.0	19.5	50	54	104	20	0.43	4	556.59	200		
20	38.0	19.5	50	54	104	20	0.43	4		593.92	201	
20	30.0	19.5	70	76	126	20	0.43	4			612.45	202

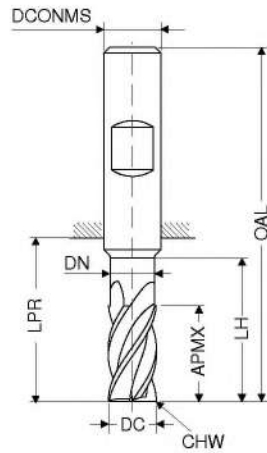
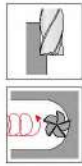
Steel	●	●	●
Stainless steel	○	○	○
Cast iron	●	●	●
Non ferrous metals	○	○	○
Heat resistant alloys	○	○	○
hardened materials	○	○	○

1) DIN 6535 HA Shank

→ v_c/f, Page 276-279

CircularLine – End milling cutter

▲ Chip breaker 0.9 x DC



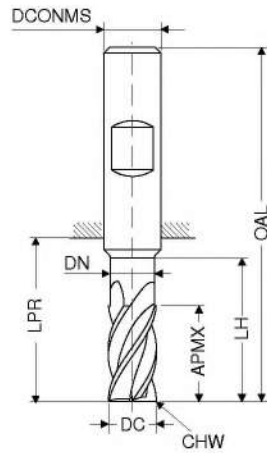
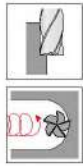
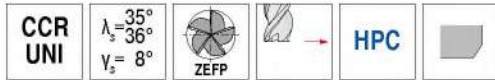
DC _{es}	APMX	DN	LH	LPR	OAL	DCONMS _{ps}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
6	13	5.8	19	21	57	6	0.2	6
6	19	5.8	25	27	63	6	0.2	6
8	21	7.7	25	27	63	8	0.2	6
8	25	7.7	33	35	71	8	0.2	6
10	22	9.7	30	32	72	10	0.2	6
10	31	9.7	41	43	83	10	0.2	6
12	26	11.6	36	38	83	12	0.2	6
12	37	11.6	47	49	94	12	0.2	6
16	36	15.5	42	44	92	16	0.2	6
16	49	15.5	61	63	111	16	0.2	6
20	41	19.5	52	54	104	20	0.2	6
20	61	19.5	75	77	127	20	0.2	6

	Factory standard	Factory standard
	HB <input type="checkbox"/>	HB <input type="checkbox"/>
	V1	V1
Article no.	53 585 ...	53 587 ...
£		
060	53.67	52.61
080	69.99	68.27
100	89.92	96.25
120	115.64	113.04
160	230.67	233.91
200	331.64	327.92
Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals		
Heat resistant alloys	○	○
hardened materials		

→ v_c/f_z Page 280+281

CircularLine – End milling cutter

▲ Chip breaker 0.9 x DC



DPX72S
DRAGONSKIN



Factory standard

HB

V1

Article no.

53 589 ...

£

54.84 060

70.52 080

97.37 100

118.63 120

238.38 160

335.75 200

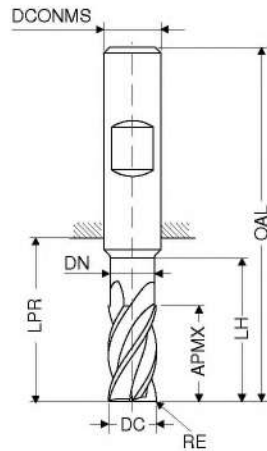
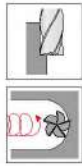
DC _{es}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
6	25	5.8	29	31	67	6	0.2	5
8	33	7.7	38	40	76	8	0.2	5
10	41	9.7	47	49	89	10	0.2	5
12	49	11.6	55	57	102	12	0.2	5
16	65	15.5	73	75	123	16	0.2	5
20	82	19.5	91	93	143	20	0.2	5

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	
Heat resistant alloys	○
hardened materials	

→ v_c/f_t Page 282+283

CircularLine – End milling cutter

▲ Chip breaker 0.9 x DC



DPX72S

DRAGONSKIN



Factory standard

HB

V1

Article no.
53 586 ...

£

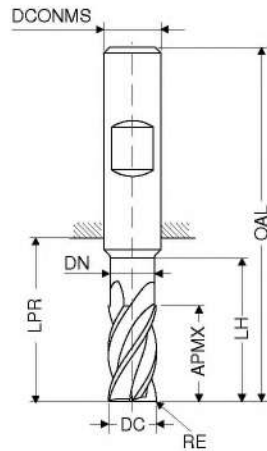
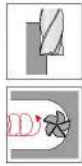
DC _{e8}	RE _{±0,05}	APMX	DN	LH	LPR	OAL	DCONMS _{h6}	ZEFP	
mm	mm	mm	mm	mm	mm	mm	mm		
6	0.2	13	5.8	19	21	57	6	6	53.67 06002
6	1.0	13	5.8	19	21	57	6	6	53.96 06010
6	1.5	13	5.8	19	21	57	6	6	53.96 06015
8	0.2	21	7.7	25	27	63	8	6	69.99 08002
8	1.0	21	7.7	25	27	63	8	6	71.66 08010
8	1.5	21	7.7	25	27	63	8	6	71.66 08015
8	2.0	21	7.7	25	27	63	8	6	71.66 08020
10	0.2	22	9.7	30	32	72	10	6	89.92 10002
10	1.0	22	9.7	30	32	72	10	6	92.39 10010
10	1.5	22	9.7	30	32	72	10	6	92.39 10015
10	1.6	22	9.7	30	32	72	10	6	92.39 10016
10	2.0	22	9.7	30	32	72	10	6	92.39 10020
12	0.2	26	11.6	36	38	83	12	6	115.64 12002
12	1.0	26	11.6	36	38	83	12	6	116.17 12010
12	1.5	26	11.6	36	38	83	12	6	116.17 12015
12	1.6	26	11.6	36	38	83	12	6	116.17 12016
12	2.0	26	11.6	36	38	83	12	6	116.17 12020
12	3.0	26	11.6	36	38	83	12	6	116.17 12030
16	0.2	36	15.5	42	44	92	16	6	230.67 16002
16	1.0	36	15.5	42	44	92	16	6	248.70 16010
16	1.5	36	15.5	42	44	92	16	6	240.37 16015
16	1.6	36	15.5	42	44	92	16	6	240.37 16016
16	2.0	36	15.5	42	44	92	16	6	240.37 16020
16	3.0	36	15.5	42	44	92	16	6	240.37 16030
16	4.0	36	15.5	42	44	92	16	6	240.37 16040
20	0.2	41	19.5	52	54	104	20	6	331.64 20002
20	1.0	41	19.5	52	54	104	20	6	334.99 20010
20	1.5	41	19.5	52	54	104	20	6	334.99 20015
20	1.6	41	19.5	52	54	104	20	6	334.99 20016
20	2.0	41	19.5	52	54	104	20	6	334.99 20020
20	3.0	41	19.5	52	54	104	20	6	334.99 20030
20	4.0	41	19.5	52	54	104	20	6	334.99 20040

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	
Heat resistant alloys	○
hardened materials	

→ v_c/f_t Page 280+281

CircularLine – End milling cutter

▲ Chip breaker 1.8 x DC



Factory standard



HB

V1

Article no.
53 592 ...

£

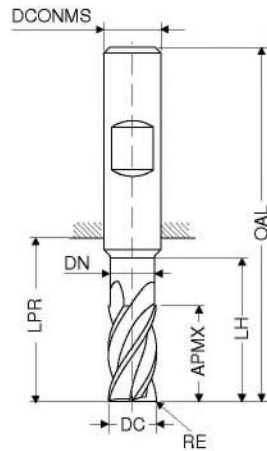
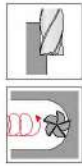
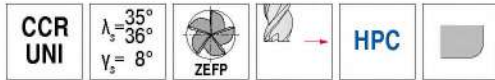
DC _{e8}	RE _{±0,05}	APMX	DN	LH	LPR	OAL	DCONMS _{h6}	ZEFP	
mm	mm	mm	mm	mm	mm	mm	mm		
6	0.2	19	5.8	25	27	63	6	6	52.61 06002
6	1.0	19	5.8	25	27	63	6	6	53.72 06010
6	1.5	19	5.8	25	27	63	6	6	53.72 06015
8	0.2	25	7.7	33	35	71	8	6	68.27 08002
8	1.0	25	7.7	33	35	71	8	6	70.52 08010
8	1.5	25	7.7	33	35	71	8	6	70.52 08015
8	2.0	25	7.7	33	35	71	8	6	70.52 08020
10	0.2	31	9.7	41	43	83	10	6	96.25 10002
10	1.0	31	9.7	41	43	83	10	6	98.48 10010
10	1.5	31	9.7	41	43	83	10	6	98.48 10015
10	1.6	31	9.7	41	43	83	10	6	98.48 10016
10	2.0	31	9.7	41	43	83	10	6	98.48 10020
12	0.2	37	11.6	47	49	94	12	6	113.04 12002
12	1.0	37	11.6	47	49	94	12	6	116.39 12010
12	1.5	37	11.6	47	49	94	12	6	116.39 12015
12	1.6	37	11.6	47	49	94	12	6	116.39 12016
12	2.0	37	11.6	47	49	94	12	6	116.39 12020
12	3.0	37	11.6	47	49	94	12	6	116.39 12030
16	0.2	49	15.5	61	63	111	16	6	233.91 16002
16	1.0	49	15.5	61	63	111	16	6	236.14 16010
16	1.5	49	15.5	61	63	111	16	6	236.14 16015
16	1.6	49	15.5	61	63	111	16	6	236.14 16016
16	2.0	49	15.5	61	63	111	16	6	236.14 16020
16	3.0	49	15.5	61	63	111	16	6	236.14 16030
16	4.0	49	15.5	61	63	111	16	6	236.14 16040
20	0.2	61	19.5	75	77	127	20	6	327.92 20002
20	1.0	61	19.5	75	77	127	20	6	331.26 20010
20	1.5	61	19.5	75	77	127	20	6	331.26 20015
20	1.6	61	19.5	75	77	127	20	6	331.26 20016
20	2.0	61	19.5	75	77	127	20	6	331.26 20020
20	3.0	61	19.5	75	77	127	20	6	331.26 20030
20	4.0	61	19.5	75	77	127	20	6	331.26 20040

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	
Heat resistant alloys	○
hardened materials	

→ v_c/f_t Page 280+281

CircularLine – End milling cutter

▲ Chip breaker 0.9 x DC



DPX72S

DRAGONSKIN



Factory standard

HB

V1

Article no.
53 593 ...

£ 54.84 06002

55.95 06010

55.95 06015

70.52 08002

71.63 08010

71.63 08015

71.63 08020

97.37 10002

99.61 10010

99.61 10015

99.61 10016

99.61 10020

118.63 12002

121.99 12010

121.99 12015

121.99 12016

121.99 12020

121.99 12030

238.38 16002

242.86 16010

242.86 16015

242.86 16016

242.86 16020

242.86 16030

242.86 16040

335.75 20002

341.34 20010

341.34 20015

341.34 20016

341.34 20020

341.34 20030

341.34 20040

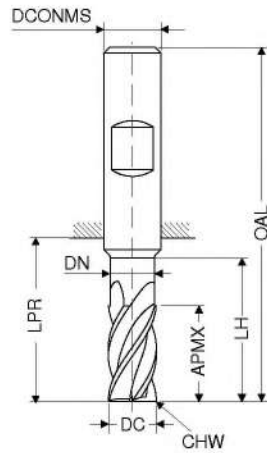
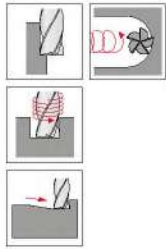
DC _{e8}	RE _{±0,05}	APMX	DN	LH	LPR	OAL	DCONMS _{h6}	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
6	0.2	25	5.8	29	31	67	6	5
6	1.0	25	5.8	29	31	67	6	5
6	1.5	25	5.8	29	31	67	6	5
8	0.2	33	7.7	38	40	76	8	5
8	1.0	33	7.7	38	40	76	8	5
8	1.5	33	7.7	38	40	76	8	5
8	2.0	33	7.7	38	40	76	8	5
10	0.2	41	9.7	47	49	89	10	5
10	1.0	41	9.7	47	49	89	10	5
10	1.5	41	9.7	47	49	89	10	5
10	1.6	41	9.7	47	49	89	10	5
10	2.0	41	9.7	47	49	89	10	5
12	0.2	49	11.6	55	57	102	12	5
12	1.0	49	11.6	55	57	102	12	5
12	1.5	49	11.6	55	57	102	12	5
12	1.6	49	11.6	55	57	102	12	5
12	2.0	49	11.6	55	57	102	12	5
12	3.0	49	11.6	55	57	102	12	5
16	0.2	65	15.5	73	75	123	16	5
16	1.0	65	15.5	73	75	123	16	5
16	1.5	65	15.5	73	75	123	16	5
16	1.6	65	15.5	73	75	123	16	5
16	2.0	65	15.5	73	75	123	16	5
16	3.0	65	15.5	73	75	123	16	5
16	4.0	65	15.5	73	75	123	16	5
20	0.2	82	19.5	91	93	143	20	5
20	1.0	82	19.5	91	93	143	20	5
20	1.5	82	19.5	91	93	143	20	5
20	1.6	82	19.5	91	93	143	20	5
20	2.0	82	19.5	91	93	143	20	5
20	3.0	82	19.5	91	93	143	20	5
20	4.0	82	19.5	91	93	143	20	5

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	○

→ v_c/f, Page 282+283

CircularLine – End milling cutter

▲ Chip breaker 1.8 x DC



DC _{es}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
6	19	5.8	24	30	66	6	0.2	4
6	25	5.8	30	35	71	6	0.2	4
8	25	7.7	32	37	73	8	0.2	4
8	33	7.7	40	44	80	8	0.2	4
10	31	9.7	40	49	89	10	0.2	4
10	41	9.7	50	55	95	10	0.2	4
12	37	11.6	48	56	101	12	0.2	4
12	49	11.6	60	64	109	12	0.2	4
16	49	15.5	64	72	120	16	0.2	4
16	65	15.5	80	84	132	16	0.2	4
20	62	19.5	80	84	134	20	0.2	4
20	82	19.5	100	104	154	20	0.2	4

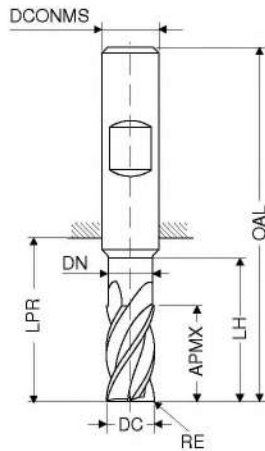
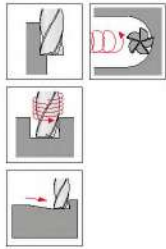
Material	060	080	100	120	160	200
Steel						
Stainless steel						
Cast iron						
Non ferrous metals					●	●
Heat resistant alloys						
hardened materials						

HB	V1	V1
Factory standard	Article no. 53 590 ...	Article no. 53 591 ...
£	£	£
060	54.84	57.08
080	71.63	73.86
100	100.72	101.85
120	120.86	126.47
160	247.33	252.93
200	346.94	355.88

→ v_c/f_z Page 284

CircularLine – End milling cutter

▲ Chip breaker 1.8 x DC

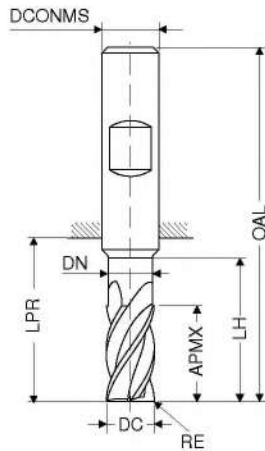
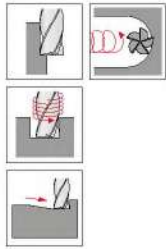


DC _{e8}	RE _{±0,05}	APMX	DN	LH	LPR	OAL	DCONMS _{h6}	ZEFP	Article no.	Price (£)
6	0.2	19	5.8	24	30	66	6	4	53 594 ...	54.84
6	1.0	19	5.8	24	30	66	6	4	06002	57.08
6	1.5	19	5.8	24	30	66	6	4	06010	57.08
6	0.2	25	5.8	30	35	71	6	4	06015	57.08
6	1.0	25	5.8	30	35	71	6	4	06002	57.08
6	1.5	25	5.8	30	35	71	6	4	06010	58.19
6	1.5	25	5.8	30	35	71	6	4	06015	58.19
8	0.2	25	7.7	32	37	73	8	4	08002	71.63
8	1.0	25	7.7	32	37	73	8	4	08010	73.86
8	1.5	25	7.7	32	37	73	8	4	08015	73.86
8	2.0	25	7.7	32	37	73	8	4	08020	73.86
8	0.2	33	7.7	40	44	80	8	4	08002	73.86
8	1.0	33	7.7	40	44	80	8	4	08010	76.10
8	1.5	33	7.7	40	44	80	8	4	08015	76.10
8	2.0	33	7.7	40	44	80	8	4	08020	76.10
10	0.2	31	9.7	40	49	89	10	4	10002	100.72
10	1.0	31	9.7	40	49	89	10	4	10010	101.85
10	1.5	31	9.7	40	49	89	10	4	10015	101.85
10	1.6	31	9.7	40	49	89	10	4	10016	101.85
10	2.0	31	9.7	40	49	89	10	4	10020	101.85
10	0.2	41	9.7	50	55	95	10	4	10002	101.85
10	1.0	41	9.7	50	55	95	10	4	10010	104.09
10	1.5	41	9.7	50	55	95	10	4	10015	104.09
10	1.6	41	9.7	50	55	95	10	4	10016	104.09
10	2.0	41	9.7	50	55	95	10	4	10020	104.09
12	0.2	37	11.6	48	56	101	12	4	12002	120.86
12	1.0	37	11.6	48	56	101	12	4	12010	123.11
12	1.5	37	11.6	48	56	101	12	4	12015	123.11
12	1.6	37	11.6	48	56	101	12	4	12016	123.11
12	2.0	37	11.6	48	56	101	12	4	12020	123.11
12	3.0	37	11.6	48	56	101	12	4	12030	123.11
12	0.2	49	11.6	60	64	109	12	4	12002	126.47
12	1.0	49	11.6	60	64	109	12	4	12010	129.82
12	1.5	49	11.6	60	64	109	12	4	12015	129.82
12	1.6	49	11.6	60	64	109	12	4	12016	129.82
12	2.0	49	11.6	60	64	109	12	4	12020	129.82
12	3.0	49	11.6	60	64	109	12	4	12030	129.82
16	0.2	49	15.5	64	72	120	16	4	16002	247.33
16	1.0	49	15.5	64	72	120	16	4	16010	249.57
16	1.5	49	15.5	64	72	120	16	4	16015	249.57

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	

CircularLine – End milling cutter

▲ Chip breaker 1.8 x DC



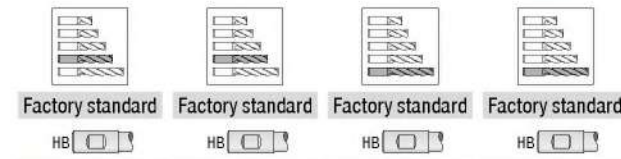
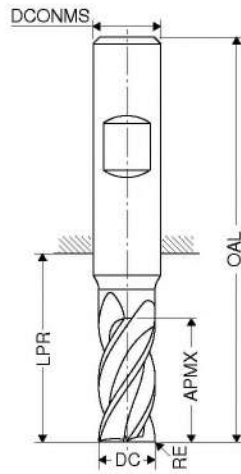
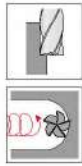
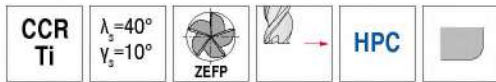
DC _{e8}	RE _{40,05}	APMX	DN	LH	LPR	OAL	DCONMS _{h6}	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
16	1.6	49	15.5	64	72	120	16	4
16	2.0	49	15.5	64	72	120	16	4
16	3.0	49	15.5	64	72	120	16	4
16	4.0	49	15.5	64	72	120	16	4
16	0.2	65	15.5	80	84	132	16	4
16	1.0	65	15.5	80	84	132	16	4
16	1.5	65	15.5	80	84	132	16	4
16	1.6	65	15.5	80	84	132	16	4
16	2.0	65	15.5	80	84	132	16	4
16	3.0	65	15.5	80	84	132	16	4
16	4.0	65	15.5	80	84	132	16	4
20	0.2	62	19.5	80	84	134	20	4
20	1.0	62	19.5	80	84	134	20	4
20	1.5	62	19.5	80	84	134	20	4
20	1.6	62	19.5	80	84	134	20	4
20	2.0	62	19.5	80	84	134	20	4
20	3.0	62	19.5	80	84	134	20	4
20	4.0	62	19.5	80	84	134	20	4
20	0.2	82	19.5	100	104	154	20	4
20	1.0	82	19.5	100	104	154	20	4
20	1.5	82	19.5	100	104	154	20	4
20	1.6	82	19.5	100	104	154	20	4
20	2.0	82	19.5	100	104	154	20	4
20	3.0	82	19.5	100	104	154	20	4
20	4.0	82	19.5	100	104	154	20	4

Material	Article no.	Price (£)
Steel	53 594 ...	249.57
Stainless steel	16016	249.57
Cast iron	16020	249.57
Non ferrous metals	16030	249.57
Heat resistant alloys	16040	249.57
hardened materials		
	20002	346.94
	20010	351.41
	20015	351.41
	20016	351.41
	20020	351.41
	20030	351.41
	20040	351.41
	20002	355.88
	20010	359.25
	20015	359.25
	20016	359.25
	20020	359.25
	20030	359.25
	20040	359.25

→ v_d/f_z Page 284

CircularLine – End milling cutter with corner radius

▲ Chip breaker 0.9 x DC



DC _{e8}	RE _{s0.01}	APMX	LPR	OAL	DCONMS _{ns}	ZEFP	NEW V1	NEW V1	NEW V1	NEW V1
mm	mm	mm	mm	mm	mm		Article no.	Article no.	Article no.	Article no.
6	0.1	18	29	65	6	5	52 509 ...	52 510 ...	52 509 ...	52 510 ...
6	0.1	24	31	67	6	5	£ 68.14 06000	£ 75.79 06000	£ 74.05 06100	£ 81.71 06100
8	0.2	24	34	70	8	5	£ 89.34 08000	£ 100.10 08000	£ 93.02 08100	£ 103.77 08100
8	0.2	32	44	80	8	5				
10	0.2	30	40	80	10	5	£ 111.70 10000	£ 124.95 10000	£ 118.25 10100	£ 131.53 10100
10	0.2	40	50	90	10	5				
12	0.2	36	50	95	12	5	£ 143.08 12000	£ 158.09 12000	£ 149.31 12100	£ 164.33 12100
12	0.2	48	55	100	12	5				
16	0.2	48	62	110	16	5	£ 221.37 16000	£ 239.73 16000	£ 235.46 16100	£ 253.94 16100
16	0.3	64	72	120	16	5				
20	0.3	60	75	125	20	5	£ 292.04 20000	£ 314.68 20000	£ 360.98 20100	£ 383.62 20100
20	0.3	80	90	140	20	5				

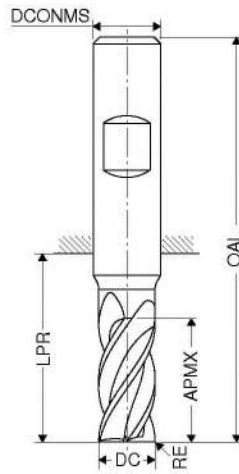
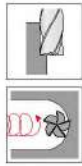
Steel				
Stainless steel		○	○	○
Cast iron				
Non ferrous metals				
Heat resistant alloys		●	●	●
hardened materials				

→ v_c/f_z Page 286+287

CircularLine – End milling cutter

▲ Chip breaker 0.9 x DC

CCR H $\lambda_s = 60^\circ$
 $\gamma_s = -6^\circ$ ZEFP 45-70 HRC



DPX62S

DRAGONSKIN



Factory standard

HB

NEW V1

Article no.

53 596 ...

£

58.75 06002

58.75 06010

80.93 08002

80.93 08010

112.10 10002

112.10 10010

112.10 10015

133.16 12002

133.16 12010

133.16 12015

133.16 12020

133.16 12030

266.69 16002

266.69 16010

266.69 16015

266.69 16020

266.69 16030

384.60 20002

384.60 20010

384.60 20015

384.60 20020

384.60 20030

DC _{e8}	RE _{±0,03}	APMX	LPR	OAL	DCONMS _{n6}	ZEFP
mm	mm	mm	mm	mm	mm	
6	0.2	19	24	60	6	6
6	1.0	19	24	60	6	6
8	0.2	25	31	67	8	6
8	1.0	25	31	67	8	6
10	0.2	31	37	77	10	6
10	1.0	31	37	77	10	6
10	1.5	31	37	77	10	6
12	0.2	37	43	88	12	6
12	1.0	37	43	88	12	6
12	1.5	37	43	88	12	6
12	2.0	37	43	88	12	6
12	3.0	37	43	88	12	6
16	0.2	49	56	104	16	6
16	1.0	49	56	104	16	6
16	1.5	49	56	104	16	6
16	2.0	49	56	104	16	6
16	3.0	49	56	104	16	6
20	0.2	61	68	118	20	6
20	1.0	61	68	118	20	6
20	1.5	61	68	118	20	6
20	2.0	61	68	118	20	6
20	3.0	61	68	118	20	6

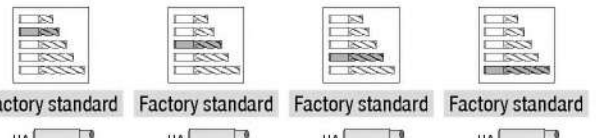
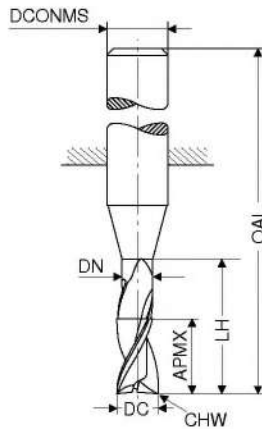
- hardened < 45 HRC
- hardened 46-55 HRC
- hardened 56-60 HRC
- hardened 61-65 HRC
- hardened 65-70 HRC



→ v_c/f_z Page 285

AluLine – End milling cutter

▲ with polished chip flutes

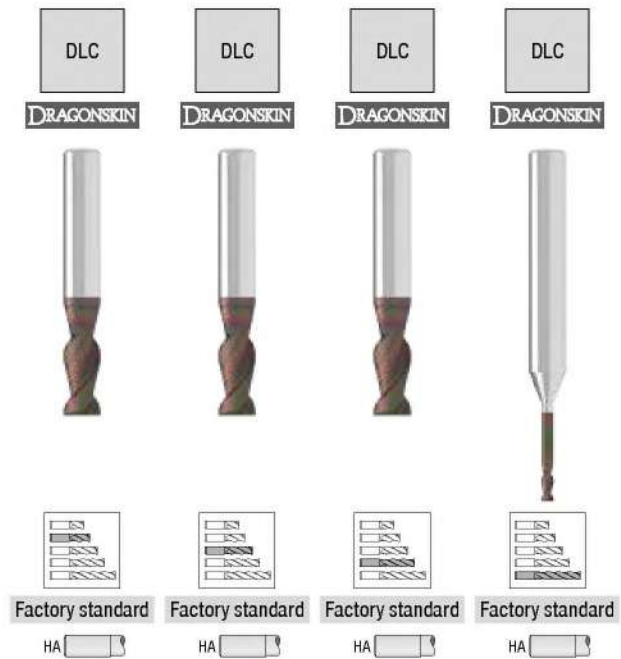
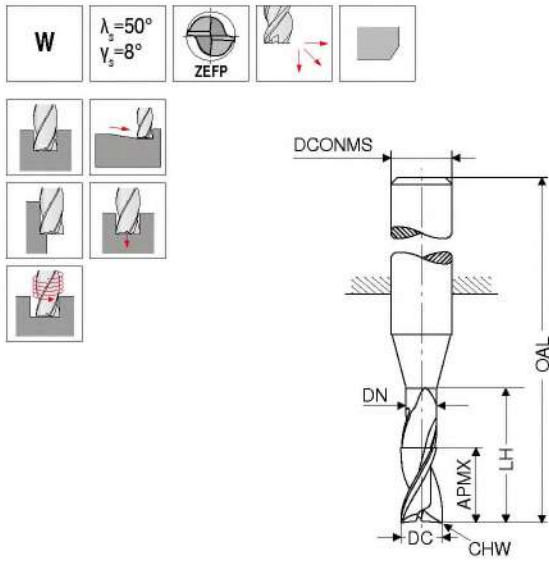


DC _{h6}	APMX	DN	LH	OAL	DCONMS _{h6}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	
2.0	8	1.9	16	57	6	0.05	2
2.5	8	2.4	16	57	6	0.10	2
3.0	8	2.9	18	57	6	0.10	2
3.5	11	3.4	18	57	6	0.10	2
4.0	11	3.9	18	57	6	0.10	2
4.5	13	4.4	20	57	6	0.10	2
5.0	13	4.9	20	57	6	0.10	2
5.5	13	5.4	20	57	6	0.10	2
6.0	13	5.9	20	57	6	0.10	2
6.5	16	6.2	26	63	8	0.10	2
7.0	16	6.7	26	63	8	0.10	2
7.5	19	7.2	26	63	8	0.10	2
8.0	19	7.7	26	63	8	0.10	2
8.5	19	8.2	29	72	10	0.10	2
9.0	19	8.7	29	72	10	0.10	2
9.5	22	9.2	29	72	10	0.10	2
10.0	22	9.7	29	72	10	0.10	2
10.5	26	10.2	36	83	12	0.10	2
11.0	26	10.7	36	83	12	0.10	2
11.5	26	11.2	36	83	12	0.10	2
12.0	26	11.7	36	83	12	0.10	2
12.5	26	12.2	36	83	14	0.10	2
13.0	26	12.7	36	83	14	0.10	2
13.5	26	13.2	36	83	14	0.10	2
14.0	26	13.7	36	83	14	0.10	2
14.5	32	14.0	42	92	16	0.10	2
15.0	32	14.5	42	92	16	0.10	2
15.5	32	15.0	42	92	16	0.10	2
16.0	32	15.5	42	92	16	0.10	2
16.5	32	16.0	42	92	18	0.10	2
17.0	32	16.5	42	92	18	0.10	2
17.5	32	17.0	42	92	18	0.10	2
18.0	32	17.5	42	92	18	0.10	2
18.5	38	18.0	52	104	20	0.10	2
19.0	38	18.5	52	104	20	0.10	2
19.5	38	19.0	52	104	20	0.10	2
20.0	38	19.5	52	104	20	0.10	2

Factory standard	Factory standard	Factory standard	Factory standard
HA	HA	HA	HA
V1	V1	V1	V1
Article no.	Article no.	Article no.	Article no.
53 500 ...	53 501 ...	53 502 ...	53 503 ...
£	£	£	£
			25.16 020
			27.02 025
			26.40 030
		29.52	035
		29.52	040
		29.02	045
		27.90	050
	27.39		055
	25.77		060
		37.87	070
		36.86	075
		36.24	080
		54.80	085
		53.31	090
		52.06	095
50.81			100
		83.21	105
		81.20	110
		79.21	115
		79.21	120
102.87			125
102.00			130
101.13			135
102.11			140
139.61			145
136.13			150
133.76			155
140.85			160
178.72			165
175.11			170
171.62			175
171.62			180
214.20			185
208.23			190
203.49			195
202.39			200

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	•	•	•	•
Heat resistant alloys				
hardened materials				

AluLine – End milling cutter



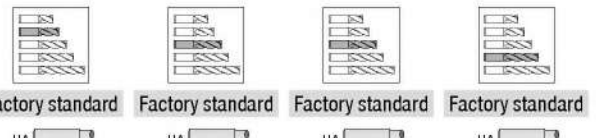
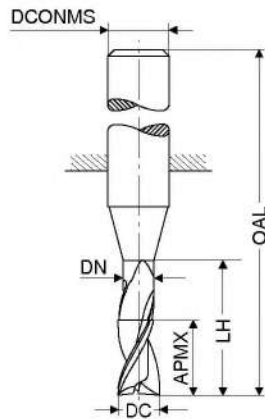
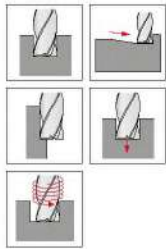
DC _{h6}	APMX	DN	LH	OAL	DCONMS _{h6}	CHW	ZEPF	V1 Article no. 53 504 ...	V1 Article no. 53 505 ...	V1 Article no. 53 506 ...	V1 Article no. 53 507 ...
mm	mm	mm	mm	mm	mm	mm		£	£	£	£
2.0	8	1.9	16	57	6	0.05	2				36.61 020
2.5	8	2.4	16	57	6	0.10	2				36.98 025
3.0	8	2.9	18	57	6	0.10	2				36.49 030
3.5	11	3.4	18	57	6	0.10	2			39.48 035	
4.0	11	3.9	18	57	6	0.10	2			39.48 040	
4.5	13	4.4	20	57	6	0.10	2			39.12 045	
5.0	13	4.9	20	57	6	0.10	2			38.12 050	
5.5	13	5.4	20	57	6	0.10	2		37.49 055		
6.0	13	5.9	20	57	6	0.10	2		35.87 060		
6.5	16	6.2	26	63	8	0.10	2			48.70 065	
7.0	16	6.7	26	63	8	0.10	2		47.94 070		
7.5	19	7.2	26	63	8	0.10	2		47.08 075		
8.0	19	7.7	26	63	8	0.10	2		46.33 080		
8.5	19	8.2	29	72	10	0.10	2		64.89 085		
9.0	19	8.7	29	72	10	0.10	2		63.51 090		
9.5	22	9.2	29	72	10	0.10	2		62.15 095		
10.0	22	9.7	29	72	10	0.10	2	60.89 100			
10.5	26	10.2	36	83	12	0.10	2		93.29 105		
11.0	26	10.7	36	83	12	0.10	2		91.15 110		
11.5	26	11.2	36	83	12	0.10	2		89.17 115		
12.0	26	11.7	36	83	12	0.10	2		89.17 120		
12.5	26	12.2	36	83	14	0.10	2	112.96 125			
13.0	26	12.7	36	83	14	0.10	2	112.09 130			
13.5	26	13.2	36	83	14	0.10	2	111.22 135			
14.0	26	13.7	36	83	14	0.10	2	112.21 140			
14.5	32	14.0	42	92	16	0.10	2	150.32 145			
15.0	32	14.5	42	92	16	0.10	2	146.72 150			
15.5	32	15.0	42	92	16	0.10	2	143.21 155			
16.0	32	15.5	42	92	16	0.10	2	150.32 160			
16.5	32	16.0	42	92	18	0.10	2	188.19 165			
17.0	32	16.5	42	92	18	0.10	2	184.55 170			
17.5	32	17.0	42	92	18	0.10	2	181.08 175			
18.0	32	17.5	42	92	18	0.10	2	182.20 180			
18.5	38	18.0	52	104	20	0.10	2	223.67 185			
19.0	38	18.5	52	104	20	0.10	2	218.94 190			
19.5	38	19.0	52	104	20	0.10	2	214.20 195			
20.0	38	19.5	52	104	20	0.10	2	212.96 200			

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	•	•	•	•
Heat resistant alloys				
hardened materials				

→ v_c/f_z Page 288+289

AluLine – End milling cutter

▲ with polished chip flutes



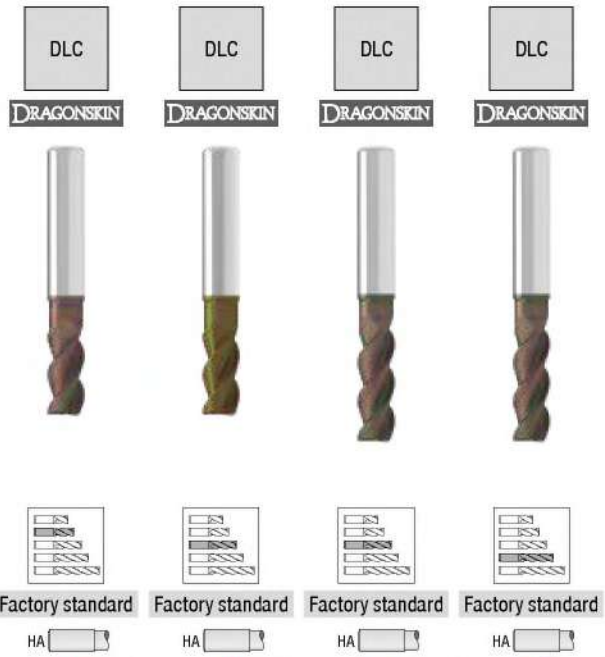
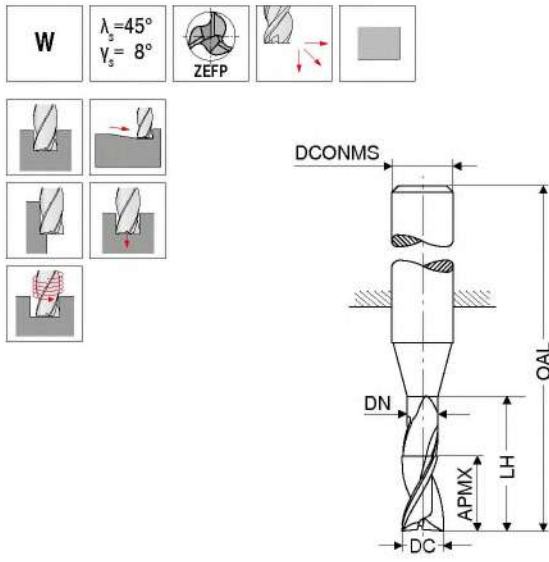
DC _{ns}	APMX	DN	LH	OAL	DCONMS _{ns}	ZEFP
mm	mm	mm	mm	mm	mm	
3	8	2.7	13	57	6	3
4	11	3.7	17	57	6	3
5	13	4.7	19	57	6	3
6	13	5.7	19	57	6	3
6	18	5.7	24	62	6	3
8	21	7.4	25	63	8	3
8	24	7.4	30	68	8	3
10	22	9.2	30	72	10	3
10	30	9.2	38	80	10	3
12	26	11.0	36	83	12	3
12	36	11.0	46	93	12	3
14	26	13.0	36	83	14	3
16	36	15.0	42	92	16	3
16	48	15.0	58	108	16	3
18	36	17.0	42	92	18	3
20	41	19.0	52	104	20	3
20	60	19.0	74	126	20	3

Factory standard	Factory standard	Factory standard	Factory standard
HA	HA	HA	HA
V1	V1	V1	V1
Article no.	Article no.	Article no.	Article no.
53 517 ...	53 518 ...	53 519 ...	53 520 ...
£	£	£	£
			28.40 030
		30.76 050	31.14 040
		28.76 060	
	37.91 080		31.26 060
	52.48 100	46.08 080	
	81.75 120	60.77 100	
		94.53 120	
104.60 140			
145.19 160			
		170.37 160	
176.21 180			
208.27 200			
		319.43 200	

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	•	•	•	•
Heat resistant alloys				
hardened materials				

→ v_c/f_z Page 288+289

AluLine – End milling cutter



DC _{ns}	APMX	DN	LH	OAL	DCONMS _{ns}	ZEPF
mm	mm	mm	mm	mm	mm	
3	8	2.7	13	57	6	3
4	11	3.7	17	57	6	3
5	13	4.7	19	57	6	3
6	13	5.7	19	57	6	3
6	18	5.7	24	62	6	3
8	21	7.4	25	63	8	3
8	24	7.4	30	68	8	3
10	22	9.2	30	72	10	3
10	30	9.2	38	80	10	3
12	26	11.0	36	83	12	3
12	36	11.0	46	93	12	3
14	26	13.0	36	83	14	3
16	36	15.0	42	92	16	3
18	36	17.0	42	92	18	3
20	41	19.0	52	104	20	3

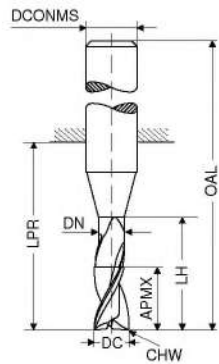
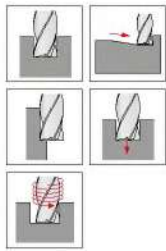
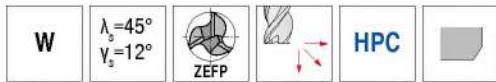
Factory standard	Factory standard	Factory standard	Factory standard
HA	HA	HA	HA
V1	V1	V1	V1
Article no. 53 521 ...	Article no. 53 522 ...	Article no. 53 523 ...	Article no. 53 524 ...
£	£	£	£
			38.60 030
			41.34 040
		40.86 050	
		38.98 060	
			41.47 060
	50.57 080		
	66.14 100	56.04 080	
	97.38 120	70.99 100	
		104.61 120	
121.92 140			
165.64 160			
197.66 180			
233.14 200			

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	•	•	•	•
Heat resistant alloys				
hardened materials				

→ v₀/f_z, Page 288+289

AluLine – End milling cutter

▲ with graduated flute depth



LPR with Shank DIN 6535 HB



Factory standard Factory standard Factory standard Factory standard Factory standard



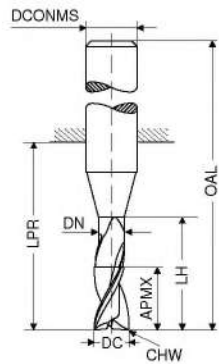
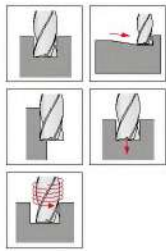
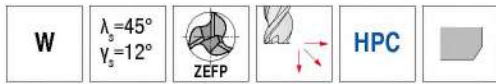
DC _{in10}	APMX	DN	LH	LPR	OAL	DCONMS _{HB}	CHW	ZEFP	V1	
mm	mm	mm	mm	mm	mm	mm	mm		Article no.	Article no.
3	8	2.7	12	21	57	6	0.1	3	53 532 ...	53 533 ...
4	11	3.7	18	21	57	6	0.1	3	£	£
5	13	4.7	18	21	57	6	0.1	3		35.12 050
6	13	5.7	18	21	57	6	0.2	3		39.72 060
8	21	7.4	25	27	63	8	0.2	3		45.58 080
10	16	9.2	58	60	100	10	0.2	3		103.00 100
10	22	9.2	30	32	72	10	0.2	3		78.70 100
10	22	9.2	58	60	100	10	0.2	3		103.00 100
12	26	11.0	36	38	83	12	0.2	3		106.48 120
16	36	15.0	42	44	92	16	0.2	3	207.09 160	
18	36	17.0	42	44	92	18	0.2	3	257.93 180	
20	32	19.0	98	100	150	20	0.2	3		415.34 200
20	41	19.0	52	54	104	20	0.2	3	297.03 200	

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	●	●	●	●
Heat resistant alloys				
hardened materials				

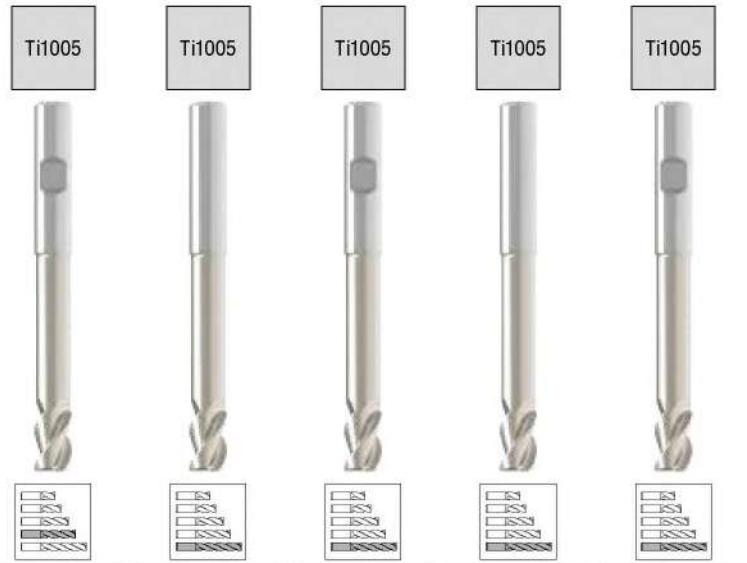
→ v_s/f_z Page 288+289

AluLine – End milling cutter

▲ with graduated flute depth



LPR with Shank DIN 6535 HB



Factory standard Factory standard Factory standard Factory standard Factory standard

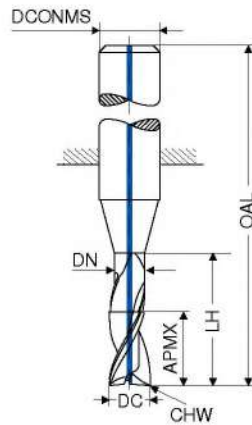
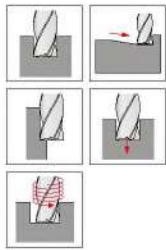
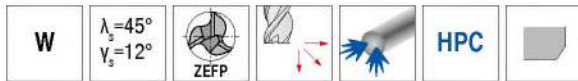


DC _{in10}	APMX	DN	LH	LPR	OAL	DCONMS _{HB}	CHW	ZEFP	Article no.	Price (£)
3	5.0	2.7	18	44	80	6	0.1	3	53 537 ...	
4	6.5	3.7	24	44	80	6	0.1	3		
5	8.0	4.7	30	44	80	6	0.1	3		
6	10.0	5.7	42	44	80	6	0.2	3		
6	13.0	5.7	42	44	80	6	0.2	3	53.56	060
8	13.0	7.4	62	64	100	8	0.2	3	69.62	080
8	21.0	7.4	62	64	100	8	0.2	3		
12	19.0	11.0	73	75	120	12	0.2	3	145.59	120
12	26.0	11.0	73	75	120	12	0.2	3		
16	25.0	15.0	100	102	150	16	0.2	3		
16	36.0	15.0	100	102	150	16	0.2	3		
18	36.0	17.0	100	102	150	18	0.2	3	384.57	180
20	41.0	19.0	98	100	150	20	0.2	3	415.34	200
									53 539 ...	
									53 540 ...	
									53 541 ...	

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	• • • • •
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 288+289

AluLine – End milling cutter



Factory standard HA

V1		V1	
Article no.	Article no.	£	
53 542 ...	53 543 ...	£	
		67.12	060
		86.93	080
129.02	100	182.20	120

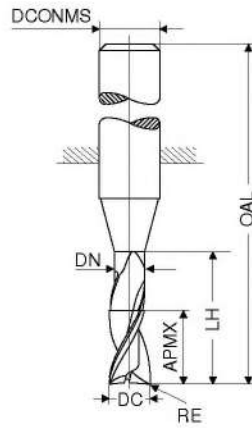
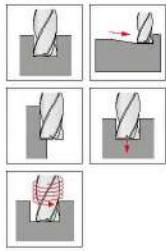
DC _{m0}	APMX	DN	LH	OAL	DCONMS _{n6}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	
6	10	5.7	42	80	6	0.2	3
8	13	7.4	62	100	8	0.2	3
10	16	9.2	58	100	10	0.2	3
12	19	11.0	73	120	12	0.2	3

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	• •
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 288+289

AluLine – End milling cutter with corner radius

▲ With polished chip flutes



Factory standard Factory standard Factory standard Factory standard



DC _{h6}	RE _{±0,01}	APMX	DN	LH	OAL	DCONMS _{h5}	ZEFP
mm	mm	mm	mm	mm	mm	mm	
5	0.5	13	4.7	19	57	6	3
5	1.0	13	4.7	19	57	6	3
6	0.5	10	5.7	42	80	6	3
6	0.5	13	5.7	19	57	6	3
6	1.0	10	5.7	42	80	6	3
6	1.0	13	5.7	19	57	6	3
8	0.5	13	7.4	62	100	8	3
8	0.5	21	7.4	25	63	8	3
8	1.0	13	7.4	62	100	8	3
8	1.0	21	7.4	25	63	8	3
10	0.5	16	9.2	58	100	10	3
10	0.5	22	9.2	30	72	10	3
10	1.0	16	9.2	58	100	10	3
10	1.0	22	9.2	30	72	10	3
12	0.5	19	11.0	73	120	12	3
12	0.5	26	11.0	36	83	12	3
12	1.0	19	11.0	73	120	12	3
12	1.0	26	11.0	36	83	12	3
16	2.0	25	15.0	100	150	16	3
16	2.0	36	15.0	42	92	16	3
16	4.0	25	15.0	100	150	16	3
16	4.0	36	15.0	42	92	16	3
20	4.0	32	19.0	98	150	20	3
20	4.0	41	19.0	52	104	20	3

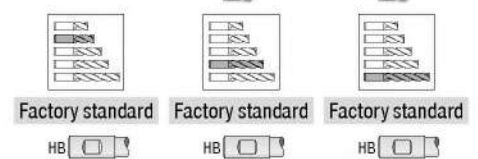
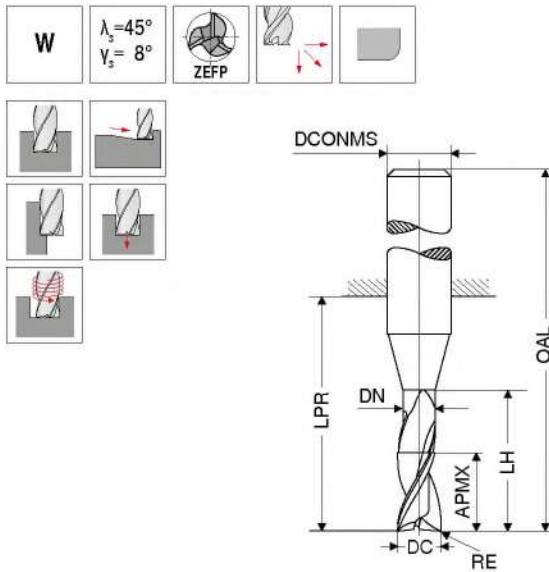
V1	V1	V1	V1
Article no.	Article no.	Article no.	Article no.
53 525 ...	53 527 ...	53 528 ...	53 530 ...
£	£	£	£
	25.03		
	05005		
	25.03		
	05010		
			34.38
			06005
	25.03		
	06005		
			34.38
			06010
	25.03		
	06010		
			48.07
			08005
	31.39		
	08005		
			48.07
			08010
	31.39		
	08010		
		66.88	
		10005	
	45.58		
	10005		
		66.88	
		10010	
	45.58		
	10010		
			98.26
			12005
	65.62		
	12005		
			98.26
			12010
	65.62		
	12010		
			186.93
			16020
111.58			
16020			
			186.93
			16040
111.58			
16040			
		307.61	
		20040	
173.98			
20040			

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	•	•	•	•
Heat resistant alloys				
hardened materials				

→ v_c/f_z Page 288+289

AluLine – End milling cutter with corner radius

▲ With polished chip flutes



DC _{h6}	RE _{±0,01}	APMX	DN	LH	LPR	OAL	DCONMS _{h5}	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
16	2	25	15	100	102	150	16	3
16	2	36	15	42	44	92	16	3
16	4	25	15	100	102	150	16	3
16	4	36	15	42	44	92	16	3
20	4	32	19	98	100	150	20	3
20	4	41	19	52	54	104	20	3

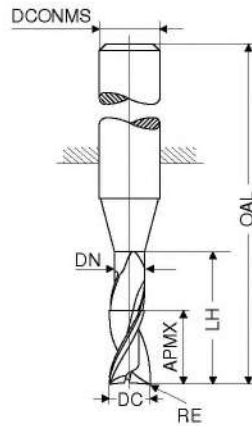
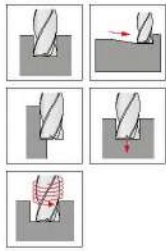
Factory standard	Factory standard	Factory standard
HB	HB	HB
V1	V1	V1
Article no. 53 526 ...	Article no. 53 529 ...	Article no. 53 531 ...
£	£	£
111.58 16020		186.93 16020
111.58 16040		186.93 16040
173.98 20040	307.61 20040	

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	• • •
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 288+289

AluLine – End milling cutter with corner radius

▲ With graduated flute depth



Factory standard Factory standard Factory standard Factory standard



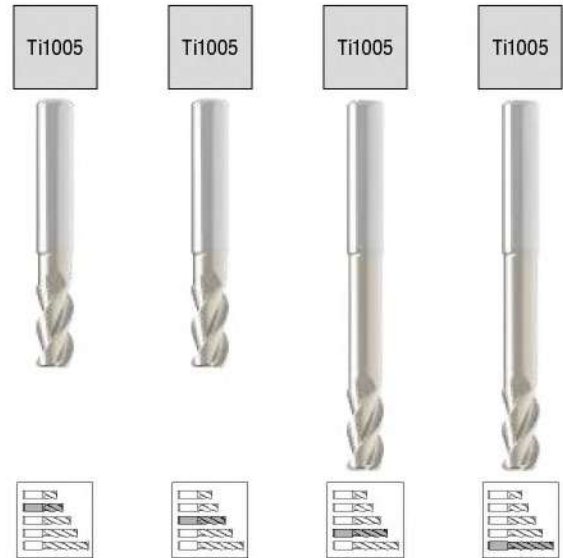
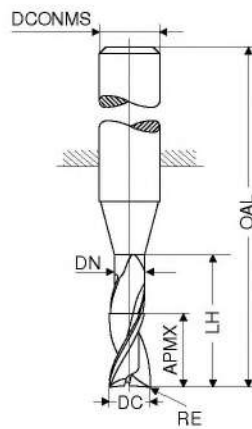
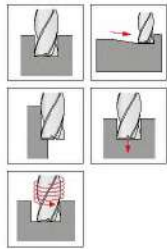
DC _{h6}	RE _{±0.01}	APMX	DN	LH	OAL	DCONMS _{h5}	ZEFP
mm	mm	mm	mm	mm	mm	mm	
3	0.4	8	2.7	12	57	6	3
3	0.5	8	2.7	12	57	6	3
3	1.0	8	2.7	12	57	6	3
4	0.2	11	3.7	18	57	6	3
4	0.4	11	3.7	18	57	6	3
4	0.5	11	3.7	18	57	6	3
4	1.0	11	3.7	18	57	6	3
5	0.5	13	4.7	18	57	6	3
5	1.0	13	4.7	18	57	6	3
6	0.4	13	5.7	18	57	6	3
6	0.4	13	5.7	42	80	6	3
6	0.5	13	5.7	18	57	6	3
6	0.5	13	5.7	42	80	6	3
6	0.6	13	5.7	18	57	6	3
6	0.6	13	5.7	42	80	6	3
6	0.8	13	5.7	18	57	6	3
6	0.8	13	5.7	42	80	6	3
6	1.0	13	5.7	18	57	6	3
6	1.0	13	5.7	42	80	6	3
6	1.5	13	5.7	18	57	6	3
6	1.5	13	5.7	42	80	6	3
8	0.5	21	7.4	25	63	8	3
8	0.5	21	7.4	62	100	8	3
8	0.8	21	7.4	25	63	8	3
8	0.8	21	7.4	62	100	8	3
8	1.0	21	7.4	25	63	8	3
8	1.0	21	7.4	62	100	8	3
8	1.2	21	7.4	25	63	8	3
8	1.2	21	7.4	62	100	8	3
8	1.5	21	7.4	25	63	8	3
8	1.5	21	7.4	62	100	8	3
8	2.0	21	7.4	25	63	8	3
8	2.0	21	7.4	62	100	8	3
10	0.5	22	9.2	30	72	10	3
10	0.5	22	9.2	58	100	10	3
10	1.0	22	9.2	30	72	10	3
10	1.0	22	9.2	58	100	10	3
10	1.2	22	9.2	30	72	10	3
10	1.2	22	9.2	58	100	10	3
10	1.5	22	9.2	30	72	10	3

V1	V1	V1	V1
Article no. 53 544 ...	Article no. 53 545 ...	Article no. 53 547 ...	Article no. 53 549 ...
£	£	£	£
		37.36 03004	
		37.36 03005	
		37.36 03010	
		37.36 04002	
		37.36 04004	
		37.36 04005	
		37.36 04010	
	37.36 05005		
	37.36 05010		
	42.35 06004		
			58.53 06004
	42.35 06005		
			58.53 06005
	42.35 06006		
			58.53 06006
	42.35 06008		
			58.53 06008
	42.35 06010		
			58.53 06010
	42.35 06015		
			58.53 06015
	48.57 08005		
			76.10 08005
	48.57 08008		
			76.10 08008
	48.57 08010		
			76.10 08010
	48.57 08012		
			76.10 08012
	48.57 08015		
			76.10 08015
	48.57 08020		
			76.10 08020
	83.94 10005		
		112.71 10005	
	83.94 10010		
		112.71 10010	
	83.94 10012		
		112.71 10012	
	83.94 10015		

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	•	•	•	•
Heat resistant alloys				
hardened materials				

AluLine – End milling cutter with corner radius

▲ With graduated flute depth



Factory standard HA Factory standard HA Factory standard HA Factory standard HA

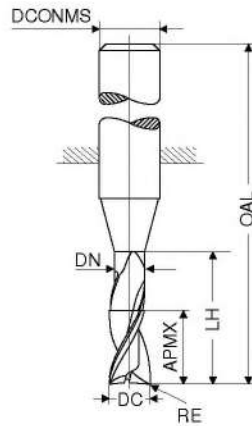
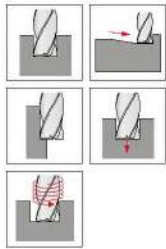
DC _{h6}	RE _{±0.01}	APMX	DN	LH	OAL	DCONMS _{h5}	ZEFP
mm	mm	mm	mm	mm	mm	mm	
10	1.5	22	9.2	58	100	10	3
10	1.6	22	9.2	30	72	10	3
10	1.6	22	9.2	58	100	10	3
10	2.0	22	9.2	30	72	10	3
10	2.0	22	9.2	58	100	10	3
12	0.5	26	11.0	73	120	12	3
12	1.0	26	11.0	73	120	12	3
12	1.2	26	11.0	73	120	12	3
12	1.5	26	11.0	73	120	12	3
12	1.6	26	11.0	73	120	12	3
12	2.0	26	11.0	73	120	12	3
12	2.5	26	11.0	73	120	12	3
12	4.0	26	11.0	73	120	12	3
16	1.0	36	15.0	42	92	16	3
16	1.0	36	15.0	100	150	16	3
16	1.6	36	15.0	42	92	16	3
16	1.6	36	15.0	100	150	16	3
16	2.0	36	15.0	42	92	16	3
16	2.0	36	15.0	100	150	16	3
16	2.5	36	15.0	42	92	16	3
16	2.5	36	15.0	100	150	16	3
16	3.2	36	15.0	42	92	16	3
16	3.2	36	15.0	100	150	16	3
16	4.0	36	15.0	42	92	16	3
16	4.0	36	15.0	100	150	16	3
20	1.0	41	19.0	52	104	20	3
20	1.0	41	19.0	98	150	20	3
20	2.0	41	19.0	52	104	20	3
20	2.0	41	19.0	98	150	20	3
20	4.0	41	19.0	52	104	20	3
20	4.0	41	19.0	98	150	20	3
20	5.0	41	19.0	52	104	20	3
20	5.0	41	19.0	98	150	20	3
20	6.3	41	19.0	52	104	20	3
20	6.3	41	19.0	98	150	20	3

V1	V1	V1	V1
Article no. 53 544 ...	Article no. 53 545 ...	Article no. 53 547 ...	Article no. 53 549 ...
£	£	£	£
		112.71 10015	
	83.94 10016	112.71 10016	
	83.94 10020	112.71 10020	
			160.90 12005
			160.90 12010
			160.90 12012
			160.90 12015
			160.90 12016
			160.90 12020
			160.90 12025
			160.90 12040
220.06 16010			
220.06 16016			340.74 16010
			340.74 16016
220.06 16020			
			340.74 16020
220.06 16025			
			340.74 16025
220.06 16032			
			340.74 16032
220.06 16040			
			340.74 16040
317.08 20010			
		439.02 20010	
317.08 20020			
		439.02 20020	
317.08 20040			
		439.02 20040	
317.08 20050			
		439.02 20050	
317.08 20063			
		439.02 20063	

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	•	•	•	•
Heat resistant alloys				
hardened materials				

AluLine – End milling cutter with corner radius

▲ with graduated flute depth



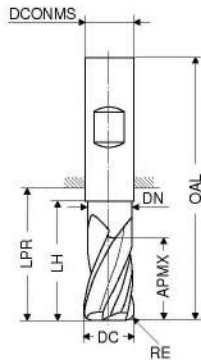
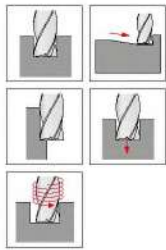
DC _{h6}	RE _{±0,01}	APMX	DN	LH	OAL	DCONMS _{h5}	ZEFP
mm	mm	mm	mm	mm	mm	mm	
6	0.4	10	5.7	42	80	6	3
6	0.5	10	5.7	42	80	6	3
6	0.6	10	5.7	42	80	6	3
6	0.8	10	5.7	42	80	6	3
6	1.0	10	5.7	42	80	6	3
6	1.5	10	5.7	42	80	6	3
8	0.5	13	7.4	62	100	8	3
8	0.8	13	7.4	62	100	8	3
8	1.0	13	7.4	62	100	8	3
8	1.2	13	7.4	62	100	8	3
8	1.5	13	7.4	62	100	8	3
8	2.0	13	7.4	62	100	8	3
10	0.5	16	9.2	58	100	10	3
10	1.0	16	9.2	58	100	10	3
10	1.2	16	9.2	58	100	10	3
10	1.5	16	9.2	58	100	10	3
10	1.6	16	9.2	58	100	10	3
10	2.0	16	9.2	58	100	10	3
12	0.5	19	11.0	73	120	12	3
12	1.0	19	11.0	73	120	12	3
12	1.2	19	11.0	73	120	12	3
12	1.5	19	11.0	73	120	12	3
12	1.6	19	11.0	73	120	12	3
12	2.0	19	11.0	73	120	12	3
12	2.5	19	11.0	73	120	12	3
12	4.0	19	11.0	73	120	12	3
16	0.5	25	15.0	100	150	16	3
16	1.6	25	15.0	100	150	16	3
16	2.0	25	15.0	100	150	16	3
16	2.5	25	15.0	100	150	16	3
16	3.2	25	15.0	100	150	16	3
16	4.0	25	15.0	100	150	16	3
20	1.0	32	19.0	98	150	20	3
20	2.0	32	19.0	98	150	20	3
20	4.0	32	19.0	98	150	20	3
20	5.0	32	19.0	98	150	20	3
20	6.3	32	19.0	98	150	20	3

Article no.	Price (£)	Article no.	Price (£)
53 546 ...		53 548 ...	
		06004	58.53
		06005	58.53
		06006	58.53
		06008	58.53
		06010	58.53
		06015	58.53
		08005	76.10
		08008	76.10
		08010	76.10
		08012	76.10
		08015	76.10
		08020	76.10
112.71	10005		
112.71	10010		
112.71	10012		
112.71	10015		
112.71	10016		
112.71	10020		
		12005	160.90
		12010	160.90
		12012	160.90
		12015	160.90
		12016	160.90
		12020	160.90
		12025	160.90
		12040	160.90
		16005	340.74
		16016	340.74
		16020	340.74
		16025	340.74
		16032	340.74
		16040	340.74
439.02	20010		
439.02	20020		
439.02	20040		
439.02	20050		
439.02	20063		

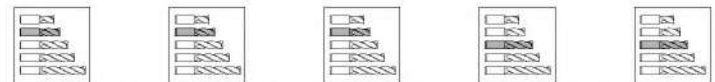
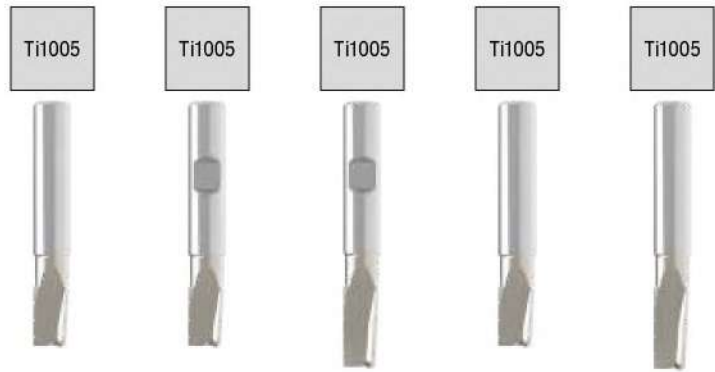
Steel	
Stainless steel	
Cast iron	
Non ferrous metals	•
Heat resistant alloys	
hardened materials	

→ v_c/f_c, Page 288+289

AluLine – Roughing-Finishing Cutter



LPR with Shank DIN 6535 HB



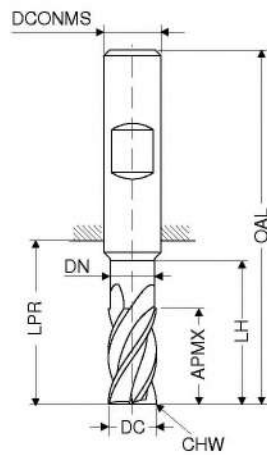
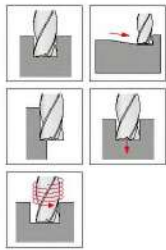
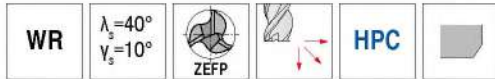
Factory standard HA HB HB HA HA

DC _{h6}	RE _{40,01}	APMX	DN	LH	LPR	OAL	DCONMS _{h5}	ZEFP	Article no. V1	Article no. V1	Article no. V1	Article no. V1	Article no. V1
mm	mm	mm	mm	mm	mm	mm	mm		53 512 ...	53 513 ...	53 514 ...	53 515 ...	53 516 ...
5	0.15	8	4.7	16	18	54	6	3				36.24	05002
5	0.15	13	4.7	18	21	57	6	3					36.24
6	0.20	10	5.7	17	18	54	6	3	36.24	06002			36.24
6	0.20	13	5.7	18	21	57	6	3					36.24
8	0.25	13	7.4	20	22	58	8	3	41.98	08003			44.59
8	0.25	21	7.4	25	27	63	8	3					44.59
10	0.30	16	9.2	24	26	66	10	3	58.41	10003			62.26
10	0.30	22	9.2	30	32	72	10	3					62.26
12	0.35	19	11.0	26	28	73	12	3	81.57	12004			84.80
12	0.35	26	11.0	36	38	83	12	3					84.80
16	0.50	25	15.0	32	38	82	16	3		138.49	16005		
16	0.50	36	15.0	42	44	92	16	3			145.59	16005	
20	0.60	32	19.0	40	42	92	20	3		233.14	20006		
20	0.60	41	19.0	52	54	104	20	3			250.83	20006	

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	•	•	•	•
Heat resistant alloys				
hardened materials				

→ v_c/f_z Page 288+289

AluLine – Rough milling cutter



Factory standard Factory standard



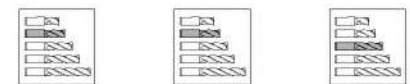
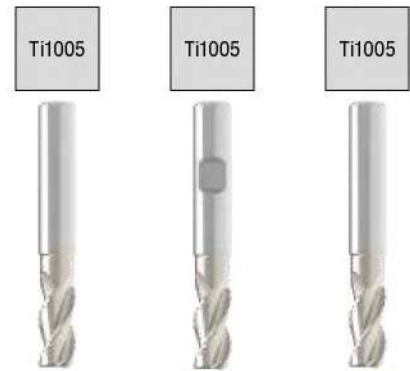
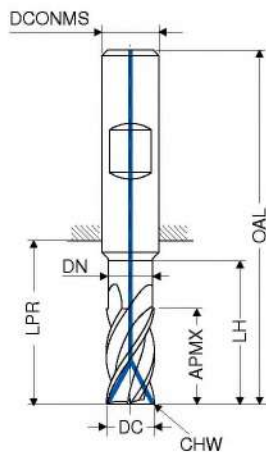
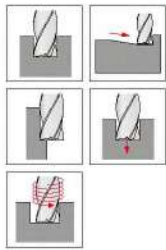
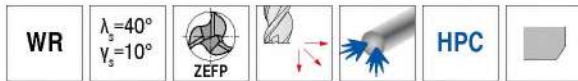
V1		V1	
Article no.		Article no.	
53 551 ...		53 550 ...	
£		£	
28.34	060		
36.49	080		
48.04	100		
59.23	120		
		92.24	160
		140.76	200

DC _{int0}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
6	13	5.7	18	21	57	6	0.4	3
8	21	7.4	25	27	63	8	0.4	3
10	22	9.2	30	32	72	10	0.4	3
12	26	11.0	36	38	83	12	0.4	3
16	36	15.0	42	44	92	16	0.4	3
20	41	19.0	52	54	104	20	0.4	3

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	•
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 288+289

AluLine – Rough milling cutter



Factory standard Factory standard Factory standard
HA HB HA

DC _{int0}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
6	13	5.7	18	21	57	6	0.4	3
8	21	7.4	25	27	63	8	0.4	3
10	22	9.2	30	32	72	10	0.4	3
12	26	11.0	36	38	83	12	0.4	3
16	36	15.0	42	44	92	16	0.4	3
20	41	19.0	52	54	104	20	0.4	3

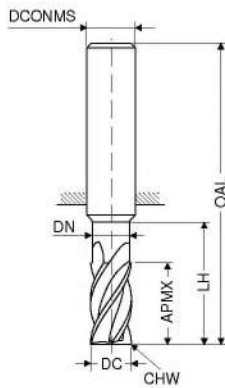
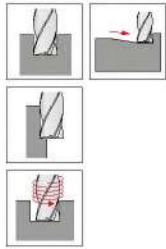
V1		V1		V1	
Article no.	£	Article no.	£	Article no.	£
53 552 ...		53 553 ...		53 554 ...	
				39.30	060
				52.13	080
				61.22	100
				80.12	120
118.60	160	118.60	160		
206.05	200	206.05	200		

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	•
Heat resistant alloys	•
hardened materials	•

→ v_c/f_z Page 288+289

AluLine – End milling cutter

▲ with polished chip flutes

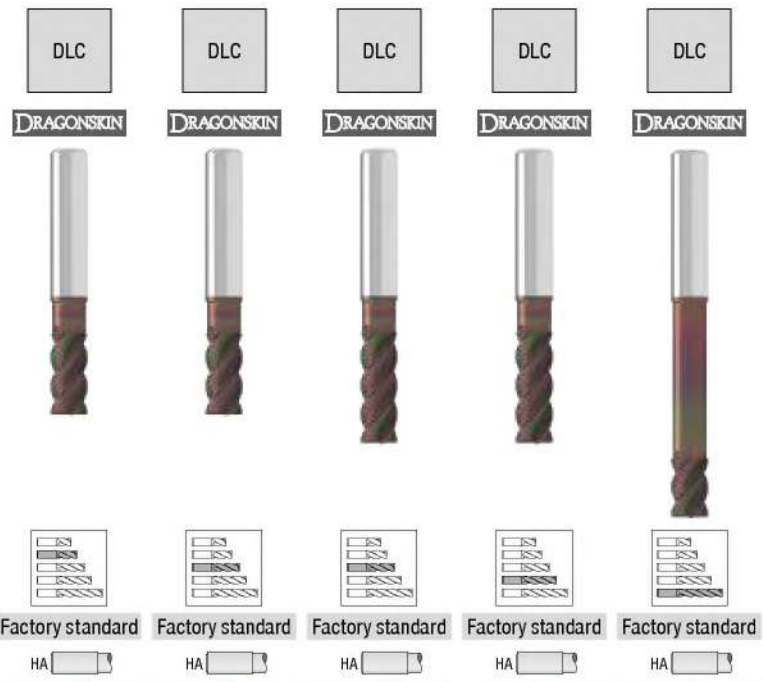
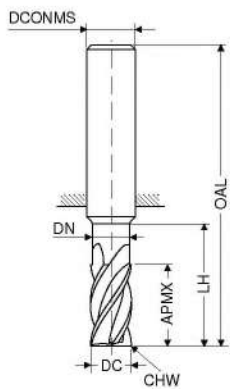
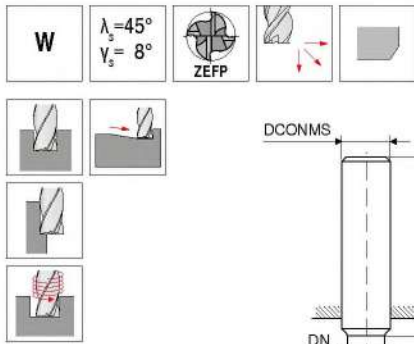


DC _{h10}	APMX	DN	LH	OAL	DCONMS _{h6}	CHW	ZEPF	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
mm	mm	mm	mm	mm	mm	mm		HA	HA	HA	HA	HA
								V1	V1	V1	V1	V1
								Article no. 53 560 ...	Article no. 53 561 ...	Article no. 53 562 ...	Article no. 53 563 ...	Article no. 53 564 ...
								£	£	£	£	£
3.0	8	2.7	13	57	6	0.1	4					30.51 030
3.5	11	3.2	17	57	6	0.1	4					34.13 035
4.0	11	3.7	17	57	6	0.1	4					34.13 040
4.5	13	4.2	19	57	6	0.1	4					35.99 045
5.0	13	4.7	19	57	6	0.1	4			33.38 050		
5.5	13	5.2	19	57	6	0.1	4			32.88 055		
6.0	10	5.7	42	80	6	0.2	4					35.24 060
6.0	13	5.7	19	57	6	0.2	4			35.24 060		
6.0	18	5.7	24	62	6	0.2	4				35.24 060	
6.5	21	6.1	25	63	8	0.2	4			47.20 065		
8.0	13	7.4	62	100	8	0.2	4					50.19 080
8.0	21	7.4	25	63	8	0.2	4	50.19 080				
8.0	24	7.4	30	68	8	0.2	4			50.19 080		
8.5	22	7.9	30	72	10	0.2	4			63.03 085		
10.0	16	9.2	58	100	10	0.2	4				66.01 100	
10.0	22	9.2	30	72	10	0.2	4	66.01 100		66.01 100		
10.0	30	9.2	38	80	10	0.2	4					
12.0	19	11.0	73	120	12	0.2	4					101.63 120
12.0	26	11.0	36	83	12	0.2	4		101.63 120			
12.0	36	11.0	46	93	12	0.2	4			101.63 120		
14.0	26	13.0	36	83	14	0.2	4	117.81 140				
16.0	25	15.0	100	150	16	0.2	4	185.81 160				185.81 160
16.0	36	15.0	42	92	16	0.2	4					
16.0	48	15.0	58	108	16	0.2	4			185.81 160		
18.0	36	17.0	42	92	18	0.2	4	200.02 180				
20.0	32	19.0	98	150	20	0.2	4				341.97 200	
20.0	41	19.0	52	104	20	0.2	4	341.97 200				
20.0	60	19.0	74	126	20	0.2	4			341.97 200		
25.0	52	24.0	62	121	25	0.3	4	447.23 250				

Steel	•	•	•	•	•
Stainless steel					
Cast iron					
Non ferrous metals	•	•	•	•	•
Heat resistant alloys					
hardened materials					

→ v_c/f_z Page 288+289

AluLine – End milling cutter

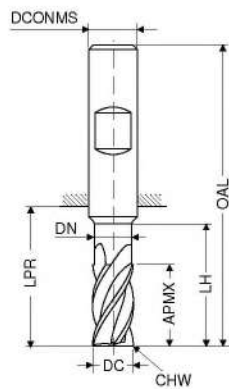
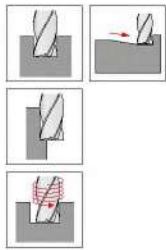


DC _{n10}	APMX	DN	LH	OAL	DCONMS _{n6}	CHW	ZEPF
mm	mm	mm	mm	mm	mm	mm	
3.0	8	2.7	13	57	6	0.1	4
3.5	11	3.2	17	57	6	0.1	4
4.0	11	3.7	17	57	6	0.1	4
4.5	13	4.2	19	57	6	0.1	4
5.0	13	4.7	19	57	6	0.1	4
5.5	13	5.2	19	57	6	0.1	4
6.0	10	5.7	42	80	6	0.2	4
6.0	13	5.7	19	57	6	0.2	4
6.0	18	5.7	24	62	6	0.2	4
6.5	21	6.1	25	63	8	0.2	4
8.0	13	7.4	62	100	8	0.2	4
8.0	21	7.4	25	63	8	0.2	4
8.0	24	7.2	30	68	8	0.2	4
8.5	22	7.9	30	72	10	0.2	4
10.0	16	9.2	58	100	10	0.2	4
10.0	22	9.2	30	72	10	0.2	4
10.0	30	9.2	38	80	10	0.2	4
12.0	19	11.0	73	120	12	0.2	4
12.0	26	11.0	36	83	12	0.2	4
12.0	36	11.0	46	93	12	0.2	4
14.0	26	13.0	36	83	14	0.2	4
16.0	25	15.0	100	150	16	0.2	4
16.0	36	15.0	42	92	16	0.2	4
16.0	48	15.0	58	108	16	0.2	4
18.0	36	17.0	42	92	18	0.2	4
20.0	32	19.0	98	150	20	0.2	4
20.0	41	19.0	52	104	20	0.2	4
20.0	60	19.0	74	126	20	0.2	4
25.0	52	24.0	62	121	25	0.3	4

Article no.	Price (£)	Article no.	Price (£)	Article no.	Price (£)	Article no.	Price (£)	Article no.	Price (£)
53 565 ...		53 566 ...		53 567 ...		53 568 ...		53 569 ...	
						40.72	030		
						44.09	035		
						44.09	040		
						46.20	045		
					43.60	050			
					42.97	055			
								45.34	060
					45.34	060			
							45.34	060	
					57.29	065			
								60.28	080
		60.28	080						
					60.28	080			
					73.11	085			
							76.10	100	
		76.10	100						
					76.10	100			
								111.71	120
		111.71	120						
					111.71	120			
127.78	140								
								196.40	160
196.40	160								
					196.40	160			
210.60	180								
							351.44	200	
351.44	200								
					351.44	200			
457.93	250								

Steel									
Stainless steel									
Cast iron									
Non ferrous metals	•	•	•	•	•	•	•	•	•
Heat resistant alloys									
hardened materials									

AluLine – End milling cutter



LPR with Shank DIN 6535 HB



Factory standard Factory standard Factory standard Factory standard



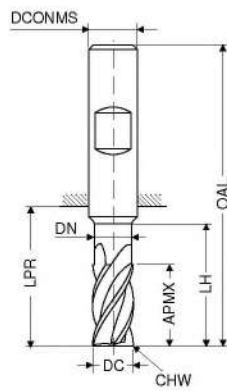
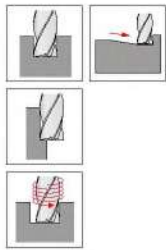
V1	V1	V1	V1
Article no. 53 570 ...	Article no. 53 571 ...	Article no. 53 572 ...	Article no. 53 573 ...
£	£	£	£
	37.49 030		
	37.49 040		
	34.62 050	50.44 040	
	39.36 060	50.44 050	
	45.19 080		
	77.46 100		
	105.36 120	106.11 100	
205.87 160			
297.03 200			
			428.29 200

DC _{h10}	APMX	DN	LH	LPR	OAL	DCONMS _{HB}	CHW	ZEPF
mm	mm	mm	mm	mm	mm	mm	mm	
3	6	2.7	10	21	57	6	0.1	4
4	8	3.7	14	21	57	6	0.1	4
4	16	3.7	22	26	62	6	0.1	4
5	10	4.7	16	21	57	6	0.1	4
5	17	4.7	24	26	62	6	0.1	4
6	12	5.5	19	21	57	6	0.2	4
8	16	7.4	25	27	63	8	0.2	4
10	20	9.2	30	32	72	10	0.2	4
10	20	9.2	58	60	100	10	0.2	4
12	24	11.0	36	38	83	12	0.2	4
16	32	15.0	42	44	92	16	0.2	4
20	40	19.0	52	54	104	20	0.2	4
20	40	19.0	98	100	150	20	0.2	4

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	•	•	•	•
Heat resistant alloys				
hardened materials				

→ v_s/f_t Page 288+289

AluLine – End milling cutter



Factory standard Factory standard

HA

HB

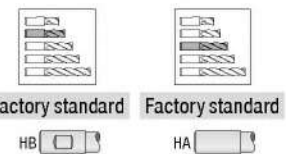
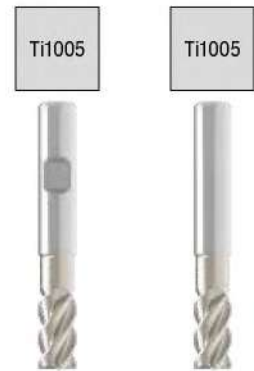
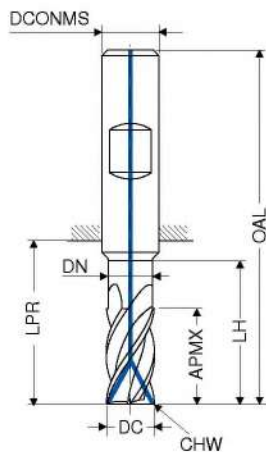
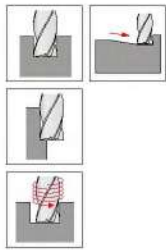
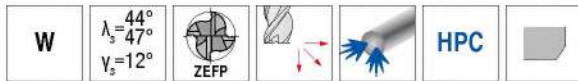
V1		V1	
Article no.		Article no.	
53 574 ...		53 575 ...	
£ 55.29	060	£	
71.62	080		
150.32	120		
		332.52	160

DC _{h10}	APMX	DN	LH	LPR	OAL	DCONMS _{h6}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
6	12	5.5	42	44	80	6	0.2	4
8	16	7.4	62	64	100	8	0.2	4
12	24	11.0	73	75	120	12	0.2	4
16	32	15.0	100	102	150	16	0.2	4

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	• •
Heat resistant alloys	
hardened materials	

→ v_c/f_r, Page 288+289

AluLine – End milling cutter



DC _{int0}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
3	6	2.7	10	21	57	6	0.1	4
4	8	3.7	14	21	57	6	0.1	4
5	10	4.7	16	21	57	6	0.1	4
6	12	5.7	19	21	57	6	0.2	4
8	16	7.4	25	27	63	8	0.2	4
10	20	9.2	30	32	72	10	0.2	4
12	24	11.0	36	38	83	12	0.2	4
16	32	15.0	42	44	92	16	0.2	4
20	40	19.0	52	54	104	20	0.2	4

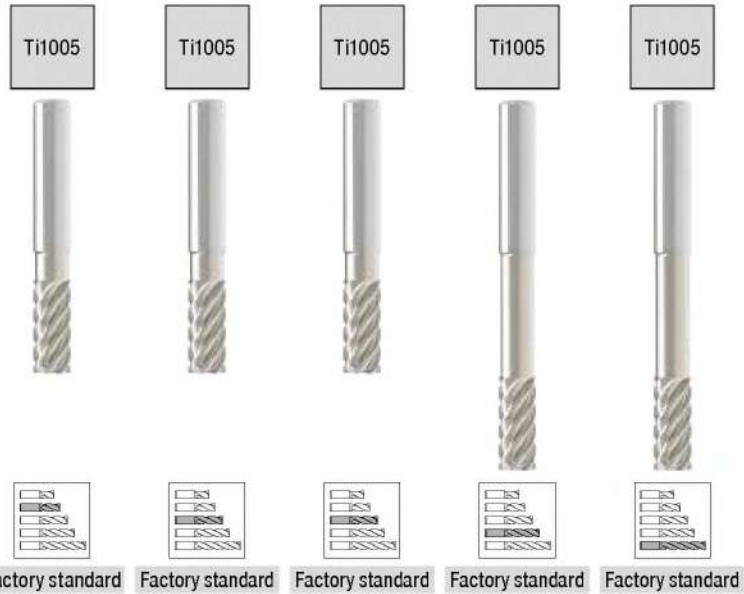
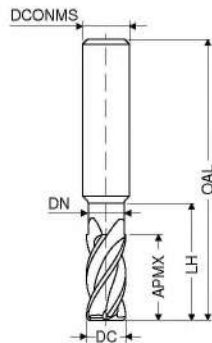
V1		V1	
Article no.	Article no.		
53 576 ...	53 577 ...		
£	£		
	48.70	030	
	48.70	040	
	45.19	050	
	51.19	060	
	58.66	080	
	100.62	100	
	144.35	120	
267.39	160		
384.57	200		

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	•
Heat resistant alloys	•
hardened materials	

→ v_c/f_z Page 288+289

AluLine – High accuracy finish milling cutter

- ▲ max. taper of 0.003 mm for high precision and parallelism of vertical walls
- ▲ Tool with cutting edge correction



Factory standard HA Factory standard HA Factory standard HA Factory standard HA Factory standard HA

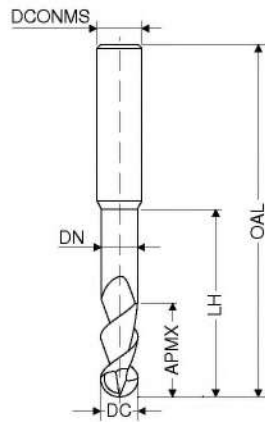
DC _{h5}	APMX	DN	LH	OAL	DCONMS _{h5}	ZEFP	V1		V1		V1		V1		V1	
mm	mm	mm	mm	mm	mm		Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
							53 555 ...	53 556 ...	53 557 ...	53 558 ...	53 559 ...					
6	16	5.7	20	58	6	6	£	£	41.59	060						
6	16	5.7	42	80	6	6								56.55	060	
8	19	7.4	26	64	8	6			48.07	080						
8	19	7.4	62	100	8	6								69.99	080	
10	25	9.2	32	74	10	6			81.95	100						
10	25	9.2	58	100	10	6							104.61	100		
12	30	11.0	37	84	12	6										
12	30	11.0	73	120	12	6			111.22	120						
12	45			120	12	6										
16	40	15.0	44	93	16	6	207.09	160								
16	40	15.0	100	150	16	6										
16	65			150	16	6							408.24	160		285.20
20	50	19.0	53	104	20	6	298.14	200								
20	50	19.0	98	150	20	6										
20	75			150	20	6			540.76	200						

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	• • • • •
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 290+291

AluLine – Ball nosed cutter

▲ with polished chip flutes



Factory standard Factory standard Factory standard Factory standard



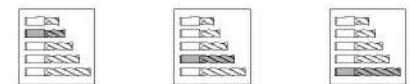
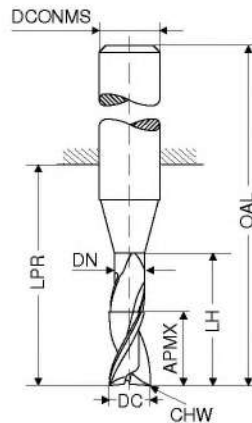
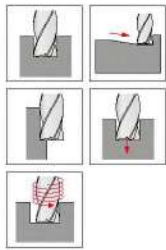
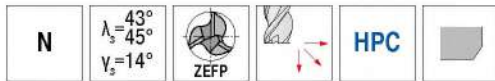
DC ₁₈	APMX	DN	LH	OAL	DCONMS _{ns}	ZEFP
mm	mm	mm	mm	mm	mm	
3	6	2.7	16	50	3	2
3	10	2.7	32	75	3	2
4	7	3.7	17	54	4	2
4	13	3.7	36	75	4	2
5	8	4.6	18	54	5	2
5	15	4.6	40	75	5	2
6	10	5.5	21	54	6	2
6	16	5.5	44	100	6	2
8	12	7.5	27	59	8	2
8	22	7.5	54	100	8	2
10	13	9.4	32	67	10	2
10	25	9.4	60	100	10	2
12	16	11.4	38	73	12	2
12	26	11.4	60	100	12	2
14	16	13.2	38	75	14	2
14	26	13.2	60	100	14	2
16	20	15.0	44	83	16	2
16	30	15.0	92	150	16	2
20	25	19.0	50	93	20	2
20	40	19.0	92	150	20	2

V1	V1	V1	V1
Article no. 53 508 ...	Article no. 53 509 ...	Article no. 53 510 ...	Article no. 53 511 ...
£	£	£	£
		29.28	030
		34.75	040
	38.86		050
	37.87		060
	48.33		080
	63.40		100
	84.94		120
139.61		123.05	120
		172.74	140
170.37			160
		231.89	160
235.50			200
		320.69	200

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	• • • •
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 290+291

SilverLine – End milling cutter



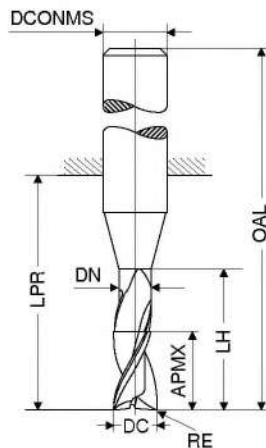
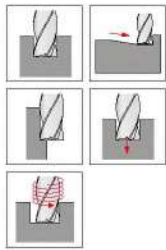
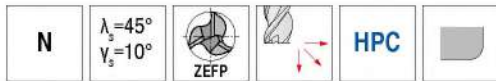
≈DIN 6527 ≈DIN 6527 Factory standard
HB

DC _{es}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
3.0	8	2.9	15	21	57	6	0.15	3
3.5	11	3.4	16	21	57	6	0.15	3
4.0	8	3.9	15	18	54	6	0.15	3
4.0	11	3.9	16	21	57	6	0.15	3
4.0	16			26	62	6	0.15	3
4.5	13	4.4	19	21	57	6	0.15	3
5.0	9	4.9	16	18	54	6	0.15	3
5.0	13	4.9	19	21	57	6	0.15	3
5.0	17			26	62	6	0.15	3
5.5	13	5.4	19	21	57	6	0.15	3
6.0	10	5.9	17	18	54	6	0.25	3
6.0	13	5.9	19	21	57	6	0.25	3
6.0	18			26	62	6	0.25	3
6.5	19	6.3	25	27	63	8	0.25	3
7.0	19	6.8	25	27	63	8	0.25	3
7.5	19	7.3	25	27	63	8	0.25	3
8.0	12	7.8	20	22	58	8	0.25	3
8.0	19	7.8	25	27	63	8	0.25	3
8.0	24			32	68	8	0.25	3
8.5	22	8.2	30	32	72	10	0.25	3
9.0	22	8.7	30	32	72	10	0.25	3
9.5	22	9.2	30	32	72	10	0.25	3
10.0	14	9.7	24	26	66	10	0.25	3
10.0	22	9.7	30	32	72	10	0.25	3
10.0	30			40	80	10	0.25	3
12.0	16	11.7	26	28	73	12	0.25	3
12.0	26	11.7	36	38	83	12	0.25	3
12.0	36			48	93	12	0.25	3
14.0	18	13.7	28	30	75	14	0.25	3
14.0	26	13.7	36	38	83	14	0.25	3
14.0	42			54	99	14	0.25	3
16.0	22	15.5	32	34	82	16	0.25	3
16.0	32	15.5	42	44	92	16	0.25	3
16.0	48			60	108	16	0.25	3
18.0	24	17.5	34	36	84	18	0.25	3
18.0	32	17.5	42	44	92	18	0.25	3
18.0	54			66	114	18	0.25	3
20.0	26	19.5	40	42	92	20	0.25	3
20.0	38	19.5	38	54	104	20	0.25	3
20.0	60			76	126	20	0.25	3

VO	VO	VO
Article no.	Article no.	Article no.
50 951 ...	50 951 ...	50 951 ...
£	£	£
	56.71	031
	56.71	036
50.19	040	
	50.19	041
		52.55
	56.71	046
50.19	050	
	50.19	051
		52.55
	59.57	056
	52.55	061
		59.57
	67.80	066
	67.80	071
	67.80	076
60.29	080	
	61.37	081
		67.13
	115.30	086
	115.30	091
	115.30	096
95.20	100	
	105.59	101
		116.73
133.55	120	
	142.79	121
		162.05
165.02	140	
	188.40	141
		208.91
198.80	160	
	328.18	161
		322.19
275.16	180	
	329.61	181
		416.38
337.02	200	
	384.03	201
		481.09
		202

Steel	●	●	●
Stainless steel	●	●	●
Cast iron	○	○	○
Non ferrous metals	○	○	○
Heat resistant alloys	●	●	●
hardened materials	●	●	●

SilverLine – End milling cutter with corner radius



≈DIN 6527 HB

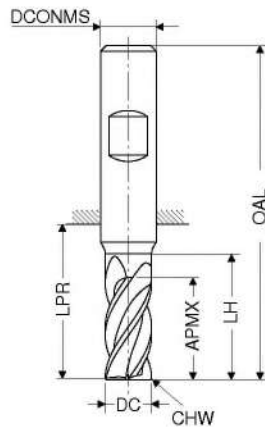
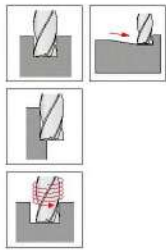
DC _{f8}	RE _{±0,01}	APMX	DN	LH	LPR	OAL	DCONMS _{h5}	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
4	0.5	8	3.9	15	18	54	6	3
4	0.5	11	3.9	16	21	57	6	3
5	0.5	9	4.9	16	18	54	6	3
5	0.5	13	4.9	19	21	57	6	3
6	0.5	10	5.9	17	18	54	6	3
6	0.5	13	5.9	19	21	57	6	3
8	1.0	12	7.8	20	22	58	8	3
8	1.0	19	7.8	25	27	63	8	3
10	1.0	14	9.7	24	26	66	10	3
10	1.0	22	9.7	30	32	72	10	3
12	1.5	16	11.7	26	28	73	12	3
12	1.5	26	11.7	36	38	83	12	3
16	2.0	22	15.5	32	34	82	16	3
16	2.0	32	15.5	42	44	92	16	3
20	2.0	26	19.5	40	42	92	20	3
20	2.0	38	19.5	52	54	104	20	3

VO		VO	
Article no.	Article no.	Article no.	Article no.
50 952 ...	50 952 ...	50 952 ...	50 952 ...
£	£	£	£
50.19	040	52.45	041
50.19	050	52.45	051
52.32	060	59.98	061
61.42	080	69.99	081
110.58	100	119.98	101
153.20	120	163.31	121
310.37	160	319.35	161
448.73	200	458.98	201

Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials	●	●

→ v₀/f_z Page 292+293

SilverLine – End milling cutter



≈DIN 6527 ≈DIN 6527

HB HB

VO VO

Article no. Article no.
50 955 ... 50 955 ...

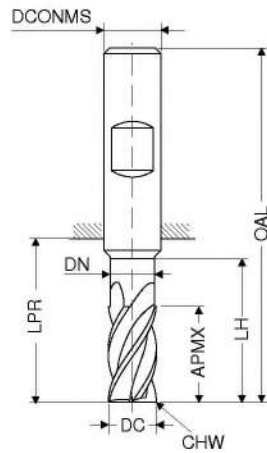
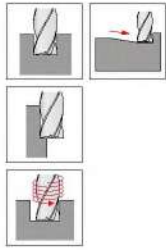
£ £

DC _{fs}	APMX	LH	LPR	OAL	DCONMS _{ns}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	
3.0	5	8	14	50	6	0.15	4
3.0	8	11	21	57	6	0.15	4
3.5	8	11	18	54	6	0.15	4
3.5	11	14	21	57	6	0.15	4
4.0	8	11	18	54	6	0.15	4
4.0	11	14	21	57	6	0.15	4
4.5	9	12	18	54	6	0.15	4
4.5	13	16	21	57	6	0.15	4
5.0	9	12	18	54	6	0.15	4
5.0	13	16	21	57	6	0.15	4
5.5	10	13	18	54	6	0.15	4
5.5	13	16	21	57	6	0.15	4
6.0	10	13	18	54	6	0.15	4
6.0	13	16	21	57	6	0.15	4
7.0	12	15	22	58	8	0.25	4
7.0	21	24	27	63	8	0.25	4
8.0	12	15	22	58	8	0.25	4
8.0	21	24	27	63	8	0.25	4
9.0	14	17	26	66	10	0.25	4
9.0	22	25	32	72	10	0.25	4
10.0	14	17	26	66	10	0.25	4
10.0	22	25	32	72	10	0.25	4
11.0	16	19	28	73	12	0.35	4
11.0	26	29	38	83	12	0.35	4
12.0	16	19	28	73	12	0.35	4
12.0	26	29	38	83	12	0.35	4
14.0	16	19	28	73	14	0.35	4
14.0	26	29	38	83	14	0.35	4
15.0	22	25	34	82	16	0.35	4
15.0	36	39	44	92	16	0.35	4
16.0	22	25	34	82	16	0.35	4
16.0	36	39	44	92	16	0.35	4
17.0	22	25	34	82	18	0.35	4
17.0	36	39	44	92	18	0.35	4
18.0	22	25	34	82	18	0.35	4
18.0	36	39	44	92	18	0.35	4
19.0	26	29	42	92	20	0.35	4
19.0	41	44	54	104	20	0.35	4
20.0	26	29	42	92	20	0.35	4
20.0	41	44	54	104	20	0.35	4

Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials	●	●

47.10	030	47.10	031
44.25	035	44.25	036
47.10	040	47.10	041
45.19	045	45.19	046
47.10	050	47.10	051
43.85	055	43.85	056
49.54	060	49.54	061
58.23	070	58.23	071
53.30	080	56.72	081
76.01	090	76.01	091
87.14	100	97.31	101
120.12	110	120.12	111
118.34	120	131.92	121
171.00	140	189.32	141
190.54	150	190.54	151
187.81	160	245.37	161
259.22	170	259.22	171
247.94	180	273.18	181
294.09	190	294.09	191
319.61	200	354.50	201

SilverLine – End milling cutter



DC _{fs}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
3	6.5	2.8	9	19	55	6	0.15	4
3	6.5	2.8	15	22	58	6	0.15	4
4	8.5	3.8	12	19	55	6	0.15	4
4	8.5	3.8	20	26	62	6	0.15	4
5	10.5	4.8	15	22	58	6	0.15	4
5	10.5	4.8	25	34	70	6	0.15	4
6	13.0	5.8	18	22	58	6	0.15	4
6	13.0	5.8	30	34	70	6	0.15	4
8	17.0	7.7	24	28	64	8	0.25	4
8	17.0	7.7	40	44	80	8	0.25	4
10	21.0	9.7	30	34	74	10	0.25	4
10	21.0	9.7	50	54	94	10	0.25	4
12	25.0	11.6	36	40	85	12	0.35	4
12	25.0	11.6	60	64	109	12	0.35	4
14	29.0	13.6	42	46	91	14	0.35	4
14	29.0	13.6	70	74	119	14	0.35	4
16	33.0	15.5	48	52	100	16	0.35	4
16	33.0	15.5	80	84	132	16	0.35	4
18	38.0	17.5	54	58	106	18	0.35	4
18	38.0	17.5	90	94	142	18	0.35	4
20	42.0	19.5	60	64	114	20	0.35	4
20	42.0	19.5	100	104	154	20	0.35	4

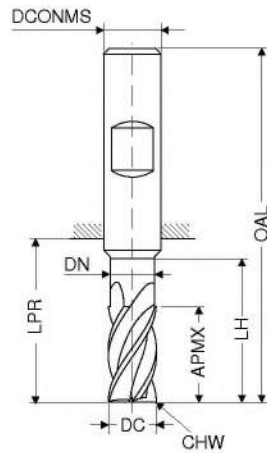
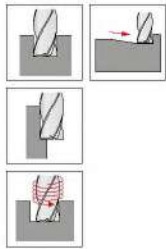
	VO	VO
Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials	●	●

Article no.	Price (£)	Article no.	Price (£)
50 965 ...	51.58	50 965 ...	51.58
030		031	
040		041	
050		051	
060		061	
080		081	
100		101	
120		121	
140		141	
160		161	
180		181	
200		201	

→ v_c/f, Page 294+295

SilverLine – End milling cutter

▲ with reinforced core Ø for increased stability



Ti1010



Factory standard



HB

V0

Article no.

50 964 ...

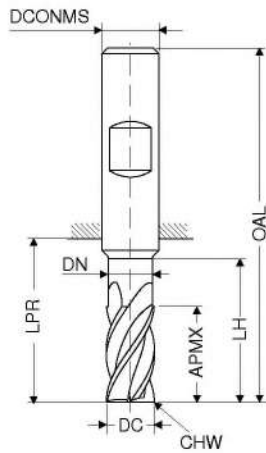
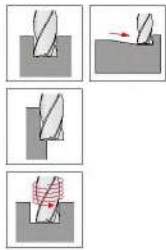
£

DC ₁₈	APMX	DN	LH	LPR	OAL	DCONMS ₁₅	CHW	ZEFP	£	
4	8	3.5	12	18	54	6	0.15	4	54.80	041
5	10	4.5	15	18	54	6	0.15	4	54.80	051
6	13	5.5	21	21	57	6	0.15	4	58.43	061
8	19	7.5	27	27	63	8	0.25	4	65.99	081
10	22	9.5	32	32	72	10	0.25	4	115.01	101
12	26	11.5	38	38	83	12	0.35	4	160.04	121
14	26	13.5	38	38	83	14	0.35	4	224.29	141
16	32	15.5	44	44	92	16	0.35	4	290.84	161
18	36	17.5	44	44	92	18	0.35	4	324.03	181
20	38	19.5	54	54	104	20	0.35	4	418.82	201

Steel	●
Stainless steel	●
Cast iron	○
Non ferrous metals	○
Heat resistant alloys	●
hardened materials	●

→ v_c/f_z Page 294+295

SilverLine – End milling cutter



≈DIN 6527 HB

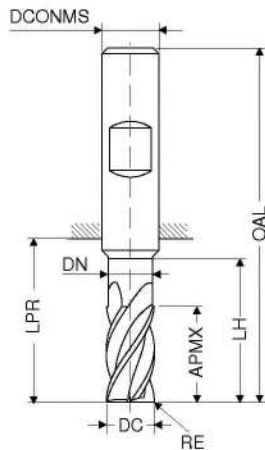
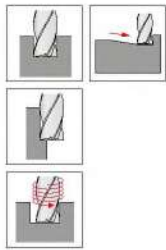
VO		VO	
Article no.	Article no.	Article no.	Article no.
50 954 ...	50 954 ...	030	031
£ 49.46	£ 49.46	040	041
030	040	050	051
040	050	060	061
050	060	080	081
060	080	100	101
080	100	120	121
100	120	140	141
120	140	160	161
140	160	180	181
160	180	200	201
180	200		
200			

DC _{fs}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
3	5		8	14	50	6	0.15	4
3	8	2.8	13	21	57	6	0.15	4
4	8		11	18	54	6	0.15	4
4	11	3.8	17	21	57	6	0.15	4
5	9		12	18	54	6	0.15	4
5	13	4.8	19	21	57	6	0.15	4
6	10		13	18	54	6	0.15	4
6	13	5.8	19	21	57	6	0.15	4
8	12		15	22	58	8	0.25	4
8	21	7.7	25	27	63	8	0.25	4
10	14		17	26	66	10	0.25	4
10	22	9.7	30	32	72	10	0.25	4
12	16		19	28	73	12	0.35	4
12	26	11.6	36	38	83	12	0.35	4
14	16		19	28	73	14	0.35	4
14	26	13.6	36	38	83	14	0.35	4
16	22		25	34	82	16	0.35	4
16	36	15.5	42	44	92	16	0.35	4
18	22		25	34	82	18	0.35	4
18	36	17.5	42	44	92	18	0.35	4
20	26		29	42	92	20	0.35	4
20	41	19.5	52	54	104	20	0.35	4

Steel	•	•
Stainless steel		
Cast iron	•	•
Non ferrous metals		
Heat resistant alloys		
hardened materials		

→ v_c/f_c Page 296+297

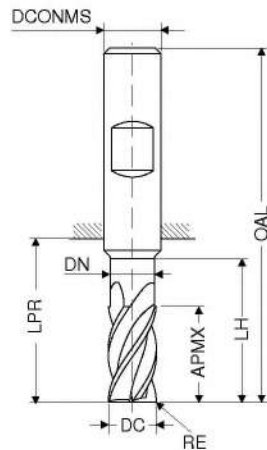
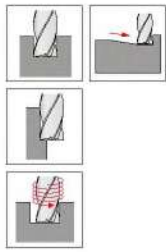
SilverLine – End milling cutter with corner radius



DC _{f8}	RE _{±0,01}	APMX	DN	LH	LPR	OAL	DCONMS _{h5}	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
3	0.10	8.0	2.8	13	21	57	6	4
3	0.40	8.0	2.8	13	21	57	6	4
3	0.50	8.0	2.8	13	21	57	6	4
3	1.00	8.0	2.8	13	21	57	6	4
3	0.30	6.5	2.8	15	22	58	6	4
3	0.50	6.5	2.8	15	22	58	6	4
3	0.80	6.5	2.8	15	22	58	6	4
4	0.10	11.0	3.8	17	21	57	6	4
4	0.40	11.0	3.8	17	21	57	6	4
4	0.50	11.0	3.8	17	21	57	6	4
4	1.00	11.0	3.8	17	21	57	6	4
4	0.40	8.5	3.8	20	26	62	6	4
4	0.50	8.5	3.8	20	26	62	6	4
4	0.80	8.5	3.8	20	26	62	6	4
5	0.10	13.0	4.8	19	21	57	6	4
5	0.50	13.0	4.8	19	21	57	6	4
5	1.00	13.0	4.8	19	21	57	6	4
5	0.50	10.5	4.8	25	34	70	6	4
5	0.80	10.5	4.8	25	34	70	6	4
6	0.10	13.0	5.8	19	21	57	6	4
6	0.50	13.0	5.8	19	21	57	6	4
6	1.00	13.0	5.8	19	21	57	6	4
6	1.50	13.0	5.8	19	21	57	6	4
6	0.60	13.0	5.8	30	34	70	6	4
6	0.80	13.0	5.8	30	34	70	6	4
6	1.00	13.0	5.8	30	34	70	6	4
8	0.15	21.0	7.7	25	27	63	8	4
8	0.50	21.0	7.7	25	27	63	8	4
8	1.00	21.0	7.7	25	27	63	8	4
8	1.50	21.0	7.7	25	27	63	8	4
8	2.00	21.0	7.7	25	27	63	8	4
8	0.80	17.0	7.7	40	44	80	8	4
8	1.00	17.0	7.7	40	44	80	8	4
8	1.50	17.0	7.7	40	44	80	8	4
8	2.00	17.0	7.7	40	44	80	8	4
10	0.15	22.0	9.7	30	32	72	10	4
10	0.50	22.0	9.7	30	32	72	10	4
10	1.00	22.0	9.7	30	32	72	10	4
10	1.50	22.0	9.7	30	32	72	10	4
10	2.00	22.0	9.7	30	32	72	10	4
10	0.50	21.0	9.7	50	54	94	10	4
10	1.00	21.0	9.7	50	54	94	10	4
10	1.50	21.0	9.7	50	54	94	10	4
10	2.00	21.0	9.7	50	54	94	10	4
12	0.20	26.0	11.6	36	38	83	12	4
12	0.50	26.0	11.6	36	38	83	12	4

Material	VO	VO
Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials	●	●

SilverLine – End milling cutter with corner radius



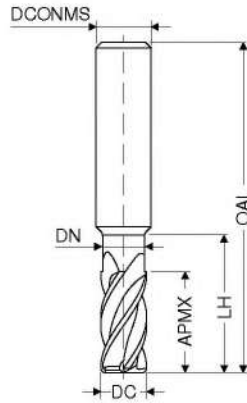
DC _{fs}	RE _{±0,01}	APMX	DN	LH	LPR	OAL	DCONMS _{h5}	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
12	1.00	26.0	11.6	36	38	83	12	4
12	1.50	26.0	11.6	36	38	83	12	4
12	2.00	26.0	11.6	36	38	83	12	4
12	3.00	26.0	11.6	36	38	83	12	4
12	4.00	26.0	11.6	36	38	83	12	4
12	0.50	25.0	11.6	60	64	109	12	4
12	1.00	25.0	11.6	60	64	109	12	4
12	1.50	25.0	11.6	60	64	109	12	4
12	2.00	25.0	11.6	60	64	109	12	4
12	3.00	25.0	11.6	60	64	109	12	4
12	4.00	25.0	11.6	60	64	109	12	4
14	0.30	26.0	13.6	36	38	83	14	4
14	1.00	26.0	13.6	36	38	83	14	4
14	2.00	26.0	13.6	36	38	83	14	4
14	3.00	26.0	13.6	36	38	83	14	4
14	4.00	26.0	13.6	36	38	83	14	4
14	1.00	29.0	13.6	70	74	119	14	4
14	2.00	29.0	13.6	70	74	119	14	4
14	3.00	29.0	13.6	70	74	119	14	4
14	4.00	29.0	13.6	70	74	119	14	4
16	0.30	36.0	15.5	42	44	92	16	4
16	1.00	36.0	15.5	42	44	92	16	4
16	2.00	36.0	15.5	42	44	92	16	4
16	3.00	36.0	15.5	42	44	92	16	4
16	4.00	36.0	15.5	42	44	92	16	4
16	1.00	33.0	15.5	80	84	132	16	4
16	2.00	33.0	15.5	80	84	132	16	4
16	3.00	33.0	15.5	80	84	132	16	4
16	4.00	33.0	15.5	80	84	132	16	4
18	1.00	36.0	17.5	42	44	92	18	4
18	2.00	36.0	17.5	42	44	92	18	4
18	3.00	36.0	17.5	42	44	92	18	4
18	4.00	36.0	17.5	42	44	92	18	4
18	1.00	38.0	17.5	90	94	142	18	4
18	2.00	38.0	17.5	90	94	142	18	4
18	3.00	38.0	17.5	90	94	142	18	4
18	4.00	38.0	17.5	90	94	142	18	4
20	0.30	41.0	19.5	52	54	104	20	4
20	1.00	41.0	19.5	52	54	104	20	4
20	2.00	41.0	19.5	52	54	104	20	4
20	3.00	41.0	19.5	52	54	104	20	4
20	4.00	41.0	19.5	52	54	104	20	4
20	1.00	42.0	19.5	100	104	154	20	4
20	2.00	42.0	19.5	100	104	154	20	4
20	3.00	42.0	19.5	100	104	154	20	4
20	4.00	42.0	19.5	100	104	154	20	4

VO		VO	
Article no.	Article no.	Article no.	Article no.
50 968 ...	50 968 ...	50 968 ...	50 968 ...
£	£	£	£
126.41	122		
126.41	123		
126.41	124		
126.41	131		
126.41	125		
		143.06	126
		143.06	127
		143.06	128
		143.06	129
		143.06	132
		143.06	130
191.08	140		
191.08	141		
191.08	142		
191.08	147		
191.08	143		
		214.33	144
		214.33	145
		214.33	148
		214.33	146
191.08	160		
191.08	161		
191.08	162		
191.08	167		
191.08	163		
		235.11	164
		235.11	165
		235.11	168
		235.11	166
254.22	180		
254.22	181		
254.22	186		
254.22	182		
		283.57	183
		283.57	184
		283.57	187
		283.57	185
286.15	200		
286.15	201		
286.15	202		
286.15	207		
286.15	203		
		318.92	204
		318.92	205
		318.92	208
		318.92	206

Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials	●	●

SilverLine – High accuracy finish milling cutter

- ▲ max. taper of 0.003 mm for high precision and parallelism of vertical walls
- ▲ Tool with cutting edge correction



DC _{FB}	APMX	DN	LH	OAL	DCONMS _{NS}	ZEPF
mm	mm	mm	mm	mm	mm	
6	13	5.6	19	57	6	6
6	10	5.8	18	58	6	6
6	13	5.8	27	67	6	6
6	13	5.8	36	76	6	6
6	15	5.6	42	80	6	6
8	19	7.6	25	63	8	6
8	13	7.7	24	64	8	6
8	17	7.7	36	76	8	6
8	17	7.7	48	89	8	6
8	20	7.6	62	100	8	6
10	22	9.6	30	72	10	6
10	16	9.7	30	74	10	6
10	21	9.7	45	89	10	6
10	25	9.6	58	100	10	6
10	21	9.7	60	104	10	6
12	26	11.5	36	83	12	6
12	19	11.6	36	85	12	6
12	25	11.6	54	103	12	6
12	30	11.5	73	120	12	6
12	25	11.6	72	121	12	6
16	32	15.0	42	92	16	6
16	25	15.5	48	100	16	6
16	33	15.5	72	124	16	6
16	33	15.5	96	148	16	6
16	40	15.0	100	150	16	6
20	38	19.0	52	104	20	6
20	32	19.5	60	114	20	6
20	42	19.5	90	144	20	6
20	50	19.0	98	150	20	6
20	42	19.5	120	174	20	6
25	40	24.5	75	136	25	6
25	52	24.5	113	174	25	6
25	52	24.5	150	210	25	6

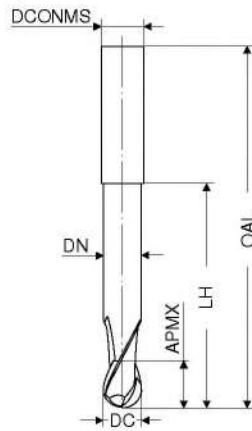
Material	VO	VO
Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials	●	●

Article no.	Price (£)	Article no.	Price (£)
50 959 ...	53.40	060	
	58.43	063	
		064	79.36
		065	99.19
		061	73.82
	61.37	080	
	65.57	083	
		084	98.19
		085	122.70
		081	91.20
	105.14	100	
	115.43	103	
		104	147.07
		101	136.65
		105	183.82
	145.22	120	
	156.18	123	
		124	227.58
		121	211.90
		125	284.43
	270.75	160	
	290.84	163	
		164	400.56
		165	500.73
		161	372.23
	390.03	200	
	418.93	203	
		204	551.62
		201	513.42
		205	689.53
	524.83	253	
		254	690.13
		255	862.67

→ v_c/f_z Page 298+299

SilverLine – Ball nosed cutter

▲ Radius accuracy: ±0,01 mm



DC ₁₈	APMX	DN	LH	OAL	DCONMS _{ns}	ZEFP
mm	mm	mm	mm	mm	mm	
4	8	3.9	15	54	6	3
4	11	3.9	16	57	6	3
5	9	4.9	16	54	6	3
5	13	4.9	19	57	6	3
6	10	5.9	17	54	6	3
6	13	5.9	19	57	6	3
8	12	7.8	20	58	8	3
8	19	7.8	25	63	8	3
10	14	9.7	24	66	10	3
10	22	9.7	30	72	10	3
12	16	11.7	26	73	12	3
12	26	11.7	36	83	12	3
16	22	15.5	32	82	16	3
16	36	15.5	42	92	16	3
20	26	19.5	40	92	20	3
20	38	19.5	52	104	20	3

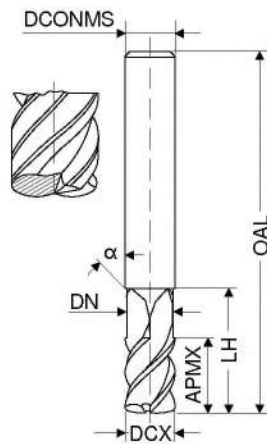
	VO	VO
	Article no. 50 953 ...	Article no. 50 953 ...
	£	£
Steel	67.13 040	67.13 041
Stainless steel	67.13 050	67.13 051
Cast iron	64.17 060	67.13 061
Non ferrous metals	71.60 080	76.96 081
Heat resistant alloys	120.91 100	131.96 101
hardened materials	168.00 120	179.55 121
	335.60 160	350.13 161
	485.50 200	504.59 201

→ v_c/f_z Page 292+293

SilverLine – Torus face milling cutter

▲ APMX does not correspond to the maximum cutting depth

▲ r_{3D} = corner radius to be programmed



DIN 6527		Factory standard	
VO		VO	
Article no.	Article no.	Article no.	Article no.
50 962 ...	50 962 ...	50 962 ...	50 962 ...
£	£	£	£
65.99	060	88.52	061
75.97	080	115.72	081
129.83	100	168.59	101
169.44	120	209.47	121
318.49	160	394.59	161
459.85	200	691.83	201

DCX _{ns}	r_{3D}	APMX	DN	LH	OAL	α°	DCONMS _{ns}	ZEFP
mm	mm	mm	mm	mm	mm		mm	
6	1.12	3	5.8	16	54	45	6	4
6	1.12	3	5.8	44	80	45	6	4
8	1.23	4	7.7	20	58	45	8	4
8	1.23	4	7.7	54	100	45	8	4
10	1.77	5	9.7	24	66	45	10	4
10	1.77	5	9.7	60	100	45	10	4
12	1.86	6	11.6	26	73	45	12	4
12	1.86	6	11.6	75	120	45	12	4
16	2.47	8	15.5	32	82	45	16	4
16	2.47	8	15.5	92	150	45	16	4
20	2.61	10	19.5	40	92	45	20	4
20	2.61	10	19.5	92	150	45	20	4

Steel	○	○
Stainless steel		
Cast iron	○	○
Non ferrous metals		
Heat resistant alloys		
hardened materials	●	●

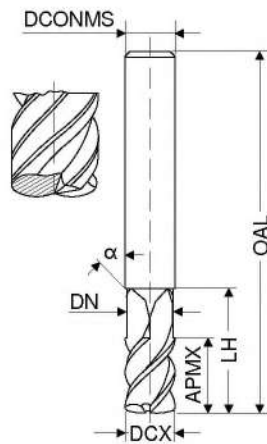
→ v_c/f_c; Page 300+301

SilverLine – Torus face milling cutter

▲ APMX does not correspond to the maximum cutting depth

▲ r_{3D} = corner radius to be programmed

H
 $\lambda_s = 52^\circ$
 $\nu_s = 8^\circ$
ZAFP
HPC
 ≤ 54
HRC



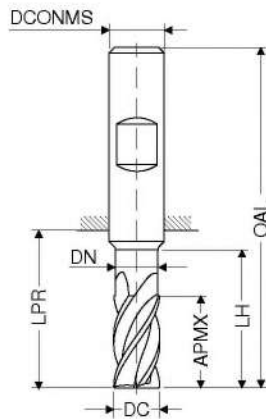
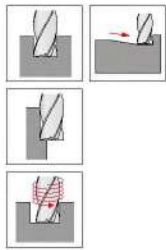
≈DIN 6527		Factory standard	
VO		VO	
Article no.	Article no.	Article no.	Article no.
50 961 ...	50 961 ...	50 961 ...	50 961 ...
£	£	£	£
65.99	060	88.52	061
75.97	080	115.72	081
129.83	100	168.59	101
169.44	120	209.47	121
318.49	160	394.59	161
459.85	200	691.83	201

DCX _{ns}	r_{3D}	APMX	DN	LH	OAL	α°	DCONMS _{ns}	ZAFP
mm	mm	mm	mm	mm	mm		mm	
6	1.21	3	5.8	16	54	45	6	4
6	1.21	3	5.8	44	80	45	6	4
8	1.38	4	7.7	20	58	45	8	4
8	1.38	4	7.7	54	100	45	8	4
10	2.00	5	9.7	24	66	45	10	4
10	2.00	5	9.7	60	100	45	10	4
12	2.10	6	11.6	26	73	45	12	4
12	2.10	6	11.6	75	120	45	12	4
16	2.78	8	15.5	32	82	45	16	4
16	2.75	8	15.5	92	150	45	16	4
20	3.07	10	19.5	40	92	45	20	4
20	3.07	10	19.5	92	150	45	20	4

Steel	●	●
Stainless steel	●	●
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

→ v_c/f_z Page 302+303

S-Cut – End milling cutter



APX72S



≈DIN 6527



V1/1#

Article no.
52 225 ...

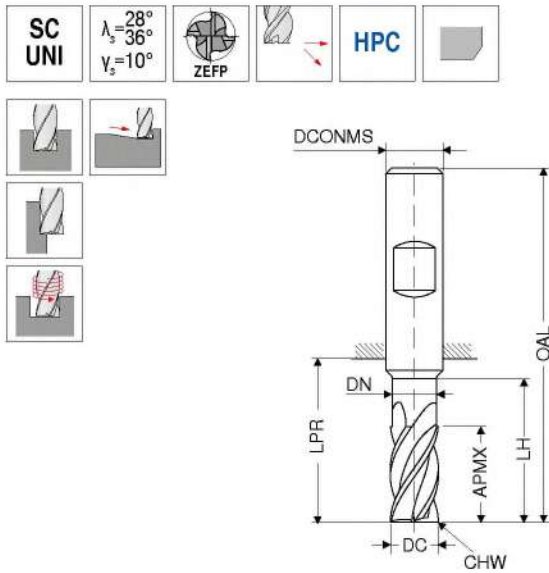
£	
61.77	030
61.77	040
61.77	050
61.77	060
85.50	070
82.92	080
121.43	090
117.74	100
169.54	110
163.84	120
218.23	130
211.52	140
265.24	160
355.88	180
407.93	200
647.99	250

DC _{fs}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	ZEFP
mm	mm	mm	mm	mm	mm	mm	
3	8	2.8	15.0	21	57	6	4
4	11	3.8	16.5	21	57	6	4
5	13	4.8	18.5	21	57	6	4
6	13	5.5	21.0	21	57	6	4
7	19	6.5	27.0	27	63	8	4
8	19	7.5	27.0	27	63	8	4
9	22	8.5	32.0	32	72	10	4
10	22	9.5	32.0	32	72	10	4
11	26	10.5	38.0	38	83	12	4
12	26	11.5	38.0	38	83	12	4
13	26	12.5	42.0	38	83	14	4
14	26	13.5	42.0	38	83	14	4
16	36	15.5	48.0	44	92	16	4
18	36	17.5	54.0	52	100	18	4
20	38	19.5	54.0	54	104	20	4
25	42	24.0	65.0	65	121	25	4

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 304+305

S-Cut – End milling cutter

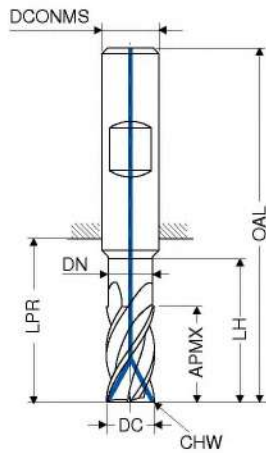
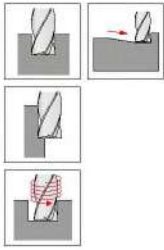
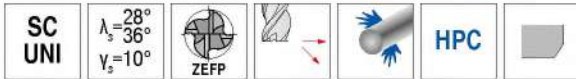


DC _{FE}	APMX	DN	LH	LPR	OAL	DCNMS _{NS}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
3	6	2.8	12.0	18	54	6	0.10	4
3	8	2.8	15.0	21	57	6	0.10	4
4	8	3.8	13.5	18	54	6	0.13	4
4	11	3.8	16.5	21	57	6	0.13	4
5	9	4.8	15.5	18	54	6	0.18	4
5	13	4.8	18.5	21	57	6	0.18	4
5	22	4.8	24.5	27	63	6	0.18	4
6	10	5.5	18.0	18	54	6	0.20	4
6	13	5.5	21.0	21	57	6	0.20	4
6	13	5.5	42.0	44	80	6	0.20	4
6	22	5.5	27.0	27	63	6	0.20	4
7	12	6.5	22.0	22	58	8	0.20	4
7	19	6.5	27.0	27	63	8	0.20	4
8	12	7.5	22.0	22	58	8	0.20	4
8	19	7.5	27.0	27	63	8	0.20	4
8	21	7.5	62.0	64	100	8	0.20	4
8	28	7.5	36.0	44	80	8	0.20	4
9	14	8.5	26.0	26	66	10	0.30	4
9	22	8.5	32.0	32	72	10	0.20	4
10	14	9.5	26.0	26	66	10	0.30	4
10	22	9.5	32.0	32	72	10	0.30	4
10	22	9.5	58.0	60	100	10	0.30	4
10	33	9.5	54.0	60	100	10	0.30	4
11	16	10.5	28.0	28	73	12	0.30	4
11	26	10.5	38.0	38	83	12	0.30	4
12	16	11.5	28.0	28	73	12	0.30	4
12	26	11.5	38.0	38	83	12	0.30	4
12	26	11.5	73.0	75	120	12	0.30	4
12	42	11.5	54.0	55	100	12	0.30	4
13	18	12.5	30.0	30	75	14	0.30	4
13	26	12.5	38.0	38	83	14	0.30	4
14	18	13.5	30.0	30	75	14	0.30	4
14	26	13.5	38.0	38	83	14	0.30	4
14	48	13.5	54.0	55	100	14	0.30	4
16	22	15.5	34.0	34	82	16	0.40	4
16	36	15.5	44.0	44	92	16	0.40	4
16	36	15.5	100.0	102	150	16	0.40	4
16	53	15.5	84.0	102	150	16	0.40	4
18	24	17.5	34.0	36	84	18	0.40	4
18	36	17.5	52.0	52	100	18	0.40	4
20	26	19.5	42.0	42	92	20	0.50	4
20	38	19.5	54.0	54	104	20	0.50	4
20	38	19.5	100.0	100	150	20	0.50	4
20	68	19.5	84.0	100	150	20	0.50	4
25	32	24.0	46.0	49	105	25	0.50	4
25	42	24.0	65.0	65	121	25	0.50	4
25	68	24.0	84.0	94	150	25	0.50	4

Article no.	Article no.	Article no.	Article no.
52 223 ...	52 224 ...	52 226 ...	52 227 ...
£	£	£	£
51.04	61.77		
51.04	61.77		
51.04	61.77		
51.04	61.77		
51.04	61.77	75.21	
51.04	61.77		
71.51		75.21	
69.39	85.50		
	82.92		
		92.55	
97.59	121.43		
94.57	117.74		
		119.53	
145.04	169.54		
140.67	163.84		
		154.33	
184.66	218.23		
179.62	211.52		
		172.91	
		172.91	
		283.70	
			302.16
302.16	355.88		
350.84	407.93		
		407.93	428.08
553.98	647.99		
		750.39	

Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

S-Cut – End milling cutter



APX72S



≈DIN 6527

HB

V1/1#

Article no.
52 229 ...

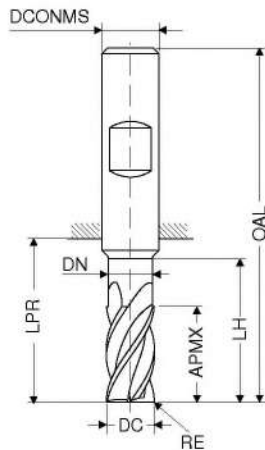
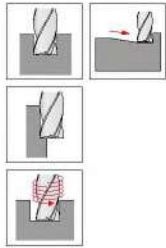
£	
131.16	060
177.95	080
251.82	100
339.11	120
443.18	140
616.09	160
883.01	200
1,151.60	250

DC _{fs}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
6	13	5.5	21	21	57	6	0.2	4
8	19	7.5	27	27	63	8	0.2	4
10	22	9.5	32	32	72	10	0.3	4
12	26	11.5	38	38	83	12	0.3	4
14	26	13.5	42	42	83	14	0.3	4
16	36	15.5	46	46	92	16	0.4	4
20	38	19.5	54	54	104	20	0.5	4
25	42	24.0	65	65	121	25	0.5	4

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 304+305

S-Cut – End milling cutter with corner radius



APX72S



≈DIN 6527



V1/1#

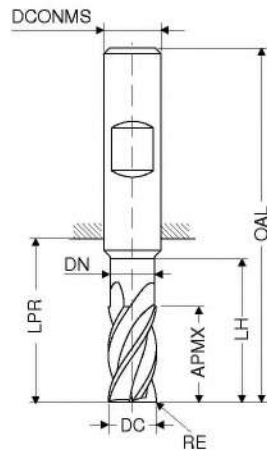
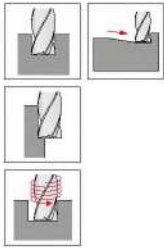
Article no.
52 228 ...

£

DC _{fs}	RE	APMX	DN	LH	LPR	OAL	DCONMS _{h6}	ZEFP	£	
3	0.25	8	2.8	15.0	21	57	6	4	61.77	03003
3	0.50	8	2.8	15.0	21	57	6	4	61.77	03005
3	1.00	8	2.8	15.0	21	57	6	4	61.77	03010
4	0.25	11	3.8	16.5	21	57	6	4	61.77	04003
4	0.50	11	3.8	16.5	21	57	6	4	61.77	04005
4	1.00	11	3.8	16.5	21	57	6	4	61.77	04010
5	0.50	13	4.8	18.5	21	57	6	4	61.77	05005
5	1.00	13	4.8	18.5	21	57	6	4	61.77	05010
5	1.50	13	4.8	18.5	21	57	6	4	61.77	05015
6	0.50	13	5.5	21.0	21	57	6	4	61.77	06005
6	0.80	13	5.5	21.0	21	57	6	4	61.77	06008
6	1.00	13	5.5	21.0	21	57	6	4	61.77	06010
6	1.50	13	5.5	21.0	21	57	6	4	61.77	06015
6	2.00	13	5.5	21.0	21	57	6	4	61.77	06020
8	0.50	19	7.5	27.0	27	63	8	4	82.92	08005
8	0.80	19	7.5	27.0	27	63	8	4	82.92	08008
8	1.00	19	7.5	27.0	27	63	8	4	82.92	08010
8	1.50	19	7.5	27.0	27	63	8	4	82.92	08015
8	2.00	19	7.5	27.0	27	63	8	4	82.92	08020
10	0.50	22	9.5	32.0	32	72	10	4	117.74	10005
10	1.00	22	9.5	32.0	32	72	10	4	117.74	10010
10	1.50	22	9.5	32.0	32	72	10	4	117.74	10015
10	1.60	22	9.5	32.0	32	72	10	4	117.74	10016
10	2.00	22	9.5	32.0	32	72	10	4	117.74	10020
12	0.50	26	11.5	38.0	38	83	12	4	163.84	12005
12	1.00	26	11.5	38.0	38	83	12	4	163.84	12010
12	1.50	26	11.5	38.0	38	83	12	4	163.84	12015
12	1.60	26	11.5	38.0	38	83	12	4	163.84	12016
12	2.00	26	11.5	38.0	38	83	12	4	163.84	12020
12	3.00	26	11.5	38.0	38	83	12	4	163.84	12030
14	1.00	26	13.5	38.0	38	83	14	4	211.52	14010
14	2.00	26	13.5	38.0	38	83	14	4	211.52	14020
16	1.00	36	15.5	44.0	44	92	16	4	265.24	16010
16	1.50	36	15.5	44.0	44	92	16	4	265.24	16015
16	1.60	36	15.5	44.0	44	92	16	4	265.24	16016
16	2.00	36	15.5	44.0	44	92	16	4	265.24	16020
16	2.50	36	15.5	44.0	44	92	16	4	265.24	16025
16	3.00	36	15.5	44.0	44	92	16	4	265.24	16030
16	3.20	36	15.5	44.0	44	92	16	4	265.24	16032
18	1.50	36	17.5	44.0	44	92	18	4	355.88	18015
18	2.50	36	17.5	44.0	44	92	18	4	355.88	18025
20	1.00	38	19.5	54.0	54	104	20	4	407.93	20010

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

S-Cut – End milling cutter with corner radius



APX72S



≈DIN 6527



V1/1#

Article no.
52 228 ...

£	Article no.
407.93	20015
407.93	20020
407.93	20025
407.93	20030
407.93	20040
647.99	25010
647.99	25015
647.99	25020
647.99	25025
647.99	25030
647.99	25040
647.99	25050

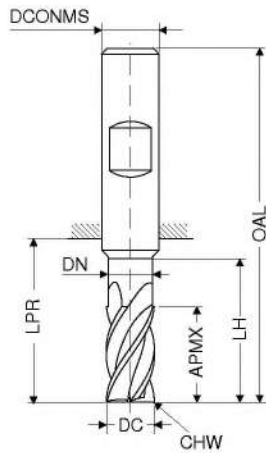
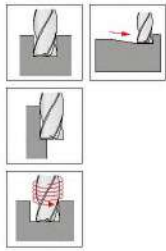
DC _{fs}	RE	APMX	DN	LH	LPR	OAL	DCONMS _{h6}	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
20	1.50	38	19.5	54.0	54	104	20	4
20	2.00	38	19.5	54.0	54	104	20	4
20	2.50	38	19.5	54.0	54	104	20	4
20	3.00	38	19.5	54.0	54	104	20	4
20	4.00	38	19.5	54.0	54	104	20	4
25	1.00	42	24.0	65.0	65	121	25	4
25	1.50	42	24.0	65.0	65	121	25	4
25	2.00	42	24.0	65.0	65	121	25	4
25	2.50	42	24.0	65.0	65	121	25	4
25	3.00	42	24.0	65.0	65	121	25	4
25	4.00	42	24.0	65.0	65	121	25	4
25	5.00	42	24.0	65.0	65	121	25	4

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 304+305

S-Cut – End milling cutter

▲ suitable for trochoidal milling



APX72S



≈DIN 6527



V1/1#

Article no.
52 230 ...

£

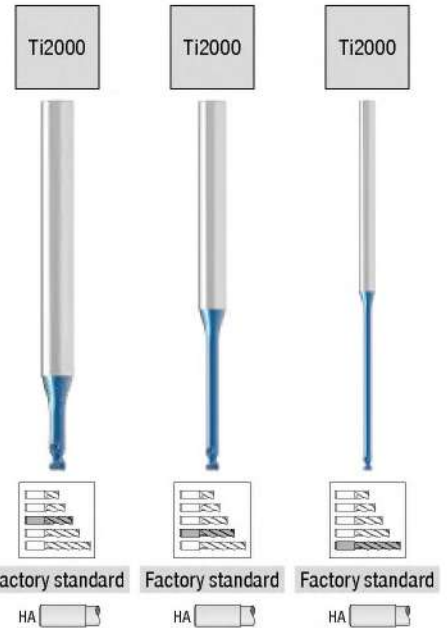
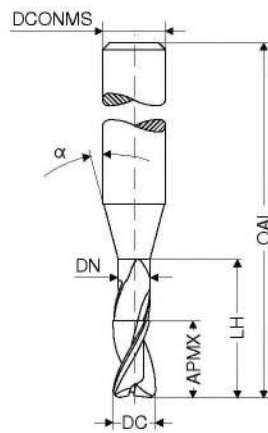
DC ₁₈	APMX	DN	LH	LPR	OAL	DCONMS ₁₈	CHW	ZEFP	
mm	mm	mm	mm	mm	mm	mm	mm		
6	18	5.5	25	26	62	6	0.12	5	91.66 060
8	24	7.5	30	32	68	8	0.16	5	121.43 080
10	30	9.5	35	40	80	10	0.20	5	154.33 100
12	36	11.5	45	48	93	12	0.24	5	203.13 120
16	48	15.5	55	60	108	16	0.32	5	347.49 160
20	60	19.5	70	76	126	20	0.40	5	547.26 200

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	○

→ v_c/f, Page 308+309

BlueLine – Micro-end milling cutter

▲ T_x = maximum engagement depth



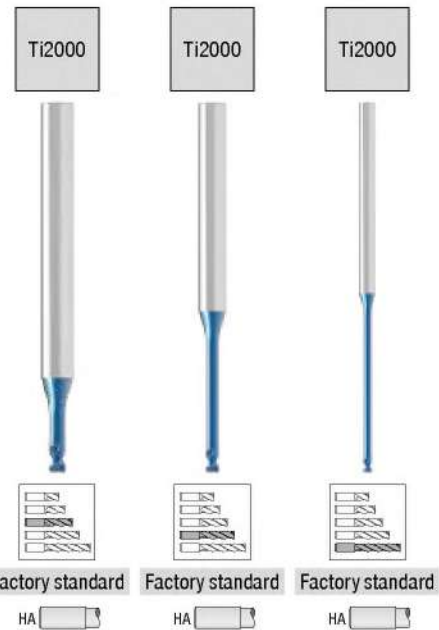
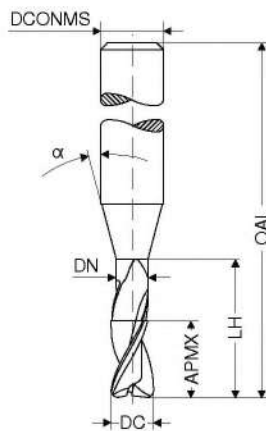
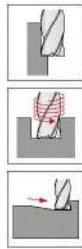
DC _{-0,01}	APMX	DN	LH	OAL	α°	DCONMS _{h5}	T_x	ZEFP	V1 Article no. 52 345 ...	V1 Article no. 52 346 ...	V1 Article no. 52 347 ...
mm	mm	mm	mm	mm		mm			£	£	£
0.2	0.3	0.18	0.5	45	16	4	2,5 x DC	2	71.40 302		
0.2	0.3	0.18	1.0	45	16	4	5 x DC	2	71.40 402		
0.2	0.3	0.18	1.5	45	16	4	7,5 x DC	2	71.40 502		
0.3	0.4	0.28	1.0	45	16	4	3,3 x DC	2	68.45 303		
0.3	0.4	0.28	2.0	45	16	4	6,6 x DC	2	68.45 403		
0.3	0.4	0.28	3.0	45	16	4	10 x DC	2		68.45 303	
0.3	0.4	0.28	6.0	45	16	4	20 x DC	2		68.45 403	
0.3	0.4	0.28	9.0	45	16	4	30 x DC	2			68.45 303
0.4	0.6	0.38	2.0	45	16	4	5 x DC	2	67.46 304		
0.4	0.6	0.38	3.0	45	16	4	7,5 x DC	2	67.46 404		
0.4	0.6	0.38	4.0	45	16	4	10 x DC	2		67.46 304	
0.4	0.6	0.38	5.0	45	16	4	12,5 x DC	2		67.46 404	
0.4	0.6	0.38	8.0	45	16	4	20 x DC	2			67.46 304
0.4	0.6	0.38	12.0	45	16	4	30 x DC	2			69.56 404
0.5	0.7	0.48	2.0	45	16	4	4 x DC	2	54.90 305		
0.5	0.7	0.48	4.0	45	16	4	8 x DC	2	54.90 405		
0.5	0.7	0.48	6.0	45	16	4	12 x DC	2		54.90 305	
0.5	0.7	0.48	8.0	45	16	4	16 x DC	2		56.51 405	
0.5	0.7	0.48	10.0	50	16	4	20 x DC	2			57.74 305
0.5	0.7	0.48	15.0	50	16	4	30 x DC	2			60.56 405
0.6	0.9	0.58	2.0	45	16	4	3,3 x DC	2	54.90 306		
0.6	0.9	0.58	4.0	45	16	4	6,6 x DC	2	54.90 406		
0.6	0.9	0.58	6.0	45	16	4	10 x DC	2		54.90 306	
0.6	0.9	0.58	8.0	45	16	4	13,3 x DC	2		56.51 406	
0.6	0.9	0.58	10.0	45	16	4	16,6 x DC	2		56.51 506	
0.6	0.9	0.58	12.0	50	16	4	20 x DC	2			56.88 306
0.6	0.9	0.58	18.0	50	16	4	30 x DC	2			60.94 406
0.7	1.0	0.68	2.0	45	16	4	2,8 x DC	2	57.86 307		
0.7	1.0	0.68	4.0	45	16	4	5,7 x DC	2	57.86 407		
0.7	1.0	0.68	6.0	45	16	4	8,5 x DC	2	57.86 507		
0.7	1.0	0.68	8.0	45	16	4	11,4 x DC	2		59.46 307	
0.7	1.0	0.68	10.0	50	16	4	14,2 x DC	2		59.46 407	
0.8	1.2	0.78	4.0	45	16	4	5 x DC	2	63.03 308		
0.8	1.2	0.78	6.0	45	16	4	7,5 x DC	2	63.03 408		
0.8	1.2	0.78	8.0	45	16	4	10 x DC	2		63.03 308	
0.8	1.2	0.78	10.0	50	16	4	12,5 x DC	2		66.11 408	
0.8	1.2	0.78	12.0	50	16	4	15 x DC	2		66.11 508	
0.8	1.2	0.78	16.0	50	16	4	20 x DC	2			69.43 308
0.8	1.2	0.78	24.0	60	16	4	30 x DC	2			72.38 408
0.9	1.3	0.88	4.0	45	16	4	4,4 x DC	2	52.56 309		
0.9	1.3	0.88	6.0	45	16	4	6,6 x DC	2	52.56 409		
0.9	1.3	0.88	8.0	45	16	4	8,8 x DC	2	54.04 509		
0.9	1.3	0.88	10.0	45	16	4	11,1 x DC	2		54.04 309	
0.9	1.3	0.88	15.0	50	16	4	16,6 x DC	2		60.08 409	
1.0	1.5	0.95	4.0	45	16	4	4 x DC	2	54.04 310		
1.0	1.5	0.95	6.0	45	16	4	6 x DC	2	54.04 410		
1.0	1.5	0.95	8.0	45	16	4	8 x DC	2	54.04 510		

Steel	●	●	●
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys			
hardened materials	●	●	●

→ v_c/f_z Page 316+317

BlueLine – Micro-end milling cutter

▲ T_x = maximum engagement depth



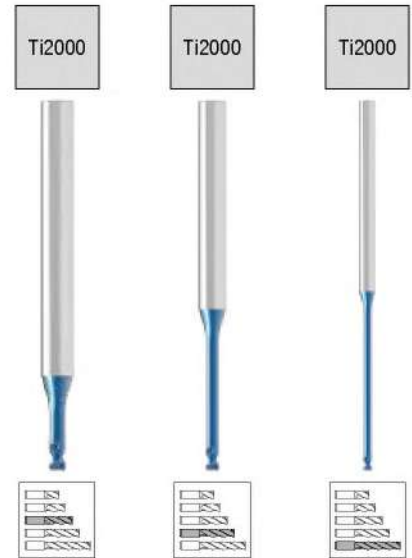
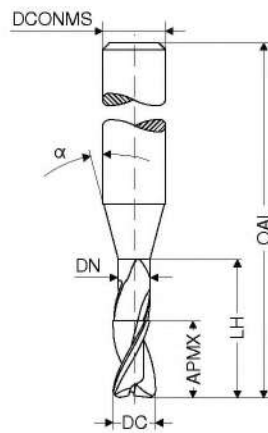
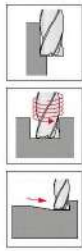
DC _{-0,01}	APMX	DN	LH	OAL	α°	DCONMS _{h5}	T_x	ZEFP	Factory standard	Factory standard	Factory standard
mm	mm	mm	mm	mm	α°	mm			HA	HA	HA
1.0	1.5	0.95	10.0	45	16	4	10 x DC	2			
1.0	1.5	0.95	12.0	45	16	4	12 x DC	2			
1.0	1.5	0.95	14.0	45	16	4	14 x DC	2			
1.0	1.5	0.95	16.0	50	16	4	16 x DC	2			
1.0	1.5	0.95	20.0	54	16	4	20 x DC	2			
1.0	1.5	0.95	25.0	70	16	4	25 x DC	2			
1.0	1.5	0.95	30.0	70	16	4	30 x DC	2			
1.2	1.8	1.14	6.0	45	16	4	5 x DC	2	58.47	312	
1.2	1.8	1.14	8.0	45	16	4	6,6 x DC	2	58.47	412	
1.2	1.8	1.14	10.0	45	16	4	8,3 x DC	2	60.08	512	
1.2	1.8	1.14	12.0	45	16	4	10 x DC	2			
1.2	1.8	1.14	16.0	50	16	4	13,3 x DC	2			
1.2	1.8	1.14	20.0	60	16	4	16,6 x DC	2			
1.4	2.1	1.34	6.0	45	16	4	4,2 x DC	2	58.47	314	
1.4	2.1	1.34	8.0	45	16	4	5,7 x DC	2	58.47	414	
1.4	2.1	1.34	10.0	45	16	4	7,1 x DC	2	60.08	514	
1.4	2.1	1.34	12.0	45	16	4	8,5 x DC	2	60.08	614	
1.4	2.1	1.34	14.0	45	16	4	10 x DC	2			
1.4	2.1	1.34	16.0	50	16	4	11,4 x DC	2			
1.4	2.1	1.34	22.0	54	16	4	15,7 x DC	2			
1.5	2.3	1.44	6.0	45	16	4	4 x DC	2	56.37	315	
1.5	2.3	1.44	8.0	45	16	4	5,3 x DC	2	56.37	415	
1.5	2.3	1.44	10.0	45	16	4	6,6 x DC	2	57.12	515	
1.5	2.3	1.44	12.0	45	16	4	8 x DC	2	57.12	615	
1.5	2.3	1.44	14.0	50	16	4	9,3 x DC	2	63.89	715	
1.5	2.3	1.44	16.0	50	16	4	10,6 x DC	2			
1.5	2.3	1.44	18.0	54	16	4	12 x DC	2			
1.5	2.3	1.44	20.0	54	16	4	13,3 x DC	2			
1.5	2.3	1.44	25.0	70	16	4	16,6 x DC	2			
1.5	2.3	1.44	30.0	70	16	4	20 x DC	2			
1.5	2.3	1.44	35.0	70	16	4	23,3 x DC	2			
1.5	2.3	1.44	40.0	80	16	4	26,6 x DC	2			
1.5	2.3	1.44	45.0	80	16	4	30 x DC	2			
1.6	2.4	1.51	6.0	45	16	4	3,7 x DC	2	56.37	316	
1.6	2.4	1.51	8.0	45	16	4	5 x DC	2	56.37	416	
1.6	2.4	1.51	10.0	45	16	4	6,2 x DC	2	57.12	516	
1.6	2.4	1.51	12.0	45	16	4	7,5 x DC	2	57.12	616	
1.6	2.4	1.51	14.0	50	16	4	8,75 x DC	2	60.32	716	
1.6	2.4	1.51	16.0	50	16	4	10 x DC	2			
1.6	2.4	1.51	18.0	54	16	4	11,25 x DC	2			
1.6	2.4	1.51	20.0	54	16	4	12,5 x DC	2			
1.6	2.4	1.51	26.0	60	16	4	16,2 x DC	2			
1.8	2.7	1.71	6.0	45	16	4	3,3 x DC	2	56.37	318	
1.8	2.7	1.71	8.0	45	16	4	4,4 x DC	2	56.37	418	
1.8	2.7	1.71	10.0	45	16	4	5,5 x DC	2	56.88	518	
1.8	2.7	1.71	12.0	45	16	4	6,6 x DC	2	57.12	618	
1.8	2.7	1.71	14.0	50	16	4	7,7 x DC	2	60.32	718	

Steel	•	•	•
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys			
hardened materials	•	•	•

→ v_c/f_z Page 316+317

BlueLine – Micro-end milling cutter

▲ T_x = maximum engagement depth



Factory standard Factory standard Factory standard
HA HA HA

DC _{-0,01}	APMX	DN	LH	OAL	α°	DCONMS _{h5}	T_x	ZEFP
mm	mm	mm	mm	mm		mm		
1.8	2.7	1.71	16.0	50	16	4	8,8 x DC	2
1.8	2.7	1.71	18.0	54	16	4	10 x DC	2
1.8	2.7	1.71	20.0	54	16	4	11,1 x DC	2
1.8	2.7	1.71	25.0	60	16	4	13,8 x DC	2
2.0	3.0	1.91	6.0	45	16	4	3 x DC	2
2.0	3.0	1.91	8.0	45	16	4	4 x DC	2
2.0	3.0	1.91	10.0	45	16	4	5 x DC	2
2.0	3.0	1.91	12.0	45	16	4	6 x DC	2
2.0	3.0	1.91	14.0	50	16	4	7 x DC	2
2.0	3.0	1.91	16.0	50	16	4	8 x DC	2
2.0	3.0	1.91	18.0	54	16	4	9 x DC	2
2.0	3.0	1.91	20.0	54	16	4	10 x DC	2
2.0	3.0	1.91	25.0	60	16	4	12,5 x DC	2
2.0	3.0	1.91	30.0	70	16	4	15 x DC	2
2.0	3.0	1.91	35.0	80	16	4	17,5 x DC	2
2.0	3.0	1.91	40.0	90	16	4	20 x DC	2
2.0	3.0	1.91	50.0	100	16	4	25 x DC	2
2.0	3.0	1.91	60.0	110	16	4	30 x DC	2
2.5	3.7	2.41	8.0	45	16	4	3,2 x DC	2
2.5	3.7	2.41	10.0	45	16	4	4 x DC	2
2.5	3.7	2.41	12.0	45	16	4	4,8 x DC	2
2.5	3.7	2.41	14.0	50	16	4	5,6 x DC	2
2.5	3.7	2.41	16.0	50	16	4	6,4 x DC	2
2.5	3.7	2.41	18.0	54	16	4	7,2 x DC	2
2.5	3.7	2.41	20.0	54	16	4	8 x DC	2
2.5	3.7	2.41	25.0	60	16	4	10 x DC	2
2.5	3.7	2.41	30.0	70	16	4	12 x DC	2
2.5	3.7	2.41	40.0	90	16	4	16 x DC	2
2.5	3.7	2.41	50.0	100	16	4	20 x DC	2
3.0	4.5	2.92	8.0	45	16	4	2,6 x DC	2
3.0	4.5	2.92	12.0	45	16	4	4 x DC	2
3.0	4.5	2.92	16.0	50	16	4	5,3 x DC	2
3.0	4.5	2.92	20.0	54	16	4	6,6 x DC	2

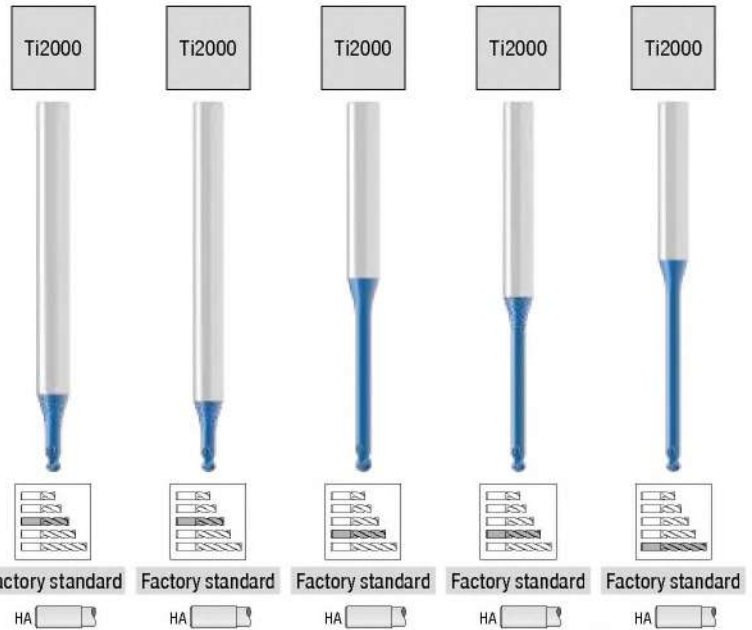
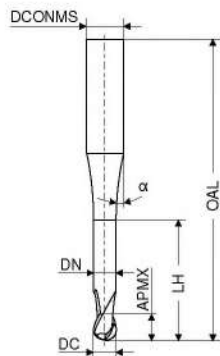
V1	V1	V1	
Article no.	Article no.	Article no.	
52 345 ...	52 346 ...	52 347 ...	
£	£	£	
60.32			
818			
	63.89	318	
	63.89	418	
	70.29	518	
56.37			
320			
56.37			
420			
57.12			
520			
57.12			
620			
60.32			
720			
60.32			
820			
60.32			
920			
	63.89	320	
	70.29	420	
	72.51	520	
	74.97	620	
		80.88	320
		86.66	420
		98.48	520
56.37			
325			
57.12			
425			
57.12			
525			
60.32			
625			
60.32			
725			
63.89			
825			
63.89			
925			
	69.80	325	
	76.19	425	
	98.73	525	
		110.30	325
57.12			
330			
57.12			
430			
60.32			
530			
63.89			
630			

Steel	•	•	•
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys			
hardened materials	•	•	•

→ v_c/f_z Page 316+317

BlueLine – Micro-ball nosed cutter

▲ T_x = maximum engagement depth



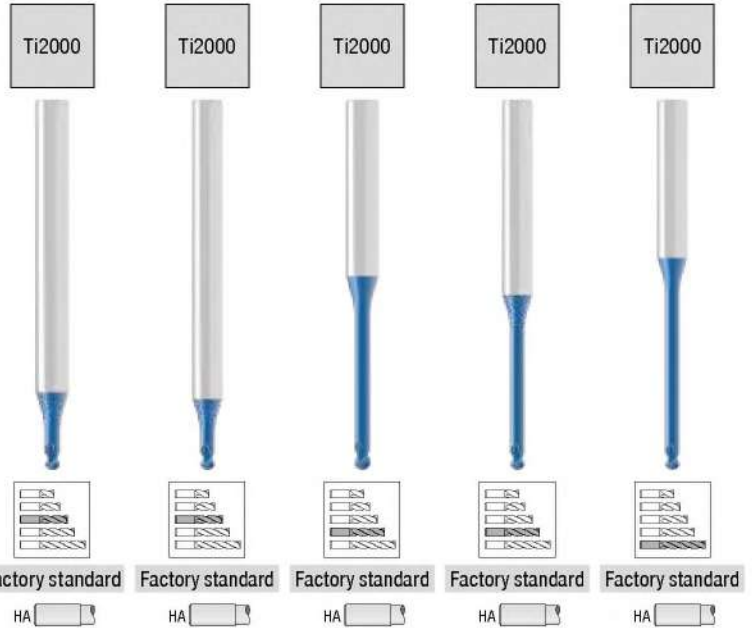
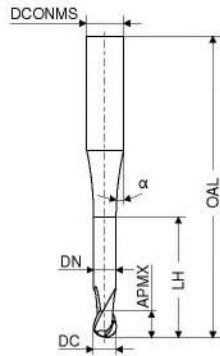
DC _{-0,01}	APMX	DN	LH	OAL	α°	DCONMS _{ns}	T _x	ZEFP	V1		
									Article no.	Price (£)	
0.2	0.16	0.17	0.30	45	16	4	1,5 x DC	2	52 356 ...	74.72	302
0.2	0.16	0.17	0.50	45	16	4	2,5 x DC	2	52 358 ...	74.72	402
0.2	0.16	0.17	0.75	45	16	4	3,75 x DC	2	52 357 ...	74.72	502
0.2	0.16	0.17	1.00	45	16	4	5 x DC	2	52 359 ...	74.72	602
0.2	0.16	0.17	1.25	45	16	4	6,2 x DC	2	52 360 ...	74.72	702
0.2	0.16	0.17	1.50	45	16	4	7,5 x DC	2		74.72	802
0.2	0.16	0.17	1.75	45	16	4	8,7 x DC	2		74.72	902
0.2	0.16	0.17	2.00	45	16	4	10 x DC	2		74.72	302
0.2	0.16	0.17	2.50	45	16	4	12,5 x DC	2		74.72	402
0.2	0.16	0.17	3.00	45	16	4	15 x DC	2		74.72	502
0.3	0.24	0.27	0.50	45	16	4	1,6 x DC	2	72.51	72.51	303
0.3	0.24	0.27	0.75	45	16	4	2,5 x DC	2	72.51	72.51	403
0.3	0.24	0.27	1.00	45	16	4	3,3 x DC	2	72.51	72.51	503
0.3	0.24	0.27	1.25	45	16	4	4,1 x DC	2	72.51	72.51	603
0.3	0.24	0.27	1.50	45	16	4	5 x DC	2	72.51	72.51	703
0.3	0.24	0.27	1.75	50	16	4	5,8 x DC	2	72.51	72.51	303
0.3	0.24	0.27	2.00	50	16	4	6,6 x DC	2	72.51	72.51	403
0.3	0.24	0.27	2.25	50	16	4	7,5 x DC	2	72.51	72.51	503
0.3	0.24	0.27	2.50	50	16	4	8,3 x DC	2	72.51	72.51	603
0.3	0.24	0.27	2.75	50	16	4	9,1 x DC	2	72.51	72.51	703
0.3	0.24	0.27	3.00	50	16	4	10 x DC	2		72.51	303
0.3	0.24	0.27	3.50	50	16	4	11,6 x DC	2		72.51	403
0.3	0.24	0.27	4.00	50	16	4	13,3 x DC	2		72.51	503
0.3	0.24	0.27	4.50	50	16	4	15 x DC	2		72.51	603
0.4	0.32	0.34	0.50	45	16	4	1,2 x DC	2	71.52	71.52	304
0.4	0.32	0.34	1.00	45	16	4	2,5 x DC	2	71.52	71.52	404
0.4	0.32	0.34	1.50	45	16	4	3,75 x DC	2	71.52	71.52	504
0.4	0.32	0.34	2.00	45	16	4	5 x DC	2	71.52	71.52	604
0.4	0.32	0.34	2.50	45	16	4	6,2 x DC	2	71.52	71.52	704
0.4	0.32	0.34	3.00	45	16	4	7,5 x DC	2	71.52	71.52	804
0.4	0.32	0.34	3.50	45	16	4	8,7 x DC	2	71.03	71.03	904
0.4	0.32	0.34	4.00	45	16	4	10 x DC	2		71.03	304
0.4	0.32	0.34	4.50	45	16	4	11,2 x DC	2		71.03	404
0.4	0.32	0.34	5.00	45	16	4	12,5 x DC	2		71.03	504
0.4	0.32	0.34	5.50	45	16	4	13,7 x DC	2		71.03	604
0.4	0.32	0.34	6.00	45	16	4	15 x DC	2		71.03	704
0.5	0.40	0.47	1.50	45	16	4	3 x DC	2	58.11	58.11	305
0.5	0.40	0.47	2.00	45	16	4	4 x DC	2	58.11	58.11	405
0.5	0.40	0.47	2.50	45	16	4	5 x DC	2	58.11	58.11	505
0.5	0.40	0.47	3.00	45	16	4	6 x DC	2	58.11	58.11	605
0.5	0.40	0.47	3.50	45	16	4	7 x DC	2	58.11	58.11	705
0.5	0.40	0.47	4.00	45	16	4	8 x DC	2	58.11	58.11	805
0.5	0.40	0.47	4.50	45	16	4	9 x DC	2	58.11	58.11	905
0.5	0.40	0.47	5.00	45	16	4	10 x DC	2		58.11	305

Steel	•	•	•	•	•
Stainless steel					
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials	•	•	•	•	•

→ v_c/f_z Page 316+317

BlueLine – Micro-ball nosed cutter

▲ T_x = maximum engagement depth



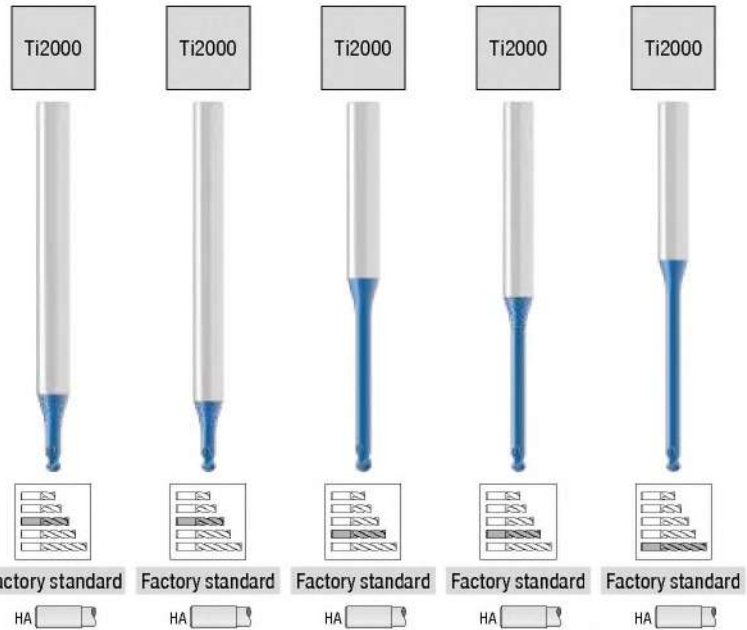
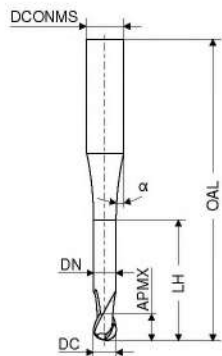
DC _{-0,01}	APMX	DN	LH	OAL	α°	DCONMS _{ns}	T_x	ZEFP	V1		V1		V1		V1		V1	
									Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£
0.5	0.40	0.47	5.50	45	16	4	11 x DC	2	52 356 ...									
0.5	0.40	0.47	6.00	45	16	4	12 x DC	2										
0.5	0.40	0.47	7.00	45	16	4	14 x DC	2										
0.5	0.40	0.47	8.00	45	16	4	16 x DC	2										
0.5	0.40	0.47	9.00	45	16	4	18 x DC	2										
0.5	0.40	0.47	10.00	50	16	4	20 x DC	2										
0.6	0.40	0.57	12.00	50	16	4	20 x DC	2										
0.6	0.48	0.57	1.00	45	16	4	1,6 x DC	2	58.11	306								
0.6	0.48	0.57	2.00	45	16	4	3,3 x DC	2	58.11	406								
0.6	0.48	0.57	3.00	45	16	4	5 x DC	2	58.11	506								
0.6	0.48	0.57	4.00	45	16	4	6,6 x DC	2	58.11	606								
0.6	0.48	0.57	5.00	45	16	4	8,3 x DC	2	58.11	706								
0.6	0.48	0.57	6.00	45	16	4	10 x DC	2										
0.6	0.48	0.57	8.00	45	16	4	13,3 x DC	2										
0.6	0.48	0.57	10.00	50	16	4	16,6 x DC	2										
0.8	0.64	0.77	2.00	45	16	4	2,5 x DC	2	65.50	308								
0.8	0.64	0.77	3.00	45	16	4	3,75 x DC	2	65.50	408								
0.8	0.64	0.77	4.00	45	16	4	5 x DC	2	65.50	508								
0.8	0.64	0.77	5.00	45	16	4	6,2 x DC	2	65.50	608								
0.8	0.64	0.77	6.00	45	16	4	7,5 x DC	2	65.50	708								
0.8	0.64	0.77	7.00	45	16	4	8,7 x DC	2	65.50	808								
0.8	0.64	0.77	8.00	45	16	4	10 x DC	2										
0.8	0.64	0.77	9.00	45	16	4	11,2 x DC	2										
0.8	0.64	0.77	10.00	50	16	4	12,5 x DC	2										
1.0	0.80	0.96	3.00	45	16	4	3 x DC	2	55.64	310								
1.0	0.80	0.96	4.00	45	16	4	4 x DC	2	55.64	410								
1.0	0.80	0.96	5.00	45	16	4	5 x DC	2	55.64	510								
1.0	0.80	0.96	6.00	45	16	4	6 x DC	2	55.64	610								
1.0	0.80	0.96	7.00	45	16	4	7 x DC	2	60.08	710								
1.0	0.80	0.96	8.00	45	16	4	8 x DC	2	60.08	810								
1.0	0.80	0.96	9.00	45	16	4	9 x DC	2	60.08	910								
1.0	0.80	0.96	10.00	45	16	4	10 x DC	2										
1.0	0.80	0.96	12.00	45	16	4	12 x DC	2										
1.0	0.80	0.96	14.00	50	16	4	14 x DC	2										
1.0	0.80	0.96	16.00	50	16	4	16 x DC	2										
1.2	0.96	1.16	6.00	45	16	4	5 x DC	2	62.04	312								
1.2	0.96	1.16	8.00	45	16	4	6,6 x DC	2	62.04	412								
1.2	0.96	1.16	10.00	45	16	4	8,3 x DC	2	64.14	512								
1.2	0.96	1.16	12.00	45	16	4	10 x DC	2										
1.2	0.96	1.16	14.00	50	16	4	11,6 x DC	2										
1.2	0.96	1.16	16.00	50	16	4	13,3 x DC	2										
1.4	1.12	1.34	8.00	45	16	4	5,7 x DC	2	59.71	314								
1.4	1.12	1.34	12.00	45	16	4	8,5 x DC	2	62.04	414								
1.4	1.12	1.34	16.00	50	16	4	11,4 x DC	2										

Steel	•	•	•	•	•
Stainless steel					
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials	•	•	•	•	•

→ v_c/f_z Page 316+317

BlueLine – Micro-ball nosed cutter

▲ T_x = maximum engagement depth



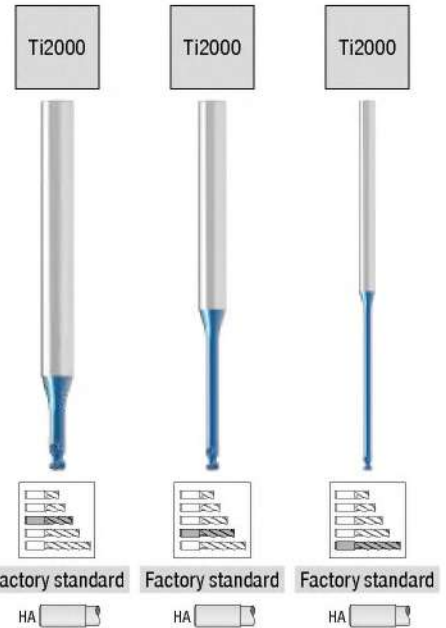
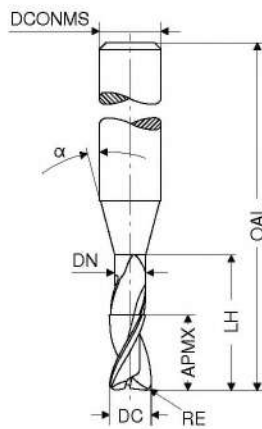
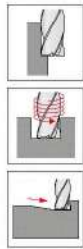
DC _{-0,01}	APMX	DN	LH	OAL	α°	DCONMS _{ns}	T_x	ZEFP	V1	
									Article no.	Price
1.5	1.20	1.44	3.00	45	16	4	2 x DC	2	52 356 ...	£ 315
1.5	1.20	1.44	4.00	45	16	4	2,6 x DC	2	52 358 ...	£ 415
1.5	1.20	1.44	6.00	45	16	4	4 x DC	2	52 357 ...	£ 515
1.5	1.20	1.44	8.00	45	16	4	5,3 x DC	2	52 359 ...	£ 615
1.5	1.20	1.44	10.00	45	16	4	6,6 x DC	2	52 360 ...	£ 715
1.5	1.20	1.44	12.00	45	16	4	8 x DC	2	52 356 ...	£ 815
1.5	1.20	1.44	14.00	50	16	4	9,3 x DC	2	52 358 ...	£ 315
1.5	1.20	1.44	16.00	50	16	4	10,6 x DC	2	52 357 ...	£ 315
1.6	1.28	1.54	8.00	45	16	4	5 x DC	2	52 359 ...	£ 316
1.6	1.28	1.54	12.00	45	16	4	7,5 x DC	2	52 360 ...	£ 416
1.6	1.28	1.54	16.00	50	16	4	10 x DC	2	52 356 ...	£ 316
1.8	1.44	1.74	8.00	45	16	4	4,4 x DC	2	52 358 ...	£ 318
1.8	1.44	1.74	12.00	45	16	4	6,6 x DC	2	52 357 ...	£ 418
1.8	1.44	1.74	16.00	50	16	4	8,8 x DC	2	52 359 ...	£ 318
2.0	1.60	1.94	3.00	45	16	4	1,5 x DC	2	52 360 ...	£ 320
2.0	1.60	1.94	4.00	45	16	4	2 x DC	2	52 356 ...	£ 420
2.0	1.60	1.94	6.00	45	16	4	3 x DC	2	52 358 ...	£ 520
2.0	1.60	1.94	8.00	45	16	4	4 x DC	2	52 357 ...	£ 620
2.0	1.60	1.94	10.00	45	16	4	5 x DC	2	52 359 ...	£ 720
2.0	1.60	1.94	12.00	45	16	4	6 x DC	2	52 360 ...	£ 820
2.0	1.60	1.94	14.00	50	16	4	7 x DC	2	52 356 ...	£ 320
2.0	1.60	1.94	16.00	50	16	4	8 x DC	2	52 358 ...	£ 420
2.5	2.00	2.41	10.00	45	16	4	4 x DC	2	52 357 ...	£ 325
2.5	2.00	2.41	15.00	50	16	4	6 x DC	2	52 359 ...	£ 325
3.0	3.50	2.92	8.00	45	16	4	2,6 x DC	2	52 360 ...	£ 330
3.0	3.50	2.92	10.00	45	16	4	3,3 x DC	2	52 356 ...	£ 430
3.0	3.50	2.92	12.00	45	16	4	4 x DC	2	52 358 ...	£ 530
3.0	3.50	2.92	16.00	45	16	4	5,3 x DC	2	52 357 ...	£ 630
3.0	3.50	2.92	16.00	50	16	4	5,3 x DC	2	52 359 ...	£ 330

Steel	•	•	•	•	•
Stainless steel					
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials	•	•	•	•	•

→ v_c/f_z Page 316+317

BlueLine - Micro-torus cutter

▲ T_x = maximum engagement depth



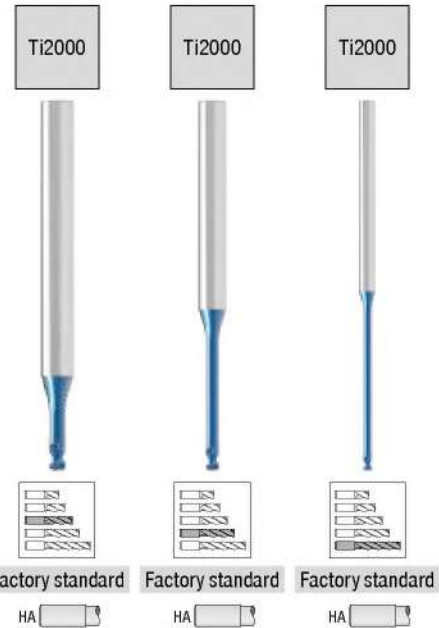
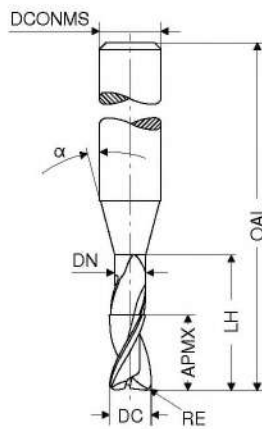
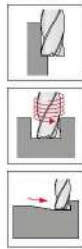
DC _{-0,012}	RE _{±0,005}	APMX	DN	LH	OAL	α°	DCONMS _{h5}	T _x	ZEFP	V1 Article no. 52 349 ...	V1 Article no. 52 350 ...	V1 Article no. 52 351 ...
mm	mm	mm	mm	mm	mm		mm			£	£	£
0.4	0.1	0.4	0.38	1.0	50	16	4	2,5 x DC	2	71.52 30401		
0.4	0.1	0.4	0.38	1.5	50	16	4	3,75 x DC	2	71.52 40401		
0.4	0.1	0.4	0.38	2.0	50	16	4	5 x DC	2	71.52 50401		
0.4	0.1	0.4	0.38	3.0	50	16	4	7,5 x DC	2	71.52 60401		
0.4	0.1	0.4	0.38	4.0	50	16	4	10 x DC	2		71.52 30401	
0.5	0.1	0.5	0.48	1.0	50	16	4	2 x DC	2	58.11 30501		
0.5	0.1	0.5	0.48	2.0	50	16	4	4 x DC	2	58.11 40501		
0.5	0.1	0.5	0.48	3.0	50	16	4	6 x DC	2	58.11 50501		
0.5	0.1	0.5	0.48	4.0	50	16	4	8 x DC	2	58.11 60501		
0.5	0.1	0.5	0.48	5.0	50	16	4	10 x DC	2		58.11 30501	
0.5	0.1	0.5	0.48	6.0	50	16	4	12 x DC	2		58.11 40501	
0.6	0.1	0.6	0.58	2.0	50	16	4	3,3 x DC	2	58.11 30601		
0.6	0.1	0.6	0.58	3.0	50	16	4	5 x DC	2	58.11 40601		
0.6	0.1	0.6	0.58	4.0	50	16	4	6,6 x DC	2	58.11 50601		
0.6	0.1	0.6	0.58	6.0	50	16	4	10 x DC	2		58.11 30601	
0.6	0.1	0.6	0.58	8.0	50	16	4	13,3 x DC	2		58.11 40601	
0.7	0.1	0.7	0.68	4.0	50	16	4	5,7 x DC	2	61.31 30701		
0.7	0.1	0.7	0.68	6.0	50	16	4	8,5 x DC	2	61.31 40701		
0.8	0.1	0.8	0.78	4.0	50	16	4	5 x DC	2	65.36 30801		
0.8	0.1	0.8	0.78	6.0	50	16	4	7,5 x DC	2	65.36 40801		
0.8	0.2	0.8	0.78	4.0	50	16	4	5 x DC	2	65.50 30802		
0.8	0.2	0.8	0.78	6.0	50	16	4	7,5 x DC	2	65.50 40802		
1.0	0.1	1.0	0.95	2.0	50	16	4	2 x DC	2	55.15 31001		
1.0	0.1	1.0	0.95	4.0	50	16	4	4 x DC	2	55.15 41001		
1.0	0.1	1.0	0.95	6.0	50	16	4	6 x DC	2	60.08 51001		
1.0	0.1	1.0	0.95	8.0	50	16	4	8 x DC	2	60.08 61001		
1.0	0.1	1.0	0.95	10.0	50	16	4	10 x DC	2		60.08 31001	
1.0	0.1	1.0	0.95	12.0	54	16	4	12 x DC	2		60.08 41001	
1.0	0.1	1.0	0.95	16.0	60	16	4	16 x DC	2		78.91 51001	
1.0	0.1	1.0	0.95	20.0	60	16	4	20 x DC	2			88.27 31001
1.0	0.2	1.0	0.95	2.0	50	16	4	2 x DC	2	55.64 31002		
1.0	0.2	1.0	0.95	4.0	50	16	4	4 x DC	2	55.64 41002		
1.0	0.2	1.0	0.95	6.0	50	16	4	6 x DC	2	60.08 51002		
1.0	0.2	1.0	0.95	8.0	50	16	4	8 x DC	2	60.08 61002		
1.0	0.2	1.0	0.95	10.0	50	16	4	10 x DC	2		60.08 31002	
1.0	0.2	1.0	0.95	12.0	54	16	4	12 x DC	2		60.08 41002	
1.0	0.2	1.0	0.95	16.0	60	16	4	16 x DC	2		78.91 51002	
1.0	0.2	1.0	0.95	20.0	60	16	4	20 x DC	2			88.27 31002
1.0	0.3	1.0	0.95	2.0	50	16	4	2 x DC	2	55.64 31003		
1.0	0.3	1.0	0.95	4.0	50	16	4	4 x DC	2	55.64 41003		
1.0	0.3	1.0	0.95	6.0	50	16	4	6 x DC	2	59.94 51003		
1.0	0.3	1.0	0.95	8.0	50	16	4	8 x DC	2	59.94 61003		
1.0	0.3	1.0	0.95	10.0	50	16	4	10 x DC	2		59.94 31003	
1.0	0.3	1.0	0.95	12.0	54	16	4	12 x DC	2		59.94 41003	
1.0	0.3	1.0	0.95	16.0	60	16	4	16 x DC	2		78.91 51003	
1.0	0.3	1.0	0.95	20.0	60	16	4	20 x DC	2			88.27 31003
1.2	0.2	1.2	1.14	6.0	50	16	4	5 x DC	2	62.04 31202		

Steel	●	●	●
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys			
hardened materials	●	●	●

→ v_c/f_z Page 316+317

BlueLine – Micro-torus cutter

▲ T_x = maximum engagement depth



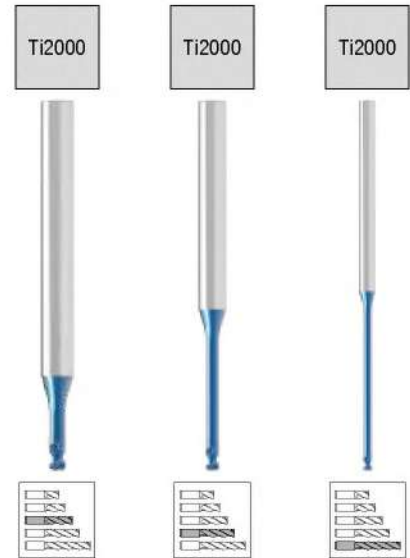
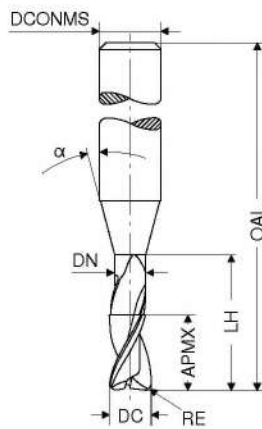
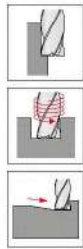
DC _{-0,012}	RE _{±0,005}	APMX	DN	LH	OAL	α°	DCONMS _{h5}	T_x	ZEFP	Factory standard	Factory standard	Factory standard
mm	mm	mm	mm	mm	mm		mm			HA	HA	HA
										V1	V1	V1
										Article no.	Article no.	Article no.
										52 349 ...	52 350 ...	52 351 ...
										£	£	£
1.2	0.2	1.2	1.14	12.0	54	16	4	10 x DC	2		62.04	31202
1.2	0.2	1.2	1.14	20.0	60	16	4	16,6 x DC	2		92.95	41202
1.2	0.3	1.2	1.14	6.0	50	16	4	5 x DC	2		62.04	31203
1.2	0.3	1.2	1.14	12.0	54	16	4	10 x DC	2		62.04	31203
1.2	0.3	1.2	1.14	20.0	60	16	4	16,6 x DC	2		92.95	41203
1.5	0.2	1.5	1.44	4.0	50	16	4	2,6 x DC	2		58.35	31502
1.5	0.2	1.5	1.44	6.0	50	16	4	4 x DC	2		58.35	41502
1.5	0.2	1.5	1.44	8.0	50	16	4	5,3 x DC	2		61.79	51502
1.5	0.2	1.5	1.44	10.0	50	16	4	6,6 x DC	2		61.79	61502
1.5	0.2	1.5	1.44	12.0	54	16	4	8 x DC	2		61.79	71502
1.5	0.2	1.5	1.44	16.0	54	16	4	10,6 x DC	2			
1.5	0.2	1.5	1.44	20.0	60	16	4	13,3 x DC	2		61.79	31502
1.5	0.3	1.5	1.44	4.0	50	16	4	2,6 x DC	2		61.79	41502
1.5	0.3	1.5	1.44	6.0	50	16	4	4 x DC	2		58.35	31503
1.5	0.3	1.5	1.44	8.0	50	16	4	5,3 x DC	2		58.35	41503
1.5	0.3	1.5	1.44	10.0	50	16	4	6,6 x DC	2		61.79	51503
1.5	0.3	1.5	1.44	12.0	54	16	4	8 x DC	2		61.79	61503
1.5	0.3	1.5	1.44	16.0	54	16	4	10,6 x DC	2		61.79	71503
1.5	0.3	1.5	1.44	20.0	60	16	4	13,3 x DC	2		61.79	31503
1.5	0.5	1.5	1.44	4.0	50	16	4	2,6 x DC	2		61.79	41503
1.5	0.5	1.5	1.44	6.0	50	16	4	4 x DC	2		58.35	31505
1.5	0.5	1.5	1.44	8.0	50	16	4	5,3 x DC	2		58.35	41505
1.5	0.5	1.5	1.44	10.0	50	16	4	6,6 x DC	2		58.35	51505
1.5	0.5	1.5	1.44	12.0	54	16	4	8 x DC	2		58.35	61505
1.5	0.5	1.5	1.44	16.0	54	16	4	10,6 x DC	2		58.35	71505
1.5	0.5	1.5	1.44	20.0	60	16	4	13,3 x DC	2		58.35	31505
2.0	0.1	2.0	1.91	4.0	50	16	4	2 x DC	2		57.98	32001
2.0	0.1	2.0	1.91	6.0	50	16	4	3 x DC	2		57.98	42001
2.0	0.1	2.0	1.91	8.0	50	16	4	4 x DC	2		61.79	52001
2.0	0.1	2.0	1.91	10.0	50	16	4	5 x DC	2		61.79	62001
2.0	0.1	2.0	1.91	12.0	54	16	4	6 x DC	2		61.79	72001
2.0	0.1	2.0	1.91	16.0	54	16	4	8 x DC	2		61.79	82001
2.0	0.1	2.0	1.91	20.0	60	16	4	10 x DC	2		61.79	32001
2.0	0.1	2.0	1.91	26.0	70	16	4	13 x DC	2		61.79	42001
2.0	0.2	2.0	1.91	4.0	50	16	4	2 x DC	2		57.98	32002
2.0	0.2	2.0	1.91	6.0	50	16	4	3 x DC	2		57.98	42002
2.0	0.2	2.0	1.91	8.0	50	16	4	4 x DC	2		61.79	52002
2.0	0.2	2.0	1.91	10.0	50	16	4	5 x DC	2		61.79	62002
2.0	0.2	2.0	1.91	12.0	54	16	4	6 x DC	2		61.79	72002
2.0	0.2	2.0	1.91	16.0	54	16	4	8 x DC	2		61.79	82002
2.0	0.2	2.0	1.91	20.0	60	16	4	10 x DC	2		61.79	32002
2.0	0.2	2.0	1.91	26.0	70	16	4	13 x DC	2		61.79	42002
2.0	0.3	2.0	1.91	4.0	50	16	4	2 x DC	2		57.98	32003
2.0	0.3	2.0	1.91	6.0	50	16	4	3 x DC	2		57.98	42003
2.0	0.3	2.0	1.91	8.0	50	16	4	4 x DC	2		57.98	52003
2.0	0.3	2.0	1.91	10.0	50	16	4	5 x DC	2		61.79	62003
2.0	0.3	2.0	1.91	12.0	54	16	4	6 x DC	2		61.79	72003

Steel	•	•	•
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys			
hardened materials	•	•	•

→ v_c/f_z Page 316+317

BlueLine - Micro-torus cutter

▲ T_x = maximum engagement depth



Factory standard Factory standard Factory standard



V1		V1		V1	
Article no. 52 349 ...		Article no. 52 350 ...		Article no. 52 351 ...	
£		£		£	
61.79	82003	61.79	32003		
		61.79	42003		
57.98	32005				
57.98	42005				
61.79	52005				
61.79	62005				
61.79	72005				
61.79	82005				
		61.79	32005		
		61.79	42005		
64.38	32503				
66.23	42503				
		68.33	32503		
64.38	32505				
64.38	42505				
		68.33	32505		
61.06	33003				
61.93	43003				
		82.97	33003		
61.06	33005				
61.79	43005				
		82.97	33005		

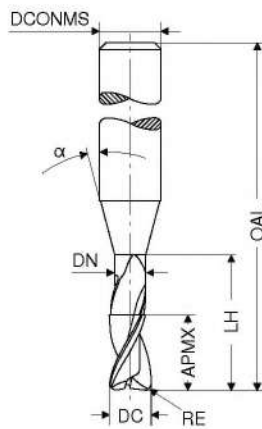
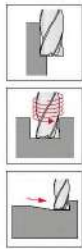
DC _{-0,012}	RE _{±0,005}	APMX	DN	LH	OAL	α°	DCONMS _{h5}	T_x	ZEFP
mm	mm	mm	mm	mm	mm		mm		
2.0	0.3	2.0	1.91	16.0	54	16	4	8 x DC	2
2.0	0.3	2.0	1.91	20.0	60	16	4	10 x DC	2
2.0	0.3	2.0	1.91	26.0	70	16	4	13 x DC	2
2.0	0.5	2.0	1.91	4.0	50	16	4	2 x DC	2
2.0	0.5	2.0	1.91	6.0	50	16	4	3 x DC	2
2.0	0.5	2.0	1.91	8.0	50	16	4	4 x DC	2
2.0	0.5	2.0	1.91	10.0	50	16	4	5 x DC	2
2.0	0.5	2.0	1.91	12.0	54	16	4	6 x DC	2
2.0	0.5	2.0	1.91	16.0	54	16	4	8 x DC	2
2.0	0.5	2.0	1.91	20.0	60	16	4	10 x DC	2
2.0	0.5	2.0	1.91	26.0	70	16	4	13 x DC	2
2.5	0.3	2.5	2.41	10.0	50	16	4	4 x DC	2
2.5	0.3	2.5	2.41	12.0	60	16	4	4,8 x DC	2
2.5	0.3	2.5	2.41	30.0	70	16	4	12 x DC	2
2.5	0.5	2.5	2.41	10.0	50	16	4	4 x DC	2
2.5	0.5	2.5	2.41	12.0	60	16	4	4,8 x DC	2
2.5	0.5	2.5	2.41	30.0	70	16	4	12 x DC	2
3.0	0.3	3.0	2.92	10.0	50	16	4	3,3 x DC	2
3.0	0.3	3.0	2.92	12.0	50	16	4	4 x DC	2
3.0	0.3	3.0	2.92	30.0	70	16	4	10 x DC	2
3.0	0.5	3.0	2.92	10.0	50	16	4	3,3 x DC	2
3.0	0.5	3.0	2.92	12.0	50	16	4	4 x DC	2
3.0	0.5	3.0	2.92	30.0	70	16	4	10 x DC	2

Steel	•	•	•
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys			
hardened materials	•	•	•

→ v_c/f_z Page 316+317

BlueLine – Micro-torus cutter

▲ T_x = maximum engagement depth



Ti2000



Factory standard

HA

V1

Article no.
52 362 ...

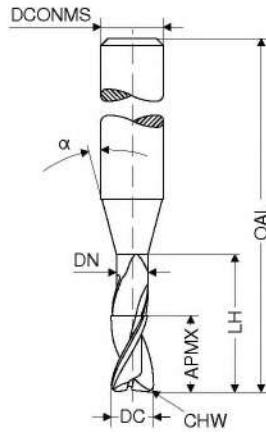
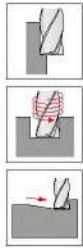
DC _{-0,009}	RE _{+0,005}	APMX	DN	LH	OAL	α°	DCONMS _{ns}	T_x	ZEFP	£	Article no.
0.6	0.1	0.6	0.58	2	50	16	4	3,3 x DC	2	58.11	30601
0.6	0.1	0.6	0.58	3	50	16	4	5 x DC	2	58.11	40601
0.6	0.1	0.6	0.58	4	50	16	4	6,6 x DC	2	58.11	50601
1.0	0.1	1.0	0.95	2	50	16	4	2 x DC	2	55.64	31001
1.0	0.1	1.0	0.95	4	50	16	4	4 x DC	2	55.64	41001
1.0	0.1	1.0	0.95	6	50	16	4	6 x DC	2	60.08	51001
1.0	0.2	1.0	0.95	2	50	16	4	2 x DC	2	55.64	31002
1.0	0.2	1.0	0.95	4	50	16	4	4 x DC	2	55.64	41002
1.0	0.2	1.0	0.95	6	50	16	4	6 x DC	2	59.94	51002
1.0	0.3	1.0	0.95	2	50	16	4	2 x DC	2	55.64	31003
1.0	0.3	1.0	0.95	4	50	16	4	4 x DC	2	55.64	41003
1.0	0.3	1.0	0.95	6	50	16	4	6 x DC	2	60.08	51003
2.0	0.1	2.0	1.91	4	50	16	4	2 x DC	2	57.98	32001
2.0	0.1	2.0	1.91	6	50	16	4	3 x DC	2	57.98	42001
2.0	0.1	2.0	1.91	8	50	16	4	4 x DC	2	61.79	52001
2.0	0.1	2.0	1.91	10	50	16	4	5 x DC	2	61.79	62001
2.0	0.1	2.0	1.91	12	54	16	4	6 x DC	2	61.79	72001
2.0	0.2	2.0	1.91	4	50	16	4	2 x DC	2	57.98	32002
2.0	0.2	2.0	1.91	6	50	16	4	3 x DC	2	57.98	42002
2.0	0.2	2.0	1.91	8	50	16	4	4 x DC	2	61.79	52002
2.0	0.2	2.0	1.91	10	50	16	4	5 x DC	2	61.79	62002
2.0	0.2	2.0	1.91	12	54	16	4	6 x DC	2	61.79	72002
2.0	0.3	2.0	1.91	4	50	16	4	2 x DC	2	57.98	32003
2.0	0.3	2.0	1.91	6	50	16	4	3 x DC	2	57.98	42003
2.0	0.3	2.0	1.91	8	50	16	4	4 x DC	2	61.79	52003
2.0	0.3	2.0	1.91	10	50	16	4	5 x DC	2	61.79	62003
2.0	0.3	2.0	1.91	12	54	16	4	6 x DC	2	61.79	72003
2.0	0.5	2.0	1.91	4	50	16	4	2 x DC	2	57.98	32005
2.0	0.5	2.0	1.91	6	50	16	4	3 x DC	2	57.98	42005
2.0	0.5	2.0	1.91	8	50	16	4	4 x DC	2	61.79	52005
2.0	0.5	2.0	1.91	10	50	16	4	5 x DC	2	61.79	62005
2.0	0.5	2.0	1.91	12	54	16	4	6 x DC	2	61.79	72005

Steel	●
Stainless steel	
Cast iron	
Non ferrous metals	
Heat resistant alloys	
hardened materials	●

→ v_c/f_z Page 316+317

BlueLine – End milling cutter

H
 $\lambda_s = 30^\circ$
 $\nu_s = 0^\circ$
ZEFP
 ≤ 65
HRC



Ti2000



Factory standard

HA

V1

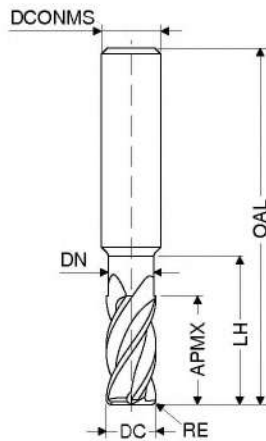
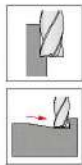
Article no.
52 344 ...

DC _{es}	APMX	DN	LH	OAL	α°	DCONMS _{is}	CHW	ZEFP	£	
0.5	1.5			58	12	6	0.02	2	45.79	905
1.0	3.0			58	12	6	0.02	2	45.79	010
1.5	4.0			58	12	6	0.03	2	45.79	015
2.0	5.0	1.8	12	58	20	6	0.03	2	45.79	020
2.5	6.0	2.3	13	58	20	6	0.04	2	45.79	025
3.0	8.0	2.8	15	58	20	6	0.04	2	45.79	030
3.5	8.0	3.3	15	58	20	6	0.05	2	45.79	035
4.0	11.0	3.8	15	58	20	6	0.05	2	45.79	040
5.0	13.0	4.8	21	58	20	6	0.06	2	45.79	050
6.0	16.0	5.8	24	58		6	0.07	2	45.79	060
8.0	19.0	7.8	27	64		8	0.08	2	60.08	080
10.0	22.0	9.8	32	73		10	0.10	2	91.58	100
12.0	26.0	11.8	38	84		12	0.13	2	120.02	120
16.0	32.0	15.7	44	93		16	0.18	2	205.58	160
20.0	38.0	19.7	54	104		20	0.20	2	315.15	200

- Steel ●
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- hardened materials ●

→ v_o/f_z Page 314+315

BlueLine – End milling cutter with corner radius



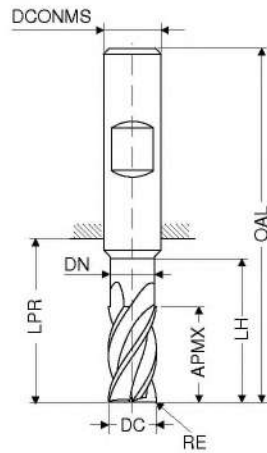
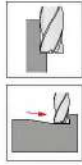
DC _{e8}	RE _{z0,005}	APMX	DN	LH	OAL	DCONMS _{is}	ZEPF
mm	mm	mm	mm	mm	mm	mm	
1	0.10	1.5	0.85	10	50	3	4
1	0.10	1.5	0.85	20	75	3	4
1	0.20	1.5	0.85	10	50	3	4
1	0.20	1.5	0.85	20	75	3	4
2	0.20	2.5	1.80	12	50	3	4
2	0.20	2.5	1.80	25	75	3	4
2	0.30	2.5	1.80	12	50	3	4
2	0.30	2.5	1.80	25	75	3	4
2	0.50	2.5	1.80	12	50	3	4
2	0.50	2.5	1.80	25	75	3	4
3	0.25	4.0	2.70	14	50	3	4
3	0.25	4.0	2.70	32	75	3	4
3	0.30	4.0	2.70	14	50	3	4
3	0.30	4.0	2.70	32	75	3	4
3	0.50	4.0	2.70	14	50	3	4
3	0.50	4.0	2.70	32	75	3	4
3	1.00	4.0	2.70	14	50	3	4
3	1.00	4.0	2.70	32	75	3	4
4	0.20	5.0	3.70	16	50	4	4
4	0.20	5.0	3.70	36	75	4	4
4	0.25	5.0	3.70	16	50	4	4
4	0.25	5.0	3.70	36	75	4	4
4	0.40	5.0	3.70	16	50	4	4
4	0.40	5.0	3.70	36	75	4	4
4	0.50	5.0	3.70	16	50	4	4
4	0.50	5.0	3.70	36	75	4	4
4	1.00	5.0	3.70	16	50	4	4
4	1.00	5.0	3.70	36	75	4	4
5	0.25	6.0	4.60	18	54	5	4
5	0.25	6.0	4.60	40	75	5	4
5	0.50	6.0	4.60	18	54	5	4
5	0.50	6.0	4.60	40	75	5	4
5	1.00	6.0	4.60	18	54	5	4
5	1.00	6.0	4.60	40	75	5	4
6	0.25	7.0	5.50	21	58	6	4
6	0.25	7.0	5.50	44	80	6	4
6	0.50	7.0	5.50	21	58	6	4
6	0.50	7.0	5.50	44	80	6	4
6	0.80	7.0	5.50	21	58	6	4
6	1.00	7.0	5.50	21	58	6	4
6	1.00	7.0	5.50	44	80	6	4
6	1.50	7.0	5.50	21	58	6	4
6	1.50	7.0	5.50	44	80	6	4
6	2.00	7.0	5.50	21	58	6	4
8	0.25	9.0	7.40	27	64	8	4

Steel	•	•
Stainless steel		
Cast iron		
Non ferrous metals		
Heat resistant alloys		
hardened materials	•	•

Factory standard	Factory standard
HA	HA
V1	V1
Article no.	Article no.
52 353 ...	52 354 ...
£	£
55.03 31001	79.03 31001
55.40 31002	79.03 31002
54.54 32002	77.80 32002
54.54 32003	77.80 32003
54.54 32005	77.80 32005
51.83 33002	73.75 33002
51.83 33003	73.75 33003
51.83 33005	73.75 33005
51.83 33010	73.75 33010
55.64 44002	79.90 44002
55.64 44003	79.90 44003
55.64 44004	79.90 44004
55.64 44005	79.90 44005
55.64 44010	79.90 44010
60.32 55002	89.13 55002
60.32 55005	89.13 55005
60.32 55010	89.13 55010
68.33 06002	96.52 06002
68.33 06005	96.52 06005
68.33 06008	
68.33 06010	96.52 06010
68.33 06015	96.52 06015
68.33 06020	
89.99 08002	

BlueLine – End milling cutter with corner radius

▲ with decreasing helix angle for reduced machining noise & vibration



Factory standard Factory standard



DC ₆₈	RE _{40,01}	APMX	DN	LH	LPR	OAL	DCONMS _{h6}	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
3	0.3	4	2.7	14	22	50	3	4
3	0.5	4	2.7	14	22	50	3	4
3	1.0	4	2.7	14	22	50	3	4
4	0.4	5	3.7	16	22	50	4	4
4	0.5	5	3.7	16	22	50	4	4
4	1.0	5	3.7	16	22	50	4	4
5	0.5	6	4.6	18	26	54	5	4
5	1.0	6	4.6	18	26	54	5	4
6	0.5	7	5.5	21	21	57	6	6
6	1.0	7	5.5	21	21	57	6	6
6	1.5	7	5.5	21	21	57	6	6
8	0.5	9	7.4	27	27	63	8	6
8	1.0	9	7.4	27	27	63	8	6
8	1.5	9	7.4	27	27	63	8	6
8	2.0	9	7.4	27	27	63	8	6
10	0.5	11	9.2	32	32	72	10	6
10	1.0	11	9.2	32	32	72	10	6
10	1.5	11	9.2	32	32	72	10	6
10	2.0	11	9.2	32	32	72	10	6
12	0.5	12	11.0	38	38	83	12	6
12	1.0	12	11.0	38	38	83	12	6
12	1.5	12	11.0	38	38	83	12	6
12	2.0	12	11.0	38	38	83	12	6
16	1.0	16	15.0	44	45	93	16	6
16	2.0	16	15.0	44	45	93	16	6
20	1.0	20	18.5	50	54	104	20	6
20	2.5	20	18.5	50	54	104	20	6

V1		V1	
Article no.	Article no.	Article no.	Article no.
52 140 ...	52 141 ...	52 141 ...	52 141 ...
£	£	£	£
65.26	031		
65.26	033		
65.26	034		
69.20	042		
69.20	043		
69.20	044		
74.24	053		
74.24	054		
92.20	063	92.20	063
92.20	064	92.20	064
92.20	065	92.20	065
121.70	083	121.70	083
121.70	084	121.70	084
121.70	085	121.70	085
121.70	086	121.70	086
156.34	103	156.34	103
156.34	104	156.34	104
156.34	105	156.34	105
156.34	106	156.34	106
211.18	123	211.18	123
211.18	124	211.18	124
211.18	125	211.18	125
211.18	126	211.18	126
356.41	161	356.41	161
356.41	163	356.41	163
505.59	201	505.59	201
505.59	204	505.59	204

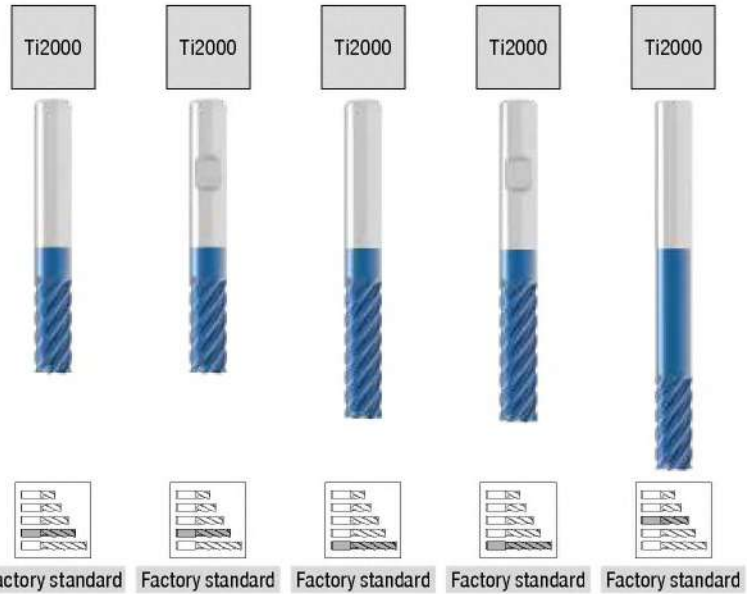
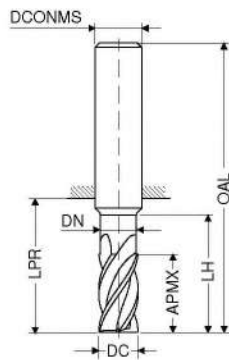
Steel	○	○
Stainless steel		
Cast iron		
Non ferrous metals		
Heat resistant alloys		
hardened materials	●	●

→ v_c/f_z Page 310+311

BlueLine – Finish milling cutter

▲ with decreasing helix angle for reduced machining noise & vibration

H
 $\lambda_s = 30^\circ$
 $\lambda_s = 45^\circ$
 $\gamma_s = 0^\circ$
ZEFP
54-70 HRC



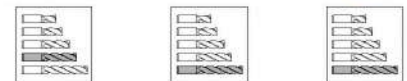
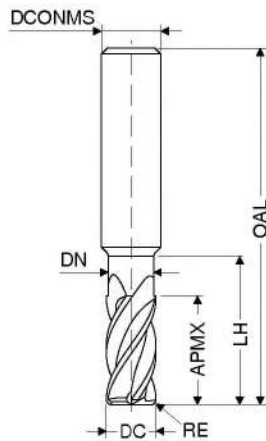
DC _{es}	APMX	LPR	DN	LH	OAL	DCONMS _{ns}	ZEFP	V1		V1		V1		V1		V1	
								Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£
2	8	22			58	6	4	52.74	020	52.74	020						
3	12	22			58	6	4	52.74	030	52.74	030						
4	13	22			58	6	4	60.80	040	60.80	040						
5	15	22			58	6	6	63.20	050	63.20	050						
6	16	22			58	6	6	90.93	060	90.93	060						
6	16	44	5.8	40	80	6	6					121.20	060	121.20	060	70.17	060
6	21	29			65	6	6										
8	19	64	7.7	50	100	8	6									87.40	080
8	22	34			70	8	6	109.55	080	109.55	080						
8	28	39			75	8	6					141.41	080	141.41	080		
10	25	33			73	10	6	173.30	100	173.30	100						
10	25	60	9.7	60	100	10	6					233.97	100	233.97	100	129.26	100
10	35	45			85	10	6										
12	28	39			84	12	6	250.53	120	250.53	120						
12	30	75	11.6	60	120	12	6									169.88	120
12	45	55			100	12	6					328.01	120	328.01	120		
14	30	39			84	14	6	262.46	140	262.46	140						
14	45	55			100	14	6					371.70	140	371.70	140		
16	35	45			93	16	8	413.65	160	413.65	160						
16	40	102	15.6	100	150	16	8									350.84	160
16	50	62			110	16	8					534.72	160	534.72	160		
16	65	77			125	16	8					450.56	161	563.06	161		
18	35	45			93	18	10	433.88	180	433.88	180						
18	54	66			114	18	10					578.25	180	578.25	180		
20	40	54			104	20	10	598.50	200	598.50	200						
20	50	100	19.6	100	150	20	10									470.27	200
20	55	76			126	20	10					753.20	200	746.29	200		
20	70	85			135	20	10					901.13	201	901.13	201		

Steel	○	○	○	○	●
Stainless steel					
Cast iron					
Non ferrous metals					
Heat resistant alloys					
hardened materials	●	●	●	●	●

→ v_c/f_z Page 310–315

BlueLine – Finish milling cutter with corner radius

H
 $\lambda_s = 30^\circ$
 $\lambda_s = 45^\circ$
 $V_s = 0^\circ$
ZEPF
54-70 HRC



Factory standard Factory standard Factory standard



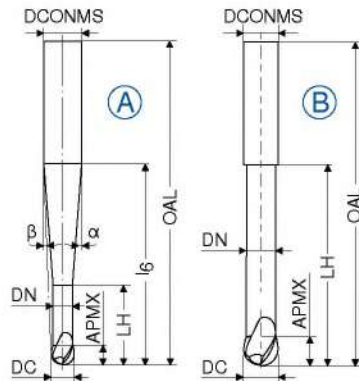
DC _{e8}	RE _{v/-0.005}	APMX	DN	LH	OAL	DCONMS _{h8}	ZEPF	V1 Article no. 52 324 ... £	V1 Article no. 52 325 ... £	V1 Article no. 52 326 ... £
5	0.5	15	4.8	19	58	6	6	91.57 052		
5	1.0	15	4.8	19	58	6	6	91.57 053		
6	0.5	16	5.8	20	58	6	6	93.16 062		
6	0.5	21	5.8	29	65	6	6		110.17 062	
6	1.0	16	5.8	20	58	6	6	93.16 063		
6	1.0	21	5.8	29	65	6	6		110.17 063	
8	0.5	22	7.8	26	70	8	6	109.36 082		
8	0.5	28	7.8	39	75	8	6		125.58 082	
8	1.0	22	7.8	26	70	8	6	109.36 083		
8	1.0	28	7.8	39	75	8	6		125.58 083	
10	0.5	25	9.8	31	73	10	6	175.51 102		
10	0.5	35	9.8	45	85	10	6		193.30 102	
10	1.0	25	9.8	31	73	10	6	175.51 103		
10	1.0	35	9.8	45	85	10	6		198.18 103	
10	1.5	25	9.8	31	73	10	6	175.51 104		
10	1.5	35	9.8	45	85	10	6		193.30 104	
12	0.5	28	11.8	37	84	12	6	236.25 122		
12	0.5	45	11.8	55	100	12	6		283.69 122	
12	1.0	28	11.8	37	84	12	6	236.25 123		
12	1.0	45	11.8	55	100	12	6		283.69 123	
12	1.5	28	11.8	37	84	12	6	236.25 124		
12	1.5	45	11.8	55	100	12	6		283.69 124	
14	1.0	30	13.8	37	84	14	6	255.75 143		
14	1.0	45	13.8	55	100	14	6		318.07 143	
16	1.0	35	15.8	43	93	16	8	367.07 163		
16	1.0	50	15.8	62	110	16	8		464.32 163	
16	1.0	65	15.8	77	125	16	8			496.07 163
16	2.0	35	15.8	43	93	16	8	367.07 165		
16	2.0	50	15.8	62	110	16	8		464.32 165	
16	2.0	65	15.8	77	125	16	8			496.07 165
18	1.0	35	17.8	43	93	18	10	394.50 183		
18	1.0	54	17.8	66	114	18	10		512.54 183	
20	1.0	40	19.8	52	104	20	10	522.30 203		
20	1.0	55	19.8	76	126	20	10		683.69 203	
20	1.0	70	19.8	85	135	20	10			813.09 203
20	2.0	40	19.8	52	104	20	10	522.30 205		
20	2.0	55	19.8	76	126	20	10		683.69 205	
20	2.0	70	19.8	85	135	20	10			813.09 205

Steel	○	○	○
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys			
hardened materials	●	●	●

→ v_c/f_t Page 310+311

BlueLine – Ball nosed cutter

▲ Radius accuracy: ±0.005 mm



Ti2000



Factory standard

HA

V1

Article no.
52 302 ...

£	
177.08	010
162.19	015
129.90	020
156.40	030
147.06	040
143.77	050
137.96	060

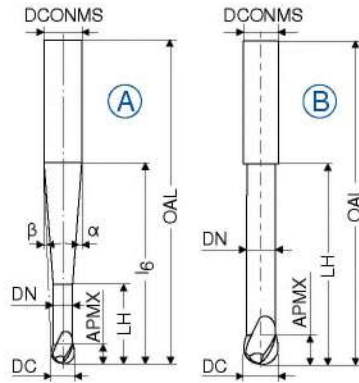
DC	APMX	DN	LH	l_s	OAL	α°	β°	DCONMS _{HS}	ZEFP	Fig.
mm	mm	mm	mm	mm	mm			mm		
1.0	1.00	0.95	10	16.5	57	15	9.0	6	2	A
1.5	1.25	1.40	12	18.0	57	15	7.5	6	2	A
2.0	1.50	1.90	16	20.0	57	15	6.0	6	2	A
3.0	2.00	2.90	20	34.5	80	15	2.5	6	2	A
4.0	2.50	3.90	22	35.0	80	15	2.0	6	2	A
5.0	3.00	4.90	25	35.0	80	15	1.0	6	2	A
6.0	3.50	5.90	29	80	80	15		6	2	B

Steel	<input type="checkbox"/>
Stainless steel	<input type="checkbox"/>
Cast iron	<input type="checkbox"/>
Non ferrous metals	<input type="checkbox"/>
Heat resistant alloys	<input type="checkbox"/>
hardened materials	<input type="checkbox"/>

→ v_c/f_z Page 310+311

BlueLine – Ball nosed cutter

▲ Radius accuracy: ±0.005 mm for $\varnothing \leq 6.0$ mm / ± 0.01 mm for $\varnothing > 6.0$ mm
▲ for $\varnothing \leq 5.0$ mm, angle tolerance α and β : ±0.5°



Ti2000



Factory standard

HA

V1

Article no.
52 303 ...

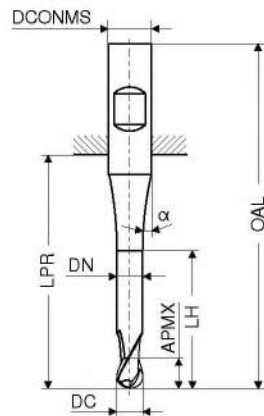
DC	Tol.	APMX	DN	LH	l_s	OAL	α°	β°	DCONMS _{hs}	ZEFP	Fig.	£	
mm		mm	mm	mm	mm	mm			mm				
0.5	±0,01	1.0	0.45	2.0	20	57	10.0	8.5	6	2	A	216.22	005
1.0	±0,01	2.0	0.95	4.0	20	57	10.0	8.0	6	2	A	212.77	010
1.5	±0,01	2.5	1.40	7.5	20	57	12.5	7.0	6	2	A	209.76	015
2.0	±0,01	3.0	1.80	8.0	20	57	12.0	6.5	6	2	A	157.98	020
3.0	±0,01	3.5	2.80	10.0	20	57	11.5	5.0	6	2	A	154.82	030
4.0	±0,01	4.0	3.80	12.0	20	57	11.0	3.5	6	2	A	149.83	040
5.0	±0,01	5.0	4.70	14.0	20	57	10.0	2.0	6	2	A	155.61	050
6.0	±0,01	6.0	5.60	20.0		57			6	2	B	150.99	060
8.0	±0,02	7.0	7.60	25.0		63			8	2	B	196.71	080
10.0	±0,02	8.0	9.60	30.0		72			10	2	B	274.32	100
12.0	±0,02	10.0	11.50	35.0		83			12	2	B	342.18	120
12.0	±0,02	10.0	11.50	35.0	40	92	35.0	3.5	16	2	A	504.24	121
16.0	±0,02	12.0	15.50	40.0		92			16	2	B	493.16	160

- Steel ○
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- hardened materials ●

→ v_c/f_z Page 310+311

BlueLine – Ball nosed cutter

▲ Radius accuracy: ±0.005 mm



Factory standard HA HB HA HB

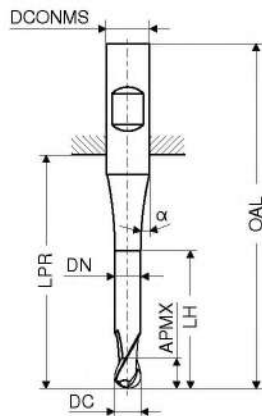
DC ₁₈	APMX	DN	LH	l ₆	LPR	OAL	DCONMS ₁₆	α° _{±0,5}	ZEFP	V1 Article no. 52 256 ...	V1 Article no. 52 257 ...	V1 Article no. 52 258 ...	V1 Article no. 52 259 ...
mm	mm	mm	mm	mm	mm	mm	mm			£	£	£	£
0.10	0.2			11	10	38	3	8.0	2	115.16	910		
0.15	0.3			12	10	38	3	7.5	2	105.88	915		
0.20	0.4			12	10	38	3	7.0	2	99.46	920		
0.25	0.5	0.20	0.8	12	10	38	3	7.0	2	111.01	925		
0.30	1.0	0.25	1.3	12	10	38	3	7.0	2	104.50	930		
0.35	1.0	0.30	1.3	12	10	38	3	7.0	2	92.55	935		
0.40	1.0	0.35	1.3	12	10	38	3	7.0	2	69.10	940		
0.50	1.5	0.40	2.0	12	10	38	3	7.5	2	57.41	950		
0.50	1.5	0.40	2.0	17	18	54	6	10.5	2	57.60	005		
0.50	1.5	0.40	2.0	13	47	75	3	7.0	2		57.60	005	
0.50	1.5	0.40	2.0	17	44	80	6	10.5	2			83.09	950
0.50	1.5	0.40	2.0	17	44	80	6	10.5	2			95.48	005
0.60	1.5	0.50	2.0	12	10	38	3	7.0	2	62.31	960		
0.70	2.0	0.60	2.5	12	10	38	3	7.5	2	57.41	970		
0.80	2.0	0.70	2.5	13	10	38	3	7.5	2	57.41	980		
0.90	2.5	0.80	3.5	13	10	38	3	7.0	2	57.41	990		
1.00	2.0	0.90	3.0	13	22	50	3	6.0	2	60.29	011		
1.00	2.0	0.90	3.0	18	18	54	6	9.5	2	67.45	106		
1.00	3.0	0.90	4.0	14	47	75	3	6.0	2				
1.00	3.0	0.90	4.0	19	44	80	6	9.5	2		67.45	010	
1.10	3.0	1.00	4.0	13	22	50	3	7.0	2	57.41	911		
1.20	3.0	1.10	4.0	13	22	50	3	7.0	2	57.41	012		
1.40	3.0	1.30	4.0	14	22	50	3	5.0	2	57.41	014		
1.50	3.0	1.40	4.0	13	22	50	3	5.5	2	60.29	016		
1.50	3.0	1.40	4.0	18	18	54	6	9.0	2	67.45	156		
1.50	4.0	1.40	6.0	13	47	75	3	7.0	2				
1.50	4.0	1.40	6.0	19	44	80	6	10.0	2			81.37	016
1.60	4.0	1.50	5.0	13	22	50	3	5.0	2	57.41	916		
1.80	4.0	1.70	5.0	13	22	50	3	5.0	2	57.41	018		
2.00	4.0	1.90	5.5	12	22	50	3	5.0	2	63.84	021		
2.00	4.0	1.90	5.5	18	18	54	6	9.0	2	67.45	206		
2.00	6.0	1.90	8.0	12	47	75	3	8.0	2				
2.00	6.0	1.90	8.0	20	44	80	6	11.0	2			76.17	021
2.50	5.0	2.30	6.5	10	22	50	3	7.0	2	57.41	025		
2.50	5.0	2.30	6.5	17	18	54	6	10.0	2	60.29	026		
2.50	8.0	2.30	10.0	14	47	75	3	5.5	2			84.94	020
2.50	8.0	2.30	10.0	20	44	80	6	10.0	2			76.10	026
3.00	6.0	2.80	8.0		22	50	3		2			83.09	025
3.00	6.0	2.80	8.0	18	18	54	6	9.0	2	63.84	031		
3.00	6.0	2.80	8.0	18	18	54	6	9.0	2	67.45	306		
3.00	10.0	2.80	13.0		47	75	3		2			72.96	031
3.00	10.0	2.80	15.0	23	44	80	6	11.0	2			83.09	030
3.00	10.0	2.80	15.0	23	44	80	6	11.0	2			95.96	030

Steel	○	○	○	○
Stainless steel				
Cast iron				
Non ferrous metals				
Heat resistant alloys				
hardened materials	●	●	●	●

→ v_c/f_t Page 310+311

BlueLine – Ball nosed cutter

▲ Radius accuracy: ±0.005 mm



Factory standard Factory standard Factory standard Factory standard



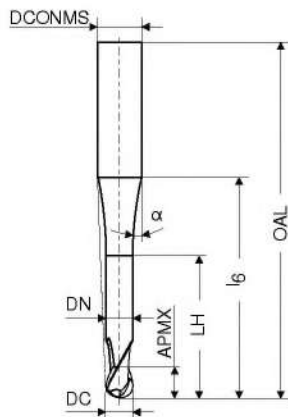
DC ₁₈	APMX	DN	LH	l ₆	LPR	OAL	DCONMS _{h6}	α° _{±0,5}	ZEFP	V1 Article no. 52 256 ...	V1 Article no. 52 257 ...	V1 Article no. 52 258 ...	V1 Article no. 52 259 ...
mm	mm	mm	mm	mm	mm	mm	mm			£	£	£	£
4.00	7.0	3.80	10.0	18	18	54	6	11.0	2	67.45	406		
4.00	7.0	3.80	10.0		26	54	4		2	65.83	041		
4.00	13.0	3.80	20.0		47	75	4		2			71.16	041
4.00	13.0	3.80	18.0	23	44	80	6	12.5	2			78.15	040
5.00	8.0	4.80	11.0	15	18	54	6	8.0	2	67.45	506	67.45	050
5.00	8.0	4.80	11.0		26	54	5		2	67.45	051		
5.00	14.0	4.80	19.0		47	75	5		2			81.37	051
5.00	14.0	4.80	19.0	21	64	100	6	13.0	2			90.36	050
6.00	10.0	5.80	15.0		18	54	6		2	67.45	061	67.45	060
6.00	16.0	5.80	25.0		64	100	6		2			101.12	060
8.00	12.0	7.80	17.0		23	59	8		2	82.51	081	82.51	080
8.00	22.0	7.80	35.0		64	100	8		2			121.20	080
10.00	13.0	9.80	18.0		27	67	10		2	107.75	101	107.75	100
10.00	25.0	9.80	40.0		60	100	10		2			158.10	100
12.00	16.0	11.90	21.0		28	73	12		2	153.08	121	153.08	120
12.00	26.0	11.80	40.0		55	100	12		2			208.72	120
14.00	16.0	13.80	21.0		30	75	14		2	193.52	141	193.52	140
14.00	26.0	13.80	40.0		55	100	14		2			282.69	140
16.00	20.0	15.80	25.0		35	83	16		2	221.90	161	221.90	160
16.00	30.0	15.80	50.0		102	150	16		2			458.85	160
20.00	25.0	19.80	30.0		43	93	20		2	363.18	201	363.18	200
20.00	40.0	19.80	60.0		100	150	20		2			559.96	200

Steel	○	○	○	○
Stainless steel				
Cast iron				
Non ferrous metals				
Heat resistant alloys				
hardened materials	●	●	●	●

→ v_f/f_z Page 310+311

BlueLine – Ball nosed cutter

- ▲ Radius accuracy: ± 0.005 mm
- ▲ for $\varnothing \leq 5.0$ mm, angle tolerance α : $\pm 0.5^\circ$



Ti2000



Factory standard

HA

V1

Article no.
52 352 ...

£	
79.17	906
76.45	908
74.97	310
74.23	312
72.14	315
71.52	320
114.49	030
113.39	040
112.88	050
155.11	060
210.51	080
328.69	100
562.59	120


DC _{FB}	APMX	DN	LH	l ₆	OAL	α°	DCONMS _{h6}	ZEFP
mm	mm	mm	mm	mm	mm		mm	
0.6	0.8	0.55	1.4	27	75	1.5	3	2
0.8	1.0	0.75	1.6	27	75	1.5	3	2
1.0	1.2	0.95	2.0	27	75	1.5	3	2
1.2	1.4	1.15	2.4	27	75	1.5	3	2
1.5	1.8	1.45	3.0	27	75	1.5	3	2
2.0	2.4	1.95	4.0	27	75	1.5	3	2
3.0	4.0	2.80	12.0	40	80	1.5	6	2
4.0	5.0	3.80	16.0	40	80	1.5	6	2
5.0	6.0	4.80	20.0	40	80	1.5	6	2
6.0	6.0	5.80	25.0	50	100	1.5	8	2
8.0	7.0	7.80	32.0	60	120	1.5	10	2
10.0	9.0	9.80	40.0	80	160	1.5	12	2
12.0	11.0	11.80	50.0	100	200	1.5	16	2

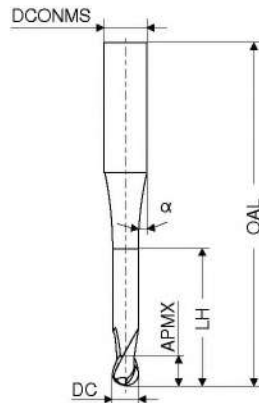
Steel	●
Stainless steel	
Cast iron	
Non ferrous metals	
Heat resistant alloys	
hardened materials	●

→ v₀/f_z Page 314

BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ±0.005 mm

H
 $\lambda_s = 30^\circ$
 $\nu_s = 0^\circ$
ZEPF
 ≤ 65
HRC




Ti2000



Factory standard



V1

Article no.
52 355 ...

£	
68.45	030
70.41	040
70.41	050
72.76	060
99.10	080
125.57	100
163.73	120

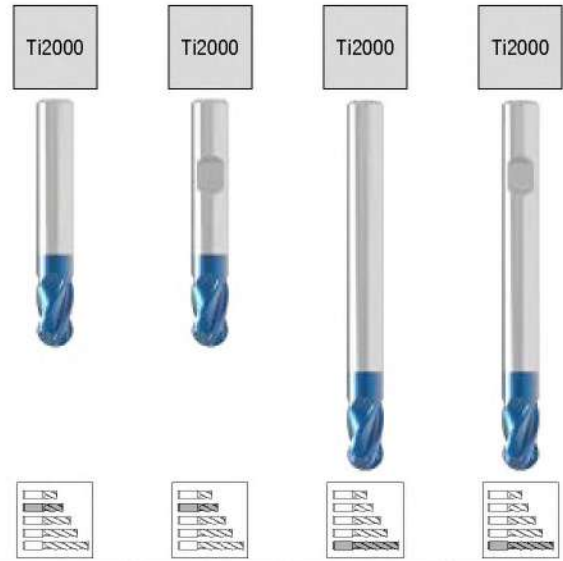
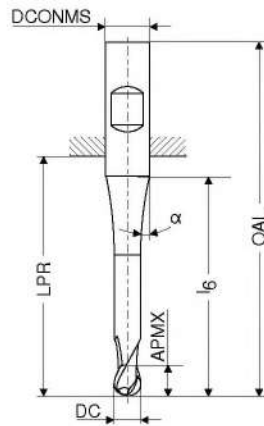
DC _{fs}	APMX	LH	OAL	α°	DCONMS _{ns}	ZEPF
mm	mm	mm	mm		mm	
3	8	11	65	12	6	3
4	8	11	75	12	6	3
5	10	13	75	12	6	3
6	12		100		6	3
8	14		100		8	3
10	18		100		10	3
12	22		120		12	3

Steel	●
Stainless steel	
Cast iron	
Non ferrous metals	
Heat resistant alloys	
hardened materials	●

→ v_c/f, Page 314

BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ±0.005 mm



Factory standard HA HB HA HB

DC ₁₈	APMX	l ₆	LPR	OAL	α° _{41°}	DCONMS _{HS}	ZEFP	V1		V1		V1		V1	
mm	mm	mm	mm	mm		mm		Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
								52 404 ...	52 405 ...	52 404 ...	52 405 ...	52 404 ...	52 405 ...	52 404 ...	52 405 ...
2.0	4	10.0	22	50	8	3	4	54.80	020						
2.0	4	16.0	18	54	12	6	4	66.12	021	66.12	021				
2.0	4	10.0	47	75	8	3	4					72.01	022		
2.0	4	16.0	44	80	12	6	4					94.38	023	94.38	023
2.5	5	16.0	18	54	12	6	4	66.12	025	66.12	025				
2.5	5	16.0	44	80	12	6	4					88.77	026	88.77	026
3.0	5		22	50		3	4	59.43	030						
3.0	5	14.0	18	54	12	6	4	63.61	031	63.61	031				
3.0	5		47	75		3	4					74.68	032		
3.0	5	14.0	44	80	12	6	4					93.50	033	93.50	033
4.0	8	15.0	18	54	12	6	4	63.61	041	63.61	041				
4.0	8		26	54		4	4	60.41	040						
4.0	8		47	75		4	4					83.74	042		
4.0	8	15.0	44	80	12	6	4					92.63	043	92.63	043
5.0	9	13.5	18	54	12	6	4	62.77	051	62.77	051				
5.0	9		26	54		5	4	61.29	050						
5.0	9		47	75		5	4					84.59	052		
5.0	9	13.5	64	100	12	6	4					90.90	053	90.90	053
6.0	10		18	54		6	4	63.84	060	63.84	060				
6.0	10		64	100		6	4					89.21	062	89.21	062
7.0	12	15.0	23	59	12	8	4	86.64	070	86.64	070				
8.0	12		23	59		8	4	79.53	080	79.53	080				
8.0	12		64	100		8	4					113.86	082	113.86	082
9.0	14	17.0	27	67	12	10	4	115.72	090	115.72	090				
10.0	14	16.0	27	67		10	4	107.73	100	107.73	100				
10.0	14		60	100		10	4					146.92	102	146.92	102
12.0	16		29	74		12	4	144.91	120	144.91	120				
12.0	16		55	100		12	4					188.67	122	188.67	122
14.0	18		30	75		14	4	181.28	140	181.28	140				
14.0	18	20.0	55	100		14	4					237.96	142	237.96	142
16.0	22	24.0	35	83		16	4	226.15	160	226.15	160				
16.0	22	24.0	102	150		16	4					367.65	162	367.65	162
20.0	26	28.0	43	93		20	4	348.27	200	348.27	200				
20.0	26	28.0	100	150		20	4					507.73	202	507.73	202

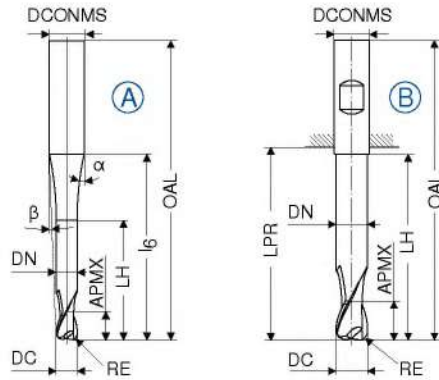
Steel	○	○	○	○
Stainless steel				
Cast iron				
Non ferrous metals				
Heat resistant alloys				
hardened materials	●	●	●	●

→ v_c/f_z Page 310+311

BlueLine – Torus cutter

▲ Radius accuracy: $\pm 0,005$ mm for $\varnothing \leq 6,0$ mm / $\pm 0,01$ mm for $\varnothing > 6,0$ mm
 ▲ or $\varnothing \leq 5,0$ mm, angle tolerance α and β : $\pm 0,5^\circ$

H
 $\lambda_s = 30^\circ$
 $\gamma_s = 0^\circ$
ZEFP
54-70 HRC



LPR with Shank DIN 6535 HB

DC $\pm 0,01$	RE	APMX	DN	LH	LPR	l_6	OAL	$\alpha^\circ \pm 0,5$	β°	DCONMS h_s	ZEFP	Fig.
mm	mm	mm	mm	mm	mm	mm	mm			mm		
1.0	0.2	1.00	0.95	10	21	16.5	57	23.0	9.0	6	2	A
1.5	0.3	1.25	1.40	12	21	18.0	57	21.0	7.5	6	2	A
2.0	0.4	1.50	1.90	16	21	20.0	57	25.0	6.0	6	2	A
3.0	0.5	2.00	2.90	20	44	34.5	80	6.0	2.5	6	2	A
4.0	0.6	2.50	3.90	22	44	35.0	80	4.5	2.0	6	2	A
5.0	0.8	3.00	4.90	25	44	35.0	80	3.5	1.0	6	2	A
6.0	1.0	3.50	5.90	29	44		80			6	2	B



Factory standard Factory standard



V1		V1	
Article no.		Article no.	
52 305 ...		52 305 ...	
£		£	
196.71	010		
176.68	015		
144.66	020		
171.82	030		
162.72	040		
160.23	050		
		150.35	060

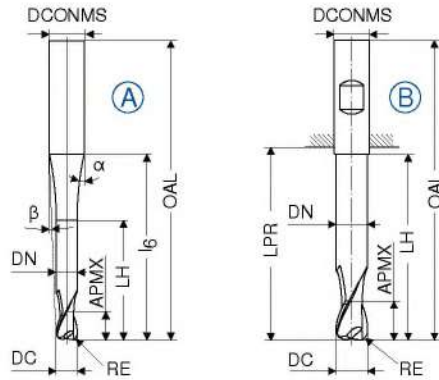
Steel	<input type="radio"/>	<input type="radio"/>
Stainless steel	<input type="radio"/>	<input type="radio"/>
Cast iron	<input type="radio"/>	<input type="radio"/>
Non ferrous metals	<input type="radio"/>	<input type="radio"/>
Heat resistant alloys	<input type="radio"/>	<input type="radio"/>
hardened materials	<input type="radio"/>	<input type="radio"/>

→ v_d/f_z Page 312+313

BlueLine – Torus cutter

▲ Radius accuracy: $\pm 0,005$ mm for $\varnothing \leq 6,0$ mm / $\pm 0,01$ mm for $\varnothing > 6,0$ mm
▲ or $\varnothing \leq 5.0$ mm, angle tolerance α and β : $\pm 0.5^\circ$

H
 $\lambda_s = 30^\circ$
 $\gamma_s = 0^\circ$
ZEPF
54-70 HRC



LPR with Shank DIN 6535 HB



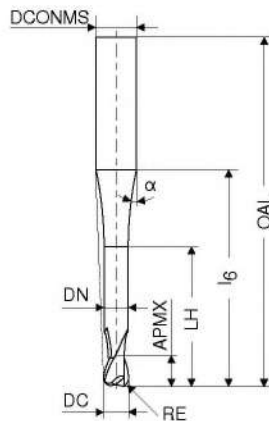
Factory standard Factory standard



DC	Tol.	RE	APMX	DN	LH	LPR	l_6	OAL	α°	β°	DCONMS _{HS}	ZEFP	Fig.	Article no. 52 304 ...	Article no. 52 304 ...
mm		mm	mm	mm	mm	mm	mm	mm			mm			£	£
0.5	$\pm 0,01$	0.10	1.0	0.45	2.0	21	20	57	10.0	8.5	6	2	A	203.43	005
1.0	$\pm 0,01$	0.25	2.0	0.95	4.0	21	20	57	10.0	8.0	6	2	A	199.23	010
1.5	$\pm 0,01$	0.30	2.5	1.40	7.5	21	20	57	12.5	7.0	6	2	A	183.42	015
2.0	$\pm 0,01$	0.50	3.0	1.80	8.0	21	20	57	12.0	6.5	6	2	A	147.83	020
3.0	$\pm 0,01$	0.50	3.5	2.80	10.0	21	20	57	11.5	5.0	6	2	A	144.92	030
4.0	$\pm 0,01$	1.00	4.0	3.80	12.0	21	20	57	11.0	3.5	6	2	A	140.86	040
5.0	$\pm 0,01$	1.50	5.0	4.70	14.0	21	20	57	10.0	2.0	6	2	A	146.66	050
6.0	$\pm 0,01$	2.00	6.0	5.60	20.0	21		57			6	2	B		146.11 060
8.0	$\pm 0,02$	2.00	7.0	7.60	25.0	27		63			8	2	B		188.16 080
10.0	$\pm 0,02$	3.00	8.0	9.60	30.0	32		72			10	2	B		251.66 100
12.0	$\pm 0,02$	4.00	10.0	11.50	35.0	38		83			12	2	B		335.19 120
12.0	$\pm 0,02$	4.00	10.0	11.50	35.0	44	40	92	37.0	3.5	16	2	A	486.07	121
16.0	$\pm 0,02$	5.00	12.0	15.50	40.0	44		92			16	2	B		475.12 160

Steel	○	○
Stainless steel		
Cast iron		
Non ferrous metals		
Heat resistant alloys		
hardened materials	●	●

BlueLine – Torus cutter



Ti2000



Factory standard

HA

V1

Article no.
52 361 ...

£

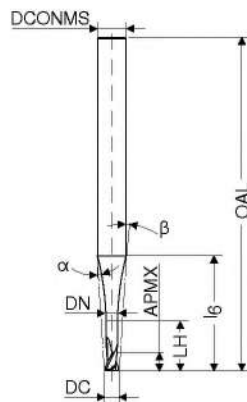
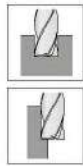
DC _{e8}	RE _{±0,01}	APMX	DN	LH	l ₆	OAL	α°	DCONMS _{h5}	ZEFP	
mm	mm	mm	mm	mm	mm	mm		mm		
0.8	0.08	1.0	0.75	1.6	27	75	1.5	3	2	73.50 90801
1.0	0.10	1.2	0.95	2.0	27	75	1.5	3	2	75.09 31001
1.0	0.25	2.0	0.85	4.0	40	80	1.5	6	2	118.30 01002
1.2	0.12	1.4	1.15	2.4	27	75	1.5	3	2	74.23 31201
1.5	0.15	1.8	1.45	3.0	27	75	1.5	3	2	72.14 31501
2.0	0.20	2.4	1.95	4.0	27	75	1.5	3	2	71.52 32002
2.0	0.50	2.0	1.80	8.0	40	80	1.5	6	2	114.49 02005
3.0	0.30	3.6	2.95	6.0	27	75	1.5	4	2	76.45 43003
3.0	0.50	2.0	2.80	12.0	40	80	1.5	6	2	114.49 03005
3.0	1.00	2.0	2.80	12.0	40	80	1.5	6	2	114.49 03010
4.0	1.00	3.0	3.80	16.0	40	80	1.5	6	2	114.49 04010
6.0	1.00	4.0	5.80	25.0	50	100	1.5	8	2	155.11 06010
6.0	2.00	4.0	5.80	25.0	50	100	1.5	8	2	155.11 06020
8.0	1.00	4.0	7.80	32.0	60	120	1.5	10	2	210.51 08010
8.0	2.00	4.0	7.80	32.0	60	120	1.5	10	2	210.51 08020
10.0	1.50	6.0	9.80	40.0	80	160	1.5	12	2	328.69 10015
12.0	1.50	8.0	11.80	50.0	100	200	1.5	16	2	567.52 12015

Steel	●
Stainless steel	
Cast iron	
Non ferrous metals	
Heat resistant alloys	
hardened materials	●

→ v_c/f_z Page 314+315

Micro-end milling cutter

▲ T_x = maximum engagement depth



V1		V1	
Article no.	Article no.	Article no.	Article no.
52 802 ...	52 802 ...	52 802 ...	52 802 ...
£	£	£	£
65.69	021		
65.69	023		
65.69	025		
		65.69	022
		65.69	024
		65.69	026
50.50	051		
50.50	053		
50.50	055		
		50.50	052
		50.50	054
		50.50	056
57.96	081		
57.96	083		
57.96	085		
		57.96	082
		57.96	084
		57.96	086
48.32	101		
		48.32	102
48.32	103		
49.80	105		
		48.32	104
		49.80	106
51.99	151		
		51.99	152
51.99	153		
55.52	155		
		51.99	154
		55.52	156
51.99	181		
		51.99	182
52.67	183		
58.89	185		
		52.67	184
		58.89	186
51.99	201		
52.67	203		
58.89	205		
		51.99	202
		52.67	204
		58.89	206

DC	APMX	DN	LH	l ₆	OAL	α°	β°	DCONMS _{ns}	T _x	ZEFP
mm	mm	mm	mm	mm	mm			mm		
0.2	0.12	0.16	0.44	5.7	38	15.0	14	3	2,2 x DC	2
0.2	0.20	0.16	1.00	6.4	38	15.0	13	3	5 x DC	2
0.2	0.20	0.16	2.00	9.2	38	15.0	9	3	10 x DC	2
0.2	0.20	0.16	0.44	5.7	43	15.0	14	3	2,2 x DC	2
0.2	0.20	0.16	1.00	6.4	43	15.0	13	3	5 x DC	2
0.2	0.20	0.16	2.00	9.2	43	15.0	9	3	10 x DC	2
0.5	0.30	0.40	1.10	5.8	38	15.0	13	3	2,2 x DC	2
0.5	0.50	0.40	2.50	7.8	38	15.0	10	3	5 x DC	2
0.5	0.50	0.40	5.00	10.7	38	13.0	7	3	10 x DC	2
0.5	0.50	0.40	1.10	5.8	43	15.0	13	3	2,2 x DC	2
0.5	0.50	0.40	2.50	7.8	43	15.0	10	3	5 x DC	2
0.5	0.50	0.40	5.00	14.5	43	13.0	5	3	10 x DC	2
0.8	0.48	0.64	1.76	5.9	38	15.0	11	3	2,2 x DC	2
0.8	0.80	0.64	4.00	9.0	38	15.0	7	3	5 x DC	2
0.8	0.80	0.64	8.00	13.5	38	12.0	5	3	10 x DC	2
0.8	0.80	0.64	1.76	5.9	43	15.0	11	3	2,2 x DC	2
0.8	0.80	0.64	4.00	9.0	43	15.0	7	3	5 x DC	2
0.8	0.80	0.64	8.00	15.5	43	9.8	5	3	10 x DC	2
1.0	0.60	0.80	2.20	5.9	38	15.0	10	3	2,2 x DC	2
1.0	1.00	0.80	2.20	5.9	43	15.0	10	3	2,2 x DC	2
1.0	1.00	0.80	5.00	9.7	43	15.0	6	3	5 x DC	2
1.0	1.00	0.80	10.00	15.3	43	11.0	4	3	10 x DC	2
1.0	1.00	0.80	5.00	9.7	50	15.0	6	3	5 x DC	2
1.0	1.00	0.80	10.00	20.6	50	8.5	3	3	10 x DC	2
1.5	0.90	1.20	3.30	6.1	38	15.0	8	3	2,2 x DC	2
1.5	1.50	1.20	3.30	6.1	43	15.0	8	3	2,2 x DC	2
1.5	1.50	1.20	7.50	11.8	43	14.0	4	3	5 x DC	2
1.5	1.50	1.20	15.00	18.1	43	14.6	3	3	10 x DC	2
1.5	1.50	1.20	7.50	11.8	50	14.0	4	3	5 x DC	2
1.5	1.50	1.20	15.00	22.0	50	6.2	2	3	10 x DC	2
1.8	1.08	1.44	3.96	6.2	38	15.0	6	3	2,2 x DC	2
1.8	1.80	1.44	3.96	6.2	43	15.0	6	3	2,2 x DC	2
1.8	1.80	1.44	9.00	12.9	43	12.0	3	3	5 x DC	2
1.8	1.80	1.44	18.00	20.0	43	19.8	2	3	10 x DC	2
1.8	1.80	1.44	9.00	12.9	50	12.0	3	3	5 x DC	2
1.8	1.80	1.44	18.00	22.0	50	5.3	2	3	10 x DC	2
2.0	1.20	1.60	4.40	11.9	50	15.0	10	6	2,2 x DC	2
2.0	2.00	1.60	10.00	19.7	50	15.0	6	6	5 x DC	2
2.0	2.00	1.60	20.00	25.0	50	22.1	5	6	10 x DC	2
2.0	2.00	1.60	4.40	11.9	57	15.0	10	6	2,2 x DC	2
2.0	2.00	1.60	10.00	19.7	57	15.0	6	6	5 x DC	2
2.0	2.00	1.60	20.00	29.0	57	7.8	4	6	10 x DC	2

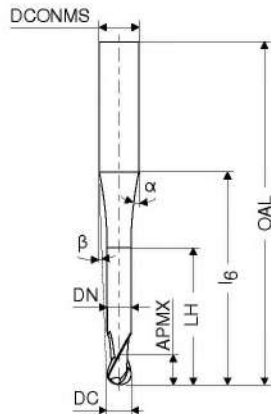
Steel	•	•
Stainless steel	•	•
Cast iron	•	•
Non ferrous metals	•	•
Heat resistant alloys	•	•
hardened materials	•	•

→ v₀/f_z Page 318-325

i Use the Micro mills on machines with the highest accuracy and good stability.

Micro-ball nosed cutter

▲ T_x = maximum engagement depth



DC _{±0,01}	APMX	DN	LH	l ₆	OAL	α°	β°	DCONMS _{h5}	T _x	ZEFP	V1 Article no. 52 804 ...	V1 Article no. 52 804 ...	V1 Article no. 52 804 ...
mm	mm	mm	mm	mm	mm			mm			£	£	£
0.2	0.12	0.16	0.44	5.7	38	15.0	14	3	2,2 x DC	2	73.42 021		
0.2	0.20	0.16	1.00	6.4	38	15.0	13	3	5 x DC	2	73.42 024		
0.2	0.20	0.16	2.00	9.2	38	15.0	9	3	10 x DC	2	73.42 027		
0.2	0.12	0.16	0.44	5.7	50	15.0	14	3	2,2 x DC	2		73.42 022	
0.2	0.20	0.16	1.00	6.4	50	15.0	13	3	5 x DC	2		73.42 025	
0.2	0.20	0.16	2.00	9.2	50	15.0	9	3	10 x DC	2		73.42 028	
0.2	0.12	0.16	0.44	11.3	80	15.0	15	6	2,2 x DC	2			73.42 023
0.2	0.20	0.16	1.00	12.0	80	15.0	14	6	5 x DC	2			73.42 026
0.2	0.20	0.16	2.00	14.8	80	15.0	12	6	10 x DC	2			73.42 029
0.5	0.30	0.40	1.10	5.8	38	15.0	13	3	2,2 x DC	2	57.28 051		
0.5	0.50	0.40	2.50	7.8	38	15.0	10	3	5 x DC	2	57.28 054		
0.5	0.50	0.40	5.00	10.7	38	13.0	7	3	10 x DC	2	57.28 057		
0.5	0.30	0.40	1.10	5.8	50	15.0	13	3	2,2 x DC	2		57.28 052	
0.5	0.50	0.40	2.50	7.8	50	15.0	10	3	5 x DC	2		57.28 055	
0.5	0.50	0.40	5.00	14.5	50	13.0	5	3	10 x DC	2		57.28 058	
0.5	0.30	0.40	1.10	11.4	80	15.0	14	6	2,2 x DC	2			57.28 053
0.5	0.50	0.40	2.50	13.4	80	15.0	12	6	5 x DC	2			57.28 056
0.5	0.50	0.40	5.00	20.2	80	15.0	8	6	10 x DC	2			57.28 059
0.8	0.48	0.64	1.76	5.9	38	15.0	11	3	2,2 x DC	2	64.48 081		
0.8	0.80	0.64	4.00	9.0	38	15.0	7	3	5 x DC	2	64.48 084		
0.8	0.80	0.64	8.00	10.5	38	8.2	6	3	10 x DC	2	65.28 087		
0.8	0.48	0.64	1.76	5.9	50	15.0	11	3	2,2 x DC	2		64.48 082	
0.8	0.80	0.64	4.00	9.0	50	15.0	7	3	5 x DC	2		64.48 085	
0.8	0.80	0.64	8.00	18.7	50	9.8	4	3	10 x DC	2		65.28 088	
0.8	0.48	0.64	1.76	11.5	80	15.0	13	6	2,2 x DC	2			64.48 083
0.8	0.80	0.64	4.00	14.6	80	15.0	11	6	5 x DC	2			64.48 086
0.8	0.80	0.64	8.00	25.9	80	14.8	6	6	10 x DC	2			65.28 089
1.0	0.60	0.80	2.20	7.8	43	15.0	11	4	2,2 x DC	2	54.82 101		
1.0	1.00	0.80	5.00	11.6	43	15.0	8	4	5 x DC	2	54.82 104		
1.0	1.00	0.80	10.00	18.3	43	8.0	5	4	10 x DC	2	59.05 107		
1.0	0.60	0.80	2.20	7.8	60	15.0	11	4	2,2 x DC	2		54.82 102	
1.0	1.00	0.80	5.00	11.6	60	15.0	8	4	5 x DC	2		54.82 105	
1.0	1.00	0.80	10.00	23.7	60	10.2	4	4	10 x DC	2		59.05 108	
1.0	0.60	0.80	2.20	11.5	80	15.0	13	6	2,2 x DC	2			54.82 103
1.0	1.00	0.80	5.00	15.3	80	15.0	10	6	5 x DC	2			54.82 106
1.0	1.00	0.80	10.00	28.7	80	13.0	5	6	10 x DC	2			59.05 109
1.2	0.72	0.96	2.64	7.9	43	15.0	11	4	2,2 x DC	2	61.08 121		
1.2	1.20	0.96	6.00	12.4	43	15.0	7	4	5 x DC	2	61.08 124		
1.2	1.20	0.96	12.00	18.2	43	9.3	5	4	10 x DC	2	63.24 127		
1.2	0.72	0.96	2.64	7.9	60	15.0	11	4	2,2 x DC	2		61.08 122	
1.2	1.20	0.96	6.00	12.4	60	15.0	7	4	5 x DC	2		61.08 125	
1.2	1.20	0.96	12.00	26.1	60	9.1	4	4	10 x DC	2		63.24 128	

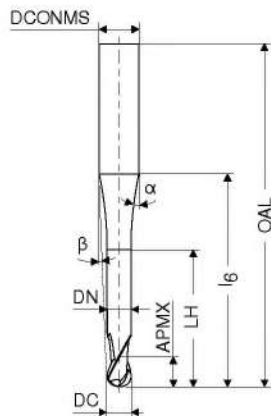
Steel	•	•	•
Stainless steel	•	•	•
Cast iron	•	•	•
Non ferrous metals	•	•	•
Heat resistant alloys	•	•	•
hardened materials	•	•	•

→ v_c/f_z Page 318-325

i Use the Micro mills on machines with the highest accuracy and good stability.

Micro-ball nosed cutter

▲ T_x = maximum engagement depth



Factory standard Factory standard Factory standard



DC _{±0.01}	APMX	DN	LH	l ₆	OAL	α°	β°	DCONMS _{h5}	T _x	ZEFP	V1 Article no. 52 804 ...	V1 Article no. 52 804 ...	V1 Article no. 52 804 ...	
mm	mm	mm	mm	mm	mm			mm			£	£	£	
1.2	0.72	0.96	2.64	11.6	80	15.0	12	6	2,2 x DC	2			61.08	123
1.2	1.20	0.96	6.00	16.2	80	15.0	9	6	5 x DC	2			61.08	126
1.2	1.20	0.96	12.00	31.8	80	11.7	5	6	10 x DC	2			63.24	129
1.5	0.90	1.20	3.30	8.0	43	15.0	9	4	2,2 x DC	2	57.55	151		
1.5	1.50	1.20	7.50	13.7	43	15.0	6	4	5 x DC	2	60.79	154		
1.5	1.50	1.20	15.00	18.1	43	13.5	4	4	10 x DC	2	60.79	157		
1.5	0.90	1.20	3.30	8.0	60	15.0	9	4	2,2 x DC	2		57.55	152	
1.5	1.50	1.20	7.50	13.7	60	15.0	6	4	5 x DC	2		60.79	155	
1.5	1.50	1.20	15.00	28.0	60	7.8	3	4	10 x DC	2		60.79	158	
1.5	0.90	1.20	3.30	11.7	80	15.0	11	6	2,2 x DC	2			57.55	153
1.5	1.50	1.20	7.50	17.4	80	15.0	8	6	5 x DC	2			60.79	156
1.5	1.50	1.20	15.00	35.8	80	10.2	4	6	10 x DC	2			60.79	159
1.8	1.08	1.44	3.96	8.1	43	15.0	8	4	2,2 x DC	2	60.79	181		
1.8	1.80	1.44	9.00	15.0	43	15.0	5	4	5 x DC	2	60.79	184		
1.8	1.80	1.44	18.00	19.5	43	31.1	4	4	10 x DC	2	63.24	187		
1.8	1.08	1.44	3.96	8.1	60	15.0	8	4	2,2 x DC	2		60.79	182	
1.8	1.80	1.44	9.00	15.0	60	15.0	5	4	5 x DC	2		60.79	185	
1.8	1.80	1.44	18.00	31.9	60	6.8	2	4	10 x DC	2		63.24	188	
1.8	1.08	1.44	3.96	11.8	80	15.0	11	6	2,2 x DC	2			60.79	183
1.8	1.80	1.44	9.00	18.7	80	15.0	7	6	5 x DC	2			60.79	186
1.8	1.80	1.44	18.00	39.3	80	9.1	4	6	10 x DC	2			63.24	189
2.0	1.20	1.60	4.40	11.9	57	15.0	10	6	2,2 x DC	2	57.15	201		
2.0	2.00	1.60	10.00	19.7	57	15.0	6	6	5 x DC	2	60.79	204		
2.0	2.00	1.60	20.00	32.0	57	9.5	4	6	10 x DC	2	60.79	207		
2.0	1.20	1.60	4.40	11.9	70	15.0	10	6	2,2 x DC	2		57.15	202	
2.0	2.00	1.60	10.00	19.7	70	15.0	6	6	5 x DC	2		60.79	205	
2.0	2.00	1.60	20.00	41.4	70	8.5	3	6	10 x DC	2		60.79	208	
2.0	1.20	1.60	4.40	11.9	80	15.0	10	6	2,2 x DC	2			57.15	203
2.0	2.00	1.60	10.00	19.7	80	15.0	6	6	5 x DC	2			60.79	206
2.0	2.00	1.60	20.00	41.4	80	8.5	3	6	10 x DC	2			60.79	209

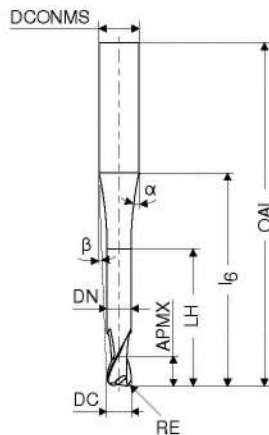
Steel	•	•	•
Stainless steel	•	•	•
Cast iron	•	•	•
Non ferrous metals	•	•	•
Heat resistant alloys	•	•	•
hardened materials	•	•	•

→ v_c/f_z Page 318-325

i Use the Micro mills on machines with the highest accuracy and good stability.

Micro-torus cutter

▲ T_x = maximum engagement depth



DC $\pm 0,01$	RE $\pm 0,005$	APMX	DN	LH	l_b	OAL	α°	β°	DCONMS h_s	T_x	ZEFP	V1 Article no. 52 806 ...	V1 Article no. 52 806 ...	V1 Article no. 52 806 ...
mm	mm	mm	mm	mm	mm	mm			mm			£	£	£
0.5	0.1	0.3	0.4	1.1	5.8	38	15.0	13	3	2,2 x DC	2	58.37	051	
0.5	0.1	0.5	0.4	2.5	7.8	38	15.0	10	3	5 x DC	2	58.37	054	
0.5	0.1	0.5	0.4	5.0	10.7	38	13.0	7	3	10 x DC	2	58.37	057	
0.5	0.1	0.3	0.4	1.1	5.8	50	15.0	13	3	2,2 x DC	2			
0.5	0.1	0.5	0.4	2.5	7.8	50	15.0	10	3	5 x DC	2			
0.5	0.1	0.5	0.4	5.0	14.5	50	13.0	5	3	10 x DC	2			
0.5	0.1	0.3	0.4	1.1	11.4	80	15.0	14	6	2,2 x DC	2			
0.5	0.1	0.5	0.4	2.5	13.4	80	15.0	12	6	5 x DC	2			
0.5	0.1	0.5	0.4	5.0	20.2	80	15.0	8	6	10 x DC	2			
1.0	0.2	0.6	0.8	2.2	7.8	43	15.0	11	4	2,2 x DC	2	55.78	101	
1.0	0.2	1.0	0.8	5.0	11.6	43	15.0	8	4	5 x DC	2	60.26	104	
1.0	0.2	1.0	0.8	10.0	18.3	43	8.0	5	4	10 x DC	2	60.26	107	
1.0	0.2	0.6	0.8	2.2	7.8	60	15.0	11	4	2,2 x DC	2			
1.0	0.2	1.0	0.8	5.0	11.6	60	15.0	8	4	5 x DC	2			
1.0	0.2	1.0	0.8	10.0	23.7	60	10.2	4	4	10 x DC	2			
1.0	0.2	0.6	0.8	2.2	11.5	80	15.0	13	6	2,2 x DC	2			
1.0	0.2	1.0	0.8	5.0	15.3	80	15.0	10	6	5 x DC	2			
1.0	0.2	1.0	0.8	10.0	28.7	80	13.0	5	6	10 x DC	2			
1.5	0.3	0.9	1.2	3.3	8.0	43	15.0	9	4	2,2 x DC	2	58.49	151	
1.5	0.3	1.5	1.2	7.5	13.7	43	15.0	6	4	5 x DC	2	62.01	154	
1.5	0.3	1.5	1.2	15.0	18.1	43	13.5	4	4	10 x DC	2	62.01	157	
1.5	0.3	0.9	1.2	3.3	8.0	60	15.0	9	4	2,2 x DC	2			
1.5	0.3	1.5	1.2	7.5	13.7	60	15.0	6	4	5 x DC	2			
1.5	0.3	1.5	1.2	15.0	29.2	60	7.8	3	4	10 x DC	2			
1.5	0.3	0.9	1.2	3.3	11.7	80	15.0	11	6	2,2 x DC	2			
1.5	0.3	1.5	1.2	7.5	17.4	80	15.0	8	6	5 x DC	2			
1.5	0.3	1.5	1.2	15.0	35.8	80	10.2	4	6	10 x DC	2			
2.0	0.5	1.2	1.6	4.4	11.9	57	15.0	10	6	2,2 x DC	2	58.23	201	
2.0	0.5	2.0	1.6	10.0	19.7	57	15.0	6	6	5 x DC	2	62.01	204	
2.0	0.5	2.0	1.6	20.0	32.0	57	9.5	4	6	10 x DC	2	62.01	207	
2.0	0.5	1.2	1.6	4.4	11.9	70	15.0	10	6	2,2 x DC	2			
2.0	0.5	2.0	1.6	10.0	19.7	70	15.0	6	6	5 x DC	2			
2.0	0.5	2.0	1.6	20.0	41.4	70	8.5	3	6	10 x DC	2			
2.0	0.5	1.2	1.6	4.4	11.9	80	15.0	10	6	2,2 x DC	2			
2.0	0.5	2.0	1.6	10.0	19.7	80	15.0	6	6	5 x DC	2			
2.0	0.5	2.0	1.6	20.0	41.4	80	8.5	3	6	10 x DC	2			

Steel	•	•	•
Stainless steel	•	•	•
Cast iron	•	•	•
Non ferrous metals	•	•	•
Heat resistant alloys	•	•	•
hardened materials	•	•	•

→ v_c/f_z Page 324+325

i Use the Micro mills on machines with the highest accuracy and good stability.

MultiChange Programme Overview

The highly stable "MultiChange" exchangeable head system enables an extremely fast tool change. Designed to be durable and for a very high radial run-out accuracy, this exchangeable head system is probably the most stable and precise exchangeable head system on the market. The following chapters contain suitable exchangeable heads for almost every application.

Solid carbide drilling

- ▲ Solid Carbide NC Spot Drill
 \sphericalangle 90°, 120°, 142° / Ø 8, 10, 12, 16, 20 mm / ZEFP* 2

→ **Chapter 2, Solid carbide drills**



*ZEFP = Number of teeth

Reaming and Countersinking

- ▲ Through hole reamers
 Ø 8–30.2 mm incl. special diameters / ZEFP* 4-6
- ▲ Blind hole reamers
 Ø 12.2–30.2 mm incl. special diameters / ZEFP* 6

→ **Chapter 4, Reaming and countersinking**



*ZEFP = Number of teeth

Tool holder



- ▲ Steel Holder Extra Short
 Cylindrical / Tapered 87°
 Length 60–90 mm
 for KLG 8, 10, 12, 16, 20 mm



- ▲ Short Holder Steel/Solid Carbide
 cylindrical
 Length 85–120 mm
 for KLG 8, 10, 12, 16, 20 mm



- ▲ Holder Steel /Solid Carbide, Short
 87° taper
 Length 85–120 mm
 for KLG 8, 10, 12, 16, 20 mm



- ▲ Solid Carbide Holder Medium
 Cylindrical / Tapered 87°
 Length 110–150 mm
 for KLG 8, 10, 12, 16, 20 mm



- ▲ Holder Steel/Solid Carbide, Long
 cylindrical
 Length 150–200 mm
 for KLG 8, 10, 12, 16, 20 mm



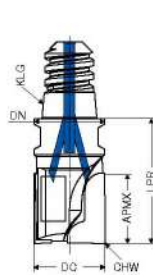
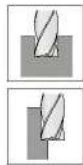
- ▲ Holder Steel/Solid Carbide, Long
 87° taper
 Length 150–200 mm
 for KLG 8, 10, 12, 16, 20 mm



- ▲ Steel/Solid Carbide Holder Extra Long
 cylindrical
 Length 200–250 mm
 For Ø 16 and 20 mm

→ **Chapter 17, Accessories**

MultiChange – PCD End Mill



Factory standard

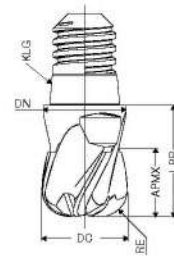
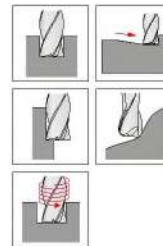
DC	KLK	APMX	DN	LPR _{#0,02}	CHW	ZEFP	V8 Article no. 52 880 ...	£
8	06	8	7.4	17	0.1	2	593.84	080
10	08	10	9.4	20	0.1	2	690.33	100
12	10	12	11.0	24	0.1	2	840.66	120
16	12	15	15.0	28	0.1	2	1,170.98	160

- Steel
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- hardened materials

→ v_c/f_z Page 328

Other PCD MultiChange heads can be found in our online shop at cuttingtools.ceratzit.com.

MultiChange – Torus Cutter



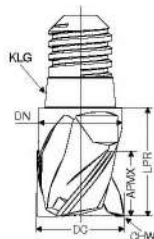
Factory standard

DC	RE	KLK	APMX	DN	LPR	ZEFP	NEW V1 Article no. 52 870 ...	£
10	0.5	08	7.5	9.8	13	3	85.43	10005
10	1.0	08	7.5	9.8	13	3	85.43	10010
12	0.5	10	9.0	11.8	16	3	100.11	12005
12	1.0	10	9.0	11.8	16	3	100.11	12010
12	2.0	10	9.0	11.8	16	3	100.11	12020
16	2.0	12	12.0	15.8	20	3	138.97	16020
16	4.0	12	12.0	15.8	20	3	138.97	16040
20	2.0	16	15.0	19.8	25	3	196.58	20020
20	3.0	16	15.0	19.8	25	3	196.58	20030
20	4.0	16	15.0	19.8	25	3	196.58	20040

- Steel
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- hardened materials

→ v_c/f_z Page 335

MultiChange – End Mill



Factory standard

DC	KLK	APMX	DN	LPR _{#0,02}	CHW	ZEFP	V1 Article no. 52 861 ...	£
8	06	6.0	7.8	11	0.16	3	57.88	080
10	08	7.5	9.8	13	0.20	3	65.76	100
12	10	9.0	11.8	16	0.24	3	82.39	120
16	12	12.0	15.8	20	0.32	3	114.92	160
20	16	15.0	19.8	25	0.40	3	146.78	200

- Steel
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- hardened materials

→ v_c/f_z Page 329

Assembly instructions

- ▲ KLG = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

KLG	SW	M
	mm	Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

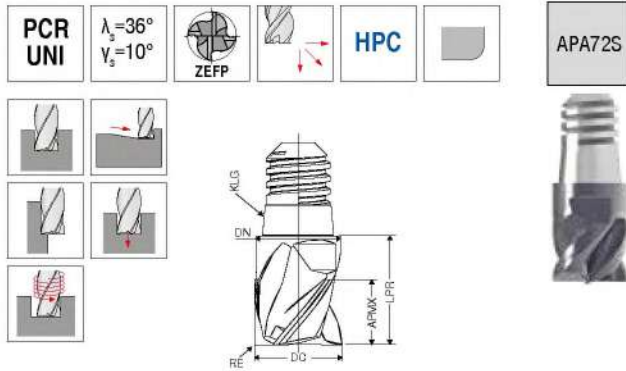
- i** A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

i Holders and accessories can be found in → **Chapter 17, Accessories.**

Application Tips

- i** APMX does not correspond to the maximum cutting depth

MultiChange – End Mill



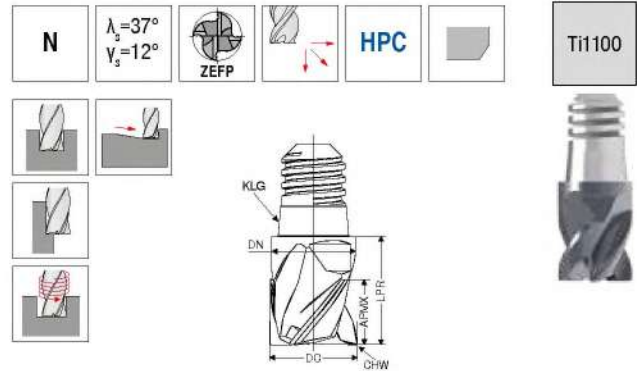
Factory standard

DC	RE	KLG	APMX	DN	LPR _{a0,02}	ZEFP	NEW V1 Article no. 52 871 ...	£
9.7	0.32	08	7.5	9.8	13	4	96.61	09700
10.0	0.32	08	7.5	9.8	13	4	96.61	10000
11.7	0.32	10	9.0	11.8	16	4	111.38	11700
12.0	0.32	10	9.0	11.8	16	4	111.38	12000
15.7	0.32	12	12.0	15.8	20	4	145.40	15700
16.0	0.32	12	12.0	15.8	20	4	145.40	16000
19.7	0.50	16	15.0	19.8	25	4	190.80	19700
20.0	0.50	16	15.0	19.8	25	4	190.80	20000

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 326+327

MultiChange – End Mill



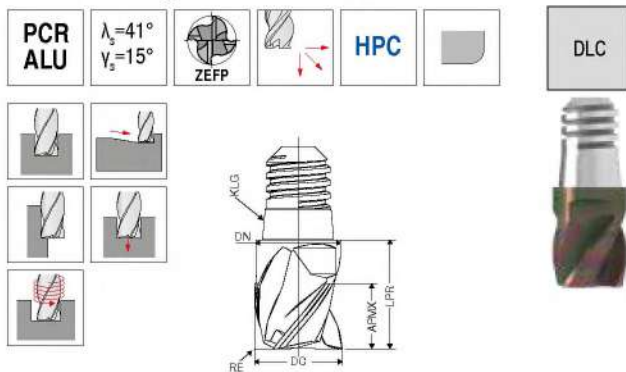
Factory standard

DC	KLG	APMX	DN	LPR _{a0,02}	CHW	ZEFP	V1 Article no. 52 860 ...	£
8	06	6.0	7.8	11	0.16	4	62.87	080
10	08	7.5	9.8	13	0.20	4	70.53	100
12	10	9.0	11.8	16	0.24	4	89.59	120
16	12	12.0	15.8	20	0.32	4	128.61	160
20	16	15.0	19.8	25	0.40	4	166.33	200

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 329

MultiChange – End Mill



Factory standard

DC	RE	KLG	APMX	DN	LPR _{a0,02}	ZEFP	NEW V1 Article no. 52 872 ...	£
9.7	0.32	08	7.5	9.8	13	4	100.23	09700
10.0	0.32	08	7.5	9.8	13	4	100.23	10000
11.7	0.32	10	9.0	11.8	16	4	120.23	11700
12.0	0.32	10	9.0	11.8	16	4	120.23	12000
15.7	0.32	12	12.0	15.8	20	4	158.92	15700
16.0	0.32	12	12.0	15.8	20	4	158.92	16000
19.7	0.50	16	15.0	19.8	25	4	214.82	19700
20.0	0.50	16	15.0	19.8	25	4	214.82	20000

Steel	●
Stainless steel	○
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 326+327

Assembly instructions

- ▲ KLG = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

KLG	SW	M
	mm	Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

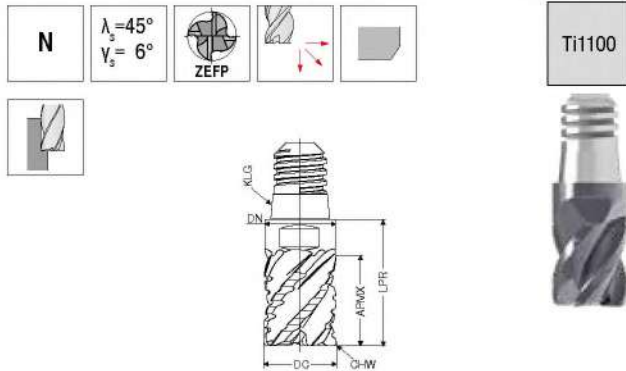
- i** ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

i Holders and accessories can be found in → **Chapter 17, Accessories.**

Application Tips

- i** APMX does not correspond to the maximum cutting depth

MultiChange – Roughing-Finishing Cutter



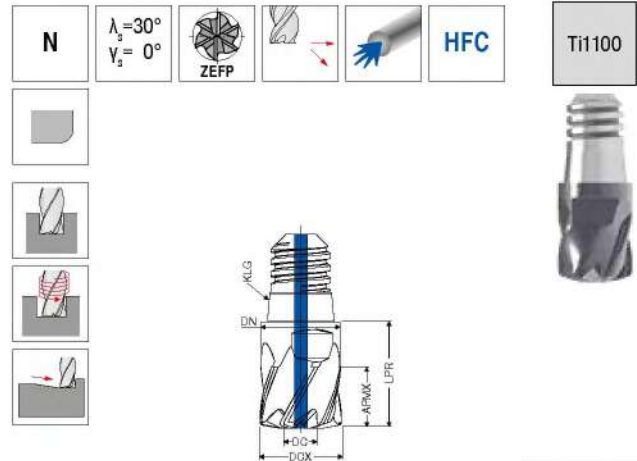
Factory standard

DC	KLG	APMX	DN	LPR _{a0.02}	CHW	ZEPF	V1	
							Article no.	£
8	06	10.0	7.8	15	0.16	4	52 862 ...	080
10	08	12.5	9.8	18	0.20	4	72.02	100
12	10	15.0	11.8	22	0.24	4	101.91	120
16	12	20.0	15.8	28	0.32	5	154.10	160
20	16	25.0	19.8	35	0.40	6	210.43	200

- Steel ●
- Stainless steel ○
- Cast iron ●
- Non ferrous metals ●
- Heat resistant alloys ●
- hardened materials ●

→ v_c/f_z Page 330

MultiChange – High Feed Cutter



Factory standard

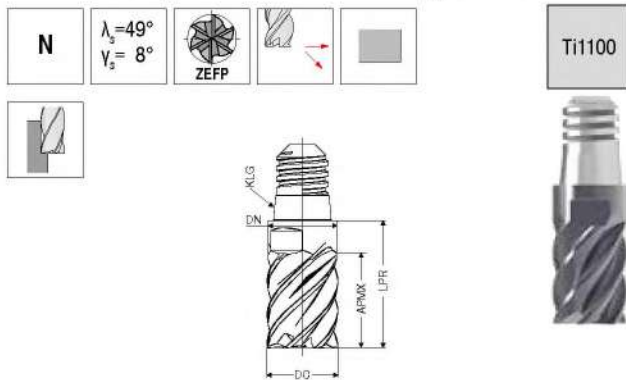
DCX	KLG	r _{3D}	APMX	LPR _{a0.02}	ZEPF	V1	
						Article no.	£
8	06	0.7	6.0	11	6	52 864 ...	080
10	08	0.9	7.5	13	6	62.87	100
12	10	1.0	9.0	16	6	70.53	120
16	12	1.4	12.0	20	6	89.59	160
20	16	1.7	15.0	25	6	128.61	200

- Steel ●
- Stainless steel ○
- Cast iron ●
- Non ferrous metals ●
- Heat resistant alloys ●
- hardened materials ○

→ v_c/f_z Page 331

- ▲ r_{3D} = corner radius to be programmed
- ▲ Ø DCX back tapers by 0.2 mm, causing reduction to Ø DN
- ▲ Ø DCX halved, giving Ø DC

MultiChange – Finish milling cutter



Factory standard

DC	KLG	APMX	DN	LPR _{a0.02}	ZEPF	V1	
						Article no.	£
8	06	10.0	7.8	15	6	52 863 ...	080
10	08	12.5	9.8	18	6	64.29	100
12	10	15.0	11.8	22	6	72.72	120
16	12	20.0	15.8	28	6	91.02	160
20	16	25.0	19.8	35	6	141.88	200

- Steel ●
- Stainless steel ○
- Cast iron ●
- Non ferrous metals ●
- Heat resistant alloys ●
- hardened materials ●

→ v_c/f_z Page 332

Assembly instructions

- ▲ KLG = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

KLG	SW	M
	mm	Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

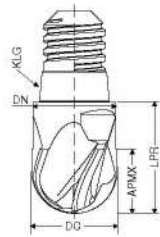
- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

- ▲ Holders and accessories can be found in → Chapter 17, Accessories.

Application Tips

- ▲ APMX does not correspond to the maximum cutting depth

MultiChange – Ball Nosed Cutter



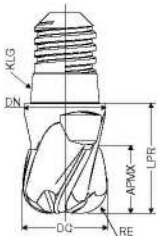
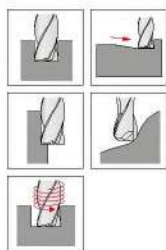
Factory standard

						V1	
DC	KLK	APMX	DN	LPR _{40.02}	ZEFP	Article no.	
mm		mm	mm	mm		52 866 ...	£
10	08	7.5	9.8	13	4	73.11	100
12	10	9.0	11.8	16	4	91.26	120
16	12	12.0	15.8	20	4	137.14	160
20	16	15.0	19.8	25	4	169.12	200

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	●

→ v_d/f_t, Page 333+334

MultiChange – Torus Cutter



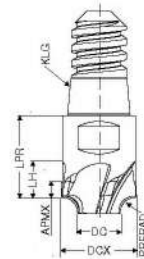
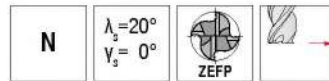
Factory standard

							V1	
DC	KLK	APMX	DN	LPR _{40.02}	RE	ZEFP	Article no.	
mm		mm	mm	mm	mm		52 865 ...	£
8	06	6.0	7.8	11	1.0	4	57.88	081
8	06	6.0	7.8	11	2.0	4	57.88	082
10	08	7.5	9.8	13	1.5	4	65.76	101
10	08	7.5	9.8	13	3.0	4	65.76	103
12	10	9.0	11.8	16	1.5	4	82.39	121
12	10	9.0	11.8	16	4.0	4	82.39	124
16	12	12.0	15.8	20	2.0	4	122.19	162
16	12	12.0	15.8	20	5.0	4	122.19	165
20	16	15.0	19.8	25	2.0	4	166.03	202
20	16	15.0	19.8	25	6.0	4	166.03	206

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	●

→ v_d/f_t, Page 333+334

MultiChange – Quarter-round milling cutter



Factory standard

							V1	
DCX	KLK	PRFRAD _{40.03}	APMX	DC	LPR _{40.02}	LH	Article no.	
mm		mm	mm	mm	mm	mm	52 869 ...	£
8	06	0.5	2.0	6.63	11	4.5	81.32	080
8	06	1.0	3.0	5.69	11	5.0	81.32	081
10	08	1.5	4.0	6.63	13	6.5	87.31	100
10	08	2.0	4.5	5.69	13	7.0	87.31	101
12	10	2.5	5.5	6.65	16	8.5	105.33	120
12	10	3.0	6.0	5.70	16	9.0	105.33	121
12	10	3.5	6.5	4.76	16	9.5	105.33	122
16	12	4.0	8.0	7.60	20	12.0	149.19	160
16	12	4.5	8.5	6.68	20	12.5	149.19	161
16	12	5.0	9.0	5.74	20	13.0	149.19	162
20	16	5.0	10.0	9.53	25	15.0	201.68	200
20	16	6.0	11.0	7.64	25	16.0	201.68	201

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	●

→ v_d/f_t, Page 336

Assembly instructions

- ▲ KLG = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

KLG	SW	M
	mm	Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

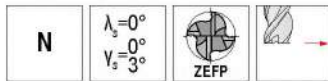
- i** ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

i Holders and accessories can be found in → **Chapter 17, Accessories.**

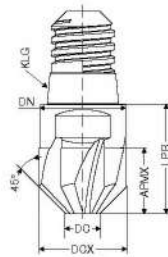
Application Tips

- i** APMX does not correspond to the maximum cutting depth

MultiChange – Deburring Cutter



Ti1050



Factory standard

DCX	KLG	APMX	DC	DN	LPR _{a0,02}	ZEFP	V1	Article no.
mm		mm	mm	mm	mm			52 867 ...
10	08	7.5	0.0	9.8	13	4		£ 59.33 100
12	10	9.0	0.0	11.8	16	4		£ 76.93 120
16	12	12.0	6.4	15.8	20	6		£ 102.30 160
20	16	15.0	8.0	19.8	25	6		£ 134.94 200

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	●

→ v_c/f_z Page 337

Assembly instructions

- ▲ KLG = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

KLG	SW	M
	mm	Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

- i** ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

- i** Holders and accessories can be found in → **Chapter 17, Accessories.**

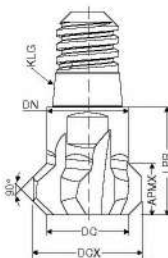
Application Tips

- i** APMX does not correspond to the maximum cutting depth

MultiChange – Deburring Cutter



Ti1100



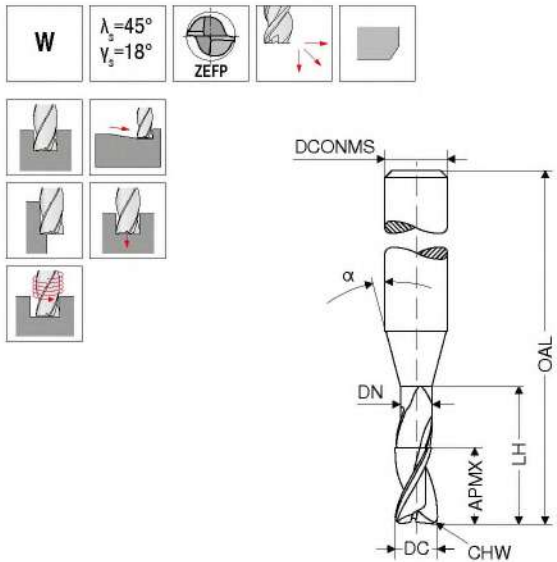
Factory standard

DCX	KLG	APMX	DC	DN	LPR _{a0,02}	ZEFP	V1	Article no.
mm		mm	mm	mm	mm			52 868 ...
10	06	4.8	7.5	8	11	6		£ 65.76 100
12	08	5.5	9.0	10	13	6		£ 82.39 120
16	10	8.0	12.0	12	16	6		£ 114.92 160
20	12	9.5	15.0	16	20	6		£ 146.78 200

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	●

→ v_c/f_z Page 337

End milling cutter

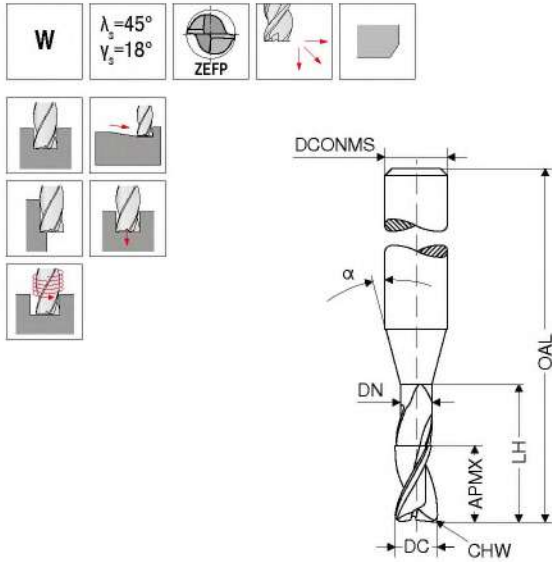


DC _{f8}	APMX	DN	LH	OAL	α°	DCONMS _{ns}	CHW	ZEPF
mm	mm	mm	mm	mm		mm	mm	
0.2	0.2	0.18	0.6	55	15	3	0.02	2
0.2	0.2	0.18	1.0	55	15	3	0.02	2
0.2	0.2	0.18	1.6	55	15	3	0.02	2
0.2	0.2	0.18	2.0	55	15	3	0.02	2
0.3	0.3	0.28	0.9	55	15	3	0.03	2
0.3	0.3	0.28	1.5	55	15	3	0.03	2
0.3	0.3	0.28	2.4	55	15	3	0.03	2
0.3	0.3	0.28	3.0	55	15	3	0.03	2
0.4	0.4	0.37	1.2	55	15	3	0.04	2
0.4	0.4	0.37	2.0	55	15	3	0.04	2
0.4	0.4	0.37	3.2	55	15	3	0.04	2
0.4	0.4	0.37	4.0	55	15	3	0.04	2
0.5	0.5	0.45	1.5	55	15	3	0.05	2
0.5	0.5	0.45	2.5	55	15	3	0.05	2
0.5	0.5	0.45	4.0	55	15	3	0.05	2
0.5	0.5	0.45	5.0	55	15	3	0.05	2
0.6	0.6	0.58	2.0	55	15	3	0.06	2
0.6	0.6	0.58	3.0	55	15	3	0.06	2
0.6	0.6	0.58	5.0	65	15	3	0.06	2
0.6	0.6	0.58	6.0	65	15	3	0.06	2
0.8	0.8	0.77	2.5	55	15	3	0.08	2
0.8	0.8	0.77	4.0	55	15	3	0.08	2
0.8	0.8	0.77	6.5	65	15	3	0.08	2
0.8	0.8	0.77	8.0	65	15	3	0.08	2
1.0	1.0	0.95	3.0	55	15	3	0.10	2
1.0	1.0	0.95	5.0	55	15	3	0.10	2
1.0	1.0	0.95	8.0	65	15	3	0.10	2
1.0	1.0	0.95	10.0	65	15	3	0.10	2
1.0	1.0	0.95	12.0	65	15	3	0.10	2
1.2	1.2	1.15	3.0	55	15	3	0.12	2
1.2	1.2	1.15	6.0	55	15	3	0.12	2
1.2	1.2	1.15	10.0	65	15	3	0.12	2
1.2	1.2	1.15	12.0	65	15	3	0.12	2
1.3	1.3	1.25	4.0	55	15	3	0.12	2
1.3	1.3	1.25	7.0	55	15	3	0.12	2
1.3	1.3	1.25	11.0	65	15	3	0.12	2
1.3	1.3	1.25	13.0	65	15	3	0.12	2
1.5	1.5	1.44	5.0	55	15	3	0.12	2
1.5	1.5	1.44	7.5	55	15	3	0.12	2
1.5	1.5	1.44	12.0	65	15	3	0.12	2
1.5	1.5	1.44	15.0	65	15	3	0.12	2

VO	VO	
Article no.	Article no.	
50 900 ...	50 900 ...	
£	£	
81.66		021
82.81		022
83.66		023
84.65		024
81.66		031
82.81		032
83.66		033
84.65		034
81.66		041
82.81		042
83.66		043
84.65		044
79.96		051
80.81		052
81.66		053
82.81		054
67.39		061
67.13		062
	73.12	063
	77.39	064
67.13		081
67.13		082
	74.68	083
	77.39	084
67.13		101
67.13		102
	70.98	103
	77.39	104
	79.36	105
67.13		121
67.13		122
	74.68	123
	77.39	124
67.13		131
67.39		132
	74.68	133
	79.36	134
67.39		151
67.13		152
	79.36	153
	77.39	154

Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys		
hardened materials		

End milling cutter



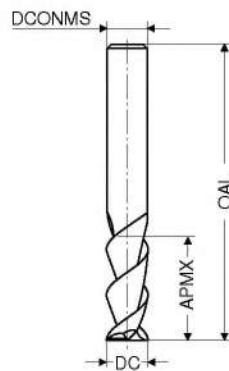
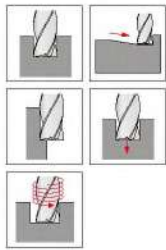
DC _{fs}	APMX	DN	LH	OAL	α°	DCONMS _{fs}	CHW	ZEFP
mm	mm	mm	mm	mm		mm	mm	
1.6	1.6	1.52	5.0	55	15	3	0.12	2
1.6	1.6	1.52	8.0	55	15	3	0.12	2
1.6	1.6	1.52	13.0	65	15	3	0.12	2
1.6	1.6	1.52	16.0	65	15	3	0.12	2
1.8	1.8	1.72	5.5	55	15	3	0.12	2
1.8	1.8	1.72	9.0	55	15	3	0.12	2
1.8	1.8	1.72	14.5	65	15	3	0.12	2
1.8	1.8	1.72	18.0	65	15	3	0.12	2
2.0	2.0	1.92	6.0	55	15	3	0.13	2
2.0	2.0	1.92	10.0	55	15	3	0.13	2
2.0	2.0	1.92	14.0	55	15	3	0.13	2
2.0	2.0	1.92	16.0	65	15	3	0.13	2
2.0	2.0	1.92	20.0	65	15	3	0.13	2
2.3	2.3	2.22	7.0	55	15	3	0.13	2
2.3	2.3	2.22	11.5	55	15	3	0.13	2
2.3	2.3	2.22	18.5	65	15	3	0.13	2
2.3	2.3	2.22	20.0	65	15	3	0.13	2
2.3	2.3	2.22	23.0	65	15	3	0.13	2
3.0	3.0	2.90	9.0	65	15	6	0.15	2
3.0	3.0	2.90	15.0	65	15	6	0.15	2
3.0	3.0	2.90	24.0	100	15	6	0.15	2
3.0	3.0	2.90	30.0	100	15	6	0.15	2
4.0	4.0	3.90	12.0	65	15	6	0.15	2
4.0	4.0	3.90	20.0	65	15	6	0.15	2
4.0	4.0	3.90	32.0	100	15	6	0.15	2
4.0	4.0	3.90	40.0	100	15	6	0.15	2
5.0	5.0	4.90	15.0	65	15	6	0.15	2
5.0	5.0	4.90	25.0	65	15	6	0.15	2
5.0	5.0	4.90	40.0	100	15	6	0.15	2
5.0	5.0	4.90	50.0	100	15	6	0.15	2
6.0	6.0	5.90	18.0	65	15	6	0.15	2
6.0	6.0	5.90	30.0	100	15	6	0.15	2
6.0	6.0	5.90	48.0	100	15	6	0.15	2
6.0	6.0	5.90	60.0	100	15	6	0.15	2

Steel		
Stainless steel		
Cast iron		
Non ferrous metals	•	•
Heat resistant alloys		
hardened materials		

Ti1001		Ti1001	
Factory standard		Factory standard	
HA		HA	
VO		VO	
Article no.	£	Article no.	£
50 900 ...	67.39	50 900 ...	67.39
161	67.39	162	74.68
		163	79.36
		164	
		181	67.13
		182	67.39
		183	74.68
		184	79.36
		201	67.13
		202	67.13
		203	70.98
		204	79.36
		205	77.39
		231	67.13
		232	67.39
		233	70.98
		234	79.36
		235	79.36
		301	70.98
		302	79.36
		303	86.07
		304	89.50
		401	79.36
		402	79.36
		403	89.50
		404	92.49
		501	79.36
		502	79.36
		503	92.49
		504	95.34
		601	79.36
		602	89.50
		603	95.34
		604	98.14

→ v_c/f_z, Page 350-355

End milling cutter



≈DIN 6527

HA

VO

Article no.
50 960 ...

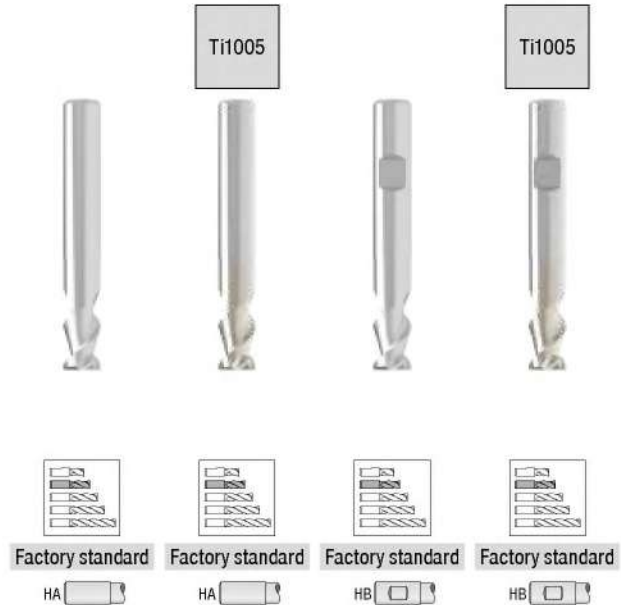
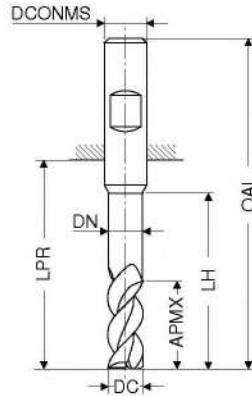
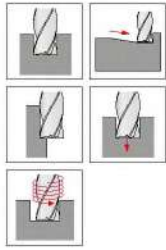
£	
26.07	030
26.07	040
26.07	050
26.07	060
38.95	080
53.40	100
73.40	120
115.57	140
129.26	160
161.31	200

DC _{h6}	APMX	OAL	DCONMS _{h6}	ZEFP
mm	mm	mm	mm	
3	12	50	3	2
4	15	50	4	2
5	20	50	5	2
6	20	57	6	2
8	20	63	8	2
10	25	73	10	2
12	25	83	12	2
14	30	83	14	2
16	30	92	16	2
20	38	104	20	2

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 338+339

End milling cutter

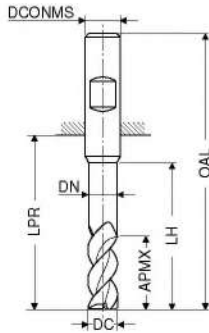
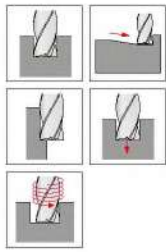


DC _{HS}	APMX	DN	LH	LPR	OAL	DCONMS _{HS}	ZEFP
mm	mm	mm	mm	mm	mm	mm	
2.7	5.0	2.5	12	19	55	6	2
3.0	3.5	2.8	12	19	55	6	2
3.0	5.0	2.8	12	19	55	6	2
3.7	6.5	3.5	12	19	55	6	2
4.0	4.5	3.8	12	19	55	6	2
4.0	6.5	3.8	12	19	55	6	2
4.7	8.0	4.5	15	22	58	6	2
5.0	5.5	4.8	15	22	58	6	2
5.0	8.0	4.8	15	22	58	6	2
5.7	10.0	5.5	18	22	58	6	2
6.0	7.0	5.8	18	22	58	6	2
6.0	10.0	5.8	18	22	58	6	2
6.7	13.0	6.4	24	28	64	8	2
7.0	13.0	6.7	24	28	64	8	2
7.7	13.0	7.4	24	28	64	8	2
8.0	9.0	7.7	24	28	64	8	2
8.0	13.0	7.7	24	28	64	8	2
8.7	16.0	8.4	30	34	74	10	2
9.0	16.0	8.7	30	34	74	10	2
9.7	16.0	9.4	30	34	74	10	2
10.0	11.0	9.7	30	34	74	10	2
10.0	16.0	9.7	30	34	74	10	2
10.7	19.0	10.3	36	40	85	12	2
11.0	19.0	10.6	36	40	85	12	2
11.7	19.0	11.3	36	40	85	12	2
12.0	13.0	11.6	36	40	85	12	2
12.0	19.0	11.6	36	40	85	12	2
13.0	22.0	12.6	42	46	91	14	2
13.7	22.0	13.3	42	46	91	14	2
14.0	15.0	13.6	42	46	91	14	2
14.0	22.0	13.6	42	46	91	14	2
15.0	25.0	14.5	48	52	100	16	2
15.7	25.0	15.2	48	52	100	16	2
16.0	17.0	15.5	48	52	100	16	2
16.0	25.0	15.5	48	52	100	16	2
18.0	20.0	17.5	54	58	106	18	2
18.0	29.0	17.5	54	58	106	18	2
19.7	32.0	19.2	60	64	114	20	2
20.0	22.0	19.5	60	64	114	20	2
20.0	32.0	19.5	60	64	114	20	2
24.7	40.0	24.2	75	80	136	25	2
25.0	27.0	24.5	75	80	136	25	2
25.0	40.0	24.5	75	80	136	25	2

VO		VO		VO		VO	
Article no.	£	Article no.	£	Article no.	£	Article no.	£
54 590 ...		54 592 ...		54 591 ...		54 593 ...	
027	23.81	027	34.25	027	23.81	027	34.25
033	24.19	033	35.62	033	23.81	033	34.25
031	23.81	031	34.25	031	23.81	031	34.25
037	23.81	037	34.25	037	23.81	037	34.25
043	24.19	043	35.62				
041	23.81	041	34.25	041	23.81	041	34.25
047	23.81	047	34.25	047	23.81	047	34.25
053	24.19	053	35.62				
051	23.81	051	34.25	051	23.81	051	34.25
057	23.81	057	34.25	057	23.81	057	34.25
063	24.19	063	35.62				
061	23.81	061	34.25	061	23.81	061	34.25
067	34.25	067	47.59	067	34.25	067	47.59
071	34.25	071	47.59	071	34.25	071	47.59
077	34.25	077	47.59	077	34.25	077	47.59
083	34.25	083	47.59				
081	34.25	081	47.59	081	34.25	081	47.59
087	55.28	087	68.37	087	55.28	087	68.37
091	55.28	091	68.37	091	55.28	091	68.37
097	55.28	097	68.37	097	55.28	097	68.37
103	55.28	103	68.37				
101	55.28	101	68.37	101	55.28	101	68.37
107	72.01	107	86.00	107	72.01	107	86.00
111	72.01	111	86.00	111	72.01	111	86.00
117	72.01	117	86.00	117	72.01	117	86.00
123	72.01	123	86.00				
121	72.01	121	86.00	121	72.01	121	86.00
131	107.03	131	122.98	131	107.03	131	122.98
137	107.03	137	122.98	137	107.03	137	122.98
143	107.03	143	122.98				
141	107.03	141	122.98	141	107.03	141	122.98
151	173.58	151	196.07	151	173.58	151	196.07
157	173.58	157	196.07	157	173.58	157	196.07
163	173.58	163	196.07				
161	173.58	161	196.07	161	173.58	161	196.07
183	220.02	183	257.36				
181	221.46	181	243.96	181	221.46	181	243.96
197	242.40	197	260.35	197	242.40	197	267.90
203	233.42	203	255.93				
201	242.40	201	260.35	201	242.40	201	260.35
247	372.65	247	393.58	247	372.65	247	393.58
253	353.11	253	374.06				
251	372.65	251	393.58	251	372.65	251	393.58

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	•	•	•	•
Heat resistant alloys				
hardened materials				

End milling cutter



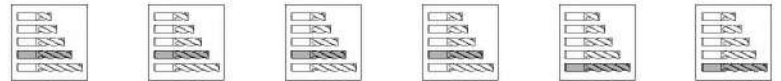
Ti1005

Ti1005

Ti1005



LPR with Shank DIN 6535 HB

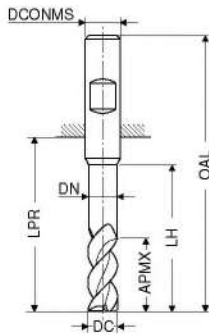
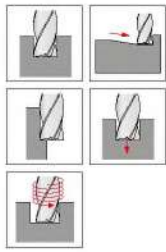


Factory standard HA HA HB HB HA HA

DC _{h6}	APMX	DN	LH	LPR	OAL	DCONMS _{h5}	ZEFP	VO		VO		VO		VO		VO	
								Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£
2.7	8.0	2.5	15	22	58	6	2	27.26 028	38.03 028	27.26 028	38.03 028						
3.0	3.5	2.8	15	22	58	6	2	26.25 034	36.65 034								
3.0	8.0	2.8	15	22	58	6	2	27.26 032	38.03 032	27.26 032	38.03 032						
3.0	3.5	2.8	24	31	67	6	2					21.54 035	43.89 035				
3.7	10.5	3.5	20	26	62	6	2	27.26 038	38.03 038	27.26 038	38.03 038						
4.0	4.5	3.8	20	26	62	6	2	26.25 044	36.65 044								
4.0	10.5	3.8	20	26	62	6	2	27.26 042	38.03 042	27.26 042	38.03 042						
4.0	4.5	3.8	32	38	74	6	2					32.02 045	43.89 045				
4.7	13.0	4.5	25	34	70	6	2	27.26 048	38.03 048	27.26 048	38.03 048						
5.0	5.5	4.8	25	34	70	6	2	26.25 054	36.65 054								
5.0	13.0	4.8	25	34	70	6	2	27.26 052	38.03 052	27.26 052	38.03 052						
5.0	5.5	4.8	40	52	88	6	2					33.00 055	44.63 055				
5.7	16.0	5.5	30	34	70	6	2	27.26 058	38.03 058	27.26 058	38.03 058						
6.0	7.0	5.8	30	34	70	6	2	26.25 064	36.65 064								
6.0	16.0	5.8	30	34	70	6	2	27.26 062	38.03 062	27.26 062	38.03 062						
6.0	7.0	5.8	48	52	88	6	2					33.00 065	44.63 065				
6.7	21.0	6.4	40	44	80	8	2	39.00 068	51.04 068	39.00 068	51.04 068						
7.0	21.0	6.7	40	44	80	8	2	39.00 072	51.04 072	39.00 072	51.04 072						
7.7	21.0	7.4	40	44	80	8	2	39.00 078	51.04 078	39.00 078	51.04 078						
8.0	9.0	7.7	40	44	80	8	2	38.48 084	50.19 084								
8.0	21.0	7.7	40	44	80	8	2	39.00 082	51.04 082	39.00 082	51.04 082						
8.0	9.0	7.7	64	68	104	8	2					49.60 085	62.30 085				
8.7	26.0	8.4	50	54	94	10	2	62.41 088	76.67 088	62.41 088	76.67 088						
9.0	26.0	8.7	50	54	94	10	2	62.41 092	76.67 092	62.41 092	76.67 092						
9.7	26.0	9.4	50	54	94	10	2	62.41 098	76.67 098	62.41 098	76.67 098						
10.0	11.0	9.7	50	54	94	10	2	60.87 104	75.11 104								
10.0	26.0	9.7	50	54	94	10	2	62.41 102	76.67 102	62.41 102	76.67 102						
10.0	11.0	9.7	80	84	124	10	2					101.18 105	118.00 105				
10.7	31.0	10.3	60	64	109	12	2	103.04 108	120.84 108	103.04 108	120.84 108						
11.0	31.0	10.6	60	64	109	12	2	103.04 112	120.84 112	103.04 112	120.84 112						
11.7	31.0	11.3	60	64	109	12	2	103.04 118	120.84 118	103.04 118	120.84 118						
12.0	13.0	11.6	60	64	109	12	2	101.03 124	118.86 124								
12.0	31.0	11.6	60	64	109	12	2	103.04 122	120.84 122	103.04 122	120.84 122						
12.0	13.0	11.6	96	100	145	12	2					130.71 125	149.05 125				
13.0	36.0	12.6	70	74	119	14	2	149.05 132	169.14 132	149.05 132	169.14 132						
13.7	36.0	13.3	70	74	119	14	2	149.05 138	173.58 138	149.05 138	169.14 138						
14.0	15.0	13.6	70	74	119	14	2	147.20 144	167.58 144								
14.0	36.0	13.6	70	74	119	14	2	149.05 142	169.14 142	149.05 142	169.14 142						

Steel																	
Stainless steel																	
Cast iron																	
Non ferrous metals	•																
Heat resistant alloys																	
hardened materials																	

End milling cutter



LPR with Shank DIN 6535 HB



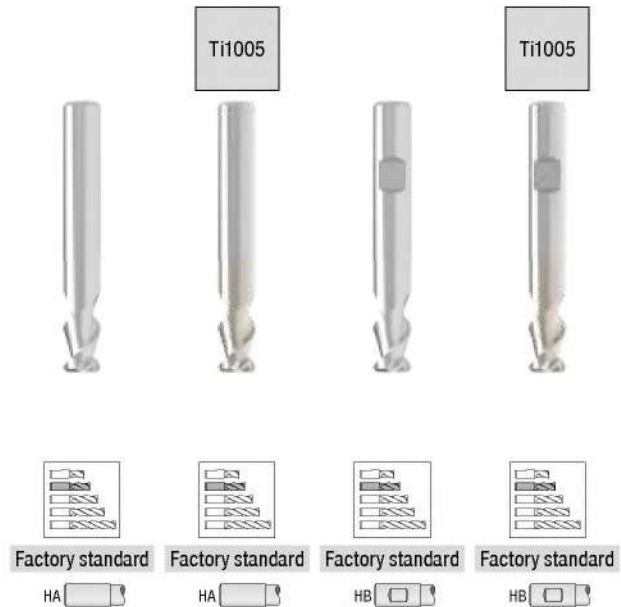
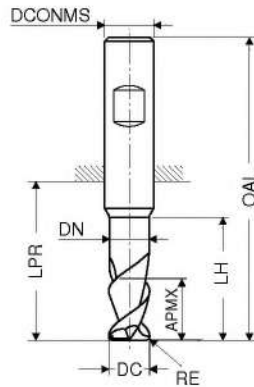
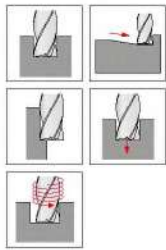
Factory standard Factory standard Factory standard Factory standard Factory standard Factory standard
HA HA HB HB HA HA

DC _{h8}	APMX	DN	LH	LPR	OAL	DCONMS _{h8}	ZEFP	VO		VO		VO		VO		VO		VO	
								Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£
14.0	15.0	13.6	112	116	161	14	2	54 590 ...	£	54 592 ...	£	54 591 ...	£	54 593 ...	£	54 590 ...	£	54 592 ...	£
15.0	41.0	14.5	80	84	132	16	2	193.09	152	215.45	152	193.09	152	215.45	152	196.07	145	215.45	145
15.7	41.0	15.2	80	84	132	16	2	193.09	158	215.45	158	193.09	158	215.45	158				
16.0	17.0	15.5	80	84	132	16	2	191.50	164	214.03	164	191.50	164	214.03	164				
16.0	41.0	15.5	80	84	132	16	2	193.09	162	215.45	162	193.09	162	215.45	162				
16.0	17.0	15.5	128	132	180	16	2									255.93	165	278.29	165
18.0	20.0	17.5	90	94	142	18	2	240.98	184	263.35	184								
18.0	47.0	17.5	90	94	142	18	2	252.94	182	275.33	182	252.94	182	275.33	182				
18.0	20.0	17.5	144	148	196	18	2									324.78	185	347.13	185
19.7	52.0	19.2	100	104	154	20	2	276.87	198	303.81	198	276.87	198	303.81	198				
20.0	22.0	19.5	100	104	154	20	2	257.36	204	284.29	204								
20.0	52.0	19.5	100	104	154	20	2	276.87	202	303.81	202	276.87	202	303.81	202				
20.0	22.0	19.5	160	164	214	20	2									356.11	205	383.05	205
24.7	65.0	24.2	125	130	186	25	2	516.26	248	537.24	248	516.26	248	537.24	248				
25.0	27.0	24.5	125	130	186	25	2	496.75	254	517.69	254								
25.0	65.0	24.5	125	130	186	25	2	516.26	252	537.24	252	516.26	252	537.24	252				
25.0	27.0	24.5	200	204	260	25	2									703.23	255	725.76	255

Steel																			
Stainless steel																			
Cast iron																			
Non ferrous metals																			
Heat resistant alloys																			
hardened materials																			

→ v_c/f_z Page 338+339

End milling cutter with corner radius



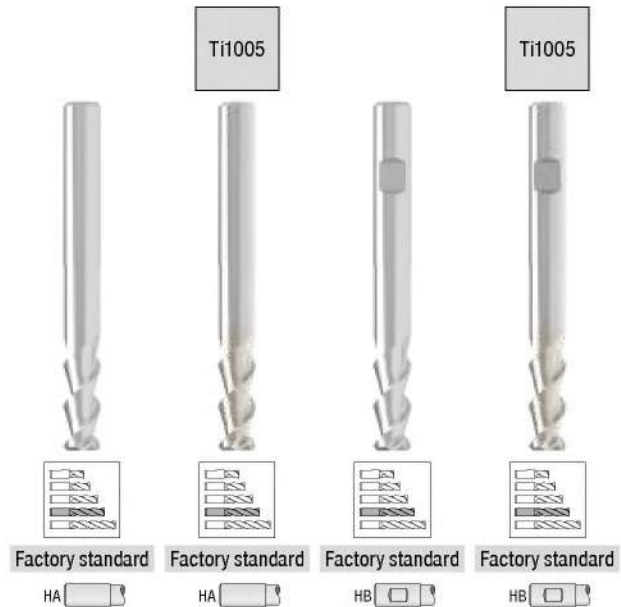
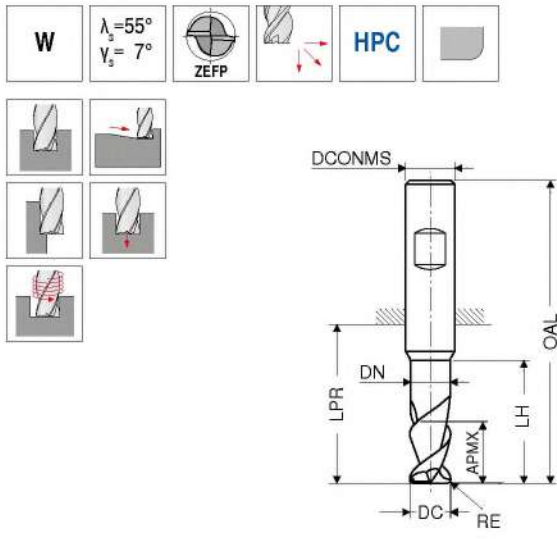
Factory standard HA HB

DC _{h5}	RE _{±0.01}	APMX	DN	LH	LPR	OAL	DCONMS _{h5}	ZEFP	VO	VO	VO	VO
mm	mm	mm	mm	mm	mm	mm	mm		Article no. 54 594 ...	Article no. 54 596 ...	Article no. 54 595 ...	Article no. 54 597 ...
									£	£	£	£
3	0.2	5.0	2.8	12	19	55	6	2	26.42 031	38.06 031	26.42 031	38.06 031
3	0.3	5.0	2.8	12	19	55	6	2	26.42 033	38.06 033	26.42 033	38.06 033
3	0.5	5.0	2.8	12	19	55	6	2	26.42 035	38.06 035	26.42 035	38.06 035
4	0.3	6.5	3.8	12	19	55	6	2	26.42 041	38.06 041	26.42 041	38.06 041
4	0.5	6.5	3.8	12	19	55	6	2	26.42 043	38.06 043	26.42 043	38.06 043
4	1.0	6.5	3.8	12	19	55	6	2	26.42 045	38.06 045	26.42 045	38.06 045
5	0.3	8.0	4.8	15	22	58	6	2	27.26 051	38.03 051	27.26 051	38.03 051
5	0.5	8.0	4.8	15	22	58	6	2	27.26 053	38.03 053	27.26 053	38.03 053
5	1.0	8.0	4.8	15	22	58	6	2	27.26 055	38.03 055	27.26 055	38.03 055
6	0.3	10.0	5.8	18	22	58	6	2	28.21 061	38.59 061	28.21 061	38.59 061
6	0.5	10.0	5.8	18	22	58	6	2	28.21 063	38.59 063	28.21 063	38.59 063
6	1.0	10.0	5.8	18	22	58	6	2	28.21 065	38.59 065	28.21 065	38.59 065
8	0.3	13.0	7.7	24	28	64	8	2	38.03 081	50.60 081	38.03 081	50.60 081
8	0.5	13.0	7.7	24	28	64	8	2	38.03 083	50.60 083	38.03 083	50.60 083
8	1.0	13.0	7.7	24	28	64	8	2	38.03 085	50.60 085	38.03 085	50.60 085
10	0.3	16.0	9.7	30	34	74	10	2	58.86 101	73.26 101	58.86 101	73.26 101
10	1.0	16.0	9.7	30	34	74	10	2	58.86 103	73.26 103	58.86 103	73.26 103
10	1.5	16.0	9.7	30	34	74	10	2	58.86 105	73.26 105	58.86 105	73.26 105
12	1.0	19.0	11.6	36	40	85	12	2	75.76 121	89.75 121	75.76 121	89.75 121
12	1.5	19.0	11.6	36	40	85	12	2	75.76 123	89.75 123	75.76 123	89.75 123
12	2.0	19.0	11.6	36	40	85	12	2	75.76 125	89.75 125	75.76 125	89.75 125
16	2.0	25.0	15.5	48	52	100	16	2	179.55 161	200.50 161	179.55 161	200.50 161
16	2.5	25.0	15.5	48	52	100	16	2	181.10 163	202.08 163	181.10 163	202.08 163
16	3.0	25.0	15.5	48	52	100	16	2	181.10 165	202.08 165	181.10 165	202.08 165
20	2.0	32.0	19.5	60	64	114	20	2	245.38 201	272.33 201	237.96 201	272.33 201
20	2.5	32.0	19.5	60	64	114	20	2	245.38 203	272.33 203	245.38 203	272.33 203
20	3.0	32.0	19.5	60	64	114	20	2	245.38 205	272.33 205	245.38 205	272.33 205
20	4.0	32.0	19.5	60	64	114	20	2	245.38 206	272.33 206	245.38 206	272.33 206
25	2.0	40.0	24.5	75	80	136	25	2	375.63 251	398.00 251	375.63 251	398.00 251
25	4.0	40.0	24.5	75	80	136	25	2	377.05 253	398.00 253	377.05 253	398.00 253

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	•	•	•	•
Heat resistant alloys				
hardened materials				

→ v_c/f, Page 338+339

End milling cutter with corner radius

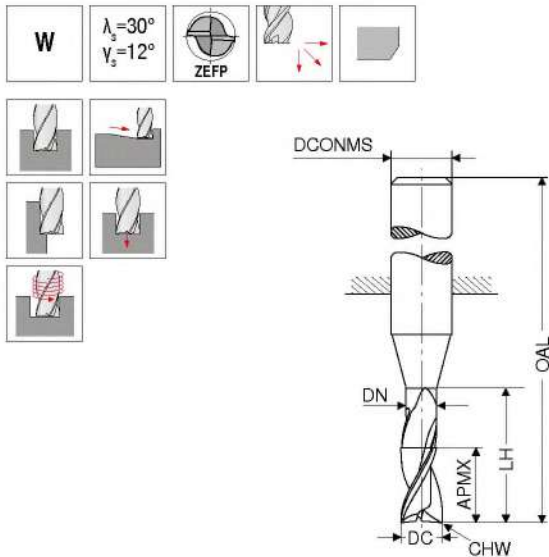


DC _{h5}	RE _{±0,01}	APMX	DN	LH	LPR	OAL	DCONMS _{h5}	ZEFP	VO	VO	VO	VO
mm	mm	mm	mm	mm	mm	mm	mm		Article no. 54 594 ...	Article no. 54 596 ...	Article no. 54 595 ...	Article no. 54 597 ...
									£	£	£	£
3	0.2	8.0	2.8	15	22	58	6	2	26.42 032	38.06 032	26.42 032	38.06 032
3	0.3	8.0	2.8	15	22	58	6	2	26.42 034	38.06 034	26.42 034	38.06 034
3	0.5	8.0	2.8	15	22	58	6	2	26.42 036	38.06 036	26.42 036	38.06 036
4	0.3	10.5	3.8	20	26	62	6	2	28.66 042	39.00 042	28.66 042	39.00 042
4	0.5	10.5	3.8	20	26	62	6	2	28.66 044	39.00 044	28.66 044	39.00 044
4	1.0	10.5	3.8	20	26	62	6	2	28.66 046	39.00 046	28.66 046	39.00 046
5	0.3	13.0	4.8	25	34	70	6	2	30.93 052	41.37 052	30.93 052	41.37 052
5	0.5	13.0	4.8	25	34	70	6	2	30.93 054	41.37 054	30.93 054	41.37 054
5	1.0	13.0	4.8	25	34	70	6	2	30.93 056	41.37 056	30.93 056	41.37 056
6	0.3	16.0	5.8	30	34	70	6	2	30.93 062	41.37 062	30.93 062	41.37 062
6	0.5	16.0	5.8	30	34	70	6	2	30.93 064	41.37 064	30.93 064	41.37 064
6	1.0	16.0	5.8	30	34	70	6	2	30.93 066	41.37 066	30.93 066	41.37 066
8	0.3	21.0	7.7	40	44	80	8	2	43.20 082	54.80 082	43.20 082	54.80 082
8	0.5	21.0	7.7	40	44	80	8	2	43.20 084	54.80 084	43.20 084	54.80 084
8	1.0	21.0	7.7	40	44	80	8	2	43.20 086	54.80 086	43.20 086	54.80 086
10	0.5	26.0	9.7	50	54	94	10	2	66.12 102	80.24 102	66.12 102	80.24 102
10	1.0	26.0	9.7	50	54	94	10	2	66.12 104	80.24 104	66.12 104	80.24 104
10	1.5	26.0	9.7	50	54	94	10	2	66.12 106	80.24 106	66.12 106	80.24 106
12	1.0	31.0	11.6	60	64	109	12	2	107.73 122	125.56 122	107.73 122	125.56 122
12	1.5	31.0	11.6	60	64	109	12	2	107.73 124	125.56 124	107.73 124	125.56 124
12	2.0	31.0	11.6	60	64	109	12	2	107.73 126	125.56 126	107.73 126	125.56 126
16	2.0	41.0	15.5	80	84	132	16	2	203.48 162	226.00 162	203.48 162	226.00 162
16	2.5	41.0	15.5	80	84	132	16	2	205.06 164	227.42 164	205.06 164	227.42 164
16	4.0	41.0	15.5	80	84	132	16	2	205.06 166	227.42 166	205.06 166	227.42 166
20	2.0	52.0	19.5	100	104	154	20	2	281.29 202	308.22 202	281.29 202	308.22 202
20	2.5	52.0	19.5	100	104	154	20	2	282.88 204	309.81 204	282.88 204	309.81 204
20	4.0	52.0	19.5	100	104	154	20	2	282.88 207	309.81 207	282.88 207	309.81 207
25	2.0	65.0	24.5	125	130	186	25	2	525.26 252	546.18 252	525.26 252	546.18 252
25	4.0	65.0	24.5	125	130	186	25	2	525.26 254	546.18 254	525.26 254	546.18 254

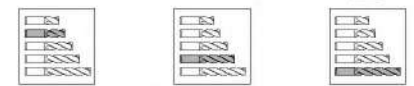
Steel				
Stainless steel				
Cast iron				
Non ferrous metals	•	•	•	•
Heat resistant alloys				
hardened materials				

→ v_c/f, Page 338+339

Slot milling cutter



DIAMOND DIAMOND DIAMOND



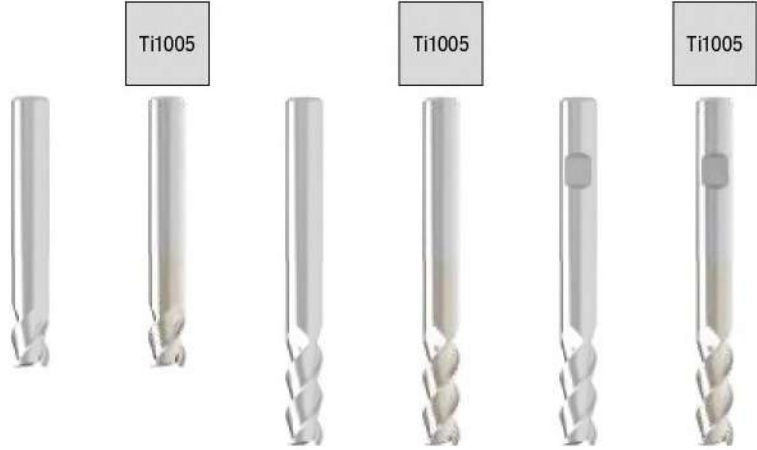
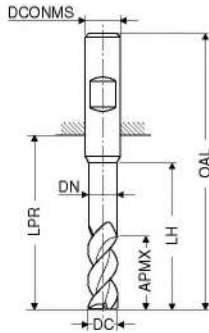
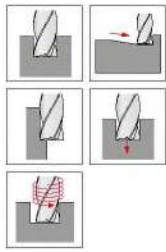
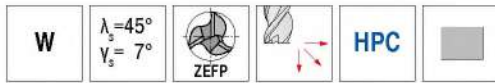
DIN 6527 DIN 6527 Factory standard
HA HA HA

V1		V1		V1	
Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
52 760 ...	52 761 ...	52 762 ...	52 763 ...	52 764 ...	52 765 ...
£	£	£	£	£	£
221.46					
020				165.02	020
221.46				179.84	030
221.46				222.30	040
221.46				259.51	050
	215.32			290.84	060
	302.68		080	400.56	080
	396.30		100	516.26	100
	496.18		120	675.14	120

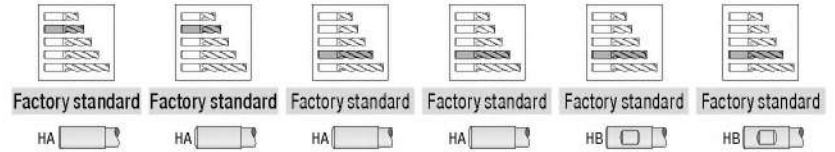
DC	Tol.	APMX	DN	LH	OAL	DCONMS _{ns}	CHW	ZEFP
mm		mm	mm	mm	mm	mm	mm	
2	e8	3			50	6	0.04	2
2	h10	8	1.8	31	60	2	0.04	2
3	e8	4			50	6	0.07	2
3	h10	12	2.8	41	70	3	0.07	2
4	e8	5			54	6	0.07	2
4	h10	15	3.8	51	80	4	0.07	2
5	e8	6			54	6	0.12	2
5	h10	20	4.8	71	100	5	0.12	2
6	e8	10			57	6	0.12	2
6	h10	20	5.8	63	100	6	0.12	2
8	e8	16			63	8	0.12	2
8	h10	20	7.8	83	120	8	0.12	2
10	e8	19			72	10	0.20	2
10	h10	25	9.8	99	140	10	0.20	2
12	e8	22			83	12	0.20	2
12	h10	25	11.8	104	150	12	0.20	2

Steel								
Stainless steel								
Cast iron								
Non ferrous metals							•	•
Heat resistant alloys								
hardened materials								

End milling cutter



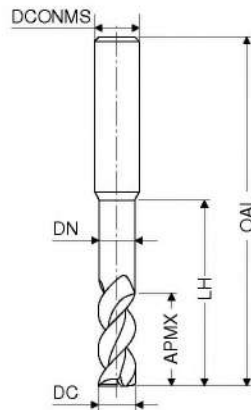
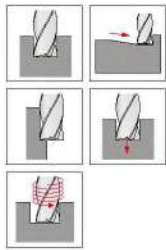
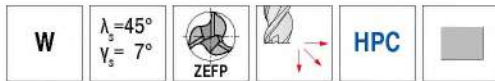
LPR with Shank DIN 6535 HB



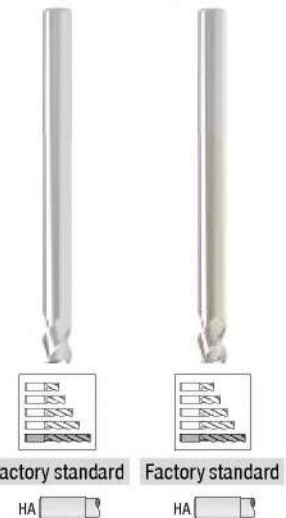
DC _{h6}	APMX	DN	LH	LPR	OAL	DCONMS _{h5}	ZEFP	VO		VO		VO		VO		VO		VO	
								Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£
3	3.5	2.8	12	19	55	6	3	25.81	033	36.20	033								
3	3.5	2.8	15	22	58	6	3			28.21	034	38.59	034						
3	8.0	2.8	15	22	58	6	3			28.21	032	38.59	032	28.21	032	38.59	032		
4	4.5	3.8	12	19	55	6	3	25.81	043	36.20	043								
4	4.5	3.8	20	26	62	6	3			28.21	044	38.59	044						
4	10.5	3.8	20	26	62	6	3			29.23	042	40.41	042	29.23	042	40.41	042		
5	5.5	4.8	15	22	58	6	3	25.81	053	36.20	053								
5	5.5	4.8	25	34	70	6	3			28.21	054	38.59	054						
5	13.0	4.8	25	34	70	6	3			29.23	052	40.41	052	29.23	052	40.41	052		
6	7.0	5.8	18	22	58	6	3	25.81	063	36.20	063								
6	7.0	5.8	30	34	70	6	3			28.21	064	38.59	064						
6	16.0	5.8	30	34	70	6	3			29.23	062	40.41	062	29.23	062	40.41	062		
7	21.0	6.7	40	44	80	8	3			42.47	072	55.23	072	42.47	072	55.23	072		
8	9.0	7.7	24	28	64	8	3	36.20	083	49.60	083								
8	9.0	7.7	40	44	80	8	3			40.47	084	53.18	084						
8	21.0	7.7	40	44	80	8	3			42.47	082	55.23	082	42.47	082	55.23	082		
9	26.0	8.7	50	54	94	10	3			66.97	092	82.64	092	66.97	092	82.64	092		
10	11.0	9.7	30	34	74	10	3	57.43	103	70.18	103								
10	11.0	9.7	50	54	94	10	3			62.72	104	77.11	104						
10	26.0	9.7	50	54	94	10	3			66.97	102	82.64	102	66.97	102	82.64	102		
11	31.0	10.6	60	64	109	12	3			111.16	112	130.82	112	111.16	112	130.82	112		
12	13.0	11.6	36	40	85	12	3	73.94	123	89.50	123								
12	13.0	11.6	60	64	109	12	3			115.85	124	135.96	124						
12	31.0	11.6	60	64	109	12	3			111.16	122	130.82	122	111.16	122	130.82	122		
13	36.0	12.6	70	74	119	14	3			161.60	132	184.11	132	161.60	132	184.11	132		
14	15.0	13.6	42	46	91	14	3	106.93	143	124.83	143								
14	15.0	13.6	70	74	119	14	3			167.58	144	190.10	144						
14	36.0	13.6	70	74	119	14	3			161.60	142	184.11	142	161.60	142	184.11	142		
15	17.0	14.5	48	52	100	16	3	141.52	153	158.61	153								
15	17.0	14.5	80	84	132	16	3			217.04	154	242.40	154						
15	41.0	14.5	80	84	132	16	3			211.06	152	234.99	152	211.06	152	234.99	152		
16	17.0	15.5	48	52	100	16	3	141.52	163	158.61	163								
16	17.0	15.5	80	84	132	16	3			217.04	164	242.40	164						
16	41.0	15.5	80	84	132	16	3			211.06	162	234.99	162	211.06	162	234.99	162		
18	20.0	17.5	54	58	106	18	3	178.13	183	196.07	183								
18	20.0	17.5	90	94	142	18	3			272.33	184	297.82	184						
18	47.0	17.5	90	94	142	18	3			264.91	182	290.29	182	264.91	182	290.29	182		
20	22.0	19.5	60	64	114	20	3	264.91	203	290.29	203								
20	22.0	19.5	100	104	154	20	3			290.29	204	321.76	204						
20	52.0	19.5	100	104	154	20	3			282.88	202	312.79	202	282.88	202	312.79	202		
25	27.0	24.5	75	80	136	25	3	483.35	253	504.30	253								
25	27.0	24.5	125	130	186	25	3			565.58	254	588.10	254						

Steel																			
Stainless steel																			
Cast iron																			
Non ferrous metals																			
Heat resistant alloys																			
hardened materials																			

End milling cutter



Ti1005



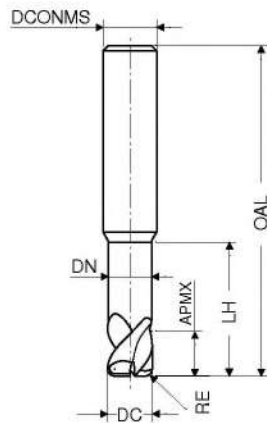
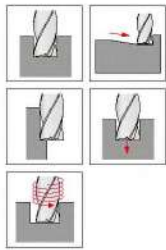
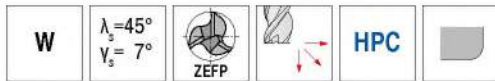
DC _{ns}	APMX	DN	LH	OAL	DCONMS _{ns}	ZEFP
mm	mm	mm	mm	mm	mm	
3	3.5	2.8	24	67	6	3
4	4.5	3.8	32	74	6	3
5	5.5	4.8	40	88	6	3
6	7.0	5.8	48	88	6	3
8	9.0	7.7	64	104	8	3
10	11.0	9.7	80	124	10	3
12	13.0	11.6	96	145	12	3
14	15.0	13.6	112	161	14	3
16	17.0	15.5	128	180	16	3
18	20.0	17.5	144	196	18	3
20	22.0	19.5	160	214	20	3

VO		VO	
Article no.		Article no.	
54 610 ...		54 612 ...	
£		£	
34.77	035	45.03	035
34.77	045	45.03	045
34.77	055	45.03	055
34.77	065	45.03	065
49.77	085	62.22	085
114.87	105	132.11	105
152.61	125	169.14	125
223.02	145	243.96	145
288.83	165	314.24	165
366.66	185	390.60	185
402.56	205	432.50	205

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	•
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 338+339

End milling cutter with corner radius



Ti1005



Factory standard Factory standard



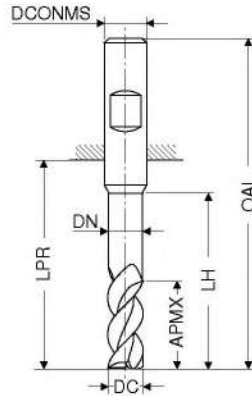
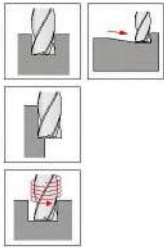
DC _{h5}	RE _{±0,01}	APMX	DN	LH	OAL	DCONMS _{h5}	ZEFP
mm	mm	mm	mm	mm	mm	mm	
3	0.4	3.5	2.8	12	55	6	3
3	0.6	3.5	2.8	12	55	6	3
4	0.4	4.5	3.8	12	55	6	3
4	0.6	4.5	3.8	12	55	6	3
5	0.4	5.5	4.8	15	58	6	3
5	0.6	5.5	4.8	15	58	6	3
6	0.4	7.0	5.8	18	58	6	3
6	0.6	7.0	5.8	18	58	6	3
8	0.4	9.0	7.7	24	64	8	3
8	0.6	9.0	7.7	24	64	8	3
8	0.8	9.0	7.7	24	64	8	3
10	1.6	11.0	9.7	30	74	10	3
12	2.0	13.0	11.6	36	85	12	3
14	0.6	15.0	13.6	42	91	14	3
14	0.8	15.0	13.6	42	91	14	3
16	1.6	17.0	15.5	48	100	16	3
16	3.2	17.0	15.5	48	100	16	3
18	1.6	20.0	17.5	54	106	18	3
20	3.2	22.0	19.5	60	114	20	3
20	5.0	22.0	19.5	60	114	20	3

VO	VO
Article no. 54 620 ...	Article no. 54 622 ...
£	£
28.92 034	40.05 034
28.92 035	40.05 035
28.92 044	40.05 044
28.92 046	40.05 046
28.92 054	40.05 054
28.92 056	40.05 056
28.92 064	40.05 064
28.92 066	40.05 066
40.05 084	52.74 084
40.05 086	52.74 086
40.05 087	52.74 087
59.42 103	74.68 103
78.54 124	92.63 124
112.16 146	127.97 146
112.16 147	127.97 147
144.64 163	160.17 163
145.79 167	161.60 167
181.10 183	199.08 183
270.91 207	300.82 207
270.91 209	300.82 209

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	•
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 338+339

End milling cutter



Ti1005

Ti1005



Factory standard Factory standard Factory standard Factory standard



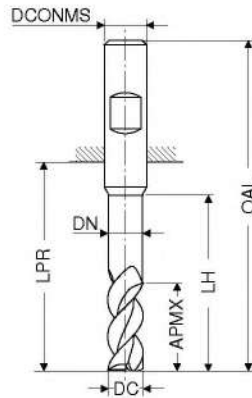
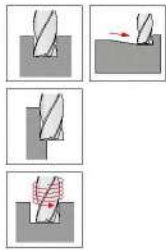
DC _{HS}	APMX	DN	LH	LPR	OAL	DCONMS _{HS}	ZEFP
mm	mm	mm	mm	mm	mm	mm	
6	10	5.8	18	22	58	6	4
7	13	6.7	24	28	64	8	4
8	13	7.7	24	28	64	8	4
9	16	8.7	30	34	74	10	4
10	16	9.7	30	34	74	10	4
11	19	10.6	36	40	85	12	4
12	19	11.6	36	40	85	12	4
13	22	12.6	42	46	91	14	4
14	22	13.6	42	46	91	14	4
15	25	14.5	48	52	100	16	4
16	25	15.5	48	52	100	16	4
18	29	17.5	54	58	106	18	4
20	32	19.5	60	64	114	20	4

VO		VO		VO		VO	
Article no.		Article no.		Article no.		Article no.	
54 630 ...	£	54 632 ...	£	54 631 ...	£	54 633 ...	£
061	26.42	061	38.06	061	26.42	061	38.06
071	38.48	071	50.60	071	38.48	071	50.60
081	38.48	081	50.60	081	38.48	081	50.60
091	59.85	091	74.24	091	59.85	091	74.24
101	59.85	101	74.24	101	59.85	101	74.24
111	78.54	111	93.20	111	78.54	111	93.20
121	78.54	121	93.20	121	78.54	121	93.20
131	112.74	131	129.09	131	112.74	131	129.09
141	112.74	141	129.09	141	112.74	141	129.09
151	146.65	151	163.18	151	146.65	151	163.18
161	146.65	161	163.18	161	146.65	161	163.18
181	184.11	181	203.48	181	184.11	181	203.48
201	211.06	201	234.99	201	211.06	201	234.99

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	•	•	•	•
Heat resistant alloys				
hardened materials				

→ v_c/f_c Page 338+339

End milling cutter



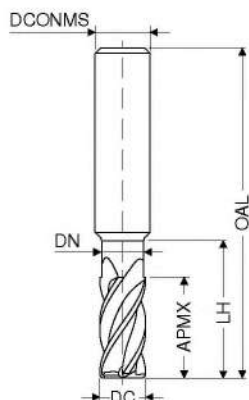
DC _{HS}	APMX	DN	LH	LPR	OAL	DCONMS _{HS}	ZEFP
mm	mm	mm	mm	mm	mm	mm	
6	16	5.8	30	34	70	6	4
7	21	6.7	40	44	80	8	4
8	21	7.7	40	44	80	8	4
9	26	8.7	50	54	94	10	4
10	26	9.7	50	54	94	10	4
11	31	10.6	60	64	109	12	4
12	31	11.6	60	64	109	12	4
13	36	12.6	70	74	119	14	4
14	36	13.6	70	74	119	14	4
15	41	14.5	80	84	132	16	4
16	41	15.5	80	84	132	16	4
18	47	17.5	90	94	142	18	4
20	52	19.5	100	104	154	20	4

VO		VO		VO		VO	
Article no.	£	Article no.	£	Article no.	£	Article no.	£
54 630 ...	28.24	54 632 ...	41.06	54 631 ...	28.24	54 633 ...	41.06
062	062	072	072	062	062	072	072
42.47	42.47	55.23	55.23	42.47	42.47	55.23	55.23
082	082	082	082	082	082	082	082
66.97	66.97	82.64	82.64	66.97	66.97	82.64	82.64
092	102	092	102	092	102	092	102
66.97	111.16	82.64	111.16	66.97	111.16	82.64	111.16
102	112	102	112	102	112	102	112
111.16	122	130.82	122	111.16	122	130.82	122
122	132	130.82	132	111.16	132	130.82	132
161.60	142	184.11	142	161.60	142	184.11	142
132	142	142	142	161.60	142	184.11	142
161.60	152	184.11	152	211.06	152	234.99	152
142	162	184.11	162	211.06	162	234.99	162
211.06	182	234.99	182	211.06	182	234.99	182
152	182	234.99	182	211.06	182	234.99	182
211.06	202	290.29	202	211.06	202	234.99	202
162	202	290.29	202	211.06	202	234.99	202
264.91	202	312.79	202	264.91	202	290.29	202
182	202	202	202	264.91	202	290.29	202
282.88	202	312.79	202	282.88	202	312.79	202
202	202	202	202	282.88	202	312.79	202

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	•	•	•	•
Heat resistant alloys				
hardened materials				

→ v_c/f_c Page 338+339

End milling cutter



Ti1005



Factory standard Factory standard
HA HA

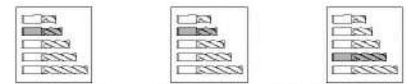
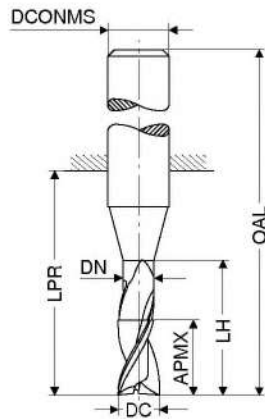
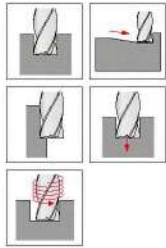
DC _{h5}	APMX	DN	LH	OAL	DCONMS _{h5}	ZEFP
mm	mm	mm	mm	mm	mm	
6	19	5.8	30	70	6	5
8	25	7.7	40	80	8	5
10	31	9.7	50	94	10	5
12	37	11.6	60	109	12	5
14	43	13.6	70	119	14	5
16	49	15.5	80	132	16	7
18	56	17.5	90	142	18	7
20	62	19.5	100	154	20	7

VO		VO	
Article no.		Article no.	
54 650 ...		54 652 ...	
£		£	
65.70	062	78.54	062
84.50	082	95.34	082
130.82	102	145.06	102
211.06	122	224.45	122
341.13	142	356.11	142
378.62	162	395.01	162
472.82	182	490.78	182
523.69	202	544.63	202

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	• •
Heat resistant alloys	
hardened materials	

→ v_c/f_c Page 338+339

End milling cutter



Factory standard Factory standard Factory standard

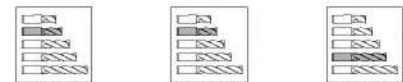
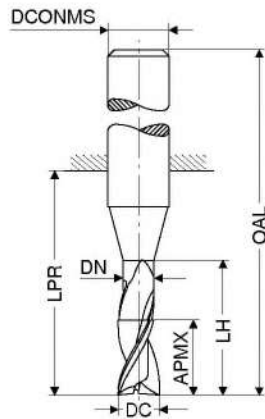
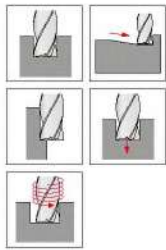
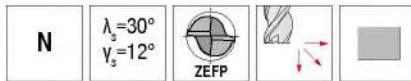
HA HB HB

DC _{es}	APMX	DN	LH	LPR	OAL	DCNMS _{ns}	ZEFP
mm	mm	mm	mm	mm	mm	mm	
0.20	0.4			10	38	3	2
0.25	0.5			10	38	3	2
0.30	1.0			10	38	3	2
0.35	1.0			10	38	3	2
0.40	1.0			10	38	3	2
0.50	1.5			10	38	3	2
0.60	1.5			10	38	3	2
0.70	2.0			10	38	3	2
0.80	2.0			10	38	3	2
0.90	2.5			10	38	3	2
1.00	3.0			10	38	3	2
1.00	4.0	0.90	6	22	58	6	2
1.10	3.0			10	38	3	2
1.20	4.0			10	38	3	2
1.30	4.0			10	38	3	2
1.40	4.0			10	38	3	2
1.50	3.0	1.40	6	18	54	6	2
1.50	4.0			10	38	3	2
1.50	6.0	1.40	8	22	58	6	2
1.60	4.0			10	38	3	2
1.80	5.0			10	38	3	2
2.00	4.0	1.90	8	18	54	6	2
2.00	7.0	1.90	10	22	58	6	2
2.50	4.0	2.40	8	18	54	6	2
2.50	6.0			10	38	3	2
2.80	4.0	2.70	9	18	54	6	2
2.80	7.0	2.70	12	22	58	6	2
3.00	6.0	2.90	9	18	54	6	2
3.00	10.0	2.90	14	22	58	6	2
3.50	6.0	3.30	9	18	54	6	2
3.80	7.0	3.60	12	18	54	6	2
3.80	10.0	3.60	18	22	58	6	2
4.00	7.0	3.80	12	18	54	6	2
4.00	13.0	3.80	18	22	58	6	2
4.50	7.0	4.30	12	18	54	6	2
4.80	8.0	4.60	16	18	54	6	2
4.80	13.0	4.60	18	22	58	6	2
5.00	8.0	4.80	16	18	54	6	2
5.00	15.0	4.80	18	22	58	6	2

V1	V1	V1
Article no.	Article no.	Article no.
52 842 ...	52 841 ...	52 848 ...
£	£	£
85.26		
920		
75.11		
925		
48.35		
930		
48.35		
935		
38.87		
940		
35.32		
950		
35.32		
960		
35.32		
970		
35.32		
980		
35.32		
990		
35.32		
010		
		54.31
		010
35.32		
011		
35.32		
012		
37.16		
013		
37.16		
014		
46.92	46.92	015
015		
37.16		
915		
		54.31
		015
39.26		
016		
39.26		
018		
46.92	46.92	020
020		
		54.31
		020
37.16		
025		
54.31	54.31	028
028		
		56.13
		028
46.92	46.92	030
030		
		54.31
		030
		46.92
		035
54.31	54.31	038
038		
		56.13
		038
46.92	46.92	040
040		
		54.31
		040
		46.92
		045
54.31	54.31	048
048		
		56.13
		048
46.92	46.92	050
050		
		54.31
		050

Steel	●	●	●
Stainless steel	○	○	○
Cast iron	●	●	●
Non ferrous metals	○	○	○
Heat resistant alloys	○	○	○
hardened materials			

End milling cutter



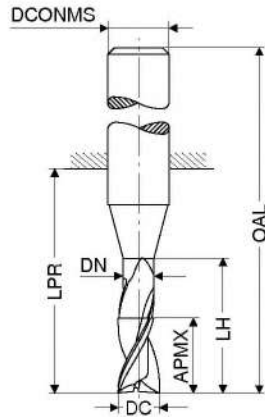
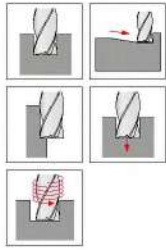
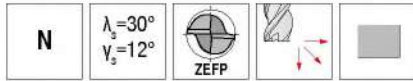
Factory standard Factory standard Factory standard
 HA HB HB

DC _{es}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	ZEFP
mm	mm	mm	mm	mm	mm	mm	
5.50	8.0	5.30	16	18	54	6	2
5.75	10.0	5.55	16	18	54	6	2
5.75	15.0	5.55	18	22	58	6	2
6.00	10.0	5.80	16	18	54	6	2
6.00	16.0	5.80	20	22	58	6	2
6.75	10.0	6.45	16	23	59	8	2
6.75	16.0	6.45	23	34	70	8	2
7.00	12.0	6.70	18	23	59	8	2
7.00	16.0	6.70	23	34	70	8	2
7.75	12.0	7.45	18	23	59	8	2
7.75	16.0	7.45	23	34	70	8	2
8.00	12.0	7.70	20	23	59	8	2
8.00	22.0	7.70	25	34	70	8	2
8.70	12.0	8.40	20	27	67	10	2
8.70	12.0	8.40	22	27	67	10	2
9.00	13.0	8.70	22	27	67	10	2
9.00	22.0	8.70	28	33	73	10	2
9.70	13.0	9.40	22	27	67	10	2
9.70	22.0	9.40	28	33	73	10	2
10.00	13.0	9.70	24	27	67	10	2
10.00	25.0	9.70	30	33	73	10	2
11.00	25.0	10.60	32	39	84	12	2
11.70	16.0	11.30	24	28	73	12	2
11.70	25.0	11.30	32	39	84	12	2
12.00	16.0	11.60	26	28	73	12	2
12.00	26.0	11.60	35	39	84	12	2
13.70	16.0	13.30	26	30	75	14	2
13.70	26.0	13.30	35	39	84	14	2
14.00	16.0	13.60	28	30	75	14	2
14.00	26.0	13.60	35	39	84	14	2
15.70	20.0	15.20	30	35	83	16	2
16.00	20.0	15.50	32	35	83	16	2
16.00	30.0	15.50	40	45	93	16	2
17.70	20.0	17.20	32	37	85	18	2
18.00	20.0	17.50	34	37	85	18	2
18.00	30.0	17.50	40	45	93	18	2
19.70	25.0	19.20	38	43	93	20	2
20.00	25.0	19.50	40	43	93	20	2
20.00	40.0	19.50	50	54	104	20	2

V1	V1	V1
Article no.	Article no.	Article no.
52 842 ...	52 841 ...	52 848 ...
£	£	£
	46.92	055
54.31	54.31	057
		57.31
46.92	46.92	060
		54.31
61.68	61.68	067
		69.70
	60.49	070
		61.54
61.14	61.14	077
		65.11
52.45	52.45	080
		60.75
	101.19	087
101.19		087
		97.90
		090
		108.96
		090
		98.83
		097
		111.23
		097
		81.82
		100
		81.82
		100
		106.46
		110
		147.98
		110
140.99	140.99	117
		149.83
		117
114.38	114.38	120
		143.49
		120
190.40	190.40	137
		196.46
		137
159.97	159.97	140
		186.05
		140
218.33	218.33	157
173.79	173.79	160
		226.25
		160
288.30	288.30	177
228.99	228.99	180
		280.92
		180
352.33	352.33	197
293.83	293.83	200
		362.73
		200

Steel	●	●	●
Stainless steel	○	○	○
Cast iron	●	●	●
Non ferrous metals	○	○	○
Heat resistant alloys	○	○	○
hardened materials	○	○	○

End milling cutter



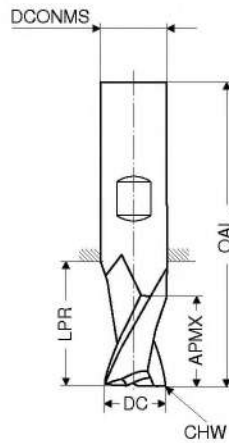
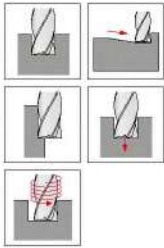
Factory standard Factory standard Factory standard Factory standard
HA HB HA HB

DC _{es}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	ZEFP
mm	mm	mm	mm	mm	mm	mm	
5.75	10.0	5.55	16	18	54	6	2
5.75	15.0	5.55	18	22	58	6	2
6.00	10.0	5.80	16	18	54	6	2
6.00	16.0	5.80	20	22	58	6	2
6.75	16.0	6.45	23	34	70	8	2
6.75	10.0	6.45	16	23	59	8	2
7.00	12.0	6.70	18	23	59	8	2
7.00	16.0	6.70	23	34	70	8	2
7.75	16.0	7.45	23	34	70	8	2
7.75	12.0	7.45	18	23	59	8	2
8.00	12.0	7.70	20	23	59	8	2
8.00	22.0	7.70	25	34	70	8	2
8.70	12.0	8.40	20	27	67	10	2
9.00	13.0	8.70	22	27	67	10	2
9.00	22.0	8.70	28	33	73	10	2
9.70	13.0	9.40	22	27	67	10	2
9.70	22.0	9.40	28	33	73	10	2
10.00	13.0	9.70	24	27	67	10	2
10.00	25.0	9.70	30	33	73	10	2
11.00	25.0	10.60	32	39	84	12	2
11.70	16.0	11.30	24	28	73	12	2
11.70	25.0	11.30	32	39	84	12	2
12.00	26.0	11.60	35	39	84	12	2
12.00	16.0	11.60	26	28	73	12	2
13.70	16.0	13.30	26	30	75	14	2
13.70	26.0	13.30	35	39	84	14	2
14.00	26.0	13.60	35	39	84	14	2
14.00	16.0	13.60	28	30	75	14	2
15.70	20.0	15.20	30	35	83	16	2
16.00	20.0	15.50	32	35	83	16	2
16.00	30.0	15.50	40	45	93	16	2
17.70	20.0	17.20	32	37	85	18	2
18.00	20.0	17.50	34	37	85	18	2
18.00	30.0	17.50	40	45	93	18	2
19.70	25.0	19.20	38	43	93	20	2
20.00	25.0	19.50	40	43	93	20	2
20.00	40.0	19.50	50	54	104	20	2

V1		V1		V1		V1	
Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
52 843 ...	52 844 ...	52 847 ...	52 849 ...	52 843 ...	52 844 ...	52 847 ...	52 849 ...
£	£	£	£	£	£	£	£
64.83	64.83	67.20	67.20	64.83	64.83	67.20	67.20
57.59	57.59	63.11	63.11	57.59	57.59	63.11	63.11
		85.91	85.91			85.91	85.91
74.32	74.32			74.32	74.32		
		77.61	77.61			77.61	77.61
		81.31	81.31			81.31	81.31
74.97	74.97			74.97	74.97		
67.34	67.34			67.34	67.34		
		77.10	77.10			77.10	77.10
		120.55	120.55			120.55	120.55
116.62	116.62			116.62	116.62		
		131.50	131.50			131.50	131.50
117.80	117.80			117.80	117.80		
103.04	103.04			103.04	103.04		
		129.40	129.40			129.40	129.40
		177.88	177.88			177.88	177.88
168.53	168.53			168.53	168.53		
		179.73	179.73			179.73	179.73
		173.53	173.53			173.53	173.53
142.17	142.17			142.17	142.17		
		222.81	222.81			222.81	222.81
		229.27	229.27			229.27	229.27
		219.39	219.39			219.39	219.39
192.37	192.37			192.37	192.37		
		257.19	257.19			257.19	257.19
214.24	214.24			214.24	214.24		
		275.64	275.64			275.64	275.64
		333.21	333.21			333.21	333.21
273.93	273.93			273.93	273.93		
		332.02	332.02			332.02	332.02
		402.52	402.52			402.52	402.52
345.08	345.08			345.08	345.08		
		426.65	426.65			426.65	426.65

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

End milling cutter



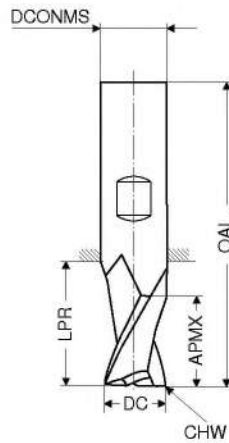
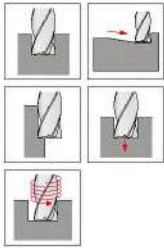
Factory standard Factory standard ≈DIN 6527 ≈DIN 6527

HA HB HA HB

DC _{es}	APMX	LPR	OAL	DCONMS _{ns}	CHW	ZEFP	VO	VO	VO	VO
mm	mm	mm	mm	mm	mm		Article no. 50 593 ...	Article no. 50 593 ...	Article no. 50 594 ...	Article no. 50 594 ...
							£	£	£	£
0.25	0.5	10	38	3.0		2			29.66	925
0.30	1.0	10	38	3.0		2			27.26	930
0.35	1.0	10	38	3.0		2			27.26	935
0.40	1.0	10	38	3.0		2			27.26	940
0.50	1.5	10	38	3.0		2			27.26	950
0.60	1.5	10	38	3.0		2			27.26	960
0.70	2.0	10	38	3.0		2			27.26	970
0.80	2.0	10	38	3.0		2			27.26	980
0.90	2.5	10	38	3.0		2			27.26	990
1.00	3.0	22	50	3.0		2			28.66	010
1.10	3.0	22	50	3.0		2			28.66	011
1.20	4.0	22	50	3.0		2			28.66	012
1.40	4.0	22	50	3.0		2			28.66	014
1.50	4.0	22	50	3.0		2			28.66	015
1.60	4.0	22	50	3.0		2			28.66	016
1.80	5.0	22	50	3.0		2			28.66	018
2.00	5.0	22	50	3.0	0.07	2			26.37	020
2.00	8.0	8	32	2.0	0.07	2	13.44	020		
2.50	6.0	22	50	3.0	0.07	2			28.66	025
2.50	8.0	8	32	2.5	0.07	2	13.44	025		
2.80	8.0	21	57	6.0	0.07	2				23.95 028
3.00	8.0	21	57	6.0	0.15	2				23.95 030
3.00	12.0	12	32	3.0	0.15	2	13.44	030		
3.50	12.0	12	32	3.5	0.15	2	13.44	035		
3.80	11.0	21	57	6.0	0.15	2				23.95 038
4.00	11.0	21	57	6.0	0.15	2				23.95 040
4.00	12.0	12	40	4.0	0.15	2	13.86	040		
4.50	14.0	22	50	4.5	0.15	2	16.91	045		
4.80	13.0	21	57	6.0	0.15	2				23.95 048
5.00	13.0	21	57	6.0	0.15	2				23.95 050
5.00	14.0	22	50	5.0	0.15	2	16.91	050		
5.50	16.0	22	50	5.5	0.15	2	19.95	055		
5.80	13.0	21	57	6.0	0.15	2				23.95 058
6.00	13.0	21	57	6.0	0.15	2				23.95 060
6.00	16.0	14	50	6.0	0.15	2		19.95 060		
6.50	16.0	16	50	6.5	0.15	2	25.88	065		
6.80	16.0	27	63	8.0	0.15	2				27.65 068
7.00	16.0	27	63	8.0	0.15	2				27.65 070
7.00	20.0	24	60	7.0	0.15	2	25.88	070		
7.50	20.0	24	60	7.5	0.15	2	26.00	075		
7.80	19.0	27	63	8.0	0.15	2				27.65 078

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials				

End milling cutter



Factory standard Factory standard ≈DIN 6527 ≈DIN 6527

HA HB HA HB

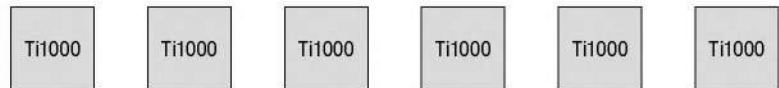
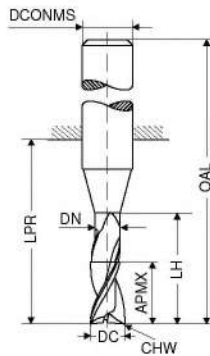
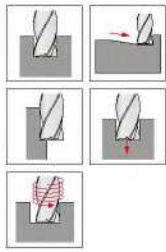
DC _{es}	APMX	LPR	OAL	DCONMS _{ns}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	
8.00	18.0	24	60	8.0	0.15	2
8.00	19.0	27	63	8.0	0.15	2
8.50	20.0	24	60	8.5	0.15	2
8.70	19.0	32	72	10.0	0.15	2
9.00	19.0	32	72	10.0	0.15	2
9.00	20.0	24	60	9.0	0.15	2
9.50	22.0	34	70	9.5	0.15	2
9.70	22.0	32	72	10.0	0.15	2
10.00	20.0	30	70	10.0	0.15	2
10.00	22.0	32	72	10.0	0.15	2
10.70	26.0	38	83	12.0	0.15	2
11.00	22.0	30	70	11.0	0.15	2
11.00	26.0	38	83	12.0	0.15	2
11.70	26.0	38	83	12.0	0.15	2
12.00	20.0	25	70	12.0	0.15	2
12.00	26.0	38	83	12.0	0.15	2
13.00	25.0	30	75	13.0	0.15	2
13.70	26.0	38	83	14.0	0.15	2
14.00	22.0	30	75	14.0	0.15	2
14.00	26.0	38	83	14.0	0.15	2
15.00	25.0	30	75	15.0	0.15	2
15.70	32.0	44	92	16.0	0.15	2
16.00	22.0	27	75	16.0	0.15	2
16.00	32.0	44	92	16.0	0.15	2
17.70	32.0	44	92	18.0	0.15	2
18.00	30.0	52	100	18.0	0.15	2
18.00	32.0	44	92	18.0	0.15	2
19.70	38.0	54	104	20.0	0.15	2
20.00	30.0	50	100	20.0	0.15	2
20.00	38.0	54	104	20.0	0.15	2

VO	VO	VO	VO
Article no.	Article no.	Article no.	Article no.
50 593 ...	50 593 ...	50 594 ...	50 594 ...
£	£	£	£
	26.00		
			27.65
34.81			42.77
			42.77
34.81			
41.37			
			42.77
	41.37		42.77
			66.56
			66.56
			66.56
	54.80		
			66.56
			66.56
			63.55
			81.37
			81.37
			107.31
			99.35
			95.48
			177.84
			126.41
			234.40
			160.17

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

→ v₀/f_z Page 350-353

End milling cutter



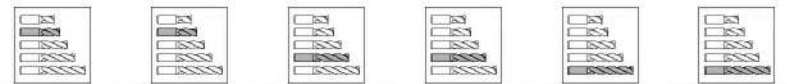
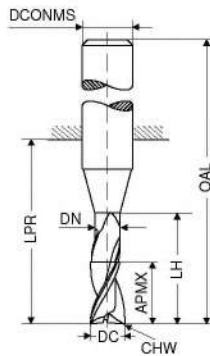
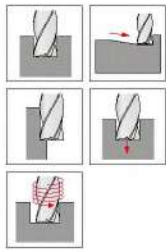
Factory standard Factory standard Factory standard Factory standard Factory standard Factory standard
HA HB HA HB HA HB

DC _{es}	APMX	DN	LH	LPR	OAL	DCONMS _{he}	CHW	ZEFP	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
mm	mm	mm	mm	mm	mm	mm	mm		52 839 ...	52 840 ...	52 845 ...	52 846 ...	52 850 ...	52 851 ...
									£	£	£	£	£	£
2.00	4	1.90	8	18	54	6	0.04	2	57.59 020	57.59 020				
2.00	5			10	38	3	0.04	2	47.05 021					
2.00	6			22	38	2	0.04	2			53.24 020			
2.00	7	1.90	10	22	58	6	0.04	2				63.11 020		
2.50	4	2.40	8	18	54	6	0.07	2	57.59 025	57.59 025				
2.50	6			10	38	3	0.07	2	45.07 026					
2.80	4	2.70	9	18	54	6	0.07	2	64.83 028	64.83 028				
2.80	7			22	38	3	0.07	2			58.51 028			
2.80	7	2.70	12	22	58	6	0.07	2				66.01 028		
3.00	6	2.90	9	18	54	6	0.07	2	57.59 030	57.59 030				
3.00	6			10	38	3	0.07	2	47.05 031					
3.00	7			22	38	3	0.07	2			53.24 030			
3.00	10	2.90	14	22	58	6	0.07	2				63.11 030		
3.00	20	2.90	24	32	60	3	0.07	2					84.86 030	
3.50	6	3.30	9	18	54	6	0.07	2	57.59 035	57.59 035				
3.80	7	3.60	12	18	54	6	0.07	2	64.83 038	64.83 038				
3.80	8	3.60	20	22	50	4	0.07	2			59.94 038			
3.80	10	3.60	18	22	58	6	0.07	2				66.01 038		
4.00	7	3.80	12	18	54	6	0.07	2	57.59 040	57.59 040				
4.00	8	3.80	20	22	50	4	0.07	2			54.55 040			
4.00	13	3.80	18	22	58	6	0.07	2				63.11 040		
4.00	30	3.80	35	47	75	4	0.07	2					93.68 040	
4.50	7	4.30	12	18	54	6	0.12	2	57.59 045	57.59 045				
4.80	8	4.60	16	18	54	6	0.12	2	64.83 048	64.83 048				
4.80	10	4.60	20	22	50	5	0.12	2			63.11 048			
4.80	13	4.60	18	22	58	6	0.12	2				66.01 048		
5.00	8	4.80	16	18	54	6	0.12	2	57.59 050	57.59 050				
5.00	10	4.80	20	22	50	5	0.12	2			57.31 050			
5.00	15	4.80	18	22	58	6	0.12	2				63.11 050		
5.00	30	4.80	35	47	75	5	0.12	2					100.27 050	
5.50	8	5.30	16	18	54	6	0.12	2	57.59 055	57.59 055				
5.75	10	5.55	16	18	54	6	0.12	2	64.83 057	64.83 057				
5.75	15	5.55	18	22	58	6	0.12	2			67.20 057	67.20 057		
6.00	10	5.80	16	18	54	6	0.12	2	57.59 060	57.59 060				
6.00	16	5.80	20	22	58	6	0.12	2			63.11 060	63.11 060		
6.00	40	5.80	60	64	100	6	0.12	2					115.70 060	115.70 060
6.75	16	6.45	23	34	70	8	0.12	2			85.91 067	85.91 067		
7.00	12	6.70	18	23	59	8	0.12	2	74.32 070	74.32 070				
7.00	16	6.70	23	34	70	8	0.12	2			77.61 070	77.61 070		

Steel	●	●	●	●	●	●
Stainless steel	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○
Heat resistant alloys	○	○	○	○	○	○
hardened materials	○	○	○	○	○	○

→ v_c/f_z Page 350-355

End milling cutter



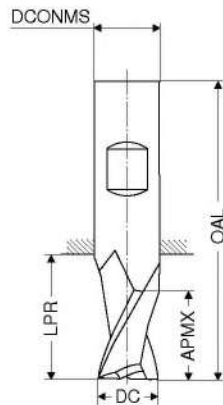
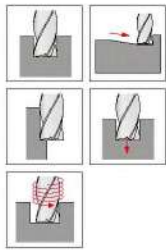
Factory standard Factory standard Factory standard Factory standard Factory standard Factory standard
HA HB HA HB HA HB

DC _{es}	APMX	DN	LH	LPR	OAL	DCONMS ₁₆	CHW	ZEFP	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
mm	mm	mm	mm	mm	mm	mm	mm		52 839 ...	52 840 ...	52 845 ...	52 846 ...	52 850 ...	52 851 ...
									£	£	£	£	£	£
7.75	12	7.45	18	23	59	8	0.12	2	74.97 077	74.97 077				
7.75	16	7.45	23	34	70	8	0.12	2			81.31 077	81.31 077		
8.00	12	7.70	20	23	59	8	0.12	2	67.34 080	67.34 080				
8.00	22	7.70	25	34	70	8	0.12	2			77.10 080	77.10 080		
8.00	40	7.70	60	64	100	8	0.12	2					133.73 080	133.73 080
9.00	13	8.70	22	27	67	10	0.20	2	116.62 090	116.62 090				
9.00	22	8.70	28	33	73	10	0.20	2			131.50 090	131.50 090		
9.70	13	9.40	22	27	67	10	0.20	2	117.80 097	117.80 097				
9.70	22	9.40	28	33	73	10	0.20	2			133.73 097	133.73 097		
10.00	13	9.70	24	27	67	10	0.20	2	103.04 100	103.04 100				
10.00	25	9.70	30	33	73	10	0.20	2			129.40 100	129.40 100		
10.00	40	9.70	55	60	100	10	0.20	2					182.62 100	182.62 100
11.00	25	10.60	32	39	84	12	0.20	2			177.88 110	177.88 110		
11.70	16	11.30	24	28	73	12	0.20	2	168.53 117	168.53 117				
11.70	25	11.30	32	39	84	12	0.20	2			179.73 117	179.73 117		
12.00	16	11.60	26	28	73	12	0.20	2	142.17 120	142.17 120				
12.00	26	11.60	35	39	84	12	0.20	2			173.53 120	173.53 120		
12.00	45	11.60	50	55	100	12	0.20	2					246.39 120	246.39 120
13.70	26	13.30	35	39	84	14	0.20	2			229.27 137	229.27 137		
14.00	16	13.60	28	30	75	14	0.20	2	192.37 140	192.37 140				
14.00	26	13.60	35	39	84	14	0.20	2			219.39 140	219.39 140		
16.00	20	15.50	32	35	83	16	0.20	2	214.24 160	214.24 160				
16.00	30	15.50	40	45	93	16	0.20	2			275.64 160	275.64 160		
16.00	65	15.50	90	102	150	16	0.20	2					557.21 160	557.21 160
18.00	20	17.50	34	37	85	18	0.20	2	273.93 180	273.93 180				
18.00	30	17.50	40	45	93	18	0.20	2			332.02 180	332.02 180		
20.00	25	19.50	40	43	93	20	0.30	2	345.08 200	345.08 200				
20.00	40	19.50	50	54	104	20	0.30	2			426.65 200	426.65 200		
20.00	65	19.50	90	100	150	20	0.30	2					690.41 200	690.41 200

Steel	●	●	●	●	●	●
Stainless steel	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○
Heat resistant alloys	○	○	○	○	○	○
hardened materials	○	○	○	○	○	○

→ v_c/f_z, Page 350-355

End milling cutter



≈DIN 6527

≈DIN 6527

HB

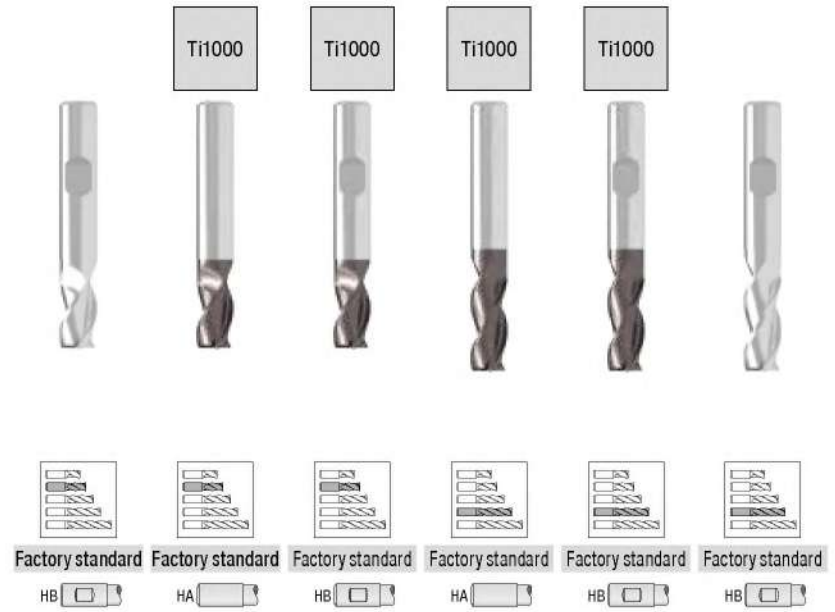
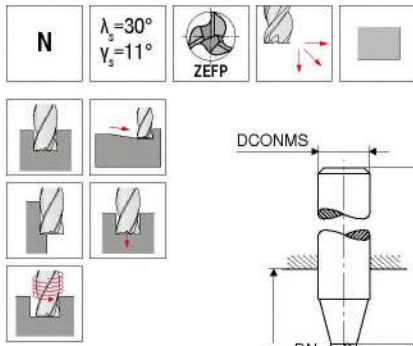
HB

DC _{e8}	APMX	LPR	OAL	DCNMS _{h5}	ZEFP
mm	mm	mm	mm	mm	
3.0	8	21	57	6	3
3.5	11	21	57	6	3
3.5	15	23	59	6	3
4.0	11	21	57	6	3
4.0	19	27	63	6	3
4.5	13	21	57	6	3
4.5	19	27	63	6	3
5.0	13	21	57	6	3
5.0	24	32	68	6	3
5.5	13	21	57	6	3
5.5	24	32	68	6	3
6.0	13	21	57	6	3
6.0	24	32	68	6	3
6.5	16	27	63	8	3
6.5	30	44	80	8	3
7.0	16	27	63	8	3
7.0	30	44	80	8	3
7.5	19	27	63	8	3
7.5	30	44	80	8	3
8.0	19	27	63	8	3
8.0	38	52	88	8	3
8.5	19	32	72	10	3
8.5	38	48	88	10	3
9.0	19	32	72	10	3
9.0	38	48	88	10	3
9.5	22	32	72	10	3
9.5	38	48	88	10	3
10.0	22	32	72	10	3
10.0	45	55	95	10	3
11.0	26	38	83	12	3
11.0	45	57	102	12	3
12.0	26	38	83	12	3
12.0	53	65	110	12	3
14.0	26	38	83	14	3
14.0	53	65	110	14	3
16.0	32	44	92	16	3
16.0	63	75	123	16	3
18.0	32	44	92	18	3
18.0	63	75	123	18	3
20.0	38	54	104	20	3
20.0	75	91	141	20	3

VO		VO	
Article no.	Article no.	Article no.	Article no.
50 614 ...	50 614 ...	50 614 ...	50 614 ...
£	£	£	£
25.47	030		
28.08	035		
		43.31	036
25.47	040		
		43.31	041
28.08	045		
		43.31	046
25.03	050		
		47.01	051
28.08	055		
		47.01	056
25.47	060		
		45.61	061
33.00	065		
		64.71	066
32.02	070		
		64.71	071
30.19	075		
		64.71	076
29.66	080		
		59.57	081
45.58	085		
		102.04	086
45.58	090		
		102.04	091
53.18	095		
		102.04	096
47.59	100		
		99.35	101
75.53	110		
		142.95	111
68.40	120		
		142.95	121
87.79	140		
		181.54	141
120.28	160		
		249.66	161
145.79	180		
		301.39	181
189.25	200		
		402.43	201

Steel	<input type="checkbox"/>	<input type="checkbox"/>
Stainless steel	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Cast iron	<input type="checkbox"/>	<input type="checkbox"/>
Non ferrous metals	<input type="checkbox"/>	<input type="checkbox"/>
Heat resistant alloys	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
hardened materials	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

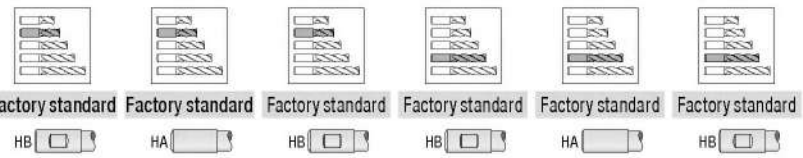
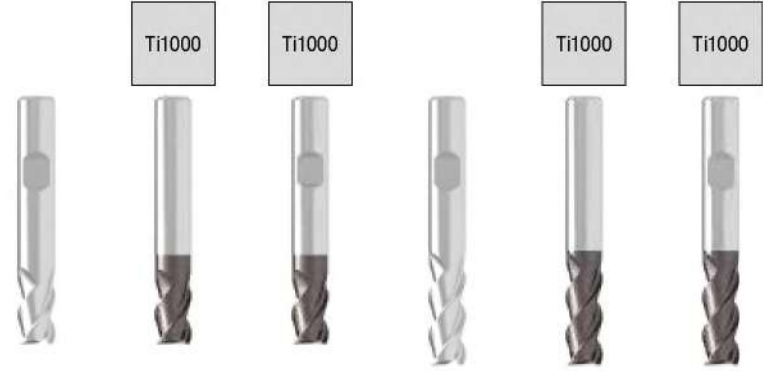
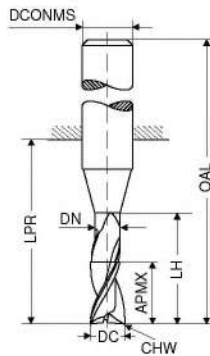
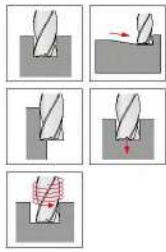
End milling cutter



DC _{es}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	ZEPF	V1		V1		V1		V1		V1		V1	
								Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£
1.00	4	1.00	22	58	6	3		52 823 ...		52 821 ...		52 822 ...		52 826 ...		52 827 ...		52 828 ...	
1.50	3	1.40	6	18	54	6	3	46.38	015	57.59	015	57.59	015	63.11	010	63.11	010	50.59	010
1.50	3	1.40	6	10	38	3	3			53.76	016								
1.50	6	1.50	22	58	6	3								63.11	015	63.11	015	50.59	015
2.00	4	1.90	8	18	54	6	3	46.38	020	57.59	020	57.59	020						
2.00	4	1.90	8	10	38	3	3			53.76	021								
2.00	7	2.00	22	58	6	3								63.11	020	63.11	020	50.59	020
2.50	4	2.40	8	18	54	6	3	46.26	025	57.59	025	57.59	025						
2.50	4	2.40	8	10	38	3	3			53.76	026								
2.80	6	2.70	9	18	54	6	3	54.69	028	65.89	028	65.89	028						
3.00	6	2.90	9	18	54	6	3	46.38	030	57.59	030	57.59	030						
3.00	6	2.90	9	10	38	3	3			53.76	031								
3.00	10	2.90	14	22	58	6	3							63.11	030	63.11	030	50.59	030
3.50	6	3.30	9	18	54	6	3	46.26	035	57.59	035	57.59	035						
3.80	6	3.60	12	18	54	6	3	54.69	038	65.89	038	65.89	038						
4.00	7	3.80	12	18	54	6	3	46.38	040	57.59	040	57.59	040						
4.00	13	3.80	17	22	58	6	3							63.11	040	63.11	040	50.59	040
4.50	7	4.30	12	18	54	6	3	46.26	045	57.59	045	57.59	045						
4.80	8	4.60	16	18	54	6	3	54.69	048	65.89	048	65.89	048						
5.00	8	4.80	16	18	54	6	3	46.38	050	57.59	050	57.59	050						
5.00	15	4.80	19	22	58	6	3							63.11	050	63.11	050	50.59	050
5.50	8	5.30	16	18	54	6	3	46.26	055	57.59	055	57.59	055						
5.75	8	5.55	16	18	54	6	3	54.95	057	66.28	057	66.28	057						
6.00	10	5.80	16	18	54	6	3	46.38	060	57.59	060	57.59	060						
6.00	16	5.80	20	22	58	6	3							63.11	060	63.11	060	50.59	060
7.00	19	6.70	23	28	64	8	3							84.33	070	84.33	070	63.91	070
7.75	10	7.45	18	22	58	8	3	61.29	077	77.10	077	77.10	077						
8.00	12	7.70	20	23	59	8	3	51.80	080	67.34	080	67.34	080						
8.00	22	7.70	26	34	70	8	3							77.10	080	77.10	080	57.83	080
9.00	23	8.70	28	32	72	10	3							141.64	090	141.64	090	114.64	090
9.70	12	9.40	18	19	59	10	3	96.73	097	117.80	097	117.80	097						
10.00	13	9.70	24	27	67	10	3	81.82	100	103.04	100	103.04	100						
10.00	25	9.70	31	33	73	10	3							129.40	100	129.40	100	103.84	100
11.00	25	10.60	34	38	83	12	3							190.00	110	190.00	110	154.82	110
11.70	16	11.30	20	22	67	12	3	134.40	117	162.72	117	162.72	117						
12.00	16	11.60	26	28	73	12	3	113.58	120	142.04	120	142.04	120						
12.00	26	11.60	37	39	84	12	3							173.53	120	173.53	120	140.06	120
14.00	16	13.60	28	30	75	14	3	159.58	140	192.37	140	192.37	140						
14.00	26	13.60	37	39	84	14	3							219.65	140	219.65	140	180.12	140
16.00	20	15.50	32	35	83	16	3	173.79	160	214.24	160	214.24	160						
16.00	32	15.50	43	45	93	16	3							275.64	160	275.64	160	220.97	160
18.00	20	17.50	34	37	85	18	3	232.28	180	273.93	180	273.93	180						
18.00	32	17.50	43	45	93	18	3							332.02	180	332.02	180	271.81	180
20.00	25	19.50	40	43	93	20	3	293.83	200	345.08	200	345.08	200						
20.00	40	19.50	52	54	104	20	3							426.65	200	426.65	200	351.14	200

Steel	●	●	●	●	●	●
Stainless steel	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○
Heat resistant alloys	○	○	○	○	○	○
hardened materials		○	○	○	○	

End milling cutter

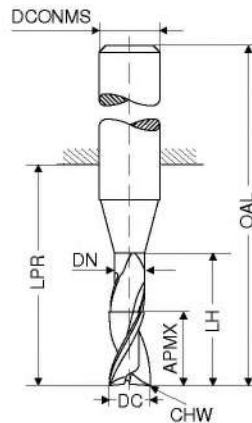
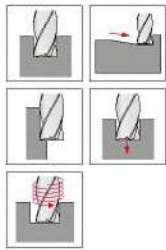


DC _{es}	APMX	DN	LH	LPR	OAL	CHW	DCNMS _{h6}	ZEFP	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard		
mm	mm	mm	mm	mm	mm	mm	mm		HB	HA	HB	HB	HA	HB		
									V1	V1	V1	V1	V1	V1		
									Article no.	Article no.	Article no.	Article no.	Article no.	Article no.		
									52 831 ...	52 829 ...	52 830 ...	52 834 ...	52 832 ...	52 833 ...		
									£	£	£	£	£	£		
2.0	4	1.9	8	18	54	0.04	6	3	46.38	020	57.59	020	57.59	020	63.11	020
2.0	7	1.9	10	22	58	0.04	6	3	46.38	025	57.59	025	57.59	025	63.11	025
2.5	5	2.4	8	18	54	0.07	6	3	46.38	030	57.59	030	57.59	030	63.11	030
3.0	6	2.9	9	18	54	0.07	6	3	46.38	040	57.59	040	57.59	040	63.11	040
3.0	10	2.9	14	22	58	0.07	6	3	46.38	050	57.59	050	57.59	050	63.11	050
4.0	7	3.8	12	18	54	0.07	6	3	46.38	060	57.59	060	57.59	060	63.11	060
4.0	13	3.8	17	22	58	0.07	6	3	46.38	070	57.59	070	57.59	070	63.11	070
5.0	8	4.8	16	18	54	0.12	6	3	46.38	080	57.59	080	57.59	080	63.11	080
5.0	15	4.8	19	22	58	0.07	6	3	46.38	090	57.59	090	57.59	090	63.11	090
6.0	10	5.8	16	18	54	0.12	6	3	46.38	100	57.59	100	57.59	100	63.11	100
6.0	16	5.8	20	22	58	0.12	6	3	46.38	120	57.59	120	57.59	120	63.11	120
7.0	11	6.7	18	23	59	0.12	8	3	57.20	140	73.65	140	73.65	140	84.33	140
7.0	19	6.7	23	34	70	0.12	8	3	57.20	160	73.65	160	73.65	160	84.33	160
8.0	12	7.7	20	23	59	0.12	8	3	51.80	180	67.34	180	67.34	180	77.10	180
8.0	22	7.7	26	34	70	0.12	8	3	51.80	200	67.34	200	67.34	200	77.10	200
9.0	13	8.7	22	27	67	0.20	10	3	90.40	120	112.65	120	112.65	120	141.64	120
9.0	23	8.7	28	33	73	0.12	10	3	90.40	140	112.65	140	112.65	140	141.64	140
10.0	14	9.7	24	27	67	0.20	10	3	81.82	160	103.04	160	103.04	160	129.40	160
10.0	25	9.7	31	33	73	0.20	10	3	81.82	180	103.04	180	103.04	180	129.40	180
12.0	16	11.6	26	28	73	0.20	12	3	113.58	120	142.04	120	142.04	120	173.53	120
12.0	28	11.6	37	39	84	0.20	12	3	113.58	140	142.04	140	142.04	140	173.53	140
14.0	18	13.6	28	30	75	0.20	14	3	159.58	160	192.11	160	192.11	160	219.65	160
14.0	30	13.6	37	39	84	0.20	14	3	159.58	180	192.11	180	192.11	180	219.65	180
16.0	20	15.5	32	35	83	0.20	16	3	173.79	120	214.24	120	214.24	120	275.64	120
16.0	35	15.5	43	45	93	0.20	16	3	173.79	140	214.24	140	214.24	140	275.64	140
18.0	20	17.5	34	37	85	0.20	18	3	232.28	160	273.93	160	273.93	160	332.02	160
18.0	35	17.5	43	45	93	0.20	18	3	232.28	180	273.93	180	273.93	180	332.02	180
20.0	25	19.5	40	43	93	0.30	20	3	293.83	120	345.08	120	345.08	120	426.38	120
20.0	40	19.5	52	54	104	0.20	20	3	293.83	140	345.08	140	345.08	140	426.38	140

Steel	○	○	○	○	○	○
Stainless steel	●	●	●	●	●	●
Cast iron	○	○	○	○	○	○
Non ferrous metals	●	●	●	●	●	●
Heat resistant alloys	●	●	●	●	●	●
hardened materials	○	○	○	○	○	○

→ v_c/f_z Page 350-353

End milling cutter



DC _{es}	DN	APMX	LH	LPR	OAL	DCONMS _{ns}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
3	3.0	20	20	24	60	6	0.07	3
4	3.8	30	35	39	75	6	0.07	3
5	4.8	30	35	39	75	6	0.12	3
6	5.8	40	60	64	100	6	0.12	3
8	7.7	40	60	64	100	8	0.12	3
10	9.7	40	55	60	100	10	0.20	3
12	11.6	45	50	55	100	12	0.20	3
14	13.6	45	50	55	100	14	0.20	3
16	15.5	65	90	102	150	16	0.20	3
18	17.5	65	90	102	150	18	0.20	3
20	19.5	65	90	100	150	20	0.30	3

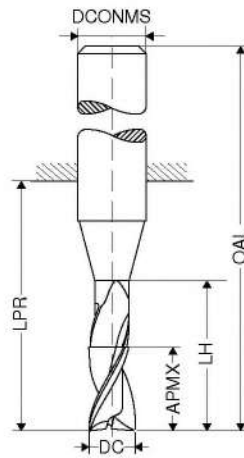
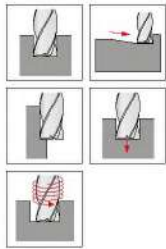
V1		V1	
Article no.	Article no.	Article no.	Article no.
52 835 ...	52 836 ...	52 835 ...	52 836 ...
£	£	£	£
140.99	030	140.99	030
140.99	040	140.99	040
140.99	050	140.99	050
127.55	060	127.55	060
144.66	080	144.66	080
190.65	100	190.65	100
259.15	120	259.15	120
427.17	140	427.17	140
579.73	160	579.73	160
641.93	180	641.93	180
723.88	200	723.88	200

Steel	<input type="radio"/>	<input type="radio"/>
Stainless steel	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Cast iron	<input type="radio"/>	<input type="radio"/>
Non ferrous metals	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Heat resistant alloys	<input checked="" type="radio"/>	<input checked="" type="radio"/>
hardened materials	<input type="radio"/>	<input type="radio"/>

→ v_c/f_z Page 350-355

Mini milling cutter

▲ Shank similar to DIN 6535



Ti1000



Factory standard

Factory standard



DC _{es}	APMX	LH	LPR	OAL	DCONMS _{ns}	ZEFP
mm	mm	mm	mm	mm	mm	
2.00	4	4.0	10	35	6	3
2.50	4	4.0	10	35	6	3
3.00	5	5.0	10	36	6	3
3.50	5	5.0	10	36	6	3
4.00	7	7.0	12	38	6	3
4.50	7	7.0	12	38	6	3
5.00	8	8.0	13	39	6	3
5.50	8	8.0	13	39	6	3
5.75	8	8.0	13	39	6	3
6.00	8	8.5	13	39	6	3
6.75	11	11.5	16	43	8	3
7.00	11	11.5	16	43	8	3
7.75	11	11.5	16	43	8	3
8.00	11	11.5	16	43	8	3
8.70	13	13.5	18	50	10	3
9.00	13	13.5	18	50	10	3
9.70	13	13.5	18	50	10	3
10.00	13	13.5	18	50	10	3
12.00	15	15.5	24	55	12	3
14.00	15	15.5	26	58	14	3
16.00	18	18.5	28	62	16	3
18.00	20	20.5	35	70	18	3
20.00	22	22.5	40	75	20	3

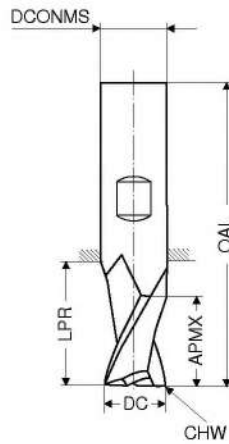
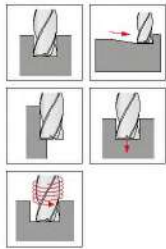
VO		VO	
Article no.		Article no.	
50 598 ...		50 599 ...	
£		£	
16.68	020	23.21	020
17.50	025	23.95	025
16.68	030	23.21	030
17.50	035	23.95	035
16.65	040	21.96	040
17.50	045	23.95	045
16.65	050	22.09	050
17.50	055	24.19	055
17.50	057	24.19	057
16.65	060	22.09	060
23.38	067	29.66	067
22.38	070	28.08	070
23.81	077	30.36	077
25.81	080	29.94	080
36.65	087	44.63	087
32.87	090	40.41	090
36.65	097	44.63	097
35.79	100	42.91	100
47.47	120	55.59	120
81.23	140	87.79	140
90.79	160	100.18	160
114.45	180	125.40	180
146.07	200	155.19	200

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		○

→ v_c/f_z, Page 350-353

Mini milling cutter

▲ Shank similar to DIN 6535



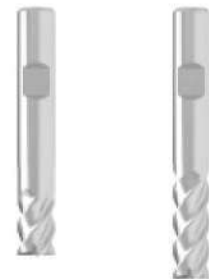
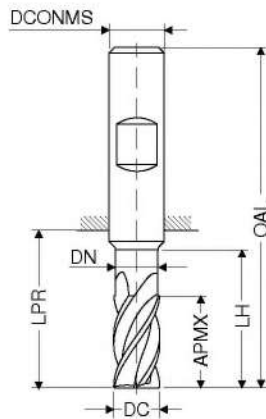
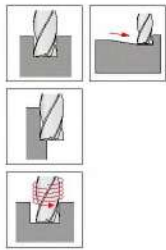
Factory standard Factory standard Factory standard Factory standard
~HA ~HA HB HB

DC _{ø8}	APMX	LPR	OAL	DCONMS _{ns}	CHW	ZEFP	VO Article no. 50 608 ... £	VO Article no. 50 609 ... £	VO Article no. 50 608 ... £	VO Article no. 50 609 ... £
0.5	1.5	17	45	3	0.08	3	17.90 005	22.38 005		
1.0	2.0	17	45	3	0.08	3	17.90 010	22.38 010		
1.5	3.0	17	45	3	0.08	3	17.90 015	22.38 015		
1.8	3.0	17	45	3	0.08	3		22.38 018		
2.0	4.0	19	45	6	0.08	3			18.89 020	23.21 020
2.5	6.0	19	45	6	0.15	3			18.89 025	23.21 025
2.8	6.0	19	45	6	0.15	3				23.21 028
3.0	6.0	19	45	6	0.15	3			18.89 030	23.21 030
3.8	7.0	19	45	6	0.15	3				23.21 038
4.0	7.0	19	45	6	0.15	3			20.10 040	23.21 040
4.8	8.0	19	45	6	0.15	3				23.21 048
5.0	8.0	19	45	6	0.15	3			20.52 050	23.21 050
5.7	10.0	19	45	6	0.15	3				23.21 057
6.0	10.0	19	45	6	0.15	3			20.52 060	23.21 060
6.7	10.0	26	55	8	0.15	3				23.21 067
7.0	12.0	26	55	8	0.15	3			29.23 070	23.21 070
7.8	12.0	26	55	8	0.15	3				33.00 078
8.0	13.0	26	55	8	0.15	3			29.23 080	33.00 080
8.7	14.0	28	55	10	0.15	3				39.99 087
9.7	16.0	28	55	10	0.15	3				39.99 097
10.0	16.0	28	55	10	0.15	3			41.37 100	39.99 100

Steel	○	○	○	○
Stainless steel	●	●	●	●
Cast iron	○	○	○	○
Non ferrous metals	○	○	○	○
Heat resistant alloys	●	●	●	●
hardened materials		●		●

→ v_c/f_z Page 350-353

End milling cutter



Factory standard



Factory standard



DC _{es}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	ZEFP
mm	mm	mm	mm	mm	mm	mm	
2	4	1.9	8	18	54	6	4
2	7			22	58	6	4
3	6	2.9	9	18	54	6	4
3	10	2.8	14	22	58	6	4
4	7	3.8	12	18	54	6	4
4	13	3.8	17	22	58	6	4
5	8	4.8	16	18	54	6	4
5	15	4.8	19	22	58	6	4
6	10	5.8	16	18	54	6	4
6	16	5.7	20	22	58	6	4
7	19	6.7	23	27	63	8	4
8	12	7.7	20	22	58	8	4
8	22	7.7	26	34	70	8	4
9	23	8.7	28	33	73	10	4
10	14	9.7	24	26	66	10	4
10	25	9.6	31	33	73	10	4
11	26	10.6	34	39	84	12	4
12	16	11.6	26	28	73	12	4
12	28	11.6	37	39	84	12	4
14	18	13.6	28	30	75	14	4
14	30	13.6	37	36	84	14	4
16	22	15.5	32	34	82	16	4
16	35	15.6	43	45	93	16	4
18	20	17.5	34	36	80	18	4
18	35	17.6	43	43	93	18	4
20	25	19.5	40	42	92	20	4
20	40	19.6	52	54	104	20	4

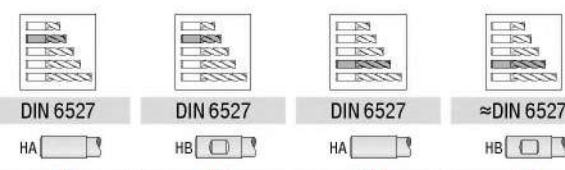
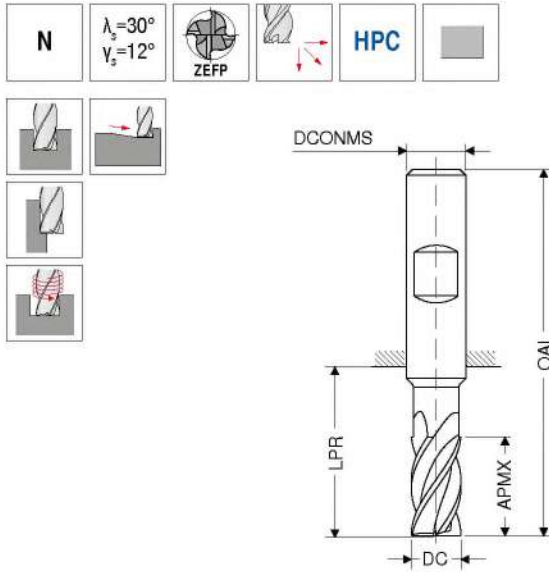
V1		V1	
Article no.	Article no.	Article no.	Article no.
52 309 ...	52 313 ...		
£	£		
44.79	49.02	020	020
44.79	49.02	030	030
44.79	49.02	040	040
44.79	49.02	050	050
44.79	49.02	060	060
	60.34	070	070
50.06	56.01	080	080
	105.95	090	090
79.05	100.27	100	100
	142.97	110	110
109.76	135.31	120	120
154.16	174.06	140	140
167.87	213.58	160	160
224.38	262.61	180	180
283.95	339.27	200	200

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

→ v_c/f_z Page 350-353

End milling cutter

▲ Cutting edges with irregular pitch

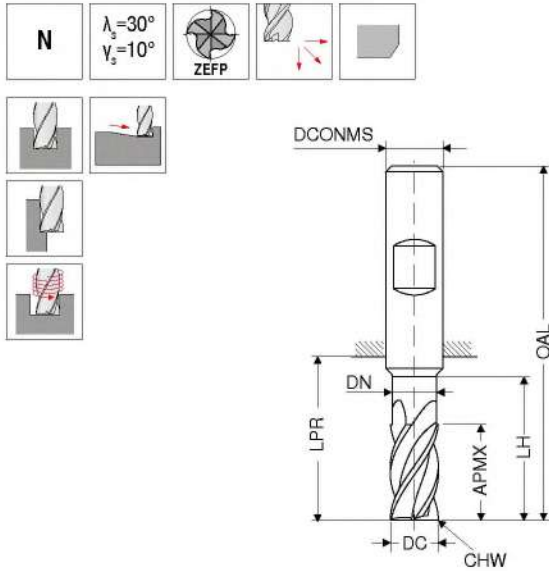


DC _{ø8}	APMX	LPR	OAL	DCONMS _{h6}	ZEFP	DIN 6527		DIN 6527		DIN 6527		≈DIN 6527	
mm	mm	mm	mm	mm		Article no. 52 121 ...	Article no. 52 131 ...	Article no. 52 126 ...	Article no. 52 132 ...	Article no. 52 126 ...	Article no. 52 132 ...	Article no. 52 126 ...	Article no. 52 132 ...
						£	£	£	£	£	£	£	£
3.0	6	18	54	6	4	64.29	56.99	68.79	62.30	030	030	030	030
3.0	10	22	58	6	4								
3.5	7	18	54	6	4	64.29	56.99	68.79	62.30	035	035	035	035
3.5	13	22	58	6	4								
4.0	7	18	54	6	4	64.29	56.99	68.79	62.30	040	040	040	040
4.0	13	22	58	6	4								
4.5	8	18	54	6	4	64.29	56.99	68.79	62.30	045	045	045	045
4.5	15	22	58	6	4								
5.0	8	18	54	6	4	64.29	56.99	68.79	62.30	050	050	050	050
5.0	15	22	58	6	4								
6.0	10	18	54	6	4	93.52	56.99	68.79	62.30	060	060	060	060
6.0	16	22	58	6	4			111.98	62.30				
8.0	12	23	59	8	4	110.46	65.99	129.46	75.69	080	080	080	080
8.0	22	34	70	8	4								
10.0	14	27	67	10	4	141.84	98.56	170.33	123.83	100	100	100	100
10.0	25	33	73	10	4								
12.0	16	28	73	12	4	202.20	137.08	247.94	160.73	120	120	120	120
12.0	28	39	84	12	4								
14.0	16	30	75	14	4	266.54	184.25	315.25	199.51	140	140	140	140
14.0	30	39	84	14	4								
16.0	20	35	83	16	4	291.92	204.63	388.69	246.82	160	160	160	160
16.0	35	45	93	16	4								
18.0	20	32	80	18	4	384.75	241.83	458.30	292.27	180	180	180	180
18.0	35	45	93	18	4								
20.0	25	43	93	20	4	457.23	303.40	546.91	376.05	200	200	200	200
20.0	40	54	104	20	4								

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

→ v_c/f_z Page 350-353

End milling cutter



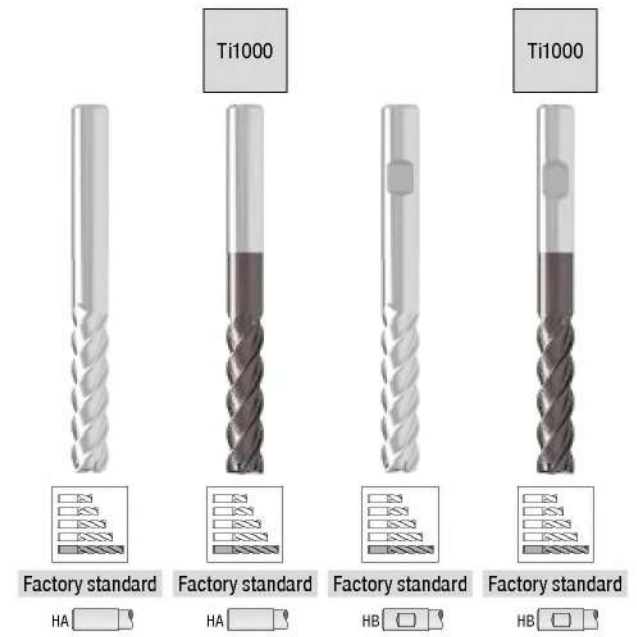
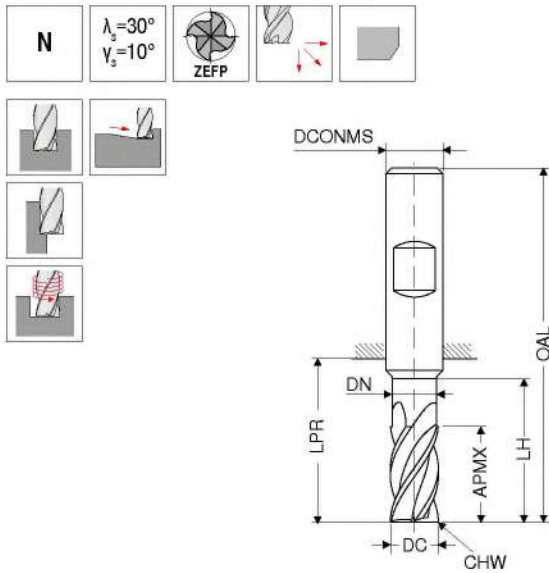
Factory standard HA HB HA HB

DC _{es}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	CHW	ZEPF	V1	V1	V1	V1
mm	mm	mm	mm	mm	mm	mm	mm		Article no. 52 306 ...	Article no. 52 307 ...	Article no. 52 310 ...	Article no. 52 311 ...
									£	£	£	£
1.5	3	1.4	6	10	38	3	0.02	4	51.53 015			
2.0	4	1.9	8	10	38	3	0.03	4	51.53 021			
2.0	4	1.9	8	18	54	6	0.03	4	58.38 020	58.38 020		
2.0	7			10	38	2	0.03	4			39.26 020	
2.5	4	2.4	8	10	38	3	0.04	4	51.53 025			
3.0	6	2.9	9	10	38	3	0.04	4	51.53 031			
3.0	6	2.9	9	18	54	6	0.04	4	58.38 030	58.38 030		
3.0	10	2.8	14	14	38	3	0.03	4			40.72 030	
4.0	7	3.8	12	18	54	6	0.05	4	58.38 040	58.38 040		
4.0	13	3.8	17	22	50	4	0.04	4			43.09 040	
5.0	8	4.8	16	18	54	6	0.06	4	58.38 050	58.38 050		
5.0	15	4.8	19	22	50	5	0.04	4			53.50 050	
6.0	10	5.8	16	18	54	6	0.07	4	58.38 060	58.38 060		
6.0	16	5.7	20	22	58	6	0.04	4			60.75 060	60.75 060
7.0	19	6.7	23	27	63	8	0.05	4			78.67 070	78.67 070
8.0	12	7.7	20	22	58	8	0.08	4	68.25 080	68.25 080		
8.0	22	7.7	26	34	70	8	0.06	4			74.18 080	74.18 080
9.0	23	8.7	28	33	73	10	0.07	4			131.63 090	131.63 090
10.0	14	9.7	24	26	66	10	0.10	4	104.49 100	104.49 100		
10.0	25	9.6	31	33	73	10	0.08	4			124.39 100	124.39 100
11.0	26	10.6	34	39	84	12	0.10	4			176.29 110	176.29 110
12.0	16	11.6	26	28	73	12	0.13	4	144.16 120	144.16 120		
12.0	28	11.6	37	39	84	12	0.13	4			166.94 120	166.94 120
14.0	18	13.6	28	30	75	14	0.15	4	195.13 140	195.13 140		
14.0	30	13.6	37	36	84	14	0.15	4			211.08 140	211.08 140
16.0	22	15.5	32	34	82	16	0.18	4	217.40 160	217.40 160		
16.0	35	15.6	43	45	93	16	0.18	4			265.11 160	265.11 160
18.0	20	17.5	34	36	80	18	0.18	4	277.88 180	277.88 180		
18.0	35	17.6	43	43	93	18	0.18	4			319.24 180	319.24 180
20.0	25	19.5	40	42	92	20	0.20	4	350.09 200	350.09 200		
20.0	40	19.6	52	54	104	20	0.20	4			410.03 200	410.03 200

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

→ v_c/f_z Page 350-353

End milling cutter



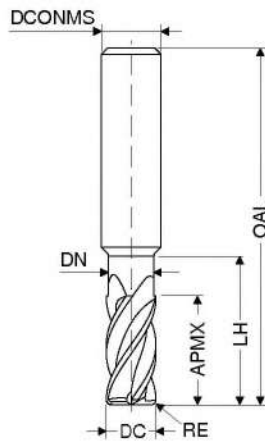
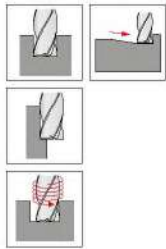
DC _{es}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	CHW	ZEPF	HA	HB
mm	mm	mm	mm	mm	mm	mm	mm			
3	16	2.8	32	47	75	3	0.04	4	63.78	032
4	16	3.8	32	47	75	4	0.05	4	61.14	042
4	20	3.8	48	72	100	4	0.05	4	73.40	043
5	20	4.8	35	47	75	5	0.06	4	73.79	052
5	25	4.8	55	72	100	5	0.06	4	77.20	053
6	24	5.8	42	44	80	6	0.07	4		
6	30	5.8	62	64	100	6	0.07	4		
8	32	7.8	60	64	100	8	0.08	4		
8	40	7.8	75	84	120	8	0.08	4		
10	40	9.8	58	60	100	10	0.10	4		
10	50	9.8	78	80	120	10	0.10	4		
12	48	11.8	60	75	120	12	0.13	4		
12	60	11.8	90	105	150	12	0.13	4		
14	45	13.8	50	52	100	14	0.15	4		
14	56	13.8	95	102	150	14	0.15	4		
16	50	15.8	70	77	125	16	0.18	4		
16	65	15.8	95	102	150	16	0.18	4		
18	55	17.8	75	80	130	18	0.18	4		
18	72	17.8	95	100	150	18	0.18	4		
20	60	19.8	80	85	135	20	0.20	4		
20	80	19.8	95	100	150	20	0.20	4		
25	75	24.5	90	94	150	25	0.25	4		

	V1	V1	V1	V1
Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials		○		○

→ v_c/f_z Page 350-355

End milling cutter with corner radius

▲ optimal quiet running with irregular helix



Ti1000



Factory standard

HA

V1

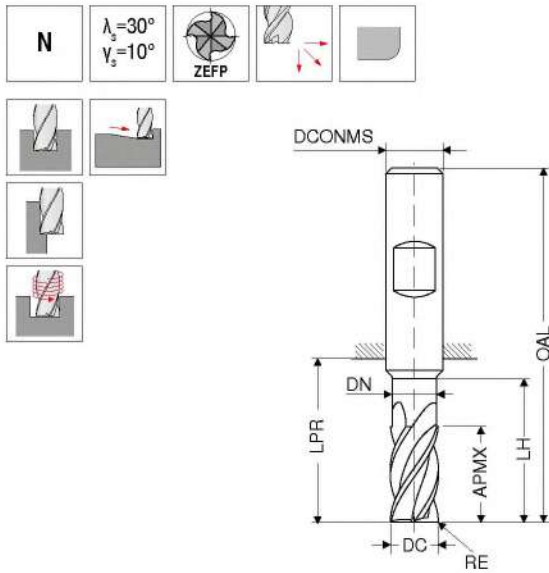
Article no.
52 102 ...

DC ₀₈	RE _{±0,01}	APMX	DN	LH	OAL	DCONMS _{h6}	ZEFP	£	
2	0.2	7	1.8	11	58	6	4	88.93	022
3	0.3	8	2.8	13	58	6	4	85.22	033
4	0.4	11	3.8	16	58	6	4	81.66	044
5	0.5	13	4.8	18	58	6	4	81.66	055
6	0.5	16	5.8	26	58	6	4	84.94	065
6	1.0	16	5.8	26	58	6	4	84.94	066
8	0.5	22	7.8	32	64	8	4	121.14	085
8	1.0	22	7.8	32	64	8	4	121.14	086
8	1.5	22	7.8	32	64	8	4	121.14	087
10	0.5	25	9.8	35	73	10	4	153.89	105
10	1.0	25	9.8	35	73	10	4	153.89	106
10	1.5	25	9.8	35	73	10	4	153.89	107
12	0.5	28	11.8	38	84	12	4	205.91	125
12	1.0	28	11.8	38	84	12	4	205.91	126
12	1.5	28	11.8	38	84	12	4	205.91	127

Steel	○
Stainless steel	●
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	○

→ v_c/f_t, Page 350-353

End milling cutter with corner radius



DC _{e8}	RE _{h0,01}	APMX	DN	LH	LPR	OAL	DCONMS _{h8}	ZEPF
mm	mm	mm	mm	mm	mm	mm	mm	
3	0.3	8	2.8	13	21	57	6	4
3	0.5	8	2.8	13	21	57	6	4
4	0.3	11	3.8	16	21	57	6	4
4	0.5	11	3.8	16	21	57	6	4
5	0.3	13	4.8	18	21	57	6	4
5	0.5	13	4.8	18	21	57	6	4
6	0.5	13	5.8	26	31	57	6	4
6	1.0	13	5.8	26	31	57	6	4
6	1.5	13	5.8	26	31	57	6	4
8	0.5	19	7.8	32	35	63	8	4
8	1.0	19	7.8	32	35	63	8	4
8	1.5	19	7.8	32	35	63	8	4
8	2.0	19	7.8	32	35	63	8	4
10	1.0	22	9.8	35	36	72	10	4
10	1.5	22	9.8	35	36	72	10	4
10	2.0	22	9.8	35	36	72	10	4
12	1.0	26	11.8	38	38	83	12	4
12	1.5	26	11.8	38	38	83	12	4
12	2.0	26	11.8	38	38	83	12	4
12	3.0	26	11.8	38	38	83	12	4
16	1.0	32	15.8	44	44	92	16	4
16	1.5	32	15.8	44	44	92	16	4
16	2.0	32	15.8	44	44	92	16	4
16	3.0	32	15.8	44	44	92	16	4
20	1.5	38	19.8	52	54	104	20	4
20	2.0	38	19.8	52	54	104	20	4
20	3.0	38	19.8	52	54	104	20	4

	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant alloys	hardened materials
	●	○	●	○	○	○

V1		V1	
Article no.	Article no.	Article no.	Article no.
52 316 ...	52 317 ...	52 316 ...	52 317 ...
£	£	£	£
120.44	031	120.44	031
120.44	032	120.44	032
116.46	041	116.46	041
116.46	042	116.46	042
116.46	051	116.46	051
116.46	052	116.46	052
101.60	062	101.60	062
101.60	064	101.60	064
101.60	065	101.60	065
155.75	082	155.75	082
155.75	084	155.75	084
155.75	085	155.75	085
155.75	086	155.75	086
194.62	104	194.62	104
194.62	105	194.62	105
194.62	106	194.62	106
257.60	124	257.60	124
257.60	125	257.60	125
257.60	126	257.60	126
257.60	128	257.60	128
430.85	164	430.85	164
430.85	165	430.85	165
430.85	166	430.85	166
430.85	168	430.85	168
631.66	205	631.66	205
631.66	206	631.66	206
631.66	208	631.66	208

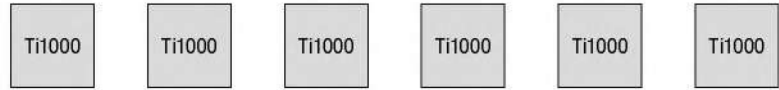
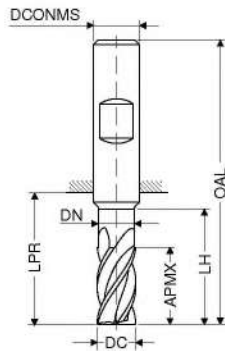
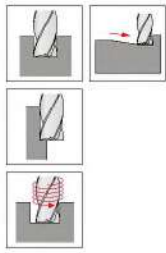
→ v_c/f_z Page 350-353

End milling cutter

▲ irregular helix angle

▲ 54 050 ... / 54 051 ... / 54 052 ...: special cutting edge preparation for the machining of steel

▲ 54 060 ... / 54 061 ... / 54 062 ...: special cutting edge preparation for the machining of stainless steel



≈DIN 6527 HB

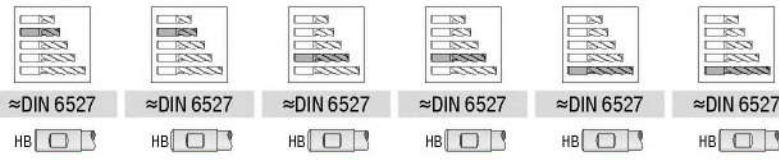
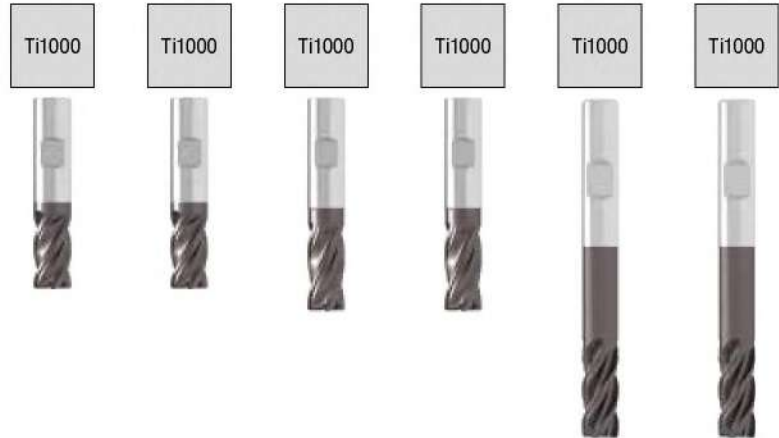
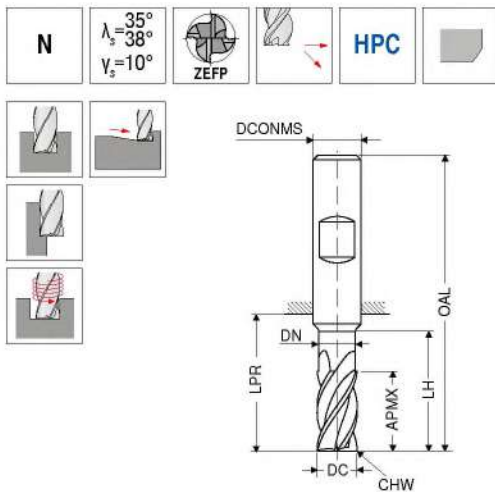
DC _{h10}	APMX	DN	LH	LPR	OAL	DCONMS _{h6}	ZEFP	V3		V3		V3		V3		V3		V3	
								Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£
3	5			14	50	6	4	54 050 ...	14.55	54 060 ...	15.78	54 051 ...	14.55	54 061 ...	15.78	54 052 ...	20.59	54 062 ...	22.28
3	8	2.8	12	21	57	6	4												
3	8	2.8	15	34	70	6	4												
4	8			18	54	6	4	54 050 ...	14.55	54 060 ...	15.78	54 051 ...	14.55	54 061 ...	15.78	54 052 ...	20.59	54 062 ...	22.28
4	11	3.8	15	21	57	6	4												
4	11	3.8	20	34	70	6	4												
5	9			18	54	6	4	54 050 ...	14.55	54 060 ...	15.78	54 051 ...	14.55	54 061 ...	15.78	54 052 ...	20.59	54 062 ...	22.28
5	13	4.8	17	21	57	6	4												
5	13	4.8	25	34	70	6	4												
6	10			18	54	6	4	54 050 ...	14.55	54 060 ...	15.78	54 051 ...	14.55	54 061 ...	15.78	54 052 ...	20.59	54 062 ...	22.28
6	13	5.8	21	21	57	6	4												
6	13	5.8	30	34	70	6	4												
8	12			22	58	8	4	54 050 ...	20.59	54 060 ...	22.15	54 051 ...	21.94	54 061 ...	23.84	54 052 ...	32.90	54 062 ...	35.47
8	19	7.7	27	27	63	8	4												
8	19	7.7	40	44	80	8	4												
10	14			26	66	10	4	54 050 ...	26.63	54 060 ...	28.76	54 051 ...	28.87	54 061 ...	31.34	54 052 ...	45.67	54 062 ...	49.47
10	22	9.7	32	32	72	10	4												
10	22	9.7	50	54	94	10	4												
12	16			28	73	12	4	54 050 ...	38.28	54 060 ...	41.41	54 051 ...	46.00	54 061 ...	49.80	54 052 ...	56.29	54 062 ...	60.99
12	26	11.6	38	38	83	12	4												
12	26	11.6	64	64	109	12	4												
16	22			34	82	16	4	54 050 ...	67.04	54 060 ...	72.52	54 051 ...	70.85	54 061 ...	76.67	54 052 ...	106.88	54 062 ...	114.93
16	32	15.5	44	44	92	16	4												
16	32	15.5	80	84	132	16	4												
20	26			42	92	20	4	54 050 ...	99.61	54 060 ...	107.88	54 051 ...	106.88	54 061 ...	115.95	54 052 ...	145.49	54 062 ...	157.68
20	38	19.5	54	54	104	20	4												
20	38	19.5	100	104	154	20	4												

Steel	●	●	●	●	●
Stainless steel	●	●	●	●	●
Cast iron	●	○	●	○	○
Non ferrous metals	○	○	○	○	○
Heat resistant alloys	●	●	●	●	●
hardened materials					

→ v_c/f, Page 340-343

End milling cutter

- ▲ irregular helix angle
- ▲ 54 001 ... / 54 002 ... / 54 003 ...: special cutting edge preparation for the machining of steel
- ▲ 54 004 ... / 54 005 ... / 54 006 ...: special cutting edge preparation for the machining of stainless steel



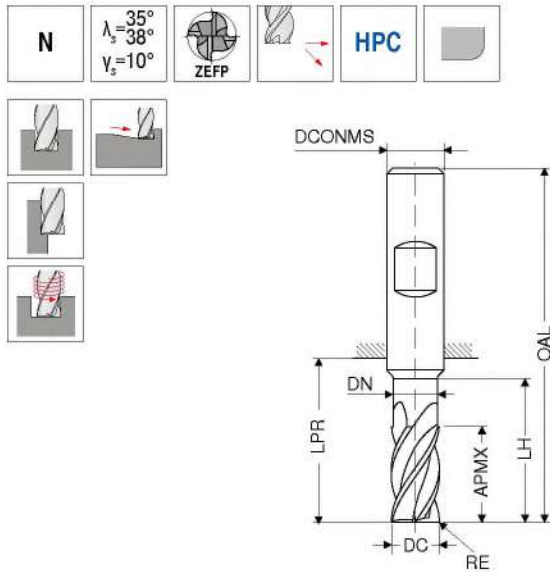
DC _{m10}	APMX	DN	LH	LPR	OAL	DCONMS _{h6}	CHW	ZEFP	Article no. 54 001 ...	Article no. 54 005 ...	Article no. 54 002 ...	Article no. 54 006 ...	Article no. 54 003 ...	Article no. 54 004 ...
mm	mm	mm	mm	mm	mm	mm	mm		£	£	£	£	£	£
3.0	5			14	50	6	0.15	4	14.58 030	15.75 030				
3.0	8	2.8	12.0	21	57	6	0.15	4			14.58 030	15.75 030		
3.0	8	2.8	15.0	34	70	6	0.15	4					20.59 030	22.28 030
4.0	8			18	54	6	0.15	4	14.58 040	15.75 040				
4.0	11	3.8	15.0	21	57	6	0.15	4			14.58 040	15.75 040		
4.0	11	3.8	20.0	34	70	6	0.15	4					20.59 040	22.28 040
5.0	9			18	54	6	0.15	4	14.58 050	15.75 050				
5.0	13	4.8	17.0	21	57	6	0.15	4			14.58 050	15.75 050		
5.0	13	4.8	25.0	34	70	6	0.15	4					23.16 050	25.07 050
6.0	10			18	54	6	0.15	4	14.58 060	15.75 060				
6.0	13	5.8	21.0	21	57	6	0.15	4			17.02 060	18.42 060		
6.0	13	5.8	30.0	34	70	6	0.15	4					25.96 060	27.99 060
8.0	12			22	58	8	0.25	4	20.42 080	22.15 080				
8.0	19	7.7	27.0	27	63	8	0.25	4			21.93 080	23.79 080		
8.0	19	7.7	40.0	44	80	8	0.25	4					32.90 080	35.47 080
10.0	14			26	66	10	0.25	4	26.59 100	28.81 100				
10.0	22	9.7	32.0	32	72	10	0.25	4			28.81 100	31.26 100		
10.0	22	9.7	50.0	54	94	10	0.25	4					45.67 100	49.47 100
12.0	16			28	73	12	0.35	4	38.25 120	41.39 120				
12.0	26	11.6	38.0	38	83	12	0.35	4			44.67 120	49.68 120		
12.0	26	11.6	64.0	64	109	12	0.35	4					56.29 120	60.99 120
16.0	22			34	82	16	0.35	4	66.94 160	72.42 160				
16.0	32	15.5	44.0	44	92	16	0.35	4			70.67 160	76.62 160		
16.0	32	15.5	80.0	84	132	16	0.35	4					106.88 160	114.93 160
20.0	26			42	92	20	0.35	4	99.36 200	107.65 200				
20.0	38	19.5	54.0	54	104	20	0.35	4			107.06 200	115.91 200		
20.0	38	19.5	100.0	104	154	20	0.35	4					145.49 200	157.68 200

Steel	●	●	●	●	●
Stainless steel		●		●	●
Cast iron	●	○	●	○	○
Non ferrous metals		○		○	○
Heat resistant alloys		●		●	●
hardened materials					

→ v_c/f, Page 340-343

End milling cutter with corner radius

- ▲ irregular helix angle
- ▲ 54 053 ... / 54 054 ...: special cutting edge preparation for the machining of steel
- ▲ 54 063 ... / 54 064 ...: special cutting edge preparation for the machining of stainless steel

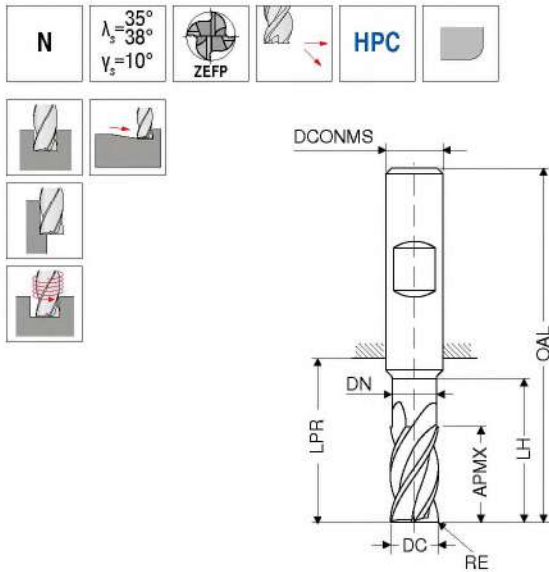


DC _{h10}	RE	APMX	DN	LH	LPR	OAL	DCONMS _{h6}	ZEPF	V3 Article no. 54 053 ...	V3 Article no. 54 063 ...	V3 Article no. 54 054 ...	V3 Article no. 54 064 ...
mm	mm	mm	mm	mm	mm	mm	mm		£	£	£	£
3	0.1	8	2.8	12	21	57	6	4	19.03 03001	20.70 03001	25.18 03001	27.19 03001
3	0.1	8	2.8	15	34	70	6	4				
3	0.3	8	2.8	12	21	57	6	4	19.03 03003	20.70 03003	25.18 03003	27.19 03003
3	0.3	8	2.8	15	34	70	6	4				
3	0.5	8	2.8	12	21	57	6	4	19.03 03005	20.70 03005	25.18 03005	27.19 03005
3	0.5	8	2.8	15	34	70	6	4				
3	1.0	8	2.8	12	21	57	6	4	19.03 03010	20.70 03010	25.18 03010	27.19 03010
3	1.0	8	2.8	15	34	70	6	4				
4	0.1	11	3.8	15	21	57	6	4	19.03 04001	20.70 04001	25.18 04001	27.19 04001
4	0.1	11	3.8	20	34	70	6	4				
4	0.3	11	3.8	15	21	57	6	4	19.03 04003	20.70 04003	25.18 04003	27.19 04003
4	0.3	11	3.8	20	34	70	6	4				
4	0.5	11	3.8	15	21	57	6	4	19.03 04005	20.70 04005	25.18 04005	27.19 04005
4	0.5	11	3.8	20	34	70	6	4				
4	1.0	11	3.8	15	21	57	6	4	19.03 04010	20.70 04010	25.18 04010	27.19 04010
4	1.0	11	3.8	20	34	70	6	4				
5	0.1	13	4.8	17	21	57	6	4	19.03 05001	20.70 05001	27.64 05001	29.88 05001
5	0.1	13	4.8	25	34	70	6	4				
5	0.3	13	4.8	17	21	57	6	4	19.03 05003	20.70 05003	27.64 05003	29.88 05003
5	0.3	13	4.8	25	34	70	6	4				
5	0.5	13	4.8	17	21	57	6	4	19.03 05005	20.70 05005	27.64 05005	29.88 05005
5	0.5	13	4.8	25	34	70	6	4				
5	1.0	13	4.8	17	21	57	6	4	19.03 05010	20.70 05010	27.64 05010	29.88 05010
5	1.0	13	4.8	25	34	70	6	4				
6	0.1	13	5.8	21	21	57	6	4	21.04 06001	22.82 06001	31.11 06001	33.68 06001
6	0.1	13	5.8	30	34	70	6	4				
6	0.3	13	5.8	21	21	57	6	4	21.04 06003	22.82 06003	31.11 06003	33.68 06003
6	0.3	13	5.8	30	34	70	6	4				
6	0.5	13	5.8	21	21	57	6	4	21.04 06005	22.82 06005	31.11 06005	33.68 06005
6	0.5	13	5.8	30	34	70	6	4				
6	1.0	13	5.8	21	21	57	6	4	21.04 06010	22.82 06010	31.11 06010	33.68 06010
6	1.0	13	5.8	30	34	70	6	4				
6	1.5	13	5.8	21	21	57	6	4	21.04 06015	22.82 06015	31.11 06015	33.68 06015
6	1.5	13	5.8	30	34	70	6	4				
6	2.0	13	5.8	21	21	57	6	4	21.04 06020	22.82 06020	31.11 06020	33.68 06020
6	2.0	13	5.8	30	34	70	6	4				
8	0.1	19	7.7	27	27	63	8	4	27.53 08001	29.88 08001	41.52 08001	44.99 08001
8	0.1	19	7.7	40	44	80	8	4				
8	0.3	19	7.7	27	27	63	8	4	27.53 08003	29.88 08003	41.52 08003	44.99 08003
8	0.3	19	7.7	40	44	80	8	4				
8	0.5	19	7.7	27	27	63	8	4	27.53 08005	29.88 08005	41.52 08005	44.99 08005
8	0.5	19	7.7	40	44	80	8	4				

Steel	●	●	●	●
Stainless steel		●		●
Cast iron	●	○	●	○
Non ferrous metals		○		○
Heat resistant alloys		●		●
hardened materials				

End milling cutter with corner radius

- ▲ irregular helix angle
- ▲ 54 053 ... / 54 054 ...: special cutting edge preparation for the machining of steel
- ▲ 54 063 ... / 54 064 ...: special cutting edge preparation for the machining of stainless steel

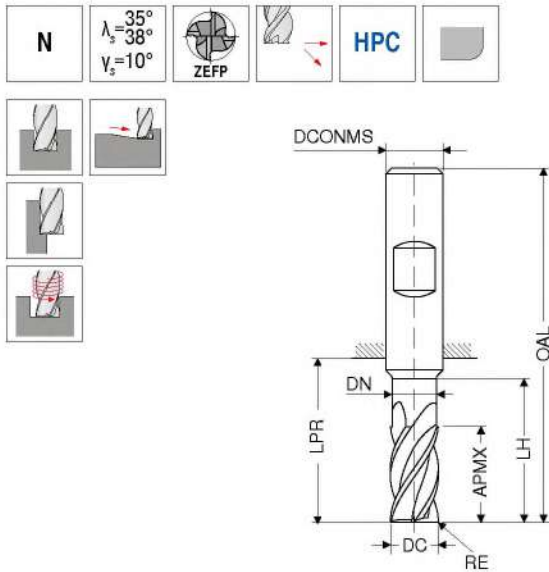


DC _{h10}	RE	APMX	DN	LH	LPR	OAL	DCNMS _{h8}	ZEPF	V3 Article no. 54 053 ...	V3 Article no. 54 063 ...	V3 Article no. 54 054 ...	V3 Article no. 54 064 ...
mm	mm	mm	mm	mm	mm	mm	mm		£	£	£	£
8	1.0	19	7.7	27	27	63	8	4	27.53 08010	29.88 08010	41.52 08010	44.99 08010
8	1.0	19	7.7	40	44	80	8	4				
8	1.5	19	7.7	27	27	63	8	4	27.53 08015	29.88 08015	41.52 08015	44.99 08015
8	1.5	19	7.7	40	44	80	8	4				
8	1.6	19	7.7	27	27	63	8	4	27.53 08016	29.88 08016	41.52 08016	44.99 08016
8	1.6	19	7.7	40	44	80	8	4				
8	2.0	19	7.7	27	27	63	8	4	27.53 08020	29.88 08020	41.52 08020	44.99 08020
8	2.0	19	7.7	40	44	80	8	4				
10	0.1	22	9.7	32	32	72	10	4	34.92 10001	37.72 10001	55.40 10001	59.99 10001
10	0.1	22	9.7	50	54	94	10	4				
10	0.3	22	9.7	32	32	72	10	4	34.92 10003	37.72 10003	55.40 10003	59.99 10003
10	0.3	22	9.7	50	54	94	10	4				
10	0.5	22	9.7	32	32	72	10	4	34.92 10005	37.72 10005	55.40 10005	59.99 10005
10	0.5	22	9.7	50	54	94	10	4				
10	1.0	22	9.7	32	32	72	10	4	34.92 10010	37.72 10010	55.40 10010	59.99 10010
10	1.0	22	9.7	50	54	94	10	4				
10	1.5	22	9.7	32	32	72	10	4	34.92 10015	37.72 10015	55.40 10015	59.99 10015
10	1.5	22	9.7	50	54	94	10	4				
10	1.6	22	9.7	32	32	72	10	4	34.92 10016	37.72 10016	55.40 10016	59.99 10016
10	1.6	22	9.7	50	54	94	10	4				
10	2.0	22	9.7	32	32	72	10	4	34.92 10020	37.72 10020	55.40 10020	59.99 10020
10	2.0	22	9.7	50	54	94	10	4				
12	0.1	26	11.6	38	38	83	12	4	53.95 12001	58.42 12001	81.14 12001	87.86 12001
12	0.1	26	11.6	64	64	109	12	4				
12	0.3	26	11.6	38	38	83	12	4	53.95 12003	58.42 12003	81.14 12003	87.86 12003
12	0.3	26	11.6	64	64	109	12	4				
12	0.5	26	11.6	38	38	83	12	4	53.95 12005	58.42 12005	81.14 12005	87.86 12005
12	0.5	26	11.6	64	64	109	12	4				
12	1.0	26	11.6	38	38	83	12	4	53.95 12010	58.42 12010	81.14 12010	87.86 12010
12	1.0	26	11.6	64	64	109	12	4				
12	1.5	26	11.6	38	38	83	12	4	53.95 12015	58.42 12015	81.14 12015	87.86 12015
12	1.5	26	11.6	64	64	109	12	4				
12	1.6	26	11.6	38	38	83	12	4	53.95 12016	58.42 12016	81.14 12016	87.86 12016
12	1.6	26	11.6	64	64	109	12	4				
12	2.0	26	11.6	38	38	83	12	4	53.95 12020	58.42 12020	81.14 12020	87.86 12020
12	2.0	26	11.6	64	64	109	12	4				
12	3.0	26	11.6	38	38	83	12	4	53.95 12030	58.42 12030	81.14 12030	87.86 12030
12	3.0	26	11.6	64	64	109	12	4				
16	0.1	32	15.5	44	44	92	16	4	81.47 16001	88.19 16001	126.12 16001	136.31 16001
16	0.1	32	15.5	80	84	132	16	4				
16	0.3	32	15.5	44	44	92	16	4	81.47 16003	88.19 16003	126.12 16003	136.31 16003
16	0.3	32	15.5	80	84	132	16	4				

Steel	●	●	●	●
Stainless steel		●		●
Cast iron	●	○	●	○
Non ferrous metals		○		○
Heat resistant alloys		●		●
hardened materials				

End milling cutter with corner radius

- ▲ irregular helix angle
- ▲ 54 053 ... / 54 054 ...: special cutting edge preparation for the machining of steel
- ▲ 54 063 ... / 54 064 ...: special cutting edge preparation for the machining of stainless steel

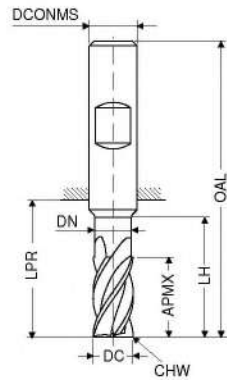
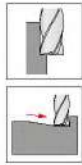


DC _{h10}	RE	APMX	DN	LH	LPR	OAL	DCONMS _{h6}	ZEPF	V3 Article no. 54 053 ...	V3 Article no. 54 063 ...	V3 Article no. 54 054 ...	V3 Article no. 54 064 ...
mm	mm	mm	mm	mm	mm	mm	mm		£	£	£	£
16	0.5	32	15.5	44	44	92	16	4	81.47 16005	88.19 16005	126.12 16005	136.31 16005
16	0.5	32	15.5	80	84	132	16	4				
16	1.0	32	15.5	44	44	92	16	4	81.47 16010	88.19 16010	126.12 16010	136.31 16010
16	1.0	32	15.5	80	84	132	16	4				
16	1.5	32	15.5	44	44	92	16	4	81.47 16015	88.19 16015	126.12 16015	136.31 16015
16	1.5	32	15.5	80	84	132	16	4				
16	1.6	32	15.5	44	44	92	16	4	81.47 16016	88.19 16016	126.12 16016	136.31 16016
16	1.6	32	15.5	80	84	132	16	4				
16	2.0	32	15.5	44	44	92	16	4	81.47 16020	88.19 16020	126.12 16020	136.31 16020
16	2.0	32	15.5	80	84	132	16	4				
16	3.0	32	15.5	44	44	92	16	4	81.47 16030	88.19 16030	126.12 16030	136.31 16030
16	3.0	32	15.5	80	84	132	16	4				
16	4.0	32	15.5	44	44	92	16	4	81.47 16040	88.19 16040	126.12 16040	136.31 16040
16	4.0	32	15.5	80	84	132	16	4				
20	0.1	38	19.5	54	54	104	20	4	118.07 20001	128.15 20001	185.22 20001	200.44 20001
20	0.1	38	19.5	100	104	154	20	4				
20	0.3	38	19.5	54	54	104	20	4	118.07 20103	128.15 20003	185.22 20003	200.44 20003
20	0.3	38	19.5	100	104	154	20	4				
20	0.5	38	19.5	54	54	104	20	4	118.07 20205	128.15 20005	185.22 20005	200.44 20005
20	0.5	38	19.5	100	104	154	20	4				
20	1.0	38	19.5	54	54	104	20	4	118.07 20310	128.15 20010	185.22 20010	200.44 20010
20	1.0	38	19.5	100	104	154	20	4				
20	1.5	38	19.5	54	54	104	20	4	118.07 20415	128.15 20015	185.22 20015	200.44 20015
20	1.5	38	19.5	100	104	154	20	4				
20	1.6	38	19.5	54	54	104	20	4	118.07 20516	128.15 20016	185.22 20016	200.44 20016
20	1.6	38	19.5	100	104	154	20	4				
20	2.0	38	19.5	54	54	104	20	4	118.07 20620	128.15 20020	185.22 20020	200.44 20020
20	2.0	38	19.5	100	104	154	20	4				
20	3.0	38	19.5	54	54	104	20	4	118.07 20730	128.15 20030	185.22 20030	200.44 20030
20	3.0	38	19.5	100	104	154	20	4				
20	4.0	38	19.5	54	54	104	20	4	118.07 20840	128.15 20040	185.22 20040	200.44 20040
20	4.0	38	19.5	100	104	154	20	4				

Steel	●	●	●	●
Stainless steel	●	●	●	●
Cast iron	●	○	●	○
Non ferrous metals		○		○
Heat resistant alloys		●		●
hardened materials				

→ v_c/f, Page 340-343

Finish milling cutter



LPR with Shank DIN 6535 HB



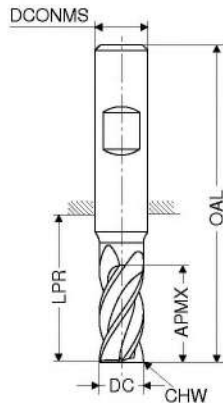
Factory standard Factory standard Factory standard Factory standard Factory standard Factory standard
HA HB HA HB HA HB

DC _{es}	APMX	DN	LH	LPR	OAL	DCONMS _{hs}	CHW	ZEPF	V1 Article no. 52 110 ... £	V1 Article no. 52 110 ... £	V1 Article no. 52 115 ... £	V1 Article no. 52 115 ... £	V1 Article no. 52 118 ... £	V1 Article no. 52 118 ... £
5	8	4.8	13	18	54	6	0.02	6	43.62 051	43.62 050				
5	13	4.8	18	22	58	6	0.02	6			46.16 051	46.16 050		
6	10	5.8	15	18	54	6	0.03	6	43.31 061	43.31 060				
6	16	5.8	20	22	58	6	0.03	6			46.74 061	46.74 060		
6	21			29	65	6	0.03	6					68.40 061	68.40 060
7	12	6.8	17	23	59	8	0.04	6	52.01 071	52.01 070				
7	22	6.8	30	34	70	8	0.04	6			54.15 071	54.15 070		
7	25			39	75	8	0.04	6					84.21 071	84.21 070
8	12	7.8	17	23	59	8	0.04	6	51.88 081	51.88 080				
8	22	7.8	32	34	70	8	0.04	6			55.28 081	55.28 080		
8	28			39	75	8	0.04	6					77.17 081	77.17 080
9	14	8.8	19	20	60	10	0.04	6	80.38 091	80.38 090				
9	25	8.8	33	33	73	10	0.04	6			89.36 091	89.36 090		
9	30			45	85	10	0.04	6					158.32 091	158.32 090
10	14	9.8	19	20	60	10	0.05	6	79.53 101	79.53 100				
10	25	9.8	33	33	73	10	0.05	6			93.76 101	93.76 100		
10	35			45	85	10	0.05	6					152.61 101	152.61 100
12	16	11.8	21	25	70	12	0.05	6	115.85 121	115.85 120				
12	28	11.8	38	39	84	12	0.05	6			136.23 121	136.23 120		
12	45			55	100	12	0.05	6					213.76 121	213.76 120
14	18	13.8	23	25	70	14	0.06	6	152.34 141	152.34 140				
14	30	13.8	38	39	84	14	0.06	6			178.99 141	178.99 140		
16	20	15.8	28	32	80	16	0.06	6	184.25 161	184.25 160				
16	35	15.8	43	45	93	16	0.06	6			206.43 161	206.43 160		
16	50			62	110	16	0.06	6					302.54 162	308.64 160
16	65			77	125	16	0.06	6					339.58 163	308.64 161
18	20	17.8	28	32	80	18	0.07	8	229.57 181	229.57 180				
18	35	17.8	43	45	93	18	0.07	8			257.44 181	257.44 180		
20	25	19.8	33	35	85	20	0.07	8	286.28 201	286.28 200				
20	40	19.8	45	50	100	20	0.07	8			320.70 201	320.70 200		
20	55			65	115	20	0.07	8					450.99 202	460.41 200
20	70			80	130	20	0.07	8					540.51 203	460.41 201
25	55	24.8	63	69	125	25	0.08	8			542.84 251	542.84 250		
25	75			94	150	25	0.08	8					932.48 251	808.81 250

Steel	○	○	○	○	○	○
Stainless steel	●	●	●	●	●	●
Cast iron	○	○	○	○	○	○
Non ferrous metals	●	●	●	●	●	●
Heat resistant alloys	●	●	●	●	●	●
hardened materials						

→ v_c/f_z; Page 350-355

Finish milling cutter



≈DIN 6527 Factory standard
HB HB

DC _{fs}	APMX	LPR	OAL	DCONMS _{h5}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	
4	11	21	57	6	0.15	6
4	16	26	62	6	0.15	6
5	13	21	57	6	0.15	6
5	18	26	62	6	0.15	6
6	13	21	57	6	0.15	6
6	18	26	62	6	0.15	6
7	16	27	63	8	0.15	6
7	21	32	68	8	0.15	6
8	19	27	63	8	0.15	6
8	24	32	68	8	0.15	6
9	19	32	72	10	0.15	6
9	27	40	80	10	0.15	6
10	22	32	72	10	0.15	6
10	30	40	80	10	0.15	6
12	26	38	83	12	0.15	6
12	36	48	93	12	0.15	6
14	26	38	83	14	0.15	6
14	42	54	99	14	0.15	6
16	32	44	92	16	0.15	6
16	48	60	108	16	0.15	6
16	65	77	125	16	0.15	6
16	75	102	150	16	0.15	6
16	95	102	150	16	0.15	6
18	32	44	92	18	0.15	8
18	54	66	114	18	0.15	8
20	38	54	104	20	0.15	8
20	60	76	126	20	0.15	8
20	75	85	135	20	0.15	8
20	95	100	150	20	0.15	8
25	75	94	150	25	0.15	8
25	95	104	160	25	0.15	8
32	75	90	150	32	0.15	8
32	95	100	160	32	0.15	8

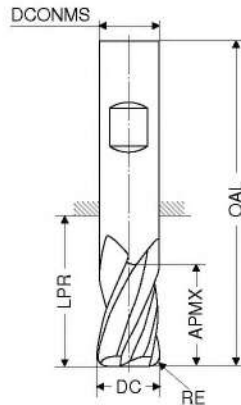
VO		VO	
Article no.	Article no.	Article no.	Article no.
50 633 ...	50 633 ...	50 633 ...	50 633 ...
£	£	£	£
40.33	040	55.78	041
40.33	050	55.78	051
40.33	060	55.78	061
48.24	070	74.54	071
47.01	080	65.70	081
77.52	090	118.27	091
75.53	100	115.16	101
98.14	120	157.89	121
135.80	140	212.05	141
179.42	160	273.03	161
		342.84	162
		383.29	163
		443.31	164
208.06	180		
255.35	200	334.32	181
		425.64	201
		452.74	202
		468.40	203
		559.60	250
		816.85	251
1,118.75	320		
		1,091.40	321

Steel	<input type="checkbox"/>	<input type="checkbox"/>
Stainless steel	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Cast iron	<input type="checkbox"/>	<input type="checkbox"/>
Non ferrous metals	<input type="checkbox"/>	<input type="checkbox"/>
Heat resistant alloys	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
hardened materials	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

→ v_d/f, Page 350-355

Finish milling cutter with corner radius

N
 $\lambda_s = 45^\circ$
 $\nu_s = 13^\circ$
ZEPF
 ≤ 54
HRC



Ti1000



Factory standard

HB

VO

Article no.
50 634 ...

DC _{f8}	RE _{40,01}	APMX	LPR	OAL	DCONMS _{ns}	ZEFP
mm	mm	mm	mm	mm	mm	
6	1.0	18	26	62	6	6
6	0.5	18	26	62	6	6
8	2.0	24	32	68	8	6
8	1.0	24	32	68	8	6
8	0.5	24	32	68	8	6
10	0.5	30	40	80	10	6
10	2.0	30	40	80	10	6
10	1.0	30	40	80	10	6
12	2.0	36	48	93	12	6
12	1.0	36	48	93	12	6
12	3.0	36	48	93	12	6
12	0.5	36	48	93	12	6
16	2.0	48	60	108	16	6
16	1.0	48	60	108	16	6
16	3.0	48	60	108	16	6
16	0.5	48	60	108	16	6
20	0.5	60	76	126	20	8
20	2.0	60	76	126	20	8
20	3.0	60	76	126	20	8
20	1.0	60	76	126	20	8

£

54.15 061

54.15 060

53.87 082

53.87 081

53.87 080

109.88 100

109.88 102

109.88 101

143.64 122

143.64 121

143.64 123

143.64 120

258.49 162

258.49 161

258.49 163

258.49 160

386.02 200

386.02 202

386.02 203

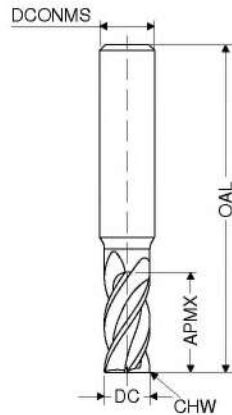
386.02 201

Steel	<input type="radio"/>
Stainless steel	<input checked="" type="radio"/>
Cast iron	<input type="radio"/>
Non ferrous metals	<input type="radio"/>
Heat resistant alloys	<input checked="" type="radio"/>
hardened materials	<input checked="" type="radio"/>

→ v_c/f_z Page 350-355

Multi-flute milling cutter

N
 $\lambda_s = 45^\circ$
 $V_s = 2^\circ$
ZEP
 ≤ 54
HRC



Ti400



Factory standard

HA

VO

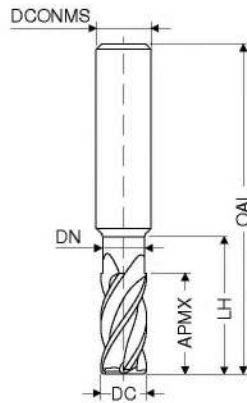
Article no.
50 631 ...

DC _{h10}	APMX	OAL	DCONMS _{h5}	CHW	ZEP	£	
4	14	40	4	0.05	5	35.23	040
5	18	50	5	0.05	5	39.00	050
6	18	50	6	0.05	7	44.18	060
8	25	63	8	0.05	7	64.14	080
10	30	72	10	0.08	9	91.35	100
12	32	83	12	0.08	9	118.27	120
14	32	83	14	0.08	9	173.28	140
16	36	92	16	0.08	11	251.65	160
18	40	92	18	0.08	11	285.99	180
20	45	104	20	0.08	13	335.16	200
25	45	120	25	0.08	13	606.62	250

Steel	<input type="radio"/>
Stainless steel	<input checked="" type="radio"/>
Cast iron	<input type="radio"/>
Non ferrous metals	<input type="radio"/>
Heat resistant alloys	<input checked="" type="radio"/>
hardened materials	<input type="radio"/>

→ v_d/f_z Page 350-353

Multi-flute milling cutter for finishing



Ti1000



Factory standard

HA

V1

Article no.
52 109 ...

£	
73.54	060
82.78	080
144.79	100
196.35	120
420.94	160
498.75	200

DC _{es}	APMX	DN	LH	OAL	DCONMS _{ns}	ZEFP
mm	mm	mm	mm	mm	mm	
6	16	5.8	26	58	6	8
8	22	7.8	32	64	8	10
10	25	9.8	35	73	10	12
12	28	11.8	38	84	12	12
16	35	15.8	43	93	16	16
20	40	19.8	50	104	20	16

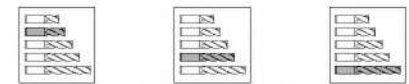
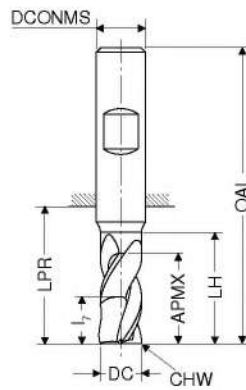
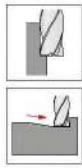
Steel	<input type="radio"/>
Stainless steel	<input checked="" type="radio"/>
Cast iron	<input type="radio"/>
Non ferrous metals	<input checked="" type="radio"/>
Heat resistant alloys	<input checked="" type="radio"/>
hardened materials	<input type="radio"/>

→ v_c/f_z Page 350-353

End milling cutter

▲ With graduated flute depth

H
 $\lambda_s = 52^\circ$
 $\gamma_s = -11^\circ$
ZEPF
 ≤ 54 HRC



DIN 6527 DIN 6527 DIN 6527

HB

V0 V0 V0

DC ₁₈	APMX	LH	l ₇	LPR	OAL	DCONMS ₁₅	CHW	ZEPF
mm	mm	mm	mm	mm	mm	mm	mm	
4	8	15	4.4	18	54	6	0.15	4
4	11	18	4.4	21	57	6	0.15	4
4	16	19	6.4	26	62	6	0.15	4
5	9	16	4.8	18	54	6	0.15	4
5	13	19	4.8	21	57	6	0.15	4
5	17	20	6.8	26	62	6	0.15	4
6	10	17	5.2	18	54	6	0.15	4
6	13	19	5.2	21	57	6	0.15	4
6	18	21	7.2	26	62	6	0.15	4
8	12	20	7.6	22	58	8	0.15	4
8	19	25	7.6	27	63	8	0.15	4
8	24	27	9.6	32	68	8	0.15	4
10	14	24	8.8	26	66	10	0.15	4
10	22	30	8.8	32	72	10	0.15	4
10	30	33	12.0	40	80	10	0.15	4
12	16	26	10.4	28	73	12	0.15	4
12	26	36	10.4	38	83	12	0.15	4
12	36	39	14.4	48	93	12	0.15	4
14	18	28	10.4	30	75	14	0.15	4
14	26	36	10.4	38	83	14	0.15	4
14	42	45	16.8	54	99	14	0.15	4
16	22	32	12.8	34	82	16	0.15	4
16	32	42	12.8	44	92	16	0.15	4
16	48	51	19.2	60	108	16	0.15	4
18	24	34	12.8	36	84	18	0.15	4
18	32	42	12.8	44	92	18	0.15	4
18	54	57	21.6	66	114	18	0.15	4
20	26	42	15.2	42	92	20	0.15	4
20	38	52	15.2	54	104	20	0.15	4
20	60	63	24.0	76	126	20	0.15	4

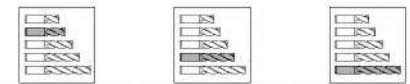
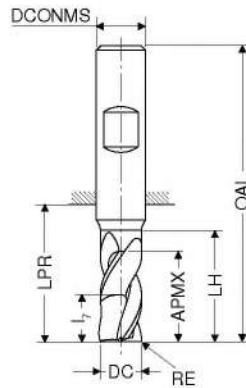
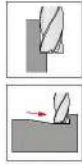
Article no.	Article no.	Article no.
50 907 ...	50 907 ...	50 907 ...
£	£	£
58.99	040	
58.99	041	65.26
58.99	050	
58.99	051	65.26
62.30	060	
63.13	061	68.37
70.85	080	
72.25	081	78.54
111.72	100	
123.69	101	
148.21	120	139.50
168.00	121	
178.42	140	190.65
219.15	141	
219.15	160	263.05
219.15	161	
275.59	180	360.24
275.59	181	
376.05	200	416.81
376.05	201	
		534.94
		202

Steel	●	●	●
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys			
hardened materials	○	○	○

→ v_c/f_z Page 350-355

End milling cutter with corner radius

▲ With graduated flute depth



Factory standard Factory standard Factory standard
HB

DC _{f8}	RE _{40,01}	APMX	LH	l ₇	LPR	OAL	DCONMS _{h5}	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
4	0.5	8	15	4.4	18	54	6	4
4	0.5	11	18	4.4	21	57	6	4
4	0.5	16	19	6.4	26	62	6	4
5	0.5	9	16	4.8	18	54	6	4
5	0.5	13	19	4.8	21	57	6	4
5	0.5	17	20	6.8	26	62	6	4
6	0.5	10	17	5.2	18	54	6	4
6	0.5	13	19	5.2	21	57	6	4
6	0.5	18	21	7.2	26	62	6	4
8	1.0	12	20	7.6	22	58	8	4
8	1.0	19	25	7.6	27	63	8	4
8	1.0	24	27	9.6	32	68	8	4
10	1.0	14	24	8.8	26	66	10	4
10	1.0	22	30	8.8	32	72	10	4
10	1.0	30	33	12.0	40	80	10	4
12	1.5	16	26	10.4	28	73	12	4
12	1.5	26	36	10.4	38	83	12	4
12	1.5	36	39	14.4	48	93	12	4
14	1.5	18	28	10.4	30	75	14	4
14	1.5	26	36	10.4	38	83	14	4
14	1.5	42	45	16.8	54	99	14	4
16	2.0	22	32	12.8	34	82	16	4
16	2.0	32	42	12.8	44	92	16	4
16	2.0	48	51	19.2	60	108	16	4
18	2.0	24	34	12.8	36	84	18	4
18	2.0	32	42	12.8	44	92	18	4
18	2.0	54	57	21.6	66	114	18	4
20	2.0	26	40	15.2	42	92	20	4
20	2.0	38	52	15.2	54	104	20	4
20	2.0	60	63	24.0	76	126	20	4

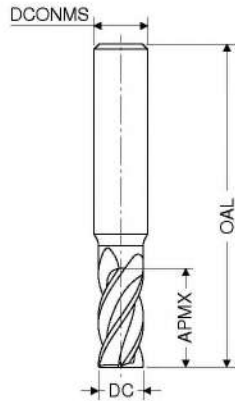
VO	VO	VO
Article no.	Article no.	Article no.
50 908 ...	50 908 ...	50 908 ...
£	£	£
64.17	040	
65.99	041	76.96
64.17	050	
65.99	051	76.96
67.13	060	
78.54	061	81.37
75.53	080	
86.07	081	88.23
125.56	100	
133.50	101	147.92
169.02	120	
180.26	121	192.67
231.42	140	
243.69	141	282.60
321.34	160	
330.18	161	356.68
331.89	180	
342.42	181	414.82
473.24	200	
483.77	201	564.87
	202	

Steel	●	●	●
Stainless steel			
Cast iron			
Non ferrous metals			
Heat resistant alloys			
hardened materials	○	○	○

→ v_c/f_z Page 350-355

Finish milling cutter

H
 $\lambda_s = 50^\circ$
 $V_s = -5^\circ$
ZEPF
 ≤ 68
HRC



Ti1000 Ti1000



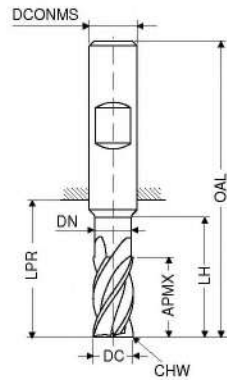
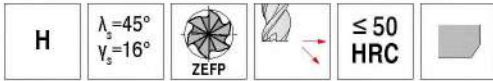
DIN 6527 Factory standard
HA HA

DC _{FB}	APMX	OAL	DCONMS _{HS}	ZEPF
mm	mm	mm	mm	
4	11	57	6	6
4	16	62	6	6
5	13	57	6	6
5	18	62	6	6
6	13	57	6	6
6	18	62	6	6
8	19	63	8	6
8	24	68	8	6
10	22	72	10	6
10	30	80	10	6
12	26	83	12	6
12	36	93	12	6
14	26	83	14	6
14	42	99	14	6
16	32	92	16	8
16	48	108	16	8
16	90	150	16	8
18	32	92	18	8
18	54	114	18	8
20	38	104	20	8
20	60	126	20	8
20	75	135	20	8
20	95	150	20	8
25	75	150	25	8
25	95	160	25	8
32	75	150	32	8
32	95	160	32	8

	VO	VO
	Article no. 50 635 ...	Article no. 50 635 ...
	£	£
Steel	○	○
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials	●	●

→ v_c/f_z Page 350-355

Finish milling cutter



LPR with Shank DIN 6535 HB



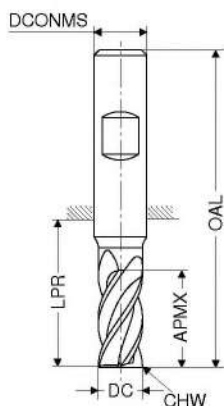
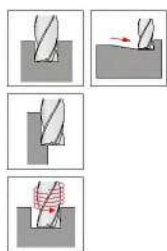
Factory standard Factory standard Factory standard Factory standard Factory standard Factory standard
HA HB HA HB HA HB

DC _{es}	APMX	DN	LH	LPR	OAL	DCONMS _{HS}	CHW	ZEFP	V1		V1		V1		V1		V1		V1		
									Article no. 52 112 ...	£	Article no. 52 112 ...	£	Article no. 52 122 ...	£	Article no. 52 122 ...	£	Article no. 52 123 ...	£	Article no. 52 123 ...	£	
5	8	4.8	13	18	54	6	0.02	6	65.56	051	65.56	050									
5	13	4.8	18	22	58	6	0.02	6			69.21	051	69.21	050							
6	10	5.8	15	18	54	6	0.03	6	61.35	061	61.35	060									
6	16	5.8	20	22	58	6	0.03	6			67.73	061	67.73	060							
6	21			29	65	6	0.03	6							92.15	061	92.15	060			
7	12	6.8	17	23	59	8	0.04	6	81.97	071	81.97	070									
7	22	6.8	30	34	70	8	0.04	6			86.19	071	86.19	070							
7	25			39	75	8	0.04	6							112.93	071	112.93	070			
8	12	7.8	17	23	59	8	0.04	6	76.54	081	76.54	080									
8	22	7.8	32	34	70	8	0.04	6			84.56	081	84.56	080							
8	28			39	75	8	0.04	6							114.27	081	114.27	080			
9	14	8.8	19	20	60	10	0.04	6	119.70	091	119.70	090									
9	25	8.8	33	33	73	10	0.04	6			134.64	091	134.64	090							
9	30			45	85	10	0.04	6							204.52	091	204.52	090			
10	14	9.8	19	20	60	10	0.05	6	113.59	101	113.59	100									
10	25	9.8	33	33	73	10	0.05	6			133.95	101	133.95	100							
10	35			45	85	10	0.05	6							207.91	101	207.91	100			
12	16	11.8	21	25	70	12	0.05	6	170.73	121	170.73	120									
12	28	11.8	38	39	84	12	0.05	6			198.00	121	198.00	120							
12	45			55	100	12	0.05	6							286.50	121	286.50	120			
14	18	13.8	23	25	70	14	0.06	6	211.86	141	211.86	140									
14	30	13.8	38	39	84	14	0.06	6			248.63	141	248.63	140							
16	20	15.8	28	32	80	16	0.06	6	275.88	161	275.88	160									
16	35	15.8	43	45	93	16	0.06	6			302.64	161	302.64	160							
16	50			62	110	16	0.06	6							430.74	162	422.06	160			
16	65			77	125	16	0.06	6							487.89	163	443.18	161			
18	20	17.8	28	32	80	18	0.07	8	316.61	181	316.61	180									
18	35	17.8	43	45	93	18	0.07	8			371.03	181	371.03	180							
20	25	19.8	33	35	85	20	0.07	8	402.12	201	394.92	200									
20	40	19.8	45	50	100	20	0.07	8			455.59	201	455.59	200							
20	55			65	115	20	0.07	8							614.77	202	602.43	200			
20	70			80	130	20	0.07	8							751.96	203	632.55	201			
25	55	24.8	63	69	125	25	0.08	8			760.52	251	760.52	250							
25	75			94	150	25	0.08	8							1,178.53	251	918.40	250			

Steel	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast iron	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Non ferrous metals	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heat resistant alloys	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
hardened materials	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

→ v_c/f_t Page 350-355

Roughing-Finishing Cutter



Ti400



DIN 6527

HB

VO

Article no.
50 628 ...

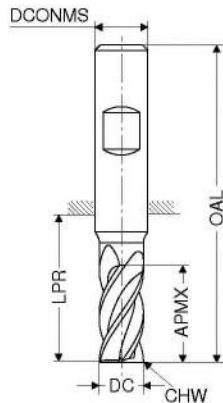
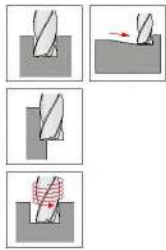
£	
80.95	050
76.96	060
95.62	080
103.04	100
125.13	120
198.63	160
298.68	200

DC _{d11}	APMX	LPR	OAL	DCONMS _{h5}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	
5	15	21	57	6	0.25	4
6	16	21	57	6	0.25	4
8	22	27	63	8	0.25	4
10	25	32	72	10	0.25	4
12	28	38	83	12	0.25	4
16	35	44	92	16	0.25	4
20	40	54	104	20	0.25	4

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	○
hardened materials	

→ v_c/f, Page 350-353

Roughing-Finishing Cutter



DIN 6527 HB

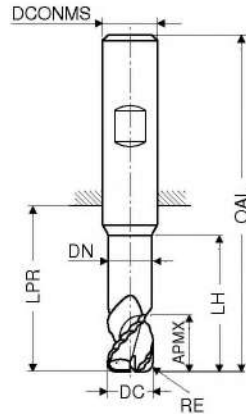
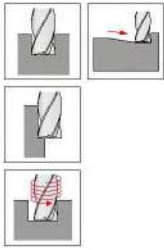
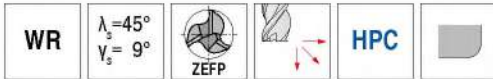
DC _{h10}	APMX	LPR	OAL	DCONMS _{h6}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	
6	13	21	57	6		3
8	19	27	63	8	0.08	3
10	22	32	72	10	0.12	4
12	26	38	83	12	0.15	4
14	26	38	83	14	0.17	4
16	32	44	92	16	0.20	4
18	32	48	92	18	0.22	4
20	38	54	104	20	0.25	4

V1		V1	
Article no.		Article no.	
52 301 ...		52 300 ...	
£		£	
87.37	060	87.37	060
111.60	080	111.60	080
122.70	100	122.70	100
150.77	120	150.77	120
212.12	140	212.12	140
229.40	160	229.40	160
331.59	180	331.59	180
335.16	200	335.16	200

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

→ v_c/f_z Page 350-353

Rough milling cutter with corner radius



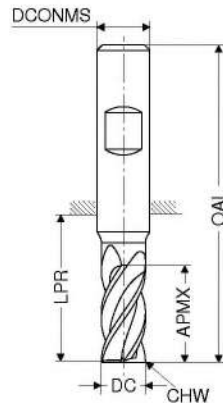
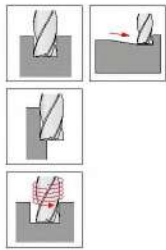
DC _{h5}	RE _{v,0,01}	APMX	DN	LH	LPR	OAL	DCONMS _{h5}	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
3		4.5	2.8	15	22	58	6	3
3		8.0	2.8	15	22	58	6	3
4		5.5	3.8	20	26	62	6	3
4		10.5	3.8	20	26	62	6	3
5		7.0	4.8	25	34	70	6	3
5		13.0	4.8	25	34	70	6	3
6	1	8.5	5.8	30	34	70	6	3
6	1	16.0	5.8	30	34	70	6	3
7	1	11.0	6.7	40	44	80	8	3
7	1	21.0	6.7	40	44	80	8	3
8	1	11.0	7.7	40	44	80	8	3
8	1	21.0	7.7	40	44	80	8	3
9	1	14.0	8.7	50	54	94	10	3
9	1	26.0	8.7	50	54	94	10	3
10	2	14.0	9.7	50	54	94	10	3
10	2	26.0	9.7	50	54	94	10	3
11	2	16.0	10.6	60	64	109	12	3
11	2	31.0	10.6	60	64	109	12	3
12	2	16.0	11.6	60	64	109	12	3
12	2	31.0	11.6	60	64	109	12	3
14	2	19.0	13.6	70	74	119	14	3
14	2	36.0	13.6	70	74	119	14	3
16	2	22.0	15.5	80	84	132	16	3
16	2	41.0	15.5	80	84	132	16	3
18	2	25.0	17.5	90	94	142	18	3
18	2	47.0	17.5	90	94	142	18	3
20	2	27.0	19.5	100	104	154	20	3
20	2	52.0	19.5	100	104	154	20	3

VO	VO
Article no.	Article no.
54 625 ...	54 627 ...
£	£
52.74	52.74
58.01	58.01
52.74	52.74
58.01	58.01
56.71	56.71
62.30	62.30
57.57	57.57
62.22	62.22
75.97	75.97
83.52	83.52
75.97	75.97
83.52	83.52
105.14	105.14
118.00	118.00
105.14	105.14
118.00	118.00
172.58	172.58
189.82	189.82
172.58	172.58
189.82	189.82
238.54	238.54
255.93	255.93
303.40	303.40
334.01	334.01
371.50	371.50
427.21	427.21
400.01	400.01
459.99	459.99

Steel
Stainless steel
Cast iron
Non ferrous metals
Heat resistant alloys
hardened materials

→ v₀/f, Page 338+339

Rough milling cutter



DIN 6527 DIN 6527

HB

VO VO

Article no. 50 618 ... Article no. 50 624 ...

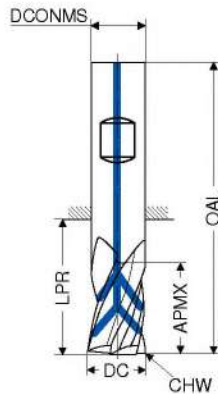
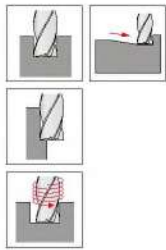
£		£	
		78.37	040
72.54	050	78.37	050
65.26	060	73.12	060
88.78	070	97.34	070
80.65	080	86.64	080
100.90	090	106.59	090
100.90	100	100.60	100
		126.41	110
108.35	120	119.29	120
		176.69	130
153.89	140	166.58	140
189.10	160	189.67	160
227.01	180	252.08	180
271.59	200	282.71	200
		366.96	250

DC _{dt1}	APMX	LPR	OAL	DCONMS _{h5}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	
4	8	21	57	6	0.6	4
5	8	18	54	6	0.6	4
5	13	21	57	6	0.6	4
6	8	18	54	6	0.6	4
6	13	21	57	6	0.6	4
7	11	22	58	8	0.6	4
7	19	27	63	8	0.6	4
8	11	22	58	8	0.6	4
8	19	27	63	8	0.6	4
9	13	26	66	10	0.6	4
9	22	32	72	10	0.6	4
10	13	26	66	10	0.6	4
10	22	32	72	10	0.6	4
11	26	38	83	12	0.6	4
12	16	28	73	12	0.6	4
12	26	38	83	12	0.6	4
13	26	38	83	14	0.6	4
14	16	31	76	14	0.6	4
14	26	38	83	14	0.6	4
16	19	34	82	16	0.6	4
16	32	44	92	16	0.6	4
18	19	36	84	18	0.6	4
18	32	44	92	18	0.6	4
20	19	42	92	20	0.6	4
20	38	54	104	20	0.6	4
25	45	65	121	25	0.6	5

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		

→ v_c/f_z Page 350-353

Rough milling cutter



Ti400



DIN 6527

HB

VO

Article no.
50 625 ...

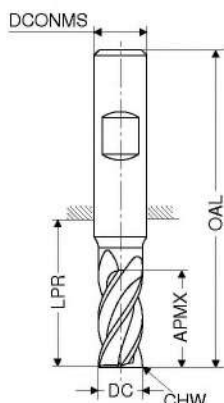
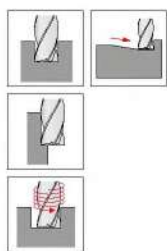
£	
129.55	060
129.55	080
147.78	100
169.57	120
271.47	140
271.47	160
442.68	180
403.55	200

DC _{d11}	APMX	LPR	OAL	DCONMS _{h5}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	
6	13	21	57	6	0.6	4
8	19	27	63	8	0.6	4
10	22	32	72	10	0.6	4
12	26	38	83	12	0.6	4
14	26	38	83	14	0.6	4
16	32	44	92	16	0.6	4
18	32	44	92	18	0.6	4
20	38	54	104	20	0.6	4

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 350-353

Rough milling cutter



Ti400



DIN 6527

HB

VO

Article no.
50 637 ...

£

DC _{d11}	APMX	LPR	OAL	DCONMS _{h5}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	
6	13	21	57	6	0.5	4
8	19	27	63	8	0.5	4
10	22	32	72	10	0.5	4
12	26	38	83	12	0.5	4
14	26	38	83	14	0.5	4
16	32	44	92	16	0.5	5
18	32	44	92	18	0.5	5
20	38	54	104	20	0.5	6
25	45	65	121	25	0.5	6

88.93

102.04

109.33

132.24

185.41

210.19

280.87

314.24

384.89

060

080

100

120

140

160

180

200

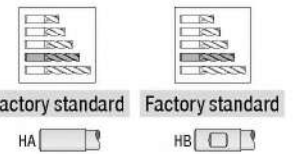
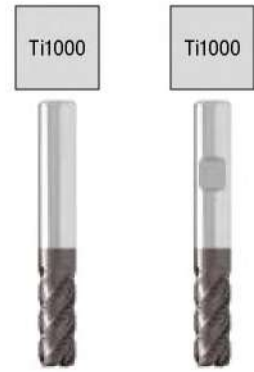
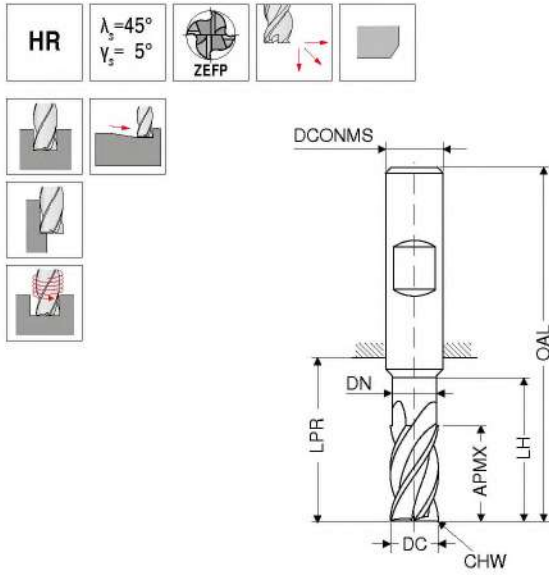
250

Steel	<input type="checkbox"/>
Stainless steel	<input checked="" type="checkbox"/>
Cast iron	<input type="checkbox"/>
Non ferrous metals	<input type="checkbox"/>
Heat resistant alloys	<input type="checkbox"/>
hardened materials	<input checked="" type="checkbox"/>

→ v_c/f_z, Page 350-353

Rough milling cutter

▲ with integrated chip breakers in the flutes



DC _{H1}	APMX	DN	LH	LPR	OAL	DCONMS _{H6}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
6	16	5.8	21	22	58	6	0.15	4
8	22	7.7	27	34	70	8	0.20	4
10	25	9.7	30	33	73	10	0.20	4
12	28	11.6	38	39	84	12	0.25	4
14	30	13.6	40	39	84	14	0.30	4
16	35	15.5	45	45	93	16	0.35	5
18	35	17.5	45	45	93	18	0.40	5
20	40	19.5	55	54	104	20	0.40	5
25	50	24.0	65	69	125	25	0.50	5

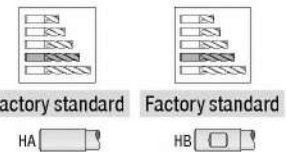
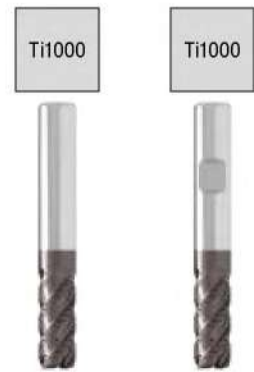
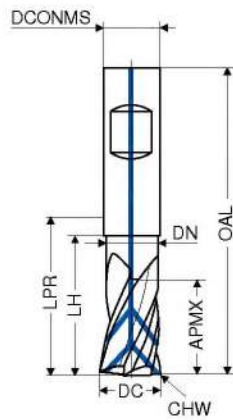
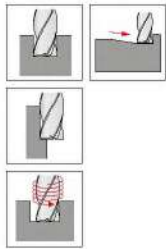
V1		V1	
Article no.		Article no.	
52 340 ...		52 341 ...	
£		£	
108.32	060	108.32	060
124.12	080	124.12	080
134.51	100	134.51	100
159.03	120	159.03	120
212.91	140	212.91	140
271.88	160	271.88	160
337.73	180	337.73	180
407.84	200	407.84	200
686.70	250	686.70	250

Steel	○	○
Stainless steel	●	●
Cast iron		
Non ferrous metals		
Heat resistant alloys		
hardened materials		

→ v_c/f_z Page 344+345

Rough milling cutter

▲ with integrated chip breakers in the flutes



DC _{int}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	CHW	ZEFP
mm	mm	mm	mm	mm	mm	mm	mm	
6	16	5.8	21	22	58	6	0.15	4
8	22	7.7	27	34	70	8	0.20	4
10	25	9.7	30	33	73	10	0.20	4
12	28	11.6	38	39	84	12	0.25	4
14	30	13.6	40	39	84	14	0.25	4
16	35	15.5	45	45	93	16	0.35	5
18	35	17.5	45	45	93	18	0.35	5
20	40	19.5	55	54	104	20	0.40	5

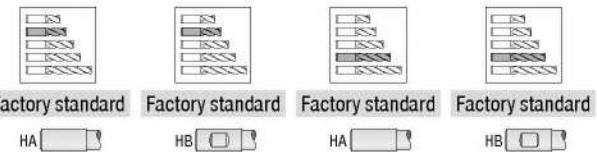
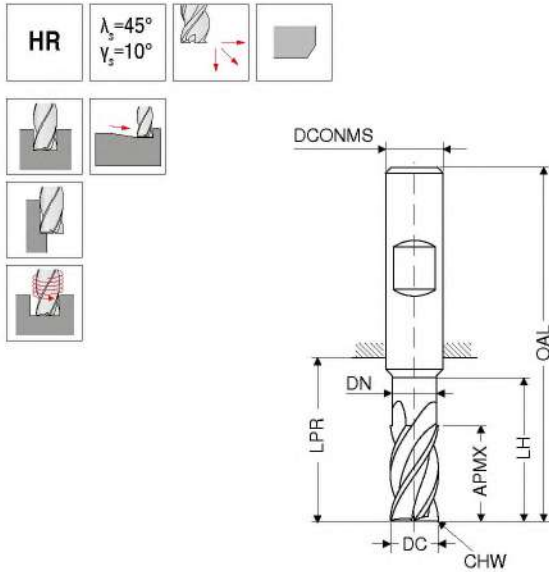
V1		V1	
Article no.		Article no.	
52 338 ...		52 339 ...	
£		£	
134.51	060	134.51	060
150.64	080	150.64	080
176.69	100	176.69	100
221.73	120	221.73	120
292.98	140	292.98	140
377.21	160	377.21	160
444.03	180	444.03	180
557.18	200	557.18	200

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals		
Heat resistant alloys	○	○
hardened materials		

→ v₀/f₁ Page 344+345

Rough milling cutter

▲ with integrated chip breakers in the flutes



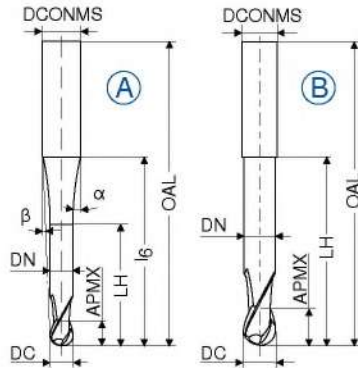
DC _{int1}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	CHW	ZEFP	Factory standard	Factory standard	Factory standard	Factory standard
mm	mm	mm	mm	mm	mm	mm	mm		HA	HB	HA	HB
6	8	6.0		18	54	6	0.15	4	V1 Article no. 52 342 ... £ 93.96	V1 Article no. 52 343 ... £ 93.96	V1 Article no. 52 342 ... £ 120.54	V1 Article no. 52 343 ... £ 120.54
6	16	5.8	21	22	58	6	0.15	4			061	061
8	11	8.0		23	59	8	0.20	4	109.88	109.88	080	080
8	22	7.7	27	34	70	8	0.20	4			081	081
10	13	10.0		27	67	10	0.20	4	115.33	115.33	100	100
10	25	9.7	30	33	73	10	0.20	4			101	101
12	16	12.0		29	74	12	0.25	4	135.25	135.25	120	120
12	28	11.6	38	39	84	12	0.25	4			121	121
14	16	14.0		30	75	14	0.25	4	188.40	188.40	140	140
14	30	13.5	40	39	84	14	0.25	4			141	141
16	19	16.0		36	84	16	0.35	5	235.11	235.11	160	160
16	35	15.5	45	45	93	16	0.35	5			161	161
18	19	18.0		32	80	18	0.35	5	303.11	303.11	180	180
18	35	17.5	45	45	93	18	0.35	5			181	181
20	19	20.0		43	93	20	0.40	5	358.38	358.38	200	200
20	40	19.5	55	54	104	20	0.40	5			201	201
25	50	24.0	65	69	125	25	0.50	5			251	251

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals				
Heat resistant alloys	○	○	○	○
hardened materials				

→ v₀/f_z Page 344+345

Ball nosed cutter

- ▲ Radius accuracy: ±0.005 mm
- ▲ For Ø DC ≤ 5.0 mm, angle tolerance α and β: ±0.5°



Factory standard Factory standard



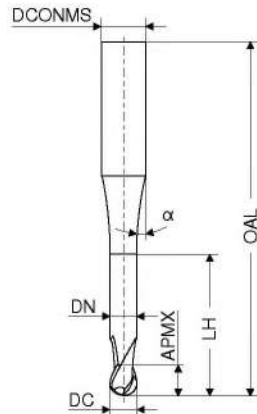
DC ±0.01	APMX	DN	LH	l ₆	OAL	α°	β°	DCONMS _{h5}	ZEFP	Fig.	V1 Article no. 52 718 ...	V1 Article no. 52 720 ...
mm	mm	mm	mm	mm	mm			mm			£	£
0.5	1.0	0.45	2.0	9	38	10.0	8.0	3	2	A	176.42	005
1.0	2.0	0.95	4.0	9	38	12.5	6.5	3	2	A	154.91	010
1.5	2.5	1.40	7.5	9	38	32.0	5.0	3	2	A	136.65	015
2.0	3.0	1.80	8.0	9	38	31.0	3.5	3	2	A	106.59	020
3.0	3.5	2.80	10.0	20	57	11.5	5.0	6	2	A	121.60	030
3.0	3.5	2.80	12.0	40	80	3.5	2.5	6	2	A		113.16 030
4.0	4.0	3.80	12.0	20	57	11.0	3.5	6	2	A	115.89	040
4.0	4.0	3.80	20.0	40	80	4.0	1.5	6	2	A		117.27 040
5.0	5.0	4.70	10.0	40	100	1.5	1.0	6	2	A		151.86 050
5.0	5.0	4.70	14.0	20	57	10.0	2.0	6	2	A	125.27	050
6.0	6.0	5.60	20.0		57			6	2	B	163.40	060
6.0	6.0	5.60	40.0		100			6	2	B		153.49 060
8.0	7.0	7.60	25.0		63			8	2	B	178.32	080
8.0	7.0	7.60	60.0		120			8	2	B		165.30 080
10.0	8.0	9.60	30.0		72			10	2	B	193.51	100
10.0	8.0	9.60	60.0		120			10	2	B		185.97 100
12.0	8.0	11.50	40.0		83			12	2	B	322.33	120
12.0	10.0	11.50	70.0		160			12	2	B		313.37 120

Steel		
Stainless steel		
Cast iron		
Non ferrous metals	●	●
Heat resistant alloys	○	○
hardened materials		

→ v_d/f, Page 350-356

Ball nosed cutter

▲ Radius accuracy: ±0.01 mm

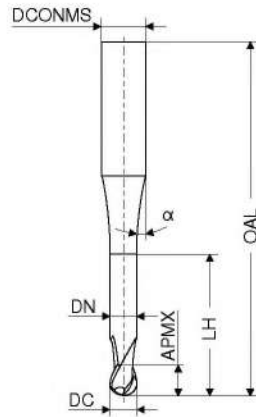


DC ₁₈	APMX	DN	LH	OAL	α°	DCONMS ₁₈	ZEFP	VO Article no. 50 903 ...	VO Article no. 50 903 ...
mm	mm	mm	mm	mm		mm		£	£
0.2	0.2	0.18	0.6	55	15	3	2	81.66 021	
0.2	0.2	0.18	1.0	55	15	3	2	82.81 022	
0.2	0.2	0.18	1.6	55	15	3	2	83.66 023	
0.2	0.2	0.18	2.0	55	15	3	2	84.65 024	
0.3	0.3	0.28	0.9	55	15	3	2	81.66 031	
0.3	0.3	0.28	1.5	55	15	3	2	82.81 032	
0.3	0.3	0.28	2.4	55	15	3	2	83.66 033	
0.3	0.3	0.28	3.0	55	15	3	2	84.65 034	
0.4	0.4	0.37	1.2	55	15	3	2	81.66 041	
0.4	0.4	0.37	2.0	55	15	3	2	82.81 042	
0.4	0.4	0.37	3.2	55	15	3	2	83.66 043	
0.4	0.4	0.37	4.0	55	15	3	2	84.65 044	
0.5	0.5	0.45	1.5	55	15	3	2	79.96 051	
0.5	0.5	0.45	2.5	55	15	3	2	80.81 052	
0.5	0.5	0.45	4.0	55	15	3	2	81.66 053	
0.5	0.5	0.45	5.0	55	15	3	2	82.81 054	
0.6	0.6	0.58	2.0	55	15	3	2	67.39 061	
0.6	0.6	0.58	3.0	55	15	3	2	67.13 062	
0.6	0.6	0.58	5.0	65	15	3	2		73.12 063
0.6	0.6	0.58	6.0	65	15	3	2		77.39 064
0.8	0.8	0.77	2.5	55	15	3	2	67.13 081	
0.8	0.8	0.77	4.0	55	15	3	2	67.13 082	
0.8	0.8	0.77	6.5	65	15	3	2		74.68 083
0.8	0.8	0.77	8.0	65	15	3	2		77.39 084
1.0	1.0	0.95	3.0	55	15	3	2	67.13 101	
1.0	1.0	0.95	5.0	55	15	3	2	67.13 102	
1.0	1.0	0.95	8.0	65	15	3	2		70.98 103
1.0	1.0	0.95	10.0	65	15	3	2		77.39 104
1.0	1.0	0.95	12.0	65	15	3	2		79.36 105
1.2	1.2	1.15	3.0	55	15	3	2	67.13 121	
1.2	1.2	1.15	6.0	55	15	3	2	67.13 122	
1.2	1.2	1.15	10.0	65	15	3	2		74.68 123
1.2	1.2	1.15	12.0	65	15	3	2		77.39 124
1.3	1.3	1.25	4.0	55	15	3	2	67.13 131	
1.3	1.3	1.25	7.0	55	15	3	2	67.13 132	
1.3	1.3	1.25	11.0	65	15	3	2		74.68 133
1.3	1.3	1.25	13.0	65	15	3	2		77.39 134
1.5	1.5	1.44	5.0	55	15	3	2	67.39 151	
1.5	1.5	1.44	7.5	55	15	3	2	67.13 152	
1.5	1.5	1.44	12.0	65	15	3	2		77.39 154

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

Ball nosed cutter

▲ Radius accuracy: ±0.01 mm



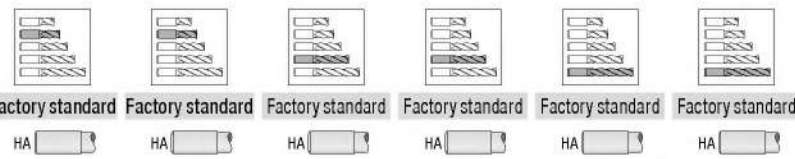
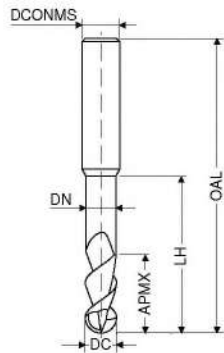
DC ₁₈	APMX	DN	LH	OAL	α°	DCONMS ₁₅	ZEFP
mm	mm	mm	mm	mm		mm	
1.5	1.5	1.44	15.0	65	15	3	2
1.6	1.6	1.52	5.0	55	15	3	2
1.6	1.6	1.52	8.0	55	15	3	2
1.6	1.6	1.52	13.0	65	15	3	2
1.6	1.6	1.52	16.0	65	15	3	2
1.8	1.8	1.72	5.5	55	15	3	2
1.8	1.8	1.72	9.0	55	15	3	2
1.8	1.8	1.72	14.5	65	15	3	2
1.8	1.8	1.72	18.0	65	15	3	2
2.0	2.0	1.92	6.0	55	15	3	2
2.0	2.0	1.92	10.0	55	15	3	2
2.0	2.0	1.92	14.0	55	15	3	2
2.0	2.0	1.92	16.0	65	15	3	2
2.0	2.0	1.92	20.0	65	15	3	2
2.3	2.3	2.22	7.0	55	15	3	2
2.3	2.3	2.22	11.5	55	15	3	2
2.3	2.3	2.22	18.5	65	15	3	2
2.3	2.3	2.22	20.0	65	15	3	2
2.3	2.3	2.22	23.0	65	15	3	2
3.0	3.0	2.90	9.0	65	15	6	2
3.0	3.0	2.90	15.0	65	15	6	2
3.0	3.0	2.90	24.0	100	15	6	2
3.0	3.0	2.90	30.0	100	15	6	2
4.0	4.0	3.90	12.0	65	15	6	2
4.0	4.0	3.90	20.0	65	15	6	2
4.0	4.0	3.90	32.0	100	15	6	2
4.0	4.0	3.90	40.0	100	15	6	2
5.0	5.0	4.90	15.0	65	15	6	2
5.0	5.0	4.90	25.0	65	15	6	2
5.0	5.0	4.90	40.0	100	15	6	2
5.0	5.0	4.90	50.0	100	15	6	2
6.0	6.0	5.90	18.0	65	15	6	2
6.0	6.0	5.90	30.0	100	15	6	2
6.0	6.0	5.90	48.0	100	15	6	2
6.0	6.0	5.90	60.0	100	15	6	2

Material	Article no.	Price (£)	Article no.	Price (£)
Steel	50 903 ...		50 903 ...	
Stainless steel				
Cast iron				
Non ferrous metals				
Heat resistant alloys				
hardened materials				

→ v_c/f_z; Page 350-356

Ball nosed cutter

▲ Radius accuracy: ±0.01 mm

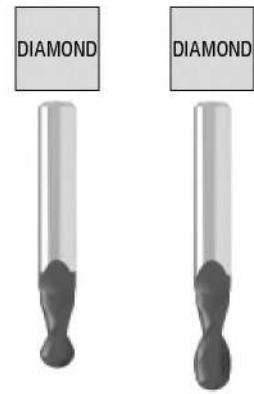
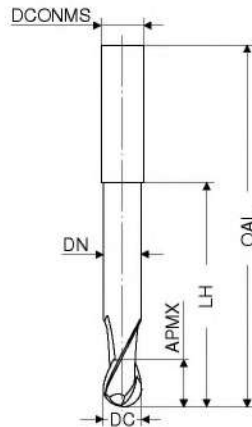
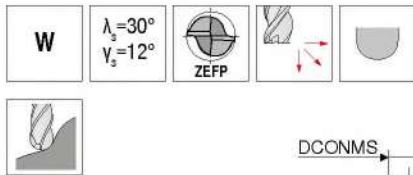


DC _{h6}	APMX	DN	LH	OAL	DCONMS _{h5}	ZEFP	VO		VO		VO		VO		VO		VO	
							Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£
3	5.0	2.8	12	55	6	2	54 640 ...	61.42	54 642 ...	74.12	54 640 ...	66.97	54 642 ...	80.81	54 640 ...	81.80	54 642 ...	97.05
3	3.5	2.8	15	58	6	2					70.25	034	84.94	034				
3	8.0	2.8	15	58	6	2												
3	3.5	2.8	24	67	6	2												
4	6.5	3.8	12	55	6	2	61.42	041	74.12	041								
4	10.5	3.8	20	62	6	2					70.25	042	95.48	042				
4	4.5	3.8	20	62	6	2					66.97	044	80.81	044				
4	4.5	3.8	32	74	6	2									81.80	045	97.05	045
5	8.0	4.8	15	58	6	2	61.42	051	74.12	051								
5	13.0	4.8	25	70	6	2					70.25	052	84.94	052				
5	5.5	4.8	25	70	6	2					66.97	054	80.81	054				
5	5.5	4.8	40	88	6	2									81.80	055	97.05	055
6	10.0	5.8	18	58	6	2	61.42	061	74.12	061								
6	16.0	5.8	30	70	6	2					70.25	062	84.94	062				
6	7.0	5.8	30	70	6	2					66.97	064	80.81	064				
6	7.0	5.8	48	88	6	2									80.24	065	97.05	065
8	13.0	7.7	24	64	8	2	78.58	081	92.97	081								
8	21.0	7.7	40	80	8	2					91.78	082	106.52	082				
8	9.0	7.7	40	80	8	2					87.50	084	101.35	084				
8	9.0	7.7	64	104	8	2									105.02	085	124.12	085
10	16.0	9.7	30	74	10	2	105.55	101	124.12	101								
10	26.0	9.7	50	94	10	2					120.91	102	146.07	102				
10	11.0	9.7	50	94	10	2					117.43	104	135.37	104				
10	11.0	9.7	80	124	10	2									140.65	105	161.60	105
12	19.0	11.6	36	85	12	2	149.64	121	166.15	121								
12	31.0	11.6	60	109	12	2					205.06	122	228.99	122				
12	13.0	11.6	60	109	12	2					196.07	124	217.04	124				
12	13.0	11.6	96	145	12	2									270.91	125	300.82	125
14	22.0	13.6	42	91	14	2	187.12	141	206.50	141								
14	36.0	13.6	70	119	14	2					257.36	142	282.88	142				
14	15.0	13.6	70	119	14	2					245.38	144	269.32	144				
14	15.0	13.6	112	161	14	2									353.11	145	387.60	145
16	25.0	15.5	48	100	16	2	246.95	161	266.33	161								
16	41.0	15.5	80	132	16	2					338.17	162	366.66	162				
16	17.0	15.5	80	132	16	2					321.76	164	348.72	164				
16	17.0	15.5	128	180	16	2									483.35	165	523.69	165
18	29.0	17.5	54	106	18	2	342.72	181	363.65	181								
18	47.0	17.5	90	142	18	2					471.38	182	499.76	182				
18	20.0	17.5	90	142	18	2					448.86	184	475.81	184				
18	20.0	17.5	144	196	18	2									674.88	185	713.78	185
20	32.0	19.5	60	114	20	2	345.69	201	371.05	201								
20	52.0	19.5	100	154	20	2					475.81	202	510.30	202				
20	22.0	19.5	100	154	20	2					453.43	204	486.35	204				
20	22.0	19.5	160	214	20	2									679.30	205	728.74	205

Steel					
Stainless steel					
Cast iron					
Non ferrous metals	•	•	•	•	•
Heat resistant alloys					
hardened materials					

→ v_d/f_z, Page 338+339

Ball nosed cutter



Factory standard Factory standard
HA HA

DC _{h10}	APMX	LH	DN	OAL	DCONMS _{n6}	ZEFP
mm	mm	mm	mm	mm	mm	
0.5	1.5			38	3	2
1.0	2.0			38	3	2
2.0	3.0			38	3	2
2.0	3.0			50	6	2
2.0	8.0	31	1.8	60	2	2
3.0	5.0			38	3	2
3.0	5.0			50	6	2
3.0	12.0	41	2.8	70	3	2
4.0	8.0			54	6	2
4.0	15.0	51	3.8	80	4	2
5.0	9.0			54	6	2
5.0	20.0	71	4.8	100	5	2
6.0	10.0			54	6	2
6.0	20.0	63	5.8	100	6	2
8.0	12.0			58	8	2
8.0	20.0	83	7.8	120	8	2
10.0	14.0			66	10	2
10.0	25.0	99	9.8	140	10	2
12.0	25.0	104	11.8	150	12	2

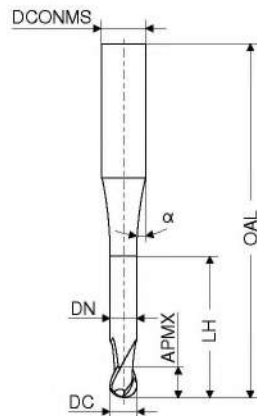
V1		V1	
Article no.		Article no.	
52 766 ...		52 768 ...	
£		£	
160.04	005		
155.61	010		
155.61	020		
238.70	021		
		188.40	020
155.61	030		
238.70	031		
		176.56	030
238.70	040		
		249.52	040
238.70	050		
		289.27	050
234.57	060		
		320.46	060
321.76	080		
		426.06	080
409.11	100		
		547.05	100
		718.46	120

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	•
Heat resistant alloys	•
hardened materials	

→ v_c/f, Page 348

Micro-ball nosed cutter

▲ Radius accuracy: ±0.01 mm



DC ₁₈	APMX	LH	DN	OAL	α°	DCONMS _{HS}	ZEFP
mm	mm	mm	mm	mm		mm	
0.6	1.2	3.0	0.58	55	15	6	2
0.6	1.2	6.0	0.58	65	15	6	2
0.8	1.2	4.0	0.77	55	15	6	2
0.8	1.2	8.0	0.77	65	15	6	2
1.0	1.5	5.0	0.95	55	15	6	2
1.0	1.5	12.0	0.95	65	15	6	2
1.2	1.6	6.0	1.15	55	15	6	2
1.2	1.6	12.0	1.15	65	15	6	2
1.5	1.8	7.5	1.44	55	15	6	2
1.5	1.8	15.0	1.44	65	15	6	2
2.0	2.0	10.0	1.92	55	15	6	2
2.0	2.0	20.0	1.92	65	15	6	2

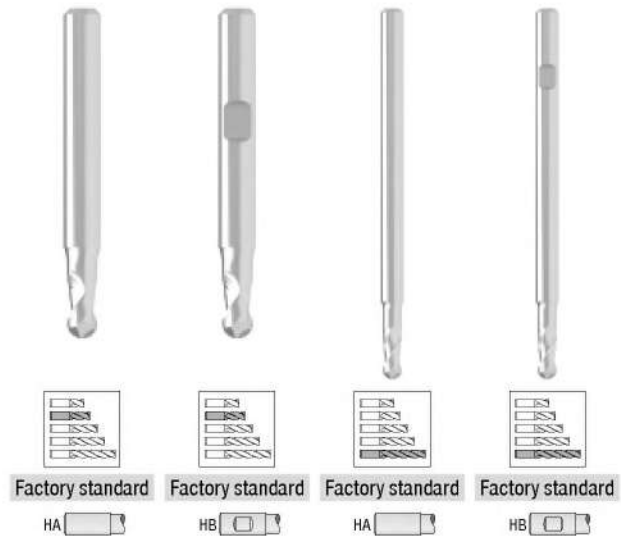
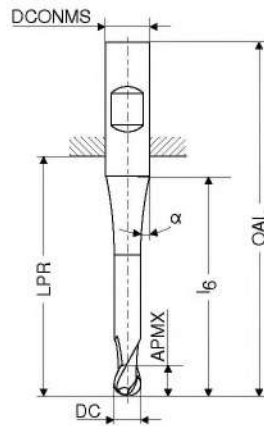
VO	VO
Article no. 50 912 ...	Article no. 50 912 ...
£	£
147.07	906
161.03	006
147.07	908
161.03	008
147.07	910
161.03	010
147.07	912
161.03	012
147.07	915
161.03	015
147.07	920
161.03	020

Steel
Stainless steel
Cast iron
Non ferrous metals
Heat resistant alloys
hardened materials

→ v_c/f_z Page 348

Ball nosed cutter

▲ Radius accuracy: ±0.005 mm

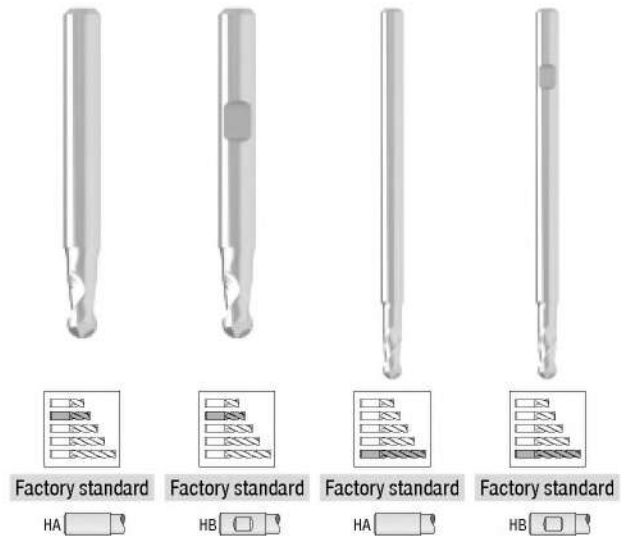
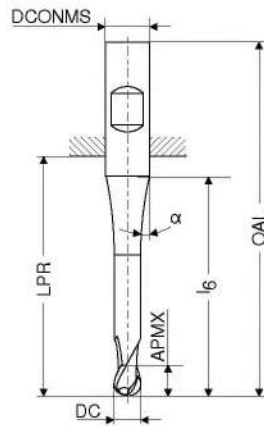


DC _{f8}	APMX	l ₆	LPR	OAL	α [°] _{40,5}	DCONMS _{h6}	ZEFP	V1 Article no. 52 250 ... £	V1 Article no. 52 250 ... £	V1 Article no. 52 251 ... £	V1 Article no. 52 251 ... £
0.10	0.2	12.5	10	38	8	3	2	95.62	910		
0.15	0.3	11.5	10	38	8	3	2	81.36	915		
0.20	0.4	12.0	10	38	8	3	2	76.10	920		
0.25	0.5	12.5	10	38	8	3	2	83.74	925		
0.30	1.0	11.0	10	38	8	3	2	79.53	930		
0.35	1.0	11.0	10	38	8	3	2	70.18	935		
0.40	1.0	11.0	10	38	8	3	2	51.88	940		
0.50	1.5	11.5	10	38	8	3	2	41.75	950		
0.50	1.5	15.5	18	54	12	6	2	41.75	951		
0.50	1.5	11.5	47	75	8	3	2			48.16	005
0.50	1.5	16.0	44	80	12	6	2			56.02	006
0.60	1.5	11.5	10	38	8	3	2	45.03	960		
0.70	2.0	11.5	10	38	8	3	2	41.75	970		
0.80	2.0	11.5	10	38	8	3	2	41.75	980		
0.90	2.5	12.0	10	38	8	3	2	41.75	990		
1.00	2.0	11.0	22	50	8	3	2	45.32	011		
1.00	2.0	16.0	18	54	12	6	2	47.01	106	47.39	010
1.00	3.0	12.0	47	75	8	3	2			60.45	010
1.00	3.0	17.5	44	80	12	6	2			73.67	011
1.10	3.0	13.0	22	50	8	3	2	41.75	911		
1.20	3.0	13.0	22	50	8	3	2	41.75	012		
1.40	3.0	13.0	22	50	8	3	2	41.75	014		
1.50	3.0	11.0	22	50	8	3	2	45.32	016		
1.50	3.0	16.5	18	54	12	6	2	47.01	156	47.39	015
1.50	4.0	13.0	47	75	8	3	2			58.56	015
1.50	4.0	16.5	44	80	12	6	2			73.67	016
1.60	4.0	10.5	22	50	8	3	2	41.75	916		
1.80	4.0	10.0	22	50	8	3	2	41.75	018		
2.00	4.0	10.0	22	50	8	3	2	45.32	021		
2.00	4.0	16.5	18	54	12	6	2	47.01	206	47.39	020
2.00	6.0	12.5	47	75	8	3	2			54.80	020
2.00	6.0	18.0	44	80	12	6	2			71.83	021
2.50	5.0	10.5	22	50	8	3	2	41.75	025		
2.50	5.0	16.0	18	54	12	6	2	45.58	026	45.58	027
2.50	8.0	14.0	47	75	8	3	2			54.59	025
2.50	8.0	18.5	44	80	12	6	2			72.69	026
3.00	6.0		22	50		3	2	45.32	031		
3.00	6.0	15.5	18	54	12	6	2	47.01	306	44.63	030
3.00	10.0		47	75		3	2			53.74	030
3.00	10.0	19.5	44	80	12	6	2			68.79	031
4.00	7.0	16.0	18	54	12	6	2	47.01	406	44.63	040

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials				

Ball nosed cutter

▲ Radius accuracy: ±0.005 mm



DC ₁₈	APMX		LPR	OAL		DCONMS ₁₈	ZEFP
mm	mm	l ₆ mm	mm	mm	α° _{40,5}	mm	
4.00	7.0		26	54		4	2
4.00	13.0		47	75		4	2
4.00	13.0	20.5	44	80	12	6	2
5.00	8.0	13.0	18	54	12	6	2
5.00	8.0		26	54		5	2
5.00	14.0		47	75		5	2
5.00	14.0	20.5	64	100	12	6	2
6.00	10.0		18	54		6	2
6.00	16.0		64	100		6	2
8.00	12.0		23	59		8	2
8.00	22.0		64	100		8	2
10.00	13.0		27	67		10	2
10.00	25.0		60	100		10	2
12.00	16.0		28	73		12	2
12.00	26.0		55	100		12	2
14.00	16.0		30	75		14	2
14.00	26.0		55	100		14	2
16.00	20.0		35	83		16	2
16.00	30.0		102	150		16	2
20.00	25.0		43	93		20	2
20.00	40.0		100	150		20	2

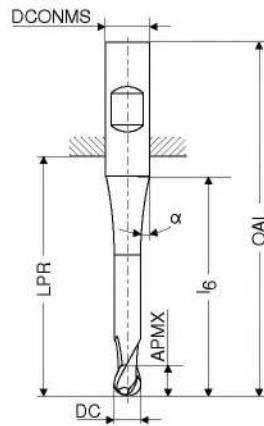
Factory standard		Factory standard		Factory standard		Factory standard	
HA		HB		HA		HB	
V1		V1		V1		V1	
Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
52 250 ...	52 250 ...	52 251 ...	52 251 ...	52 251 ...	52 251 ...	52 251 ...	52 251 ...
£	£	£	£	£	£	£	£
46.16							
				51.88	040		
				68.79	041	69.26	640
47.01	506	44.63	050				
47.39	051						
				57.16	050		
				68.79	051	69.26	650
45.03	061	44.63	060				
				61.86	061	62.22	060
51.88	081	51.04	080				
				72.25	081	73.82	080
65.56	101	65.99	100				
				95.34	101	99.35	100
95.34	121	96.61	120				
				129.83	121	132.40	120
125.13	141	125.27	140				
				183.82	141	187.68	140
136.30	161	139.22	160				
				294.55	161	300.82	160
240.12	201	241.68	200				
				357.25	201	364.65	200

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

→ v_c/f_z Page 350-356

Ball nosed cutter

▲ Radius accuracy: ±0.005 mm



Factory standard Factory standard Factory standard Factory standard



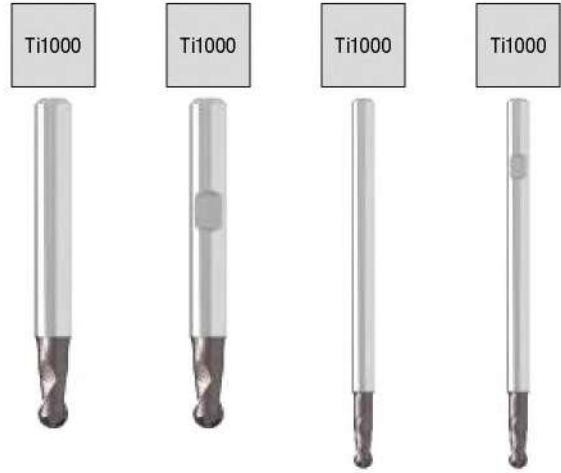
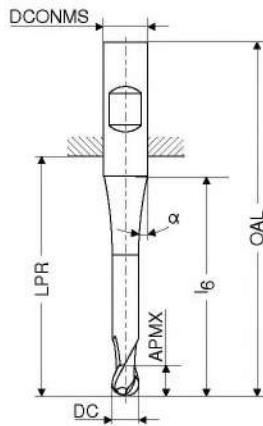
DC ₁₈	APMX	l ₆	LPR	OAL	α° _{40,5°}	DCONMS _{h6}	ZEFP	V1 Article no. 52 254 ...	V1 Article no. 52 254 ...	V1 Article no. 52 255 ...	V1 Article no. 52 255 ...
mm	mm	mm	mm	mm		mm		£	£	£	£
0.10	0.2	12.5	10	38	8	3	2	100.60	910		
0.15	0.3	11.5	10	38	8	3	2	88.07	915		
0.20	0.4	12.0	10	38	8	3	2	81.79	920		
0.25	0.5	12.5	10	38	8	3	2	107.92	925		
0.30	1.0	11.0	10	38	8	3	2	102.07	930		
0.35	1.0	11.0	10	38	8	3	2	90.80	935		
0.40	1.0	11.0	10	38	8	3	2	68.13	940		
0.50	1.5	15.5	18	54	12	6	2	51.73	951		
0.50	1.5	16.0	44	80	12	6	2			84.21	006
0.50	1.5	11.5	10	38	8	3	2	56.88	950		
0.50	1.5	11.5	47	75	8	3	2			55.36	005
0.60	1.5	11.5	10	38	8	3	2	62.42	960		
0.70	2.0	11.5	10	38	8	3	2	56.88	970		
0.80	2.0	11.5	10	38	8	3	2	56.88	980		
0.90	2.5	12.0	10	38	8	3	2	56.88	990		
1.00	2.0	11.0	22	50	8	3	2	63.11	011		
1.00	2.0	16.0	18	54	12	6	2	64.20	106	69.50	010
1.00	3.0	12.0	47	75	8	3	2				
1.00	3.0	17.5	44	80	12	6	2			80.89	010
1.10	3.0	13.0	22	50	8	3	2	58.63	911	88.34	011
1.20	3.0	13.0	22	50	8	3	2	58.63	012		88.78
1.40	3.0	13.0	22	50	8	3	2	58.63	014		610
1.50	3.0	11.0	22	50	8	3	2	63.11	016		
1.50	3.0	16.5	18	54	12	6	2	64.20	156	69.50	015
1.50	4.0	13.0	47	75	8	3	2			80.07	015
1.50	4.0	16.5	44	80	12	6	2			88.34	016
1.60	4.0	10.5	22	50	8	3	2	58.63	916		88.78
1.80	4.0	10.0	22	50	8	3	2	58.63	018		615
2.00	4.0	16.5	18	54	12	6	2	64.20	206	69.50	020
2.00	4.0	10.0	22	50	8	3	2	63.11	021		
2.00	6.0	12.5	47	75	8	3	2				
2.00	6.0	18.0	44	80	12	6	2			75.59	020
2.50	5.0	16.0	18	54	12	6	2	60.87	026	60.87	027
2.50	5.0	10.5	22	50	8	3	2	58.63	025		
2.50	8.0	14.0	47	75	8	3	2			73.96	025
2.50	8.0	18.5	44	80	12	6	2			86.94	026
3.00	6.0	15.5	18	54	12	6	2	64.20	306	64.60	030
3.00	6.0		22	50		3	2	63.11	031		
3.00	10.0		47	75		3	2			73.15	030
3.00	10.0	19.5	44	80	12	6	2			84.59	031
											85.07
											630

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

→ v_c/f_z, Page 350-356

Ball nosed cutter

▲ Radius accuracy: ±0.005 mm



Factory standard Factory standard Factory standard Factory standard



DC ₁₈	APMX	l ₆	LPR	OAL	α° _{40,5°}	DCONMS _{h6}	ZEFP	V1 Article no. 52 254 ...		V1 Article no. 52 254 ...		V1 Article no. 52 255 ...		V1 Article no. 52 255 ...	
mm	mm	mm	mm	mm		mm		£		£		£		£	
4.00	7.0	13.0	18	54	12	6	2	64.20	406	64.60	040				
4.00	7.0		26	54		4	2	66.52	041						
4.00	13.0		47	75		4	2					72.21	040		
4.00	13.0	20.5	44	80	12	6	2					84.59	041	85.07	640
5.00	8.0	13.0	18	54	12	6	2	64.20	506	64.60	050				
5.00	8.0		26	54		5	2	69.50	051						
5.00	14.0		47	75		5	2					79.54	050		
5.00	14.0	20.5	64	100	12	6	2					84.59	051	85.07	650
6.00	10.0		18	54		6	2	64.48	061	64.60	060				
6.00	16.0		64	100		6	2					93.77	061	96.22	060
8.00	12.0		23	59		8	2	77.63	081	78.59	080				
8.00	22.0		64	100		8	2					112.78	081	115.77	080
10.00	13.0		27	67		10	2	102.07	101	102.62	100				
10.00	25.0		60	100		10	2					153.08	101	152.00	100
12.00	16.0		28	73		12	2	145.62	121	146.44	120				
12.00	26.0		55	100		12	2					195.83	121	200.99	120
14.00	16.0		30	75		14	2	185.12	141	185.25	140				
14.00	26.0		55	100		14	2					264.78	141	271.72	140
16.00	20.0		35	83		16	2	211.71	161	213.34	160				
16.00	30.0		102	150		16	2					430.07	161	441.20	160
18.00	22.0		43	93		18	2	329.40	181	329.40	180				
20.00	25.0		43	93		20	2	347.42	201	348.39	200				
20.00	40.0		100	150		20	2					524.93	201	538.23	200

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

→ v_c/f, Page 350-356

Ball nosed cutter

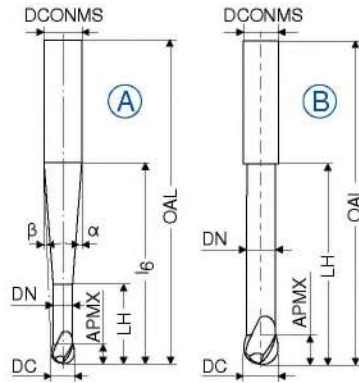
- ▲ Radius accuracy: ±0.005 mm
- ▲ For Ø DC ≤ 5.0 mm, angle tolerance α and β: ±0.5°

N

$\lambda_s = 30^\circ$
 $\gamma_s = 3^\circ$

ZAFP

≤ 56 HRC



Factory standard
 HA

Factory standard
 HA

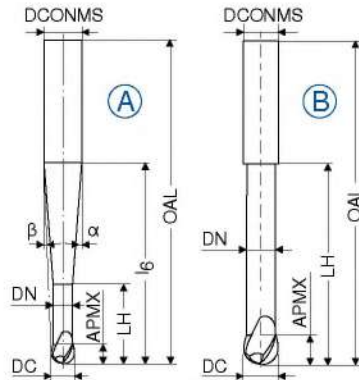
DC ±0.01	APMX	DN	LH	l _s	OAL	α°	β°	DCONMS _{ns}	ZAFP	Fig.	V1 Article no. 52 714 ... £	V1 Article no. 52 717 ... £
0.5	1.0	0.45	2.0	20	57	10.0	8.5	6	2	A	187.12	005
1.0	2.0	0.95	4.0	20	57	10.0	8.0	6	2	A	164.60	010
1.0	2.0	0.95	4.0	40	80	4.5	4.0	6	2	A		143.06 010
1.5	2.5	1.40	7.5	20	57	12.5	7.0	6	2	A	156.90	015
1.5	2.5	1.40	7.5	40	80	4.5	3.5	6	2	A		136.65 015
2.0	3.0	1.80	8.0	20	57	12.0	6.5	6	2	A	132.73	020
2.0	3.0	1.80	8.0	40	80	4.0	3.0	6	2	A		121.40 020
3.0	3.5	2.80	10.0	20	57	11.5	5.0	6	2	A	126.62	030
3.0	3.5	2.80	12.0	40	80	3.5	2.5	6	2	A		114.58 030
4.0	4.0	3.80	12.0	20	57	11.0	3.5	6	2	A	118.89	040
4.0	4.0	3.80	20.0	40	80	4.0	1.5	6	2	A		109.60 040
5.0	5.0	4.70	14.0	20	57	10.0	2.0	6	2	A	152.42	050
5.0	5.0	4.70	25.0	40	80	3.0	1.0	6	2	A		111.31 050
6.0	6.0	5.60	20.0		57			6	2	B	156.77	060
6.0	6.0	5.60	40.0		80			6	2	B		137.89 060
6.0	6.0	5.60	25.0	60	100	2.0	1.0	8	2	A		158.19 061
8.0	7.0	7.60	25.0		63			8	2	B	168.98	080
8.0	7.0	7.60	60.0		100			8	2	B		160.73 080
8.0	7.0	7.60	30.0	75	120	2.0	1.0	10	2	A		211.47 081
10.0	8.0	9.60	30.0		72			10	2	B	193.80	100
10.0	8.0	9.60	50.0		100			10	2	B		186.39 102
10.0	8.0	9.60	75.0		120			10	2	B		181.83 100
10.0	8.0	9.60	40.0	110	160	1.0	1.0	12	2	A		281.01 101
12.0	10.0	11.50	35.0		83			12	2	B	277.87	120
12.0	10.0	11.50	35.0	40	92	35.0	3.5	16	2	A	357.10	121
12.0	10.0	11.50	70.0		120			12	2	B		297.98 122
12.0	10.0	11.50	70.0		160			12	2	B		310.37 120
12.0	10.0	11.50	50.0	150	200	1.5	1.0	16	2	A		569.85 121
16.0	12.0	15.50	40.0		92			16	2	B	351.83	160
16.0	12.0	15.50	80.0		200			16	2	B		557.88 160

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

→ v_c/f, Page 350-356

Ball nosed cutter

- ▲ Radius accuracy: ±0.01 mm
- ▲ for $\varnothing \leq 5.0$ mm, angle tolerance α and β : ±0.5°



Factory standard

HA

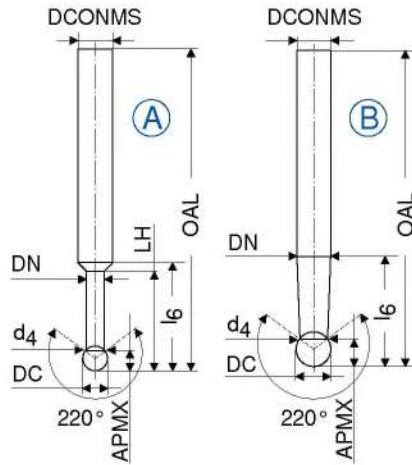
DC _{es}	APMX	DN	LH	l _b	OAL	α°	β°	DCONMS _{ns}	ZEFP	Fig.	V1 Article no. 52 320 ...	£	
mm	mm	mm	mm	mm	mm			mm					
2	3	1.8	8	40	100	3.6	3.0	6	2	A		97.34	020
3	4	2.8	12	40	100	3.1	2.1	6	2	A		97.34	030
4	5	3.8	16	40	100	2.4	1.2	6	2	A		93.96	040
5	6	4.7	20	40	100	1.4	0.7	6	2	A		94.49	050
6	6	5.7	25	50	100	2.3	1.2	8	2	A		130.12	061
6	6	5.7	25		100			6	2	B		79.56	060
8	7	7.7	32		100			8	2	B		120.73	080
8	7	7.7	32	60	120	2.0	1.0	10	2	A		181.39	081
10	9	9.6	40		120			10	2	B		172.15	100
10	9	9.6	40	81	160	1.4	0.7	12	2	A		292.14	101
12	11	11.6	50		160			12	2	B		266.63	120
12	11	11.6	50	101	200	2.3	1.2	16	2	A		503.30	121
16	14	15.6	60		200			16	2	B		454.44	160

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 350-356

Ball nosed cutter 220°

▲ Radius accuracy: ±0.005 mm



Ti1000



Factory standard

HA

V1

Article no.
52 323 ...

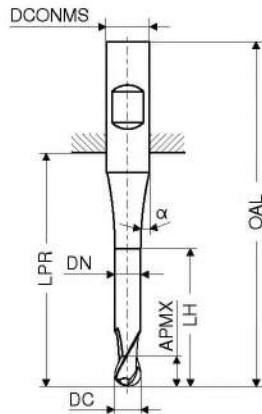
DC ₁₈	APMX	DN	d ₄	LH	l ₆	OAL	DCONMS _{h6}	ZEFP	Fig.	£	
1.0	0.7	0.85	0.8	5	17	58	6	2	A	143.64	010
1.5	1.2	1.25	1.2	8	20	58	6	2	A	143.64	015
2.0	1.5	1.70	1.4	10	21	58	6	2	A	143.64	020
3.0	2.3	2.70	2.4	15	22	65	6	2	A	145.06	030
4.0	3.0	3.70	3.4	20	25	70	6	2	A	148.36	040
5.0	3.5	4.70	4.3	25	28	80	6	2	A	154.47	050
6.0	4.0	5.90	4.3		30	100	6	2	B	178.70	060
8.0	5.4	7.90	6.2		40	100	8	2	B	236.85	080
10.0	6.7	9.90	7.6		50	100	10	2	B	311.21	100
12.0	9.0	11.90	9.2		110	160	12	2	B	456.67	121
12.0	9.0	11.90	9.2		70	120	12	2	B	429.16	120

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 350–356

Ball nosed cutter

▲ Radius accuracy: ±0.01 mm



≈DIN 6527 ≈DIN 6527

HB

V3 V3

Article no. 54 055 ... Article no. 54 056 ...

£ £

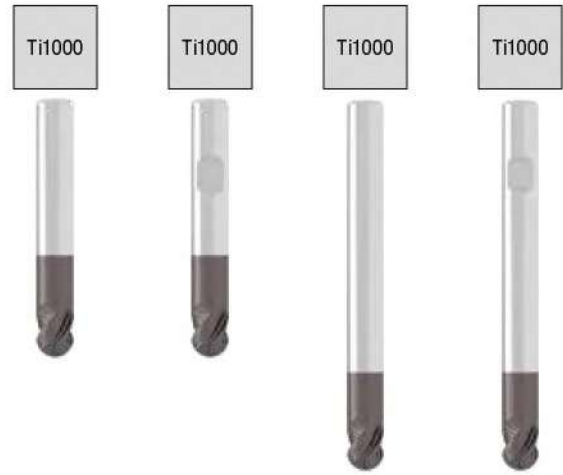
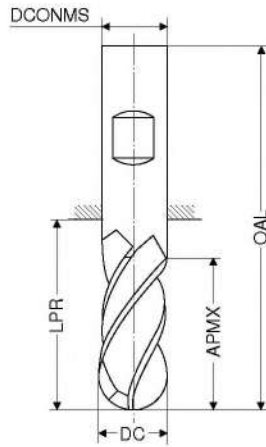
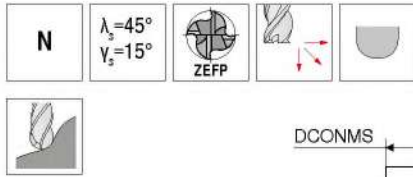
DC _{m10}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	α°	ZEFP		
mm	mm	mm	mm	mm	mm	mm				
3	5			14	50	6	15	2		
3	8	2.8	12	21	57	6	15	2		
4	8			18	54	6	15	2		
4	11	3.8	15	21	57	6	15	2		
5	9			18	54	6	15	2		
5	13	4.8	17	21	57	6	15	2		
6	10			18	54	6	30	2		
6	13	5.8	21	21	57	6	30	2		
8	12			22	58	8	30	2		
8	19	7.7	27	27	63	8	30	2		
10	14			26	66	10	30	2		
10	22	9.7	32	32	72	10	30	2		
12	16			28	73	12	30	2		
12	26	11.6	38	38	83	12	30	2		
16	22			34	82	16	30	2		
16	32	15.5	44	44	92	16	30	2		
20	26			42	92	20	30	2		
20	38	19.5	54	54	104	20	30	2		

Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials	●	●

→ v_c/f_z Page 350-356

Ball nosed cutter

▲ Radius accuracy: ±0.005 mm



Factory standard Factory standard Factory standard Factory standard

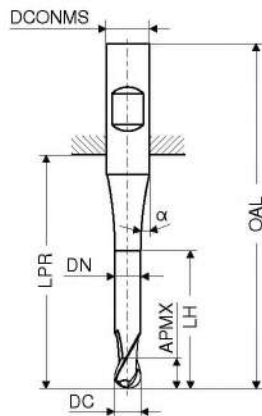


DC ₁₈	APMX	LPR	OAL	DCONMS _{h6}	ZEFP	HA	HB	HA	HB	HA	HB
mm	mm	mm	mm	mm		V1	V1	V1	V1	V1	V1
						Article no. 52 400 ...	Article no. 52 401 ...	Article no. 52 402 ...	Article no. 52 403 ...		
						£	£	£	£		
3	5	22	50	3	4	57.43	030				
3	5	47	75	3	4			69.40	030		
4	8	26	54	4	4	57.60	040				
4	8	47	75	4	4			77.17	040		
5	9	26	54	5	4	60.29	050				
5	9	47	75	5	4			80.24	050		
6	10	18	54	6	4	63.55	060	63.55	060		
6	10	64	100	6	4			82.39	060	82.39	060
8	12	23	59	8	4	78.54	080	78.54	080		
8	12	64	100	8	4			104.17	080	104.17	080
10	14	27	67	10	4	104.15	100	104.15	100		
10	14	60	100	10	4			132.67	100	132.67	100
12	16	29	74	12	4	133.55	120	133.55	120		
12	16	55	100	12	4			171.29	120	171.29	120
14	18	30	75	14	4	166.99	140	166.99	140		
14	18	55	100	14	4			210.76	140	210.76	140
16	22	35	83	16	4	219.15	160	219.15	160		
16	22	102	150	16	4			314.77	160	314.77	160
20	26	43	93	20	4	336.01	200	336.01	200		
20	26	100	150	20	4			464.69	200	464.69	200
Steel						○		○		○	
Stainless steel						●		●		●	
Cast iron						○		○		○	
Non ferrous metals						●		●		●	
Heat resistant alloys						●		●		●	
hardened materials						○		○		○	

→ v_c/f_z Page 350-356

Ball nosed cutter

▲ Radius accuracy: ±0.01 mm



≈DIN 6527 ≈DIN 6527

HB

V3 V3

Article no. 54 057 ... Article no. 54 058 ...

£ £

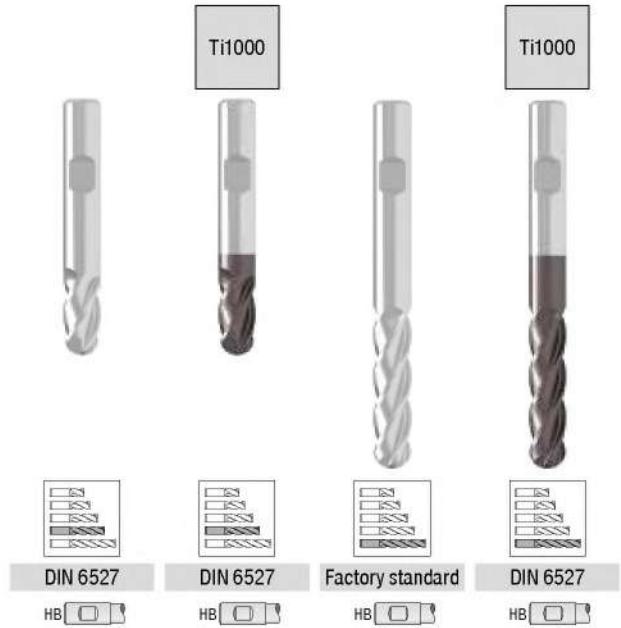
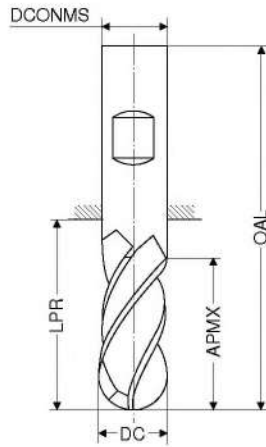
DC _{m10}	APMX	DN	LH	LPR	OAL	DCONMS _{ns}	α°	ZEFP		
mm	mm	mm	mm	mm	mm	mm				
3	5			14	50	6	15	4		
3	8	2.8	12	21	57	6	15	4		
4	8			18	54	6	15	4		
4	11	3.8	15	21	57	6	15	4		
5	9			18	54	6	15	4		
5	13	4.8	17	21	57	6	15	4		
6	10			18	54	6	30	4		
6	13	5.8	21	21	57	6	30	4		
8	12			22	58	8	30	4		
8	19	7.7	27	27	63	8	30	4		
10	14			26	66	10	30	4		
10	22	9.7	32	32	72	10	30	4		
12	16			28	73	12	30	4		
12	26	11.6	38	38	83	12	30	4		
16	22			34	82	16	30	4		
16	32	15.5	44	44	92	16	30	4		
20	26			42	92	20	30	4		
20	38	19.5	54	54	104	20	30	4		

Steel	●	●
Stainless steel	●	●
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	●	●
hardened materials	●	●

→ v_c/f_z Page 350-356

Ball nosed cutter

▲ Radius accuracy: ±0.01 mm



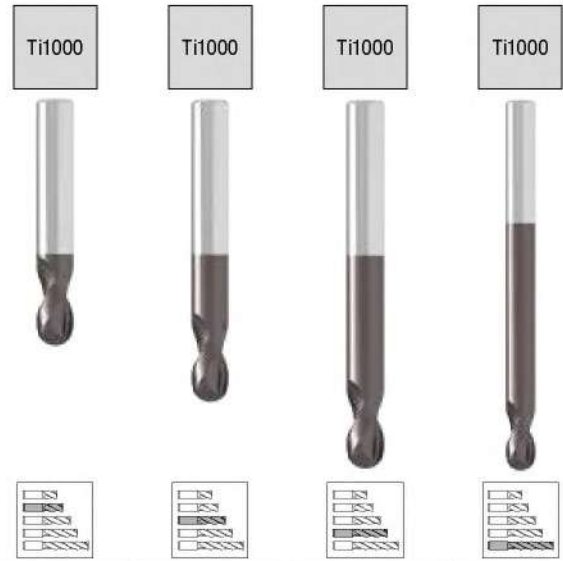
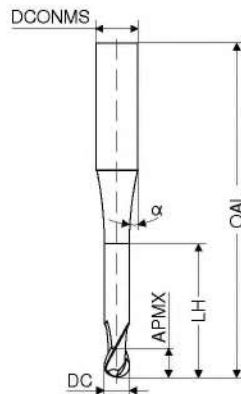
DC _{FB}	APMX	LPR	OAL	DCONMS _{h5}	ZEFP	DIN 6527	DIN 6527	Factory standard	DIN 6527
mm	mm	mm	mm	mm		Article no. 50 642 ...	Article no. 50 643 ...	Article no. 50 642 ...	Article no. 50 643 ...
						£	£	£	£
3	8	21	57	6	4	41.49 030	47.59 030		
4	11	21	57	6	4	41.49 040	47.59 040		
6	13	21	57	6	4	41.49 060	47.59 060		
6	40	64	100	6	4				
8	19	27	63	8	4	47.59 080	52.01 080	51.17 061	61.42 061
8	40	64	100	8	4			58.86 081	68.12 081
10	22	32	72	10	4	81.23 100	83.20 100		
10	40	60	100	10	4			104.17 101	113.72 101
12	26	38	83	12	4	108.89 120	110.58 120		
12	45	55	100	12	4			141.36 121	150.93 121
12	75	105	150	12	4			219.31 122	228.56 122
14	26	38	83	14	4	137.67 140	134.90 140		
14	45	55	100	14	4			195.95 141	205.21 141
16	32	44	92	16	4	193.95 160	190.39 160		
16	75	102	150	16	4			268.48 161	277.87 161
20	38	54	104	20	4	268.75 200	245.11 200		
20	75	100	150	20	4			425.95 201	435.33 201

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials		○		○

→ v_c/f_z Page 350-356

Ball nosed cutter

▲ Radius accuracy: ±0.01 mm



Factory standard HA Factory standard HA Factory standard HA Factory standard HA

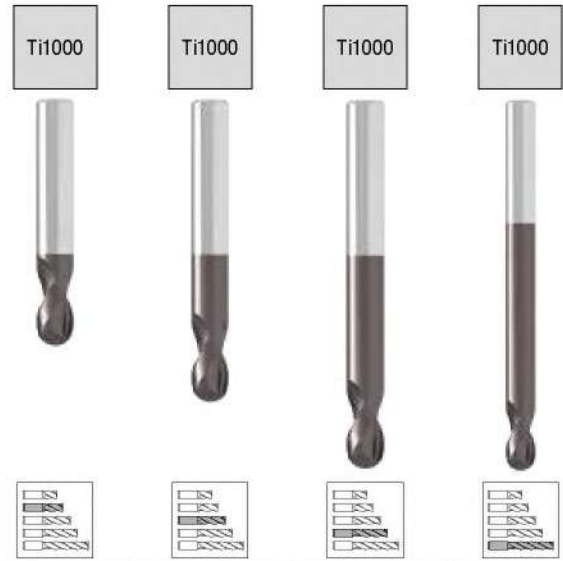
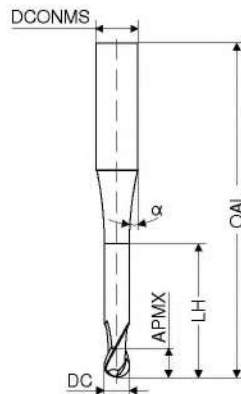
DC	Tol.	APMX	LH	OAL	α°	DCONMS _{HS}	ZEFP	VO Article no. 50 906 ...	VO Article no. 50 906 ...	VO Article no. 50 906 ...	VO Article no. 50 906 ...
mm		mm	mm	mm		mm		£	£	£	£
0.20	0/-0,015	0.3	0.6	40	15	4	2	83.47 002			
0.25	0/-0,015	0.3	0.6	40	15	4	2	83.47 925			
0.30	0/-0,015	0.3	0.6	40	15	4	2	83.47 003			
0.35	0/-0,015	0.4	0.7	40	15	4	2	83.47 935			
0.40	0/-0,015	0.4	0.7	40	15	4	2	83.47 004			
0.50	0/-0,015	0.5	0.8	40	15	4	2	83.47 005			
0.50	0/-0,015	0.5	0.8	54	15	6	2	95.96 951			
0.60	0/-0,015	0.6	0.9	40	15	4	2	83.47 006			
0.70	0/-0,015	0.8	1.1	40	15	4	2	83.47 007			
0.80	0/-0,015	0.8	1.1	40	15	4	2	83.47 008			
0.90	0/-0,015	0.9	1.2	40	15	4	2	83.47 009			
1.00	0/-0,015	1.0	1.3	54		4	2			83.47 010	
1.00	0/-0,015	1.0	1.3	54	15	6	2	95.96 011			
1.00	0/-0,015	1.0	1.3	64		6	2			100.44 012	
1.00	0/-0,015	1.0	1.3	80		6	2				104.63 013
1.00	0/-0,015	1.0	1.3	100		6	2				108.97 014
1.20	0/-0,015	1.2	1.5	54		4	2			83.47 112	
1.40	0/-0,015	1.4	1.8	54		4	2			83.47 114	
1.50	0/-0,015	1.5	1.9	54		4	2			83.47 115	
1.50	0/-0,015	1.5	1.9	54	15	6	2	95.96 215			
1.50	0/-0,015	1.5	1.9	80		6	2				104.63 315
1.60	0/-0,015	1.8	2.3	54		4	2			83.47 116	
1.80	0/-0,015	1.8	2.3	54		4	2			83.47 118	
2.00	0/-0,015	2.0	2.5	54		4	2			89.03 206	
2.00	0/-0,015	4.0	5.0	54		6	2			95.96 202	
2.00	0/-0,015	4.0	5.0	64		6	2			107.09 207	
2.00	0/-0,015	4.0	5.0	82		6	2				104.63 204
2.00	0/-0,015	4.0	5.0	100		6	2				108.97 205
2.50	0/-0,02	5.0	6.6	54		4	2			83.47 251	
2.50	0/-0,02	5.0	6.3	54	15	6	2	95.96 252			
2.50	0/-0,02	5.0	6.3	64		6	2			100.44 253	
2.50	0/-0,02	5.0	6.3	82		6	2				104.63 254
2.50	0/-0,02	5.0	6.3	100		6	2				108.97 255
3.00	0/-0,02	5.0	6.3	54		4	2			83.47 030	
3.00	0/-0,02	5.0	6.3	82		4	2				83.47 032
3.00	0/-0,02	5.0	6.3	100		4	2				83.47 033
3.00	0/-0,02	5.0	6.3	54	15	6	2	95.96 035			
3.00	0/-0,02	5.0	6.3	64		6	2			100.44 036	
3.00	0/-0,02	5.0	6.3	82		6	2				104.63 037
3.00	0/-0,02	8.0	10.0	100		6	2				108.97 038
4.00	0/-0,02	8.0		54	15	4	2			83.47 040	
4.00	0/-0,02	8.0		82	15	4	2				98.94 042
4.00	0/-0,02	8.0		100	15	4	2				105.31 043
4.00	0/-0,02	8.0	10.0	54	15	6	2	83.47 045			

Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

→ v_c/f_z Page 350-356

Ball nosed cutter

▲ Radius accuracy: ±0.01 mm



Factory standard HA Factory standard HA Factory standard HA Factory standard HA

DC	Tol.	APMX	LH	OAL	α°	DCONMS _{HS}	ZEFP
mm		mm	mm	mm		mm	
4.00	0/-0,02	8.0	10.0	64		6	2
4.00	0/-0,02	8.0	10.0	82		6	2
4.00	0/-0,02	8.0	10.0	100		6	2
5.00	0/-0,02	9.0		54	15	5	2
5.00	0/-0,02	9.0		64	15	5	2
5.00	0/-0,02	9.0		82	15	5	2
5.00	0/-0,02	9.0		100	15	5	2
5.00	0/-0,02	9.0	11.3	54	15	6	2
5.00	0/-0,02	9.0	11.3	64		6	2
5.00	0/-0,02	9.0	11.3	82		6	2
5.00	0/-0,02	9.0	11.3	100		6	2
6.00	0/-0,02	10.0		54	15	6	2
6.00	0/-0,02	10.0		64	15	6	2
6.00	0/-0,02	10.0		82	15	6	2
6.00	0/-0,02	10.0		100	15	6	2
6.00	0/-0,02	10.0		120	15	6	2
8.00	0/-0,025	12.0		64	15	8	2
8.00	0/-0,025	12.0		82	15	8	2
8.00	0/-0,025	12.0		100	15	8	2
8.00	0/-0,025	12.0		120	15	8	2
10.00	0/-0,025	14.0		67	15	10	2
10.00	0/-0,025	14.0		82	15	10	2
10.00	0/-0,025	14.0		100	15	10	2
10.00	0/-0,025	14.0		127	15	10	2
12.00	0/-0,025	16.0		75	15	12	2
12.00	0/-0,025	16.0		100	15	12	2
12.00	0/-0,025	16.0		150	15	12	2
14.00	0/-0,025	18.0		80	15	14	2
14.00	0/-0,025	18.0		100	15	14	2
14.00	0/-0,025	18.0		150	15	14	2
16.00	0/-0,025	22.0		85	15	16	2
16.00	0/-0,025	22.0		150	15	16	2
20.00	0/-0,025	26.0		90	15	20	2
20.00	0/-0,025	26.0		150	15	20	2

VO	VO	VO	VO
Article no.	Article no.	Article no.	Article no.
50 906 ...	50 906 ...	50 906 ...	50 906 ...
£	£	£	£
		100.44	046
			104.63 047
			108.97 048
		83.47	050
		100.44	051
			104.63 052
			108.97 053
83.47	055		
		100.44	056
			104.63 057
			108.97 058
83.47	060		
		100.44	061
			104.63 062
			108.97 063
			113.75 064
		91.20	081
	116.59	082	
			141.68 083
			166.65 084
113.86	101		
	153.35	102	
			193.52 103
			232.08 104
165.71	121		
	249.04	122	
			329.51 123
206.84	141		
	301.00	142	
			396.98 143
245.65	161		
			534.72 163
403.47	201		
			707.74 203

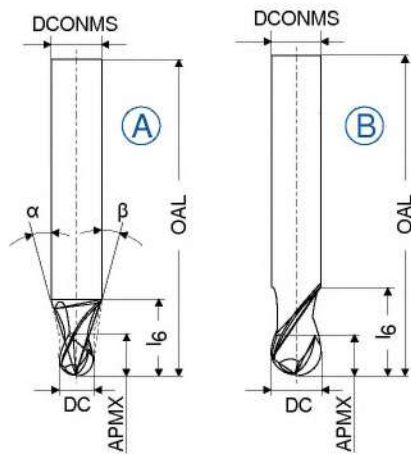
Steel	●	●	●	●
Stainless steel	○	○	○	○
Cast iron	●	●	●	●
Non ferrous metals	○	○	○	○
Heat resistant alloys	○	○	○	○
hardened materials	○	○	○	○

→ v_c/f_z Page 350-356

Ball nosed cutter

▲ Radius accuracy: ±0.005 mm

H
 $\lambda_s=30^\circ$
 $\nu_s=-3^\circ$
ZEFP
45-66
HRC

Ti1000



Factory standard

HA 

V1

Article no.
52 741 ...

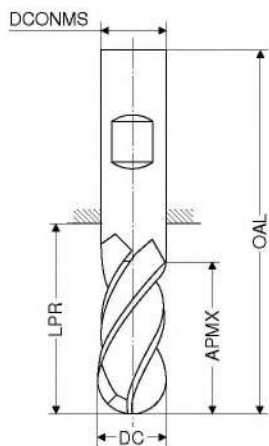
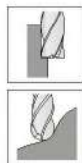
DC _{±0.01}	APMX	l ₆	OAL	α°	β°	DCONMS _{h5}	ZEFP	Fig.	£	
2	1.5	3.3	38	15	9	3	2	A	124.56	020
3	2.0	7.5	57	15	12	6	2	A	108.35	030
4	2.5	6.0	57	15	9	6	2	A	105.88	040
5	3.0	5.0	57	15	6	6	2	A	105.88	050
6	3.5		57	15		6	2	B	131.10	060
8	4.5		63	15		8	2	B	167.58	080
10	5.5		72	15		10	2	B	209.06	100
12	6.5		83	15		12	2	B	264.49	120

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_d/f_z, Page 350-356

Ball nose cutter for rough milling

▲ Radius accuracy: ±0.01 mm



Ti400



DIN 6527

HB

V0

Article no.
50 641 ...

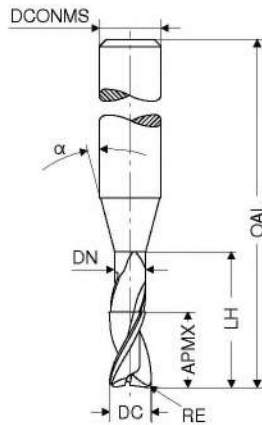
£

DC _{d11}	APMX	LPR	OAL	DCONMS _{h5}	ZEFP		
mm	mm	mm	mm	mm			
6	13	21	57	6	4	103.17	060
8	19	27	63	8	4	113.93	080
10	22	32	72	10	4	121.99	100
12	26	38	83	12	4	157.89	120
14	26	38	83	14	4	223.45	140
16	32	44	92	16	4	228.73	160
18	32	44	92	18	4	330.31	180
20	38	54	104	20	4	339.15	200

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	

→ v_c/f_z Page 350-356

Torus cutter

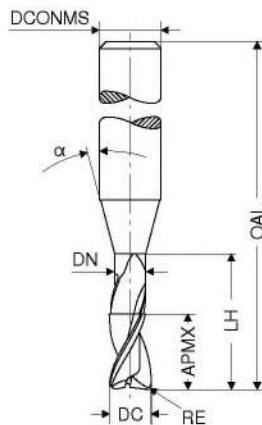


DC _{f8}	RE _{±0.01}	APMX	DN	LH	OAL	α°	DCONMS _{h5}	ZEFP
mm	mm	mm	mm	mm	mm		mm	
0.2	0.02	0.2	0.18	0.6	55	15	3	2
0.2	0.02	0.2	0.18	1.0	55	15	3	2
0.2	0.02	0.2	0.18	1.6	55	15	3	2
0.2	0.02	0.2	0.18	2.0	55	15	3	2
0.3	0.03	0.3	0.28	0.9	55	15	3	2
0.3	0.03	0.3	0.28	1.5	55	15	3	2
0.3	0.03	0.3	0.28	2.4	55	15	3	2
0.3	0.03	0.3	0.28	3.0	55	15	3	2
0.4	0.04	0.4	0.37	1.2	55	15	3	2
0.4	0.04	0.4	0.37	2.0	55	15	3	2
0.4	0.04	0.4	0.37	3.2	55	15	3	2
0.4	0.04	0.4	0.37	4.0	55	15	3	2
0.5	0.05	0.5	0.45	1.5	55	15	3	2
0.5	0.05	0.5	0.45	2.5	55	15	3	2
0.5	0.05	0.5	0.45	4.0	55	15	3	2
0.5	0.05	0.5	0.45	5.0	55	15	3	2
0.6	0.06	0.6	0.58	2.0	55	15	3	2
0.6	0.06	0.6	0.58	3.0	55	15	3	2
0.6	0.06	0.6	0.58	4.2	55	15	3	2
0.6	0.06	0.6	0.58	5.0	65	15	3	2
0.6	0.06	0.6	0.58	6.0	65	15	3	2
0.8	0.08	0.8	0.77	2.5	55	15	3	2
0.8	0.08	0.8	0.77	4.0	55	15	3	2
0.8	0.08	0.8	0.77	6.5	65	15	3	2
0.8	0.08	0.8	0.77	8.0	65	15	3	2
1.0	0.10	1.0	0.95	3.0	55	15	3	2
1.0	0.10	1.0	0.95	5.0	55	15	3	2
1.0	0.10	1.0	0.95	8.0	65	15	3	2
1.0	0.10	1.0	0.95	10.0	65	15	3	2
1.0	0.10	1.0	0.95	12.0	65	15	3	2
1.2	0.12	1.2	1.15	3.0	55	15	3	2
1.2	0.12	1.2	1.15	6.0	55	15	3	2
1.2	0.12	1.2	1.15	10.0	65	15	3	2
1.2	0.12	1.2	1.15	12.0	65	15	3	2
1.3	0.13	1.3	1.25	4.0	55	15	3	2
1.3	0.13	1.3	1.25	7.0	55	15	3	2
1.3	0.13	1.3	1.25	11.0	65	15	3	2
1.3	0.13	1.3	1.25	13.0	65	15	3	2
1.5	0.15	1.5	1.44	5.0	55	15	3	2
1.5	0.15	1.5	1.44	7.5	55	15	3	2
1.5	0.15	1.5	1.44	12.0	65	15	3	2
1.5	0.15	1.5	1.44	15.0	65	15	3	2
1.6	0.16	1.6	1.52	5.0	55	15	3	2
1.6	0.16	1.6	1.52	8.0	55	15	3	2
1.6	0.16	1.6	1.52	13.0	65	15	3	2

VO	VO
Article no. 50 901 ...	Article no. 50 901 ...
£	£
81.66	
82.81	
83.66	
84.65	
81.66	
82.81	
83.66	
84.65	
81.66	
82.81	
83.66	
84.65	
79.96	
80.81	
81.66	
82.81	
67.39	
67.39	
67.13	
	79.36
	77.39
67.13	
67.13	
	74.68
	77.39
	70.98
	77.39
	79.36
67.13	
67.13	
	74.68
	77.39
67.13	
67.39	
	74.68
	79.36
67.39	
67.13	
	79.36
	77.39
67.39	
67.39	
	74.68

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	•
Heat resistant alloys	
hardened materials	

Torus cutter



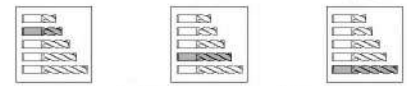
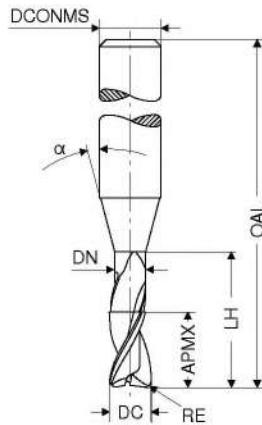
DC _{f8}	RE _{±0.01}	APMX	DN	LH	OAL	α°	DCONMS _{h5}	ZEFP
mm	mm	mm	mm	mm	mm		mm	
1.6	0.16	1.6	1.52	16.0	65	15	3	2
1.8	0.18	1.8	1.72	5.5	55	15	3	2
1.8	0.18	1.8	1.72	9.0	55	15	3	2
1.8	0.18	1.8	1.72	14.5	65	15	3	2
1.8	0.18	1.8	1.72	18.0	65	15	3	2
2.0	0.20	2.0	1.92	6.0	55	15	3	2
2.0	0.20	2.0	1.92	10.0	55	15	3	2
2.0	0.20	2.0	1.92	14.0	55	15	3	2
2.0	0.20	2.0	1.92	16.0	65	15	3	2
2.0	0.20	2.0	1.92	20.0	65	15	3	2
2.3	0.23	2.3	2.22	7.0	55	15	3	2
2.3	0.23	2.3	2.22	11.5	55	15	3	2
2.3	0.23	2.3	2.22	14.0	55	15	3	2
2.3	0.23	2.3	2.22	18.5	65	15	3	2
2.3	0.23	2.3	2.22	20.0	65	15	3	2
2.3	0.23	2.3	2.22	23.0	65	15	3	2
3.0	0.30	3.0	2.90	9.0	65	15	6	2
3.0	0.30	3.0	2.90	15.0	65	15	6	2
3.0	0.30	3.0	2.90	24.0	100	15	6	2
3.0	0.30	3.0	2.90	30.0	100	15	6	2
4.0	0.40	4.0	3.90	12.0	65	15	6	2
4.0	0.40	4.0	3.90	20.0	65	15	6	2
4.0	0.40	4.0	3.90	32.0	100	15	6	2
4.0	0.40	4.0	3.90	40.0	100	15	6	2
5.0	0.50	5.0	4.90	15.0	65	15	6	2
5.0	0.50	5.0	4.90	25.0	65	15	6	2
5.0	0.50	5.0	4.90	40.0	100	15	6	2
5.0	0.50	5.0	4.90	50.0	100	15	6	2
6.0	0.60	6.0	5.90	18.0	65	15	6	2
6.0	0.60	6.0	5.90	30.0	100	15	6	2
6.0	0.60	6.0	5.90	48.0	100	15	6	2
6.0	0.60	6.0	5.90	60.0	100	15	6	2

VO	VO
Article no. 50 901 ...	Article no. 50 901 ...
£	£
	79.36 164
67.13 181	
67.39 182	
	74.68 183
	79.36 184
67.13 201	
67.39 202	
67.13 203	
	79.36 204
	77.39 205
67.13 231	
67.39 232	
70.98 233	
	79.36 234
	79.36 235
	79.36 236
70.98 301	
79.36 302	
	86.07 303
	89.50 304
79.36 401	
79.36 402	
	89.50 403
	92.49 404
79.36 501	
79.36 502	
	92.49 503
	95.34 504
79.36 601	
	89.50 602
	95.34 603
	98.14 604

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	•
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 350-356

Torus cutter



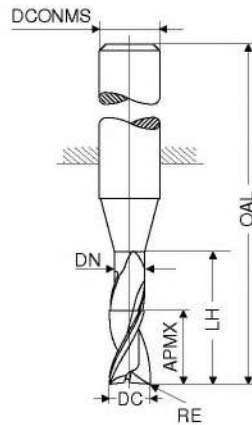
Factory standard Factory standard Factory standard
HA HA HA

DC _{FB}	RE _{±0.01}	APMX	DN	LH	OAL	α°	DCONMS _{h5}	ZEFP	VO	VO	VO
mm	mm	mm	mm	mm	mm		mm		Article no. 50 902 ...	Article no. 50 902 ...	Article no. 50 902 ...
8	2.0	4	7.6	20	58	45	8	2	£ 87.50	084	
8	0.5	4	7.6	62	100	45	8	2			£ 135.54 081
8	1.0	4	7.6	62	100	45	8	2			£ 135.54 083
8	2.0	4	7.6	62	100	45	8	2			£ 135.54 085
8	2.0	4	7.6	62	100	45	10	2			£ 187.39 086
10	1.0	6	9.6	18	66	45	10	2	£ 106.93	100	
10	2.0	6	9.6	18	66	45	10	2	£ 106.93	103	
10	3.0	6	9.6	18	66	45	10	2	£ 106.93	106	
10	1.0	6	9.6	58	100	45	10	2			
10	2.0	6	9.6	58	100	45	10	2		£ 185.41 101	
10	3.0	6	9.6	58	100	45	10	2		£ 185.41 104	
10	1.0	6	9.6	78	120	45	10	2			£ 222.60 102
10	2.0	6	9.6	78	120	45	10	2			£ 222.60 105
10	3.0	6	9.6	78	120	45	10	2			£ 222.60 108
10	1.0	6	9.6	78	120	45	12	2			£ 286.15 109
10	2.0	6	9.6	78	120	45	12	2			£ 286.15 110
10	3.0	6	9.6	78	120	45	12	2			£ 286.15 111
12	1.0	8	11.5	26	73	45	12	2	£ 158.61	120	
12	2.0	8	11.5	26	73	45	12	2	£ 158.61	123	
12	3.0	8	11.5	26	73	45	12	2	£ 158.61	126	
12	4.0	8	11.5	26	73	45	12	2	£ 158.61	129	
12	1.0	8	11.5	53	100	45	12	2			
12	2.0	8	11.5	53	100	45	12	2		£ 238.41 121	
12	3.0	8	11.5	53	100	45	12	2		£ 238.41 124	
12	4.0	8	11.5	53	100	45	12	2		£ 238.41 127	
12	1.0	8	11.5	73	120	45	12	2			£ 286.15 122
12	2.0	8	11.5	73	120	45	12	2			£ 286.15 125
12	3.0	8	11.5	73	120	45	12	2			£ 286.15 128
12	4.0	8	11.5	73	120	45	12	2			£ 286.15 131
12	1.0	8	11.5	103	150	45	16	2			£ 580.81 132
12	2.0	8	11.5	103	150	45	16	2			£ 580.81 133
12	3.0	8	11.5	103	150	45	16	2			£ 580.81 134
12	4.0	8	11.5	103	150	45	16	2			£ 580.81 135

Steel			
Stainless steel			
Cast iron			
Non ferrous metals	•	•	•
Heat resistant alloys			
hardened materials			

→ v_c/f_c Page 350-356

Torus cutter



DIAMOND



Factory standard

HA

V1

Article no.
52 765 ...

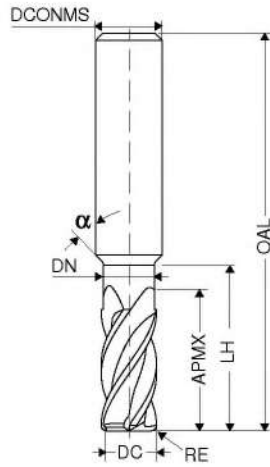
£	
201.49	021
214.03	032
262.20	042
304.10	052
335.16	063
440.90	084
563.85	104
745.54	125

DC _{h10}	RE	APMX	DN	LH	OAL	DCONMS _{h6}	ZEFP
mm	mm	mm	mm	mm	mm	mm	
2	0.3	8	1.8	31	60	2	2
3	0.5	12	2.8	41	70	3	2
4	0.5	15	3.8	51	80	4	2
5	0.5	20	4.8	71	100	5	2
6	0.8	20	5.8	63	100	6	2
8	1.0	20	7.8	83	120	8	2
10	1.0	25	9.8	99	140	10	2
12	1.5	25	11.8	104	150	12	2

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c/f, Page 348

Torus cutter

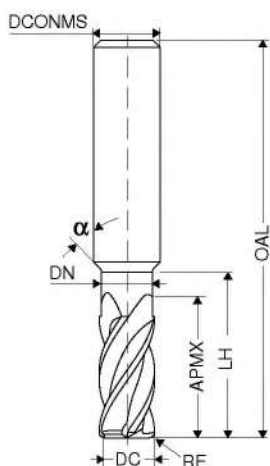


DC _{f8}	RE _{±0.01}	APMX	DN	LH	OAL	α°	DCONMS _{h5}	ZEFP
mm	mm	mm	mm	mm	mm		mm	
4	0.5	8	3.8	12	54	45	6	4
4	1.0	8	3.8	12	54	45	6	4
4	0.5	10	3.8	37	75	45	6	4
4	1.0	10	3.8	37	75	45	6	4
5	0.5	9	4.8	16	54	45	6	4
5	1.0	9	4.8	16	54	45	6	4
5	1.5	9	4.8	16	54	45	6	4
5	0.5	12	4.8	37	75	45	6	4
5	1.0	12	4.8	37	75	45	6	4
5	1.5	12	4.8	37	75	45	6	4
6	0.5	10	5.6	16	54	45	6	4
6	1.0	10	5.6	16	54	45	6	4
6	1.5	10	5.6	16	54	45	6	4
6	2.0	10	5.6	16	54	45	6	4
6	0.5	12	5.6	62	100	45	6	4
6	1.0	12	5.6	62	100	45	6	4
6	1.5	12	5.6	62	100	45	6	4
6	2.0	12	5.6	62	100	45	6	4
7	0.5	11	6.6	20	58	45	8	4
7	1.0	11	6.6	20	58	45	8	4
7	1.5	11	6.6	20	58	45	8	4
7	2.0	11	6.6	20	58	45	8	4
7	0.5	14	6.6	62	100	45	8	4
7	1.0	14	6.6	62	100	45	8	4
7	1.5	14	6.6	62	100	45	8	4
7	2.0	14	6.6	62	100	45	8	4
8	0.5	12	7.6	20	58	45	8	4
8	1.0	12	7.6	20	58	45	8	4
8	1.5	12	7.6	20	58	45	8	4
8	2.0	12	7.6	20	58	45	8	4
8	0.5	14	7.6	62	100	45	8	4
8	1.0	14	7.6	62	100	45	8	4
8	1.5	14	7.6	62	100	45	8	4
8	2.0	14	7.6	62	100	45	8	4
10	0.5	14	9.6	24	66	45	10	4
10	1.0	14	9.6	24	66	45	10	4
10	1.5	14	9.6	24	66	45	10	4
10	2.0	14	9.6	24	66	45	10	4
10	3.0	14	9.6	24	66	45	10	4
10	0.5	18	9.6	58	100	45	10	4
10	1.0	18	9.6	58	100	45	10	4

VO	VO
Article no. 50 911 ...	Article no. 50 911 ...
£	£
143.06	040
143.06	041
	171.72 042
	171.72 043
143.06	050
143.06	051
143.06	052
	171.72 053
	171.72 054
	171.72 055
143.06	060
143.06	061
143.06	062
143.06	063
	187.39 064
	187.39 065
	187.39 066
	187.39 067
187.39	070
187.39	071
187.39	072
187.39	073
	234.99 074
	234.99 075
	234.99 076
	234.99 077
187.39	080
187.39	081
187.39	086
187.39	083
	234.99 084
	234.99 085
	234.99 082
	234.99 087
236.69	100
236.69	101
236.69	107
236.69	103
236.69	104
	310.66 105
	310.66 106

Steel		
Stainless steel		
Cast iron		
Non ferrous metals	•	•
Heat resistant alloys		
hardened materials		

Torus cutter



Factory standard

Factory standard



VO

VO

Article no.
50 911 ...

Article no.
50 911 ...

DC _{fs}	RE _{h0.01}	APMX	DN	LH	OAL	α°	DCONMS _{h5}	ZEPF
mm	mm	mm	mm	mm	mm		mm	
10	1.5	18	9.6	58	100	45	10	4
10	2.0	18	9.6	58	100	45	10	4
10	3.0	18	9.6	58	100	45	10	4
12	0.5	16	11.5	26	73	45	12	4
12	1.0	16	11.5	26	73	45	12	4
12	1.5	16	11.5	26	73	45	12	4
12	2.0	16	11.5	26	73	45	12	4
12	4.0	16	11.5	26	73	45	12	4
12	0.5	22	11.5	53	100	45	12	4
12	1.0	22	11.5	53	100	45	12	4
12	1.5	22	11.5	53	100	45	12	4
12	2.0	22	11.5	53	100	45	12	4
12	4.0	22	11.5	53	100	45	12	4

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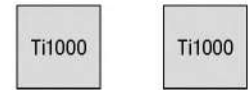
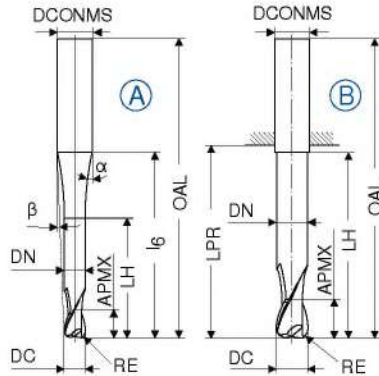
314.24

Steel		
Stainless steel		
Cast iron		
Non ferrous metals	•	•
Heat resistant alloys		
hardened materials		

→ v_c/f_z Page 348

Torus cutter

- ▲ Radius accuracy: ± 0.005 mm
- ▲ for $\varnothing \leq 5.0$ mm, angle tolerance α and β : $\pm 0.5^\circ$



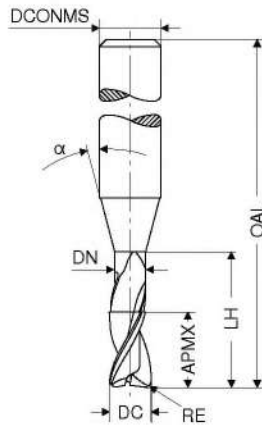
Factory standard Factory standard
HA HA

DC ± 0.01	RE ± 0.005	APMX	DN	LH	l_6	OAL	α°	β°	DCONMS h_5	ZEFP	Fig.	V1 Article no. 52 730 ...	V1 Article no. 52 734 ...		
mm	mm	mm	mm	mm	mm	mm			mm			£	£		
0.5	0.10	1.0	0.45	2.0	20	57	10.0	8.5	6	2	A	205.66	005		
1.0	0.25	2.0	0.95	4.0	20	57	10.0	8.0	6	2	A	164.60	010		
1.0	0.25	2.0	0.95	4.0	40	80	4.5	4.0	6	2	A		156.90	015	
1.5	0.30	2.5	1.40	7.5	20	57	12.5	7.0	6	2	A	139.37	020		
1.5	0.30	2.5	1.40	7.5	40	80	4.5	3.5	6	2	A	132.96	030		
2.0	0.50	3.0	1.80	8.0	20	57	12.0	6.5	6	2	A	122.43	041		
2.0	0.50	3.0	1.80	8.0	40	80	4.0	3.0	6	2	A	124.83	040		
3.0	0.50	3.5	2.80	10.0	20	57	11.5	5.0	6	2	A	120.14	051		
3.0	0.50	3.5	2.80	12.0	40	80	3.5	2.5	6	2	A	152.42	050		
4.0	0.50	4.0	3.80	12.0	20	57	11.0	3.5	6	2	A	112.01	961		
4.0	0.50	4.0	3.80	20.0	40	80	4.0	1.5	6	2	A	136.23	961		
4.0	1.00	4.0	3.80	12.0	20	57	11.0	3.5	6	2	A	149.42	060		
4.0	1.00	4.0	3.80	20.0	40	80	4.0	1.5	6	2	A	169.85	061		
5.0	1.00	5.0	4.70	14.0	20	57	10.0	2.0	6	2	A	154.75	082		
5.0	1.00	5.0	4.70	25.0	40	80	3.0	1.0	6	2	A	180.12	082		
5.0	1.50	5.0	4.70	14.0	20	57	10.0	2.0	6	2	A	168.98	080		
5.0	1.50	5.0	4.70	25.0	40	80	3.0	1.0	6	2	A	173.15	080		
6.0	1.00	6.0	5.60	20.0		57			6	2	B	228.56	081		
6.0	1.00	6.0	5.60	40.0		80			6	2	B	184.55	083		
6.0	2.00	6.0	5.60	20.0		57			6	2	B	228.86	102		
6.0	2.00	6.0	5.60	40.0		80			6	2	B	247.26	102		
6.0	2.00	6.0	5.60	25.0	60	100	2.0	1.0	8	2	A	253.35	104		
6.0	2.00	6.0	5.60	40.0		80			8	2	B	193.80	100		
6.0	2.00	6.0	5.60	25.0		63			8	2	B	233.29	103		
6.0	2.00	6.0	5.60	25.0		63			8	2	B	235.11	100		
6.0	2.00	6.0	5.60	25.0		63			8	2	B	359.09	101		
8.0	1.00	7.0	7.60	25.0		100			8	2	B	279.29	122		
8.0	1.00	7.0	7.60	60.0		100			8	2	B	277.87	120		
8.0	2.00	7.0	7.60	25.0		63			8	2	B	357.10	121		
8.0	2.00	7.0	7.60	60.0		100			8	2	B		321.92	120	
8.0	2.00	7.0	7.60	30.0	75	120	2.0	1.0	10	2	A		595.36	121	
8.0	2.50	7.0	7.60	60.0		100			8	2	B				
10.0	1.50	8.0	9.60	30.0		72			10	2	B				
10.0	1.50	8.0	9.60	75.0		120			10	2	B				
10.0	2.50	8.0	9.60	75.0		120			10	2	B				
10.0	3.00	8.0	9.60	30.0		72			10	2	B				
10.0	3.00	8.0	9.60	50.0		100			10	2	B				
10.0	3.00	8.0	9.60	75.0		120			10	2	B				
10.0	3.00	8.0	9.60	40.0	110	160	1.0	0.5	12	2	A				
12.0	1.50	10.0	11.50	35.0		83			12	2	B				
12.0	1.50	10.0	11.50	70.0		160			12	2	B				
12.0	4.00	10.0	11.50	35.0		83			12	2	B				
12.0	4.00	10.0	11.50	35.0	40	92	37.0	3.5	16	2	A				
12.0	4.00	10.0	11.50	70.0		160			12	2	B				
12.0	4.00	10.0	11.50	50.0	150	200	1.5	1.0	16	2	A				
16.0	5.00	12.0	15.50	40.0		92			16	2	B				
16.0	5.00	12.0	15.50	80.0		200			16	2	B	351.83	160	583.53	160

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

Torus cutter

H
 $\lambda_s = 30^\circ$
 $\nu_s = 3^\circ$
ZEPF
 ≤ 54
HRC

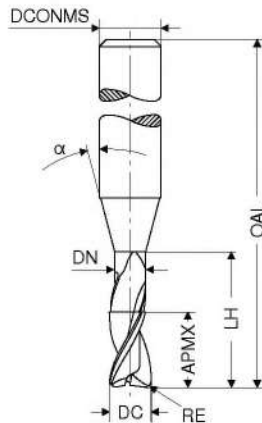


DC _{f8}	RE _{±0.01}	APMX	DN	LH	OAL	α°	DCONMS _{h5}	ZEPF
mm	mm	mm	mm	mm	mm		mm	
0.2	0.02	0.2	0.18	0.6	55	15	6	2
0.2	0.02	0.2	0.18	1.0	55	15	6	2
0.2	0.02	0.2	0.18	1.6	55	15	6	2
0.2	0.02	0.2	0.18	2.0	55	15	6	2
0.3	0.03	0.3	0.28	0.9	55	15	6	2
0.3	0.03	0.3	0.28	1.5	55	15	6	2
0.3	0.03	0.3	0.28	2.4	55	15	6	2
0.3	0.03	0.3	0.28	3.0	55	15	6	2
0.4	0.04	0.4	0.37	1.2	55	15	6	2
0.4	0.04	0.4	0.37	2.0	55	15	6	2
0.4	0.04	0.4	0.37	3.2	55	15	6	2
0.4	0.04	0.4	0.45	4.0	55	15	6	2
0.5	0.05	0.5	0.45	1.5	55	15	6	2
0.5	0.05	0.5	0.45	2.5	55	15	6	2
0.5	0.05	0.5	0.45	4.0	55	15	6	2
0.5	0.05	0.5	0.45	5.0	55	15	6	2
0.6	0.06	0.6	0.58	2.0	55	15	6	2
0.6	0.06	0.6	0.58	3.0	55	15	6	2
0.6	0.06	0.6	0.58	5.0	65	15	6	2
0.6	0.06	0.6	0.58	6.0	65	15	6	2
0.8	0.08	0.8	0.77	2.5	55	15	6	2
0.8	0.08	0.8	0.77	4.0	55	15	6	2
0.8	0.08	0.8	0.77	6.5	65	15	6	2
0.8	0.08	0.8	0.77	8.0	65	15	6	2
1.0	0.10	1.0	0.95	3.0	55	15	6	2
1.0	0.10	1.0	0.95	5.0	55	15	6	2
1.0	0.10	1.0	0.95	8.0	65	15	6	2
1.0	0.10	1.0	0.95	10.0	65	15	6	2
1.0	0.10	1.0	0.95	12.0	65	15	6	2
1.2	0.12	1.2	1.15	3.0	55	15	6	2
1.2	0.12	1.2	1.15	6.0	55	15	6	2
1.2	0.12	1.2	1.15	10.0	65	15	6	2
1.2	0.12	1.2	1.15	12.0	65	15	6	2
1.3	0.13	1.3	1.25	4.0	55	15	6	2
1.3	0.13	1.3	1.25	7.0	55	15	6	2
1.3	0.13	1.3	1.25	11.0	65	15	6	2
1.3	0.13	1.3	1.25	13.0	65	15	6	2
1.5	0.15	1.5	1.44	5.0	55	15	6	2
1.5	0.15	1.5	1.44	7.5	55	15	6	2
1.5	0.15	1.5	1.44	12.0	65	15	6	2
1.5	0.15	1.5	1.44	15.0	65	15	6	2

Material	VO	VO
Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

VO	VO
Article no. 50 649 ...	Article no. 50 649 ...
£	£
82.08	921
82.81	022
83.66	023
84.65	024
82.08	031
82.81	032
83.66	033
84.65	034
82.08	041
82.81	042
83.66	043
84.65	044
79.96	051
80.81	052
82.08	053
82.81	054
67.39	061
60.80	960
	73.12 063
70.18	961
67.13	081
60.80	980
	74.68 083
70.18	981
67.13	101
60.80	010
	70.98 103
	70.18 011
	79.36 105
67.13	121
60.80	012
74.68	123
	70.18 013
67.13	131
67.39	132
	74.68 133
	79.36 134
67.39	151
60.80	015
	79.36 153
	70.18 016

Torus cutter

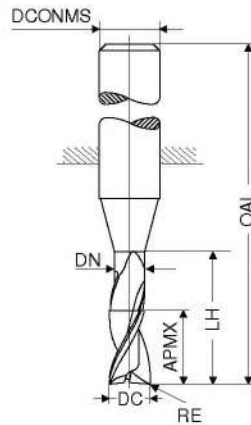


DC _{f8}	RE _{±0.01}	APMX	DN	LH	OAL	α°	DCONMS _{h5}	ZEFP	VO Article no. 50 649 ... £	VO Article no. 50 649 ... £
1.6	0.16	1.6	1.52	5.0	55	15	6	2	67.39	161
1.6	0.16	1.6	1.52	8.0	55	15	6	2	67.39	162
1.6	0.16	1.6	1.52	13.0	65	15	6	2		74.68 163
1.6	0.16	1.6	1.52	16.0	65	15	6	2		79.36 164
1.8	0.18	1.8	1.72	5.5	55	15	6	2	67.13	181
1.8	0.18	1.8	1.72	9.0	55	15	6	2	67.39	182
1.8	0.18	1.8	1.72	14.5	65	15	6	2		74.68 183
1.8	0.18	1.8	1.72	18.0	65	15	6	2		79.36 184
2.0	0.20	2.0	1.92	6.0	55	15	6	2	67.13	201
2.0	0.20	2.0	1.92	10.0	55	15	6	2	67.39	202
2.0	0.20	2.0	1.92	14.0	55	15	6	2	60.80	020
2.0	0.20	2.0	1.92	16.0	65	15	6	2		79.36 204
2.0	0.20	2.0	1.92	20.0	65	15	6	2		70.18 021
2.3	0.23	2.3	2.22	7.0	55	15	6	2	67.39	231
2.3	0.23	2.3	2.22	11.5	55	15	6	2	70.98	232
2.3	0.23	2.3	2.22	18.5	65	15	6	2		79.36 233
2.3	0.23	2.3	2.22	23.0	65	15	6	2		79.36 234
3.0	0.30	3.0	2.90	9.0	65	15	6	2	70.98	301
3.0	0.30	3.0	2.90	15.0	65	15	6	2	79.36	302
3.0	0.30	3.0	2.90	24.0	100	15	6	2		86.07 303
3.0	0.30	3.0	2.90	30.0	100	15	6	2		89.50 304
4.0	0.40	4.0	3.90	12.0	65	15	6	2	79.36	401
4.0	0.40	4.0	3.90	20.0	65	15	6	2	79.36	402
4.0	0.40	4.0	3.90	32.0	100	15	6	2		89.50 403
4.0	0.40	4.0	3.90	40.0	100	15	6	2		92.49 404
5.0	0.50	5.0	4.90	15.0	65	15	6	2	79.36	501
5.0	0.50	5.0	4.90	25.0	65	15	6	2	79.36	502
5.0	0.50	5.0	4.90	40.0	100	15	6	2		92.49 503
5.0	0.50	5.0	4.90	50.0	100	15	6	2		95.34 504
6.0	0.60	6.0	5.90	18.0	65	15	6	2	79.36	601
6.0	0.60	6.0	5.90	30.0	100	15	6	2		89.50 602
6.0	0.60	6.0	5.90	48.0	100	15	6	2		95.34 603
6.0	0.60	6.0	5.90	60.0	100	15	6	2		98.14 604

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

→ v_c/f_t, Page 350-356

Torus cutter



Factory standard HA Factory standard HA Factory standard HA

DC _{f8}	RE _{±0.01}	APMX	DN	LH	OAL	DCONMS _{±5}	ZEFP
mm	mm	mm	mm	mm	mm	mm	
2	0.3	2	1.8	7	50	6	2
2	0.5	2	1.8	7	50	6	2
2	0.3	2	1.8	7	60	6	2
2	0.5	2	1.8	7	60	6	2
2	0.3	2	1.8	7	85	6	2
2	0.5	2	1.8	7	85	6	2
3	0.3	2	2.8	7	50	6	2
3	0.5	2	2.8	7	50	6	2
3	0.3	2	2.8	12	60	6	2
3	0.5	2	2.8	12	60	6	2
3	0.3	2	2.8	12	85	6	2
3	0.5	2	2.8	12	85	6	2
4	0.3	3	3.8	13	54	6	2
4	0.5	3	3.8	13	54	6	2
4	1.0	3	3.8	13	54	6	2
4	0.3	3	3.8	20	75	6	2
4	0.5	3	3.8	20	75	6	2
4	1.0	3	3.8	20	75	6	2
4	0.3	3	3.8	20	85	6	2
4	0.5	3	3.8	20	85	6	2
4	1.0	3	3.8	20	85	6	2
5	0.5	3	4.6	13	54	6	2
5	1.0	3	4.6	13	54	6	2
5	1.5	3	4.6	13	54	6	2
5	1.0	3	4.6	20	75	6	2
5	1.5	3	4.6	20	75	6	2
6	0.5	4	5.6	14	54	6	2
6	1.0	4	5.6	14	54	6	2
6	2.0	4	5.6	14	54	6	2
6	0.5	4	5.6	45	85	6	2
6	1.0	4	5.6	45	85	6	2
6	2.0	4	5.6	45	85	6	2
6	0.5	4	5.6	25	100	6	2
6	1.0	4	5.6	25	100	6	2
6	2.0	4	5.6	25	100	6	2
6	0.5	4	5.6	25	85	8	2
6	1.0	4	5.6	25	85	8	2
6	2.0	4	5.6	25	85	8	2
8	0.5	4	7.6	16	58	8	2
8	1.0	4	7.6	16	58	8	2
8	2.0	4	7.6	16	58	8	2

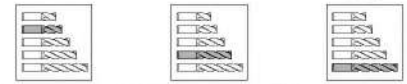
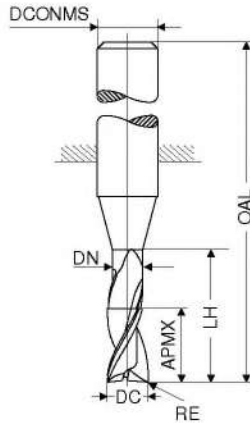
VO	VO	VO
Article no.	Article no.	Article no.
50 651 ...	50 651 ...	50 651 ...
£	£	£
52.45 020		
52.45 021		
	52.45 022	
	52.45 023	
		76.10 024
		76.10 025
52.45 030		
52.45 031		
	52.45 032	
	52.45 033	
		76.10 034
		76.10 035
52.45 040		
52.45 041		
52.45 042		
	73.12 043	
	73.12 044	
	73.12 045	
		76.10 046
		76.10 047
		76.10 048
52.45 050		
52.45 051		
52.45 052		
	73.12 053	
	73.12 054	
52.45 060		
52.45 061		
52.45 062		
	73.12 066	
	98.19 067	
	73.12 068	
		84.65 069
		84.65 070
		84.65 071
	98.19 063	
	73.12 064	
	98.19 065	
63.84 080		
63.84 081		
63.84 082		

Steel	●	●	●
Stainless steel	○	○	○
Cast iron	●	●	●
Non ferrous metals	○	○	○
Heat resistant alloys	○	○	○
hardened materials	○	○	○

→ v_c/f_z Page 350-356

Torus cutter

H
 $\lambda_s = 30^\circ$
 $\nu_s = 3^\circ$
ZEPF
 ≤ 68
HRC



Factory standard Factory standard Factory standard

HA HA HA

DC _{f8}	RE _{±0.01}	APMX	DN	LH	OAL	DCONMS _{±5}	ZEPF
mm	mm	mm	mm	mm	mm	mm	
8	0.5	4	7.6	50	100	8	2
8	2.0	4	7.6	50	100	8	2
8	1.0	4	7.6	30	100	10	2
8	2.0	4	7.6	30	100	10	2
10	1.0	6	9.6	18	66	10	2
10	3.0	6	9.6	18	66	10	2
10	1.0	6	9.6	50	100	10	2
10	2.0	6	9.6	50	100	10	2
10	3.0	6	9.6	50	100	10	2
10	1.0	6	9.6	60	120	10	2
10	2.0	6	9.6	60	120	10	2
10	3.0	6	9.6	60	120	10	2
10	1.0	6	9.6	30	120	12	2
10	2.0	6	9.6	30	120	12	2
10	3.0	6	9.6	30	120	12	2
12	1.0	8	11.5	18	73	12	2
12	2.0	8	11.5	18	73	12	2
12	3.0	8	11.5	18	73	12	2
12	4.0	8	11.5	18	73	12	2
12	1.0	8	11.5	45	100	12	2
12	2.0	8	11.5	45	100	12	2
12	3.0	8	11.5	45	100	12	2
12	4.0	8	11.5	45	100	12	2
12	1.0	8	11.5	70	120	12	2
12	2.0	8	11.5	70	120	12	2
12	3.0	8	11.5	70	120	12	2
12	4.0	8	11.5	70	120	12	2
12	1.0	8	11.5	35	150	16	2
12	2.0	8	11.5	35	150	16	2
12	3.0	8	11.5	35	150	16	2
12	4.0	8	11.5	35	150	16	2

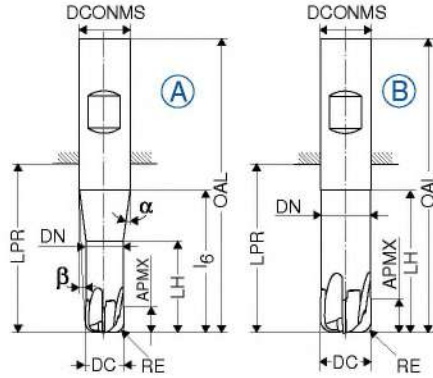
VO	VO	VO
Article no.	Article no.	Article no.
50 651 ...	50 651 ...	50 651 ...
£	£	£
		136.23 083
		97.18 084
		136.23 085
		133.55 086
79.23 100		
79.23 101		
	134.38 102	
	79.23 103	
	134.38 104	
		161.31 105
		134.38 106
		161.31 107
		207.91 108
		207.91 109
		207.91 110
115.85 120		
115.85 121		
115.85 122		
115.85 123		
	173.28 124	
	173.28 125	
	173.28 126	
	173.28 127	
		208.06 128
		208.06 129
		208.06 130
		208.06 131
		423.37 132
		423.37 133
		423.37 134
		423.37 135

Steel	●	●	●
Stainless steel	○	○	○
Cast iron	●	●	●
Non ferrous metals	○	○	○
Heat resistant alloys	○	○	○
hardened materials	○	○	○

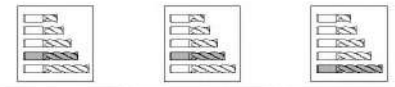
→ v_c/f_z Page 350-356

Torus cutter

- ▲ Radius accuracy: ±0.005 mm
- ▲ High-performance tool for clearing
- ▲ for $\varnothing \leq 5.0$ mm, angle tolerance α and β : ±0.5°



LPR with Shank DIN 6535 HB



Factory standard Factory standard Factory standard



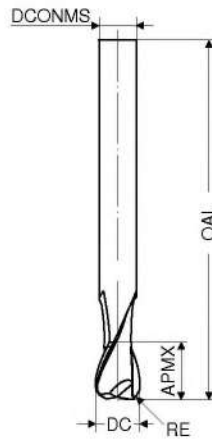
DC ±0.01	RE ±0.005	APMX	DN	LH	l ₆	LPR	OAL	α°	β°	DCONMS _{h5}	ZEFP	Fig.	Article no. 52 732 ...	Article no. 52 733 ...	Article no. 52 732 ...
mm	mm	mm	mm	mm	mm	mm	mm			mm			£	£	£
3	0.75	2.0	2.8	10	20	21	57	11.5	5.0	6	4	A	133.55	033	
4	1.00	2.5	3.8	12	20	21	57	11.0	3.5	6	4	A	133.55	044	
5	1.25	3.0	4.7	14	20	21	57	10.0	2.0	6	4	A	137.38	055	
6	1.50	4.0	5.6	20		21	57			6	4	B	139.22	065	
6	1.50	4.0	5.6	30		44	80			6	4	B			138.22
8	1.00	5.0	7.6	25		27	63			8	4	B	196.93	084	
8	1.00	5.0	7.6	35		44	80			8	4	B			187.53
8	2.00	5.0	7.6	25		27	63			8	4	B	192.37	086	
8	2.00	5.0	7.6	35		44	80			8	4	B			187.53
10	1.00	6.0	9.6	30		32	72			10	4	B	225.01	104	
10	1.00	6.0	9.6	30		32	72			10	6	B	236.85	105	
10	1.00	6.0	9.6	45		60	100			10	4	B			236.85
10	1.00	6.0	9.6	45		60	100			10	6	B			268.19
10	2.50	6.0	9.6	30		32	72			10	4	B	219.74	107	
10	2.50	6.0	9.6	30		32	72			10	6	B	236.85	108	
10	2.50	6.0	9.6	45		60	100			10	4	B			238.54
10	2.50	6.0	9.6	45		60	100			10	6	B			268.19
12	1.00	7.0	11.5	35		38	83			12	4	B	289.27	124	
12	1.00	7.0	11.5	35		38	83			12	8	B	333.89	125	
12	1.00	7.0	11.5	50		55	100			12	4	B			301.10
12	1.00	7.0	11.5	50		55	100			12	8	B			373.50
12	3.00	7.0	11.5	35		38	83			12	4	B	282.43	128	
12	3.00	7.0	11.5	35		38	83			12	8	B	333.89	129	
12	3.00	7.0	11.5	50		55	100			12	4	B			301.10
12	3.00	7.0	11.5	50		55	100			12	8	B			373.50
16	4.00	8.0	15.5	40		44	92			16	4	B	423.78	169	
16	4.00	8.0	15.5	60		72	120			16	4	B			437.48
16	4.00	8.0	15.5	60		72	120			16	8	B			523.10

Steel	●	●	●
Stainless steel	●	●	●
Cast iron	○	○	○
Non ferrous metals	○	○	○
Heat resistant alloys	○	○	○
hardened materials	●	●	●

→ v_c/f_z Page 350-356

Intermediate size torus cutter

▲ reduced shank Ø for flexible application in various overhang lengths



Ti1000



Factory standard

HA

V1

Article no.
52 107 ...

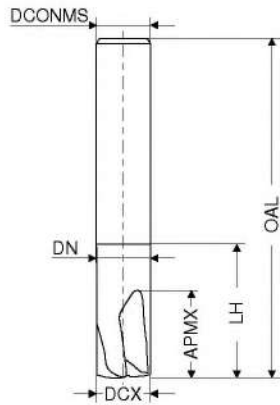
DC _{ø8}	RE _{±0,01}	APMX	OAL	DCONMS _{h6}	ZEFP	£	
7	0.5	9	120	6	4	157.46	075
7	1.0	9	120	6	4	157.46	076
7	1.5	9	120	6	4	157.46	077
9	0.5	12	135	8	4	204.21	095
9	1.0	12	135	8	4	204.21	096
9	1.5	12	135	8	4	204.21	097
11	1.0	15	150	10	4	265.48	115
11	1.5	15	150	10	4	265.48	116
11	2.0	15	150	10	4	265.48	117
13	1.0	18	160	12	4	338.57	135
13	1.5	18	160	12	4	338.57	136
13	2.0	18	160	12	4	338.57	137
15	1.0	21	160	14	4	384.03	156
15	1.5	21	160	14	4	384.03	157
15	2.0	21	160	14	4	384.03	158
17	1.0	24	180	16	4	462.12	176
17	1.5	24	180	16	4	462.12	177
17	2.0	24	180	16	4	462.12	178
17	3.0	24	180	16	4	462.12	179

Steel	○
Stainless steel	●
Cast iron	○
Non ferrous metals	●
Heat resistant alloys	●
hardened materials	○

→ v_c/f_z Page 350-356

High feed cutter

- ▲ APMX does not correspond to the maximum cutting depth
- ▲ for feed per tooth (f_z) up to 1 mm
- ▲ roughing in large depths
- ▲ extremely quiet running
- ▲ r_{3D} = corner radius to be programmed



TiAIN



Factory standard

HA

V1

Article no.
56 900 ...

£	
123.69	060
176.56	080
194.23	100
229.57	120
352.97	160

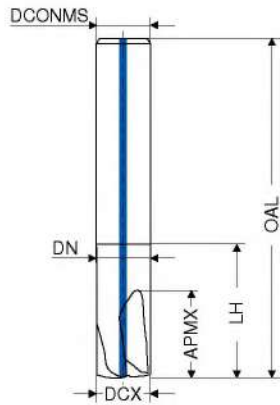
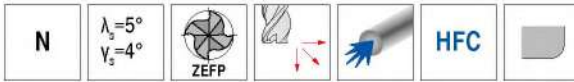
DCX _{h6}	r_{3D}	APMX	DN	LH	OAL	DCONMS _{h6}	ZEFP
mm	mm	mm	mm	mm	mm	mm	
6	0.50	6	5.8	21	57	6	4
8	0.70	8	7.8	27	63	8	4
10	0.85	10	9.8	32	72	10	4
12	1.00	12	11.8	38	83	12	4
16	1.40	16	15.8	50	92	16	4

Steel	●
Stainless steel	○
Cast iron	○
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	●

→ v_c/f_z Page 346+347

High feed cutter

- ▲ APMX does not correspond to the maximum cutting depth
- ▲ for feed per tooth (f_z) up to 1 mm
- ▲ Roughing in large depths
- ▲ extremely quiet running
- ▲ r_{3D} = corner radius to be programmed



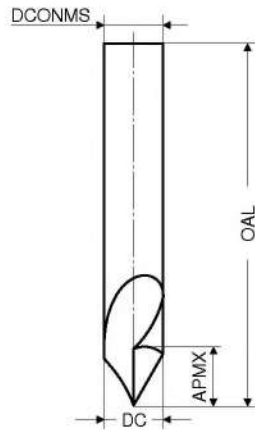
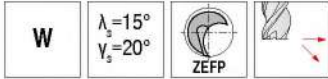
DCX _{h6}	r_{3D}	APMX	DN	LH	OAL	DCONMS _{h6}	ZEFP
mm	mm	mm	mm	mm	mm	mm	
6	0.50	6	5.8	21	57	6	4
6	0.50	6	5.8	64	100	6	4
8	0.70	8	7.8	27	63	8	4
8	0.70	8	7.8	64	100	8	4
10	0.85	10	9.8	32	72	10	4
10	0.85	10	9.8	60	100	10	4
12	1.00	12	11.8	38	83	12	4
12	1.00	12	11.8	65	110	12	4
16	1.40	16	15.8	50	92	16	4
16	1.40	16	15.8	65	150	16	4

	V1	V1
Steel	●	●
Stainless steel	○	○
Cast iron	○	○
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	●	●

Factory standard	Factory standard
HA	HA
V1	V1
Article no. 56 902 ...	Article no. 56 904 ...
£	£
159.03	197.48
060	060
218.49	250.79
080	080
280.79	308.60
100	100
355.85	403.07
120	120
659.69	703.92
160	160

→ v_c/f_z Page 346+347

Engraving cutter 60°



Factory standard

HA

V1

Article no.

52 195 ...

£

50.86 030

53.40 040

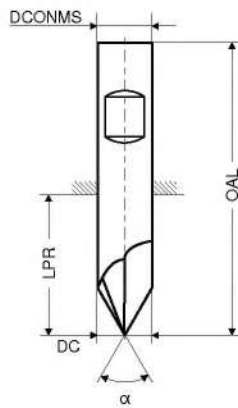
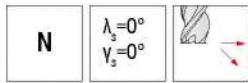
58.14 060

DC _{h6}	APMX	OAL	DCONMS _{h6}	ZEFP
mm	mm	mm	mm	
3	15	50	3	1
4	18	50	4	1
6	20	54	6	1

Steel	<input type="radio"/>
Stainless steel	<input type="radio"/>
Cast iron	<input type="radio"/>
Non ferrous metals	<input checked="" type="radio"/>
Heat resistant alloys	<input type="radio"/>
hardened materials	<input type="radio"/>

→ v_d/f_z, Page 350-353

NC deburring cutter



$\alpha = 60^\circ$ Factory standard $\alpha = 60^\circ$ Factory standard $\alpha = 90^\circ$ Factory standard $\alpha = 90^\circ$ Factory standard $\alpha = 120^\circ$ Factory standard $\alpha = 120^\circ$ Factory standard



DC _{h8}	OAL	LPR	DCONMS _{h8}	ZFP	$\alpha = 60^\circ$		$\alpha = 60^\circ$		$\alpha = 90^\circ$		$\alpha = 90^\circ$		$\alpha = 120^\circ$		$\alpha = 120^\circ$	
					Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£
4	50	22	4	4	52 150 ...	34.49	52 153 ...	44.39	52 151 ...	34.49	52 154 ...	44.39	52 152 ...	33.27	52 155 ...	44.39
6	54	18	6	4	040 ¹⁾	040	060 ²⁾	060	040 ¹⁾	040	060 ²⁾	060	040 ¹⁾	040	060 ²⁾	060
8	59	23	8	4	080 ²⁾	080	080 ²⁾	080	080 ²⁾	080	080 ²⁾	080	080 ²⁾	080	080 ²⁾	080
10	60	20	10	4	100 ²⁾	100	100 ²⁾	100	100 ²⁾	100 ²⁾	100	100 ²⁾	100 ²⁾	100	100 ²⁾	100
12	70	25	12	4	120 ²⁾	120	120 ²⁾	120	120 ²⁾	120 ²⁾	120	120 ²⁾	120 ²⁾	120	120 ²⁾	120

Steel	●	●	●	●	●	●
Stainless steel	○	○	○	○	○	○
Cast iron	●	●	●	●	●	●
Non ferrous metals	○	○	○	○	○	○
Heat resistant alloys	○	○	○	○	○	○
hardened materials		○		○		○

1) DIN 6535 HA Shank
2) included in the set

→ v_c/f_z Page 350-353

Solid carbide NC deburring cutter set, factory standard

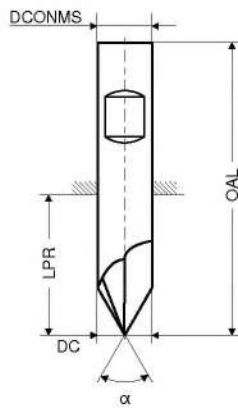
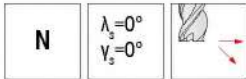
▲ Sets contain Ø 6, Ø 8, Ø 10 and Ø 12 mm



$\alpha = 60^\circ$ $\alpha = 90^\circ$ $\alpha = 120^\circ$
 HB HB HB

	$\alpha = 60^\circ$	$\alpha = 90^\circ$	$\alpha = 120^\circ$
Article no.	52 150 ...	52 151 ...	52 152 ...
£	263.60	263.60	263.60
Set	999	999	999

NC deburring cutter



Ti1000

Ti1000

Ti1000



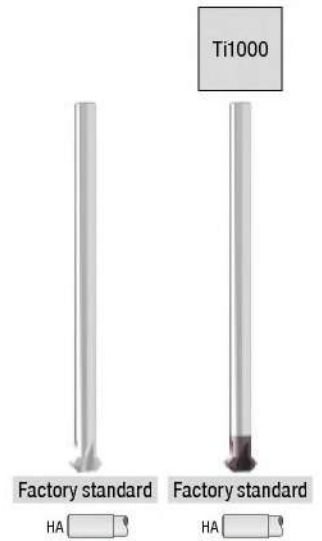
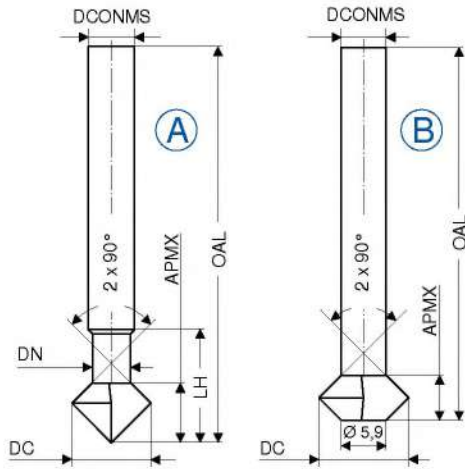
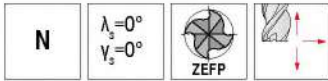
alpha = 60° Factory standard alpha = 60° Factory standard alpha = 90° Factory standard alpha = 90° Factory standard alpha = 120° Factory standard alpha = 120° Factory standard



DC _{h6}	OAL	LPR	DCONMS _{h6}	ZEFP	VO		VO		VO		VO		VO		VO							
					Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£	Article no.	£						
4	54	26	4	4	50 940 ...	26.00	040 ¹⁾	50 943 ...	35.35	040 ¹⁾	50 941 ...	26.00	040 ¹⁾	50 944 ...	35.35	040 ¹⁾	50 942 ...	26.00	040 ¹⁾	50 945 ...	35.35	040 ¹⁾
6	54	18	6	4	50 940 ...	33.40	060	50 943 ...	47.18	060	50 941 ...	33.40	060	50 944 ...	47.18	060	50 942 ...	33.40	060	50 945 ...	47.18	060
8	58	22	8	4	50 940 ...	40.33	080	50 943 ...	57.43	080	50 941 ...	40.33	080	50 944 ...	57.43	080	50 942 ...	40.33	080	50 945 ...	57.43	080
10	66	26	10	4	50 940 ...	49.60	100	50 943 ...	69.81	100	50 941 ...	49.60	100	50 944 ...	69.81	100	50 942 ...	49.60	100	50 945 ...	69.81	100
12	73	28	12	4	50 940 ...	69.57	120	50 943 ...	95.20	120	50 941 ...	69.57	120	50 944 ...	95.20	120	50 942 ...	69.57	120	50 945 ...	95.20	120
Steel						●			●			●			●			●			●	
Stainless steel						○			○			○			○			○			○	
Cast iron						●			●			●			●			●			●	
Non ferrous metals						○			○			○			○			○			○	
Heat resistant alloys						○			○			○			○			○			○	
hardened materials									○						○						○	

1) DIN 6535 HA Shank

NC front and rear chamfer milling cutter



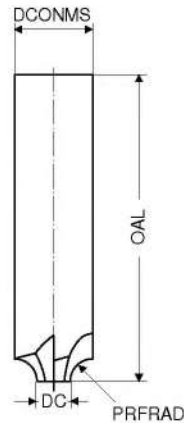
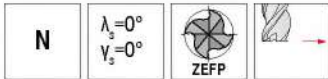
DC	APMX	DN	LH	OAL	DCONMS _{ns}	ZEFP	Fig.
mm	mm	mm	mm	mm	mm		
3	2.0	2.2	12.0	75	4	4	A
4	2.7	2.9	17.7	75	4	4	A
5	3.0	3.9	18.0	75	5	4	A
6	4.0	3.9	19.0	100	6	4	A
8	2.0			100	6	4	B
10	4.0			100	6	4	B
12	6.0			100	6	4	B

V1		V1	
Article no.		Article no.	
52 158 ...		52 159 ...	
£		£	
83.52	030	94.91	030
83.52	040	94.38	040
85.65	050	98.05	050
88.93	060	98.14	060
115.57	080	129.97	080
144.38	100	160.46	100
173.15	120	191.25	120

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials		○

→ v_c/f, Page 350-353

Quarter-round profile milling cutter, concave



Factory standard

HA

V1

Article no.
52 249 ...

£	
155.19	005
155.03	010
158.10	012
165.02	015
165.02	020
185.25	025
185.25	030
233.29	035
233.29	040
233.29	045
331.17	050
331.17	060

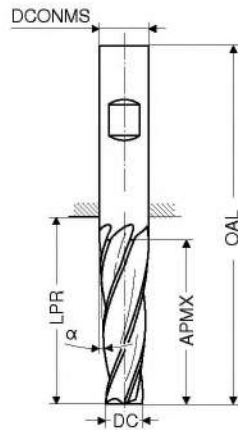
PRFRAD <small>+/-0,02</small>	DC	OAL	DCONMS <small>h6</small>	ZEFP
mm	mm	mm	mm	
0.50	7.0	70	8	4
1.00	6.0	70	8	4
1.25	7.5	75	10	4
1.50	7.0	75	10	4
2.00	6.0	75	10	4
2.50	7.0	73	12	4
3.00	6.0	73	12	4
3.50	9.0	80	16	4
4.00	8.0	80	16	4
4.50	7.0	80	16	4
5.00	10.0	80	20	4
6.00	8.0	80	20	4

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_d/f_z Page 350-353

Die milling cutter

N $\lambda_s=30^\circ$
 $\nu_s=15^\circ$  



DC _{±0.1}	α°	APMX	LPR	OAL	DCONMS _{h6}	ZEFP
mm		mm	mm	mm	mm	
2.0	0.5	10	22	50	3	4
2.5	0.5	10	22	50	3	4
2.5	0.5	20	32	60	4	4
3.0	0.5	20	32	60	4	4
4.0	0.5	20	32	60	5	4
5.0	0.5	30	34	75	6	6
6.0	0.5	30	35	75	8	6
8.0	0.5	30	35	80	10	6
10.0	0.5	30	36	85	12	6
12.0	0.5	30	36	85	14	6
12.0	0.5	50	57	110	14	6
16.0	0.5	60	72	120	18	6
2.0	1	10	22	50	3	4
2.5	1	10	22	50	3	4
2.5	1	20	32	60	4	4
3.0	1	20	32	60	4	4
3.5	1	20	32	60	5	4
4.0	1	20	32	60	5	4
4.5	1	20	29	65	6	6
5.0	1	25	29	70	6	6
6.0	1	30	36	75	8	6
8.0	1	30	36	80	10	6
10.0	1	30	36	85	12	6
12.0	1	30	36	85	14	6
12.0	1	50	55	110	14	6
16.0	1	55	61	115	18	6
2.0	1.5	10	22	50	3	4
2.5	1.5	10	22	50	4	4
2.5	1.5	20	32	60	4	4
3.0	1.5	20	32	60	4	4
3.5	1.5	20	32	60	5	4
4.0	1.5	20	32	60	5	4
4.5	1.5	20	25	65	6	4
5.0	1.5	30	36	75	8	6
6.0	1.5	30	36	75	8	6
8.0	1.5	30	36	80	10	6
10.0	1.5	30	36	85	12	6
12.0	1.5	30	36	85	14	6
12.0	1.5	50	56	110	16	6
16.0	1.5	60	68	125	20	6
2.0	2	10	22	50	3	4
2.5	2	10	22	50	4	4
2.5	2	20	32	60	4	4
3.0	2	20	32	60	5	4
3.5	2	20	32	60	5	4
4.0	2	20	27	65	6	4
4.5	2	30	37	75	8	4
5.0	2	30	37	75	8	6
6.0	2	28	32	75	8	6
8.0	2	28	33	75	10	6
10.0	2	28	33	85	12	6
12.0	2	28	33	85	14	6
12.0	2	50	56	110	16	6

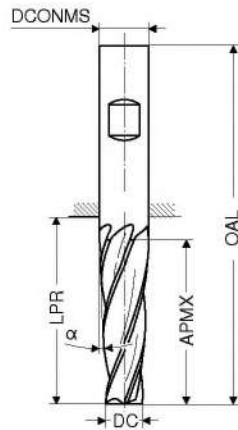
Factory standard HA HB

V1		V1	
Article no.	Article no.		
52 291 ...	52 291 ...		
£	£		
93.76			
90.36			
119.14			
122.13			
125.40			
	140.52	005	
	142.79	006	
	151.21	007	
	174.01	008	
	220.19	009	
	235.28	010	
	343.27	011	
93.76			
90.36			
119.14			
122.13			
125.40			
	125.13	106	
	140.52	107	
	140.52	108	
	151.21	109	
	174.01	110	
	220.19	111	
	235.28	112	
	343.27	113	
93.76			
103.17			
119.14			
122.13			
125.40			
125.40			
	125.13	206	
	140.52	207	
	140.52	208	
	151.21	209	
	174.01	210	
	220.19	211	
	254.22	212	
	388.31	213	
93.76			
103.17			
119.14			
125.40			
125.40			
	125.13	306	
	140.52	307	
	140.52	308	
	140.52	309	
	151.21	310	
	174.01	311	
	220.19	312	
	245.24	313	

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

→ v_c/f_z Page 350-353

Die milling cutter




DC _{±0.1}	α°	APMX	LPR	OAL	DCONMS _{h6}	ZEFP
mm		mm	mm	mm	mm	
16.0	2	55	62	115	20	6
2.0	2.5	15	22	50	4	4
2.5	2.5	20	32	60	5	4
3.0	2.5	20	32	60	5	4
4.0	2.5	20	26	65	6	4
5.0	2.5	30	35	75	8	6
6.0	2.5	30	36	80	10	6
8.0	2.5	30	36	85	12	6
10.0	2.5	40	46	100	14	6
2.0	3	10	22	50	4	4
2.5	3	10	22	50	4	4
2.5	3	20	27	65	6	4
3.0	3	25	32	70	6	4
3.0	3	30	38	75	8	4
3.0	3	40	47	85	8	4
4.0	3	25	30	70	8	6
4.0	3	30	35	75	8	6
5.0	3	40	46	90	10	6
6.0	3	30	36	80	10	6
8.0	3	30	36	85	12	6
8.0	3	50	57	110	14	6
10.0	3	30	36	85	14	6
10.0	3	50	57	110	16	6
12.0	3	30	38	90	16	6
12.0	3	50	57	110	18	6
2.5	4	25	30	65	6	4
3.0	4	20	26	65	6	4
3.5	4	25	32	70	8	4
4.0	4	28	33	70	8	6
5.0	4	30	36	85	10	6
5.0	4	45	51	100	12	6
6.0	4	30	38	84	12	6
6.0	4	50	58	110	14	6
8.0	4	30	38	84	14	6
8.0	4	50	58	110	16	6
10.0	4	30	39	93	16	6
10.0	4	50	58	114	18	6
2.5	5	20	25	65	6	4
3.0	5	28	34	70	8	4
3.5	5	30	38	80	10	4
4.0	5	30	36	80	10	6
4.5	5	30	36	80	10	6
5.0	5	30	38	84	12	6
5.0	5	40	46	100	12	6
6.0	5	30	36	93	12	6
6.0	5	55	62	110	16	6
8.0	5	30	38	90	14	6
8.0	5	50	58	114	18	6
10.0	5	30	38	93	16	6
10.0	5	55	63	115	20	6
12.0	5	30	38	93	18	6
12.0	5	45	52	100	20	6


Factory standard HA HB

V1		V1	
Article no.	Article no.	Article no.	Article no.
52 291 ...	52 291 ...	52 291 ...	52 291 ...
£	£	£	£
104.89	401	378.48	314
120.73	402		
125.40	403		
		125.13	404
		140.52	405
		140.52	406
		173.85	407
		220.19	408
104.89	500		
107.03	501		
		125.83	502
		125.13	503
		140.52	504
		151.49	505
		134.25	506
		139.50	507
		174.98	508
		152.34	509
		173.85	510
		227.88	511
		220.19	512
		264.63	513
		242.97	514
		334.75	515
		134.94	601
		134.94	602
		147.64	603
		162.15	604
		166.47	605
		190.82	606
		188.40	607
		241.54	608
		233.42	609
		280.43	610
		257.48	611
		354.81	612
		134.94	701
		147.64	702
		164.15	703
		164.15	704
		164.15	705
		190.82	706
		194.95	707
		191.08	708
		280.43	709
		236.69	710
		354.81	711
		257.48	712
		388.89	713
		273.32	714
		378.62	715

Steel	●	●
Stainless steel	○	○
Cast iron	●	●
Non ferrous metals	○	○
Heat resistant alloys	○	○
hardened materials	○	○

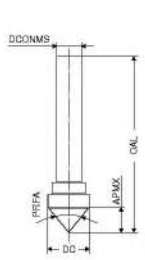
Carbide burrs, similar to DIN 8033


 Teeth Z3: Application "medium"

 Teeth Z6: Application "medium"


 v_c in m/min = 300-600

KSJ





Z3

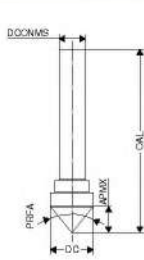



Z6

DC	APMX	OAL	DCONMS	PRFA	U9 Article no. 50 928 ...		U9 Article no. 50 928 ...	
mm	mm	mm	mm		£		£	
6	5	52	6	60°	17.37	606	18.88	706
12	10	60	6	60°	23.16	612 ¹⁾	25.42	712 ¹⁾


1) Steel shank / carbide head – shank tolerance h9

KSK





Z3

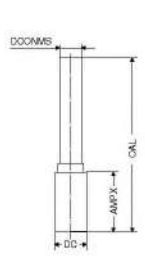



Z6

DC	APMX	OAL	DCONMS	PRFA	U9 Article no. 50 927 ...		U9 Article no. 50 927 ...	
mm	mm	mm	mm		£		£	
6	3	52	6	90°	16.64	606	18.13	706
12	6	56	6	90°	19.99	612 ¹⁾	22.04	712 ¹⁾


1) Steel shank / carbide head – shank tolerance h9

ZYA





Z3

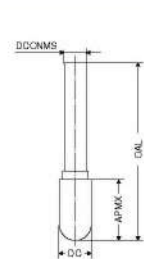



Z6

DC	APMX	OAL	DCONMS	U9 Article no. 50 921 ...		U9 Article no. 50 921 ...	
mm	mm	mm	mm	£		£	
3	13	40	3	8.40	303	9.16	403
6	13	48	3	14.94	306 ¹⁾	16.64	406 ¹⁾
6	16	55	6	16.99	606	18.69	706
8	20	65	6	21.67	608 ¹⁾	23.55	708 ¹⁾
10	20	65	6	24.47	610 ¹⁾	26.73	710 ¹⁾
12	25	70	6	31.37	612 ¹⁾	34.36	712 ²⁾


1) Steel shank / carbide head – shank tolerance h9
2) Steel shank / carbide head – shank tolerance h7

WRC





Z3

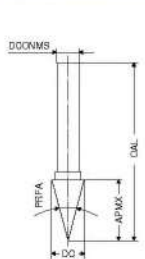



Z6

DC	APMX	OAL	DCONMS	U9 Article no. 50 922 ...		U9 Article no. 50 922 ...	
mm	mm	mm	mm	£		£	
3	13	40	3	10.67	303	11.59	403
6	13	48	3	16.99	306 ¹⁾	18.51	406 ¹⁾
6	16	50	6	18.88	606	20.92	706
8	18	63	6	24.28	608 ¹⁾	26.73	708 ¹⁾
10	20	65	6	28.03	610 ¹⁾	30.64	710 ¹⁾
12	25	70	6	37.74	612 ¹⁾	41.48	712 ¹⁾
16	25	70	6	50.05	616 ¹⁾	54.90	716 ¹⁾


1) Steel shank / carbide head – shank tolerance h9

SKM





Z3

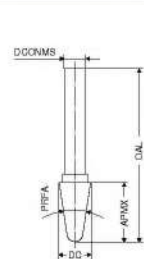



Z6

DC	APMX	OAL	DCONMS	PRFA	U9 Article no. 50 926 ...		U9 Article no. 50 926 ...	
mm	mm	mm	mm		£		£	
3	11	40	3	14°	10.08	303	11.21	403
6	13	48	3	23°	14.18	306 ¹⁾	15.31	406 ¹⁾
6	18	50	6	16°	17.75	606	19.43	706
8	20	65	6	20°	16.99	608 ¹⁾	18.51	708 ¹⁾
10	20	65	6	25°	19.99	610 ¹⁾	22.04	710 ¹⁾
12	25	70	6	25°	27.11	612 ¹⁾	29.89	712 ¹⁾


1) Steel shank / carbide head – shank tolerance h9

KEL





Z3



Z6

DC	APMX	OAL	DCONMS	PRFA	U9 Article no. 50 923 ...		U9 Article no. 50 923 ...	
mm	mm	mm	mm		£		£	
3	14	40	3	6°	10.08	303	11.21	403
6	20	55	3	12°	17.37	306 ¹⁾	18.88	406 ¹⁾
6	20	50	6	10°	18.88	606	20.92	706
8	20	65	6	14°	26.73	608 ¹⁾	29.33	708 ¹⁾
10	20	65	6	14°	33.25	610 ¹⁾	36.61	710 ¹⁾
12	30	75	6	14°	39.61	612 ¹⁾	43.54	712 ¹⁾

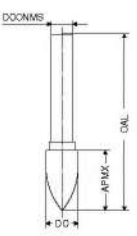

1) Steel shank / carbide head – shank tolerance h9

Carbide burrs, similar to DIN 8033

 Teeth **Z3**: Application "medium"
 Teeth **Z6**: Application "medium"

 v_c in m/min = 300-600

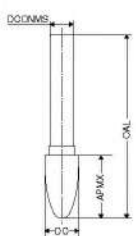
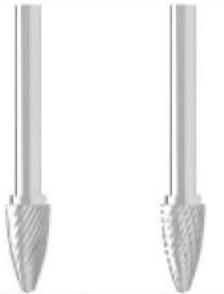
SPG

DC	APMX	OAL	DCONMS	U9 Article no. 50 925 ...		U9 Article no. 50 925 ...	
mm	mm	mm	mm	£		£	
3	13	40	3	9.92	303	10.83	403
6	13	48	3	14.56	306 ¹⁾	16.27	406 ¹⁾
6	18	50	6	21.50	606	23.16	706
8	20	65	6	21.67	608 ¹⁾	23.90	708 ¹⁾
10	20	65	6	26.73	610 ¹⁾	29.33	710 ¹⁾
12	25	70	6	31.75	612 ²⁾	34.56	712 ¹⁾

- 1) Steel shank / carbide head – shank tolerance h9
- 2) Steel shank / carbide head – shank tolerance h7

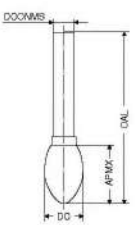

BBF

DC	APMX	OAL	DCONMS	U9 Article no. 50 924 ...		U9 Article no. 50 924 ...	
mm	mm	mm	mm	£		£	
3	13	40	3	10.08	303	11.21	403
6	13	48	3	16.27	306 ¹⁾	17.75	406 ¹⁾
6	18	50	6	22.04	606	24.47	706
8	20	65	6	23.55	608 ¹⁾	25.98	708 ¹⁾
10	20	65	6	27.27	610 ¹⁾	29.89	710 ¹⁾
12	25	70	6	32.88	612 ¹⁾	36.25	712 ¹⁾
16	30	75	6	46.89	616 ¹⁾	51.74	716 ¹⁾

- 1) Steel shank / carbide head – shank tolerance h9

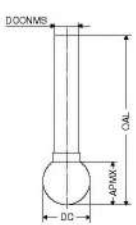

TRE

DC	APMX	OAL	DCONMS	U9 Article no. 50 929 ...		U9 Article no. 50 929 ...	
mm	mm	mm	mm	£		£	
3	7	40	3	10.08	303	11.21	403
6	10	45	3	14.94	306 ¹⁾	16.44	406 ¹⁾
6	10	50	6	20.18	606	22.25	706
8	13	58	6	22.41	608 ¹⁾	24.66	708 ¹⁾
10	16	61	6	25.42	610 ¹⁾	28.21	710 ¹⁾
12	20	65	6	32.12	612 ¹⁾	35.13	712 ¹⁾

- 1) Steel shank / carbide head – shank tolerance h9

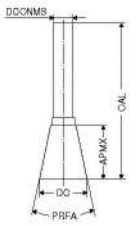

KUD

DC	APMX	OAL	DCONMS	U9 Article no. 50 930 ...		U9 Article no. 50 930 ...	
mm	mm	mm	mm	£		£	
3	2.7	40.0	3	10.08	303	11.21	403
6	5.4	40.4	3	13.65	306 ¹⁾	14.94	406 ¹⁾
6	5.0	50.0	6	19.43	606	21.67	706
8	7.2	52.2	6	18.51	608 ¹⁾	20.38	708 ¹⁾
10	9.0	54.0	6	21.87	610 ¹⁾	23.90	710 ¹⁾
12	10.8	55.8	6	26.16	612 ¹⁾	28.78	712 ¹⁾
16	14.4	59.4	6	36.99	616 ¹⁾	40.55	716 ¹⁾

- 1) Steel shank / carbide head – shank tolerance h9

WKN

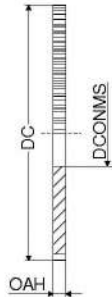
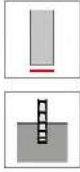



DC	APMX	OAL	DCONMS	PRFA	U9 Article no. 50 931 ...		U9 Article no. 50 931 ...	
mm	mm	mm	mm		£		£	
3	7	40	3	10°	10.08	303	11.21	403
6	7	50	6	10°	18.51	606	20.38	706
12	13	58	6	20°	24.86	612 ¹⁾	27.11	712 ¹⁾

- 1) Steel shank / carbide head – shank tolerance h9

Circular saw blades

▲ straight cut



DIN 1837 A

DC _{js16}	OAH _{±0,01}	DCONMS _{H6}	ZEFP	NEW V6	Article no.
mm	mm	mm		£	54 700 ...
15	0.20	5	64	17.30	102
15	0.25	5	64	17.30	103
15	0.30	5	64	17.30	104
15	0.35	5	64	17.30	105
15	0.40	5	64	17.30	106
15	0.50	5	48	17.30	107
15	0.60	5	48	17.30	108
15	0.70	5	48	20.54	109
15	0.80	5	40	20.54	110
15	0.90	5	40	21.63	111
15	1.00	5	40	21.63	112
15	1.10	5	40	22.71	113
15	1.20	5	40	22.71	114
15	1.30	5	40	22.71	115
15	1.40	5	40	22.71	116
15	1.50	5	40	24.87	117
15	1.60	5	40	27.03	118
15	1.70	5	40	29.19	119
15	1.80	5	40	29.19	120
15	1.90	5	40	30.28	121
15	2.00	5	40	30.28	122
15	2.50	5	40	42.17	123
15	3.00	5	40	47.58	124
15	3.50	5	40	52.98	125
15	4.00	5	40	65.96	126
15	4.50	5	40	76.77	127
15	5.00	5	40	80.02	128
15	5.50	5	40	95.15	129
15	6.00	5	40	98.40	130
20	0.20	5	80	19.46	152
20	0.25	5	64	19.46	153
20	0.30	5	64	19.46	154
20	0.35	5	64	19.46	155
20	0.40	5	64	19.46	156
20	0.50	5	48	19.46	157
20	0.60	5	48	19.46	158
20	0.70	5	48	21.63	159
20	0.80	5	48	21.63	160
20	0.90	5	40	22.71	161
20	1.00	5	40	24.87	162
20	1.10	5	40	27.03	163
20	1.20	5	40	27.03	164
20	1.30	5	40	28.11	165
20	1.40	5	40	30.28	166
20	1.50	5	40	30.28	167
20	1.60	5	40	32.44	168
20	1.70	5	40	33.52	169
20	1.80	5	32	33.52	170
20	1.90	5	32	35.68	171
20	2.00	5	32	35.68	172
20	2.50	5	32	44.33	173
20	3.00	5	32	50.82	174
20	3.50	5	24	56.23	175
20	4.00	5	24	67.04	176

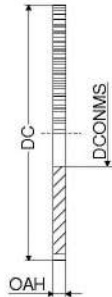
DC _{js16}	OAH _{±0,01}	DCONMS _{H6}	ZEFP	NEW V6	Article no.
mm	mm	mm		£	54 700 ...
20	4.50	5	24	80.02	177
20	5.00	5	24	83.26	178
20	5.50	5	24	97.32	179
20	6.00	5	24	100.56	180
25	0.20	8	80	18.38	202
25	0.25	8	80	18.38	203
25	0.30	8	80	18.38	204
25	0.35	8	64	18.38	205
25	0.40	8	64	18.38	206
25	0.50	8	64	21.63	207
25	0.60	8	64	21.63	208
25	0.70	8	48	23.79	209
25	0.80	8	48	27.03	210
25	0.90	8	48	29.19	211
25	1.00	8	48	29.19	212
25	1.10	8	48	33.52	213
25	1.20	8	48	33.52	214
25	1.30	8	40	34.60	215
25	1.40	8	40	35.68	216
25	1.50	8	40	35.68	217
25	1.60	8	40	40.01	218
25	1.70	8	40	40.01	219
25	1.80	8	40	41.09	220
25	1.90	8	40	44.33	221
25	2.00	8	40	45.41	222
25	2.50	8	40	55.15	223
25	3.00	8	32	71.37	224
25	3.50	8	32	78.93	225
25	4.00	8	32	88.67	226
25	4.50	8	32	101.64	227
25	5.00	8	32	107.05	228
25	5.50	8	24	122.19	229
25	6.00	8	24	127.59	230
30	0.20	8	100	23.79	252
30	0.25	8	100	23.79	253
30	0.30	8	80	23.79	254
30	0.35	8	80	23.79	255
30	0.40	8	80	23.79	256
30	0.50	8	80	24.87	257
30	0.60	8	64	24.87	258
30	0.70	8	64	30.28	259
30	0.80	8	64	33.52	260
30	0.90	8	64	35.68	261
30	1.00	8	64	35.68	262
30	1.10	8	64	40.01	263
30	1.20	8	48	40.01	264
30	1.30	8	48	41.09	265
30	1.40	8	48	44.33	266
30	1.50	8	48	44.33	267
30	1.60	8	48	47.58	268
30	1.70	8	48	47.58	269
30	1.80	8	48	48.66	270
30	1.90	8	48	50.82	271
30	2.00	8	48	52.98	272
30	2.50	8	40	62.72	273
30	3.00	8	40	74.61	274
30	3.50	8	40	84.34	275
30	4.00	8	40	95.15	276
30	4.50	8	32	109.21	277
30	5.00	8	32	114.62	278
30	5.50	8	32	129.76	279
30	6.00	8	32	135.16	280

- Steel ●
- Stainless steel ●
- Cast iron ●
- Non ferrous metals ●
- Heat resistant alloys ●
- hardened materials ○

→ v_c/f_t Page 349

Circular saw blades

▲ straight cut



DIN 1837 A

NEW V6
Article no.
54 700 ...

DC _{js16}	OAH _{±0,01}	DCONMS _{H6}	ZEFP	£	Article no.
mm	mm	mm			54 700 ...
40	0.20	10	128	29.19	302
40	0.25	10	100	29.19	303
40	0.30	10	100	29.19	304
40	0.35	10	100	29.19	305
40	0.40	10	100	31.36	306
40	0.50	10	80	33.52	307
40	0.60	10	80	33.52	308
40	0.70	10	80	38.93	309
40	0.80	10	80	40.01	310
40	0.90	10	64	40.01	311
40	1.00	10	64	41.09	312
40	1.10	10	64	42.17	313
40	1.20	10	64	44.33	314
40	1.30	10	64	45.41	315
40	1.40	10	64	47.58	316
40	1.50	10	64	49.74	317
40	1.60	10	64	50.82	318
40	1.70	10	48	52.98	319
40	1.80	10	48	55.15	320
40	1.90	10	48	56.23	321
40	2.00	10	48	56.23	322
40	2.50	10	48	72.45	323
40	3.00	10	48	83.26	324
40	3.50	10	48	92.99	325
40	4.00	10	40	103.80	326
40	4.50	10	40	116.78	327
40	5.00	10	40	124.35	328
40	5.50	10	40	139.49	329
40	6.00	10	40	147.06	330
50	0.20	13	128	47.58	352
50	0.25	13	128	46.50	353
50	0.30	13	128	38.93	354
50	0.35	13	100	38.93	355
50	0.40	13	100	38.93	356
50	0.50	13	100	41.09	357
50	0.60	13	100	41.09	358
50	0.70	13	80	42.17	359
50	0.80	13	80	46.50	360
50	0.90	13	80	47.58	361
50	1.00	13	80	49.74	362
50	1.10	13	80	50.82	363
50	1.20	13	80	51.90	364
50	1.30	13	64	58.39	365
50	1.40	13	64	59.47	366
50	1.50	13	64	62.72	367
50	1.60	13	64	63.80	368
50	1.70	13	64	64.88	369
50	1.80	13	64	69.20	370
50	1.90	13	64	69.20	371
50	2.00	13	64	71.37	372
50	2.50	13	64	86.50	373
50	3.00	13	48	100.56	374
50	3.50	13	48	114.62	375
50	4.00	13	48	121.10	376

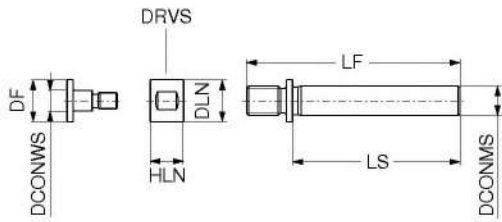
DC _{js16}	OAH _{±0,01}	DCONMS _{H6}	ZEFP	£	Article no.
mm	mm	mm			54 700 ...
50	4.50	13	48	140.57	377
50	5.00	13	48	148.14	378
50	5.50	13	40	165.44	379
50	6.00	13	40	171.93	380
63	0.20	16	160	70.28	402
63	0.25	16	160	67.04	403
63	0.30	16	128	62.72	404
63	0.35	16	128	59.47	405
63	0.40	16	128	54.06	406
63	0.50	16	128	52.98	407
63	0.60	16	100	54.06	408
63	0.70	16	100	60.55	409
63	0.80	16	100	67.04	410
63	0.90	16	100	67.04	411
63	1.00	16	100	69.20	412
63	1.10	16	80	71.37	413
63	1.20	16	80	73.53	414
63	1.30	16	80	75.69	415
63	1.40	16	80	76.77	416
63	1.50	16	80	77.85	417
63	1.60	16	80	82.18	418
63	1.70	16	80	86.50	419
63	1.80	16	80	87.58	420
63	1.90	16	80	91.91	421
63	2.00	16	80	94.07	422
63	2.50	16	64	113.54	423
63	3.00	16	64	128.67	424
63	3.50	16	64	147.06	425
63	4.00	16	64	161.11	426
63	4.50	16	64	184.90	427
63	5.00	16	48	192.47	428
63	5.50	16	48	216.26	429
63	6.00	16	48	223.83	430

- Steel ●
- Stainless steel ●
- Cast iron ●
- Non ferrous metals ●
- Heat resistant alloys ●
- hardened materials ○

→ v_f/t, Page 349

Cylindrical shank adapter for circular saw blades

▲ DCONWS = circular saw blade bore diameter



DCONMS _{H7}	DLN	DF	LF	LS	HLN	DCONWS _{H7}	DRVS		
mm	mm	mm	mm	mm	mm	mm	mm		
7	10	10	51	40	8	5	9		
7	15	15	51	40	8	8	14		
7	17	17	53	40	10	10	16		
10	10	10	61	50	8	5	9		
10	15	15	61	50	8	8	14		
10	17	17	63	50	10	10	16		
10	20	20	66	50	10	13	18		
10	24	24	66	50	14	16	22		
16	17	17	74	55	10	10	16		
16	20	20	77	55	10	13	18		
16	24	24	79	55	14	16	22		

NEW	X1	Article no.	£
		72 900 ...	

Spare parts

for Article no.	Article no.	£	Article no.	£
72 900 005	72 945 ...	34.44 000	72 945 ...	54.12 005
72 900 008		34.44 001		54.12 006
72 900 010		36.71 002		56.21 007
72 900 105		34.44 000		54.12 005
72 900 108		34.44 001		54.12 006
72 900 110		36.71 002		56.21 007
72 900 113		38.42 003		58.10 008
72 900 116		40.31 004		59.80 009
72 900 210		36.71 010		56.21 012
72 900 213		38.42 003		58.10 008
72 900 216		40.31 011		59.80 013



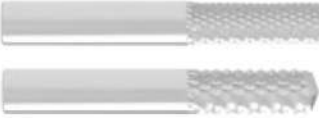
X1	X1
Screw - SR	Lock nut - KM

Application data for plastics cutters

Material	Strength N/mm ² – HB	50 981 ..	50 988 ..	50 992 ..	50 937 ..	50 936 ..	50 938 ..	50 610 ..	50 611 ..	50 946 ..	50 948 ..	50 947 ..
Aluminium (non alloyed, low alloyed)	< 350 N/mm ²							●				
Aluminium	< 500 N/mm ²							●				
Aluminium alloy 0,5–10 % Si	< 400 N/mm ²							●				
Aluminium alloy 10–15 % Si	< 400 N/mm ²						●			●	●	●
Aluminium	< 400 N/mm ²						●			●	●	
Copper (non alloyed, low alloyed)	< 350 N/mm ²							●				
Copper wrought alloys	< 700 N/mm ²							●		●	●	●
Special copper alloys	< 200 HB							●		●	●	●
Special copper alloys	< 300 HB							●		●	●	●
Special copper alloys	< 300 HB							●		●	●	●
Short-chipping brass, bronze, red bronze	< 600 N/mm ²							●				
Long-chipping brass	< 600 N/mm ²							●				
Thermoplastics								●				
Duroplastics		●	●	●				●				
Fibre-reinforced plastics		●	●	●	●	●	●			●	●	●
Magnesium and Magnesium Alloys	< 850 N/mm ²							●		●	●	●
Graphite		●	●	●	●	●	●			●		●
Tungsten and tungsten alloys											●	●
Molybdenum and molybdenum alloys											●	●
Machining direction												
		①	②	③	④	⑤	⑥	⑦	⑧	⑨		

Tips

- ①




▲ Very sharp cutting edges for GFK and CFK and to prevent delamination of the component.
- ②



▲ For excellent tool life when machining AFK, CFK and Graphite.
- ③



▲ Specialist for machining honeycomb materials; Milling of pockets not fully through the workpiece.
- ④



▲ Specialist for machining honeycomb materials.
- ⑤



▲ Milling of recesses that pass through the material, the lower deck is pushed and upper deck pulled therefore the workpiece material is stabilized.
- ⑥




▲ For machining non fibre-reinforced plastics and non-ferrous metals with low silicon content. (PE, PA, PVC, acrylic glass)
- ⑦



▲ For machining fibre-reinforced plastics and non-ferrous metals with high silicon content.
- ⑧



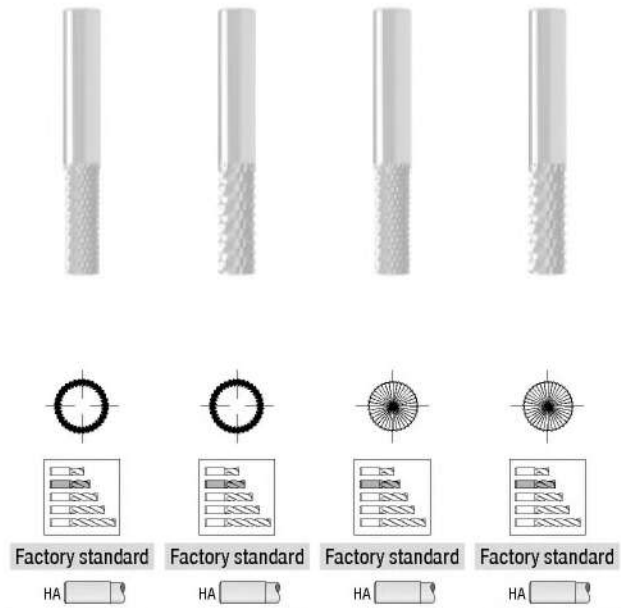
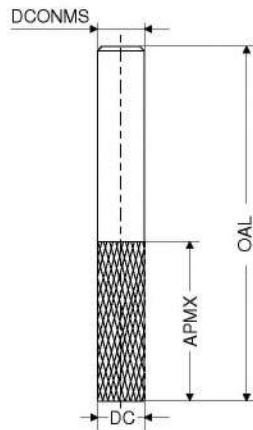
▲ For machining fibre-reinforced plastics and non-ferrous metals with high silicon content.
- ⑨



▲ For machining fibre-reinforced plastics and non-ferrous metals with high silicon content.

Cutter for plastics

- ▲ right hand cutting
- ▲ cross-pitched
- ▲ downward chip evacuation
- ▲ 50 981 ... and 50 983 ... = fine pitch
- ▲ 50 982 ... and 50 984 ... = medium pitch



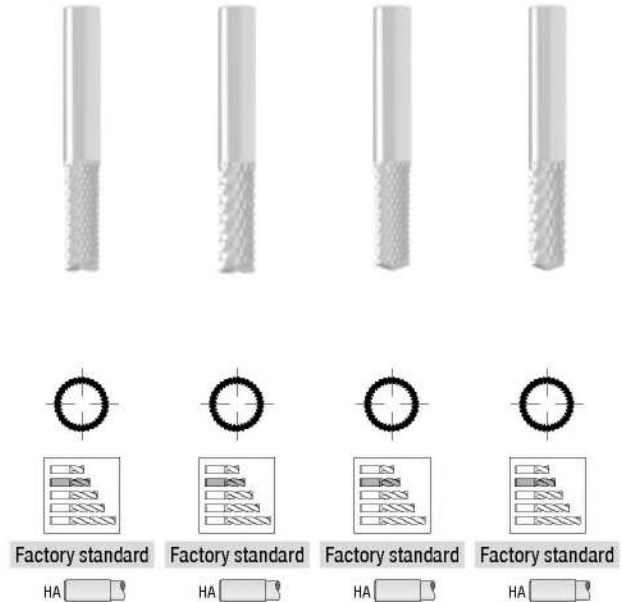
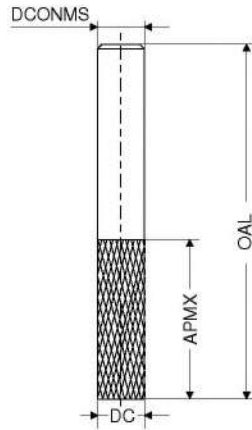
DC _{h10}	APMX	OAL	DCONMS _{h6}	VO		VO		VO		VO	
				Article no.	£	Article no.	£	Article no.	£	Article no.	£
2.0	7	40	2.0	50 981 ...	12.05	50 982 ...	13.30	50 983 ...	14.01	50 984 ...	15.89
2.0	7	50	6.0	020	020	020	020	020	020	020	
2.0	7	50	6.0	021	26.07	021	26.07	021	27.84	021	27.84
3.0	10	40	3.0	030	12.05	030	13.30	030	14.01	030	15.89
3.0	12	50	6.0	031	26.07	031	26.07	031	27.84	031	27.84
3.5	12	40	3.5	035	13.93	035	15.48	035	15.78	035	17.52
4.0	15	40	4.0	040	16.12	040	17.66	040	17.30	040	19.14
4.0	20	50	6.0	041	26.07	041	26.07	041	27.84	041	27.84
4.5	15	50	4.5	045	18.51	045	20.50	045	20.03	045	22.13
5.0	16	50	5.0	050	21.05	050	23.21	050	22.58	050	25.12
5.0	25	75	6.0	051	39.76	051	39.76	051	41.54	051	41.54
6.0	18	50	6.0	060	26.07	060	23.59	060	27.84	060	25.28
6.0	35	75	6.0	061	39.76	061	39.76	061	41.54	061	41.54
7.0	22	60	7.0	070	35.99	070	32.42	070	38.29	070	34.45
8.0	25	63	8.0	080	41.39	080	37.16	080	44.11	080	39.69
8.0	40	100	8.0	081	55.10	081	55.10	081	57.69	081	57.69
9.0	25	63	9.0	090	52.52	090	47.35	090	55.10	090	49.37
10.0	30	72	10.0	100	55.92	100	50.21	100	58.23	100	52.26
12.0	32	83	12.0	120	79.13	120	70.91	120	82.23	120	73.63
14.0	32	83	14.0	140	124.73	140	111.80	140	134.76	140	120.45
16.0	36	92	16.0	160	170.85	160	152.51	160	184.44	160	164.91
18.0	40	92	18.0	180	230.99	180	206.28	180	249.43	180	222.91
20.0	45	104	20.0	200	277.25	200	247.69	200	299.38	200	267.53

Steel			
Stainless steel			
Cast iron			
Non ferrous metals	•	•	•
Heat resistant alloys			
hardened materials			

→ v_e/f_z, Page 348

Cutter for plastics

- ▲ right hand cutting
- ▲ cross-pitched
- ▲ downward chip evacuation
- ▲ 50 985 ... and 50 987 ... = fine pitch
- ▲ 50 986 ... and 50 988 ... = medium pitch



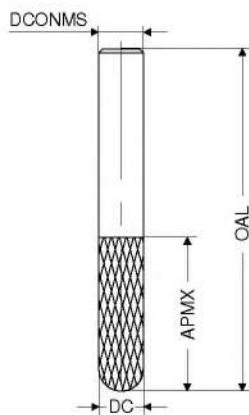
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mm	mm	mm	mm	£		£		£		£	
2.0	7	40	2.0	15.27	020	16.70	020	15.27	020	16.70	020
2.0	7	50	6.0	29.59	021	29.59	021	29.59	021	29.59	021
3.0	10	40	3.0	15.27	030	16.70	030	15.27	030	16.70	030
3.0	12	50	6.0	29.59	031	29.59	031	29.59	031	29.59	031
3.5	12	40	3.5	16.82	035	18.59	035	16.82	035	18.59	035
4.0	15	40	4.0	18.33	040	20.36	040	18.33	040	20.36	040
4.0	20	50	6.0	29.59	041	29.59	041	29.59	041	29.59	041
4.5	15	50	4.5	21.21	045	23.48	045	21.21	045	23.48	045
5.0	16	50	5.0	24.08	050	26.74	050	24.08	050	26.74	050
5.0	25	75	6.0	43.29	051	43.29	051	43.29	051	43.29	051
6.0	18	50	6.0	29.59	060	26.65	060	29.59	060	26.65	060
6.0	35	75	6.0	43.29	061	43.29	061	43.29	061	43.29	061
7.0	22	60	7.0	40.72	070	36.47	070	40.72	070	36.47	070
8.0	25	63	8.0	46.56	080	41.72	080	46.56	080	41.72	080
8.0	40	100	8.0	60.26	081	60.26	081	60.26	081	60.26	081
9.0	25	63	9.0	57.69	090	51.74	090	57.69	090	51.74	090
10.0	30	72	10.0	60.79	100	54.45	100	60.79	100	54.45	100
12.0	32	83	12.0	85.37	120	76.35	120	85.37	120	76.35	120
14.0	32	83	14.0	137.36	140	122.83	140	137.36	140	122.83	140
16.0	36	92	16.0	187.81	160	167.94	160	187.81	160	167.94	160
18.0	40	92	18.0	254.07	180	226.80	180	254.07	180	226.80	180
20.0	45	104	20.0	305.08	200	272.44	200	305.08	200	272.44	200

Steel				
Stainless steel				
Cast iron				
Non ferrous metals	•	•	•	•
Heat resistant alloys				
hardened materials				

→ v_c/f_z Page 348

Ball nosed cutter for plastics

- ▲ right hand cutting
- ▲ cross-pitched



DIAMOND



Factory standard

HA

V0

Article no.
50 932 ...

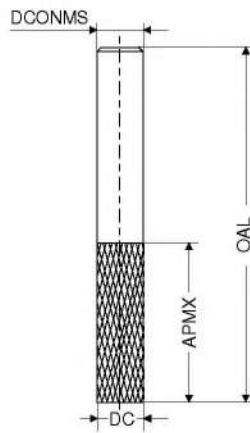
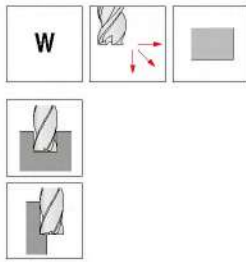
DC _{h10}	APMX	OAL	DCONMS _{h8}	£	
2	7	40	2	50.61	020
2	7	50	6	115.37	022
3	10	40	3	50.61	030
3	12	50	6	115.37	032
4	15	40	4	73.42	040
4	20	50	6	115.37	042
5	16	50	5	93.64	050
5	25	75	6	131.92	052
6	18	50	6	96.91	060
6	35	75	6	126.35	062
8	25	63	8	122.69	080
8	40	100	8	179.02	082
10	30	72	10	195.83	100
12	32	83	12	248.76	120
16	36	92	16	502.27	160
20	40	104	20	589.80	200

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 348

Cutter for plastics

- ▲ right hand cutting
- ▲ cross-pitched



Factory standard

HA

V0

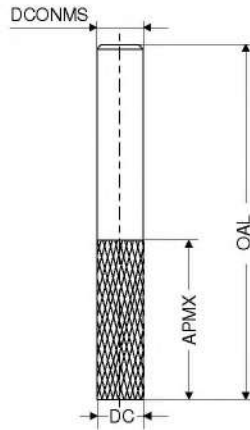
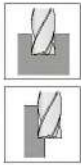
Article no.
50 937 ...

DC _{h10}	APMX	OAL	DCONMS _{h8}	£	
mm	mm	mm	mm		
5	16	60	6	115.64	050
5	28	75	6	97.83	052
6	20	60	6	115.64	060
6	35	75	6	102.62	062
8	22	63	8	120.79	080
8	40	100	8	124.85	082
10	25	72	10	148.61	100
10	50	100	10	208.60	102
12	30	83	12	261.80	120
12	50	100	12	306.99	122
16	35	92	16	461.54	160
16	60	125	16	560.78	162

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 348

Cutter for honeycomb materials



Ti28



Factory standard

HA

VO

Article no.
50 936 ...

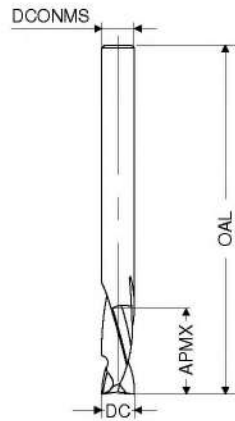
£

DC _{h10}	APMX	OAL	DCONMS _{h6}	Price (£)	Article no.
mm	mm	mm	mm		
6	16	50	6	66.91	006
8	19	63	8	98.41	008
10	22	72	10	123.50	010
12	26	83	12	169.65	012
14	17	100	12	200.18	014
16	17	100	12	306.17	016
20	17	100	12	420.43	020
24	10	100	12	498.75	024
24	17	100	12	536.34	025
44	17	100	12	987.43	044 ¹⁾

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

1) vertical plunging not possible

Right and left hand helix cutter for fibre re-inforced plastics



Ti28



Factory standard

HA

VO

Article no.
50 938 ...

£	
111.82	020
54.57	030
111.82	032
61.91	040
77.63	050
94.73	060
114.55	080
137.21	100
199.09	120

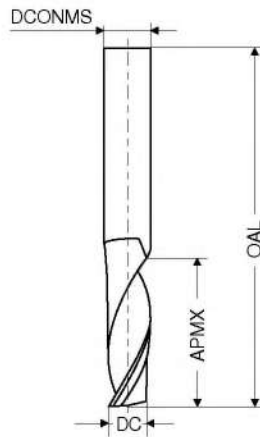
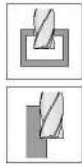
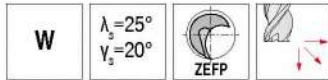
DC _{h10}	APMX	OAL	DCONMS _{h6}	ZEFP
mm	mm	mm	mm	
2	6	40	6	2
3	12	40	3	2
3	12	50	6	2
4	14	40	4	2
5	16	50	5	2
6	18	50	6	2
8	20	63	8	2
10	25	72	10	2
12	30	83	12	2

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_d/f_z Page 348

Single flute cutter

▲ with polished chip flutes



Right-hand helix
right-hand cutting



Left-hand helix
right-hand cutting

Factory standard Factory standard



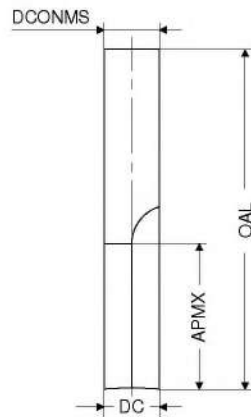
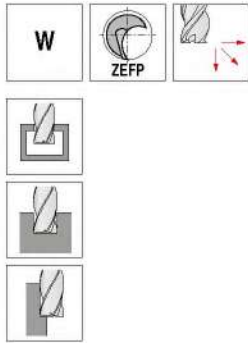
DC _{h10}	APMX	OAL	DCONMS _{h6}	ZEFP	VO	VO
mm	mm	mm	mm		Article no. 50 610 ...	Article no. 50 611 ...
1.5	6	40	3.0	1	£ 23.62 015	£ 23.62 015
2.0	6	40	3.0	1	£ 23.62 019	£ 23.62 019
2.0	10	40	2.0	1	£ 19.14 020	£ 19.14 020
2.0	10	60	6.0	1	£ 34.90 022	£ 34.90 022
2.0	12	60	6.0	1	£ 35.99 024	£ 35.99 024
2.5	6	40	2.5	1	£ 23.62 025	£ 23.62 025
3.0	12	40	3.0	1	£ 19.00 030	£ 19.00 030
3.0	10	40	6.0	1	£ 34.34 032	£ 34.34 032
3.0	12	60	6.0	1	£ 34.90 034	£ 34.90 034
3.0	15	60	6.0	1	£ 34.90 036	£ 34.90 036
4.0	15	40	4.0	1	£ 23.21 040	£ 23.21 040
4.0	15	60	6.0	1	£ 34.90 042	£ 34.90 042
4.0	20	75	6.0	1	£ 56.59 044	£ 56.59 044
5.0	16	50	5.0	1	£ 29.66 050	£ 29.66 050
5.0	16	60	6.0	1	£ 34.90 052	£ 34.90 052
5.0	28	75	6.0	1	£ 63.38 054	£ 63.38 054
6.0	20	60	6.0	1	£ 34.64 060	£ 34.64 060
6.0	30	60	6.0	1	£ 34.34 062	£ 34.34 062
6.0	35	75	6.0	1	£ 51.44 064	£ 51.44 064
8.0	22	63	8.0	1	£ 56.14 080	£ 56.14 080
8.0	40	100	8.0	1	£ 82.23 084	£ 82.23 084
10.0	25	72	10.0	1	£ 82.78 100	£ 82.78 100
10.0	55	100	10.0	1	£ 136.94 105	£ 136.94 105
12.0	30	83	12.0	1	£ 111.72 120	£ 111.72 120
14.0	30	83	14.0	1	£ 167.17 140	£ 167.17 140
16.0	35	92	16.0	1	£ 237.00 160	£ 237.00 160
18.0	35	92	18.0	1	£ 283.57 180	£ 283.57 180
20.0	40	104	20.0	1	£ 318.92 200	£ 318.92 200

Steel		
Stainless steel		
Cast iron		
Non ferrous metals	•	•
Heat resistant alloys		
hardened materials		

→ v_d/f_z Page 348

Cutter for plastics

▲ with polished flutes



Factory standard

HA

V0

Article no.
50 946 ...

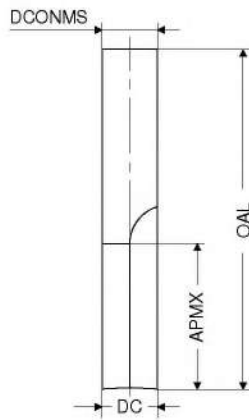
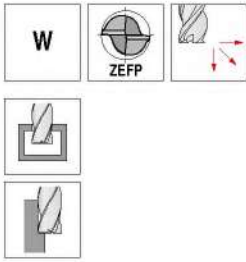
DC _{h10}	APMX	OAL	DCONMS _{h6}	ZEFP	£	
1.5	6	40	3	1	29.18	015
2.0	6	40	3	1	29.18	020
2.0	10	40	2	1	20.90	022
2.0	10	60	6	1	42.49	024
2.0	12	60	6	1	43.57	026
3.0	12	40	3	1	21.99	030
3.0	12	60	6	1	42.49	032
3.0	15	60	6	1	42.49	034
4.0	15	60	6	1	42.49	040
4.0	20	75	6	1	64.20	042
5.0	16	60	6	1	42.49	050
5.0	28	75	6	1	70.99	052
6.0	20	60	6	1	36.93	060
6.0	30	60	6	1	41.94	062
6.0	35	75	6	1	59.05	064
8.0	22	63	8	1	57.28	080
8.0	40	100	8	1	92.00	082
10.0	25	72	10	1	85.09	100
10.0	55	100	10	1	150.78	102
12.0	30	83	12	1	110.21	120

- Steel
- Stainless steel
- Cast iron
- Non ferrous metals
- Heat resistant alloys
- hardened materials

→ v_c/f_z Page 348

Cutter for plastics

▲ with polished flutes



Factory standard



VO

Article no.
50 948 ...

£

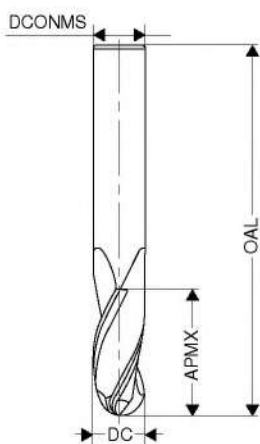
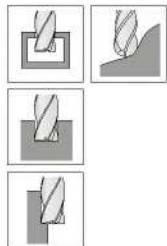
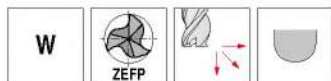
DC _{h10}	APMX	OAL	DCONMS _{h6}	ZEFP	
mm	mm	mm	mm		
2	6	40	6	2	44.25 020
3	12	40	3	2	25.52 030
3	12	50	6	2	44.25 031
4	14	40	6	2	44.25 040
5	16	50	5	2	33.38 050
6	18	50	6	2	40.18 060
8	20	63	8	2	57.96 080
10	25	72	10	2	75.73 100
12	30	83	12	2	100.44 120

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_c/f_z Page 348

Ball nosed cutter for plastics

- ▲ with polished flutes
- ▲ irregular pitch



Ti40



DIN 6527 L

HA

V0

Article no.
50 947 ...

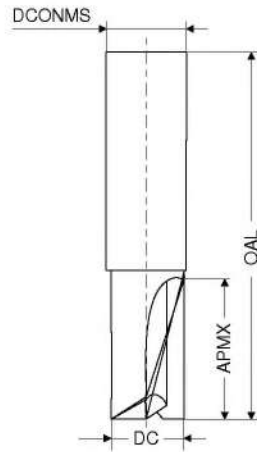
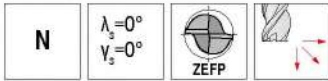
£	
60.68	030
60.68	040
60.68	050
51.86	060
80.20	070
71.10	080
108.32	090
95.96	100
123.63	120
188.79	140
253.78	160
303.05	180
358.70	200

DC _{h10}	APMX	OAL	DCONMS _{h8}	ZEFP
mm	mm	mm	mm	
3	10	57	6	3
4	13	57	6	3
5	15	57	6	3
6	18	57	6	3
7	20	63	8	3
8	20	63	8	3
9	22	72	10	3
10	25	72	10	3
12	30	83	12	3
14	30	83	14	3
16	35	92	16	3
18	35	92	18	3
20	45	104	20	3

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
hardened materials	

→ v_e/f_z Page 348

Slot milling cutter



Factory standard

HA

V1

Article no.
52 168 ...

£	
24.24	020
23.21	030
24.81	040
30.06	050
34.25	060
46.05	070
46.60	080
60.80	090
74.68	100
98.33	120

DC _{es}	APMX	OAL	DCONMS _{h6}	ZEFP
mm	mm	mm	mm	
2	8	50	3	2
3	12	50	3	2
4	13	60	4	2
5	14	60	5	2
6	16	58	6	2
7	20	65	8	2
8	20	65	8	2
9	22	70	10	2
10	22	70	10	2
12	25	70	12	2

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	○
Heat resistant alloys	○
hardened materials	○

→ v_c/f_z Page 350-353

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm ² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm ²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm ²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm ²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm ²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm ²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm ²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm ²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm ²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm ²	0.9650	G-X260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm ²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm ²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm ²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm ²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm ²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm ²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm ²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm ²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm ²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm ²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	< 1100 N/mm ²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm ²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm ²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm ²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100-350 N/mm ²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300-500 N/mm ²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300-500 N/mm ²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500-900 N/mm ²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270-450 N/mm ²	0.8036	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500-650 N/mm ²	0.8056	GTW-55	0.8066	GTW-65		
	3.7	Black malleable cast iron	300-450 N/mm ²	0.8136	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500-800 N/mm ²	0.8156	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm ²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm ²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5-10 % Si	< 400 N/mm ²	3.2315	A-8 S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10-15 % Si	< 400 N/mm ²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm ²		A-S18		A-S17 U4		
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm ²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm ²	2.1247	Cu2 (Beryllium Copper)	2.0855	Cu2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-A11 Fe5 Ni5		Ampco 18 (Cu-A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm ²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm ²	2.0335	Cu Zn36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics			PE		PS		Plexiglas
	4.14	Duroplastics			PF		Bakelite		Pertinax
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm ²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe- Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm ²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30 Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30 Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm ²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm ²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm ²	1.4718	Z45 CS 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm ²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4802	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm ²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm ²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm ²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1		< 45 HRC						
	6.2		46-55 HRC						
	6.3	Tempered steel	56-60 HRC						
	6.4		61-65 HRC						
	6.5		65-70 HRC						

Cutting Data – MonsterMill – End Mills – SCR, short – long

Index	Emulsion	Compressed air	MMS	short	long	Ø DC = 3,0–3,5 mm			Ø DC = 4,0–4,5 mm			short	long	Ø DC = 5,0–5,5 mm			Ø DC = 6,0–7,5 mm			Ø DC = 8,0–9,5 mm					
						a_p	a_p	a_p	a_p	a_p	a_p			a_p	a_p	a_p	a_p	a_p	a_p	a_p	a_p	a_p	a_p	a_p	a_p
						0,1–0,2 x DC	0,3–0,4 x DC	0,6–1,0 x DC	0,1–0,2 x DC	0,3–0,4 x DC	0,6–1,0 x DC			0,1–0,2 x DC	0,3–0,4 x DC	0,6–1,0 x DC	0,1–0,2 x DC	0,3–0,4 x DC	0,6–1,0 x DC	0,1–0,2 x DC	0,3–0,4 x DC	0,6–1,0 x DC	0,1–0,2 x DC	0,3–0,4 x DC	0,6–1,0 x DC
v_c m/min	$a_{p,max}$ x DC	f_z mm	f_z mm	f_z mm	$a_{p,max}$ x DC	f_z mm	f_z mm	f_z mm	$a_{p,max}$ x DC	f_z mm	f_z mm	f_z mm	$a_{p,max}$ x DC	f_z mm	f_z mm	f_z mm	$a_{p,max}$ x DC	f_z mm	f_z mm	f_z mm					
1.1	105–140	190–240	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06				
1.2	105–140	200–250	1,0	1,0	0,031	0,024	0,017	0,043	0,033	0,024	1,0	1,0*	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06				
1.3	90–120	160–210	1,0	1,0	0,031	0,024	0,017	0,043	0,033	0,024	1,0	1,0*	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06				
1.4	80–115	140–190	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06				
1.5	90–120	150–200	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06				
1.6	90–120	140–190	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06				
1.7	80–115	140–190	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06				
1.8	70–100	120–170	1,0	1,0	0,025	0,019	0,014	0,035	0,027	0,020	1,0	1,0*	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05				
1.9	70–100	120–170	1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04				
1.10	70–100	140–190	1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04				
1.11	70–100	120–170	1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04				
1.12	70–100	140–190	1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04				
1.13	70–100	90–150	1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04				
1.14	50–80	70–120	1,0	1,0	0,017	0,013	0,010	0,024	0,018	0,013	1,0	1,0*	0,034	0,025	0,017	0,046	0,034	0,023	0,06	0,05	0,03				
1.15	70–100	130–180	1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04				
1.16	80–120	110–160	1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04				
2.1	90–130		1,0	1,0	0,025	0,019	0,014	0,035	0,027	0,020	1,0	1,0*	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05				
2.2	80–120		1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04				
2.3	80–120		1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04				
2.4	80–120		1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04				
2.5	80–120		1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04				
2.6	80–120		1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04				
2.7	40–60		1,0	1,0	0,017	0,013	0,010	0,024	0,018	0,013	1,0	1,0*	0,035	0,025	0,017	0,046	0,034	0,023	0,06	0,05	0,03				
3.1		200–240	1,0	1,0	0,040	0,031	0,022	0,055	0,043	0,031	1,0	1,0*	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07				
3.2		180–220	1,0	1,0	0,040	0,031	0,022	0,055	0,043	0,031	1,0	1,0*	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07				
3.3		200–240	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06				
3.4		180–220	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06				
3.5		160–200	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06				
3.6		140–180	1,0	1,0	0,028	0,022	0,016	0,040	0,031	0,022	1,0	1,0*	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05				
3.7		160–200	1,0	1,0	0,028	0,022	0,016	0,040	0,031	0,022	1,0	1,0*	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05				
3.8		140–180	1,0	1,0	0,028	0,022	0,016	0,040	0,031	0,022	1,0	1,0*	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05				
4.1																									
4.2																									
4.3																									
4.4																									
4.5																									
4.6	140–160	230–280	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06				
4.7	120–140	200–300	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06				
4.8	110–140	140–180	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06				
4.9	90–130	120–160	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06				
4.10	80–120	100–140	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06				
4.11	150–200	280–350	1,0	1,0	0,031	0,024	0,017	0,043	0,033	0,024	1,0	1,0*	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06				
4.12	140–180	260–300	1,0	1,0	0,031	0,024	0,017	0,043	0,033	0,024	1,0	1,0*	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06				
4.13																									
4.14	180–280	300–400	1,0	1,0	0,067	0,052	0,038	0,094	0,073	0,053	1,0	1,0*	0,135	0,101	0,068	0,180	0,134	0,090	0,24	0,18	0,12				
4.15																									
4.16																									
4.17																									
4.18	60–90	80–120	0,5	0,5	0,027	0,021	0,015	0,038	0,029	0,021	1,0	1,0	0,054	0,040	0,027	0,072	0,054	0,036	0,10	0,07	0,05				
4.19	40–60	60–80	0,5	0,5	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0	0,045	0,018	0,023	0,060	0,045	0,030	0,08	0,06	0,04				
5.1	30		0,5	0,5	0,022	0,017	0,012	0,030	0,023	0,017	0,5	0,5	0,043	0,032	0,022	0,058	0,043	0,029	0,08	0,06	0,04				
5.2	30		0,5	0,5	0,020	0,016	0,011	0,028	0,022	0,016	0,5	0,5	0,041	0,030	0,020	0,054	0,040	0,027	0,07	0,05	0,04				
5.3	30		0,5	0,5	0,018	0,014	0,010	0,025	0,019	0,014	0,5	0,5	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03				
5.4	30		0,5	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03				
5.5	30		0,5	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03				
5.6	30		0,5	0,5	0,011	0,009	0,006	0,016	0,012	0,009	0,5	0,5	0,023	0,017	0,011	0,030	0,022	0,015	0,04	0,03	0,02				
5.7	45		0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03				
5.8	30		0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0										

Index	Ø DC = 10,0-11,5 mm			Ø DC = 12,0 mm			Ø DC = 14,0-15,5 mm			Ø DC = 16,0-17,0 mm			Ø DC = 18,0-19,5 mm			Ø DC = 20,0 mm			● 1st choice		○ suitable
	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm				
1.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.2	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,16	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	○	●	○
1.3	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,16	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	○	●	○
1.4	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.5	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.6	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.7	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.8	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
1.9	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.10	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.11	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.12	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.13	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	○	●	○
1.14	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	○	●	○
1.15	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.16	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
2.1	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
2.2	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.3	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.4	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.5	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.6	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.7	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
3.1	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,21	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16		●	
3.2	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,21	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16		●	
3.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14		●	
3.4	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14		●	
3.5	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14		●	
3.6	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,15	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11		●	
3.7	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,15	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11		●	
3.8	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,15	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11		●	
4.1																					
4.2																					
4.3																					
4.4																					
4.5																					
4.6	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.7	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.8	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.9	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.10	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.11	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,16	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	●		○
4.12	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,16	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	●		○
4.13																					
4.14	0,30	0,22	0,15	0,33	0,25	0,17	0,33	0,26	0,18	0,36	0,27	0,21	0,38	0,31	0,24	0,43	0,35	0,27	●		○
4.15																					
4.16																					
4.17																					
4.18	0,12	0,09	0,06	0,10	0,10	0,07	0,13	0,10	0,07	0,14	0,11	0,08	0,15	0,12	0,10	0,17	0,14	0,11	●		○
4.19	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		○
5.1	0,10	0,07	0,05	0,11	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,14	0,11	0,09	●		
5.2	0,09	0,07	0,05	0,10	0,04	0,05	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,07	0,13	0,11	0,08	●		
5.3	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07	●		
5.4	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
5.5	0,07	0,05	0,04	0,08	0,03	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
5.6	0,05	0,04	0,03	0,06	0,04	0,03	0,06	0,04	0,03	0,06	0,05	0,04	0,06	0,05	0,04	0,07	0,06	0,05	●		
5.7	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
5.8	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
5.9	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
5.10	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,11	0,09	0,16	0,13	0,10	●		
5.11	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		
6.1	0,09	0,07	0,05	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,07	0,13	0,11	0,08		●	
6.2	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
6.3	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0					

Cutting Data – MonsterMill – End Mills – SCR, extra long

Index	Emulsion	Compressed air	MMS	extra long	Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
					a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC
					v_c m/min	a_{pmax} x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	
1.1	90-130	130-180	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
1.2	90-130	130-180	1,0*	0,5	0,031	0,024	0,017	0,043	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
1.3	70-100	110-160	1,0*	0,5	0,031	0,024	0,017	0,043	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
1.4	70-100	90-140	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
1.5	70-100	110-160	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
1.6	70-100	110-160	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
1.7	70-100	90-140	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
1.8	50-80	70-120	1,0*	0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
1.9	50-80	70-120	1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
1.10	50-80	70-120	1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
1.11	50-80	70-120	1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
1.12	50-80	70-120	1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
1.13	50-80	70-120	1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
1.14	40-70	50-80	1,0*	0,5	0,017	0,013	0,010	0,024	0,018	0,013	0,034	0,025	0,017	0,046	0,034	0,023	0,06	0,05	0,03
1.15	50-80	70-120	1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
1.16	60-90	90-140	1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
2.1	60-100		1,0*	0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
2.2	50-80		1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
2.3	50-80		1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
2.4	50-80		1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
2.5	50-80		1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
2.6	50-80		1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
2.7	30-50		1,0*	0,5	0,017	0,013	0,010	0,024	0,018	0,013	0,034	0,025	0,017	0,047	0,034	0,023	0,06	0,05	0,03
3.1		160-200	1,0*	0,5	0,040	0,031	0,022	0,055	0,043	0,031	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
3.2		120-160	1,0*	0,5	0,040	0,031	0,022	0,055	0,043	0,031	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
3.3		160-200	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
3.4		120-160	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
3.5		120-160	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
3.6		100-140	1,0*	0,5	0,028	0,022	0,016	0,040	0,031	0,022	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
3.7		120-160	1,0*	0,5	0,028	0,022	0,016	0,040	0,031	0,022	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
3.8		100-140	1,0*	0,5	0,028	0,022	0,016	0,040	0,031	0,022	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
4.1																			
4.2																			
4.3																			
4.4																			
4.5																			
4.6	100-130	220-240	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
4.7	90-110	180-220	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
4.8	80-110	140-180	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
4.9	60-90	120-160	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
4.10	60-90	100-140	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
4.11	110-150	280-320	1,0*	0,5	0,031	0,024	0,017	0,043	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
4.12	100-140	260-300	1,0*	0,5	0,031	0,024	0,017	0,043	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
4.13																			
4.14	120-180	300-400	1,0*	0,5	0,067	0,052	0,038	0,094	0,073	0,053	0,135	0,101	0,068	0,180	0,134	0,090	0,24	0,18	0,12
4.15																			
4.16																			
4.17																			
4.18	40-75	80-120	0,5*	0,25	0,027	0,021	0,015	0,038	0,029	0,021	0,054	0,040	0,027	0,072	0,054	0,036	0,10	0,07	0,05
4.19	30-50	60-80	0,5*	0,25	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,018	0,023	0,060	0,045	0,030	0,08	0,06	0,04
5.1	30		0,5*	0,25	0,022	0,017	0,012	0,030	0,023	0,017	0,043	0,032	0,022	0,058	0,043	0,029	0,08	0,06	0,04
5.2	30		0,5*	0,25	0,020	0,016	0,011	0,028	0,022	0,016	0,041	0,030	0,020	0,054	0,040	0,027	0,07	0,05	0,04
5.3	25		0,5*	0,25	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
5.4	25		0,5*	0,25	0,016	0,012	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
5.5	25		0,5*	0,25	0,016	0,012	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
5.6	25		0,5*	0,25	0,011	0,009	0,006	0,016	0,012	0,009	0,023	0,017	0,011	0,030	0,022	0,015	0,04	0,03	0,02
5.7	45		0,5*	0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
5.8	25		0,5*	0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
5.9	35-65		0,5*	0,25	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
5.10	30-55		0,5*	0,25	0,025	0,019	0,014	0,035	0,027	0,019	0,050	0,037	0,025	0,066	0,049	0,033	0,09	0,07	0,04
5.11	30-55		0,5*	0,25	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
6.1		80-120	0,5*	0,5	0,020	0,016	0,011	0,028	0,022	0,016	0,041	0,030	0,020	0,054	0,040	0,027	0,07	0,05	0,04
6.2		60-100	0,5*	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
6.3		50-90	0,5*	0,15	0,016	0,012	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0		

Index	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm				
1.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.2	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,15	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	○	●	○
1.3	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,15	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	○	●	○
1.4	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.5	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.6	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.7	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
1.8	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
1.9	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.10	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.11	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.12	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.13	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	○	●	○
1.14	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,08	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	○	●	○
1.15	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
1.16	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
2.1	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
2.2	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.3	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.4	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.5	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.6	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
2.7	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,08	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
3.1	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,20	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16	○	●	○
3.2	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,20	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16	○	●	○
3.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
3.4	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
3.5	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
3.6	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,14	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11	○	●	○
3.7	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,14	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11	○	●	○
3.8	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,14	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11	○	●	○
4.1																					
4.2																					
4.3																					
4.4																					
4.5																					
4.6	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.7	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.8	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.9	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.10	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
4.11	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,15	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	●		○
4.12	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,15	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	●		○
4.13																					
4.14	0,30	0,22	0,15	0,33	0,25	0,17	0,33	0,26	0,18	0,33	0,27	0,21	0,38	0,31	0,24	0,43	0,35	0,27	●		○
4.15																					
4.16																					
4.17																					
4.18	0,12	0,09	0,06	0,10	0,10	0,07	0,13	0,10	0,07	0,13	0,11	0,08	0,15	0,12	0,10	0,17	0,14	0,11	●		○
4.19	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		○
5.1	0,10	0,07	0,05	0,11	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,14	0,11	0,09	●		
5.2	0,09	0,07	0,05	0,10	0,04	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,11	0,08	●		
5.3	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07	●		
5.4	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
5.5	0,07	0,05	0,04	0,08	0,03	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
5.6	0,05	0,04	0,03	0,06	0,04	0,03	0,06	0,04	0,03	0,06	0,05	0,04	0,06	0,05	0,04	0,07	0,06	0,05	●		
5.7	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
5.8	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
5.9	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
5.10	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,09	0,07	0,12	0,10	0,08	0,14	0,11	0,09	0,16	0,13	0,10	●		
5.11	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		
6.1	0,09	0,07	0,05	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,11	0,08		●	
6.2	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
6.3	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0					

Cutting data – MonsterMill – Torus End Mills – SCR, long

Index	v _c m/min	long a _{pmax} x DC	Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
			a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC
			f _z mm			f _z mm			f _z mm			f _z mm			f _z mm		
1.1	170-200	1,0	0,024	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,08	0,06	0,04
1.2	170-200	1,0	0,024	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,08	0,06	0,04
1.3	150-180	1,0	0,019	0,017	0,012	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
1.4	150-180	1,0	0,019	0,017	0,012	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
1.5	130-160	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
1.6	140-170	1,0	0,019	0,017	0,012	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
1.7	150-180	1,0	0,024	0,021	0,015	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
1.8	130-160	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
1.9	150-180	1,0	0,024	0,021	0,015	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
1.10	130-160	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
1.11	130-160	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
1.12	130-160	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
1.13	130-160	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
1.14	130-160	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
1.15	150-180	1,0	0,024	0,021	0,015	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
1.16	130-160	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
2.1																	
2.2																	
2.3																	
2.4																	
2.5																	
2.6																	
2.7																	
3.1	170-200	1,0	0,028	0,025	0,018	0,043	0,033	0,024	0,056	0,042	0,028	0,072	0,054	0,036	0,10	0,07	0,05
3.2	170-200	1,0	0,028	0,025	0,018	0,043	0,033	0,024	0,056	0,042	0,028	0,072	0,054	0,036	0,10	0,07	0,05
3.3	150-180	1,0	0,024	0,021	0,015	0,036	0,028	0,020	0,046	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
3.4	150-180	1,0	0,024	0,021	0,015	0,036	0,028	0,020	0,046	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
3.5	100-120	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
3.6	80-100	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
3.7	100-120	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
3.8	80-100	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
4.1																	
4.2																	
4.3																	
4.4																	
4.5																	
4.6																	
4.7																	
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4.9																	
4.10																	
4.11																	
4.12																	
4.13																	
4.14																	
4.15																	
4.16																	
4.17																	
4.18	80-100	0,5	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
4.19																	
5.1																	
5.2																	
5.3																	
5.4																	
5.5																	
5.6																	
5.7																	
5.8																	
5.9																	
5.10																	
5.11																	
6.1	100-120	0,5	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
6.2	80-100	0,3	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
6.3	60-70	0,15	0,009	0,008	0,006	0,014	0,011	0,008	0,020	0,015	0,010	0,024	0,018	0,012	0,03	0,02	0,02
6.4																	
6.5																	

Index	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			● 1st choice		○ suitable
	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm			f_z mm			f_z mm					
1.1	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
1.2	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
1.3	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.4	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.5	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.6	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.7	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.8	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.9	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.10	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.11	0,06	0,05	0,03	0,00	0,00	0,00	0,08	0,06	0,05	○	●	
1.12	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.13	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.14	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.15	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.16	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
2.1												
2.2												
2.3												
2.4												
2.5												
2.6												
2.7												
3.1	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
3.2	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
3.3	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
3.4	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
3.5	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
3.6	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
3.7	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
3.8	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
4.1												
4.2												
4.3												
4.4												
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4.7												
4.8												
4.9												
4.10												
4.11												
4.12												
4.13												
4.14												
4.15												
4.16												
4.17												
4.18	0,06	0,05	0,03	0,05	0,05	0,04	0,08	0,06	0,05	○		○
4.19												
5.1												
5.2												
5.3												
5.4												
5.5												
5.6												
5.7												
5.8												
5.9												
5.10												
5.11												
6.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
6.2	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
6.3	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03		●	
6.4												
6.5												

Cutting data – MonsterMill – Torus End Mills – SCR, extra long

Index	V _c m/min	extra long a _{pnat} xDC	Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			● 1st choice		○ suitable	
			a _p 0,1-0,2 xDC	a _p 0,3-0,4 xDC	a _p 0,6-1,0 xDC	a _p 0,1-0,2 xDC	a _p 0,3-0,4 xDC	a _p 0,6-1,0 xDC	a _p 0,1-0,2 xDC	a _p 0,3-0,4 xDC	a _p 0,6-1,0 xDC	a _p 0,1-0,2 xDC	a _p 0,3-0,4 xDC	a _p 0,6-1,0 xDC	Emulsion	Compressed air	MMS	
			f _z mm			f _z mm			f _z mm			f _z mm						
1.1	120-140	1,0*	0,5	0,08	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
1.2	120-140	1,0*	0,5	0,08	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
1.3	100-130	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.4	100-130	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.5	90-110	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.6	100-120	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.7	100-130	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.8	90-110	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.9	100-130	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.10	90-110	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.11	90-110	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,00	0,00	0,00	0,08	0,06	0,05	○	●	
1.12	90-110	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.13	90-110	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.14	90-110	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
1.15	100-130	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
1.16	90-110	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
2.1																		
2.2																		
2.3																		
2.4																		
2.5																		
2.6																		
2.7																		
3.1	120-140	1,0*	0,5	0,10	0,07	0,05	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
3.2	120-140	1,0*	0,5	0,10	0,07	0,05	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
3.3	100-130	1,0*	0,5	0,08	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
3.4	100-130	1,0*	0,5	0,08	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
3.5	70-85	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
3.6	60-70	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
3.7	70-85	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
3.8	60-70	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
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4.16																		
4.17																		
4.18	60-70	0,5*	0,25	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	●		○
4.19																		
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5.8																		
5.9																		
5.10																		
5.11																		
6.1	70-85	0,5*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
6.2	60-70	0,5*	0,3	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
6.3	50-60	0,5*	0,15	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03		●	
6.4																		
6.5																		

* = Trimming and trochoidal slot milling

Cutting data – MonsterMill – Torus End Mills – SCR, extra long, HSC machining

Index	V _c m/min	a _p x DC	a _e	Ø DC								● 1st choice		○ suitable	
				Ø DC= 3 mm	Ø DC= 4 mm	Ø DC= 5 mm	Ø DC= 6 mm	Ø DC= 8 mm	Ø DC= 10 mm	Ø DC= 12 mm	Ø DC= 16 mm	Emulsion	Compressed air	MMS	
				f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm				
1.1	230-250	0,05	0,6	0,110	0,152	0,190	0,228	0,30	0,38	0,46	0,60	○	●		
1.2	230-250	0,05	0,6	0,110	0,152	0,190	0,228	0,30	0,38	0,46	0,60	○	●		
1.3	200-220	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●		
1.4	200-220	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●		
1.5	170-190	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●		
1.6	190-210	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●		
1.7	200-220	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●		
1.8	170-190	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●		
1.9	200-220	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●		
1.10	170-190	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●		
1.11	170-190	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●		
1.12	170-190	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●		
1.13	170-190	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●		
1.14	170-190	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●		
1.15	200-220	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●		
1.16	170-190	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●		
2.1															
2.2															
2.3															
2.4															
2.5															
2.6															
2.7															
3.1	230-250	0,05	0,6	0,120	0,160	0,200	0,240	0,32	0,40	0,48	0,64	○	●		
3.2	230-250	0,05	0,6	0,120	0,160	0,200	0,240	0,32	0,40	0,48	0,64	○	●		
3.3	200-220	0,04	0,5	0,096	0,130	0,160	0,192	0,26	0,32	0,38	0,51	○	●		
3.4	200-220	0,04	0,5	0,096	0,130	0,160	0,192	0,26	0,32	0,38	0,51	○	●		
3.5	130-150	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●		
3.6	100-120	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●		
3.7	130-150	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●		
3.8	100-120	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●		
4.1															
4.2															
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4.16															
4.17															
4.18	100-120	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	●	○		
4.19															
5.1															
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5.9															
5.10															
5.11															
6.1	130-150	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38		●		
6.2	100-120	0,03	0,3	0,060	0,080	0,100	0,120	0,16	0,20	0,24	0,32		●		
6.3	90-110	0,02	0,3	0,048	0,064	0,080	0,096	0,13	0,16	0,19	0,26		●		
6.4	80-100	0,02	0,2	0,024	0,036	0,048	0,064	0,09	0,12	0,15	0,22		●		
6.5	60-80	0,02	0,2	0,036	0,048	0,060	0,072	0,10	0,12	0,14	0,19		●		

Cutting data standard values – MonsterMill – End mills – ICR, short

Index	Emulsion	Compressed air	MMS	short	Ø DC = 1,5 mm			Ø DC = 2 mm			Ø DC = 2,5 mm			1st choice			suitable			
					a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	Emulsion	Compressed air	MMS	●	○	●	○
					f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm									
1.1	130-180	150-200	0,25	0,020	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	○	●	○					
1.2	130-180	150-200	0,25	0,012	0,013	0,010	0,020	0,019	0,014	0,029	0,024	0,018	○	●	○					
1.3	140-160	130-180	0,25	0,014	0,013	0,010	0,020	0,019	0,014	0,029	0,024	0,018	○	●	○					
1.4	120-140	110-160	0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○					
1.5	140-160	130-180	0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○					
1.6	140-160	130-180	0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○					
1.7	120-160	110-160	0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○					
1.8	80-120	90-140	0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	○	●	○					
1.9	80-120	90-140	0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○					
1.10	80-120	90-140	0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○					
1.11	80-120	90-140	0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○					
1.12	80-120	90-140	0,25	0,011	0,010	0,008	0,013	0,012	0,009	0,020	0,017	0,012	○	●	○					
1.13	80-120	90-140	0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	○	●	○					
1.14	60-100	50-100	0,25	0,009	0,008	0,006	0,011	0,010	0,008	0,016	0,013	0,010	○	●	○					
1.15	80-120	90-140	0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○					
1.16	100-140	110-160	0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○					
2.1	100-140		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	●							
2.2	100-120		0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●							
2.3	80-100		0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●							
2.4	80-100		0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●							
2.5	100-120		0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●							
2.6	100-120		0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●							
2.7	40-60		0,25	0,009	0,008	0,006	0,011	0,010	0,008	0,016	0,013	0,010	●							
3.1		180-220	0,25	0,020	0,019	0,014	0,025	0,024	0,018	0,036	0,030	0,022		●						
3.2		160-200	0,25	0,020	0,019	0,014	0,025	0,024	0,018	0,036	0,030	0,022		●						
3.3		180-220	0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019		●						
3.4		160-200	0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019		●						
3.5		140-180	0,25	0,014	0,013	0,010	0,022	0,020	0,015	0,028	0,023	0,017		●						
3.6		120-160	0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016		●						
3.7		140-180	0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016		●						
3.8		120-160	0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016		●						
4.1																				
4.2																				
4.3																				
4.4																				
4.5																				
4.6	220-240	220-240	0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●				○			
4.7	220-240	220-240	0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●				○			
4.8	140-160	140-160	0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●				○			
4.9	120-140	120-140	0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●				○			
4.10	100-120	100-120	0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●				○			
4.11	280-300	280-300	0,25	0,007	0,007	0,005	0,020	0,019	0,014	0,029	0,024	0,018	●				○			
4.12	280-300	280-300	0,25	0,014	0,013	0,010	0,020	0,019	0,014	0,029	0,024	0,018	●				○			
4.13																				
4.14	300-340	300-340	0,25	0,029	0,027	0,020	0,043	0,040	0,030	0,051	0,043	0,032	●				○			
4.15																				
4.16																				
4.17																				
4.18	80-120	80-120	0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	●							
4.19	60-80	60-80	0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●							
5.1	30		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	●							
5.2	30		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	●							
5.3	25		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●							
5.4	25		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●							
5.5	25		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●							
5.6	25		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●							
5.7	45		0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●							
5.8	30		0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●							
5.9	80-100		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	●							
5.10	60-80		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	●							
5.11	60-80		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	●							
6.1		80-100	0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015		●						
6.2		80-120	0,20	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013		●						
6.3		60-80	0,15	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012		●						
6.4																				
6.5																				

i Plunging angle for ramping and helical milling: No. of teeth 3 = 5°/No. of teeth 4 = 4°/No. of teeth 5 = 3°

Cutting Data – MonsterMill – End Mills – ICR, short – long

Index	Emulsion	Compressed air	MMS	short	long	Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			●		○		
						a_p	a_p	a_p	a_p	a_p	a_p	a_p	a_p	a_p	a_p	a_p	a_p	a_p	a_p	a_p	1st choice	suitable
						0,1-0,2 x DC	0,3-0,4 x DC	0,6-1,0 x DC	0,1-0,2 x DC	0,3-0,4 x DC	0,6-1,0 x DC	0,1-0,2 x DC	0,3-0,4 x DC	0,6-1,0 x DC	0,1-0,2 x DC	0,3-0,4 x DC	0,6-1,0 x DC	0,1-0,2 x DC	0,3-0,4 x DC	0,6-1,0 x DC	Emulsion	Compressed air
1.1	130-180	150-200	1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	○	●	○			
1.2	130-180	150-200	1,0	1,0*	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	○	●	○			
1.3	140-160	130-180	1,0	1,0*	0,0382	0,0295	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	○	●	○			
1.4	120-140	110-160	1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○			
1.5	140-160	130-180	1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○			
1.6	140-160	130-180	1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○			
1.7	120-160	110-160	1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○			
1.8	80-120	90-140	1,0	1,0*	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	○	●	○			
1.9	80-120	90-140	1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○			
1.10	80-120	90-140	1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○			
1.11	80-120	90-140	1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○			
1.12	80-120	90-140	1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○			
1.13	80-120	90-140	1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	○	●	○			
1.14	60-100	50-100	1,0	1,0*	0,020	0,016	0,011	0,027	0,021	0,015	0,034	0,026	0,019	0,040	0,031	0,023	○	●	○			
1.15	80-120	90-140	1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○			
1.16	100-140	110-160	1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○			
2.1	100-140		1,0	1,0*	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	●					
2.2	100-120		1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
2.3	80-100		1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
2.4	80-100		1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
2.5	100-120		1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
2.6	100-120		1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
2.7	40-60		1,0	1,0*	0,020	0,016	0,011	0,027	0,021	0,015	0,034	0,026	0,019	0,038	0,029	0,021	●					
3.1		180-220	1,0	1,0*	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053		●				
3.2		160-200	1,0	1,0*	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053		●				
3.3		180-220	1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045		●				
3.4		160-200	1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045		●				
3.5		140-180	1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038		●				
3.6		120-160	1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038		●				
3.7		140-180	1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038		●				
3.8		120-160	1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038		●				
4.1																						
4.2																						
4.3																						
4.4																						
4.5																						
4.6	220-240	220-240	1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○			
4.7	220-240	220-240	1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○			
4.8	140-160	140-160	1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○			
4.9	120-140	120-140	1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○			
4.10	100-120	100-120	1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○			
4.11	280-300	280-300	1,0	1,0*	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,741	0,572	0,413	●		○			
4.12	280-300	280-300	1,0	1,0*	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	●		○			
4.13																						
4.14	300-340	300-340	1,0	1,0*	0,058	0,045	0,033	0,108	0,083	0,060	0,135	0,104	0,075	0,162	0,125	0,090	●		○			
4.15																						
4.16																						
4.17																						
4.18	80-120	80-120	1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	●					
4.19	60-80	60-80	1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,021	0,025	0,054	0,042	0,030	●					
5.1	30		0,5	0,5	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	●					
5.2	30		0,5	0,5	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	●					
5.3	25		0,5	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	●					
5.4	25		0,5	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	●					
5.5	25		0,5	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	●					
5.6	25		0,5	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	●					
5.7	45		0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
5.8	30		0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
5.9	80-100		0,5	0,5	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	●					
5.10	60-80		0,5	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	●					
5.11	60-80		0,5	0,5	0,034	0,026	0,019	0,04														

Cutting Data – MonsterMill – End Mills – ICR, short – long

Index	Emulsion	Compressed air	MMS	short	long	Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm		
						a_p	a_p	a_p	a_p	a_p	a_p	a_p	a_p	a_p	a_p	a_p	
						0,1-0,2 x DC	0,3-0,4 x DC	0,6-1,0 x DC	0,1-0,2 x DC	0,3-0,4 x DC	0,6-1,0 x DC	0,1-0,2 x DC	0,3-0,4 x DC	0,6-1,0 x DC	0,1-0,2 x DC	0,3-0,4 x DC	0,6-1,0 x DC
v_c m/min	a_{pmax} x DC	f_z mm	f_z mm	f_z mm	f_z mm												
1.1	130-180	150-200	1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,18	0,14	0,10	
1.2	130-180	150-200	1,0	1,0*	0,10	0,08	0,06	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10	
1.3	140-160	130-180	1,0	1,0*	0,10	0,08	0,06	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10	
1.4	120-140	110-160	1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	
1.5	140-160	130-180	1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	
1.6	140-160	130-180	1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	
1.7	120-160	110-160	1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	
1.8	80-120	90-140	1,0	1,0*	0,08	0,06	0,05	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08	
1.9	80-120	90-140	1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	
1.10	80-120	90-140	1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	
1.11	80-120	90-140	1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	
1.12	80-120	90-140	1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	
1.13	80-120	90-140	1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	
1.14	60-100	50-100	1,0	1,0*	0,05	0,04	0,03	0,07	0,05	0,04	0,11	0,08	0,06	0,09	0,07	0,05	
1.15	80-120	90-140	1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	
1.16	100-140	110-160	1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	
2.1	100-140		1,0	1,0*	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	
2.2	100-120		1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06	
2.3	80-100		1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	
2.4	80-100		1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	
2.5	100-120		1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	
2.6	100-120		1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	
2.7	40-60		1,0	1,0*	0,05	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,05	0,09	0,07	0,05	
3.1		180-220	1,0	1,0*	0,13	0,10	0,07	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12	
3.2		160-200	1,0	1,0*	0,13	0,10	0,07	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12	
3.3		180-220	1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,14	0,11	0,08	0,19	0,15	0,11	
3.4		160-200	1,0	1,0*	0,11	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,19	0,15	0,11	
3.5		140-180	1,0	1,0*	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	
3.6		120-160	1,0	1,0*	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	
3.7		140-180	1,0	1,0*	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	
3.8		120-160	1,0	1,0*	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	
4.1																	
4.2																	
4.3																	
4.4																	
4.5																	
4.6	220-240	220-240	1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	
4.7	220-240	220-240	1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	
4.8	140-160	140-160	1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	
4.9	120-140	120-140	1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	
4.10	100-120	100-120	1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	
4.11	280-300	280-300	1,0	1,0*	0,10	0,08	0,06	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10	
4.12	280-300	280-300	1,0	1,0*	0,10	0,08	0,06	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10	
4.13																	
4.14	300-340	300-340	1,0	1,0*	0,22	0,17	0,12	0,27	0,21	0,15	0,32	0,25	0,18	0,38	0,29	0,21	
4.15																	
4.16																	
4.17																	
4.18	80-120	80-120	1,0	1,0*	0,09	0,07	0,05	0,14	0,10	0,08	0,11	0,11	0,08	0,16	0,12	0,09	
4.19	60-80	60-80	1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	
5.1	30		0,5	0,5	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	
5.2	30		0,5	0,5	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,06	0,07	0,14	0,11	0,08	
5.3	25		0,5	0,5	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	
5.4	25		0,5	0,5	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	
5.5	25		0,5	0,5	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,05	0,06	0,13	0,10	0,07	
5.6	25		0,5	0,5	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,11	0,09	0,06	
5.7	45		0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	
5.8	30		0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	
5.9	80-100		0,5	0,5	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	
5.10	60-80		0,5	0,5	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	
5.11	60-80		0,5	0,5	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	
6.1		80-100	0,5	0,5	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	
6.2		80-120	0,3	0,3	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	
6.3		60-80	0,15	0,15	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	
6.4																	
6.5																	

* = with an a_p of 1.5 x DC the f_z should be multiplied by 0.8

i Plunging angle for ramping and helical milling: No. of teeth 3 = 5° / No. of teeth 4 = 4° / No. of teeth 5 = 3°

Index	Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm			f_z mm			f_z mm					
1.1	0,19	0,16	0,12	0,20	0,17	0,13	0,22	0,19	0,15	○	●	○
1.2	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	○	●	○
1.3	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	○	●	○
1.4	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
1.5	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
1.6	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
1.7	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
1.8	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
1.9	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
1.10	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
1.11	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
1.12	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
1.13	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	○	●	○
1.14	0,10	0,08	0,06	0,10	0,09	0,07	0,14	0,13	0,10	○	●	○
1.15	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
1.16	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
2.1	0,14	0,12	0,09	0,12	0,10	0,08	0,16	0,14	0,11	●		
2.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
2.3	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
2.4	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
2.5	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
2.6	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
2.7	0,10	0,08	0,06	0,10	0,09	0,07	0,11	0,09	0,08	●		
3.1	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
3.2	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
3.3	0,19	0,16	0,12	0,20	0,17	0,13	0,25	0,22	0,18		●	
3.4	0,19	0,16	0,12	0,20	0,17	0,13	0,22	0,19	0,15		●	
3.5	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
3.6	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
3.7	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
3.8	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
4.1												
4.2												
4.3												
4.4												
4.5												
4.6	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
4.7	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
4.8	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
4.9	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
4.10	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
4.11	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	●		○
4.12	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	●		○
4.13												
4.14	0,38	0,31	0,24	0,41	0,35	0,27	0,43	0,38	0,30	●		○
4.15												
4.16												
4.17												
4.18	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
4.19	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
5.1	0,15	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
5.2	0,15	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
5.3	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
5.4	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
5.5	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
5.6	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
5.7	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
5.8	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
5.9	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
5.10	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
5.11	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
6.1	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11		●	
6.2	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10		●	
6.3	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09		●	
6.4												
6.5												

Cutting data standard values – MonsterMill – TCR, end mills 52 503 ... / 52 504 ... /

Index	long		extra long		Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
	V _c m/min	a _{pmax} x DC	f _z mm	f _z mm	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p
					0,01-0,02 x DC	0,03-0,04 x DC	0,06-0,1 x DC	0,01-0,02 x DC	0,03-0,04 x DC	0,06-0,1 x DC	0,01-0,02 x DC	0,03-0,04 x DC	0,06-0,1 x DC	0,01-0,02 x DC	0,03-0,04 x DC	0,06-0,1 x DC
2.1	110	88	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,050	0,037	0,025
2.2	100	80	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,050	0,037	0,025
2.3	80	64	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,050	0,037	0,025
2.4	80	64	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,050	0,037	0,025
2.5	100	80	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,050	0,037	0,025
2.6	100	80	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,050	0,037	0,025
2.7	55	44	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.1	55	44	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.2	55	44	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.3	55	44	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.4	55	44	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.5	55	44	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.6	55	44	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.7	55	44	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.8	55	44	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.9	120	96	1,0	0,5	0,045	0,035	0,025	0,060	0,045	0,030	0,070	0,052	0,035	0,100	0,075	0,050
5.10	100	80	1,0	0,5	0,036	0,028	0,020	0,054	0,040	0,027	0,070	0,052	0,035	0,080	0,060	0,040
5.11	80	64	1,0	0,5	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,045	0,030

Cutting data standard values – MonsterMill – TCR, end mills 52 505 ... / 52 506 ...

Index	long		long		Ø DC = 4 mm		Ø DC = 5 mm		Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12mm		Ø DC = 16 mm	
	V _c m/min	a _{pmax} x DC	f _z mm	f _z mm	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p
					0,01-0,02 x DC	0,03-0,04 x DC	0,01-0,02 x DC	0,03-0,04 x DC	0,01-0,02 x DC	0,03-0,04 x DC	0,01-0,02 x DC	0,03-0,04 x DC	0,01-0,02 x DC	0,03-0,04 x DC	0,01-0,02 x DC	0,03-0,04 x DC	0,01-0,02 x DC	0,03-0,04 x DC
2.1	110	1,0	0,017	0,012	0,024	0,016	0,031	0,021	0,037	0,025	0,048	0,032	0,060	0,040	0,065	0,050		
2.2	100	1,0	0,017	0,012	0,024	0,016	0,031	0,021	0,037	0,025	0,048	0,032	0,060	0,040	0,065	0,050		
2.3	80	1,0	0,017	0,012	0,024	0,016	0,031	0,021	0,037	0,025	0,048	0,032	0,060	0,040	0,065	0,050		
2.4	80	1,0	0,017	0,012	0,024	0,016	0,031	0,021	0,037	0,025	0,048	0,032	0,060	0,040	0,065	0,050		
2.5	100	1,0	0,017	0,012	0,024	0,016	0,031	0,021	0,037	0,025	0,048	0,032	0,060	0,040	0,065	0,050		
2.6	100	1,0	0,017	0,012	0,024	0,016	0,031	0,021	0,037	0,025	0,048	0,032	0,060	0,040	0,065	0,050		
2.7	55	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,075	0,050	0,077	0,060		
5.1	55	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,075	0,050	0,077	0,060		
5.2	55	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,075	0,050	0,077	0,060		
5.3	55	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,075	0,050	0,077	0,060		
5.4	55	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,075	0,050	0,077	0,060		
5.5	55	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,075	0,050	0,077	0,060		
5.6	55	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,075	0,050	0,077	0,060		
5.7	55	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,075	0,050	0,077	0,060		
5.8	55	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,075	0,050	0,077	0,060		
5.9	120	1,0	0,035	0,025	0,045	0,030	0,052	0,035	0,075	0,050	0,089	0,060	0,104	0,070	0,077	0,060		
5.10	100	1,0	0,028	0,020	0,040	0,027	0,052	0,035	0,060	0,040	0,075	0,050	0,089	0,060	0,077	0,060		
5.11	80	1,0	0,021	0,015	0,030	0,020	0,037	0,025	0,045	0,030	0,060	0,040	0,075	0,050	0,077	0,060		

52 507 ... / 52 508 ...

Index	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,01-0,02 x DC	a_e 0,03-0,04 x DC	a_e 0,06-0,1 x DC	Emulsion	Compressed air	MMS
	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm				
2.1	0,064	0,048	0,032	0,080	0,060	0,040	0,085	0,065	0,050	0,111	0,090	0,070	●		
2.2	0,064	0,048	0,032	0,080	0,060	0,040	0,085	0,065	0,050	0,111	0,090	0,070	●		
2.3	0,064	0,048	0,032	0,080	0,060	0,040	0,085	0,065	0,050	0,111	0,090	0,070	●		
2.4	0,064	0,048	0,032	0,080	0,060	0,040	0,085	0,065	0,050	0,111	0,090	0,070	●		
2.5	0,064	0,048	0,032	0,080	0,060	0,040	0,085	0,065	0,050	0,111	0,090	0,070	●		
2.6	0,064	0,048	0,032	0,080	0,060	0,040	0,085	0,065	0,050	0,111	0,090	0,070	●		
2.7	0,100	0,075	0,050	0,100	0,075	0,050	0,101	0,077	0,060	0,111	0,090	0,070	●		
5.1	0,100	0,075	0,050	0,100	0,075	0,050	0,101	0,077	0,060	0,111	0,090	0,070	●		
5.2	0,100	0,075	0,050	0,100	0,075	0,050	0,101	0,077	0,060	0,111	0,090	0,070	●		
5.3	0,100	0,075	0,050	0,100	0,075	0,050	0,101	0,077	0,060	0,111	0,090	0,070	●		
5.4	0,100	0,075	0,050	0,100	0,075	0,050	0,101	0,077	0,060	0,111	0,090	0,070	●		
5.5	0,100	0,075	0,050	0,100	0,075	0,050	0,101	0,077	0,060	0,111	0,090	0,070	●		
5.6	0,100	0,075	0,050	0,100	0,075	0,050	0,101	0,077	0,060	0,111	0,090	0,070	●		
5.7	0,100	0,075	0,050	0,100	0,075	0,050	0,101	0,077	0,060	0,111	0,090	0,070	●		
5.8	0,100	0,075	0,050	0,100	0,075	0,050	0,101	0,077	0,060	0,111	0,090	0,070	●		
5.9	0,120	0,089	0,060	0,140	0,104	0,070	0,101	0,077	0,060	0,190	0,155	0,120	●		
5.10	0,100	0,075	0,050	0,120	0,089	0,060	0,101	0,077	0,060	0,158	0,129	0,100	●		
5.11	0,080	0,060	0,040	0,100	0,075	0,050	0,101	0,077	0,060	0,126	0,103	0,080	●		

Index	Ø DC = 20 mm		● 1st choice		○ suitable
	a_e 0,01-0,02 x DC	a_e 0,03-0,04 x DC	Emulsion	Compressed air	MMS
	f_z mm	f_z mm			
2.1	0,090	0,070	●		
2.2	0,090	0,070	●		
2.3	0,090	0,070	●		
2.4	0,090	0,070	●		
2.5	0,090	0,070	●		
2.6	0,090	0,070	●		
2.7	0,090	0,070	●		
5.1	0,090	0,070	●		
5.2	0,090	0,070	●		
5.3	0,090	0,070	●		
5.4	0,090	0,070	●		
5.5	0,090	0,070	●		
5.6	0,090	0,070	●		
5.7	0,090	0,070	●		
5.8	0,090	0,070	●		
5.9	0,155	0,120	●		
5.10	0,129	0,100	●		
5.11	0,103	0,080	●		

Cutting data standard values – MonsterMill – TCR, ball-nosed end mills 52 513 ... /

Index	long		extra long	Ø DC = 2 mm		Ø DC = 3 mm		Ø DC = 4 mm		Ø DC = 5 mm		Ø DC = 6 mm		Ø DC = 8 mm		
	V _c m/min	V _c m/min		a _{pmax} x DC	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p
					0,01-0,02 x DC	0,03-0,04 x DC	0,01-0,02 x DC	0,03-0,04 x DC	0,01-0,02 x DC	0,03-0,04 x DC	0,01-0,02 x DC	0,03-0,04 x DC	0,01-0,02 x DC	0,03-0,04 x DC	0,01-0,02 x DC	0,03-0,04 x DC
f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm		
2.1	60	55	0,1-0,2	0,009	0,007	0,011	0,008	0,012	0,009	0,012	0,009	0,018	0,014	0,029	0,023	
2.2	55	50	0,1-0,2	0,009	0,007	0,011	0,008	0,012	0,009	0,012	0,009	0,018	0,014	0,029	0,023	
2.3	45	40	0,1-0,2	0,009	0,007	0,011	0,008	0,012	0,009	0,012	0,009	0,018	0,014	0,029	0,023	
2.4	45	40	0,1-0,2	0,009	0,007	0,011	0,008	0,012	0,009	0,012	0,009	0,018	0,014	0,029	0,023	
2.5	55	50	0,1-0,2	0,009	0,007	0,011	0,008	0,012	0,009	0,012	0,009	0,018	0,014	0,029	0,023	
2.6	55	50	0,1-0,2	0,009	0,007	0,010	0,008	0,012	0,010	0,012	0,010	0,020	0,015	0,025	0,020	
2.7	33	28	0,1-0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030	
5.1	33	28	0,1-0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030	
5.2	33	28	0,1-0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030	
5.3	33	28	0,1-0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030	
5.4	33	28	0,1-0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030	
5.5	33	28	0,1-0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030	
5.6	33	28	0,1-0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030	
5.7	33	28	0,1-0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030	
5.8	33	28	0,1-0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030	
5.9	65	60	0,1-0,2	0,017	0,013	0,020	0,014	0,022	0,017	0,022	0,017	0,034	0,025	0,053	0,042	
5.10	55	50	0,1-0,2	0,014	0,011	0,017	0,012	0,019	0,014	0,019	0,014	0,029	0,022	0,046	0,036	
5.11	45	40	0,1-0,2	0,012	0,009	0,014	0,010	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,030	

Cutting data standard values – MonsterMill – TCR, torus cutters 52 511 ... / 52 512 ...

Index	long		extra long	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	● 1st choice	○ suitable		
	V _c m/min	V _c m/min		a _{pmax} x DC	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p	a _p	Emulsion	Compressed air	MMS
					0,01-1,0 x DC	0,01-1,0 x DC	0,01-1,0 x DC	0,01-1,0 x DC	0,01-1,0 x DC	0,01-1,0 x DC	0,01-1,0 x DC	0,01-1,0 x DC				
f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm				
2.1	120	110	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●			
2.2	110	100	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●			
2.3	90	80	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●			
2.4	90	80	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●			
2.5	110	100	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●			
2.6	110	100	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●			
2.7																
5.1	65	55	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●			
5.2	65	55	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●			
5.3	65	55	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●			
5.4	65	55	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●			
5.5	65	55	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●			
5.6	65	55	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●			
5.7	65	55	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●			
5.8	65	55	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●			
5.9	130	120	0,06	0,040	0,060	0,070	0,090	0,120	0,150	0,180	0,210	0,300	●			
5.10	110	100	0,06	0,030	0,040	0,060	0,080	0,100	0,120	0,150	0,180	0,240	●			
5.11	90	80	0,06	0,015	0,040	0,055	0,065	0,075	0,100	0,120	0,150	0,180	●			

52 514 ...

Index	Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		● 1st choice		○ suitable
	a_p 0,01-0,02 x DC	a_p 0,03-0,04 x DC	a_p 0,01-0,02 x DC	a_p 0,03-0,04 x DC	a_p 0,01-0,02 x DC	a_p 0,03-0,04 x DC	Emulsion	Compressed air	MMS
	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
2.1	0,032	0,025	0,035	0,030	0,039	0,034	●		
2.2	0,032	0,025	0,035	0,030	0,039	0,034	●		
2.3	0,032	0,025	0,035	0,030	0,039	0,034	●		
2.4	0,032	0,025	0,035	0,030	0,039	0,034	●		
2.5	0,032	0,025	0,035	0,030	0,039	0,034	●		
2.6	0,030	0,025	0,035	0,030	0,040	0,035	●		
2.7	0,042	0,033	0,047	0,040	0,052	0,045	●		
5.1	0,042	0,033	0,047	0,040	0,052	0,045	●		
5.2	0,042	0,033	0,047	0,040	0,052	0,045	●		
5.3	0,042	0,033	0,047	0,040	0,052	0,045	●		
5.4	0,042	0,033	0,047	0,040	0,052	0,045	●		
5.5	0,042	0,033	0,047	0,040	0,052	0,045	●		
5.6	0,042	0,033	0,047	0,040	0,052	0,045	●		
5.7	0,042	0,033	0,047	0,040	0,052	0,045	●		
5.8	0,042	0,033	0,047	0,040	0,052	0,045	●		
5.9	0,059	0,046	0,066	0,056	0,073	0,063	●		
5.10	0,050	0,040	0,056	0,048	0,062	0,054	●		
5.11	0,042	0,033	0,047	0,040	0,052	0,045	●		

Cutting data standard values – MonsterMill – Ball-nosed end mills – HCR, 53 600 ... /

T _x ≤ 2,5 x DC												
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a _p 0,05 x DC									
Index	V _c m/min	a _{pmax} x DC	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm
1.14	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
1.15	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
1.16	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
6.1	200	0,05	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
6.2	180	0,05	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
6.3	160	0,05	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
6.4	150	0,03	0,002	0,004	0,005	0,007	0,010	0,012	0,014	0,018	0,022	0,024
6.5	130	0,03	0,002	0,003	0,004	0,006	0,008	0,010	0,011	0,014	0,018	0,019

T _x = 2,6–5 x DC												
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a _p 0,05 x DC									
Index	V _c m/min	a _{pmax} x DC	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm
1.14	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
1.15	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
1.16	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
6.1	120	0,05	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
6.2	108	0,05	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
6.3	96	0,05	0,002	0,004	0,005	0,007	0,010	0,011	0,014	0,017	0,020	0,023
6.4	90	0,03	0,002	0,003	0,004	0,006	0,008	0,010	0,012	0,015	0,017	0,019
6.5	78	0,03	0,001	0,002	0,003	0,004	0,006	0,008	0,009	0,012	0,014	0,015

T _x = 5,1–10 x DC												
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a _p 0,05 x DC									
Index	V _c m/min	a _{pmax} x DC	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm
1.14	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
1.15	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
1.16	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
6.1	90	0,04	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
6.2	81	0,04	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
6.3	72	0,04	0,001	0,002	0,004	0,005	0,007	0,008	0,011	0,013	0,014	0,017
6.4	68	0,02	0,001	0,002	0,003	0,004	0,006	0,007	0,009	0,011	0,012	0,014
6.5	59	0,02	0,001	0,002	0,002	0,003	0,005	0,006	0,007	0,009	0,010	0,011

T _x = 10,1–15 x DC												
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a _p 0,04 x DC									
Index	V _c m/min	a _{pmax} x DC	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm
1.14	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
1.15	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
1.16	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
6.1	70	0,03	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
6.2	63	0,03	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
6.3	56	0,03	0,001	0,001	0,002	0,004	0,005	0,006	0,007	0,008	0,010	0,012
6.4	53	0,01	0,001	0,001	0,002	0,003	0,004	0,005	0,006	0,007	0,008	0,010
6.5	46	0,01	0,001	0,001	0,002	0,002	0,003	0,004	0,005	0,006	0,006	0,008

i For improved surface quality, reduce f_z and allowance (a_p or a_p) by 30 %!

53 601 ...

T _x ≤ 2,5 x DC															
				Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice	○ suitable			
				a _p 0,05 x DC							Emulsion	Compressed air	MMS		
Index	V _c m/min	a _{pmax} x DC	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm						
1.14	200	0,07	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●			
1.15	200	0,07	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●			
1.16	200	0,07	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●			
6.1	200	0,05	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●			
6.2	180	0,05	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●			
6.3	160	0,05	0,036	0,043	0,058	0,086	0,115	0,144	0,173	○	●	●			
6.4	150	0,03	0,030	0,036	0,048	0,072	0,096	0,120	0,144	○	●	●			
6.5	130	0,03	0,024	0,029	0,038	0,058	0,077	0,096	0,115	○	●	●			

T _x = 2,6–5 x DC															
				Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice	○ suitable			
				a _p 0,05 x DC							Emulsion	Compressed air	MMS		
Index	V _c m/min	a _{pmax} x DC	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm						
1.14	120	0,07	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●			
1.15	120	0,07	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●			
1.16	120	0,07	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●			
6.1	120	0,05	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●			
6.2	108	0,05	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●			
6.3	96	0,05	0,029	0,035	0,046	0,060	0,084	0,107	0,130	○	●	●			
6.4	90	0,03	0,024	0,029	0,039	0,050	0,070	0,089	0,108	○	●	●			
6.5	78	0,03	0,019	0,023	0,031	0,040	0,056	0,071	0,086	○	●	●			

T _x = 5,1–10 x DC															
				Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice	○ suitable			
				a _p 0,05 x DC							Emulsion	Compressed air	MMS		
Index	V _c m/min	a _{pmax} x DC	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm						
1.14	90	0,06	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●			
1.15	90	0,06	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●			
1.16	90	0,06	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●			
6.1	90	0,04	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●			
6.2	81	0,04	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●			
6.3	72	0,04	0,022	0,026	0,035	0,035	0,052	0,069	0,086	○	●	●			
6.4	68	0,02	0,018	0,022	0,029	0,029	0,043	0,058	0,072	○	●	●			
6.5	59	0,02	0,014	0,018	0,023	0,023	0,035	0,046	0,058	○	●	●			

T _x = 10,1–15 x DC															
				Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice	○ suitable			
				a _p 0,04 x DC			a _p 0,05 x DC				Emulsion	Compressed air	MMS		
Index	V _c m/min	a _{pmax} x DC	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm						
1.14	70	0,05	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●			
1.15	70	0,05	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●			
1.16	70	0,05	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●			
6.1	70	0,03	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●			
6.2	63	0,03	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●			
6.3	56	0,03	0,017	0,022	0,028	0,028	0,041	0,055	0,069	○	●	●			
6.4	53	0,01	0,014	0,018	0,023	0,023	0,035	0,046	0,058	○	●	●			
6.5	46	0,01	0,011	0,014	0,019	0,018	0,028	0,037	0,046	○	●	●			

Cutting data standard values – MonsterMill – End mills – HCR, 53 603 ... and 53 604 ...

Peripheral milling

$T_x \leq 2,5 \times DC$

			$\varnothing DC = 0,2 \text{ mm}$	$\varnothing DC = 0,3 \text{ mm}$	$\varnothing DC = 0,4-0,5 \text{ mm}$	$\varnothing DC = 0,6-0,7 \text{ mm}$	$\varnothing DC = 0,8-0,9 \text{ mm}$	$\varnothing DC = 1 \text{ mm}$	$\varnothing DC = 1,2-1,4 \text{ mm}$	$\varnothing DC = 1,5 \text{ mm}$	$\varnothing DC = 1,6-1,8 \text{ mm}$	$\varnothing DC = 2 \text{ mm}$
			$a_p 0,05 \times DC$									
Index	V_c m/min	$a_{pmax} \times DC$	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
1.15	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
1.16	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
6.1	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
6.2	170	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
6.3	160	1,0	0,005	0,005	0,010	0,010	0,014	0,014	0,019	0,024	0,029	0,034
6.4	150	1,0	0,004	0,004	0,008	0,008	0,012	0,012	0,016	0,020	0,024	0,028
6.5	110	1,0	0,003	0,003	0,006	0,006	0,010	0,010	0,013	0,016	0,019	0,022

Z-layer milling / face milling

$T_x \leq 2,5 \times DC$

			$\varnothing DC = 0,2 \text{ mm}$	$\varnothing DC = 0,3 \text{ mm}$	$\varnothing DC = 0,4-0,5 \text{ mm}$	$\varnothing DC = 0,6-0,7 \text{ mm}$	$\varnothing DC = 0,8-0,9 \text{ mm}$	$\varnothing DC = 1 \text{ mm}$	$\varnothing DC = 1,2-1,4 \text{ mm}$	$\varnothing DC = 1,5 \text{ mm}$	$\varnothing DC = 1,6-1,8 \text{ mm}$	$\varnothing DC = 2 \text{ mm}$
			$a_p 0,3 \times DC$									
Index	V_c m/min	$a_{pmax} \times DC$	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
1.15	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
1.16	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
6.1	120	0,05	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
6.2	110	0,05	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
6.3	100	0,05	0,002	0,002	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017
6.4	80	0,03	0,002	0,002	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,014
6.5	60	0,03	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011

Full slot

$T_x \leq 2,5 \times DC$

			$\varnothing DC = 0,2 \text{ mm}$	$\varnothing DC = 0,3 \text{ mm}$	$\varnothing DC = 0,4-0,5 \text{ mm}$	$\varnothing DC = 0,6-0,7 \text{ mm}$	$\varnothing DC = 0,8-0,9 \text{ mm}$	$\varnothing DC = 1 \text{ mm}$	$\varnothing DC = 1,2-1,4 \text{ mm}$	$\varnothing DC = 1,5 \text{ mm}$	$\varnothing DC = 1,6-1,8 \text{ mm}$	$\varnothing DC = 2 \text{ mm}$
			$a_p 1,0 \times DC$									
Index	V_c m/min	$a_{pmax} \times DC$	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
1.15	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
1.16	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
6.1	65	0,05	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
6.2	55	0,05	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
6.3	45	0,05	0,001	0,001	0,003	0,003	0,004	0,005	0,006	0,007	0,008	0,010

! For improved surface quality, reduce f_z and allowance (a_p or a_p) by 30 %!

T _x ≤ 2,5 x DC														
Peripheral milling				Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice	○ suitable		
				a _p 0,05 x DC							Emulsion	Compressed air	MMS	
Index	V _c m/min	a _{pmax} x DC	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm					
1.14	200	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●		
1.15	200	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●		
1.16	200	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●		
6.1	200	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●		
6.2	170	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●		
6.3	160	1,0	0,043	0,048	0,067	0,101	0,134	0,168	0,192	○	●	●		
6.4	150	1,0	0,036	0,040	0,056	0,084	0,112	0,140	0,160	○	●	●		
6.5	110	1,0	0,029	0,032	0,045	0,067	0,090	0,112	0,128	○	●	●		

T _x ≤ 2,5 x DC														
Z-layer milling / face milling				Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice	○ suitable		
				a _p 0,3 x DC							Emulsion	Compressed air	MMS	
Index	V _c m/min	a _{pmax} x DC	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm					
1.14	120	0,07	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●		
1.15	120	0,07	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●		
1.16	120	0,07	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●		
6.1	120	0,05	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●		
6.2	110	0,05	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●		
6.3	100	0,05	0,022	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●		
6.4	80	0,03	0,018	0,020	0,028	0,042	0,056	0,070	0,080	○	●	●		
6.5	60	0,03	0,014	0,016	0,022	0,034	0,045	0,056	0,064	○	●	●		

T _x ≤ 2,5 x DC														
Full slot				Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice	○ suitable		
				a _p 1,0 x DC							Emulsion	Compressed air	MMS	
Index	V _c m/min	a _{pmax} x DC	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm					
1.14	70	0,07	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●		
1.15	70	0,07	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●		
1.16	70	0,07	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●		
6.1	65	0,05	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●		
6.2	55	0,05	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●		
6.3	45	0,05	0,012	0,015	0,020	0,030	0,033	0,035	0,040	○	●	●		

Cutting data standard values – MonsterMill – End mills – HCR, 53 603 ... and 53 604 ...

$T_x = 2,6-5 \times DC$

			$\varnothing DC = 0,2 \text{ mm}$	$\varnothing DC = 0,3 \text{ mm}$	$\varnothing DC = 0,4-0,5 \text{ mm}$	$\varnothing DC = 0,6-0,7 \text{ mm}$	$\varnothing DC = 0,8-0,9 \text{ mm}$	$\varnothing DC = 1 \text{ mm}$	$\varnothing DC = 1,2-1,4 \text{ mm}$	$\varnothing DC = 1,5 \text{ mm}$	$\varnothing DC = 1,6-1,8 \text{ mm}$	$\varnothing DC = 2 \text{ mm}$
			$a_p 0,05 \times DC$									
Index	V_c m/min	$a_{pmax} \times DC$	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
1.15	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
1.16	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
6.1	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
6.2	119	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
6.3	112	1,0	0,004	0,004	0,007	0,007	0,011	0,011	0,014	0,018	0,022	0,025
6.4	105	1,0	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
6.5	77	1,0	0,002	0,002	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017

Peripheral milling

$T_x = 2,6-5 \times DC$

			$\varnothing DC = 0,2 \text{ mm}$	$\varnothing DC = 0,3 \text{ mm}$	$\varnothing DC = 0,4-0,5 \text{ mm}$	$\varnothing DC = 0,6-0,7 \text{ mm}$	$\varnothing DC = 0,8-0,9 \text{ mm}$	$\varnothing DC = 1 \text{ mm}$	$\varnothing DC = 1,2-1,4 \text{ mm}$	$\varnothing DC = 1,5 \text{ mm}$	$\varnothing DC = 1,6-1,8 \text{ mm}$	$\varnothing DC = 2 \text{ mm}$
			$a_p 0,3 \times DC$									
Index	V_c m/min	$a_{pmax} \times DC$	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
1.15	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
1.16	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
6.1	84	0,05	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
6.2	77	0,05	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
6.3	70	0,05	0,002	0,002	0,004	0,004	0,005	0,005	0,007	0,009	0,011	0,013
6.4	56	0,03	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
6.5	42	0,03	0,001	0,001	0,002	0,002	0,004	0,004	0,005	0,006	0,007	0,008

Z-layer milling /
face milling

$T_x = 2,6-5 \times DC$

			$\varnothing DC = 0,2 \text{ mm}$	$\varnothing DC = 0,3 \text{ mm}$	$\varnothing DC = 0,4-0,5 \text{ mm}$	$\varnothing DC = 0,6-0,7 \text{ mm}$	$\varnothing DC = 0,8-0,9 \text{ mm}$	$\varnothing DC = 1 \text{ mm}$	$\varnothing DC = 1,2-1,4 \text{ mm}$	$\varnothing DC = 1,5 \text{ mm}$	$\varnothing DC = 1,6-1,8 \text{ mm}$	$\varnothing DC = 2 \text{ mm}$
			$a_p 1,0 \times DC$									
Index	V_c m/min	$a_{pmax} \times DC$	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
1.15	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
1.16	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
6.1	46	0,05	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
6.2	39	0,05	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
6.3	32	0,05	0,001	0,001	0,002	0,002	0,003	0,003	0,004	0,005	0,006	0,007

Full slot

! For improved surface quality, reduce f_z and allowance (a_p or a_p) by 30 %!

T _x = 2,6-5 x DC														
Peripheral milling				Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	●	○		
				a _p 0,05 x DC							1st choice	suitable		
Index	V _c m/min	a _{pmax} x DC	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	Emulsion	Compressed air	MMS		
1.14	140	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●		
1.15	140	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●		
1.16	140	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●		
6.1	140	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●		
6.2	119	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●		
6.3	112	1,0	0,032	0,036	0,050	0,076	0,101	0,126	0,144	○	●	●		
6.4	105	1,0	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●		
6.5	77	1,0	0,022	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●		

T _x = 2,6-5 x DC														
Z-layer milling / face milling				Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	●	○		
				a _p 0,3 x DC							1st choice	suitable		
Index	V _c m/min	a _{pmax} x DC	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	Emulsion	Compressed air	MMS		
1.14	84	0,07	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●		
1.15	84	0,07	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●		
1.16	84	0,07	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●		
6.1	84	0,05	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●		
6.2	77	0,05	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●		
6.3	70	0,05	0,016	0,018	0,025	0,038	0,050	0,063	0,072	○	●	●		
6.4	56	0,03	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●		
6.5	42	0,03	0,011	0,012	0,017	0,025	0,034	0,042	0,048	○	●	●		

T _x = 2,6-5 x DC														
Full slot				Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	●	○		
				a _p 1,0 x DC							1st choice	suitable		
Index	V _c m/min	a _{pmax} x DC	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	Emulsion	Compressed air	MMS		
1.14	49	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●		
1.15	49	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●		
1.16	49	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●		
6.1	46	0,05	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●		
6.2	39	0,05	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●		
6.3	32	0,05	0,009	0,010	0,014	0,021	0,028	0,035	0,040	○	●	●		

Cutting data standard values – MonsterMill – End mills – HCR, 53 603 ... and 53 604 ...

$T_x = 5,1-10 \times DC$

			$\varnothing DC = 0,2 \text{ mm}$	$\varnothing DC = 0,3 \text{ mm}$	$\varnothing DC = 0,4-0,5 \text{ mm}$	$\varnothing DC = 0,6-0,7 \text{ mm}$	$\varnothing DC = 0,8-0,9 \text{ mm}$	$\varnothing DC = 1 \text{ mm}$	$\varnothing DC = 1,2-1,4 \text{ mm}$	$\varnothing DC = 1,5 \text{ mm}$	$\varnothing DC = 1,6-1,8 \text{ mm}$	$\varnothing DC = 2 \text{ mm}$
			$a_p 0,05 \times DC$									
Index	V_c m/min	$a_{pmax} \times DC$	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
1.15	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
1.16	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
6.1	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
6.2	94	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
6.3	88	0,75	0,002	0,002	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017
6.4	83	0,75	0,002	0,002	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,014
6.5	61	0,75	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011

$T_x = 5,1-10 \times DC$

			$\varnothing DC = 0,2 \text{ mm}$	$\varnothing DC = 0,3 \text{ mm}$	$\varnothing DC = 0,4-0,5 \text{ mm}$	$\varnothing DC = 0,6-0,7 \text{ mm}$	$\varnothing DC = 0,8-0,9 \text{ mm}$	$\varnothing DC = 1 \text{ mm}$	$\varnothing DC = 1,2-1,4 \text{ mm}$	$\varnothing DC = 1,5 \text{ mm}$	$\varnothing DC = 1,6-1,8 \text{ mm}$	$\varnothing DC = 2 \text{ mm}$
			$a_p 0,3 \times DC$									
Index	V_c m/min	$a_{pmax} \times DC$	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
1.15	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
1.16	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
6.1	66	0,05	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
6.2	61	0,05	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
6.3	55	0,05	0,001	0,001	0,002	0,002	0,004	0,004	0,005	0,006	0,007	0,008
6.4	44	0,03	0,001	0,001	0,002	0,002	0,003	0,003	0,004	0,005	0,006	0,007
6.5	33	0,03	0,001	0,001	0,002	0,002	0,002	0,002	0,003	0,004	0,005	0,006

$T_x = 10,1-15 \times DC$

			$\varnothing DC = 0,4-0,5 \text{ mm}$	$\varnothing DC = 0,6-0,7 \text{ mm}$	$\varnothing DC = 0,8-0,9 \text{ mm}$	$\varnothing DC = 1 \text{ mm}$	$\varnothing DC = 1,2-1,4 \text{ mm}$	$\varnothing DC = 1,5 \text{ mm}$	$\varnothing DC = 1,6-1,8 \text{ mm}$	$\varnothing DC = 2 \text{ mm}$	$\varnothing DC = 2,5 \text{ mm}$	$\varnothing DC = 3 \text{ mm}$
			$a_p 0,05 \times DC$									
Index	V_c m/min	$a_{pmax} \times DC$	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
1.15	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
1.16	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
6.1	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
6.2	77	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
6.3	72	0,5	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,013	0,017	0,019
6.4	68	0,5	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011	0,014	0,016
6.5	50	0,5	0,003	0,003	0,004	0,004	0,005	0,006	0,008	0,009	0,012	0,013

$T_x = 10,1-15 \times DC$

			$\varnothing DC = 0,4-0,5 \text{ mm}$	$\varnothing DC = 0,6-0,7 \text{ mm}$	$\varnothing DC = 0,8-0,9 \text{ mm}$	$\varnothing DC = 1 \text{ mm}$	$\varnothing DC = 1,2-1,4 \text{ mm}$	$\varnothing DC = 1,5 \text{ mm}$	$\varnothing DC = 1,6-1,8 \text{ mm}$	$\varnothing DC = 2 \text{ mm}$	$\varnothing DC = 2,5 \text{ mm}$	$\varnothing DC = 3 \text{ mm}$
			$a_p 0,3 \times DC$									
Index	V_c m/min	$a_{pmax} \times DC$	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	54	0,05	0,002	0,002	0,004	0,004	0,005	0,006	0,007	0,008	0,011	0,012
1.15	54	0,05	0,002	0,002	0,004	0,004	0,005	0,006	0,007	0,008	0,011	0,012
1.16	54	0,05	0,002	0,002	0,004	0,004	0,005	0,006	0,007	0,008	0,011	0,012
6.1	54	0,03	0,002	0,002	0,004	0,004	0,005	0,006	0,007	0,008	0,011	0,012
6.2	50	0,03	0,002	0,002	0,004	0,004	0,005	0,006	0,007	0,008	0,011	0,012
6.3	45	0,03	0,002	0,002	0,003	0,003	0,004	0,005	0,006	0,007	0,009	0,010
6.4	36	0,01	0,002	0,002	0,002	0,002	0,003	0,004	0,005	0,006	0,007	0,008
6.5	27	0,01	0,001	0,001	0,002	0,002	0,003	0,003	0,004	0,004	0,006	0,006

i For improved surface quality, reduce f_z and allowance (a_p or a_p) by 30 %!

T _x = 5,1–10 x DC															
Peripheral milling				Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice	○ suitable			
				a _p 0,05 x DC							Emulsion	Compressed air	MMS		
Index	V _c m/min	a _{pmax} x DC	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	Emulsion	Compressed air	MMS		
1.14	110	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	0,120	○	●	●		
1.15	110	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	0,120	○	●	●		
1.16	110	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	0,120	○	●	●		
6.1	110	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	0,120	○	●	●		
6.2	94	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	0,120	○	●	●		
6.3	88	0,75	0,022	0,024	0,034	0,050	0,067	0,084	0,096	0,096	○	●	●		
6.4	83	0,75	0,018	0,020	0,028	0,042	0,056	0,070	0,080	0,080	○	●	●		
6.5	61	0,75	0,014	0,016	0,022	0,034	0,045	0,056	0,064	0,064	○	●	●		

T _x = 5,1–10 x DC															
Z-layer milling / face milling				Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice	○ suitable			
				a _p 0,3 x DC							Emulsion	Compressed air	MMS		
Index	V _c m/min	a _{pmax} x DC	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	Emulsion	Compressed air	MMS		
1.14	66	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	0,060	○	●	●		
1.15	66	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	0,060	○	●	●		
1.16	66	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	0,060	○	●	●		
6.1	66	0,05	0,014	0,015	0,021	0,032	0,042	0,053	0,060	0,060	○	●	●		
6.2	61	0,05	0,014	0,015	0,021	0,032	0,042	0,053	0,060	0,060	○	●	●		
6.3	55	0,05	0,011	0,012	0,017	0,025	0,034	0,042	0,048	0,048	○	●	●		
6.4	44	0,03	0,009	0,010	0,014	0,021	0,028	0,035	0,040	0,040	○	●	●		
6.5	33	0,03	0,007	0,008	0,011	0,017	0,022	0,028	0,032	0,032	○	●	●		

T _x = 10,1–15 x DC								
Peripheral milling				Ø DC = 4 mm	● 1st choice	○ suitable		
				a _p 0,05 x DC	Emulsion	Compressed air	MMS	
Index	V _c m/min	a _{pmax} x DC	f _z mm	Emulsion	Compressed air	MMS		
1.14	90	0,5	0,034	○	●	●		
1.15	90	0,5	0,034	○	●	●		
1.16	90	0,5	0,034	○	●	●		
6.1	90	0,5	0,034	○	●	●		
6.2	77	0,5	0,034	○	●	●		
6.3	72	0,5	0,027	○	●	●		
6.4	68	0,5	0,022	○	●	●		
6.5	50	0,5	0,018	○	●	●		

T _x = 10,1–15 x DC								
Z-layer milling / face milling				Ø DC = 4 mm	● 1st choice	○ suitable		
				a _p 0,3 x DC	Emulsion	Compressed air	MMS	
Index	V _c m/min	a _{pmax} x DC	f _z mm	Emulsion	Compressed air	MMS		
1.14	54	0,05	0,017	○	●	●		
1.15	54	0,05	0,017	○	●	●		
1.16	54	0,05	0,017	○	●	●		
6.1	54	0,03	0,017	○	●	●		
6.2	50	0,03	0,017	○	●	●		
6.3	45	0,03	0,013	○	●	●		
6.4	36	0,01	0,011	○	●	●		
6.5	27	0,01	0,009	○	●	●		

Cutting data standard values – MonsterMill – End mills – HCR, 53 605 ...

Peripheral milling													
$T_x \leq 2 \times DC$													
											●	○	
											1st choice	suitable	
											Emulsion	Compressed air	MMS
Index	V_c m/min	$a_{pmax} \times DC$	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
1.15	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
1.16	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
6.1	190	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
6.2	160	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
6.3	130	2,0	0,014	0,022	0,030	0,041	0,060	0,074	0,096	0,108	○	●	●
6.4	120	2,0	0,012	0,018	0,025	0,034	0,050	0,062	0,080	0,090	○	●	●
6.5	110	2,0	0,010	0,014	0,020	0,027	0,040	0,050	0,064	0,072	○	●	●

Face milling													
$T_x \leq 2 \times DC$													
											●	○	
											1st choice	suitable	
											Emulsion	Compressed air	MMS
Index	V_c m/min	$a_{pmax} \times DC$	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
1.15	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
1.16	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
6.1	120	0,05	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
6.2	110	0,05	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
6.3	90	0,05	0,012	0,017	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●
6.4	75	0,03	0,010	0,014	0,020	0,028	0,042	0,056	0,070	0,080	○	●	●
6.5	60	0,03	0,008	0,011	0,016	0,022	0,034	0,045	0,056	0,064	○	●	●

Cutting data standard values – MonsterMill – End mills – HCR, 53 606 ...

Peripheral milling													
$T_x \leq 3 \times DC$													
											●	○	
											1st choice	suitable	
											Emulsion	Compressed air	MMS
Index	V_c m/min	$a_{pmax} \times DC$	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
1.15	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
1.16	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
6.1	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
6.2	119	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
6.3	112	2,0	0,011	0,019	0,026	0,036	0,053	0,066	0,084	0,096	○	●	●
6.4	105	2,0	0,009	0,016	0,022	0,030	0,044	0,055	0,070	0,080	○	●	●
6.5	77	2,0	0,007	0,013	0,018	0,024	0,035	0,044	0,056	0,064	○	●	●

Face milling													
$T_x \leq 3 \times DC$													
											●	○	
											1st choice	suitable	
											Emulsion	Compressed air	MMS
Index	V_c m/min	$a_{pmax} \times DC$	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
1.14	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
1.15	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
1.16	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
6.1	91	0,05	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
6.2	84	0,05	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
6.3	77	0,05	0,007	0,011	0,018	0,029	0,043	0,058	0,072	0,084	○	●	●
6.4	63	0,03	0,006	0,009	0,015	0,024	0,036	0,048	0,060	0,070	○	●	●
6.5	42	0,03	0,005	0,007	0,012	0,019	0,029	0,038	0,048	0,056	○	●	●

i For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30 %!

Cutting data standard values – MonsterMill – Ball-nosed end mills – HCR, 53 602 ...

$T_x \leq 2,5 \times DC$											
			$\varnothing DC = 3 \text{ mm}$	$\varnothing DC = 4 \text{ mm}$	$\varnothing DC = 6 \text{ mm}$	$\varnothing DC = 8 \text{ mm}$	$\varnothing DC = 10 \text{ mm}$	$\varnothing DC = 12 \text{ mm}$	● 1st choice	○ suitable	
			$a_p 0,05 \times DC$						Emulsion	Compressed air	MMS
Index	V_c m/min	$a_{pmax} \times DC$	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
1.14	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
1.15	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
1.16	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
6.1	200	0,05	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
6.2	180	0,05	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
6.3	160	0,05	0,030	0,040	0,060	0,081	0,101	0,121	○	●	●
6.4	150	0,03	0,025	0,034	0,050	0,067	0,084	0,101	○	●	●
6.5	130	0,03	0,020	0,027	0,040	0,054	0,067	0,081	○	●	●

$T_x = 2,6-5 \times DC$											
			$\varnothing DC = 3 \text{ mm}$	$\varnothing DC = 4 \text{ mm}$	$\varnothing DC = 6 \text{ mm}$	$\varnothing DC = 8 \text{ mm}$	$\varnothing DC = 10 \text{ mm}$	$\varnothing DC = 12 \text{ mm}$	● 1st choice	○ suitable	
			$a_p 0,05 \times DC$						Emulsion	Compressed air	MMS
Index	V_c m/min	$a_{pmax} \times DC$	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
1.14	120	0,07	0,030	0,040	0,053	0,073	0,093	0,113	○	●	●
1.15	120	0,07	0,030	0,040	0,053	0,073	0,093	0,113	○	●	●
1.16	120	0,07	0,030	0,040	0,053	0,073	0,093	0,113	○	●	●
6.1	120	0,05	0,030	0,040	0,053	0,073	0,093	0,113	○	●	●
6.2	108	0,05	0,030	0,040	0,053	0,073	0,093	0,113	○	●	●
6.3	96	0,05	0,024	0,032	0,042	0,058	0,075	0,091	○	●	●
6.4	90	0,03	0,020	0,027	0,035	0,049	0,062	0,076	○	●	●
6.5	78	0,03	0,016	0,022	0,028	0,039	0,050	0,060	○	●	●

$T_x = 5,1-10 \times DC$											
			$\varnothing DC = 3 \text{ mm}$	$\varnothing DC = 4 \text{ mm}$	$\varnothing DC = 6 \text{ mm}$	$\varnothing DC = 8 \text{ mm}$	$\varnothing DC = 10 \text{ mm}$	$\varnothing DC = 12 \text{ mm}$	● 1st choice	○ suitable	
			$a_p 0,04 \times DC$						Emulsion	Compressed air	MMS
Index	V_c m/min	$a_{pmax} \times DC$	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
1.14	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
1.15	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
1.16	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
6.1	90	0,04	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
6.2	81	0,04	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
6.3	72	0,04	0,018	0,024	0,024	0,036	0,048	0,060	○	●	●
6.4	68	0,02	0,015	0,020	0,020	0,030	0,040	0,050	○	●	●
6.5	59	0,02	0,012	0,016	0,016	0,024	0,032	0,040	○	●	●

i For improved surface quality, reduce f_z and allowance (a_p or a_r) by 30 %!

Cutting data standard values- MonsterMill – End mills – PCR-UNI

Index	v _c m/min	a _{pmaz} x DC	Ø DC = 5,7-6,0 mm			Ø DC = 6,7-7,0 mm			Ø DC = 7,7-8,0 mm			Ø DC = 8,7-9,0 mm			Ø DC = 9,7-10,0 mm			Ø DC = 11,7-12,0 mm		
			a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC
			f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm
1.1	220	1,0	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.2	220	1,0	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.3	220	1,0	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.4	200	1,0	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.5	220	1,0	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.6	180	1,0	0,069	0,054	0,038	0,080	0,062	0,044	0,089	0,069	0,049	0,100	0,078	0,055	0,110	0,085	0,060	0,128	0,099	0,070
1.7	200	1,0	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.8	140	1,0	0,062	0,048	0,034	0,071	0,055	0,039	0,080	0,062	0,044	0,089	0,069	0,049	0,097	0,075	0,053	0,113	0,088	0,062
1.9	135	1,0	0,060	0,047	0,033	0,069	0,054	0,038	0,079	0,061	0,043	0,088	0,068	0,048	0,095	0,074	0,052	0,111	0,086	0,061
1.10	200	1,0	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.11	140	1,0	0,062	0,048	0,034	0,071	0,055	0,039	0,080	0,062	0,044	0,089	0,069	0,049	0,097	0,075	0,053	0,113	0,088	0,062
1.12	130	1,0	0,071	0,055	0,039	0,082	0,064	0,045	0,091	0,071	0,050	0,102	0,079	0,056	0,111	0,086	0,061	0,130	0,100	0,071
1.13	110	1,0	0,066	0,051	0,036	0,075	0,058	0,041	0,084	0,065	0,046	0,093	0,072	0,051	0,102	0,079	0,056	0,119	0,092	0,065
1.14	110	1,0	0,066	0,051	0,036	0,075	0,058	0,041	0,084	0,065	0,046	0,093	0,072	0,051	0,102	0,079	0,056	0,119	0,092	0,065
1.15	110	1,0	0,066	0,051	0,036	0,075	0,058	0,041	0,084	0,065	0,046	0,093	0,072	0,051	0,102	0,079	0,056	0,119	0,092	0,065
1.16	130	1,0	0,071	0,055	0,039	0,082	0,064	0,045	0,093	0,072	0,051	0,104	0,081	0,057	0,113	0,088	0,062	0,131	0,102	0,072
2.1	60	1,0	0,044	0,034	0,024	0,049	0,038	0,027	0,057	0,044	0,031	0,062	0,048	0,034	0,068	0,052	0,037	0,080	0,062	0,044
2.2	65	1,0	0,047	0,037	0,026	0,055	0,042	0,030	0,060	0,047	0,033	0,068	0,052	0,037	0,075	0,058	0,041	0,086	0,066	0,047
2.3	65	1,0	0,047	0,037	0,026	0,055	0,042	0,030	0,060	0,047	0,033	0,068	0,052	0,037	0,075	0,058	0,041	0,086	0,066	0,047
2.4	65	1,0	0,047	0,037	0,026	0,055	0,042	0,030	0,060	0,047	0,033	0,068	0,052	0,037	0,075	0,058	0,041	0,086	0,066	0,047
2.5	55	1,0	0,037	0,028	0,020	0,042	0,033	0,023	0,047	0,037	0,026	0,051	0,040	0,028	0,057	0,044	0,031	0,066	0,051	0,036
2.6	60	1,0	0,044	0,034	0,024	0,049	0,038	0,027	0,057	0,044	0,031	0,062	0,048	0,034	0,068	0,052	0,037	0,080	0,062	0,044
2.7	60	1,0	0,038	0,030	0,021	0,042	0,033	0,023	0,047	0,037	0,026	0,053	0,041	0,029	0,058	0,045	0,032	0,068	0,052	0,037
3.1	240	1,0	0,124	0,096	0,068	0,142	0,110	0,078	0,161	0,124	0,088	0,177	0,137	0,097	0,195	0,151	0,107	0,226	0,175	0,124
3.2	180	1,0	0,088	0,068	0,048	0,100	0,078	0,055	0,113	0,088	0,062	0,124	0,096	0,068	0,137	0,106	0,075	0,159	0,123	0,087
3.3	220	1,0	0,106	0,082	0,058	0,122	0,095	0,067	0,137	0,106	0,075	0,152	0,117	0,083	0,166	0,129	0,091	0,194	0,150	0,106
3.4	180	1,0	0,088	0,068	0,048	0,100	0,078	0,055	0,113	0,088	0,062	0,124	0,096	0,068	0,137	0,106	0,075	0,159	0,123	0,087
3.5	160	1,0	0,088	0,068	0,048	0,100	0,078	0,055	0,113	0,088	0,062	0,124	0,096	0,068	0,137	0,106	0,075	0,159	0,123	0,087
3.6	150	1,0	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
3.7	160	1,0	0,088	0,068	0,048	0,100	0,078	0,055	0,113	0,088	0,062	0,124	0,096	0,068	0,137	0,106	0,075	0,159	0,123	0,087
3.8	150	1,0	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
4.1																				
4.2																				
4.3																				
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i With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.

Index	Ø DC = 13,7-14,0 mm			Ø DC = 15,5-16,0 mm			Ø DC = 17,5-20,0 mm			Ramping 1,0 x DC Max. plunging angle	Helical milling			Drilling 1,0 x DC Factor	● 1st choice		○ suitable	
	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC		a_{smax}^*	Hole diameter			f_z	Emulsion	Compressed air	MMS
	f_z mm	f_z mm	f_z mm	D_{min} DC x 1,5	D_{max} DC x 1,8													
1.1	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○	
1.2	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○	
1.3	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○	
1.4	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○	
1.5	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○	
1.6	0,142	0,110	0,078	0,159	0,123	0,087	0,173	0,134	0,095	45°	0,75xD	25°	16°	0,8	○	●	○	
1.7	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○	
1.8	0,128	0,099	0,070	0,142	0,110	0,078	0,155	0,120	0,085	45°	0,75xD	25°	16°	0,7	●	○	○	
1.9	0,126	0,098	0,069	0,141	0,109	0,077	0,153	0,119	0,084	45°	0,75xD	25°	16°	0,7	●	○	○	
1.10	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○	
1.11	0,128	0,099	0,070	0,142	0,110	0,078	0,155	0,120	0,085	45°	0,75xD	25°	16°	0,8	●	○	○	
1.12	0,146	0,113	0,080	0,162	0,126	0,089	0,177	0,137	0,097	30°	0,5xD	18°	11°	0,8	○	●	○	
1.13	0,133	0,103	0,073	0,148	0,115	0,081	0,161	0,124	0,088	30°	0,5xD	18°	11°	0,7	●	○	○	
1.14	0,133	0,103	0,073	0,148	0,115	0,081	0,161	0,124	0,088	30°	0,5xD	18°	11°	0,7	●	○	○	
1.15	0,133	0,103	0,073	0,148	0,115	0,081	0,161	0,124	0,088	30°	0,5xD	18°	11°	0,7	●	○	○	
1.16	0,148	0,115	0,081	0,164	0,127	0,090	0,179	0,139	0,098	30°	0,5xD	18°	11°	0,7	○	●	○	
2.1	0,089	0,069	0,049	0,099	0,076	0,054	0,108	0,083	0,059	15°	0,5xD	18°	11°		●	○	○	
2.2	0,097	0,075	0,053	0,108	0,083	0,059	0,117	0,091	0,064	15°	0,5xD	18°	11°		●	○	○	
2.3	0,097	0,075	0,053	0,108	0,083	0,059	0,117	0,091	0,064	15°	0,5xD	18°	11°		●	○	○	
2.4	0,097	0,075	0,053	0,108	0,083	0,059	0,117	0,091	0,064	15°	0,5xD	18°	11°		●	○	○	
2.5	0,075	0,058	0,041	0,082	0,064	0,045	0,089	0,069	0,049	15°	0,5xD	18°	11°		●	○	○	
2.6	0,089	0,069	0,049	0,099	0,076	0,054	0,108	0,083	0,059	15°	0,5xD	18°	11°		●	○	○	
2.7	0,077	0,059	0,042	0,086	0,066	0,047	0,093	0,072	0,051	15°	0,5xD	18°	11°		●	○	○	
3.1	0,256	0,198	0,140	0,285	0,221	0,156	0,310	0,240	0,170	45°	0,75xD	25°	25°	0,8	○	●	○	
3.2	0,179	0,139	0,098	0,199	0,154	0,109	0,217	0,168	0,119	45°	0,75xD	25°	25°	0,8	○	●	○	
3.3	0,217	0,168	0,119	0,241	0,187	0,132	0,263	0,204	0,144	45°	0,75xD	25°	25°	0,8	○	●	○	
3.4	0,179	0,139	0,098	0,199	0,154	0,109	0,217	0,168	0,119	45°	0,75xD	25°	25°	0,8	○	●	○	
3.5	0,179	0,139	0,098	0,199	0,154	0,109	0,217	0,168	0,119	45°	0,75xD	25°	25°	0,8	○	●	○	
3.6	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	25°	0,8	○	●	○	
3.7	0,179	0,139	0,098	0,199	0,154	0,109	0,217	0,168	0,119	45°	0,75xD	25°	25°	0,8	○	●	○	
3.8	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	25°	0,8	○	●	○	
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i * Width of cut per helical revolution

i Cutting data for ramping and helical milling = 100 %
Multiply cutting data for drilling by the factor from the table

Cutting data standard values – MonsterMill – End mills – PCR-ALU

Index	long v_c m/min	extra long v_c m/min	a_{pmax} x DC	Ø DC = 5,0 mm			Ø DC = 5,7-7,0 mm			Ø DC = 7,7-8,0 mm			Ø DC = 8,7-10,0 mm			Ø DC = 11,7-12,0 mm		
				a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC
				f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1																		
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4.1	700	300	1	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,130	0,097	0,065	0,140	0,104	0,070
4.2	700	300	1	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,130	0,097	0,065	0,140	0,104	0,070
4.3	420	200	1	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070
4.4	420	180	1	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070
4.5	280	140	1	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070
4.6	200	110	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.7	180	100	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.8	175	75	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.9	175	75	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.10	175	75	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.11	280	125	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.12	210	100	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.13																		
4.14																		
4.15																		
4.16	220	130	1	0,07	0,052	0,035	0,08	0,06	0,04	0,1	0,075	0,05	0,12	0,089	0,06	0,14	0,104	0,07
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i With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.

Index	Ø DC = 13,7–14,0 mm			Ø DC = 15,5–16,0 mm			Ø DC = 17,5–18,0 mm			Ø DC = 19,5–20,0 mm			Ramping 1,0 x DC Max. plunging angle	Helical milling			Drilling 1,0 x DC v _c Factor	● 1st choice		○ suitable	
	a _p 0,1–0,2 x DC	a _p 0,3–0,4 x DC	a _p 0,6–1,0 x DC	a _p 0,1–0,2 x DC	a _p 0,3–0,4 x DC	a _p 0,6–1,0 x DC	a _p 0,1–0,2 x DC	a _p 0,3–0,4 x DC	a _p 0,6–1,0 x DC	a _p 0,1–0,2 x DC	a _p 0,3–0,4 x DC	a _p 0,6–1,0 x DC		α _{amax} *	Hole diameter			v _c Factor	Emulsion	Compressed air	MMS
	f _z mm			f _z mm			f _z mm			f _z mm					D _{min} DC x 1,5	D _{max} DC x 1,8					
1.1																					
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3.4																					
3.5																					
3.6																					
3.7																					
3.8																					
4.1	0,146	0,113	0,080	0,152	0,116	0,090	0,166	0,136	0,105	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,75	●	○		
4.2	0,146	0,113	0,080	0,152	0,116	0,090	0,166	0,136	0,105	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,75	●	○		
4.3	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	45°	0,75xD	25°	16°	0,75	●	○		
4.4	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	45°	0,75xD	25°	16°	0,75	●	○		
4.5	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	45°	0,75xD	25°	16°	0,7	●	○		
4.6	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●	○		
4.7	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●	○		
4.8	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●	○		
4.9	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●	○		
4.10	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●	○		
4.11	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●	○		
4.12	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●	○		
4.13																					
4.14																					
4.15																					
4.16	0,164	0,127	0,09	0,203	0,155	0,12	0,221	0,181	0,14	0,269	0,219	0,17	45°	0,75xD	25°	16°	0,7	●	○		
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i * Width of cut per helical revolution

i Cutting data for ramping and helical milling = 100 %
Multiply cutting data for drilling by the factor from the table

Cutting data standard values – MonsterMill – End Mills – MCR, short – long

Index	V _c m/min	short a _{p,max} x DC	Ø DC = 1 mm			Ø DC = 2 mm			short a _{p,max} x DC	long	Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm		
			a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC			a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC
			f _z mm			f _z mm					f _z mm			f _z mm			f _z mm		
1.1	120-140	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030
1.2	120-140	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030
1.3	100-120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.4	100-120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.5	100-120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.6	100-120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.7	100-120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.8	100-120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.9	100-120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.10	100-120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.11	100-120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.12	100-120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.13	100-120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.14	100-120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.15	100-120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
1.16	100-120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
2.1	60-80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
2.2	60-80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
2.3	60-80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
2.4																			
2.5	60-80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
2.6	60-80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
2.7																			
3.1	120-140	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
3.2	120-140	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
3.3	120-140	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
3.4	120-140	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
3.5	100-120	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030
3.6	100-120	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030
3.7	100-120	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030
3.8	100-120	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030
4.1																			
4.2																			
4.3																			
4.4																			
4.5																			
4.6	120-140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
4.7	120-140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
4.8																			
4.9																			
4.10																			
4.11	120-140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
4.12	120-140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
4.13																			
4.14																			
4.15																			
4.16																			
4.17																			
4.18																			
4.19																			
5.1																			
5.2																			
5.3																			
5.4																			
5.5																			
5.6																			
5.7																			
5.8																			
5.9	60-80	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020
5.10	60-80	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020
5.11	60-80	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020
6.1	80-100	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
6.2																			
6.3																			
6.4																			
6.5																			

* = with an a_p of 1.5 x DC the f_z should be multiplied by 0.8



Plunging angle for ramping and helical milling: Diameter 3-5 = 3° / Diameter 6-9 = 5° / Diameter 10-20 = 8°

Cutting data standard values – MonsterMill – End Mills – MCR, extra long

Index	V _c m/min	extra long a _{amax} x DC	Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm			
			a _e 0,1-0,2 x DC	a _e 0,3-0,4 x DC	a _e 0,6-1,0 x DC	a _e 0,1-0,2 x DC	a _e 0,3-0,4 x DC	a _e 0,6-1,0 x DC	a _e 0,1-0,2 x DC	a _e 0,3-0,4 x DC	a _e 0,6-1,0 x DC	a _e 0,1-0,2 x DC	a _e 0,3-0,4 x DC	a _e 0,6-1,0 x DC	a _e 0,1-0,2 x DC	a _e 0,3-0,4 x DC	a _e 0,6-1,0 x DC	
			f _z mm			f _z mm			f _z mm			f _z mm			f _z mm			
1.1	120-140	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
1.2	120-140	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
1.3	100-120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.4	100-120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.5	100-120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.6	100-120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.7	100-120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.8	100-120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.9	100-120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.10	100-120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.11	100-120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.12	100-120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.13	100-120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.14	100-120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.15	100-120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
1.16	100-120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
2.1	50-70	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
2.2	50-70	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
2.3	50-70	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
2.4																		
2.5	50-70	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
2.6	50-70	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
2.7																		
3.1	120-140	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
3.2	120-140	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
3.3	120-140	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
3.4	120-140	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
3.5	100-120	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
3.6	100-120	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
3.7	100-120	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
3.8	100-120	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
4.1																		
4.2																		
4.3																		
4.4																		
4.5																		
4.6	120-140	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
4.7	120-140	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
4.8																		
4.9																		
4.10																		
4.11	120-140	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
4.12	120-140	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
4.13																		
4.14																		
4.15																		
4.16																		
4.17																		
4.18																		
4.19																		
5.1																		
5.2																		
5.3																		
5.4																		
5.5																		
5.6																		
5.7																		
5.8																		
5.9	60-80	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
5.10	60-80	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
5.11	60-80	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
6.1	80-100	0,5*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
6.2																		
6.3																		
6.4																		
6.5																		

* = Trimming and trochoidal slot milling

Plunging angle for ramping and helical milling: Diameter 3-5 = 3° / Diameter 6-9 = 5° / Diameter 10-20 = 8°

Index	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm				
1.1	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
1.2	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
1.3	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.4	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.5	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.6	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.7	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.8	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.9	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.10	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.11	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.12	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.13	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.14	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.15	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
1.16	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
2.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
2.2	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
2.3	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
2.4																		
2.5	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
2.6	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
2.7																		
3.1	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
3.2	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
3.3	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
3.4	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
3.5	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
3.6	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
3.7	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
3.8	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
4.1																		
4.2																		
4.3																		
4.4																		
4.5																		
4.6	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
4.7	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
4.8																		
4.9																		
4.10																		
4.11	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
4.12	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
4.13																		
4.14																		
4.15																		
4.16																		
4.17																		
4.18																		
4.19																		
5.1																		
5.2																		
5.3																		
5.4																		
5.5																		
5.6																		
5.7																		
5.8																		
5.9	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
5.10	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
5.11	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
6.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
6.2																		
6.3																		
6.4																		
6.5																		

Cutting data – CircularLine – End Mills – CCR-UNI, short – long

Index	short, long v_c m/min	max. angle of engagement	Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm			
			a_p 0,05 x DC	a_p 0,1 x DC	a_p 0,15 x DC	h_n	a_p 0,05 x DC	a_p 0,1 x DC	a_p 0,15 x DC	h_m	a_p 0,05 x DC	a_p 0,1 x DC	a_p 0,15 x DC	h_n
			f_z mm				f_z mm				f_z mm			
1.1	300	50°	0,13	0,09	0,08	0,03	0,16	0,11	0,09	0,035	0,20	0,14	0,12	0,045
1.2	300	50°	0,13	0,09	0,08	0,03	0,16	0,11	0,09	0,035	0,20	0,14	0,12	0,045
1.3	280	50°	0,13	0,09	0,08	0,03	0,16	0,11	0,09	0,035	0,20	0,14	0,12	0,045
1.4	280	50°	0,13	0,09	0,08	0,03	0,16	0,11	0,09	0,035	0,20	0,14	0,12	0,045
1.5	280	50°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.6	260	50°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.7	280	50°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.8	260	50°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.9	260	50°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.10	240	50°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.11	240	50°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.12	240	50°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.13	240	50°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.14														
1.15	220	45°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
1.16	220	45°	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,040
2.1	200	45°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,028
2.2	180	45°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,028
2.3	160	45°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,028
2.4	160	45°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,028
2.5	140	45°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,028
2.6	140	45°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,028
2.7														
3.1	300	50°	0,13	0,09	0,08	0,03	0,16	0,11	0,09	0,035	0,20	0,14	0,12	0,045
3.2	300	50°	0,13	0,09	0,08	0,03	0,16	0,11	0,09	0,035	0,20	0,14	0,12	0,045
3.3	300	50°	0,13	0,09	0,08	0,03	0,16	0,11	0,09	0,035	0,20	0,14	0,12	0,045
3.4	260	50°	0,13	0,09	0,08	0,03	0,16	0,11	0,09	0,035	0,20	0,14	0,12	0,045
3.5	260	50°	0,11	0,08	0,06	0,025	0,16	0,11	0,09	0,035	0,18	0,13	0,10	0,040
3.6	240	50°	0,11	0,08	0,06	0,025	0,16	0,11	0,09	0,035	0,18	0,13	0,10	0,040
3.7	240	50°	0,11	0,08	0,06	0,025	0,16	0,11	0,09	0,035	0,18	0,13	0,10	0,040
3.8	200	50°	0,11	0,08	0,06	0,025	0,16	0,11	0,09	0,035	0,18	0,13	0,10	0,040
4.1														
4.2														
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4.18														
4.19														
5.1	120	40°	0,04	0,03	0,03	0,01	0,05	0,04	0,03	0,012	0,07	0,05	0,04	0,015
5.2	80	40°	0,04	0,03	0,03	0,01	0,05	0,04	0,03	0,012	0,07	0,05	0,04	0,015
5.3	80	40°	0,04	0,03	0,03	0,01	0,05	0,04	0,03	0,012	0,07	0,05	0,04	0,015
5.4	60	40°	0,04	0,03	0,03	0,01	0,05	0,04	0,03	0,012	0,07	0,05	0,04	0,015
5.5	60	40°	0,04	0,03	0,03	0,01	0,05	0,04	0,03	0,012	0,07	0,05	0,04	0,015
5.6	60	40°	0,04	0,03	0,03	0,01	0,05	0,04	0,03	0,012	0,07	0,05	0,04	0,015
5.7	60	40°	0,04	0,03	0,03	0,01	0,05	0,04	0,03	0,012	0,07	0,05	0,04	0,015
5.8	60	40°	0,04	0,03	0,03	0,01	0,05	0,04	0,03	0,012	0,07	0,05	0,04	0,015
5.9	140	40°	0,06	0,04	0,03	0,01	0,07	0,05	0,04	0,016	0,09	0,06	0,05	0,020
5.10	120	40°	0,06	0,04	0,03	0,01	0,07	0,05	0,04	0,016	0,09	0,06	0,05	0,020
5.11	100	40°	0,04	0,03	0,03	0,01	0,05	0,04	0,03	0,012	0,07	0,05	0,04	0,015
6.1														
6.2														
6.3														
6.4														
6.5														

i Depth of cut corresponds to the flute length

Index	Ø DC = 12 mm				Ø DC = 16 mm				Ø DC = 20 mm				● 1st choice		○ suitable	
	a_p 0,05xDC	a_p 0,1xDC	a_p 0,15xDC	h_m	a_p 0,05xDC	a_p 0,1xDC	a_p 0,15xDC	h_m	a_p 0,05xDC	a_p 0,1xDC	a_p 0,15xDC	h_m	Emulsion	Compressed air	MMS	
	f_z mm				f_z mm				f_z mm							
1.1	0,25	0,18	0,15	0,057	0,29	0,21	0,17	0,065	0,34	0,24	0,19	0,075	○	●	○	
1.2	0,25	0,18	0,15	0,057	0,29	0,21	0,17	0,065	0,34	0,24	0,19	0,075	○	●	○	
1.3	0,25	0,18	0,15	0,057	0,29	0,21	0,17	0,065	0,34	0,24	0,19	0,075	○	●	○	
1.4	0,25	0,18	0,15	0,057	0,29	0,21	0,17	0,065	0,34	0,24	0,19	0,075	○	●	○	
1.5	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○	
1.6	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○	
1.7	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○	
1.8	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○	
1.9	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○	
1.10	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○	
1.11	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○	
1.12	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○	
1.13	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○	
1.14																
1.15	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○	
1.16	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○	
2.1	0,16	0,11	0,09	0,036	0,19	0,13	0,11	0,042	0,27	0,19	0,15	0,06	●			
2.2	0,16	0,11	0,09	0,036	0,19	0,13	0,11	0,042	0,27	0,19	0,15	0,06	●			
2.3	0,16	0,11	0,09	0,036	0,19	0,13	0,11	0,042	0,27	0,19	0,15	0,06	●			
2.4	0,16	0,11	0,09	0,036	0,19	0,13	0,11	0,042	0,27	0,19	0,15	0,06	●			
2.5	0,16	0,11	0,09	0,036	0,19	0,13	0,11	0,042	0,27	0,19	0,15	0,06	●			
2.6	0,16	0,11	0,09	0,036	0,19	0,13	0,11	0,042	0,27	0,19	0,15	0,06	●			
2.7																
3.1	0,25	0,18	0,15	0,057	0,29	0,21	0,17	0,065	0,34	0,24	0,19	0,075	○	●	○	
3.2	0,25	0,18	0,15	0,057	0,29	0,21	0,17	0,065	0,34	0,24	0,19	0,075	○	●	○	
3.3	0,25	0,18	0,15	0,057	0,29	0,21	0,17	0,065	0,34	0,24	0,19	0,075	○	●	○	
3.4	0,25	0,18	0,15	0,057	0,29	0,21	0,17	0,065	0,34	0,24	0,19	0,075	○	●	○	
3.5	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○	
3.6	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○	
3.7	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○	
3.8	0,23	0,16	0,13	0,051	0,27	0,19	0,15	0,06	0,29	0,21	0,17	0,065	○	●	○	
4.1																
4.2																
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4.13																
4.14																
4.15																
4.16																
4.17																
4.18																
4.19																
5.1	0,08	0,06	0,05	0,019	0,12	0,08	0,07	0,026	0,16	0,12	0,09	0,036	●			
5.2	0,08	0,06	0,05	0,019	0,12	0,08	0,07	0,026	0,16	0,12	0,09	0,036	●			
5.3	0,08	0,06	0,05	0,019	0,12	0,08	0,07	0,026	0,16	0,12	0,09	0,036	●			
5.4	0,08	0,06	0,05	0,019	0,12	0,08	0,07	0,026	0,16	0,12	0,09	0,036	●			
5.5	0,08	0,06	0,05	0,019	0,12	0,08	0,07	0,026	0,16	0,12	0,09	0,036	●			
5.6	0,08	0,06	0,05	0,019	0,12	0,08	0,07	0,026	0,16	0,12	0,09	0,036	●			
5.7	0,08	0,06	0,05	0,019	0,12	0,08	0,07	0,026	0,16	0,12	0,09	0,036	●			
5.8	0,08	0,06	0,05	0,019	0,12	0,08	0,07	0,026	0,16	0,12	0,09	0,036	●			
5.9	0,11	0,08	0,07	0,025	0,16	0,11	0,09	0,035	0,22	0,15	0,13	0,049	●			
5.10	0,11	0,08	0,07	0,025	0,16	0,11	0,09	0,035	0,22	0,15	0,13	0,049	●			
5.11	0,08	0,06	0,05	0,019	0,12	0,08	0,07	0,026	0,16	0,12	0,09	0,036	●			
6.1																
6.2																
6.3																
6.4																
6.5																

Cutting data – CircularLine – End Mills – CCR-UNI, extra long

Index	extra long v_c in m/min	max. angle of engagement	Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				Ø DC = 12 mm				Ø DC = 16 mm			
			a_p		f_z mm	h_m	a_p		f_z mm	h_m	a_p		f_z mm	h_m	a_p		f_z mm	h_m	a_p		f_z mm	h_m
			0,05xDC	0,1xDC			0,05xDC	0,1xDC			0,05xDC	0,1xDC			0,05xDC	0,1xDC			0,05xDC	0,1xDC		
1.1	260	50°	0,07	0,05	0,015	0,08	0,06	0,018	0,10	0,07	0,022	0,12	0,09	0,027	0,14	0,10	0,032					
1.2	260	50°	0,07	0,05	0,015	0,08	0,06	0,018	0,10	0,07	0,022	0,12	0,09	0,027	0,14	0,10	0,032					
1.3	250	50°	0,07	0,05	0,015	0,08	0,06	0,018	0,10	0,07	0,022	0,12	0,09	0,027	0,14	0,10	0,032					
1.4	250	50°	0,07	0,05	0,015	0,08	0,06	0,018	0,10	0,07	0,022	0,12	0,09	0,027	0,14	0,10	0,032					
1.5	250	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030					
1.6	230	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030					
1.7	250	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030					
1.8	230	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030					
1.9	230	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030					
1.10	210	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030					
1.11	210	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030					
1.12	210	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030					
1.13	210	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030					
1.14																						
1.15	200	45°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030					
1.16	200	45°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030					
2.1	170	45°	0,04	0,03	0,009	0,05	0,03	0,011	0,06	0,04	0,014	0,08	0,06	0,018	0,09	0,07	0,021					
2.2	150	45°	0,04	0,03	0,009	0,05	0,03	0,011	0,06	0,04	0,014	0,08	0,06	0,018	0,09	0,07	0,021					
2.3	130	45°	0,04	0,03	0,009	0,05	0,03	0,011	0,06	0,04	0,014	0,08	0,06	0,018	0,09	0,07	0,021					
2.4	130	45°	0,04	0,03	0,009	0,05	0,03	0,011	0,06	0,04	0,014	0,08	0,06	0,018	0,09	0,07	0,021					
2.5	110	45°	0,04	0,03	0,009	0,05	0,03	0,011	0,06	0,04	0,014	0,08	0,06	0,018	0,09	0,07	0,021					
2.6	110	45°	0,04	0,03	0,009	0,05	0,03	0,011	0,06	0,04	0,014	0,08	0,06	0,018	0,09	0,07	0,021					
2.7																						
3.1	260	50°	0,07	0,05	0,015	0,08	0,06	0,018	0,10	0,07	0,022	0,12	0,09	0,027	0,14	0,10	0,032					
3.2	260	50°	0,07	0,05	0,015	0,08	0,06	0,018	0,10	0,07	0,022	0,12	0,09	0,027	0,14	0,10	0,032					
3.3	260	50°	0,07	0,05	0,015	0,08	0,06	0,018	0,10	0,07	0,022	0,12	0,09	0,027	0,14	0,10	0,032					
3.4	230	50°	0,07	0,05	0,015	0,08	0,06	0,018	0,10	0,07	0,022	0,12	0,09	0,027	0,14	0,10	0,032					
3.5	230	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030					
3.6	210	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030					
3.7	210	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,09	0,030					
3.8	180	50°	0,05	0,04	0,012	0,07	0,05	0,016	0,09	0,06	0,020	0,11	0,08	0,025	0,13	0,10	0,030					
4.1																						
4.2																						
4.3																						
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4.5																						
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4.11																						
4.12																						
4.13																						
4.14																						
4.15																						
4.16																						
4.17																						
4.18																						
4.19																						
5.1	100	40°	0,02	0,02	0,005	0,03	0,02	0,006	0,04	0,03	0,008	0,04	0,03	0,010	0,06	0,04	0,013					
5.2	70	40°	0,02	0,02	0,005	0,03	0,02	0,006	0,04	0,03	0,008	0,04	0,03	0,010	0,06	0,04	0,013					
5.3	70	40°	0,02	0,02	0,005	0,03	0,02	0,006	0,04	0,03	0,008	0,04	0,03	0,010	0,06	0,04	0,013					
5.4																						
5.5																						
5.6																						
5.7																						
5.8																						
5.9	120	40°	0,03	0,02	0,007	0,04	0,03	0,008	0,04	0,03	0,010	0,05	0,04	0,012	0,08	0,05	0,017					
5.10	100	40°	0,03	0,02	0,007	0,04	0,03	0,008	0,04	0,03	0,010	0,05	0,04	0,012	0,08	0,05	0,017					
5.11	90	40°	0,02	0,02	0,005	0,03	0,02	0,006	0,04	0,03	0,008	0,04	0,03	0,010	0,06	0,04	0,013					
6.1																						
6.2																						
6.3																						
6.4																						
6.5																						

i Depth of cut corresponds to the flute length

Index	Ø DC = 20 mm			● 1st choice		○ suitable	
	a_p 0,05 x DC	a_p 0,1 x DC	f_z mm	h_n	Emulsion	Compressed air	MMS
1.1	0,17	0,12	0,037	○	●	○	
1.2	0,17	0,12	0,037	○	●	○	
1.3	0,17	0,12	0,037	○	●	○	
1.4	0,17	0,12	0,037	○	●	○	
1.5	0,14	0,10	0,032	○	●	○	
1.6	0,14	0,10	0,032	○	●	○	
1.7	0,14	0,10	0,032	○	●	○	
1.8	0,14	0,10	0,032	○	●	○	
1.9	0,14	0,10	0,032	○	●	○	
1.10	0,14	0,10	0,032	○	●	○	
1.11	0,14	0,10	0,032	○	●	○	
1.12	0,14	0,10	0,032	○	●	○	
1.13	0,14	0,10	0,032	○	●	○	
1.14							
1.15	0,14	0,10	0,032	○	●	○	
1.16	0,14	0,10	0,032	○	●	○	
2.1	0,13	0,09	0,03	●			
2.2	0,13	0,09	0,03	●			
2.3	0,13	0,09	0,03	●			
2.4	0,13	0,09	0,03	●			
2.5	0,13	0,09	0,03	●			
2.6	0,13	0,09	0,03	●			
2.7							
3.1	0,17	0,12	0,037	○	●	○	
3.2	0,17	0,12	0,037	○	●	○	
3.3	0,17	0,12	0,037	○	●	○	
3.4	0,17	0,12	0,037	○	●	○	
3.5	0,14	0,10	0,032	○	●	○	
3.6	0,14	0,10	0,032	○	●	○	
3.7	0,14	0,10	0,032	○	●	○	
3.8	0,14	0,10	0,032	○	●	○	
4.1							
4.2							
4.3							
4.4							
4.5							
4.6							
4.7							
4.8							
4.9							
4.10							
4.11							
4.12							
4.13							
4.14							
4.15							
4.16							
4.17							
4.18							
4.19							
5.1	0,08	0,06	0,018	●			
5.2	0,08	0,06	0,018	●			
5.3	0,08	0,06	0,018	●			
5.4							
5.5							
5.6							
5.7							
5.8							
5.9	0,11	0,08	0,024	●			
5.10	0,11	0,08	0,024	●			
5.11	0,08	0,06	0,018	●			
6.1							
6.2							
6.3							
6.4							
6.5							

Cutting data – CircularLine – End Mills – CCR-AL, long – extra long

Index	long		max. angle of engagement	Ø DC = 6 mm				Ø DC = 8 mm				● 1st choice ○ suitable		
	v _c m/min	extra long		a _p 0,1 x DC	a _p 0,2 x DC	a _p 0,4 x DC	h _m	a _p 0,1 x DC	a _p 0,2 x DC	a _p 0,4 x DC	h _n	Emulsion	Compressed air	MMS
				f _z mm	f _z mm	f _z mm								
4.1	500	400	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●	○	
4.2	500	400	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●	○	
4.3	500	400	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●	○	
4.4	500	400	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●	○	
4.5	400	350	60°	0,35	0,25	0,17	0,110	0,44	0,31	0,22	0,140	●	○	
4.6	300	250	60°	0,35	0,25	0,17	0,110	0,38	0,27	0,19	0,120	●	○	
4.7	300	250	60°	0,35	0,25	0,17	0,110	0,38	0,27	0,19	0,120	●	○	
4.8	300	250	60°	0,35	0,25	0,17	0,110	0,38	0,27	0,19	0,120	●	○	
4.9	300	250	60°	0,35	0,25	0,17	0,110	0,38	0,27	0,19	0,120	●	○	
4.10	300	250	60°	0,35	0,25	0,17	0,110	0,38	0,27	0,19	0,120	●	○	
4.11	400	350	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●	○	
4.12	400	350	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●	○	

Index	long		max. angle of engagement	Ø DC = 10 mm				Ø DC = 12 mm				● 1st choice ○ suitable		
	v _c m/min	extra long		a _p 0,1 x DC	a _p 0,2 x DC	a _p 0,4 x DC	h _m	a _p 0,1 x DC	a _p 0,2 x DC	a _p 0,4 x DC	h _n	Emulsion	Compressed air	MMS
				f _z mm	f _z mm	f _z mm								
4.1	500	400	60°	0,47	0,34	0,24	0,150	0,51	0,36	0,25	0,160	●	○	
4.2	500	400	60°	0,47	0,34	0,24	0,150	0,51	0,36	0,25	0,160	●	○	
4.3	500	400	60°	0,47	0,34	0,24	0,150	0,51	0,36	0,25	0,160	●	○	
4.4	500	400	60°	0,47	0,34	0,24	0,150	0,51	0,36	0,25	0,160	●	○	
4.5	400	350	60°	0,47	0,34	0,24	0,150	0,51	0,36	0,25	0,160	●	○	
4.6	300	250	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●	○	
4.7	300	250	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●	○	
4.8	300	250	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●	○	
4.9	300	250	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●	○	
4.10	300	250	60°	0,41	0,29	0,21	0,130	0,44	0,31	0,22	0,140	●	○	
4.11	400	350	60°	0,47	0,34	0,24	0,150	0,51	0,36	0,25	0,160	●	○	
4.12	400	350	60°	0,47	0,34	0,24	0,150	0,51	0,36	0,25	0,160	●	○	

Index	long		max. angle of engagement	Ø DC = 16 mm				Ø DC = 20 mm				● 1st choice ○ suitable		
	v _c m/min	extra long		a _p 0,1 x DC	a _p 0,2 x DC	a _p 0,4 x DC	h _m	a _p 0,1 x DC	a _p 0,2 x DC	a _p 0,4 x DC	h _n	Emulsion	Compressed air	MMS
				f _z mm	f _z mm	f _z mm								
4.1	500	400	60°	0,63	0,45	0,32	0,2	0,76	0,54	0,38	0,24	●	○	
4.2	500	400	60°	0,63	0,45	0,32	0,2	0,76	0,54	0,38	0,24	●	○	
4.3	500	400	60°	0,63	0,45	0,32	0,2	0,76	0,54	0,38	0,24	●	○	
4.4	500	400	60°	0,63	0,45	0,32	0,2	0,76	0,54	0,38	0,24	●	○	
4.5	400	350	60°	0,63	0,45	0,32	0,2	0,76	0,54	0,38	0,24	●	○	
4.6	300	250	60°	0,57	0,40	0,29	0,18	0,63	0,45	0,32	0,2	●	○	
4.7	300	250	60°	0,57	0,40	0,29	0,18	0,63	0,45	0,32	0,2	●	○	
4.8	300	250	60°	0,57	0,40	0,29	0,18	0,63	0,45	0,32	0,2	●	○	
4.9	300	250	60°	0,57	0,40	0,29	0,18	0,63	0,45	0,32	0,2	●	○	
4.10	300	250	60°	0,57	0,40	0,29	0,18	0,63	0,45	0,32	0,2	●	○	
4.11	400	350	60°	0,63	0,45	0,32	0,2	0,76	0,54	0,38	0,24	●	○	
4.12	400	350	60°	0,63	0,45	0,32	0,2	0,76	0,54	0,38	0,24	●	○	

i Depth of cut corresponds to the flute length

i Plunging angle for ramping and helical milling: 4°

Cutting data standard values – CircularLine – End mills – CCR-H, 53 596 ...

Index	long v_c m/min	max. angle of engagement 30°	Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				1st choice		suitable	
			a_p 0,02 x DC	a_p 0,05 x DC	a_p 0,10 x DC	h_m	a_p 0,02 x DC	a_p 0,05 x DC	a_p 0,10 x DC	h_m	a_p 0,02 x DC	a_p 0,05 x DC	a_p 0,10 x DC	h_m	Emulsion	Compressed air	MMS	
			f_z mm				f_z mm				f_z mm							
6.1	150	30°	0,13	0,08	0,06	0,018	0,14	0,09	0,06	0,020	0,18	0,11	0,08	0,025		●	○	
6.2	130	30°	0,09	0,06	0,04	0,013	0,11	0,07	0,05	0,016	0,14	0,09	0,06	0,020		●	○	
6.3	120	30°	0,04	0,03	0,02	0,006	0,06	0,04	0,03	0,008	0,07	0,04	0,03	0,010		●	○	
6.4	115	30°	0,03	0,02		0,004	0,04	0,03		0,006	0,05	0,03		0,007		●	○	
6.5	110	30°	0,02			0,003	0,03			0,004	0,04			0,005		●	○	

Index	long v_c m/min	max. angle of engagement 30°	Ø DC = 12 mm				Ø DC = 16 mm				Ø DC = 20 mm				1st choice		suitable	
			a_p 0,02 x DC	a_p 0,05 x DC	a_p 0,10 x DC	h_m	a_p 0,02 x DC	a_p 0,05 x DC	a_p 0,10 x DC	h_m	a_p 0,02 x DC	a_p 0,05 x DC	a_p 0,10 x DC	h_m	Emulsion	Compressed air	MMS	
			f_z mm				f_z mm				f_z mm							
6.1	150	30°	0,21	0,13	0,09	0,030	0,28	0,18	0,13	0,040	0,35	0,22	0,16	0,050		●	○	
6.2	130	30°	0,18	0,11	0,08	0,025	0,25	0,16		0,035	0,34	0,22		0,049		●	○	
6.3	120	30°	0,08	0,05	0,04	0,012	0,13	0,08		0,018	0,17	0,11		0,024		●	○	
6.4	115	30°	0,06	0,04		0,009	0,09			0,013	0,13			0,018		●	○	
6.5	110	30°	0,04			0,006	0,06			0,009	0,08			0,012		●	○	

i Depth of cut corresponds to the flute length

Cutting data standard values – CircularLine – CCR-Ti, long

Index	V _c m/min	long max. angle of engagement	Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm			
			a _e 0,05 x DC	a _e 0,10 x DC	a _e 0,15 x DC	h _m	a _e 0,05 x DC	a _e 0,10 x DC	a _e 0,15 x DC	h _m	a _e 0,05 x DC	a _e 0,10 x DC	a _e 0,15 x DC	h _m
			f _z mm	f _z mm	f _z mm		f _z mm	f _z mm	f _z mm		f _z mm	f _z mm	f _z mm	
2.1	200	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028
2.2	180	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028
2.3	160	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028
2.4	160	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028
2.5	140	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028
2.6	140	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028
2.7														
5.1	120	40°	0,045	0,032	0,026	0,010	0,052	0,037	0,030	0,012	0,067	0,047	0,039	0,015
5.2	80	40°	0,045	0,032	0,026	0,010	0,052	0,037	0,030	0,012	0,067	0,047	0,039	0,015
5.3	80	40°	0,045	0,032	0,026	0,010	0,052	0,037	0,030	0,012	0,067	0,047	0,039	0,015
5.4	60	40°	0,045	0,032	0,026	0,010	0,052	0,037	0,030	0,012	0,067	0,047	0,039	0,015
5.5	60	40°	0,045	0,032	0,026	0,010	0,052	0,037	0,030	0,012	0,067	0,047	0,039	0,015
5.6	60	40°	0,045	0,032	0,026	0,010	0,052	0,037	0,030	0,012	0,067	0,047	0,039	0,015
5.7	60	40°	0,045	0,032	0,026	0,010	0,052	0,037	0,030	0,012	0,067	0,047	0,039	0,015
5.8	60	40°	0,045	0,032	0,026	0,010	0,052	0,037	0,030	0,012	0,067	0,047	0,039	0,015
5.9	140	40°	0,060	0,042	0,034	0,013	0,070	0,049	0,040	0,016	0,089	0,063	0,052	0,020
5.10	120	40°	0,060	0,042	0,034	0,013	0,070	0,049	0,040	0,016	0,089	0,063	0,052	0,020
5.11	100	40°	0,045	0,032	0,026	0,010	0,052	0,037	0,030	0,012	0,067	0,047	0,039	0,015

Cutting data standard values – CircularLine – CCR-Ti, extra long

Index	V _c m/min	extra long max. angle of engagement	Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm		
			a _e 0,05 x DC	a _e 0,10 x DC	h _m	a _e 0,05 x DC	a _e 0,10 x DC	h _m	a _e 0,05 x DC	a _e 0,10 x DC	h _m	a _e 0,05 x DC	a _e 0,10 x DC	h _m
			f _z mm	f _z mm		f _z mm	f _z mm		f _z mm	f _z mm		f _z mm	f _z mm	
2.1	170	45°	0,080	0,057	0,018	0,098	0,070	0,022	0,125	0,089	0,028	0,125	0,089	0,028
2.2	150	45°	0,080	0,057	0,018	0,098	0,070	0,022	0,125	0,089	0,028	0,125	0,089	0,028
2.3	130	45°	0,080	0,057	0,018	0,098	0,070	0,022	0,125	0,089	0,028	0,125	0,089	0,028
2.4	130	45°	0,080	0,057	0,018	0,098	0,070	0,022	0,125	0,089	0,028	0,125	0,089	0,028
2.5	110	45°	0,080	0,057	0,018	0,098	0,070	0,022	0,125	0,089	0,028	0,125	0,089	0,028
2.6	110	45°	0,080	0,057	0,018	0,098	0,070	0,022	0,125	0,089	0,028	0,125	0,089	0,028
2.7														
5.1	100	40°	0,022	0,016	0,005	0,027	0,019	0,006	0,036	0,025	0,008	0,045	0,032	0,010
5.2	70	40°	0,022	0,016	0,005	0,027	0,019	0,006	0,036	0,025	0,008	0,045	0,032	0,010
5.3	70	40°	0,022	0,016	0,005	0,027	0,019	0,006	0,036	0,025	0,008	0,045	0,032	0,010
5.4														
5.5														
5.6														
5.7														
5.8														
5.9	120	40°	0,031	0,022	0,007	0,036	0,025	0,008	0,045	0,032	0,010	0,054	0,038	0,012
5.10	100	40°	0,031	0,022	0,007	0,036	0,025	0,008	0,045	0,032	0,010	0,054	0,038	0,012
5.11	90	40°	0,022	0,016	0,005	0,027	0,019	0,006	0,036	0,025	0,008	0,045	0,032	0,010

i Depth of cut corresponds to the flute length

Index	Ø DC = 12 mm				Ø DC = 16 mm				Ø DC = 20 mm				● 1st choice		○ suitable	
	a_p 0,05 x DC	a_p 0,10 x DC	a_p 0,15 x DC	h_m	a_p 0,05 x DC	a_p 0,10 x DC	a_p 0,15 x DC	h_m	a_p 0,05 x DC	a_p 0,10 x DC	a_p 0,15 x DC	h_m	Emulsion	Compressed air	MMS	
	f_z mm	f_z mm	f_z mm		f_z mm	f_z mm	f_z mm		f_z mm	f_z mm	f_z mm					
2.1	0,161	0,114	0,093	0,036	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,06	●			
2.2	0,161	0,114	0,093	0,036	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,06	●			
2.3	0,161	0,114	0,093	0,036	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,06	●			
2.4	0,161	0,114	0,093	0,036	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,06	●			
2.5	0,161	0,114	0,093	0,036	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,06	●			
2.6	0,161	0,114	0,093	0,036	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,06	●			
2.7																
5.1	0,085	0,060	0,049	0,019	0,117	0,083	0,068	0,026	0,163	0,115	0,094	0,036	●			
5.2	0,085	0,060	0,049	0,019	0,117	0,083	0,068	0,026	0,163	0,115	0,094	0,036	●			
5.3	0,085	0,060	0,049	0,019	0,117	0,083	0,068	0,026	0,163	0,115	0,094	0,036	●			
5.4	0,085	0,060	0,049	0,019	0,117	0,083	0,068	0,026	0,163	0,115	0,094	0,036	●			
5.5	0,085	0,060	0,049	0,019	0,117	0,083	0,068	0,026	0,163	0,115	0,094	0,036	●			
5.6	0,085	0,060	0,049	0,019	0,117	0,083	0,068	0,026	0,163	0,115	0,094	0,036	●			
5.7	0,085	0,060	0,049	0,019	0,117	0,083	0,068	0,026	0,163	0,115	0,094	0,036	●			
5.8	0,085	0,060	0,049	0,019	0,117	0,083	0,068	0,026	0,163	0,115	0,094	0,036	●			
5.9	0,113	0,080	0,065	0,025	0,157	0,111	0,090	0,035	0,217	0,153	0,125	0,049	●			
5.10	0,113	0,080	0,065	0,025	0,157	0,111	0,090	0,035	0,217	0,153	0,125	0,049	●			
5.11	0,085	0,060	0,049	0,019	0,117	0,083	0,068	0,026	0,163	0,115	0,094	0,036	●			

Index	Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		○ suitable	
	a_p 0,05 x DC	a_p 0,10 x DC	h_m	a_p 0,05 x DC	a_p 0,10 x DC	h_m	Emulsion	Compressed air	MMS	
	f_z mm	f_z mm		f_z mm	f_z mm					
2.1	0,161	0,114	0,036	0,188	0,133	0,042	●			
2.2	0,161	0,114	0,036	0,188	0,133	0,042	●			
2.3	0,161	0,114	0,036	0,188	0,133	0,042	●			
2.4	0,161	0,114	0,036	0,188	0,133	0,042	●			
2.5	0,161	0,114	0,036	0,188	0,133	0,042	●			
2.6	0,161	0,114	0,036	0,188	0,133	0,042	●			
2.7										
5.1	0,058	0,041	0,013	0,080	0,057	0,018	●			
5.2	0,058	0,041	0,013	0,080	0,057	0,018	●			
5.3	0,058	0,041	0,013	0,080	0,057	0,018	●			
5.4										
5.5										
5.6										
5.7										
5.8										
5.9	0,076	0,054	0,017	0,107	0,076	0,024	●			
5.10	0,076	0,054	0,017	0,107	0,076	0,024	●			
5.11	0,058	0,041	0,013	0,080	0,057	0,018	●			

Cutting data standard values – AluLine – End mills – ZEFP = 2

Index	Type short / medium length		$a_{p,max}$ x DC	Ø DC = 2 mm			Ø DC = 2,5 mm			Ø DC = 3,0–3,5 mm			Ø DC = 4,0–4,5 mm			Ø DC = 5,0–5,5 mm			Ø DC = 6,0–7,5 mm		
	v_c m/min	v_c m/min		a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC
	f_z mm	f_z mm		f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
4.1	700	300	1,0	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,072	0,055	0,040	0,090	0,067	0,045	0,100	0,075	0,050
4.2	700	300	1,0	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,072	0,055	0,040	0,090	0,067	0,045	0,100	0,075	0,050
4.3	420	200	1,0	0,027	0,021	0,015	0,034	0,026	0,019	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040
4.4	420	180	1,0	0,027	0,021	0,015	0,034	0,026	0,019	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040
4.5	280	140	1,0	0,027	0,021	0,015	0,034	0,026	0,019	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040
4.6	200	110	1,0	0,018	0,014	0,010	0,022	0,017	0,013	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030
4.7	180	100	1,0	0,018	0,014	0,010	0,022	0,017	0,013	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030
4.8	175	75	1,0	0,018	0,014	0,010	0,022	0,017	0,013	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030
4.9	175	75	1,0	0,018	0,014	0,010	0,022	0,017	0,013	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030
4.10	175	75	1,0	0,018	0,014	0,010	0,022	0,017	0,013	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030
4.11	280	125	1,0	0,018	0,014	0,010	0,022	0,017	0,013	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030
4.12	210	100	1,0	0,018	0,014	0,010	0,022	0,017	0,013	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030
4.13																					
4.14																					
4.15																					
4.16	220	130	1,0	0,027	0,021	0,015	0,034	0,026	0,019	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040
4.17																					
4.18																					
4.19																					

Cutting data standard values – AluLine – End mills – ZEFP = 3–4

Index	Type short / medium length		$a_{p,max}$ x DC	Ø DC = 3,0–3,5 mm			Ø DC = 4,0–4,5 mm			Ø DC = 5,0–5,5 mm			Ø DC = 6,0–7,5 mm			Ø DC = 8,0–8,5 mm			Ø DC = 10 mm		
	v_c m/min	v_c m/min		a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC
	f_z mm	f_z mm		f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
4.1	700	300	1,0	0,048	0,037	0,027	0,063	0,048	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,130	0,097	0,065
4.2	700	300	1,0	0,048	0,037	0,027	0,063	0,048	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,130	0,097	0,065
4.3	420	200	1,0	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.4	420	180	1,0	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.5	280	140	1,0	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.6	200	110	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.7	180	100	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.8	175	75	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.9	175	75	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.10	175	75	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.11	280	125	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.12	210	100	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.13																					
4.14																					
4.15																					
4.16	220	130	1,0	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.17																					
4.18																					
4.19																					

Index	Ø DC = 8,0-9,5 mm			Ø DC = 10,0-11,5 mm			Ø DC = 12,0-13,5 mm			Ø DC = 14,0-15,5 mm			Ø DC = 16,0-17,5 mm			Ø DC = 18,0-19,5 mm			Ø DC = 20 mm			1st choice		suitable	
	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	Emulsion	Compressed air	MMS	
	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm					
4.1	0,120	0,089	0,060	0,140	0,104	0,070	0,160	0,119	0,080	0,201	0,156	0,110	0,254	0,194	0,150	0,269	0,219	0,170	0,316	0,258	0,200	●	○*	○	
4.2	0,120	0,089	0,060	0,140	0,104	0,070	0,160	0,119	0,080	0,201	0,156	0,110	0,254	0,194	0,150	0,269	0,219	0,170	0,316	0,258	0,200	●	○*	○	
4.3	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	●	○*	○	
4.4	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	●	○*	○	
4.5	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	●	○*	○	
4.6	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	●	○*	○	
4.7	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	●	○*	○	
4.8	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	●	○*	○	
4.9	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	●	○*	○	
4.10	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	●	○*	○	
4.11	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	●	○*	○	
4.12	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	●	○*	○	
4.13																									
4.14																									
4.15																									
4.16	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	●	○*	○	
4.17																									
4.18																									
4.19																									

* = only suitable for DLC coated cutters

Index	Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			Ø DC = 25 mm			1st choice		suitable		
	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	Emulsion	Compressed air	MMS		
	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm						
4.1	0,140	0,104	0,070	0,146	0,113	0,080	0,152	0,116	0,090	0,166	0,136	0,105	0,190	0,155	0,120	0,213	0,174	0,135	●	○*	○		
4.2	0,140	0,104	0,070	0,146	0,113	0,080	0,152	0,116	0,090	0,166	0,136	0,105	0,190	0,155	0,120	0,213	0,174	0,135	●	○*	○		
4.3	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	0,316	0,258	0,200	●	○*	○		
4.4	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	0,316	0,258	0,200	●	○*	○		
4.5	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	0,316	0,258	0,200	●	○*	○		
4.6	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	0,221	0,181	0,140	●	○*	○		
4.7	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	0,221	0,181	0,140	●	○*	○		
4.8	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	0,221	0,181	0,140	●	○*	○		
4.9	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	0,221	0,181	0,140	●	○*	○		
4.10	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	0,221	0,181	0,140	●	○*	○		
4.11	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	0,221	0,181	0,140	●	○*	○		
4.12	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	0,221	0,181	0,140	●	○*	○		
4.13																							
4.14																							
4.15																							
4.16	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	0,316	0,258	0,200	●	○*	○		
4.17																							
4.18																							
4.19																							

* = only suitable for DLC coated cutters

Cutting data – AluLine – Ball Nosed End Mills

Index	Type short / medium length		a _{p,max} x DC	Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm		
	v _c m/min	v _c m/min		a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC
				f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm
4.1	750	450	0,03	0,054	0,042	0,030	0,072	0,055	0,040	0,090	0,067	0,045	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070
4.2	750	450	0,03	0,054	0,042	0,030	0,072	0,055	0,040	0,090	0,067	0,045	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070
4.3	600	360	0,03	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.4	400	240	0,03	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.5	400	240	0,03	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.6	230	170	0,03	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.7	190	145	0,03	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.8	80	55	0,03	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.9	80	55	0,03	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.10	80	55	0,03	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.11	145	85	0,03	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.12	135	105	0,03	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
4.13	240	145	0,03				0,135	0,104	0,075	0,200	0,149	0,100	0,240	0,179	0,120	0,300	0,224	0,150	0,400	0,298	0,200
4.14	65	40	0,03				0,135	0,104	0,075	0,200	0,149	0,100	0,240	0,179	0,120	0,300	0,224	0,150	0,400	0,298	0,200
4.15																					
4.16	350	210	0,03	0,041	0,032	0,023	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.17																					
4.18																					
4.19																					

i Feed rate guide values for ball nosed and torus cutters on → Page 356

Cutting data – AluLine – High Accuracy Finishing Cutters

Index	Type short / medium length		a _{p,max} x DC	Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm		
	v _c m/min	v _c m/min		a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC
				f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm
4.1	500	360	2,0	0,030	0,018		0,040	0,024		0,045	0,027		0,050	0,030		0,060	0,036	
4.2	500	360	2,0	0,030	0,018		0,040	0,024		0,045	0,027		0,050	0,030		0,060	0,036	
4.3	300	220	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.4	210	150	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.5	210	150	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.6	150	110	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.7	140	100	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.8	60	40	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.9	60	40	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.10	60	40	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.11	140	100	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.12	150	110	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.13																		
4.14																		
4.15																		
4.16	200	140	2,0	0,018	0,011		0,020	0,012		0,025	0,015		0,030	0,018		0,050	0,030	
4.17																		
4.18																		
4.19																		

Index	Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm			f_z mm			f_z mm			f_z mm					
4.1	0,160	0,119	0,080	0,201	0,156	0,110	0,254	0,194	0,150	0,316	0,258	0,200	●		○
4.2	0,160	0,119	0,080	0,201	0,156	0,110	0,254	0,194	0,150	0,316	0,258	0,200	●		○
4.3	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,269	0,219	0,170	●		○
4.4	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,269	0,219	0,170	●		○
4.5	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,269	0,219	0,170	●		○
4.6	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,190	0,155	0,120	●		○
4.7	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,190	0,155	0,120	●		○
4.8	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,190	0,155	0,120	●		○
4.9	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,190	0,155	0,120	●		○
4.10	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,190	0,155	0,120	●		○
4.11	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,190	0,155	0,120	●		○
4.12	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,190	0,155	0,120	●		○
4.13	0,500	0,373	0,250	0,548	0,424	0,300	0,592	0,452	0,350	0,712	0,581	0,450	●		○
4.14	0,500	0,373	0,250	0,548	0,424	0,300	0,592	0,452	0,350	0,712	0,581	0,450	●		○
4.15															
4.16	0,140	0,104	0,070	0,164	0,127	0,090	0,203	0,155	0,120	0,269	0,219	0,170	●		○
4.17															
4.18															
4.19															

Index	Ø DC = 20 mm			● 1st choice		○ suitable
	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm					
4.1	0,070	0,042		●		○
4.2	0,070	0,042		●		○
4.3	0,060	0,036		●		○
4.4	0,060	0,036		●		○
4.5	0,060	0,036		●		○
4.6	0,060	0,036		●		○
4.7	0,060	0,036		●		○
4.8	0,060	0,036		●		○
4.9	0,060	0,036		●		○
4.10	0,060	0,036		●		○
4.11	0,060	0,036		●		○
4.12	0,060	0,036		●		○
4.13						
4.14						
4.15						
4.16	0,060	0,036		●		○
4.17						
4.18						
4.19						

Cutting data – SilverLine – End Mills – 50 951 ... / 50 952 ... / 50 953 ...

Index	Type short		Type long / extra long	Type short / long	Type extra long	Ø DC = 3,0–3,5 mm			Ø DC = 4,0–4,5 mm			Ø DC = 5,0–5,5 mm			Ø DC = 6,0–7,5 mm			Ø DC = 8,0–9,5 mm		
	V _c m/min	a _{p,max} x DC	a _{p,max} x DC	a _{p,max} x DC	f _z mm	a _s 0,1–0,2 x DC	a _s 0,3–0,4 x DC	a _s 0,6–1,0 x DC	a _s 0,1–0,2 x DC	a _s 0,3–0,4 x DC	a _s 0,6–1,0 x DC	a _s 0,1–0,2 x DC	a _s 0,3–0,4 x DC	a _s 0,6–1,0 x DC	a _s 0,1–0,2 x DC	a _s 0,3–0,4 x DC	a _s 0,6–1,0 x DC	a _s 0,1–0,2 x DC	a _s 0,3–0,4 x DC	a _s 0,6–1,0 x DC
						f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm								
1.1	230	184	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.2	240	192	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.3	210	168	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.4	200	160	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.5	200	160	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.6	190	152	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.7	190	152	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.8	180	144	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.9	160	128	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.10	190	152	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.11	170	136	1.0*	0,5	0,019	0,015	0,011	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03	
1.12	180	144	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.13																				
1.14																				
1.15																				
1.16																				
2.1	130	104	1.0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	
2.2	120	96	1.0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	
2.3	100	80	1.0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	
2.4	120	96	1.0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	
2.5	120	96	1.0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	
2.6	120	96	1.0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	
2.7	30	24	1.0*	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	
3.1	200	160	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
3.2	180	144	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
3.3	190	152	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
3.4	170	136	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
3.5	180	144	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
3.6	160	128	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
3.7	180	144	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
3.8	160	128	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
4.1																				
4.2																				
4.3																				
4.4																				
4.5																				
4.6	280	224	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
4.7	300	240	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
4.8	160	128	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
4.9	140	112	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
4.10	120	96	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
4.11	350	280	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
4.12	300	240	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
4.13																				
4.14																				
4.15																				
4.16																				
4.17																				
4.18																				
4.19																				
5.1																				
5.2																				
5.3	30	24	0,5	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	
5.4	30	24	0,5	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	
5.5	30	24	0,5	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	
5.6	30	24	0,5	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	
5.7	30	24	0,5	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	
5.8	30	24	0,5	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	
5.9	160	128	0,5	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
5.10	140	112	0,5	0,5	0,019	0,015	0,011	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03	
5.11	100	80	0,5	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	
6.1																				
6.2																				
6.3																				
6.4																				
6.5																				

* = long version: a_{p,max} 1.5 x DC at f_z x 0.75 / ball-nosed end mill: a_{p,max} 0.5 x DC

i „Extra long“ version: when profiling with an a_s of 0.1–0.4 x DC an a_p of 1.0 x DC should be used.

Index	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm				
1.1	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.2	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.3	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.4	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.5	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.6	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.7	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.8	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.9	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.10	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.11	0,08	0,06	0,04	0,10	0,08	0,05	0,10	0,08	0,06	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●	○	○
1.12	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.13																					
1.14																					
1.15																					
1.16																					
2.1	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
2.2	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
2.3	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
2.4	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
2.5	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
2.6	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
2.7	0,05	0,04	0,03	0,06	0,05	0,03	0,06	0,05	0,04	0,07	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,05	●		
3.1	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●	●	●
3.2	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●	●	●
3.3	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.4	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.5	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.6	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.7	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.8	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
4.1																					
4.2																					
4.3																					
4.4																					
4.5																					
4.6	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●		
4.7	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●		
4.8	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●		
4.9	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●		
4.10	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●		
4.11	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●		
4.12	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●		
4.13																					
4.14																					
4.15																					
4.16																					
4.17																					
4.18																					
4.19																					
5.1																					
5.2																					
5.3	0,05	0,04	0,03	0,06	0,05	0,03	0,06	0,05	0,04	0,07	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,05	●		
5.4	0,05	0,04	0,03	0,06	0,05	0,03	0,06	0,05	0,04	0,07	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,05	●		
5.5	0,05	0,04	0,03	0,06	0,05	0,03	0,06	0,05	0,04	0,07	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,05	●		
5.6	0,05	0,04	0,03	0,06	0,05	0,03	0,06	0,05	0,04	0,07	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,05	●		
5.7	0,05	0,04	0,03	0,06	0,05	0,03	0,06	0,05	0,04	0,07	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,05	●		
5.8	0,05	0,04	0,03	0,06	0,05	0,03	0,06	0,05	0,04	0,07	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,05	●		
5.9	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
5.10	0,08	0,06	0,04	0,10	0,08	0,05	0,10	0,08	0,06	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
5.11	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●		
6.1																					
6.2																					
6.3																					
6.4																					
6.5																					

i Plunging angle for ramping and helical milling: 3°

Cutting data – SilverLine – End Mills – 50 955 ... / 50 964 ... / 50 965 ... / 50 968 ...

Index	Type short		Type long / extra long	Type short / long	Type extra long	Ø DC = 3,0–3,5 mm			Ø DC = 4,0–4,5 mm			Ø DC = 5,0–5,5 mm			Ø DC = 6,0–7,0 mm			Ø DC = 8,0–9,0 mm		
	V _c m/min	a _{p,max} x DC	a _{p,max} x DC	a _{p,max} x DC	f _z mm	a _s 0,1–0,2 x DC	a _s 0,3–0,4 x DC	a _s 0,6–1,0 x DC	a _s 0,1–0,2 x DC	a _s 0,3–0,4 x DC	a _s 0,6–1,0 x DC	a _s 0,1–0,2 x DC	a _s 0,3–0,4 x DC	a _s 0,6–1,0 x DC	a _s 0,1–0,2 x DC	a _s 0,3–0,4 x DC	a _s 0,6–1,0 x DC	a _s 0,1–0,2 x DC	a _s 0,3–0,4 x DC	a _s 0,6–1,0 x DC
						f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm
1.1	240	192	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
1.2	250	200	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
1.3	210	168	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.4	190	152	1.0*	0,5	0,019	0,015	0,011	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03	
1.5	200	160	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.6	190	152	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.7	190	152	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.8	170	136	1.0*	0,5	0,019	0,015	0,011	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03	
1.9	160	128	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.10	190	152	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.11	170	136	1.0*	0,5	0,019	0,015	0,011	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03	
1.12	190	152	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.13																				
1.14																				
1.15	180	144	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
1.16	150	120	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
2.1	130	100	1.0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	
2.2	120	90	1.0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	
2.3	100	80	1.0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	
2.4	100	80	1.0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	
2.5	120	90	1.0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	
2.6	120	90	1.0*	0,5	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	
2.7	30	24	1.0*	0,5	0,011	0,010	0,007	0,016	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,00	0,03	0,02	
3.1	200	160	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
3.2	160	128	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
3.3	190	152	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
3.4	150	120	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
3.5	180	144	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
3.6	160	128	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
3.7	180	144	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
3.8	160	128	1.0*	0,5	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
4.1																				
4.2																				
4.3																				
4.4																				
4.5																				
4.6	280	224	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
4.7	300	240	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
4.8	160	128	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
4.9	140	112	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
4.10	120	96	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
4.11	350	280	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
4.12	300	240	1.0*	0,5	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05	
4.13																				
4.14																				
4.15																				
4.16																				
4.17																				
4.18																				
4.19																				
5.1																				
5.2																				
5.3	30	24	0,5	0,25	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	
5.4	30	24	0,5	0,25	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	
5.5	30	24	0,5	0,25	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	
5.6	30	24	0,5	0,25	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	
5.7	30	24	0,5	0,25	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	
5.8	30	24	0,5	0,25	0,013	0,010	0,007	0,018	0,014	0,010	0,026	0,019	0,013	0,034	0,025	0,017	0,04	0,03	0,02	
5.9	110	80	0,5	0,25	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04	
5.10	90	70	0,5	0,25	0,019	0,015	0,011	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03	
5.11	70	60	0,5	0,25	0,015	0,012	0,008	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,04	0,03	
6.1																				
6.2																				
6.3																				
6.4																				
6.5																				

* = long version: a_{p,max} = 1.5 x DC at f_z x 0.75

i „Extra long“ version: when profiling with an a_s of 0.1–0.4 x DC an a_p of 1.0 x DC should be used.

Index	Ø DC = 10,0-11,0 mm			Ø DC = 12,0 mm			Ø DC = 14,0-15,0 mm			Ø DC = 16,0-17,0 mm			Ø DC = 18,0-19,0 mm			Ø DC = 20 mm			● 1st choice		○ suitable	
	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	Emulsion	Compressed air	MMS	
	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm					
1.1	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●	○	○	
1.2	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●	○	○	
1.3	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○	
1.4	0,08	0,06	0,04	0,10	0,08	0,05	0,10	0,08	0,06	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●	○	○	
1.5	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○	
1.6	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○	
1.7	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○	
1.8	0,08	0,06	0,04	0,10	0,08	0,05	0,10	0,08	0,06	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●	○	○	
1.9	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○	
1.10	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○	
1.11	0,08	0,06	0,04	0,10	0,08	0,05	0,10	0,08	0,06	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●	○	○	
1.12	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○	
1.13																						
1.14																						
1.15	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○	
1.16	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○	
2.1	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●			
2.2	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●			
2.3	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●			
2.4	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●			
2.5	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●			
2.6	0,06	0,05	0,03	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	●			
2.7	0,01	0,04	0,03	0,06	0,05	0,03	0,06	0,05	0,04	0,07	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,05	●			
3.1	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●	●	●	
3.2	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●	
3.3	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●	
3.4	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●	
3.5	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●	
3.6	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●	
3.7	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●	
3.8	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●	
4.1																						
4.2																						
4.3																						
4.4																						
4.5																						
4.6	0,12	0,09	0,06	0,17	0,13	0,09	0,18	0,14	0,10	0,19	0,14	0,11	0,19	0,16	0,12	0,22	0,18	0,14	●			
4.7	0,12	0,09	0,06	0,17	0,13	0,09	0,18	0,14	0,10	0,19	0,14	0,11	0,19	0,16	0,12	0,22	0,18	0,14	●			
4.8	0,12	0,09	0,06	0,17	0,13	0,09	0,18	0,14	0,10	0,19	0,14	0,11	0,19	0,16	0,12	0,22	0,18	0,14	●			
4.9	0,12	0,09	0,06	0,17	0,13	0,09	0,18	0,14	0,10	0,19	0,14	0,11	0,19	0,16	0,12	0,22	0,18	0,14	●			
4.10	0,12	0,09	0,06	0,17	0,13	0,09	0,18	0,14	0,10	0,19	0,14	0,11	0,19	0,16	0,12	0,22	0,18	0,14	●			
4.11	0,12	0,09	0,06	0,17	0,13	0,09	0,18	0,14	0,10	0,19	0,14	0,11	0,18	0,14	0,11	0,19	0,15	0,12	●			
4.12	0,12	0,09	0,06	0,17	0,13	0,09	0,18	0,14	0,10	0,19	0,14	0,11	0,18	0,14	0,11	0,19	0,15	0,12	●			
4.13																						
4.14																						
4.15																						
4.16																						
4.17																						
4.18																						
4.19																						
5.1																						
5.2																						
5.3	0,05	0,04	0,03	0,07	0,05	0,04	0,07	0,06	0,04	0,08	0,06	0,05	0,08	0,07	0,05	0,09	0,07	0,05	●			
5.4	0,05	0,04	0,03	0,07	0,05	0,04	0,07	0,06	0,04	0,08	0,06	0,05	0,08	0,07	0,05	0,09	0,07	0,05	●			
5.5	0,05	0,04	0,03	0,07	0,05	0,04	0,07	0,06	0,04	0,08	0,06	0,05	0,08	0,07	0,05	0,09	0,07	0,05	●			
5.6	0,05	0,04	0,03	0,07	0,05	0,04	0,07	0,06	0,04	0,08	0,06	0,05	0,08	0,07	0,05	0,09	0,07	0,05	●			
5.7	0,05	0,04	0,03	0,07	0,05	0,04	0,07	0,06	0,04	0,08	0,06	0,05	0,08	0,07	0,05	0,09	0,07	0,05	●			
5.8	0,05	0,04	0,03	0,07	0,05	0,04	0,07	0,06	0,04	0,08	0,06	0,05	0,08	0,07	0,05	0,09	0,07	0,05	●			
5.9	0,10	0,08	0,05	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,09	0,16	0,13	0,10	0,17	0,14	0,11	●			
5.10	0,08	0,06	0,04	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●			
5.11	0,06	0,05	0,03	0,09	0,07	0,05	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,12	0,10	0,08	●			
6.1																						
6.2																						
6.3																						
6.4																						
6.5																						

i Plunging angle for ramping and helical milling: 3°

Cutting data – SilverLine – End Mills – 50 954 ...

Index	Type short	Type long	V _c m/min	a _{p,max} x DC	Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
					a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC	a _p 0,1-0,2 x DC	a _p 0,3-0,4 x DC	a _p 0,6-1,0 x DC
					f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm		
1.1	240	192	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.2	250	200	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.3	210	168	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.4	190	152	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.5	200	160	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.6	190	152	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.7	190	152	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.8	170	136	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.9	160	128	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.10	190	152	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.11	170	136	1,0*	1,0*	0,019	0,015	0,011	0,027	0,021	0,015	0,040	0,030	0,020	0,050	0,037	0,025	0,06	0,05	0,03
1.12	180	144	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.13																			
1.14																			
1.15	170	136	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
1.16	160	128	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
2.1																			
2.2																			
2.3																			
2.4																			
2.5																			
2.6																			
2.7																			
3.1	200	160	1,0*	1,0*	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
3.2	180	144	1,0*	1,0*	0,032	0,025	0,018	0,045	0,035	0,025	0,064	0,048	0,032	0,076	0,057	0,038	0,09	0,07	0,05
3.3	190	152	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.4	170	136	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.5	180	144	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.6	160	128	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.7	180	144	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
3.8	160	128	1,0*	1,0*	0,025	0,020	0,014	0,036	0,028	0,020	0,054	0,040	0,027	0,066	0,049	0,033	0,08	0,06	0,04
4.1																			
4.2																			
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5.4																			
5.5																			
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5.7																			
5.8																			
5.9																			
5.10																			
5.11																			
6.1																			
6.2																			
6.3																			
6.4																			
6.5																			

* = long version: a_{p,max} = 1.5 x DC at f_z x 0.75

i Plunging angle for ramping and helical milling: 3°

Index	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	a_p 0,1-0,2 x DC	a_p 0,3-0,4 x DC	a_p 0,6-1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm				
1.1	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.2	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.3	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.4	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.5	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.6	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.7	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.8	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.9	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.10	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.11	0,08	0,06	0,04	0,10	0,08	0,05	0,10	0,08	0,06	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●	○	○
1.12	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	○	○
1.13																					
1.14																					
1.15	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	○
1.16	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	○
2.1																					
2.2																					
2.3																					
2.4																					
2.5																					
2.6																					
2.7																					
3.1	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●	●	●
3.2	0,12	0,09	0,06	0,14	0,10	0,07	0,16	0,12	0,09	0,17	0,13	0,10	0,17	0,14	0,11	0,19	0,16	0,12	●	●	●
3.3	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.4	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.5	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.6	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.7	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
3.8	0,10	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●	●	●
4.1																					
4.2																					
4.3																					
4.4																					
4.5																					
4.6																					
4.7																					
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6.5																					

Cutting data standard values – SilverLine – End Mills – 50 959 ...

Index	Type long		Type extra long	Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm	
	V _c m/min	a _{p max.}		a _{p max.} 0,05 x DC		a _{p max.} 0,05 x DC		a _{p max.} 0,05 x DC		a _{p max.} 0,05 x DC		a _{p max.} 0,05 x DC	
				f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm	f _z mm		
1.1	290	232	2xDC	0,066	0,08	0,10	0,12	0,14					
1.2	300	240	2xDC	0,066	0,08	0,10	0,12	0,14					
1.3	260	208	2xDC	0,066	0,08	0,10	0,12	0,14					
1.4	250	200	2xDC	0,066	0,08	0,10	0,12	0,14					
1.5	250	200	2xDC	0,066	0,08	0,10	0,12	0,14					
1.6	230	184	2xDC	0,066	0,08	0,10	0,12	0,14					
1.7	230	184	2xDC	0,066	0,08	0,10	0,12	0,14					
1.8	220	176	2xDC	0,066	0,08	0,10	0,12	0,14					
1.9	200	160	2xDC	0,066	0,08	0,10	0,12	0,14					
1.10	230	184	2xDC	0,066	0,08	0,10	0,12	0,14					
1.11	210	168	2xDC	0,050	0,06	0,08	0,10	0,10					
1.12	220	176	2xDC	0,066	0,08	0,10	0,12	0,14					
1.13	150	120	2xDC	0,042	0,05	0,06	0,08	0,09					
1.14													
1.15	210	168	2xDC	0,066	0,08	0,10	0,12	0,14					
1.16	200	160	2xDC	0,066	0,08	0,10	0,12	0,14					
2.1	160	128	2xDC	0,042	0,05	0,06	0,08	0,09					
2.2	150	120	2xDC	0,042	0,05	0,06	0,08	0,09					
2.3	125	100	2xDC	0,042	0,05	0,06	0,08	0,09					
2.4	150	120	2xDC	0,042	0,05	0,06	0,08	0,09					
2.5	150	120	2xDC	0,042	0,05	0,06	0,08	0,09					
2.6	150	120	2xDC	0,042	0,05	0,06	0,08	0,09					
2.7	40	32	2xDC	0,034	0,04	0,05	0,06	0,07					
3.1	250	200	2xDC	0,076	0,09	0,12	0,14	0,17					
3.2	220	176	2xDC	0,076	0,09	0,12	0,14	0,17					
3.3	230	184	2xDC	0,066	0,08	0,10	0,12	0,14					
3.4	210	168	2xDC	0,066	0,08	0,10	0,12	0,14					
3.5	220	176	2xDC	0,066	0,08	0,10	0,12	0,14					
3.6	200	160	2xDC	0,066	0,08	0,10	0,12	0,14					
3.7	220	176	2xDC	0,066	0,08	0,10	0,12	0,14					
3.8	200	160	2xDC	0,066	0,08	0,10	0,12	0,14					
4.1													
4.2													
4.3													
4.4													
4.5													
4.6	350	280	2xDC	0,076	0,09	0,12	0,14	0,17					
4.7	370	296	2xDC	0,076	0,09	0,12	0,14	0,17					
4.8	300	240	2xDC	0,076	0,09	0,12	0,14	0,17					
4.9	220	176	2xDC	0,076	0,09	0,12	0,14	0,17					
4.10	180	144	2xDC	0,076	0,09	0,12	0,14	0,17					
4.11	430	344	2xDC	0,076	0,09	0,12	0,14	0,17					
4.12	370	296	2xDC	0,076	0,09	0,12	0,14	0,17					
4.13													
4.14													
4.15													
4.16													
4.17													
4.18													
4.19													
5.1													
5.2													
5.3	40	32	2xDC	0,034	0,04	0,05	0,06	0,07					
5.4	40	32	2xDC	0,034	0,04	0,05	0,06	0,07					
5.5	40	32	2xDC	0,034	0,04	0,05	0,06	0,07					
5.6	40	32	2xDC	0,034	0,04	0,05	0,06	0,07					
5.7	40	32	2xDC	0,034	0,04	0,05	0,06	0,07					
5.8	40	32	2xDC	0,034	0,04	0,05	0,06	0,07					
5.9	200	160	2xDC	0,066	0,08	0,10	0,12	0,14					
5.10	175	140	2xDC	0,050	0,06	0,08	0,10	0,10					
5.11	125	100	2xDC	0,042	0,05	0,06	0,08	0,09					
6.1													
6.2													
6.3													
6.4													
6.5													