

New products for machining technicians

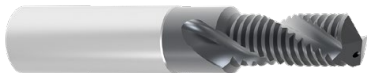
NEW HPC solid carbide thread milling cutters



- ▲ Just one tool for countersink and thread

→ Page 58

NEW Drill thread milling cutter with chamfer facet



- ▲ Just one tool for core hole, countersink, thread and thread undercut

→ Page 54+55

NEW Micro thread milling cutter



- ▲ Specialist for the smallest threads in hard materials

→ Page 57

NEW Circular shank thread milling cutter



- ▲ Specialist for the machining of deep threads

→ Page 63



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 Multifunctional Tools – EcoCut and FreeTurn
- 11 Grooving Tools
- 12 Miniature turning tools

Milling

- 13 HSS Milling Cutters
- 14 Solid Carbide milling cutters
- 15 Milling tools with indexable inserts

Catalogue –
Clamping technology

- 16 Adaptors and Accessories
- 17 Workpiece clamping
- 18 Material examples and article no. Index

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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.

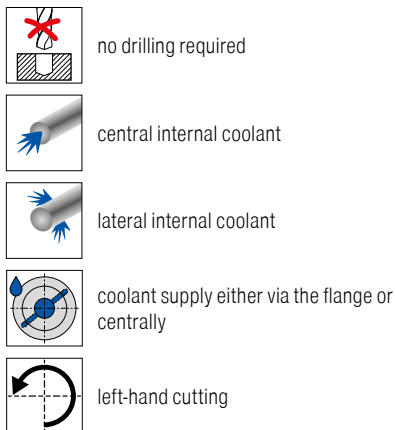
WNT \ Standard

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

Version



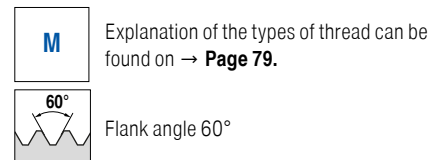
Shank



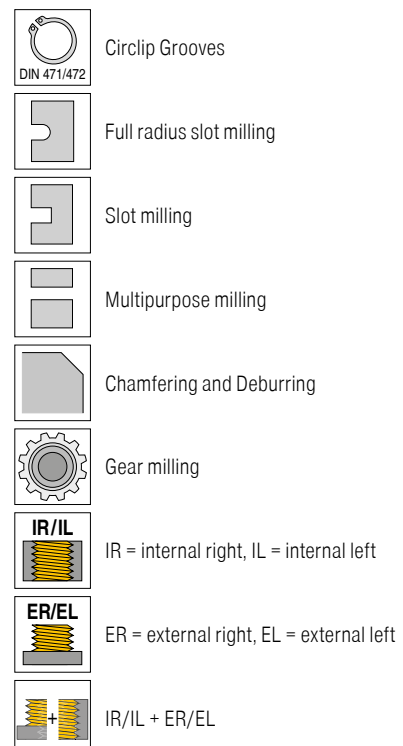
- = Main Application
- = Extended application



Thread / Flank angle



Applications



Tool types

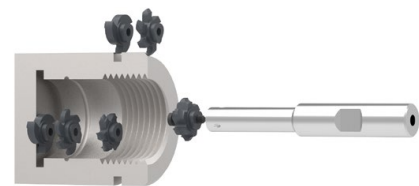
EAW	Single-tooth thread milling cutter with carbide indexable inserts and Weldon flat	Polygon	Circular shank milling cutter with carbide indexable insert (polygon insert seat)
EWM	Single-tooth thread milling cutter with carbide indexable insert and SK adapter	SGF	Thread milling cutter
GZD	Multi-tooth thread milling cutter with carbide indexable inserts (angled insert seat) and Weldon flat	Micro Mill	Solid Carbide Circular End Milling Cutter
GZG	Multi-tooth thread milling cutter with carbide indexable inserts (straight insert seat) and Weldon flat	System 300	Circular milling cutter with solid carbide insert
SFSE	Thread milling cutter with chamfer facet	BGF	Solid carbide drill thread milling cutter
Mini Mill	Circular milling cutter with solid carbide milling insert (with three-rib insert connection)	ZBGF	Solid carbide circular drill thread milling cutter
MWN	Multi-tooth thread milling cutter with carbide indexable inserts (straight insert seat) and Weldon flat	SFSE Micro	Thread milling cutter for smallest threads

7

Overview Circular and Thread Milling Cutters

Modular Circular Milling Cutters with Carbide Indexable Inserts

- ▲ the perfect tool for every application
- ▲ various holders, depending on overhang
- ▲ the same threading insert for different pitches and diameters
- ▲ highest flexibility and stability
- ▲ in addition to circular thread milling, circular and linear milling operations can also be carried out



1st choice for small batch sizes and large threads

Thread Milling Cutters with Indexable Carbide Inserts

- ▲ exchange of the insert for different threads
- ▲ same threading insert for different diameters



Solid Carbide Thread Milling Cutters

- ▲ short machining times, ideal for volume production
- ▲ one tool for all thread types
- ▲ one thread milling cutter for different diameters with the same pitch



MicroMill



SGF



ZBGF



BGF

Toolfinder

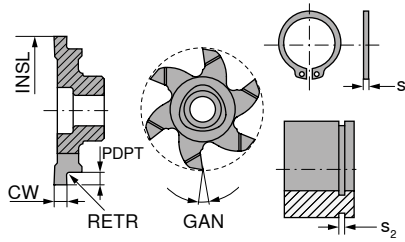
				from bore diameter in mm	
Modular Circular Milling Cutters with Carbide Indexable Inserts	Polygon		▲ high power transmission through polygon connection ▲ 3 and 6 edged inserts ▲ stable holders in solid carbide and steel	9,6	
	Mini Mill		▲ three interlocking rib location ▲ compatible with popular manufacturer systems ▲ 3 and 6 edged inserts ▲ stable holders in solid carbide and steel	9,6	
	System 300		▲ proven circular milling tool ▲ 3 edged inserts	7,9	
Thread Milling Cutters with Indexable Carbide Inserts	MWN		▲ multi tooth thread milling cutter ▲ double sided inserts ▲ exclusively for thread production ▲ holder for tapered threads	9,0	
	GZD		▲ multi tooth drilling and thread milling cutter ▲ for thread milling in solid material ▲ core hole and thread with one tool	14,0	
	GZG		▲ multi tooth thread milling cutter ▲ exclusively for thread production	18,5	
	EAW		▲ single point thread milling cutter ▲ inserts with 2 or 4 cutting edges ▲ exclusively for thread production ▲ insert holder with cylindrical shank DIN 1835	17,5	
	EWM		▲ single point thread milling cutter ▲ inserts with 2 or 4 cutting edges ▲ exclusively for thread production ▲ integral insert holder to DIN 69871	43,0	
Solid Carbide Thread Milling Cutters	Micro Mill		▲ solid carbide circular milling cutter for small diameters	1,25	
	BGF		▲ Drill thread milling cutter ▲ Core hole, countersink, thread and thread undercut with one tool	2,45	
	ZBGF		▲ Circular drill thread milling cutter ▲ Core hole, countersink and thread with one tool	2,3	
	SFSE Micro		▲ Solid carbide shank thread milling cutter with chamfer facet ▲ Just one tool for countersink and thread ▲ Specially developed for the smallest threads in hard materials	0,75	
	SFSE		▲ solid carbide thread milling cutter with chamfering facet ▲ only one tool for threading and chamfering	2,4	
	SGF		▲ solid carbide thread milling cutter without chamfering facet ▲ exclusively for thread production	3,15	

Thread / Flank angle								Applications						Tool holder
														
M	G	BSW	UN	UNC	Pg	NPT	Tr							
MF		BSF		UNF										
11+12	13	13		15			14	6+7	8+9	10	10	16+17		18
26+27	28							19+20	21+22 23	22	24		25	29+30
34	35	35						31+32	33		33			36
37	38		38		39	39								40+41
42	42													43
44	45		46		45									47
48	48		48											49
50	50		50											51
53									52		52			
54+55														
56														
57														
58+59 61	59+61			62		60+62								
63+64 66+69	65+66			67+68										



This article can be found in our online shop at
cuttingtools.ceratizit.com

Milling inserts for circlip grooves without chamfer



Ti500



Solid carbide

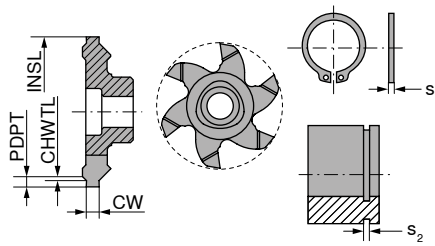
50 880 ...

Size	s_2 H13 mm	INSL mm	CW $_{-0.03}$ mm	PDPT mm	RETR mm	GAN °	s_1 mm	NOF	£ W2	
6	0.90	9.6	0.98	1.20	0.3	6	0.80	3	80.63	292
	1.10	11.7	1.18	1.00	0.3	6	1.00	3	77.29	294
	1.30	11.7	1.38	1.00	0.3	6	1.20	3	77.29	296
	1.60	11.7	1.68	1.00	0.3	6	1.50	3	77.29	298
7	1.10	16.0	1.18	0.90	0.3	6	1.00	6	107.36	301
	1.30	16.0	1.38	1.10	0.3	6	1.20	6	86.47	302
	1.60	16.0	1.68	1.25	0.3	6	1.50	6	86.47	304
	1.85	16.0	1.93	1.25	0.3	6	1.75	6	86.47	306
	1.10	17.7	1.18	0.90	0.3	6	1.00	6	108.96	308
	1.30	17.7	1.38	1.10	0.3	6	1.20	6	108.96	309
	1.60	17.7	1.68	1.25	0.3	6	1.50	6	108.96	310
	1.85	17.7	1.93	1.25	0.3	6	1.75	6	108.96	311
9	1.10	20.0	1.18	0.90	0.3	6	1.00	6	112.01	313
	1.30	20.0	1.38	1.10	0.3	6	1.20	6	112.01	314
	1.60	20.0	1.68	1.25	0.3	6	1.50	6	112.01	315
	1.85	20.0	1.93	1.25	0.3	6	1.75	6	112.01	316
	1.60	21.7	1.68	1.25	0.3	6	1.50	6	113.33	318
	1.85	21.7	1.93	1.25	0.3	6	1.75	6	113.33	319
	2.15	21.7	2.23	1.75	0.3	6	2.00	6	113.33	320
	2.65	21.7	2.73	1.75	0.3	6	2.50	6	113.33	321
10	1.30	26.0	1.38	1.10	0.3	6	1.20	6	94.28	322
	1.60	26.0	1.68	1.25	0.3	6	1.50	6	94.28	324
	1.85	26.0	1.93	1.25	0.3	6	1.75	6	94.28	326
	2.15	26.0	2.23	1.75	0.3	6	2.00	6	94.28	328
	2.65	26.0	2.73	1.75	0.3	6	2.20	6	94.28	330
	3.15	26.0	3.23	2.20	0.3	6	3.00	6	94.28	332
P										•
M										•
K										•
N										•
S										•
H										•
O										•

→ v_c/f_z Page 73When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → Page 77+78.

Milling inserts for circlip grooves with chamfer

▲ Both edges chamfered 0.1 x 45°



Ti500



Solid carbide

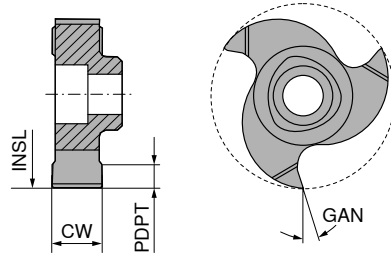
50 879 ...

Size	S ₂ H13 mm	INSL mm	CW _{-0.03} mm	PDPT mm	CHWTL mm	s ₁ mm	NOF	£ W2	
7	1.10	16.0	1.18	0.50	0.10	1.00	6	115.07	292
	1.30	16.0	1.38	0.85	0.15	1.20	6	95.15	302
	1.60	16.0	1.68	1.00	0.15	1.50	6	95.15	304
	1.85	16.0	1.93	1.25	0.20	1.75	6	95.15	306
9	1.10	20.0	1.18	0.50	0.10	1.00	6	122.47	307
	1.30	20.0	1.38	0.85	0.15	1.20	6	122.47	308
	1.60	20.0	1.68	1.00	0.15	1.50	6	122.47	309
	1.60	21.7	1.68	1.00	0.15	1.50	6	122.47	312
	1.85	20.0	1.93	1.25	0.20	1.75	6	122.47	310
	1.85	21.7	1.93	1.25	0.20	1.75	6	122.47	314
	2.15	21.7	2.23	1.50	0.20	2.00	6	122.47	316
	2.65	21.7	2.73	1.75	0.20	2.50	6	122.47	318
10	1.30	26.0	1.38	0.85	0.15	1.20	6	102.44	322
	1.60	26.0	1.68	1.00	0.15	1.50	6	102.44	324
	1.85	26.0	1.93	1.25	0.20	1.75	6	102.44	326
	2.15	26.0	2.23	1.50	0.20	2.00	6	102.44	328
	2.65	26.0	2.73	1.75	0.20	2.50	6	102.44	330
	3.15	26.0	3.23	1.75	0.20	3.00	6	102.44	332
P									●
M									●
K									●
N									●
S									●
H									●
O									●

→ v_c/f_z Page 73When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → Page 77+78.

Milling insert without profile

- ▲ with double sided edge break of $0.1 \times 45^\circ$
- ▲ Size 7: from 5.0 mm groove width with ground chip breaker
- ▲ Size 10: from 6.5 mm groove width with ground chip breaker



Ti500



Solid carbide

50 875 ...

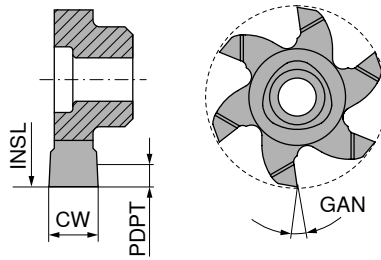
Size	CW ± 0.02 mm	INSL mm	PDPT mm	GAN °	NOF	£ W2	
6	1.5	11.7	2.25	6	3	80.63	302
	2.0	11.7	2.25	6	3	80.63	304
	2.5	11.7	2.25	6	3	83.11	306
	3.0	11.7	2.25	6	3	83.11	308
7	3.5	16.0	3.50	0	3	52.24	310
	3.5	16.0	3.50	8	3	52.24	312
	3.5	16.0	3.50	12	3	52.24	314
	5.0	16.0	3.50	0	3	59.27	316
	5.0	16.0	3.50	8	3	59.27	318
	5.0	16.0	3.50	12	3	59.27	320
10	4.0	25.0	5.70	0	3	54.62	330
	4.0	25.0	5.70	8	3	54.62	332
	4.0	25.0	5.70	12	3	54.62	334
	5.0	25.0	5.70	8	3	109.25	337
	6.5	25.0	5.70	0	3	66.58	340
	6.5	25.0	5.70	8	3	66.58	342
	6.5	25.0	5.70	12	3	66.58	344
	8.0	25.0	5.70	0	3	73.63	350
	8.0	25.0	5.70	8	3	73.63	352
	8.0	25.0	5.70	12	3	73.63	354
P							•
M							•
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→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Milling insert without profile

▲ Both edges chamfered 0.1 x 45°



Ti500



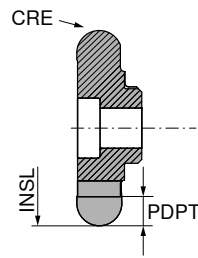
Solid carbide

50 876 ...

Size	CW +/-0.02 mm	INSL mm	PDPT mm	GAN °	NOF	£ W2	
7	1.5	17.7	4.0	6	6	98.35	307
	2.0	17.7	4.0	6	6	98.92	308
	2.5	17.7	4.0	6	6	99.96	309
	3.0	16.0	3.5	6	6	90.36	302
	4.0	16.0	3.5	6	6	95.88	304
	5.0	16.0	3.5	6	6	98.35	306
9	1.5	21.7	5.0	6	6	113.33	314
	2.0	21.7	5.0	6	6	114.20	315
	2.5	21.7	5.0	6	6	114.20	316
	3.0	21.7	5.0	6	6	115.34	317
	3.0	20.0	4.2	6	6	115.34	311
	4.0	20.0	4.2	6	6	118.84	312
	5.0	20.0	4.2	6	6	124.93	313
10	1.5	27.7	6.8	6	6	140.19	330
	2.0	27.7	6.8	6	6	142.07	332
	2.5	27.7	6.8	6	6	142.07	334
	3.0	26.0	6.2	6	6	95.88	322
	3.0	27.7	6.8	6	6	143.69	336
	4.0	26.0	6.2	6	6	101.13	324
	5.0	26.0	6.2	6	6	126.54	326
	6.5	26.0	6.2	6	6	103.74	328
P							•
M							•
K							•
N							•
S							•
H							•
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→ v_c/f_z Page 73When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → Page 77+78.

Milling inserts for radius milling



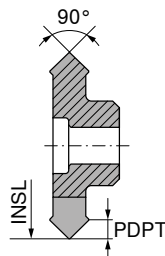
Solid carbide

50 886 ...

Size	CRE mm	INSL mm	PDPT mm	NOF	£ W2	
6	1.100	9.6	1.20	3	77.29	702
	0.788	11.7	2.25	3	77.29	704
	1.100	11.7	2.25	3	77.29	708
	1.190	11.7	2.25	3	77.29	706
7	0.788	17.7	4.20	6	97.78	712
	1.100	17.7	4.20	6	97.78	714
9	0.785	21.7	5.00	6	117.81	720
	1.000	21.7	5.00	6	117.81	722
	1.200	21.7	5.00	6	117.81	724
	1.400	21.7	5.00	6	117.81	726
	1.500	21.7	5.00	6	117.81	728
P						•
M						•
K						•
N						•
S						•
H						•
O						•

→ v_c/f_z Page 73

Milling inserts for chamfering and deburring



Solid carbide

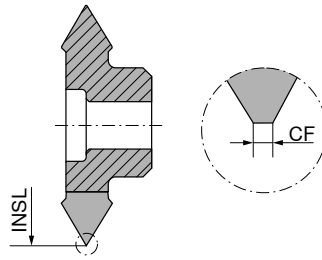
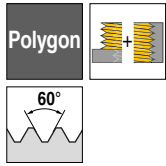
50 884 ...

Size	PDPT mm	INSL mm	NOF	£ W2	
6	1.20	9.6	3	77.29	292
	1.50	11.7	3	77.29	294
7	1.90	16.0	6	93.41	302
	1.30	17.7	6	116.94	304
9	1.90	20.0	6	120.73	312
	1.95	21.7	6	117.81	314
10	2.10	26.0	6	102.44	322
P					•
M					•
K					•
N					•
S					•
H					•
O					•

→ v_c/f_z Page 73

Thread milling insert – Partial profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!



Ti500



Solid carbide

50 882 ...

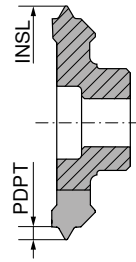
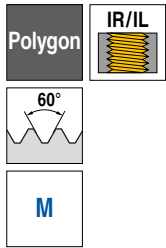
Size	TP mm	INSL mm	CF mm	NOF	£ W2	
6	1-3	11.7	0.10	3	111.72	292
7	1-3	17.7	0.10	6	125.37	306
	1-4	16.0	0.10	6	101.13	302
	2,5-4	16.0	0.25	6	125.37	304
9	1-2	21.7	0.10	6	127.12	314
	1-3	20.0	0.10	6	127.12	312
	2-4	21.7	0.15	6	127.12	316
10	1-3	26.0	0.10	6	108.82	322
	2,5-5	26.0	0.25	6	134.98	324
P						•
M						•
K						•
N						•
S						•
H						•
O						•

→ v_c/f_z Page 73



When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → Page 77+78.

Thread milling insert – Full profile



Ti500



Solid carbide

50 881 ...

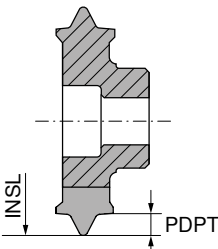
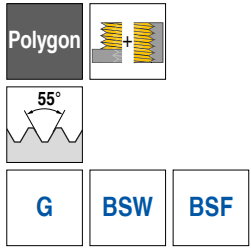
Size	TP mm	INSL mm	PDPT mm	NOF	£ W2	
6	1	9.6	0.572	3	136.40	292
	1,5	9.6	0.875	3	136.40	293
	2	10.5	1.157	3	136.40	296
7	1,5	16.0	0.875	6	124.93	302
	2	16.0	1.157	6	124.93	304
	2,5	16.0	1.430	6	124.93	306
	3	16.0	1.702	6	124.93	310
	M20x2,5	16.0	1.430	6	131.20	308 ¹⁾
9	1,5	20.0	0.875	6	159.67	312
	2	20.0	1.157	6	159.67	314
	M24x3	20.0	1.702	6	159.67	316 ¹⁾
10	1,5	26.0	0.875	6	132.64	322
	2	26.0	1.157	6	132.64	324
	3	26.0	1.702	6	132.64	330
	3,5	26.0	1.982	6	132.64	332
	4	26.0	2.263	6	132.64	334
	4,5	26.0	2.553	6	132.64	336
	5	26.0	2.836	6	164.45	337
	M30x3,5	24.0	1.982	6	164.45	331 ¹⁾
	M36x4	26.0	2.263	6	164.45	335 ¹⁾
P						•
M						•
K						•
N						•
S						•
H						•
O						•

1) profile corrected

→ v_d/f_z Page 73When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → Page 77+78.

Thread milling insert – Full profile

▲ 50 883 322 for threads > 1"



Solid carbide

50 883 ...

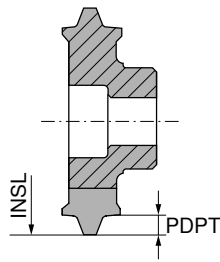
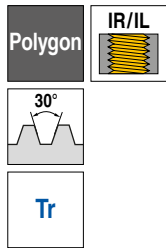
Size	TPI 1/"	TP mm	INSL mm	PDPT mm	NOF	£ W2	
6	19	1.337	9.6	0.871	3	136.40	292
7	14	1.814	17.7	1.177	6	151.94	308
	14	1.814	16.0	1.177	6	155.02	304
	11	2.309	16.0	1.494	6	124.93	302
	10	2.540	16.0	1.646	6	155.02	306
9	14	1.814	20.0	1.177	6	159.67	316
	11	2.309	20.0	1.494	6	159.67	314
10	11	2.309	26.0	1.494	6	132.64	322
P							•
M							•
K							•
N							•
S							•
H							•
O							•

→ v_c/f_z Page 73

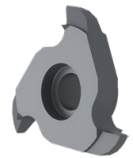
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert – Full profile

▲ DIN 103



Ti500



Solid carbide

50 872 ...

Size	TP mm	INSL mm	PDPT mm	NOF	Thread	£ W2	
6	2	11.7	1.25	3	Tr 16x2 - Tr 20x2	79.28	292
	3	11.0	1.75	3	Tr 18x3 - Tr 20x3	79.28	294
	4	12.0	2.25	3	Tr 20x4	79.28	296 ¹⁾
7	3	14.0	1.75	3	Tr 24x3 - Tr 32x3	108.14	302 ²⁾
	5	15.3	2.75	3	Tr 28x5 - Tr 36x5	108.14	306 ³⁾
	5	15.3	2.75	3	Tr 26x5	108.14	304 ³⁾
	6	16.2	3.50	3	Tr 34x6 - Tr 42x6	108.14	310 ²⁾
	6	16.2	3.50	3	Tr 30x6 - Tr 32x6	108.14	308 ²⁾
10	5	25.0	2.75	3	Tr 44x5 - Tr 48x5	136.93	322 ⁴⁾
	7	22.0	3.75	3	Tr 38x7 - Tr 42x7	136.93	324 ⁴⁾
	7	22.0	3.75	3	Tr 44x7	136.93	326 ¹⁾
	8	25.0	4.50	3	Tr 46x8 - Tr 48x8	158.58	328 ⁴⁾
	8	25.0	4.50	3	Tr 50x8 - Tr 52x8	158.58	330 ⁴⁾
	9	25.0	5.00	3	Tr 55x9 - Tr 60x9	158.58	332 ⁴⁾
	10	25.0	5.50	3	Tr 60x10 - Tr 80x10	158.58	334 ⁴⁾
P							●
M							●
K							●
N							●
S							●
H							●
O							●

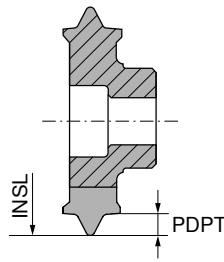
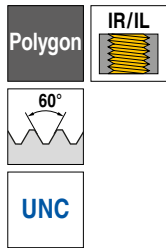
- 1) profile corrected
 2) Not suitable for the 50 805 011 and 50 805 010 holders
 3) Not suitable for the 50 805 011 and 50 805 010 holders / profile corrected
 4) Not suitable for the 50 805 026, 50 805 025 and 50 805 024 holders

→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_i or feed on the center path v_{fm} is used. Details on → Page 77+78.

Thread milling insert – Full profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!



Ti500



Solid carbide

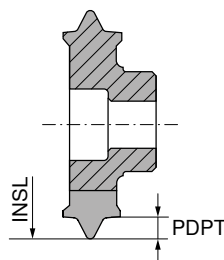
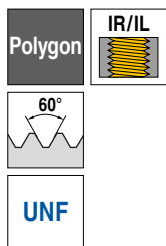
50 886 ...

Size	TPI 1/"	INSL mm	PDPT mm	NOF	£ W2	
6	12.0	9.6	1.228	3	136.40	202
	11.0	10.5	1.355	3	136.40	204
	10.0	11.7	1.485	3	136.40	206
7	9.0	16.0	1.577	6	155.02	212
9	8.0	18.0	1.809	6	159.67	222
	7.0	20.0	2.043	6	159.67	224
10	6.0	24.0	2.454	6	164.45	232
	5.0	26.0	2.979	6	164.45	234
	4.5	26.0	3.289	6	164.45	236
P						•
M						•
K						•
N						•
S						•
H						•
O						•

→ v_c/f_z Page 73

Thread milling insert – Full profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!



Ti500



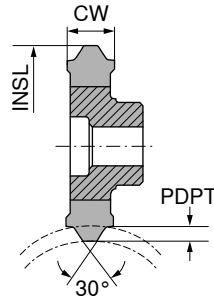
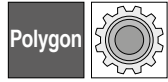
Solid carbide

50 886 ...

Size	Thread	INSL mm	PDPT mm	NOF	£ W2	
6	1/2 - 20	9.6	0.733	3	136.40	302
	9/16 - 18	10.5	0.827	3	136.40	304
	3/4 - 16	11.7	0.945	3	136.40	306
7	7/8 - 14	17.7	1.071	6	151.94	312
9	1 - 12	20.0	1.228	6	151.94	322
P						•
M						•
K						•
N						•
S						•
H						•
O						•

→ v_c/f_z Page 73

Gear cutters, DIN 5480

▲ Z_w = Tooth Number Wave

Ti500



Solid carbide

50 874 ...

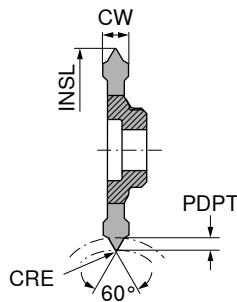
Size	Wave	module	Z_w	CW mm	INSL mm	PDPT mm	NOF
7	W11	0,80	12	3	15.85	0.80	6
	W14	0,80	16	3	16.00	0.80	6
	W16	0,80	18	3	16.00	0.80	6
	W20	0,80	24	3	16.00	0.80	6
	W24	1,25	18	4	16.00	1.25	6
	W25	2,00	11	7	16.00	2.00	3
	W30	1,25	22	4	16.00	1.25	6
	W30	1,25	20	5	16.00	1.25	6
	W35	2,00	16	5	16.00	2.00	6
	W42	1,25	32	4	16.00	1.25	6
	W50	2,00	24	5	16.00	2.00	6

£

W2

107.19	011
107.19	014
107.19	016
107.19	020
115.56	024
132.18	025
115.56	031
115.56	030
118.92	035
115.56	042
118.92	050

Gear cutters, DIN 5481

▲ Z_w = Tooth Number Wave

Ti500



Solid carbide

50 874 ...

Size	Wave	Z_w	CW mm	INSL mm	CRE mm	PDPT mm	NOF
10	26 x 30	35	3	26	0.3	1.638	6
	40 x 44	38	3	26	0.4	1.940	6

£

W2

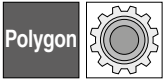
107.19	126
107.19	140

P	•
M	•
K	•
N	•
S	•
H	•
O	•

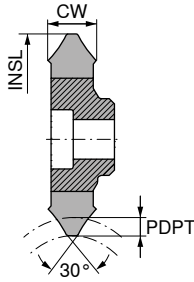
→ v_c/f_z Page 73When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → Page 77+78.

Gear cutters, DIN 5482

▲ Z_w = Tooth Number Wave



Ti500



Solid carbide

50 874 ...

Size	Wave	module	Z_w	CW mm	INSL mm	PDPT mm	NOF		
7	15 x 12	1,60	8	3.0	16	1.50	6		
	17 x 14	1,60	9	5.0	16	1.50	6		
	20 x 17	1,60	12	5.0	16	1.50	6		
	25 x 22	1,60	14	5.0	16	1.65	6		
10	35 x 31	1,75	18	6.5	26	2.00	6		
	55 x 50	2,00	26	6.5	26	2.75	6		
P									•
M									•
K									•
N									•
S									•
H									•
O									•

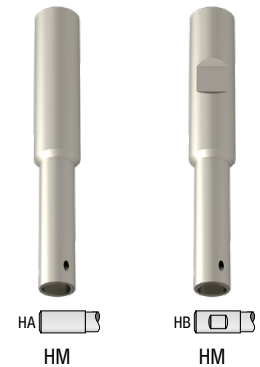
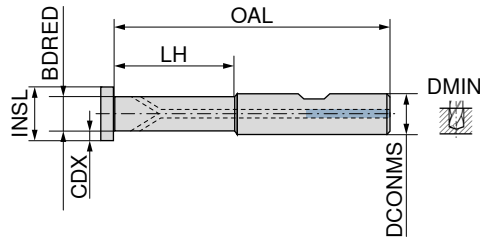
→ v_c/f_z Page 73



When calculating the feedrate for circular milling it is important to know whether contour feed v_t or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Circular milling cutter

- ▲ For maximum machining depth, note insert width (CW)
- ▲ Size 6 = for INSL 9.6; 10.5; 11.7; 12
- ▲ Size 7 = for INSL 16; 17.7
- ▲ Size 9 = for INSL 18; 20; 21.7
- ▲ Size 10 = for INSL 24; 25; 26; 27.7
- ▲ Holder available as screw-in variant in the online shop



Size	LH mm	CDX mm	DCONMS _{h6} mm	OAL mm	BDRED mm	DMIN mm	torque moment Nm	£ W1	50 805 ...	£ W1	50 805 ...
6	20.00	2.25	12	67.5	7.0	12	1,0			234.32	050 ¹⁾
	20.00	2.25	12	67.5	7.0	12	1,0			365.05	051
	20.00	2.25	12	67.5	7.0	12	1,0	365.05	052	384.81	053
	30.00	2.25	12	80.0	7.0	12	1,0	384.81	054	414.31	055
	30.00	2.25	12	80.0	7.0	12	1,0				
	40.00	2.25	12	100.0	7.0	12	1,0				
	40.00	2.25	12	100.0	7.0	12	1,0	414.31	056		
7	20.90	4.00	12	67.4	9.0	18	1,1			168.67	002 ¹⁾
	21.00	4.00	12	67.4	9.0	18	1,1			493.19	004
	21.00	4.00	12	67.4	9.0	18	1,1	365.05	005	474.03	008
	36.00	4.00	12	82.4	9.0	18	1,1				
	36.00	4.00	12	82.4	9.0	18	1,1	389.76	085		
		4.00	12	122.5	12.0	18	1,1	485.91	010		
		4.00	12	82.4	12.0	18	1,1	647.00	011		
9	29.75	5.00	16	80.0	11.5	22	3,8			234.32	070 ¹⁾
	30.00	5.00	16	80.0	11.5	22	3,8			431.58	071
	30.00	5.00	16	80.0	11.5	22	3,8	431.58	072	443.93	073
	50.00	5.00	16	100.0	11.5	22	3,8				
	50.00	5.00	16	100.0	11.5	22	3,8	443.93	074		
10	20.50	5.70	16	105.0	15.5	28	5,5	914.29	025		
	20.50	6.80	16	149.7	15.5	28	5,5	631.76	024		
	20.50	6.80	20	175.4	15.5	28	5,5	715.14	026		
	30.40	6.80	16	79.6	13.6	28	5,5			176.51	012 ¹⁾
	30.50	6.80	16	79.6	13.6	28	5,5	431.58	015	493.19	014
	30.50	6.80	16	79.6	13.6	28	5,5				
	45.50	6.80	16	94.6	13.6	28	5,5	443.93	021	294.97	020
	45.50	6.80	16	94.6	13.6	28	5,5			304.64	022
	60.50	6.80	16	109.6	13.6	28	5,5				
	60.50	6.80	16	109.6	13.6	28	5,5	468.62	023		

1) Steel version



Key D



Clamping screw

Spare parts

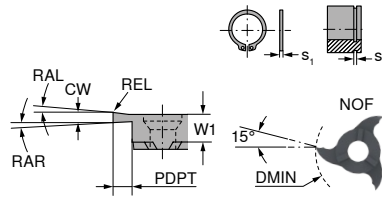
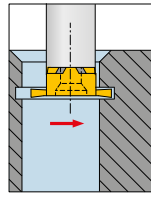
Size

Size	80 950 ...	£ Y7	70 960 ...	£ 2A
6	T08 - IP	14.16 125	M2,5x7	5.99 246
7	T08 - IP	14.16 125	M3x13	5.99 231
9	T15 - IP	16.56 128	M4x13	5.99 236
10	T20 - IP	17.39 129	M5x13,5	5.99 243

MiniMill – Milling insert for circlip grooves

Mini
Mill≥ 10
mm

CWX500



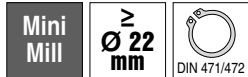
53 006 ...

Size	DMIN mm	S ₂ H13 mm	CW _{-0.02} mm	PDPT mm	W1 mm	RAR °	REL mm	s ₁ mm	NOF	£ W2	
10	10	0.70	0.74	1.5	3.50	1		0.60	3	70.90	070
	10	0.80	0.84	1.5	3.50	1		0.70	3	70.90	080
	10	0.90	0.94	1.5	3.50	1		0.80	3	70.90	090
	10	1.10	1.21	1.5	3.50	3		1.00	3	63.50	110
	10	1.30	1.41	1.5	3.50	3	0.10	1.20	3	63.50	130
	10	1.60	1.71	1.5	3.50	3	0.10	1.50	3	63.50	160
	12	1.10	1.21	2.5	3.50	3		1.00	3	63.50	112
	12	1.30	1.41	2.5	3.50	3	0.10	1.20	3	63.50	132
	12	1.60	1.71	2.5	3.50	3	0.10	1.50	3	63.50	162
18	18	0.70	0.74	1.5	5.75	1		0.60	3	72.50	270
	18	0.80	0.84	1.7	5.75	1		0.70	3	72.50	280
	18	0.90	0.94	1.9	5.75	1		0.80	3	72.50	290
	18	1.10	1.21	3.5	5.75	3		1.00	3	68.15	310
	18	1.30	1.41	3.5	5.75	3	0.10	1.20	3	68.15	330
	18	1.60	1.71	3.5	5.75	3	0.10	1.50	3	68.15	360
22	22	0.70	0.74	1.5	5.70	1		0.60	3	76.99	470
	22	0.80	0.84	1.7	5.70	1		0.70	3	76.99	480
	22	0.90	0.94	1.9	5.70	1		0.80	3	68.86	490
	22	1.00	1.04	2.1	5.70	1		0.90	3	72.91	500
	22	1.10	1.21	2.5	5.70	1		1.00	3	72.91	510
	22	1.30	1.41	4.5	5.70	3	0.10	1.20	3	69.44	530
	22	1.60	1.71	4.5	5.70	3	0.10	1.50	3	69.44	560
	22	1.85	1.96	4.5	5.70	3	0.15	1.75	3	69.44	585
	22	2.15	2.26	4.5	5.70	3	0.15	2.00	3	69.44	615
	22	2.65	2.76	4.5	5.70	3	0.15	2.50	3	69.44	665
	22	3.15	3.26	4.5	5.70	3	0.20	3.00	3	69.44	415
	22	4.15	4.26	4.5	5.70	3	0.20	4.00	3	69.44	515
	22	5.15	5.26	4.5	5.70	3	0.20	5.00	3	69.44	605

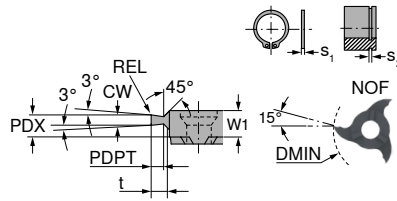
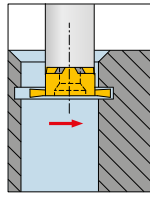
P	•
M	•
K	•
N	•
S	○
H	○
O	•

→ v_c/f_z Page 76When calculating the feedrate for circular milling it is important to know whether contour feed v_r or feed on the center path v_{fm} is used. Details on → Page 77+78.

MiniMill – Milling insert for circlip grooves with chamfer facet



CWX500



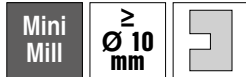
53 006 ...

Size	DMIN mm	S ₂ H13 mm	CW ^{-0.02} mm	t mm	PDPT mm	W1 mm	PDX mm	REL mm	S ₁ mm	NOF	£ W2	
22	22	1.10	1.21	0.50	0.49	5.85	5.07		1.00	3	75.25	805
	22	1.30	1.41	0.70	0.67	5.85	5.17		1.20	3	75.25	807
	22	1.30	1.41	0.85	0.83	5.85	5.17		1.20	3	75.25	808
	22	1.60	1.71	0.85	0.83	5.85	5.07		1.50	3	75.25	809
	22	1.60	1.71	1.00	0.97	5.85	5.07		1.50	3	75.25	810
	22	1.85	1.96	1.25	1.23	5.85	5.19	0.15	1.75	3	75.25	812
	22	2.15	2.26	1.50	1.47	5.85	5.34	0.15	2.00	3	75.25	815
	22	2.65	2.76	1.75	1.72	5.85	5.09	0.15	2.50	3	75.25	817
	22	2.65	2.76	1.50	1.47	5.85	5.09	0.15	2.50	3	75.25	816
	22	3.15	3.26	1.75	1.72	5.85	5.34	0.20	3.00	3	75.25	818
	22	4.15	4.26	2.50	2.47	5.85	5.34	0.20	4.00	3	75.25	825
	22	4.15	4.26	2.00	1.97	5.85	5.34	0.20	4.00	3	75.25	820
P												●
M												●
K												●
N												●
S												○
H												○
O												●

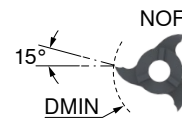
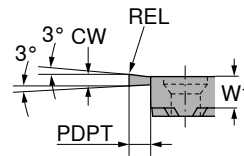
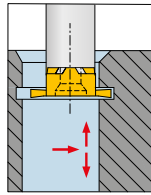
→ v_c/f_z Page 76

When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → Page 77+78.

MiniMill – Milling insert for groove milling



CWX500



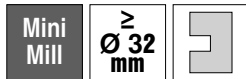
53 007 ...

Size	DMIN mm	CW _{0.02} mm	PDPT mm	W1 mm	REL mm	NOF	£ W2	
10	10	1.0	1.5	3.50	0.1	3	70.90	010
	10	1.5	1.5	3.50	0.2	3	63.50	015
	10	2.0	1.5	3.50	0.2	3	63.50	020
	10	2.5	1.5	3.50	0.2	3	63.50	025
	12	1.5	2.0	3.50	0.2	6	63.98	114
	12	1.5	2.5	3.50	0.2	3	63.50	115
	12	2.0	2.0	3.50	0.2	6	63.98	119
	12	2.0	2.5	3.50	0.2	3	63.50	120
	12	2.5	2.5	3.50	0.2	3	63.50	125
	14	1.0	2.5	4.50		3	72.50	210
	14	1.5	2.5	4.50	0.2	3	66.54	215
	14	2.0	2.5	4.50	0.2	3	66.54	220
14	14	2.5	2.5	4.50	0.2	3	66.54	225
	16	1.5	3.5	4.50	0.2	3	66.54	315
	16	2.0	3.5	4.50	0.2	3	66.54	320
	16	2.5	3.5	4.50	0.2	3	66.54	325
	18	1.5	3.5	5.75	0.1	6	72.42	414
	18	1.5	3.5	5.75	0.2	3	68.15	415
	18	2.0	3.5	5.75	0.2	6	72.42	419
18	18	2.0	3.5	5.75	0.2	3	68.15	420
	18	2.5	3.5	5.75	0.2	6	72.42	424
	18	2.5	3.5	5.75	0.2	3	68.15	425
	18	3.0	3.5	5.75	0.2	6	72.42	429
	18	3.0	3.5	5.75	0.2	3	68.15	430
	18	4.0	3.5	5.75	0.2	3	39.56	440
	22	1.0	4.5	6.20	0.1	6	70.92	810
	22	1.5	4.5	6.20	0.1	6	153.99	815
	22	1.5	4.5	5.70	0.2	3	81.23	515
	22	2.0	4.5	5.70	0.2	3	81.23	520
22	22	2.0	4.5	6.20	0.2	6	153.99	820
	22	2.5	4.5	5.70	0.2	3	81.23	525
	22	2.5	4.5	6.20	0.2	6	153.99	825
	22	3.0	4.5	5.70	0.2	3	81.23	530
	22	3.0	4.5	6.20	0.2	6	153.99	830
	22	3.5	4.5	5.70	0.2	3	41.33	535
	22	4.0	4.5	5.70	0.2	3	81.23	540
	22	4.0	4.5	6.20	0.2	6	153.99	840
	25	2.0	5.0	6.50	0.2	3	81.23	620
	25	2.5	5.0	6.50	0.2	3	81.23	625
	25	3.0	5.0	6.50	0.2	3	81.23	630
	25	3.5	5.0	6.50	0.2	3	81.23	635
28	25	4.0	5.0	6.50	0.2	3	81.23	640
	28	1.0	6.5	6.25	0.1	6	78.83	610
	28	1.5	6.5	6.25	0.1	6	77.75	615
	28	1.5	6.5	6.50	0.2	3	81.23	715
	28	2.0	6.5	6.25	0.2	6	78.71	721
	28	2.0	6.5	6.50	0.2	3	81.23	720
	28	2.5	6.5	6.25	0.2	6	79.53	726
	28	2.5	6.5	6.50	0.2	3	81.23	725
	28	3.0	6.5	6.50	0.2	3	81.23	730
	28	3.0	6.5	6.25	0.2	6	80.35	731
	28	3.5	6.5	6.50	0.2	3	81.23	735
	28	4.0	6.5	6.25	0.2	6	82.12	741
	28	4.0	6.5	6.50	0.2	3	81.23	740
	28	5.0	6.5	6.50	0.2	3	47.33	750
	28	6.0	6.5	6.50	0.2	3	48.30	760

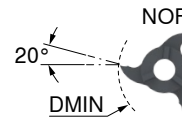
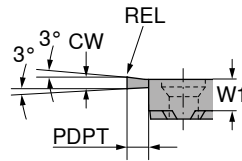
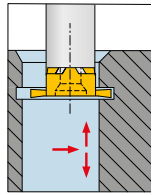
P	•
M	•
K	•
N	•
S	○
H	○
O	•

→ v_c/f_z Page 76When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → Page 77+78.

MiniMill – Milling insert for groove milling (Specialist for aluminium)



CWX500



Size	DMIN mm	CW _{0.02} mm	PDPT mm	W1 mm	REL mm	NOF
28	32	2.0	8.5	6.5	0.2	3
	32	2.5	8.5	6.5	0.2	3
	32	3.0	8.5	6.5	0.2	3

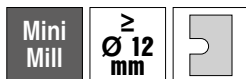
53 007 ...

£	W2
90.66	920
90.66	925
90.66	930

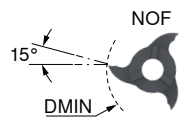
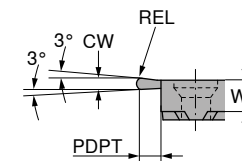
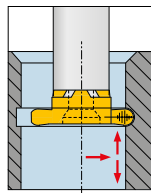
P	
M	
K	
N	•
S	
H	
O	

→ v_c/f_z Page 76

MiniMill – Milling insert for groove milling with full radius



CWX500



Size	DMIN mm	CW _{+0.03} mm	PDPT mm	W1 mm	REL mm	NOF
10	12	2.2	2.5	3.50	1.1	3
14	16	2.2	3.5	4.60	1.1	3
18	18	2.2	3.5	5.75	1.1	3
22	22	1.0	4.5	5.75	0.5	3
	22	1.6	4.5	5.75	0.8	3
	22	2.0	4.5	5.75	1.0	3
	22	2.4	4.5	5.75	1.2	3
	22	2.8	4.5	5.75	1.4	3
	22	3.0	4.5	5.75	1.5	3
	22	4.0	4.5	5.75	2.0	3
	22	4.4	4.5	5.75	2.2	3
	22	5.0	4.5	5.75	2.5	3

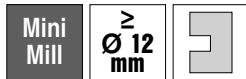
53 008 ...

£	W2
81.23	011
82.81	111
84.26	211
49.10	305
49.93	308
49.10	310
50.89	312
84.26	314
49.10	315
49.10	320
50.62	322
52.51	325

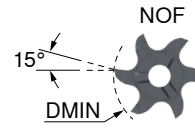
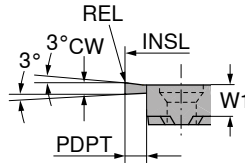
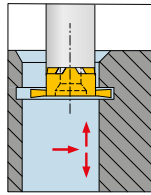
P	•
M	•
K	•
N	•
S	•
H	○
O	•

→ v_c/f_z Page 76When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → Page 77+78.

MiniMill – Milling insert for groove milling, cross-pitched



CWX500

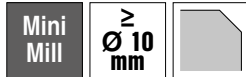


53 015 ...

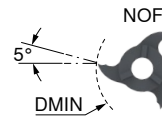
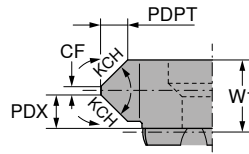
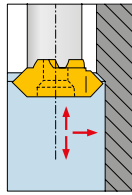
Size	DMIN mm	INSL mm	CW mm +0,02	PDPT mm	W1 mm	REL mm	NOF	£ W2	
10	12	11.7	1.5	2.0	3.5	0.2	6	59.93	114
	12	11.7	2.0	2.0	3.5	0.2	6	59.93	119
14	16	15.7	1.5	2.5	4.5	0.2	6	61.10	314
	16	15.7	2.0	2.5	4.5	0.2	6	61.10	319
	16	15.7	2.5	2.5	4.5	0.2	6	61.10	324
18	18	17.7	2.0	4.0	5.8	0.2	6	68.16	419
	18	17.7	2.5	4.0	5.8	0.2	6	68.16	424
	18	17.7	3.0	4.0	5.8	0.2	6	68.16	429
	20	19.7	2.0	5.0	5.8	0.2	6	68.16	469
	20	19.7	2.5	5.0	5.8	0.2	6	68.16	474
	20	19.7	3.0	5.0	5.8	0.2	6	68.16	479
22	22	21.7	2.0	4.5	6.2	0.2	6	65.80	820
	22	21.7	2.5	4.5	6.2	0.2	6	65.80	825
	22	21.7	3.0	4.5	6.2	0.2	6	65.80	830
	22	21.7	4.0	4.5	6.2	0.2	6	65.80	840
	37	36.7	1.5	12.0	6.2	0.1	6	85.80	865
	37	36.7	2.0	12.0	6.2	0.2	6	85.80	870
28	25	24.8	2.5	5.0	6.4	0.2	6	75.21	626
	25	24.8	3.0	5.0	6.4	0.2	6	75.21	631
	25	24.8	4.0	5.0	6.4	0.2	6	78.74	641
	25	24.8	5.0	5.0	6.4	0.2	6	82.26	651
	25	24.8	6.0	5.0	6.4	0.2	6	83.43	661
	28	27.7	2.5	6.5	6.2	0.2	6	75.21	726
	28	27.7	3.0	6.5	6.2	0.2	6	75.21	731
	28	27.7	4.0	6.5	6.2	0.2	6	77.55	741
	28	27.7	5.0	6.5	6.2	0.2	6	78.74	751
	28	27.7	6.0	6.5	6.2	0.2	6	78.74	761
	35	34.7	2.0	10.0	6.2	0.2	6	82.26	770
	35	34.7	2.5	10.0	6.2	0.2	6	83.43	775
	35	34.7	3.0	10.0	6.2	0.2	6	83.43	780
P									●
M									●
K									●
N									●
S									○
H									○
O									●

→ v_c/f_z Page 76When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → Page 77+78.

MiniMill – Milling insert for groove milling and chamfering



CWX500



53 009 ...

Size	DMIN mm	CF _{+0.03} mm	PDPT mm	W1 mm	KCH °	PDX mm	NOF	£ W2	
10	10	0.2	0.35	3.60	15	1.80	6	64.39	015
	10	0.2	0.45	3.60	20	1.80	6	64.39	020
	10	0.2	0.70	3.60	30	1.80	6	64.39	030
	10	0.2	1.20	3.60	45	1.80	6	64.39	045
	12	1.2	0.80	3.50	45	1.20	3	54.62	035
14	16	1.4	1.20	4.50	45	1.60	3	56.25	145
18	18	2.5	1.40	5.85	45	1.70	3	57.11	258
	18	0.2	2.20	5.75	45	3.00	6	71.36	259
22	22	2.0	1.70	5.85	45	2.00	3	60.59	358
	22	0.2	2.50	6.40	45	3.90	6	155.58	463
	22	3.0	3.00	9.40	45	3.25	3	63.50	394 ¹⁾
28	28	0.2	1.90	6.05	45	3.75	6	77.62	560
P									●
M									●
K									●
N									●
S									○
H									○
O									●

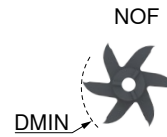
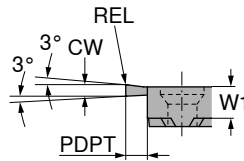
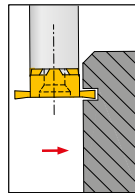
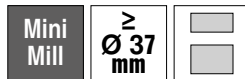
1) Use clamping screw 73 082 006

→ v_c/f_z Page 76When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → Page 77+78.

MiniMill – Milling insert for part-off

▲ PDPT = 12,0 mm in combination with holder 53 003 624

▲ reduce feed rate by 50 %



CW500



							53 013 ...	
Size	DMIN mm	CW ^{+0,02} mm	PDPT mm	W1 mm	REL mm	NOF	£ W2	
22	37	0.5	12	5.6		6	118.97	705 ¹⁾
	37	0.6	12	5.7		6	112.67	706 ¹⁾
	37	0.8	12	6.0		6	111.16	708 ¹⁾
	37	1.0	12	6.2	0.1	6	114.40	710
	37	1.5	12	6.2	0.1	6	97.62	715
P								•
M								•
K								•
N								•
S								○
H								
O								•

1) The end face is not ground free to the center

→ v_c/f_z Page 76

MiniMill – Set for cut off

▲ Size 22

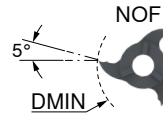
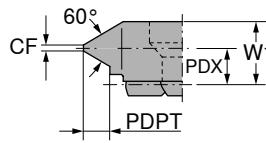
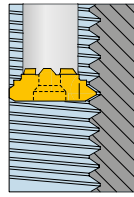
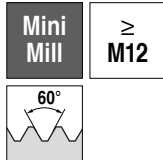


					53 014 ...	
Tool	Designation	Article no.	Bore-Ø mm	Piece	£	
Inserts	Milling inserts for separating	53 013 715	37	2		
Tool holder	Endmill short	53 003 624		1	320.31	990
Screw	M5 x 12	73 082 005		1		
Tightening Key	T20			1		



When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → Page 77+78.

MiniMill – Milling insert for internal thread milling – Partial profile



CWX500

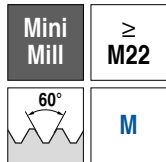


53 010 ...

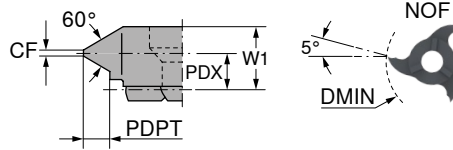
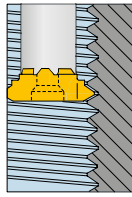
Size	Thread _{min}	TP mm	DMIN mm	CF mm	PDPT mm	W1 mm	PDX mm	NOF	£ W2	
10	M12	1,0 - 1,75	9.8	0.13	1.02	3.20	2.4	6	72.18	017
	M14	1,0 - 1,75	11.7	0.13	1.08	3.60	2.8	3	84.26	010
	M14	1,0 - 2,0	10.1	0.13	1.25	3.20	2.2	6	72.18	021
	M14	1,0 - 2,0	11.7	0.13	1.25	3.60	2.8	3	84.26	020
	M16	1,5 - 2,75	11.0	0.19	1.67	3.20	2.0	6	72.18	027
	M16	1,5 - 2,75	11.7	0.19	1.67	3.60	2.4	3	84.26	015
	M16	2,0 - 3,0	11.1	0.25	1.78	3.20	1.9	6	72.18	029
	M16	2,0 - 3,0	11.7	0.25	1.78	3.60	2.2	3	84.26	030
14	M18	1,0 - 1,75	15.7	0.12	1.08	4.60	3.8	3	85.70	210
	M18	1,0 - 2,0	15.7	0.12	1.25	4.60	3.5	3	85.70	220
	M20	1,5 - 2,75	15.7	0.18	1.67	4.60	3.5	3	85.70	215
	M22	2,5 - 3,0	15.7	0.31	1.78	4.60	3.4	3	85.70	230
18	M22	1,0 - 1,75	17.7	0.12	1.03	5.85	5.0	3	91.81	410
	M22	1,0 - 2,0	17.7	0.12	1.19	5.85	4.7	3	85.70	412
	M22	1,0 - 2,0	17.7	0.12	1.19	5.85	5.0	6	84.16	416
	M22	1,5 - 2,75	17.7	0.19	1.62	5.85	4.6	3	85.70	415
	M24	2,0 - 3,0	17.7	0.25	1.73	5.85	4.4	3	91.81	425
	M24	2,0 - 3,5	17.7	0.25	2.06	5.85	4.2	3	85.70	455
	M24	2,0 - 3,5	17.7	0.25	2.06	5.85	4.3	6	85.92	434
	M24	2,0 - 3,75	17.7	0.25	2.22	5.85	4.2	3	85.70	420
	M24	2,5 - 5,0	17.7	0.31	2.98	5.85	3.8	3	85.70	430
	M24	3,0 - 5,5	17.7	0.38	3.25	5.85	4.2	3	85.70	435
22	M27	1,0 - 2,0	21.7	0.12	1.19	5.85	4.6	3	88.78	610
	M27	1,0 - 2,0	21.7	0.12	1.19	6.20	5.0	6	182.45	710
	M27	1,5 - 2,75	21.7	0.18	1.62	5.85	4.5	3	88.78	615
	M27	2,0 - 3,75	21.7	0.25	2.22	5.85	4.2	3	88.78	620
	M27	2,5 - 4,5	21.7	0.25	2.70	5.85	3.7	3	91.81	655
	M27	2,0 - 4,5	21.7	0.25	2.70	6.05	4.2	6	187.40	755
	M30	2,5 - 5,0	21.7	0.31	2.98	5.85	3.8	3	88.78	630
	M30	3,5 - 6,0	21.7	0.44	3.52	5.85	3.4	3	91.81	640
28	M30	3,5 - 6,5	21.7	0.44	3.84	5.85	3.2	3	91.81	645
	M33	1,0 - 2,0	27.7	0.12	1.20	6.60	4.5	3	60.44	820
	M33	1,5 - 2,5	27.7	0.18	1.49	6.60	4.3	3	60.44	825
	M33	1,5 - 2,5	27.7	0.19	1.60	6.10	5.0	6	90.44	826
	M36	2,5 - 5,0	27.7	0.38	2.93	6.10	2.3	6	90.44	850
	M36	2,5 - 5,0	27.7	0.37	2.93	6.60	4.0	3	60.44	840
28	M39	4,0 - 6,0	27.7	0.62	3.37	6.60	3.6	3	60.44	860
P										●
M										●
K										●
N										●
S										○
H										○
O										●

→ v_c/f_z Page 76When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → Page 77+78.

MiniMill – Milling insert for internal thread milling – Full profile



CWX500

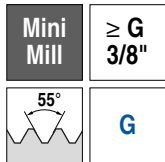


									53 011 ...	
Size	Thread _{min}	TP mm	DMIN mm	CF mm	PDPT mm	W1 mm	PDX mm	NOF	£	
18	M22	1.50	17.7	0.18	0.81	5.85	4.8	3	88.78	415
	M22	1.75	17.7	0.20	0.95	5.85	4.7	3	94.44	417
	M22	2.00	17.7	0.25	1.08	5.85	4.6	3	94.44	420
	M24	2.50	17.7	0.31	1.35	5.85	4.4	3	94.44	425
	M27	3.00	17.7	0.37	1.62	5.85	4.3	3	94.44	430
	M27	3.50	17.7	0.43	1.89	5.85	4.0	3	94.44	435
22	M24	1.50	21.7	0.19	0.81	5.85	4.8	3	93.12	615
	M24	1.50	21.7	0.19	0.81	6.20	5.3	6	82.38	715
	M27	1.75	21.7	0.22	0.95	6.20	5.2	6	86.61	717
	M27	1.75	21.7	0.22	0.95	5.85	4.7	3	93.12	617
	M27	2.00	21.7	0.25	1.08	5.85	4.6	3	97.47	620
	M27	2.00	21.7	0.25	1.08	6.20	5.0	6	86.61	720
	M30	3.00	21.7	0.37	1.62	5.85	4.3	3	97.47	630
	M30	3.00	21.7	0.37	1.62	6.20	4.8	6	88.26	730
	M30	3.50	21.7	0.43	1.89	5.85	4.0	3	104.87	635
	M33	4.00	21.7	0.50	2.16	5.85	3.9	3	104.87	640
	M33	4.00	21.7	0.50	2.16	6.20	4.4	6	92.90	740
	M33	4.50	21.7	0.56	2.43	5.85	3.7	3	104.87	645
P										●
M										●
K										●
N										●
S										○
H										
O										●

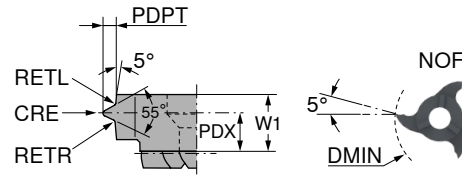
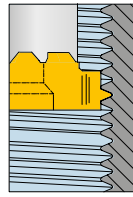
→ v_c/f_z Page 76

When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → Page 77+78.

MiniMill – Milling insert for internal thread milling – Full profile



CWX500



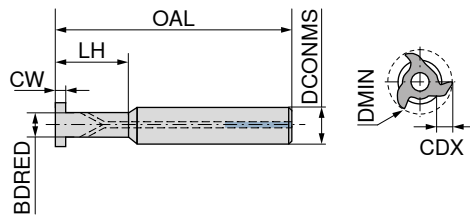
53 012 ...

Size	Thread _{min}	TP mm	DMIN mm	TPI 1/"	W1 mm	PDX mm	PDPT mm	CRE mm	RETL mm	RETR mm	NOF	£ W2	
10	G 3/8"	1.34	11.7	19	3.60	2.5	0.860	0.18	0.18	0.18	3	104.61	113
	G 1/2"	1.81	11.7	14	3.60	2.3	1.160	0.24	0.24	0.24	3	104.61	118
	G 1"	2.31	11.7	11	3.60	2.0	1.480	0.31	0.31	0.31	3	104.61	123
18	G 3/4"	1.34	17.7	19	5.85	4.9	0.856	0.18	0.18	0.18	3	52.51	219
	G 1"	1.81	17.7	14	5.85	4.6	1.160	0.24	0.24	0.24	3	52.51	214
	G 1 1/2"	2.31	17.7	11	5.85	4.4	1.480	0.31	0.31	0.31	3	52.51	211
22	G 1"	2.31	21.7	11	5.85	4.0	1.480	0.31	0.31	0.31	3	109.25	311
	BSW 1 1/2"	3.17	21.7	8	5.85	3.5	2.030	0.43	0.43	0.43	3	116.81	308
		4.23	21.7	6	5.85	3.1	2.710	0.58	0.58	0.58	3	116.81	306
P													•
M													•
K													•
N													•
S													○
H													
O													•

→ v_c/f_z Page 76When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → Page 77+78.

MiniMill – Circular milling cutter, extra short

▲ Steel Version

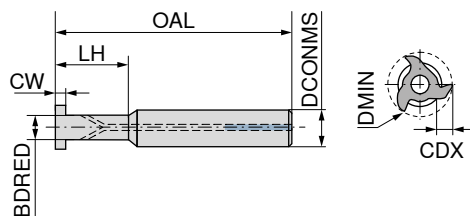
A
Steel

53 004 ...

Size	DCONMS mm _{h6}	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm	£ W1	
10	10	6.0	60	15.2	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	245.08	015
14	10	8.0	60	17.7	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	245.08	217
	13	8.0	70	25.7	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	251.02	225
18	10	9.0	60	17.0	17,7	≤5,6	3,5	4,5	245.08	417
	13	9.0	70	25.0	17,7	≤5,6	3,5	4,5	251.02	425
22	10	11.3	60	10.7	21,7	≤9,15	4,5	7,0	251.02	610
	13	11.3	70	25.7	21,7	≤9,15	4	7,0	259.89	625
28	13	14.0	70	10.7	27,7	≤10	6,5	7,0	251.02	810
	20	14.0	100	35.7	27,7	≤10	6,5	7,0	259.89	835

MiniMill – Circular milling cutter, short

▲ Steel Version

A
Steel

53 002 ...

B
Steel

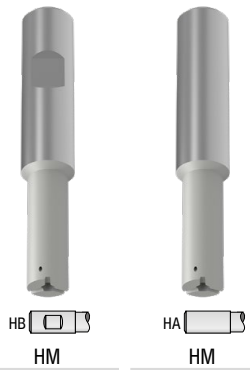
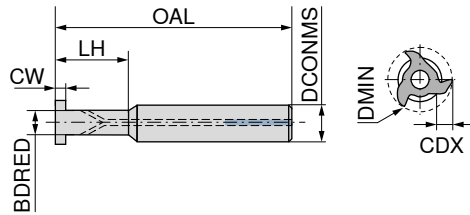
53 003 ...

Size	DCONMS mm _{h6}	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm	£ W1		£ W1	
10	16	6	80	12.0	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	283.42	012	283.42	012
14	16	8	80	16.0	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	283.42	216	283.42	216
18	16	9	80	18.0	17,7	≤5,6	3,5	4,5	277.32	418	277.32	418
22	16	12	80	24.0	21,7	≤9,15	4,5	7,0	280.37	624	280.37	624
28	20	14	100	35.7	27,7	≤10	6,5	7,0			532.12	835

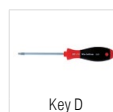


When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

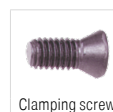
MiniMill – Circular milling cutter, vibration-damped



Size	DCONMS _{h6} mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm	53 001 ... £ W1	53 000 ... £ W1
10	12	6.0	80	21	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	359.96	021
	12	6.0	90	30	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	389.59	030
	12	6.0	100	42	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	445.83	042
	12	7.3	90	30	9,7 / 11,7	≤3,35	0,9 / 1,85	2,0	407.32	130
	16	7.3	100	25	9,7 / 11,7	≤3,35	0,9 / 1,85	2,0	599.21	025
14	12	8.0	95	29	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	359.96	229
	12	8.0	110	42	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	392.50	242
	12	8.0	120	56	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	445.83	256
	12	9.5	110	42	13,7 / 15,7	≤4,35	1,65 / 2,7	3,5	445.83	342
	16	9.5	110	33	13,7 / 15,7	≤4,35	1,65 / 2,7	3,5	548.97	233
18	12	9.0	100	32	17,7	≤5,6	3,5	4,5	448.73	432
	12	9.0	100	45	17,7	≤5,6	3,5	4,5	501.75	445
	12	9.0	120	64	17,7	≤5,6	3,5	4,5	593.26	464
	16	9.0	93	25	17,7	≤5,6	3,5	4,5	501.75	425
	16	9.0	100	32	17,7	≤5,6	3,5	4,5	531.24	532
	16	9.0	110	45	17,7	≤5,6	3,5	4,5	622.76	545
	16	9.0	130	64	17,7	≤5,6	3,5	4,5	717.17	564
	16	13.0	110	64	17,7	≤5,6	1,5	4,5	548.97	465
	16	13.0	130	66	17,7	≤5,6	1,5	4,5	696.56	466
22	12		100	42	21,7	≤9,15	4,5	7,0	395.41	642
	12		130	60	21,7	≤9,15	4,5	7,0	469.21	660
	16	11.5	90	30	21,7	≤9,15	4,5	7,0	501.75	630
	16	12.0	100	42	21,7	≤9,15	4,5	7,0	522.38	742
	16	12.0	130	60	21,7	≤9,15	4,5	7,0	625.66	760
	16	12.0	160	85	21,7	≤9,15	4,5	7,0	711.38	685
	20	16.0	110	45	21,7	≤9,15	2,5	7,0	761.34	645
	20	16.0	130	65	21,7	≤9,15	2,5	7,0	767.27	665
28	16	14.3	100	42	27,7 / 24,8	≤10	6,5 / 5	7,0	554.77	842
	16	14.3	130	60	27,7 / 24,8	≤10	6,5 / 5	7,0	658.05	860
	16	14.3	160	85	27,7 / 24,8	≤10	6,5 / 5	7,0	770.32	885
	20	13.5	104	35	27,7 / 24,8	≤10	6,5 / 5	7,0	684.63	835
	20	14.3	160	85	27,7 / 24,8	≤10	6,5 / 5	7,0	876.38	985



Key D



Clamping screw



Clamping screw

Spare parts

Size

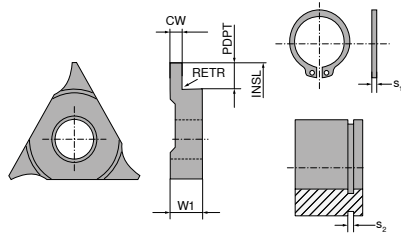
Size	80 950 ... £ Y7	73 082 ... £ Y5	73 082 ... £ Y5
10	T08 10.82 110		M2,6 7.50 002
14	T10 12.65 112		M3,5 7.50 003
18	T15 12.87 113		M4 7.50 004
22	T20 13.77 114	M5 14.66 006	M5 7.50 005
28	T20 13.77 114		M5 7.50 005



Clamping screw 73 082 006 only for insert 53 009 394

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → Page 77+78.

Milling inserts for circlip grooves without chamfer



Ti500



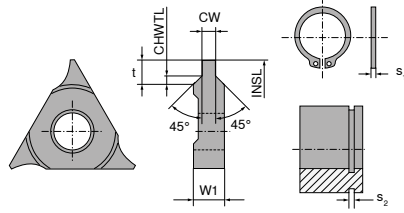
Solid carbide

50 853 ...

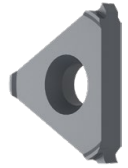
Size	S ₂ H13 mm	INSL mm	W1 mm	CW _{-0.03} mm	PDPT mm	RETR mm	S ₁ mm	£ W2	
04	0.90	7.9	2.34	0.98	0.70	0.3	0.80	54.62	300
03	0.90	10.6	2.34	0.98	0.70	0.3	0.80	45.20	302
	1.10	10.6	2.34	1.18	0.90	0.3	1.00	45.20	304
	1.30	10.6	2.34	1.38	1.10	0.3	1.20	45.20	306
	1.60	10.6	2.34	1.68	1.25	0.3	1.50	45.20	308
	1.85	10.6	2.34	1.93	1.25	0.3	1.75	45.20	310
02	0.90	17.5	3.50	0.98	0.70	0.3	0.80	41.19	312
	1.10	17.5	3.50	1.18	0.90	0.3	1.00	41.19	314
	1.30	17.5	3.50	1.38	1.10	0.3	1.20	41.19	316
	1.60	17.5	3.50	1.68	1.25	0.3	1.50	41.19	318
	1.85	17.5	3.50	1.93	1.25	0.3	1.75	41.19	320
	2.15	17.5	3.50	2.23	1.75	0.3	2.00	41.19	322
	2.65	17.5	3.50	2.73	1.75	0.3	2.50	41.19	324
	3.15	17.5	3.50	3.23	2.20	0.3	3.00	41.19	326
01	0.90	23.0	4.00	0.98	0.70	0.3	0.80	41.19	328
	1.10	23.0	4.00	1.18	0.90	0.3	1.00	41.19	330
	1.30	23.0	4.00	1.38	1.10	0.3	1.20	41.19	332
	1.60	23.0	4.00	1.68	1.25	0.3	1.50	41.19	334
	1.85	23.0	4.00	1.93	1.25	0.3	1.75	41.19	336
	2.15	23.0	4.00	2.23	1.75	0.3	2.00	41.19	338
	2.65	23.0	4.00	2.73	1.75	0.3	2.50	41.19	340
	3.15	23.0	4.00	3.23	2.20	0.3	3.00	41.19	342
P									•
M									•
K									•
N									•
S									•
H									○
O									•

→ v_c/f_z Page 73When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → Page 77+78.

Milling inserts for circlip grooves with chamfer



Ti500



Solid carbide

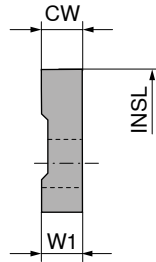
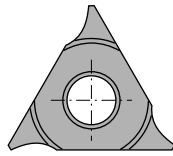
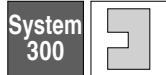
50 852 ...

Size	S ₂ H13 mm	INSL mm	W1 mm	CW _{-0.03} mm	t mm	CHWTL mm	s ₁ mm	£ W2	
03	1.10	10.6	2.34	1.18	0.50	0.10	1.00	48.37	302
02	1.10	17.5	3.50	1.18	0.50	0.10	1.00	42.81	312
	1.30	17.5	3.50	1.38	0.85	0.15	1.20	42.81	314
	1.60	17.5	3.50	1.68	1.00	0.15	1.50	42.81	316
	1.85	17.5	3.50	1.93	1.25	0.20	1.75	42.81	317
	2.15	17.5	3.50	2.23	1.50	0.20	2.00	42.81	318
	2.65	17.5	3.50	2.73	1.50	0.20	2.50	42.81	319
01	1.10	23.0	4.00	1.18	0.50	0.10	1.00	42.81	320
	1.30	23.0	4.00	1.38	0.70	0.15	1.20	42.81	321
	1.30	23.0	4.00	1.38	0.85	0.15	1.20	42.81	322
	1.60	23.0	4.00	1.68	1.00	0.15	1.50	42.81	324
	1.60	23.0	4.00	1.68	0.85	0.15	1.50	42.81	323
	1.85	23.0	4.00	1.93	1.25	0.20	1.75	42.81	325
	2.15	23.0	4.00	2.23	1.50	0.20	2.00	42.81	326
	2.65	23.0	4.00	2.73	1.75	0.20	2.50	42.81	328
	2.65	23.0	4.00	2.73	1.50	0.20	2.50	42.81	327
	3.15	23.0	4.00	3.32	1.75	0.20	3.00	42.81	329
P									●
M									●
K									●
N									●
S									●
H									○
O									●

→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Milling inserts without profile, ground ready-for-use



Solid carbide

50 851 ...

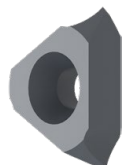
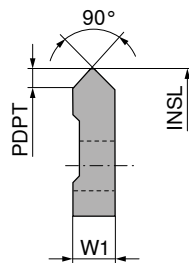
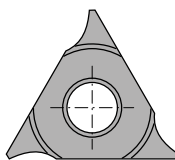
Size	CW _{+0,02} mm	INS� mm	W1 mm	£ W2	
04	2.00	7.9	2.34	54.62	302
03	2.34	10.6	2.34	45.20	304
	3.00	10.6	3.00	48.37	306
02	3.50	17.5	3.50	41.19	312
	5.00	17.5	5.00	48.37	314
	6.00	17.5	6.00	52.24	316
01	4.00	23.0	4.00	50.79	322 ¹⁾
	6.50	23.0	6.50	50.79	324 ¹⁾
P					•
M					•
K					•
N					•
S					•
H					○
O					•

1) with circular milling cutter 50 800 090 PDPT = 3.0 mm

→ v_c/f_z Page 73

7

Milling inserts for chamfering and deburring



Solid carbide

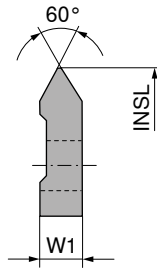
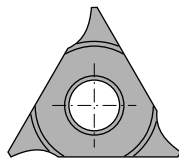
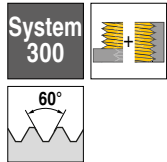
50 857 ...

Size	PDPT mm	INS� mm	W1 mm	£ W2	
03	1.50	10.6	3.0	45.20	304
02	2.50	17.5	5.0	45.20	314
01	3.25	23.0	6.5	45.20	322 ¹⁾
P					•
M					•
K					•
N					•
S					•
H					○
O					•

1) with circular milling cutter 50 800 090 PDPT = 3.0 mm

→ v_c/f_z Page 73When calculating the feedrate for circular milling it is important to know whether contour feed v_t or feed on the center path v_{fm} is used. Details on → Page 77+78.

Thread milling insert – Partial profile



Ti500



Solid carbide

50 855 ...

Size	TP mm	INSL mm	W1 mm
02	1 - 3,5	17.5	3.5
01	1 - 4,0	23.0	4.0

£

W2

50.79

314

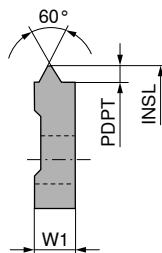
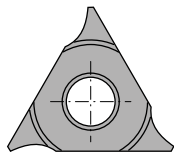
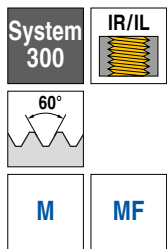
50.79

324

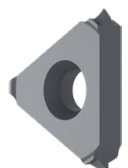
P	•
M	•
K	•
N	•
S	•
H	○
O	•

→ v_c/f_z Page 73

Thread milling insert – Full profile



Ti500



Solid carbide

50 859 ...

Size	TP mm	INSL mm	W1 mm	PDPT mm
03	1.0	10.6	2.34	0.578
	1.5	10.6	2.34	0.864
	2.0	10.6	2.34	1.159
02	1.0	17.5	3.50	0.578
	1.5	17.5	3.50	0.864
	2.0	17.5	3.50	1.159
	2.5	16.0	3.50	1.444
	2.5	17.5	3.50	1.444
	3.0	17.5	3.50	1.728
01	1.0	23.0	4.00	0.578
	1.5	23.0	4.00	0.864
	2.0	23.0	4.00	1.159
	2.5	23.0	4.00	1.444
	3.0	23.0	4.00	1.728
	3.5	23.0	4.00	2.023
	4.0	23.0	4.00	2.308
	4.5	23.0	6.50	2.602
	5.0	23.0	6.50	2.887
	6.0	23.0	6.50	3.467

£

W2

61.66

304

61.66

308

61.66

310

61.66

311

61.66

312

61.66

314

85.17

317 ¹⁾

61.66

316

77.33

318

64.20

320

64.20

322

64.20

324

64.20

326

64.20

328

64.20

330

64.20

332

73.63

334

73.63

336

73.63

338 ²⁾

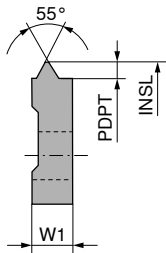
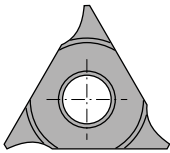
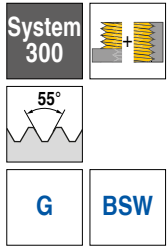
P	•
M	•
K	•
N	•
S	•
H	○
O	•

1) M20x2,5 - profile corrected

2) with circular milling cutter 50 800 090 PDPT = 3.0 mm

→ v_c/f_z Page 73

Thread milling insert – Full profile



Ti500



Solid carbide

50 858 ...

£

W2

61.66

314

61.66

312

64.20

322

Size	TP mm	TPI 1/"	INSL mm	W1 mm	PDPT mm
02	1.814	14	17.5	3.5	1.162
	2.309	11	17.5	3.5	1.494
01	2.309	11	23.0	4.0	1.494

P	•
M	•
K	•
N	•
S	•
H	○
O	•

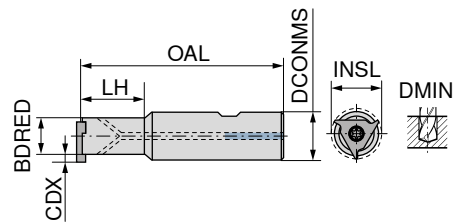
→ v_c/f_z Page 73



When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Circular milling cutter

▲ Size refers to milling inserts



HB

50 800 ...

Size	INSL mm	CDX mm	LH mm	DCONMS _{h6} mm	OAL mm	BDRED mm	DMIN mm	torque moment Nm		
04	7.9	0.35	17.2	10	57.20	7.1	8	0,9	£ W1	
									152.52	015 ¹⁾
03	10.6	1.60	17.2	10	57.20	7.4	11	0,9	156.75	020 ¹⁾
	10.6	1.60	34.2	10	74.20	7.4	11	0,9	338.47	025 ²⁾
02	17.5	2.60	28.7	12	74.05	12.0	20	3,8	167.06	030
	17.5	2.60	63.7	12	108.70	12.0	20	3,8	357.93	045 ²⁾
01	23.0	3.45	38.5	16	87.00	16.1	25	5,5	175.49	050
	23.0	3.45	67.5	16	116.00	16.1	25	5,5	175.42	070
	23.0	3.00	88.5	16	137.00	17.0	25	5,5	377.25	090 ²⁾

1) Without Through Coolant

2) Carbide version



Key D



Clamping screw

Spare parts

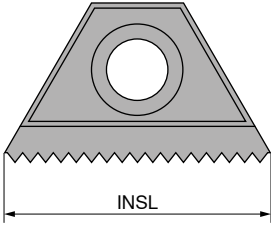
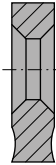
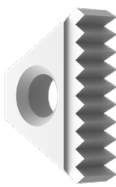
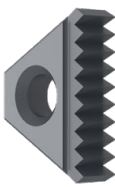
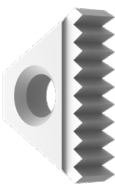
Size

		£ Y7			£ 2A	
04	T06 - IP	14.36	123	M2x9	3.98	232
03	T06 - IP	14.36	123	M2x9	3.98	232
02	T15 - IP	16.56	128	M4x12,3	5.99	233
01	T20 - IP	17.39	129	M5x15	5.99	234

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → Page 77+78.

Thread milling insert

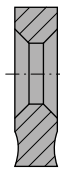
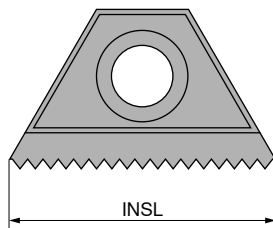
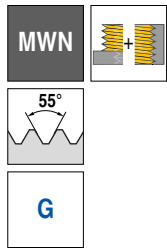
▲ Can be used on both sides (except for INSL 10.4)

MWN				IR/IL		IR/IL		ER/EL		ER/EL	
60°						TiAlN				TiAlN	
M		MF									
											

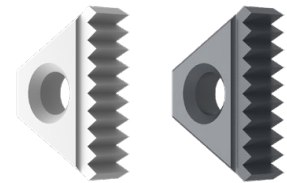
→ v_c/f_z Page 72When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → Page 77+78.

Thread milling insert

▲ Can be used on both sides (except for INSL 10.4)



TIAlN



INSL mm	TPI 1/"	TP mm
10.4	19	1.337
16.0	14	1.814
	11	2.309
27.0	11	2.309

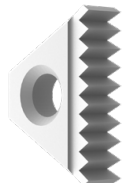
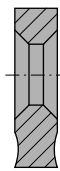
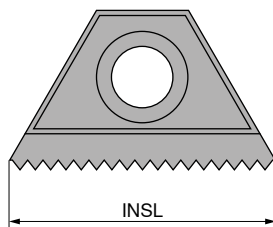
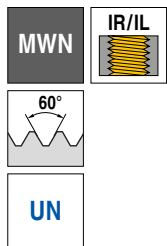
P	●	●
M	○	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	○

Solid carbide		Solid carbide	
50 895 ...		50 895 ...	
£		£	
W2		W2	
70.17	100	90.45	300
71.54	142	90.45	342
71.54	144	90.45	344
136.53	166	205.92	366

→ v_c/f_z Page 72

Thread milling insert

▲ Can be used on both sides (except for INSL 10.4)



INSL mm	TPI 1/"	TP mm
10.4	20	1.270
	18	1.411
16.0	16	1.588
	12	2.117
27.0	12	2.117
	8	3.175

P	●
M	○
K	●
N	●
S	●
H	●
O	●

Solid carbide	
50 892 ...	
£	
W2	
70.17	100
70.17	102
71.54	144
71.54	146
136.53	166
136.53	168

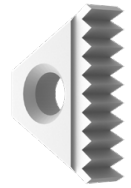
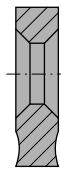
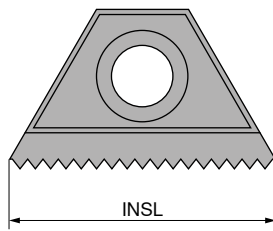
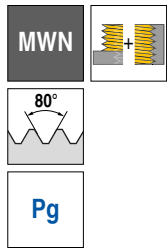
→ v_c/f_z Page 72



When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_m is used. Details on → Page 77+78.

Thread milling insert

▲ double sided



Solid carbide

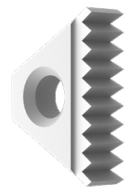
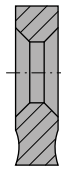
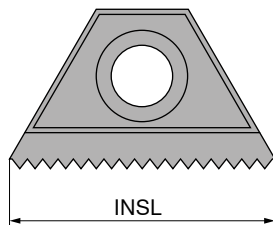
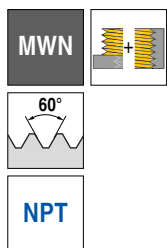
50 896 ...

INS L mm	TPI 1/"	TP mm	£ W2	
11	18	1.411	73.40	122
16	18	1.411	85.89	142
	16	1.588	70.15	144
P				●
M				○
K				●
N				●
S				
H				
O				●

→ v_c/f_z Page 72

Thread milling insert

▲ double sided



Solid carbide

50 897 ...

INS L mm	TPI 1/"	TP mm	£ W2	
16	14.0	1.814	71.54	142
	11.5	2.209	71.54	144
27	11.5	2.209	136.53	164
	8.0	3.175	136.53	166
P				●
M				○
K				●
N				●
S				
H				
O				●

→ v_c/f_z Page 72

When calculating the feedrate for circular milling it is important to know whether contour feed v_r or feed on the center path v_{fm} is used. Details on → Page 77+78.



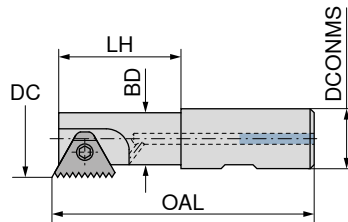
Note! Thread milling inserts are marked R (right-hand thread) and L (left-hand thread). The standard tool holder cannot be used to produce a left-hand thread! Tool holder for left-hand thread available on special request.

Circular milling cutter

▲ INSL refers to milling inserts

Scope of supply:

includes key



50 843 ...

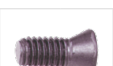
INSL mm	BD mm	LH mm	DCONMS _{h6} mm	OAL mm	DC mm	torque moment Nm	£ W1	
10.4	6.8	12	12	69	9.0	0,9	215.49	101
	6.8	17	20	84	9.0	0,9	221.17	102
11.0	8.9	12	12	70	11.5	1,2	215.49	111
	8.9	20	20	85	11.5	1,2	221.17	112
16.0	13.6	22	16	90	17.0	2,5	242.59	161
	16.6	43	20	95	20.0	2,5	242.59	162
	18.6	25	25	125	22.0	2,5	303.07	163
27.0	24.0	52	25	110	30.0	9,0	307.25	271
	31.0	58	32	120	37.0	9,0	340.86	273
	24.0	92	25	150	30.0	9,0	365.41	272
	31.0	98	32	160	37.0	9,0	419.61	274

Pilot hole diameter for circular end mill 50 843 ...

BD	TP in mm									
	0,5 mm 48 G/"	0,75 mm 32 G/"	1,0 mm 24 G/"	1,25 mm 20 G/"	1,5 mm 16 G/"	2,0 mm 12 G/"	2,5 mm 10 G/"	3,0 mm 8 G/"	3,5 mm 7 G/"	4,0 mm 6 G/"
6,8	9,5	10	10,7	11,4	12					
8,9	12	12,5	13,2	13,9	14,5					
13,6	17,6	18,2	19	19,6	20	21				
16,6	20,7	21,4	22	22,6	23	24				
18,6	22,7	23,4	24	24,6	25	26				
24,0	30,7	31,4	32	32,8	33,5	34,6	36,6	39	42	45
31,0	38	38,6	39,5	40,4	41	42	44	46,5	49	52



Key D



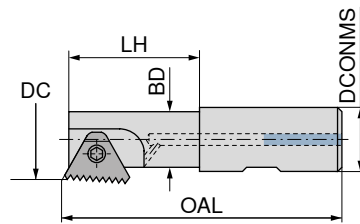
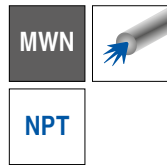
Clamping screw

Spare parts
INSL

		80 950 ...	70 950 ...
		£ Y7	£ 2A
10,4	T07	10.82 109	M2,2x5,0 1.80 200
11	T08	10.82 110	M2,6x6,5 1.80 201
16	T10	12.65 112	UNC5-40 x 8 1.80 202
27	T25	14.16 115	M5x15 2.78 203

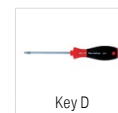
Circular milling cutter

▲ INSL refers to milling inserts

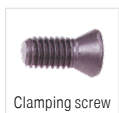


50 844 ...

INSL mm	BD mm	Thread	LH mm	DCONMS _{h6} mm	OAL mm	DC mm	torque moment Nm	£ W1	
16	12.5	NPT 1/2	22	16	90	15.5	2,5	221.17	161
	15.0	NPT 3/4 - 1 1/4	23	20	85	19.0	2,5	242.59	162
27	24.0	NPT 1 1/2 - 2	52	25	110	30.0	9,0	307.25	271
	31.0	NPT > 2	58	32	120	37.0	9,0	340.86	272



Key D



Clamping screw

80 950 ...

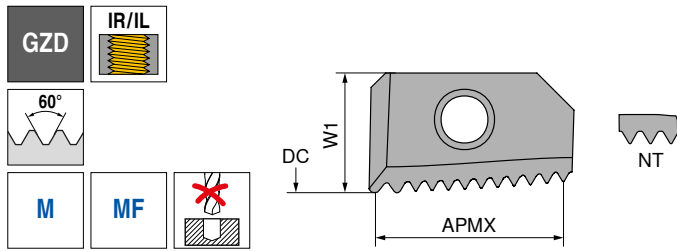
70 950 ...

Spare parts
INSL

INSL		£ Y7		£ 2A	
16	T10	12.65	112	1.80	202
27	T25	14.16	115	2.78	203

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → Page 77+78.

Thread milling insert



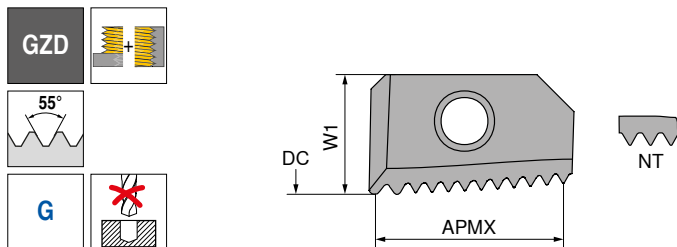
Solid carbide

50 863 ...

DC mm	TP mm	W1 mm	APMX mm	NT	£ W2	
12	1.0	7.5	12.0	13	59.27	300
	1.5	7.5	10.5	8	59.27	302
17	1.0	11.0	16.0	17	59.27	310
	1.5	11.0	16.5	12	59.27	312
	2.0	11.0	16.0	9	59.27	314
20	1.0	7.5	12.0	13	59.27	320
	1.5	7.5	10.5	8	59.27	322
25	1.0	11.0	16.0	17	59.27	330
	1.5	11.0	16.5	12	59.27	332
	2.0	11.0	16.0	9	59.27	334
P						•
M						•
K						•
N						•
S						
H						
O						

→ v_c/f_z Page 73

Thread milling insert



Solid carbide

50 864 ...

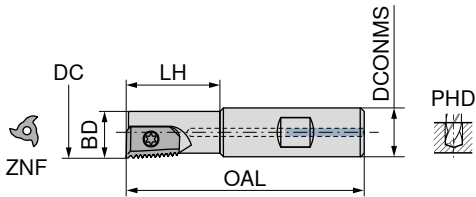
DC mm	TPI 1/"	W1 mm	APMX mm	NT	£ W2	
12	14	7.5	9.07	6	59.27	300
17	14	11.0	16.33	10	77.33	312 ¹⁾
	14	11.0	16.33	10	77.33	314 ²⁾
	11	11.0	16.16	8	77.33	310
25	14	11.0	16.33	10	77.33	332
	11	11.0	16.16	8	77.33	330
P						•
M						•
K						•
N						•
S						
H						
O						

1) Thread: 5/8 - 3/4 - 7/8

2) 1/2" Profile corrected

→ v_c/f_z Page 73

Circular milling cutter



B

50 842 ...

DC mm	LH mm	DCONMS _{h6} mm	OAL mm	BD mm	ZNF	PHD mm	torque moment Nm	£ W1	
12	18	16	74.0	9.4	1	14	1,1	182.16	121
17	30	16	79.0	13.7	1	19	3,8	201.21	171
20	32	20	83.0	17.5	3	22	1,1	241.92	201
25	50	25	107.6	21.7	3	26	3,8	299.73	251
	85	25	142.6	21.7	3	26	3,8	852.94	252 ¹⁾

1) Heavy metal version with mounted head



Key D



Clamping screw

80 950 ...

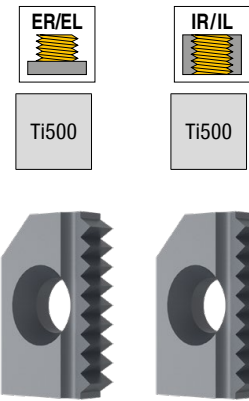
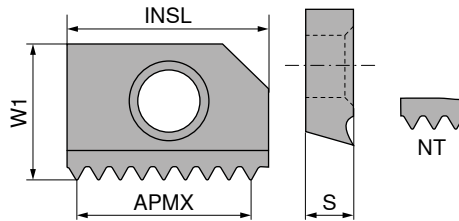
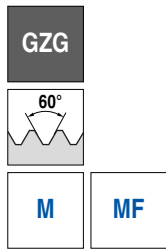
70 960 ...

Spare parts

DC		£ Y7		£ 2A	
12	T08 - IP	14.16	125	M2,5x6,5	3.98 244
17	T15 - IP	16.56	128	M4x7,5	3.98 245
20	T08 - IP	14.16	125	M2,5x6,5	3.98 244
25	T15 - IP	16.56	128	M4x7,5	3.98 245

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert



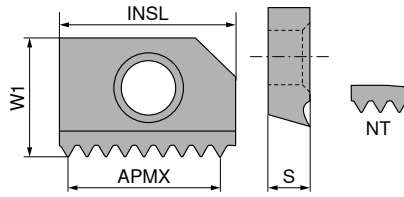
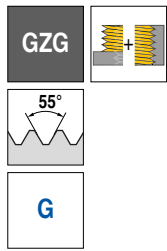
INSL mm	TP mm	W1 mm	APMX mm	S mm	NT	Solid carbide 50 887 ...		Solid carbide 50 885 ...	
						£ W2		£ W2	
14.5	0.50	10.0	13.50	3.18	28			94.26	350
	0.75	10.0	13.50	3.18	19			94.26	352
	1.00	10.0	13.00	3.18	14	71.09	304	54.62	354
	1.25	10.0	12.50	3.18	11			71.09	356
	1.50	10.0	12.00	3.18	9	71.09	308	54.62	358
	1.75	10.0	12.25	3.18	8			71.09	360
	2.00	10.0	12.00	3.18	7	71.09	312	54.62	362
	2.50	10.0	10.00	3.18	5			64.20	364
	2.50	10.0	10.00	3.18	5			64.20	366 ¹⁾
15.0	3.00	10.5	12.00	3.18	5			77.33	370 ²⁾
	3.50	10.5	10.50	3.18	4			77.33	372 ²⁾
21.0	1.00	10.0	19.00	3.18	20			61.66	380
	1.50	10.0	19.50	3.18	14			61.66	382
	1.50	10.0	18.00	3.18	13	71.09	320		
	2.00	10.0	18.00	3.18	10			61.66	384
26.0	1.50	15.0	24.00	5.00	17			106.46	390
	2.00	15.0	24.00	5.00	13			106.46	392
	3.00	15.0	21.00	5.00	8			106.46	396
	3.50	15.0	20.00	5.00	7			156.80	398
	4.00	15.0	20.00	5.00	6			156.80	400
P							•		•
M							•		•
K							•		•
N							•		•
S									
H									
O									

1) M20x2,5 - profile corrected

2) Without chamfer

→ v_c/f_z Page 73When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → Page 77+78.

Thread milling insert



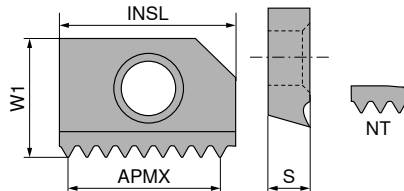
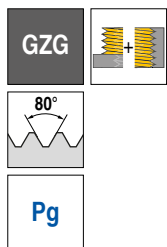
Solid carbide

50 888 ...

INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	£ W2	
14.5	18	1.411	10	11.28	3.18	9	81.92	310
	16	1.587	10	11.11	3.18	8	81.92	312
	14	1.814	10	12.69	3.18	8	59.27	314
	12	2.116	10	10.58	3.18	6	81.92	316
	11	2.309	10	11.54	3.18	6	59.27	318
21.0	14	1.814	10	18.14	3.18	11	71.09	320
	11	2.309	10	18.47	3.18	9	71.09	322
26.0	11	2.309	15	23.09	5.00	11	116.09	330
P								•
M								•
K								•
N								•
S								
H								
O								

→ v_c/f_z Page 73

Thread milling insert



Solid carbide

50 894 ...

INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	£ W2	
14.5	18	1.411	10	12.69	3.18	10	87.11	302
	16	1.587	10	11.11	3.18	8	87.11	304
P								•
M								•
K								•
N								•
S								
H								
O								

→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → Page 77+78.

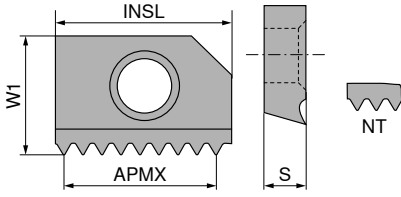
Thread milling insert

GZG

IR/IL

60°

UN



Ti500



Solid carbide

INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT		
14.5	18	1.411	10	12.69	3.18	10		
	16	1.587	10	12.70	3.18	9		
21.0	16	1.587	10	19.05	3.18	13		
	14	1.814	10	18.14	3.18	11		
	12	2.116	10	18.04	3.18	10		

50 889 ...

£

W2

85.19

310

89.39

312

106.52

320

106.52

322

106.52

324

P

M

K

N

S

H

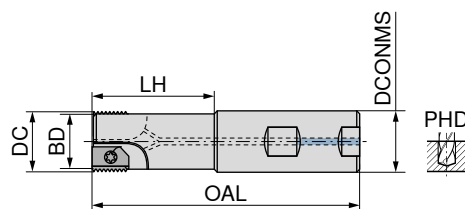
O

→ v_c/f_z Page 73

 When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Circular milling cutter

▲ INSL refers to milling inserts

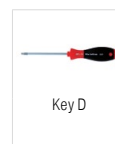


B

50 841 ...

INSL mm	DC mm	LH mm	DCONMS _{n6} mm	OAL mm	BD mm	ZNP	PHD mm	torque moment Nm	£ W1	
14.5	16	30.0	16	78	12.7	1	18.5	3,8	168.16	016
	16	50.0	16	98	12.7	1	18.5	3,8	265.57	017 ¹⁾
	20	60.0	20	110	16.8	1	23.0	3,8	203.47	020
	25	48.2	25	106	21.5	2	30.0	3,8	293.38	025
	25	92.2	25	150	21.5	2	30.0	3,8	601.42	026 ¹⁾
15.0	18	30.0	16	79	12.7	1	20.0	3,8	197.98	218
	22	60.0	20	110	16.8	1	26.0	3,8	218.59	222
	27	48.2	25	106	21.5	2	32.0	3,8	325.19	227
21.0	16	31.3	20	85	12.7	1	18.5	3,8	188.07	316
	22	32.8	25	92	18.7	1	26.0	3,8	193.26	322
	22	62.8	25	122	18.7	1	26.0	3,8	621.30	323 ¹⁾
	28	38.3	32	102	24.7	2	35.0	3,8	370.65	328
	28	78.3	32	142	24.5	2	35.0	3,8	1,472.82	327 ¹⁾
26.0	25	48.5	25	107	20.0	1	30.0	3,8	234.80	125

1) Heavy metal version



Key D



Clamping screw

Spare parts
for Article no.

		£ Y7			£ 2A	
50 841 016	T15 - IP	16.56	128	M4x6,9	5.99	237
50 841 017	T15 - IP	16.56	128	M4x6,9	5.99	237
50 841 020	T15 - IP	16.56	128	M4x7,5	3.98	245
50 841 025	T15 - IP	16.56	128	M4x8	5.99	242
50 841 026	T15 - IP	16.56	128	M4x8	5.99	242
50 841 218	T15 - IP	16.56	128	M4x6,9	5.99	237
50 841 222	T15 - IP	16.56	128	M4x6,9	5.99	237
50 841 227	T15 - IP	16.56	128	M4x8	5.99	242
50 841 316	T15 - IP	16.56	128	M4x6,9	5.99	237
50 841 322	T15 - IP	16.56	128	M4x6,9	5.99	237
50 841 323	T15 - IP	16.56	128	M4x8	5.99	242
50 841 328	T15 - IP	16.56	128	M4x8	5.99	242
50 841 327	T15 - IP	16.56	128	M4x8	5.99	242
50 841 125	T15 - IP	16.56	128	M4x11,5	5.99	241

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → Page 77+78.

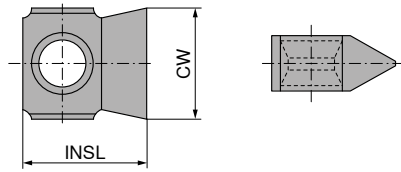
Thread milling insert – partial profile

EAW



M

UN



TiN



Solid carbide

50 867 ...

£

W2

76.13

115

76.13

225

DC mm	TP mm	TPI 1/"	CW mm	INSL mm
16,5	1,5 - 3,0	16 - 10	5	7,0
18	2,5 - 3,5	10 - 7	5	7,8



G

DC mm	TP mm	TPI 1/"	CW mm	INSL mm
16,5	1.814	14	5	7

50 868 ...

£

W2

93.21

114

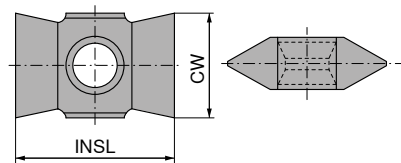
Thread milling insert – partial profile

EAW



M

UN



TiN



Solid carbide

50 860 ...

£

W2

58.13

315

58.13

325

64.66

415

64.66

425

DC mm	TP mm	TPI 1/"	CW mm	INSL mm
23,85	1,5 - 2,5	16 - 10	6.35	9.52
23,85	2,5 - 4,0	10 - 6	6.35	9.52
32,85	1,5 - 2,5	16 - 10	8.50	13.50
32,85	2,5 - 5,5	10 - 4,5	8.50	13.50



G

DC mm	TP mm	TPI 1/"	CW mm	INSL mm
23,85	2.309	11	6.35	9.52
32,85	2.309	11	8.50	13.50

50 861 ...

£

W2

64.66

311

74.66

411

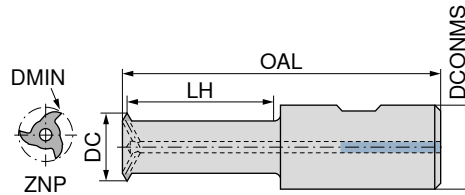
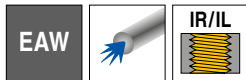
P	•
M	•
K	•
N	•
S	•
H	○
O	○

→ v_c/f_z Page 72

Circular milling cutter

Scope of supply:

including key



B

50 848 ...

DC mm	DMIN mm	TP mm	TPI 1/"	LH mm	DCONMS _{h6} mm	OAL mm	ZNP	torque moment Nm
16,5 / 18,0	17,5 / 19,0	1,5 - 3,0	16 - 10	60	20	114	2	0,9
23,85	25,5	1,5 - 4,0	24 - 6	90	32	154	3	0,9
32,85	35,0	1,5 - 5,5	16 - 4,5	115	32	179	3	2,5

£

W1

020

460.65

543.01

563.60

030

040

7



Key D



Clamping screw

80 950 ...

£

Y7

70 950 ...

£

2A

Spare parts
for Article no.

50 848 020	T07 - IP	14.16	124	M2,5x8,5	9.94	739
50 848 030	T07 - IP	14.16	124	M2,5x8,5	9.94	739
50 848 040	T09 - IP	15.51	126	M3x11	9.94	740

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → Page 77+78.

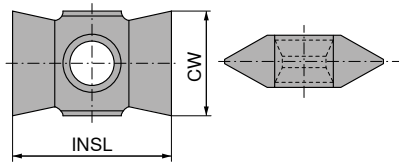
Thread milling insert – partial profile

EWM

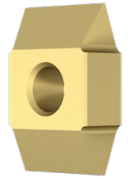


M

UN



TiN



Solid carbide

50 870 ...

DC mm	TP mm	TPI 1/"	CW mm	INSL mm
40,25	1,5 - 3,0	16 - 9	9.5	15.50
40,25	3,0 - 6,0	9 - 4	9.5	15.50
52,55 / 66,55	1,5 - 3,0	16 - 9	12.5	19.00
52,55 / 66,55	3,0 - 6,0	9 - 4	12.5	19.00
92	6,0 - 8,0	4	14.3	28.58

£	
W2	
74.43	515
74.43	530
80.65	615
80.65	630
131.80	760



G

DC mm	TP mm	TPI 1/"	CW mm	INSL mm
40,25	2.309	11	9.5	15.5
52,55	2.309	11	12.5	19.0

50 871 ...

£	
W2	
85.12	511
99.08	611

P	●
M	●
K	●
N	●
S	●
H	○
O	○

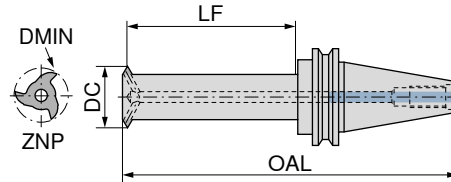
→ v_c/f_z Page 72

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → Page 77+78.

Circular milling cutter

Scope of supply:

including key



DIN 69871

50 849 ...

DC mm	DMIN mm	TP mm	TPI 1/"	LF mm	OAL mm	Adapter	ZNP	torque moment Nm
40.25	43.0	1,5 - 6,0	16 - 4,0	145	247.0	SK 40	4	5,5
40.25	43.0	1,5 - 6,0	16 - 4,0	145	280.5	SK 50	4	5,5
52.55	56.0	1,5 - 6,0	16 - 4,0	195	331.0	SK 50	4	8,0
66.55	70.5	1,5 - 6,0	16 - 4,0	260	398.0	SK 50	7	8,0
92.00	100.0	6,0 - 8,0	4,0	360	497.0	SK 50	7	8,0

£

W1

1,130.99 048

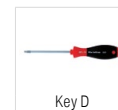
1,172.02 148

1,336.61 164

1,809.28 080

2,138.27 115

7



Key D



Clamping screw

80 950 ...

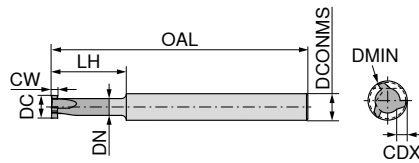
70 950 ...

Spare parts

DC		£		£	
40,25	T15 - IP	16.56	128	M4x13	9.94 741
52,55 - 92	T20 - IP	17.39	129	M5x15	9.94 742

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → Page 77+78.

MicroMill – Solid Carbide Circular End Milling Cutter



Solid carbide

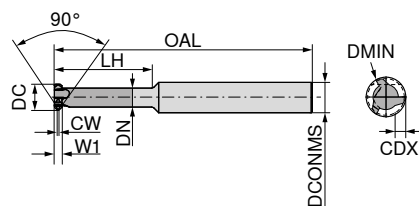
53 050 ...

DC mm	CW _{±0,02} mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS _{h6} mm	ZEFP	DMIN mm	£ W1	
5.8	0.7	0.8	15.2	58	3.8	6	3	6	63.90	070
	0.8	0.8	15.2	58	3.8	6	3	6	63.90	080
	0.9	0.8	15.2	58	3.8	6	3	6	63.90	090
	1.0	0.8	15.2	58	3.8	6	3	6	63.90	100
	1.5	0.8	15.2	58	3.8	6	3	6	63.90	150
7.8	0.7	1.2	25.4	68	5.0	8	3	8	80.62	170
	0.8	1.2	25.4	68	5.0	8	3	8	80.62	180
	0.9	1.2	25.4	68	5.0	8	3	8	80.62	190
	1.0	1.2	25.4	68	5.0	8	3	8	80.62	200
	1.5	1.2	25.4	68	5.0	8	3	8	80.62	250
	2.0	1.2	25.4	68	5.0	8	3	8	80.62	300

P	•
M	•
K	•
N	•
S	•
H	•
O	•

→ v_c/f_z Page 76

MicroMill – Solid Carbide Circular End Milling Cutter



Solid carbide

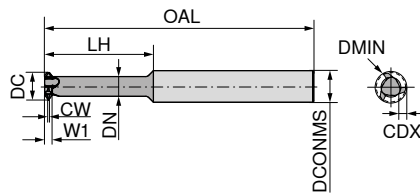
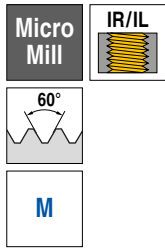
53 051 ...

DC mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS _{h6} mm	ZEFP	DMIN mm	£ W1	
5.8	2	0.2	0.8	15	58	4.2	6	3	6	61.64	010
	2	0.2	0.8	25	68	4.2	6	3	6	78.24	020
7.8	2	0.2	1.2	25	68	5.0	8	3	8	94.97	110
	2	0.2	1.2	35	78	5.0	8	3	8	99.99	120

P	•
M	•
K	•
N	•
S	•
H	•
O	•

→ v_c/f_z Page 76

MicroMill – Solid Carbide Circular Thread Milling Cutter – Full profile



CW500



HA

Solid carbide

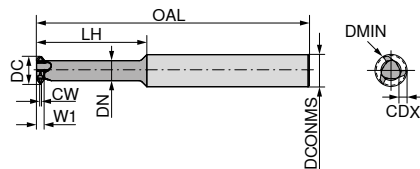
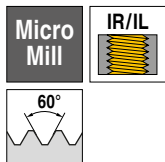
53 052 ...

DC mm	Thread	TP mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS _{h6} mm	ZEFP	DMIN mm	£ W1	
1.18	M1,6	0.35	0.40	0.04	0.19	4.0	32	0.64	3	3	1.38	75.09	160
1.38	M1,8	0.35	0.50	0.04	0.19	5.0	32	0.70	3	3	1.58	74.21	180
1.50	M2	0.40	0.56	0.05	0.22	5.0	32	0.90	3	4	1.70	82.65	200
1.95	M2,5	0.45	0.60	0.06	0.25	6.0	32	1.15	3	4	2.15	81.74	250
2.40	M3	0.50	0.60	0.06	0.27	7.0	32	1.60	3	4	2.60	81.01	300
2.80	M3,5	0.60	0.74	0.08	0.33	8.0	32	1.80	3	4	3.00	79.23	350
3.10	M4	0.70	0.82	0.09	0.38	9.0	44	1.98	5	4	3.30	86.04	400
3.60	M5	0.80	0.98	0.10	0.43	10.0	44	2.20	5	4	3.80	83.52	500
4.10	M6	1.00	0.98	0.13	0.54	12.2	44	2.70	5	4	4.30	81.74	600

P	•
M	•
K	•
N	•
S	•
H	•
O	•

→ v_c/f_z Page 76

MicroMill – Solid Carbide Circular Thread Milling Cutter – Partial profile



CW500



HA

Solid carbide

53 053 ...

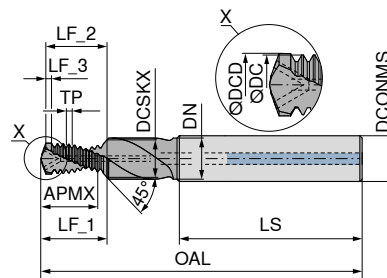
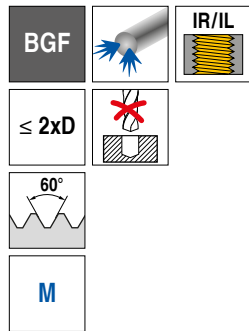
DC mm	TP mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS _{h6} mm	ZEFP	DMIN mm	£ W1	
5.8	0,5 - 1,5	2	0.06	0.91	15.2	58	3.5	6	3	6	66.68	010
7.8	0,5 - 1,5	2	0.06	0.91	25.4	68	5.5	8	3	8	88.29	110
7.8	1,0 - 2,0	2	0.12	1.19	25.4	68	5.0	8	3	8	88.29	120

P	•
M	•
K	•
N	•
S	•
H	•
O	•

→ v_c/f_z Page 76

When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_m is used. Details on → Page 77+78.

Drill thread milling cutter with chamfer facet



NEW

NEW

Ti601



HA

HA

Solid carbide

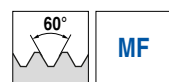
Solid carbide

50 869 ...

50 854 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS _{h6} mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP	£ W1	£ W1
2.45	M3	88901001000013	0.50	49	5.8	36	6	2.5	3.3	4.5	6.8	6.4	0.5	2	212.64	03000 ¹⁾
2.45	M3	88906001000013	0.50	49	5.8	36	6	2.5	3.3	4.5	6.8	6.4	0.5	2	228.23	03000 ¹⁾
3.24	M4	88935001000015	0.70	49	7.3	36	6	3.3	4.3	4.5	9.4	8.9	0.7	2	270.27	04000
3.24	M4	88941001000015	0.70	49	7.3	36	6	3.3	4.3	4.5	9.4	8.9	0.7	2	239.09	04000
4.10	M5	88935001000017	0.80	55	9.2	36	6	4.2	5.3	5.5	11.7	11.0	0.8	2	267.84	05000
4.10	M5	88941001000017	0.80	55	9.2	36	6	4.2	5.3	5.5	11.7	11.0	0.8	2	235.39	05000
4.85	M6	88935001000018	1.00	62	11.4	36	8	5.0	6.3	6.6	14.5	13.7	1.0	2	267.84	06000
4.85	M6	88941001000018	1.00	62	11.4	36	8	5.0	6.3	6.6	14.5	13.7	1.0	2	235.39	06000
6.45	M8	88935001000020	1.25	74	14.2	40	10	6.8	8.3	9.0	18.2	17.1	1.3	2	311.16	08000
6.45	M8	88941001000020	1.25	74	14.2	40	10	6.8	8.3	9.0	18.2	17.1	1.3	2	279.86	08000
8.08	M10	88935001000022	1.50	79	18.5	45	12	8.5	10.3	11.0	23.4	22.1	1.5	2	375.95	10000
8.08	M10	88941001000022	1.50	79	18.5	45	12	8.5	10.3	11.0	23.4	22.1	1.5	2	314.74	10000
9.74	M12	88935001000024	1.75	89	21.6	45	14	10.3	12.3	13.5	27.1	25.5	1.5	2	502.08	12000
9.74	M12	88941001000024	1.75	89	21.6	45	14	10.3	12.3	13.5	27.1	25.5	1.5	2	428.85	12000
11.35	M14	88935001000025	2.00	102	26.6	48	16	12.0	14.3	15.5	32.8	30.9	1.5	2	571.73	14000
11.35	M14	88941001000025	2.00	102	26.6	48	16	12.0	14.3	15.5	32.8	30.9	1.5	2	532.11	14000
13.28	M16	88935001000026	2.00	102	30.6	48	18	14.0	16.3	17.5	37.1	35.0	1.5	2	669.09	16000
13.28	M16	88941001000026	2.00	102	30.6	48	18	14.0	16.3	17.5	37.1	35.0	1.5	2	621.04	16000

1) Without Through Coolant



NEW

NEW

50 869 ...

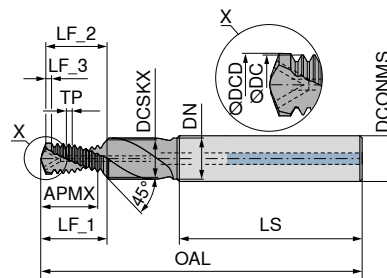
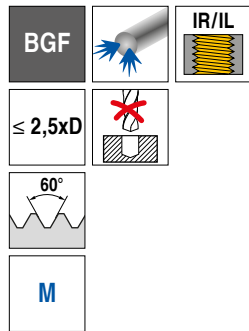
50 854 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP	£ W1	£ W1
6.79	M8x1	88935002000070	1.0	74	15.40	40	10	7.0	8.3	9.0	18.8	17.7	1.0	2	356.78	08100
6.79	M8x1	88941002000070	1.0	74	15.40	40	10	7.0	8.3	9.0	18.8	17.7	1.0	2	324.32	08100
8.75	M10x1	88941002000094	1.0	79	19.40	45	12	9.0	10.3	11.0	23.2	21.8	1.0	2	349.50	10100
8.75	M10x1	88935002000094	1.0	79	19.40	45	12	9.0	10.3	11.0	23.2	21.8	1.0	2	410.83	10100
10.74	M12x1	88935002000111	1.0	89	22.40	45	14	11.0	12.3	13.5	26.4	24.8	1.0	2	524.95	12100
10.06	M12x1,5	88935002000113	1.5	89	23.01	45	14	10.5	12.3	13.5	28.2	26.6	1.5	2	524.95	12200
10.06	M12x1,5	88941002000113	1.5	89	23.01	45	14	10.5	12.3	13.5	28.2	26.6	1.5	2	481.64	12200

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→ v_c/f_z Page 75When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → Page 77+78.

Drill thread milling cutter with chamfer facet



NEW

NEW

Ti601



HA

HA

Solid carbide

Solid carbide

50 898 ...

50 862 ...

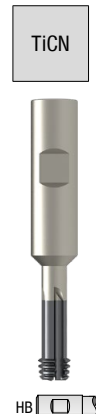
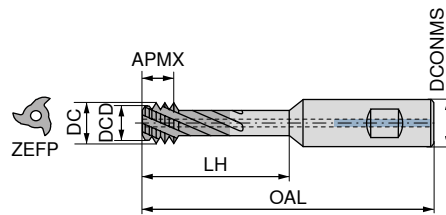
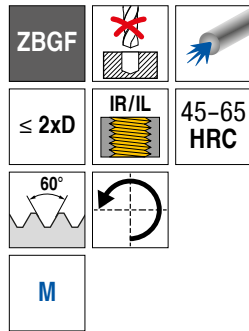
DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS _{h6} mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP	£ W1	£ W1
4.10	M5	88961001000017	0.80	55	11.57	36	6	4.2	5.3	5.5	14.1	13.4	0.8	2	235.39	05000
4.85	M6	88961001000018	1.00	62	13.40	36	8	5.0	6.3	6.6	16.5	15.7	1.0	2	235.39	06000
4.85	M6	88956001000018	1.00	62	13.40	36	8	5.0	6.3	6.6	16.5	15.7	1.0	2		267.84 06000
6.45	M8	88956001000020	1.25	74	19.20	40	10	6.8	8.3	9.0	23.2	22.1	1.3	2		311.16 08000
6.45	M8	88961001000020	1.25	74	19.20	40	10	6.8	8.3	9.0	23.2	22.1	1.3	2	279.86	08000
8.08	M10	88956001000022	1.50	79	23.00	45	12	8.5	10.3	11.0	27.9	26.6	1.5	2		375.95 10000
8.08	M10	88961001000022	1.50	79	23.00	45	12	8.5	10.3	11.0	27.9	26.6	1.5	2	314.74	10000
9.74	M12	88956001000024	1.75	89	28.60	45	14	10.3	12.3	13.5	34.1	32.5	1.5	2		502.08 12000
9.74	M12	88961001000024	1.75	89	28.60	45	14	10.3	12.3	13.5	34.1	32.5	1.5	2	428.85	12000
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O															●	○

→ v_c/f_z Page 75

7

Circular Thread Milling Cutter

▲ Note: left-hand cutting (M04)



HB

Solid carbide

50 840 ...

£
W1

DC mm	Thread	TP mm	APMX mm	LH mm	DCONMS mm	DCD mm	OAL mm	ZEFP		
2.3	M3x0,5	0.50	2.0	7.0	6	2.10	51	4	154.07	030 ¹⁾
3.0	M4x0,7	0.70	2.8	9.4	6	2.60	51	4	154.27	040 ¹⁾
3.8	M5x0,8	0.80	3.2	11.6	6	3.40	51	4	152.88	050 ¹⁾
4.6	M6x1 - M7x1	1.00	4.0	14.0	8	4.10	60	4	152.78	060 ¹⁾
6.2	M8x1,25 - M10x1,25	1.25	5.0	19.0	10	5.60	71	4	164.68	080
7.8	M10x1,5 - M12x1,5	1.50	6.0	25.0	10	7.00	76	4	177.38	100
9.2	M12x1,75	1.75	7.0	31.0	12	8.30	86	4	188.59	120
11.1	M14x2 - M16x2	2.00	8.0	36.0	16	10.04	98	4	206.15	140

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O	○

1) Without Through Coolant

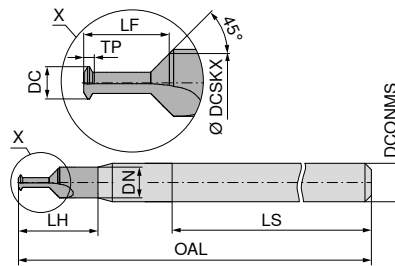
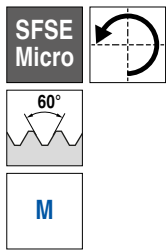
→ v_c/f_z Page 71

When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Caution: left-hand cutting (M04) → spindle rotation left!

Shank thread milling cutter with shank-end countersink

▲ Note: left-hand cutting



NEW

Ti602



HA

Solid carbide

50 804 ...

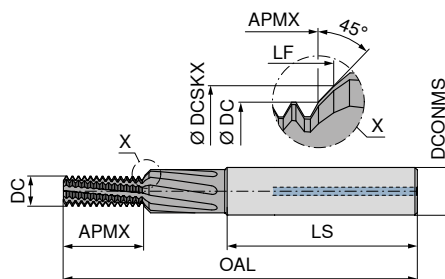
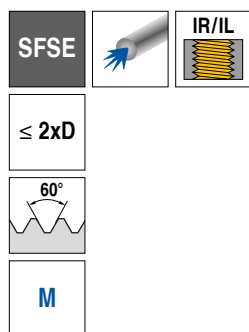
DC mm	Thread	KOMET no.	TP mm	OAL mm	DN mm	LS mm	LH mm	DCONMS _{h6} mm	DCSKX mm	LF mm	ZEFP	£ W1	
0.75	M1	88977001000001	0.25	40	1.8	28	5.2	3	1.5	2.1	2	153.73	01000
1.10	M1,4	88977001000004	0.30	40	2.0	28	5.7	3	1.7	2.6	2	153.73	01400
1.25	M1,6	88977001000005	0.35	40	2.4	28	6.0	3	2.1	3.1	2	153.73	01600
1.60	M2	88977001000008	0.40	40	3.0	28		3	2.6	3.7	2	144.14	02000
1.75	M2,2	88977001000009	0.45	40	3.0	28		3	2.5	3.9	2	144.14	02200
2.05	M2,5	88977001000011	0.45	40	3.0	28		3	2.9	4.5	2	144.14	02500

P	○
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N	○
S	○
H	●
O	

→ v_c/f_z Page 75

Caution: left-hand cutting (M04) → spindle rotation left!

Thread Milling Cutter with Chamfer Facet



NEW

AlCrN



HA

Solid carbide

50 806 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS _{h6} mm	DCSKX mm	LF mm	ZEFP	£ W1	
3.14	M4	88296001000015	0.70	49	8.0	36	6	4.3	8.6	5	175.33	04000
3.95	M5	88296001000017	0.80	55	9.9	36	6	5.3	10.6	5	180.18	05000
4.68	M6	88296001000018	1.00	62	12.3	36	8	6.3	13.2	6	192.19	06000
6.22	M8	88296001000020	1.25	74	16.6	40	10	8.3	17.8	7	230.65	08000
7.79	M10	88296001000022	1.50	79	19.9	45	12	10.3	21.3	7	273.85	10000
9.38	M12	88296001000024	1.75	89	24.9	45	14	12.3	26.6	7	387.96	12000
10.92	M14	88296001000025	2.00	102	28.5	48	16	14.3	30.4	7	454.03	14000
12.83	M16	88296001000026	2.00	102	32.4	48	18	16.3	34.4	8	565.72	16000



NEW

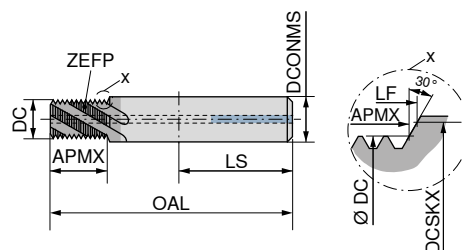
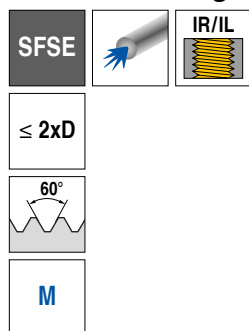
50 807 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS _{h6} mm	DCSKX mm	LF mm	ZEFP	£ W1	
3.95	M5x0,5	88296002000037	0.50	55	10.2	36	6	5.3	10.8	5	199.35	05100
4.68	M6x0,75	88296002000048	0.75	62	12.2	36	8	6.3	13.0	5	219.80	06200
6.22	M8x1	88296002000070	1.00	74	16.2	40	10	8.3	17.3	6	258.26	08300
7.79	M10x1	88296002000094	1.00	79	20.1	45	12	10.3	21.5	7	300.30	10300
9.38	M12x1	88296002000111	1.00	89	24.0	45	14	12.3	25.6	7	408.41	12300
9.38	M12x1,5	88296002000113	1.50	89	24.3	45	14	12.3	25.9	7	417.99	12500
10.92	M14x1,5	88296002000131	1.50	102	28.7	48	16	14.3	30.6	7	458.88	14500
12.82	M16x1,5	88296002000147	1.50	102	31.7	48	18	16.3	33.6	8	574.15	16500

P	•
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→ v_c/f_z Page 75When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{tm} is used. Details on → Page 77+78.

Thread Milling Cutter with Chamfer Facet



Solid carbide

50 811 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS _{h6} mm	DCSKX mm	LF mm	ZEFP
4.0	M5	0.80	62	11	36	8	5.3	11.16	3
4.7	M6	1.00	62	13	36	8	6.3	13.93	3
6.5	M8	1.25	74	18	40	10	8.3	18.62	3
8.0	M10	1.50	74	22	40	10			3
10.0	M12	1.75	90	26	45	14	12.3	26.47	4
12.5	M16	2.00	100	35	48	16			4

£

W1

291.03

306.27

336.69

336.36

517.82

614.53

050

060

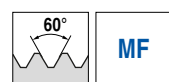
080

100¹⁾

120

160²⁾

- 1) Without chamfer
2) Chamfer section at the front of the tool



50 816 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS _{h6} mm	DCSKX mm	LF mm	ZEFP
6.5	M8x1	1.00	74	18	40	10	8.3	18.00	3
8.0	M10x1	1.00	74	22	40	10			3
8.0	M10x1,25	1.25	74	22	40	10			3
10.0	M12x1,25	1.25	90	26	45	14	12.3	26.61	4
10.0	M12x1,5	1.50	90	26	45	14	12.3	27.30	4
11.0	M14x1	1.00	100	31	48	16	14.3	32.70	4
11.0	M14x1,5	1.50	100	31	48	16	14.3	32.08	4
12.5	M16x1,5	1.50	100	35	48	16			4

£

W1

346.45

337.47

336.36

517.82

517.82

614.53

614.53

617.59

082

102¹⁾103¹⁾

123

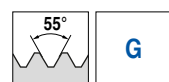
124

142

144

164²⁾

- 1) Without chamfer
2) Chamfer section at the front of the tool



50 818 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS _{h6} mm	DCSKX mm	LF mm	ZEFP
7.6	G 1/8-28	0.907	80	20	45	12	10.0	20.97	3
11.0	G 1/4-19	1.337	100	27	48	16	13.5	28.39	4
13.0	G 3/8-19	1.337	100	34	48	16			4
16.0	G 1/2-14	1.814	110	44	50	20			5

£

W1

463.60

683.49

683.49

966.57

018

014

038¹⁾012¹⁾

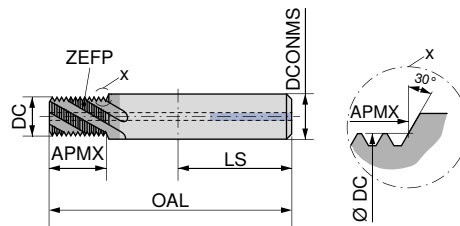
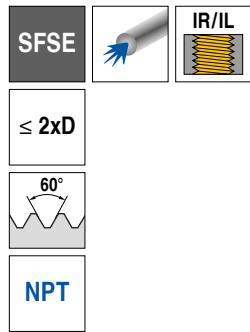
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- 1) Chamfer section at the front of the tool

→ v_c/f_z Page 71

When calculating the feedrate for circular milling it is important to know whether contour feed v_r or feed on the center path v_{im} is used. Details on → Page 77+78.

Thread Milling Cutter with Chamfer Facet



HA

Solid carbide

50 819 ...

£

W1

391.95 116 ¹⁾445.05 018 ¹⁾652.50 014 ¹⁾1,121.83 012 ¹⁾

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS _{h6} mm	ZEFP
5.8	NPT 1/16-27	0.941	62	10	36	8	3
7.6	NPT 1/8-27	0.941	74	10	40	10	3
10.1	NPT 1/4-18	1.411	90	15	45	14	3
16.0	NPT 1/2-14	1.814	110	19	50	20	5

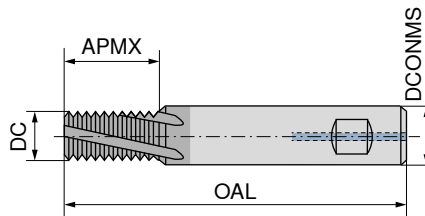
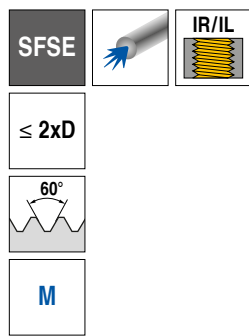
P	•
M	•
K	•
N	•
S	•
H	•
O	•

1) Without chamfer

→ v_c/f_z Page 71When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → Page 77+78.

Thread milling cutter with chamfer facet

- ▲ Profile-corrected
- ▲ Hard machining to Ø DC = 4 mm possible
- ▲ Chamfer section at end of shank

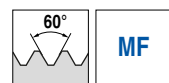


Solid carbide

54 801 ...

DC mm	Thread	TP mm	APMX mm	DCONMS _{h6} mm	OAL mm	ZEFP	£ W8	
4.00	M5	0.80	11	8	62	3	140.63	050 ¹⁾
4.80	M6	1.00	13	8	62	3	140.63	060 ¹⁾
6.50	M8	1.25	18	10	74	3	165.31	080
7.95	M10	1.50	22	12	80	3	196.12	100
9.90	M12	1.75	26	14	90	4	251.61	120
11.60	M14	2.00	31	16	100	4	288.67	140
11.95	M16	2.00	35	12	90	4	196.12	160 ²⁾
13.95	M18	2.50	39	20	110	4	406.90	180
15.95	M20	2.50	44	16	100	4	288.67	200 ²⁾

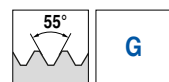
- 1) Without Through Coolant
- 2) Chamfer section at the front of the tool



54 803 ...

DC mm	Thread	TP mm	APMX mm	DCONMS _{h6} mm	OAL mm	ZEFP	£ W8	
6.0	M8x1	1.00	18	10	74	3	165.31	080
8.0	M10x1	1.00	22	12	80	3	196.12	100
8.0	M10x1,25	1.25	22	12	80	3	196.12	101
9.9	M12x1	1.00	26	14	90	4	251.61	120
9.9	M12x1,25	1.25	26	14	90	4	251.61	121
9.9	M12x1,5	1.50	26	14	90	4	251.61	122
11.6	M14x1	1.00	31	16	100	4	288.67	140
11.6	M14x1,5	1.50	31	16	100	4	298.37	141
12.0	M16x1,5	1.50	35	12	90	4	196.12	160 ¹⁾
14.0	M18x1,5	1.50	39	20	110	4	416.78	180
16.0	M20x1,5	1.50	44	16	100	4	251.61	200 ¹⁾

- 1) Chamfer section at the front of the tool



54 805 ...

DC mm	Thread	TP mm	APMX mm	DCONMS _{h6} mm	OAL mm	ZEFP	£ W8	
6.00	G 1/16-28	0.907	16	10	74	3	214.57	116
7.95	G 1/8-28	0.907	20	12	80	3	226.92	018
9.90	G 1/4-19	1.337	27	16	100	4	323.06	014
13.95	G 3/8-19	1.337	34	14	90	4	278.76	038 ¹⁾
15.95	G 1/2-14	1.814	43	16	100	4	298.37	012 ¹⁾
17.95	G 5/8-14	1.814	47	18	110	4	416.78	058 ¹⁾

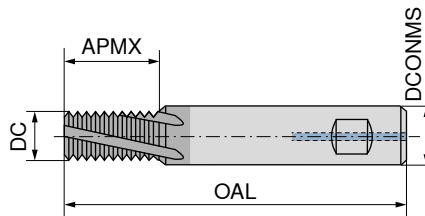
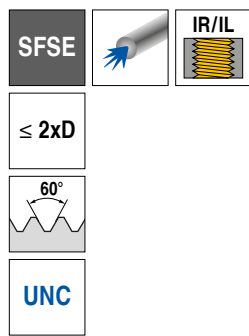
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H	•
O	•

- 1) Chamfer section at the front of the tool

→ v_c/f_z Page 74

Thread milling cutter with chamfer facet

- ▲ Profile-corrected
- ▲ Hard machining to $\varnothing$ DC = 4 mm possible
- ▲ Chamfer section at end of shank



HB

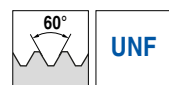
Solid carbide

54 811 ...

DC mm	Thread	TP mm	APMX mm	DCONMS _{h6} mm	OAL mm	ZEFP	£ W8	
4.80	UNC 1/4-20	1.270	14	8	62	3	165.31	014 ¹⁾
5.95	UNC 5/16-18	1.411	18	10	74	3	185.06	516
7.95	UNC 3/8-16	1.588	22	12	80	3	224.45	038
7.95	UNC 7/16-14	1.814	22	14	90	3	273.83	716
9.90	UNC 1/2-13	1.954	27	14	90	4	278.76	012
11.80	UNC 9/16-12	2.117	31	16	100	4	332.96	916
12.70	UNC 5/8-11	2.309	34	14	90	4	278.76	058 ²⁾
15.20	UNC 3/4-10	2.540	38	20	110	5	478.50	034

1) Without Through Coolant

2) Chamfer section at the front of the tool

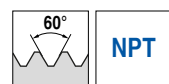


54 813 ...

DC mm	Thread	TP mm	APMX mm	DCONMS _{h6} mm	OAL mm	ZEFP	£ W8	
4.80	UNF 1/4-28	0.907	14	8	62	3	165.31	014 ¹⁾
5.95	UNF 5/16-24	1.058	18	10	74	3	185.06	516
7.60	UNF 3/8-24	1.058	21	12	80	3	224.45	038
7.95	UNF 7/16-20	1.270	22	14	90	3	273.83	716
9.90	UNF 1/2-20	1.270	26	14	90	4	278.76	012
12.00	UNF 9/16-18	1.411	30	16	100	4	332.96	916
13.50	UNF 5/8-18	1.411	33	14	90	4	278.76	058 ²⁾
17.00	UNF 3/4-16	1.588	38	20	110	5	478.50	034

1) Without Through Coolant

2) Chamfer section at the front of the tool



54 809 ...

DC mm	Thread	TP mm	APMX mm	DCONMS _{h6} mm	OAL mm	ZEFP	£ W8	
10.1	NPT 1/4-18	1.411	15	14	90	3	315.67	014 ¹⁾
12.8	NPT 3/8-18	1.411	15	16	100	4	379.87	038 ¹⁾
16.0	NPT 1/2-14	1.814	19	20	110	5	520.35	012 ¹⁾
18.5	NPT 3/4-14	1.814	19	20	110	5	520.35	034 ¹⁾

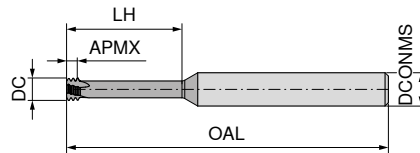
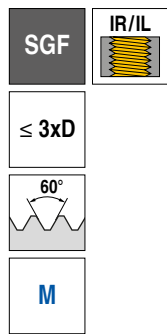
P	•
M	•
K	•
N	•
S	•
H	•
O	•

1) Chamfer section at the front of the tool

→ v_c/f_z Page 74When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → Page 77+78.

Circular shank thread milling cutter

▲ Available on request from M1



NEW

Ti600



HA

Solid carbide

50 802 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS _{h6} mm	ZEFP	£ W1	
1.53	M2	0.40	39	0.80	6.0	3	3	76.41	02000
2.37	M3	0.50	58	1.35	9.5	6	3	76.41	03000
3.10	M4	0.70	58	1.95	12.5	6	3	76.41	04000
3.80	M5	0.80	58	2.30	16.0	6	3	76.41	05000
4.65	M6	1.00	58	2.70	20.0	6	3	76.41	06000
6.00	M8	1.25	58	3.20	24.0	6	3	76.41	08000
7.80	M10	1.50	64	3.80	31.5	8	3	95.21	10000
9.00	M12	1.75	73	4.55	37.8	10	3	107.03	12000



NEW

50 803 ...

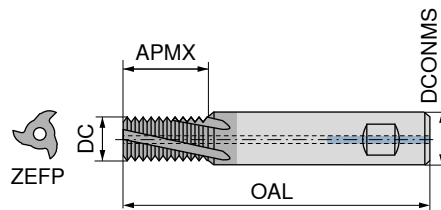
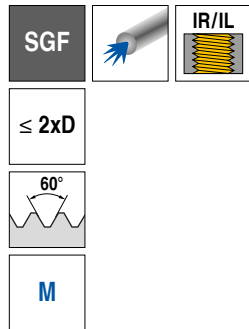
DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS _{h6} mm	ZEFP	£ W1	
1.53	M2	0.40	39	1.00	10.4	3	3	86.00	02000
2.40	M3	0.50	39	1.30	12.5	3	3	82.17	03000
3.10	M4	0.70	58	1.80	16.7	6	3	82.17	04000
4.00	M5	0.80	58	2.10	20.8	6	3	82.17	05000
4.80	M6	1.00	58	2.55	25.0	6	3	82.17	06000
6.40	M8	1.25	64	3.15	33.5	8	3	101.86	08000
8.00	M10	1.50	76	3.85	41.5	8	3	101.86	10000

P	•
M	•
K	•
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→ v_c/f_z Page 74When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → Page 77+78.

Thread Milling Cutter

▲ Available on request: M30, M36, M42, M48, M56, M64

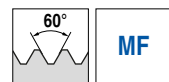


Solid carbide

50 825 ...

DC mm	Thread	TP mm	APMX mm	DCONMS _{h6} mm	OAL mm	ZEFP	£ W1	
2.40	M3	0.50	6	4	42	3	257.18	030 ¹⁾
3.15	M4	0.70	8	6	55	3	276.75	040
4.00	M5	0.80	10	6	55	3	276.75	050
4.80	M6	1.00	12	6	55	3	276.75	060
6.00	M8	1.25	16	6	63	3	283.57	080
8.00	M10	1.50	20	8	70	3	323.22	100
9.90	M12	1.75	24	10	80	4	391.95	120
11.60	M14	2.00	28	12	90	4	461.31	140
12.00	M16	2.00	32	12	90	4	459.10	160
14.00	M18	2.50	36	14	90	4	608.90	180
14.00	M22	2.50	44	14	95	4	848.22	220
14.00	M20	2.50	40	14	90	4	691.55	200

1) Without Through Coolant



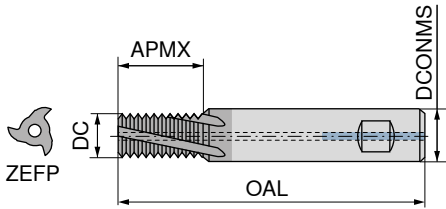
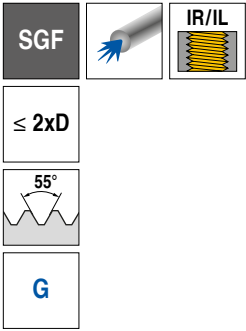
50 826 ...

DC mm	Thread	TP mm	APMX mm	DCONMS _{h6} mm	OAL mm	ZEFP	£ W1	
3.35	M4x0,5	0.50	8	6	55	3	332.52	040
4.20	M5x0,5	0.50	10	6	55	3	332.52	050
5.00	M6x0,75	0.75	12	6	55	3	332.52	061
6.00	M8x0,75	0.75	16	6	63	3	332.52	081
6.00	M8x1	1.00	16	6	63	3	332.52	082
8.00	M10x1	1.00	20	8	70	3	332.52	102
10.00	M12x1	1.00	24	10	80	4	395.85	122
10.00	M12x1,5	1.50	24	10	80	4	395.85	124
10.00	M14x1,5	1.50	28	10	80	4	395.85	144
12.00	M16x1,5	1.50	32	12	90	4	483.99	164
14.00	M18x1,5	1.50	36	14	90	4	604.15	184
14.00	M20x1,5	1.50	40	14	90	4	604.40	204
14.00	M22x1,5	1.50	44	14	95	4	634.98	224
16.00	M24x1,5	1.50	36	16	90	5	706.67	244

P	•
M	•
K	•
N	•
S	•
H	•
O	•

→ v_c/f_z Page 71When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → Page 77+78.

Thread Milling Cutter



Solid carbide

50 827 ...

£

W1

339.44	018
488.09	014
488.09	038
670.50	012
720.17	034
748.16	100
731.83	058

DC mm	Thread	TP mm	APMX mm	DCONMS _{h6} mm	OAL mm	ZEFP
8	G 1/8-28	0.907	19.5	8	70	3
11	G 1/4-19	1.337	26.5	12	90	4
12	G 3/8-19	1.337	33.0	12	90	4
14	G 1/2-14	1.814	42.0	14	95	4
16	G 3/4-14	1.814	34.0	16	90	5
16	G 1-11	2.309	33.0	16	90	5
16	G 5/8-14	1.814	34.0	16	90	5

P	•
M	•
K	•
N	•
S	•
H	•
O	•

→ v_c/f_z Page 71

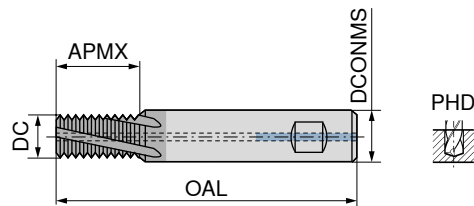
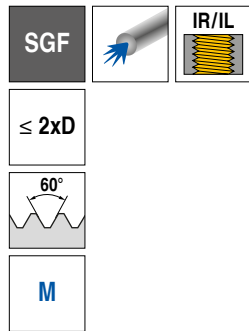


When calculating the feedrate for circular milling it is important to know whether contour feed v_r or feed on the center path v_{fm} is used. Details on → Page 77+78.

Thread milling cutter

▲ Profile corrected

▲ Hard machining to Ø DC = 4 mm possible



Ti500



HB

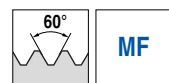
Solid carbide

54 800 ...

DC mm	Thread	TP mm	APMX mm	DCONMS _{h6} mm	OAL mm	ZEFP	PHD mm	£ W8	
2.40	M3	0.50	6.5	4	42	2	2.50	94.44	030 ¹⁾
3.15	M4	0.70	9.0	6	55	3	3.30	94.44	040 ²⁾
4.00	M5	0.80	11.0	6	55	3	4.20	94.44	050 ²⁾
4.80	M6	1.00	13.0	6	55	3	5.00	94.44	060 ²⁾
6.00	M8	1.25	18.0	6	60	3	6.75	99.14	080
8.00	M10	1.50	21.0	8	70	3	8.50	119.87	100
9.90	M12	1.75	26.0	10	75	4	10.25	144.92	120
11.60	M14	2.00	30.0	12	85	4	12.00	167.80	140
12.00	M16	2.00	34.0	12	85	4	14.00	175.42	160
14.00	M18	2.50	40.0	14	90	4	15.50	207.74	180
16.00	M20	2.50	42.0	16	90	4	17.50	215.73	200

1) DIN 6535 HA Shank / Without Through Coolant

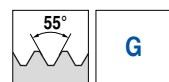
2) Without Through Coolant



54 802 ...

DC mm	Thread	TP mm	APMX mm	DCONMS _{h6} mm	OAL mm	ZEFP	PHD mm	£ W8	
4.0	M5	0.50	11	6	55	3	4.50	94.44	050 ¹⁾
4.8	M6	0.75	13	6	55	3	5.25	94.44	060 ¹⁾
6.0	M8	1.00	18	6	60	3	7.00	99.14	080
8.0	M10	1.25	21	8	70	3	8.75	119.87	100
9.9	M12	1.00	26	10	75	4	11.00	144.92	120
9.9	M12	1.25	26	10	75	4	10.75	144.92	121
9.9	M12	1.50	26	10	75	4	10.50	144.92	122
11.6	M14	1.00	30	12	85	4	13.00	167.80	140
11.6	M14	1.50	30	12	85	4	12.50	167.80	141
12.0	M16	1.50	34	12	85	4	14.50	175.42	160
14.0	M18	1.50	40	14	90	4	16.50	207.74	180
16.0	M20	1.50	42	16	90	4	18.50	215.73	200

1) DIN 6535 HA Shank / Without Through Coolant



54 804 ...

DC mm	Thread	TP mm	APMX mm	DCONMS _{h6} mm	OAL mm	ZEFP	PHD mm	£ W8	
8.0	G 1/8-28	0.907	21	8	70	3	8.80	136.20	018
9.9	G 1/4-19	1.337	26	10	75	4	11.80	154.34	014
14.0	G 3/8-19	1.337	40	14	90	4	15.25	179.77	038
16.0	G 1/2-14	1.814	42	16	90	4	19.00	217.89	012

P	•
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O	•

Thread milling cutter

▲ Profile corrected

SGF



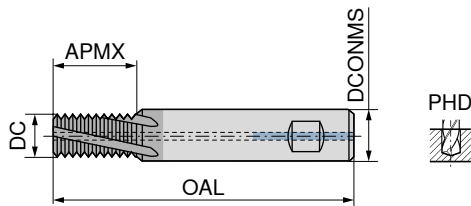
IR/IL



≤ 2xD



UNC



Ti500



HB

Solid carbide

54 810 ...

£

W8

DC mm	Thread	TP mm	APMX mm	DCONMS _{h6} mm	OAL mm	ZEFP	PHD mm		
4.80	UNC 1/4-20	1.270	13	6	55	3	5.1	110.26	014 ¹⁾
6.00	UNC 5/16-18	1.411	18	6	60	3	6.6	130.74	516
7.95	UNC 3/8-16	1.588	21	8	70	3	8.0	136.20	038
7.95	UNC 7/16-14	1.814	21	8	70	3	9.4	137.29	716
9.90	UNC 1/2-13	1.954	26	10	75	4	10.8	158.71	012
P									●
M									●
K									●
N									●
S									●
H									●
O									●

1) DIN 6535 HA Shank / Without Through Coolant

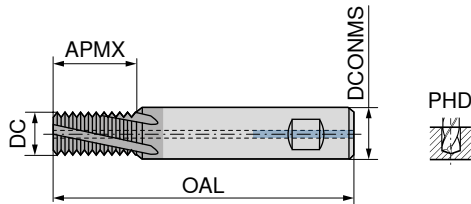
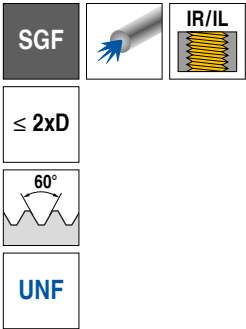
→ v_c/f_z Page 74



When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → Page 77+78.

Thread milling cutter

▲ Profile corrected



HB

Solid carbide

54 812 ...

DC mm	Thread	TP mm	APMX mm	DCONMS _{h6} mm	OAL mm	ZEFP	PHD mm		
4.8	UNF 1/4-28	0.907	13	6	55	3	5.5	£ W8	
6.0	UNF 5/16-24	1.058	18	6	60	3	6.9	110.26	014 ¹⁾
8.0	UNF 3/8-24	1.058	21	8	70	3	8.5	114.40	516
8.0	UNF 7/16-20	1.270	21	8	70	3	9.9	137.41	038
9.9	UNF 1/2-20	1.270	26	10	75	4	11.5	137.41	716
								136.20	012
P									•
M									•
K									•
N									•
S									•
H									•
O									•

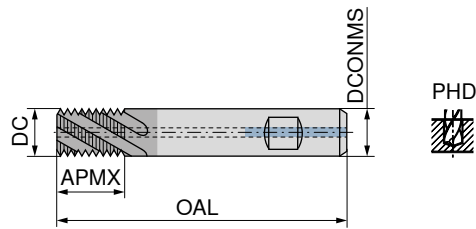
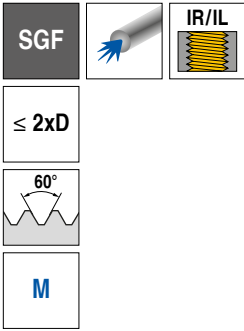
1) Without Through Coolant

→ v_d/t_z Page 74



When calculating the feedrate for circular milling it is important to know whether contour feed v_t or feed on the center path v_{fm} is used. Details on → Page 77+78.

Thread milling cutter



HB

Solid carbide

54 832 ...

£

W8

DC mm	TP mm	APMX mm	DCONMS _{n6} mm	OAL mm	ZEFP	PHD mm	
8	0.50	12	8	70	3	10	359.32 008
8	0.75	12	8	70	3	11	359.32 080
10	1.00	16	10	75	4	14	363.56 100
10	1.50	16	10	75	4	14	363.56 101
12	1.00	20	12	85	4	16	443.87 120
12	1.50	20	12	85	4	16	443.87 121
12	2.00	20	12	85	4	18	443.87 122
16	1.00	25	16	90	5	22	600.26 160
16	1.50	25	16	90	5	22	549.54 161
16	2.00	25	16	90	5	22	608.71 162
16	3.00	25	16	90	5	24	617.16 164

P	•
M	•
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→ v_c/f_z Page 72



When calculating the feedrate for circular milling it is important to know whether contour feed v_c or feed on the center path v_{fm} is used. Details on → Page 77+78.

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment	Tensile strength N/mm ² / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm ² / 125 HB	1.0401	C15	1.1141 Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm ² / 190 HB	1.1191	C45E	1.0718 9SMnPb28
		P.1.3		Tempered	840 N/mm ² / 250 HB	1.1191	C45E	1.0535 C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm ² / 270 HB	1.1223	C60R	1.0535 C55
		P.1.5		Tempered	1010 N/mm ² / 300 HB	1.1223	C60R	1.0727 45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm ² / 180 HB	1.7131	16MnCr5	1.6587 17CrNiMo6
		P.2.2		Tempered	930 N/mm ² / 275 HB	1.7131	16MnCr5	1.6587 17CrNiMo6
		P.2.3		Tempered	1010 N/mm ² / 300 HB	1.7225	42CrMo4	1.3505 100Cr6
		P.2.4		Tempered	1200 N/mm ² / 375 HB	1.7225	42CrMo4	1.3505 100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm ² / 200 HB	1.4021	X20Cr13	1.4034 X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm ² / 300 HB	1.2343	X38CrMoV5-1	1.4034 X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm ² / 400 HB	1.2343	X38CrMoV5-1	1.4034 X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm ² / 200 HB	1.4016	X6Cr17	1.2316 X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm ² / 300 HB	1.4112	X90CrMoV18	1.2316 X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm ² / 180 HB	1.4301	X5CrNi18-10	1.4571 X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539 X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm ² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501 X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm ² / 180 HB	0.6010	GG-10	0.6025 GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm ² / 260 HB	0.6030	GG-30	0.6045 GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm ² / 160 HB	0.7040	GGG-40	0.7060 GGG-60
		K.2.2	Pearlitic		845 N/mm ² / 250 HB	0.7070	GGG-70	0.7080 GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm ² / 130 HB	0.8035	GTW-35-04	0.8045 GTW-45
		K.3.2	Pearlitic		780 N/mm ² / 230 HB	0.8165	GTS-65-02	0.8170 GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315 AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm ² / 100 HB	3.1355	AlCuMg2	3.2315 AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm ² / 75 HB	3.2581	G-AlSi12	3.2163 G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm ² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373 G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm ² / 130 HB		G-AlSi17Cu4Mg	G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm ² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410 CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm ² / 90 HB	2.0331	CuZn15	2.4070 CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm ² / 100 HB	2.0060	E-Cu57	2.0590 CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312 MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm ² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865 G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm ² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876 X10NiCrAlTi32-20
		S.2.1		Annealed	840 N/mm ² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856 NiCr22Mo9Nb
		S.2.2	Ni or Co basis	Age-hardened	1180 N/mm ² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955 NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm ² / 320 HB	2.4765	CoCr20W15Ni	1.3401 G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm ²	3.7025	Ti99,8	3.7034 Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm ² / 320 HB	3.7165	TiAl6V4	Ti-6246 Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm ² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410 Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46-55 HRC			
		H.1.2		Hardened and tempered	56-60 HRC			
		H.1.3		Hardened and tempered	61-65 HRC			
		H.1.4		Hardened and tempered	66-70 HRC			
	Chilled iron	H.2.1		Cast	400 HB			
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC			
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm ²			
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm ²			
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm ²			
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm ²			
		O.3.1	Graphite					

* Tensile strength

Cutting data standard values

Index	ZBGF H VHM 2xD 50 840 ...				SFSE VHM TiAlN 50 811 ..., 50 816 ..., 50 818 ..., 50 819 ...			SGF VHM TiAlN 50 825 ..., 50 826 ..., 50 827 ...		
	v_c m/min	$\emptyset 3-5$ f_z [mm/tooth]	$\emptyset 6-10$ f_z [mm/tooth]	$\emptyset 12-16$ f_z [mm/tooth]	v_c m/min	$\emptyset 6-10$ f_z [mm/tooth]	$\emptyset 12-20$ f_z [mm/tooth]	v_c m/min	$\emptyset 6-10$ f_z [mm/tooth]	$\emptyset 12-20$ f_z [mm/tooth]
P.1.1					150	0,06	0,10	150	0,06	0,10
P.1.2					130	0,06	0,10	130	0,06	0,10
P.1.3					110	0,06	0,10	110	0,06	0,10
P.1.4					110	0,05	0,07	110	0,05	0,07
P.1.5					100	0,05	0,07	100	0,05	0,07
P.2.1					120	0,06	0,10	120	0,06	0,10
P.2.2					110	0,05	0,07	110	0,05	0,07
P.2.3					100	0,05	0,07	100	0,05	0,07
P.2.4					80	0,04	0,06	80	0,04	0,06
P.3.1					80	0,06	0,10	80	0,06	0,10
P.3.2					70	0,05	0,07	70	0,05	0,07
P.3.3					60	0,04	0,06	60	0,04	0,06
P.4.1					80	0,06	0,10	80	0,06	0,10
P.4.2					70	0,06	0,10	70	0,06	0,10
M.1.1					70	0,04	0,06	70	0,04	0,06
M.2.1					50	0,03	0,05	50	0,03	0,05
M.3.1					50	0,03	0,05	50	0,03	0,05
K.1.1					150	0,07	0,12	150	0,07	0,12
K.1.2					130	0,07	0,12	130	0,07	0,12
K.2.1					130	0,05	0,07	130	0,05	0,07
K.2.2					110	0,05	0,07	110	0,05	0,07
K.3.1					120	0,06	0,10	120	0,06	0,10
K.3.2					100	0,06	0,10	100	0,06	0,10
N.1.1					210	0,085	0,15	210	0,085	0,15
N.1.2					180	0,07	0,12	180	0,07	0,12
N.2.1					130	0,07	0,12	130	0,07	0,12
N.2.2					130	0,07	0,12	130	0,07	0,12
N.2.3					120	0,07	0,12	120	0,07	0,12
N.3.1					180	0,085	0,15	180	0,085	0,15
N.3.2					180	0,085	0,15	180	0,085	0,15
N.3.3					130	0,085	0,15	130	0,085	0,15
N.4.1					150	0,085	0,15	150	0,085	0,15
S.1.1					60	0,03	0,05	60	0,03	0,05
S.1.2	80	0,01	0,03	0,03						
S.2.1	60	0,01	0,02	0,02						
S.2.2	60	0,01	0,02	0,02						
S.2.3	60	0,01	0,02	0,02						
S.3.1					70	0,03	0,05	70	0,03	0,05
S.3.2	80	0,01	0,03	0,03						
S.3.3	60	0,01	0,02	0,02						
H.1.1	80	0,01	0,03	0,03						
H.1.2	60	0,01	0,02	0,02						
H.1.3	40	0,005	0,01	0,01						
H.1.4										
H.2.1	100	0,03	0,04	0,04						
H.3.1	60	0,01	0,02	0,02						
O.1.1					240	0,10	0,16	240	0,10	0,16
O.1.2					240	0,10	0,16	240	0,10	0,16
O.2.1					130	0,05	0,07	130	0,05	0,07
O.2.2					130	0,05	0,07	130	0,05	0,07
O.3.1	180	0,04	0,05	0,08	110	0,05	0,07	110	0,05	0,07



The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. $\pm 20\%$ according to the usage conditions.

Cutting data standard values

Index	MWN uncoated 50 890 ..., 50 891 ..., 50 892 ..., 50 895 ..., 50 896 ..., 50 897 ...		MWN TiAlN 50 890 ..., 50 891 ..., 50 895 ...		EAW / EWM 50 860 ..., 50 861 ..., 50 867 ..., 50 868 ..., 50 870 ..., 50 871 ...			SGF VHM Ti500 54 832 ...		
	V_c m/min	f_z [mm/tooth]	V_c m/min	f_z [mm/tooth]	V_c m/min	EAW f_z [mm/tooth]	EWM f_z [mm/tooth]	V_c m/min	8 mm f_z [mm/tooth]	10–16 mm f_z [mm/tooth]
P.1.1	85	0,10	170	0,10	280	0,20	0,20	150	0,03–0,07	0,05–0,15
P.1.2	75	0,10	150	0,10	240	0,20	0,20	150	0,03–0,07	0,05–0,15
P.1.3	65	0,10	130	0,10	200	0,20	0,20	120	0,03–0,07	0,05–0,10
P.1.4	65	0,07	130	0,07	200	0,15	0,15	120	0,03–0,06	0,04–0,06
P.1.5	60	0,07	120	0,07	180	0,15	0,15	120	0,03–0,06	0,04–0,06
P.2.1	70	0,10	140	0,10	220	0,20	0,20	120	0,03–0,06	0,04–0,06
P.2.2	65	0,07	130	0,07	200	0,15	0,15	120	0,03–0,06	0,04–0,06
P.2.3	60	0,07	120	0,07	180	0,15	0,15	80	0,03–0,06	0,04–0,06
P.2.4	45	0,06	90	0,06	150	0,12	0,12	70	0,03–0,06	0,04–0,06
P.3.1	45	0,10	90	0,10	150	0,20	0,20	80	0,03–0,06	0,04–0,06
P.3.2	40	0,07	80	0,07	130	0,10	0,10	70	0,03–0,06	0,04–0,06
P.3.3	35	0,06	70	0,06	110	0,10	0,10	60	0,03–0,06	0,04–0,06
P.4.1	45	0,10	90	0,10	150	0,20	0,20	50	0,03–0,06	0,04–0,06
P.4.2	40	0,10	80	0,10	130	0,20	0,20	50	0,03–0,06	0,04–0,06
M.1.1	40	0,06	80	0,06	130	0,10	0,10	120	0,04–0,07	0,05–0,12
M.2.1	30	0,05	60	0,05	90	0,08	0,08	120	0,04–0,07	0,05–0,12
M.3.1	30	0,05	60	0,05	90	0,08	0,08	120	0,04–0,07	0,05–0,12
K.1.1	85	0,12	170	0,12	280	0,25	0,25	140	0,04–0,07	0,07–0,15
K.1.2	75	0,12	150	0,12	240	0,25	0,25	100	0,04–0,07	0,07–0,15
K.2.1	75	0,07	150	0,07	240	0,15	0,15	140	0,04–0,07	0,07–0,15
K.2.2	65	0,07	130	0,07	200	0,15	0,15	120	0,04–0,07	0,07–0,15
K.3.1	70	0,10	140	0,10	220	0,20	0,20	140	0,04–0,07	0,07–0,15
K.3.2	60	0,10	120	0,10	190	0,20	0,20	100	0,04–0,07	0,07–0,15
N.1.1	120	0,15	240	0,15	390	0,30	0,30	400	0,05–0,08	0,07–0,15
N.1.2	105	0,12	210	0,12	330	0,25	0,25	350	0,05–0,08	0,07–0,15
N.2.1	75	0,12	150	0,12	240	0,25	0,25	350	0,05–0,08	0,07–0,15
N.2.2	75	0,12	150	0,12	240	0,25	0,25	250	0,05–0,08	0,07–0,15
N.2.3	70	0,12	140	0,12	220	0,25	0,25	200	0,05–0,08	0,07–0,15
N.3.1	105	0,15	210	0,15	330	0,30	0,30	160	0,05–0,08	0,07–0,15
N.3.2	105	0,15	210	0,15	330	0,30	0,30	160	0,05–0,08	0,07–0,15
N.3.3	75	0,15	150	0,15	240	0,30	0,30	160	0,05–0,08	0,07–0,15
N.4.1	85	0,15	170	0,15	280	0,30	0,30	160	0,05–0,08	0,07–0,15
S.1.1					110	0,10	0,10	100	0,02–0,04	0,04–0,10
S.1.2					90	0,07	0,07	80	0,02–0,04	0,04–0,10
S.2.1					70	0,05	0,05	60	0,03–0,05	0,04–0,06
S.2.2					70	0,05	0,05	40	0,03–0,05	0,04–0,06
S.2.3					70	0,05	0,05	40	0,03–0,05	0,04–0,06
S.3.1					130	0,10	0,10	100	0,02–0,04	0,04–0,10
S.3.2					90	0,07	0,07	80	0,03–0,05	0,04–0,06
S.3.3					70	0,05	0,05	60	0,03–0,05	0,04–0,06
H.1.1					80	0,05	0,05	60	0,01–0,02	0,03–0,05
H.1.2					60	0,04	0,04	50	0,01–0,02	0,03–0,05
H.1.3								40	0,01–0,02	0,03–0,05
H.1.4								30	0,01–0,02	0,03–0,05
H.2.1					80	0,05	0,05	60	0,01–0,02	0,03–0,05
H.3.1					60	0,04	0,04	50	0,01–0,02	0,03–0,05
O.1.1	140	0,16						180	0,05–0,10	0,07–0,25
O.1.2	140	0,16						220	0,05–0,10	0,07–0,25
O.2.1	75	0,07						120	0,05–0,10	0,07–0,25
O.2.2	75	0,07						120	0,05–0,10	0,07–0,25
O.3.1			130	0,07	200	0,14	0,14	400	0,05–0,10	0,07–0,25



The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

Index	GZG / GZD 50 863 ..., 50 864 ..., 50 887 ..., 50 885 ..., 50 888 ..., 50 889 ..., 50 894 ...			Polygon 50 872 ..., 50 874 ..., 50 875 ..., 50 876 ..., 50 879 ..., 50 880 ..., 50 881 ..., 50 882 ..., 50 883 ..., 50 884 ..., 50 886 ...		System 300 50 851 ..., 50 852 ..., 50 853 ..., 50 855 ..., 50 857 ..., 50 858 ..., 50 859 ...	
	v _c m/min	12-17 mm	20-26 mm	v _c m/min	f _z [mm/tooth]	v _c m/min	f _z [mm/tooth]
		f _z [mm/tooth]	f _z [mm/tooth]				
P.1.1	220	0,10-0,30	0,05-0,30	220	0,05-0,25	220	0,05-0,15
P.1.2	220	0,10-0,30	0,05-0,30	220	0,05-0,25	220	0,05-0,15
P.1.3	190	0,10-0,30	0,05-0,30	190	0,05-0,25	190	0,05-0,15
P.1.4	160	0,10-0,30	0,05-0,30	160	0,05-0,25	160	0,05-0,15
P.1.5	160	0,10-0,30	0,05-0,30	160	0,05-0,25	160	0,05-0,15
P.2.1	150	0,10-0,30	0,05-0,30	150	0,05-0,25	150	0,05-0,15
P.2.2	120	0,10-0,30	0,05-0,30	120	0,05-0,25	120	0,05-0,15
P.2.3	100	0,10-0,30	0,05-0,30	100	0,05-0,25	100	0,05-0,15
P.2.4	90	0,10-0,30	0,05-0,30	90	0,05-0,25	90	0,05-0,15
P.3.1	100	0,10-0,20	0,05-0,20	100	0,05-0,20	100	0,05-0,12
P.3.2	90	0,10-0,20	0,05-0,20	90	0,05-0,20	90	0,05-0,12
P.3.3	80	0,10-0,20	0,05-0,20	80	0,05-0,20	80	0,05-0,12
P.4.1	70	0,10-0,20	0,05-0,20	70	0,05-0,20	70	0,05-0,12
P.4.2	60	0,10-0,20	0,05-0,20	60	0,05-0,20	60	0,05-0,12
M.1.1	130	0,10-0,30	0,05-0,30	130	0,05-0,25	130	0,05-0,15
M.2.1	120	0,10-0,30	0,05-0,30	120	0,05-0,25	120	0,05-0,15
M.3.1	120	0,10-0,30	0,05-0,30	120	0,05-0,25	120	0,05-0,15
K.1.1	140	0,10-0,30	0,05-0,30	140	0,05-0,25	140	0,05-0,15
K.1.2	100	0,10-0,30	0,05-0,30	100	0,05-0,25	100	0,05-0,15
K.2.1	140	0,10-0,30	0,05-0,30	140	0,05-0,25	140	0,05-0,15
K.2.2	120	0,10-0,30	0,05-0,30	120	0,05-0,25	120	0,05-0,15
K.3.1	140	0,10-0,30	0,05-0,30	140	0,05-0,25	140	0,05-0,15
K.3.2	100	0,10-0,30	0,05-0,30	100	0,05-0,25	100	0,05-0,15
N.1.1	700	0,10-0,40	0,05-0,40	700	0,15-0,40	700	0,10-0,25
N.1.2	400	0,10-0,40	0,05-0,40	400	0,15-0,40	400	0,10-0,25
N.2.1	400	0,10-0,40	0,05-0,40	400	0,15-0,40	400	0,10-0,25
N.2.2	300	0,10-0,40	0,05-0,40	300	0,15-0,40	300	0,10-0,25
N.2.3	200	0,10-0,40	0,05-0,40	200	0,15-0,40	200	0,10-0,25
N.3.1	160	0,10-0,40	0,05-0,40	160	0,15-0,40	160	0,10-0,25
N.3.2	160	0,10-0,40	0,05-0,40	160	0,15-0,40	160	0,10-0,25
N.3.3	160	0,10-0,40	0,05-0,40	160	0,15-0,40	160	0,10-0,25
N.4.1	160	0,10-0,40	0,05-0,40	160	0,15-0,40	160	0,10-0,25
S.1.1				100	0,01-0,15	100	0,01-0,12
S.1.2				80	0,01-0,15	80	0,01-0,12
S.2.1				60	0,01-0,15	60	0,01-0,12
S.2.2				40	0,01-0,15	40	0,01-0,12
S.2.3				40	0,01-0,15	40	0,01-0,12
S.3.1				100	0,01-0,15	100	0,01-0,12
S.3.2				80	0,01-0,15	80	0,01-0,12
S.3.3				60	0,01-0,15	60	0,01-0,12
H.1.1				60	0,01-0,10	60	0,01-0,10
H.1.2				50	0,01-0,10	50	0,01-0,10
H.1.3				40	0,01-0,10	40	0,01-0,10
H.1.4				30	0,01-0,10	30	0,01-0,10
H.2.1				60	0,01-0,10	60	0,01-0,10
H.3.1				50	0,01-0,10	50	0,01-0,10
O.1.1				180	0,05-0,25	180	0,05-0,15
O.1.2				220	0,05-0,25	220	0,05-0,15
O.2.1				120	0,05-0,25	120	0,05-0,15
O.2.2				120	0,05-0,25	120	0,05-0,15
O.3.1				800	0,05-0,25	800	0,05-0,15



The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

Index	SFSE / SGF VHM Ti500 54 800 ..., 54 801 ..., 54 802 ..., 54 803 ..., 54 804 ..., 54 805 ..., 54 809 ..., 54 810 ..., 54 811 ..., 54 812 ..., 54 813 ...				Circular shank thread milling cutter 50 802 ..., 50 803 ...				
	v _c m/min	Ø 2,4–3,15	Ø 4	Ø 4,8–16	v _c m/min	Ø 1–2	Ø 3–5	Ø 6–8	Ø 9–12
		f _z [mm/tooth]	f _z [mm/tooth]	f _z [mm/tooth]		f _z [mm/tooth]	f _z [mm/tooth]	f _z [mm/tooth]	f _z [mm/tooth]
P.1.1	150	0,03–0,04	0,03–0,06	0,05–0,15	110	0,05	0,09	0,14	0,16
P.1.2	150	0,03–0,04	0,03–0,06	0,05–0,15	110	0,05	0,09	0,14	0,16
P.1.3	120	0,02–0,03	0,02–0,06	0,05–0,10	110	0,05	0,09	0,14	0,16
P.1.4	120	0,01–0,02	0,03–0,05	0,04–0,06	110	0,05	0,09	0,14	0,16
P.1.5	120	0,01–0,02	0,03–0,05	0,04–0,06	110	0,05	0,09	0,14	0,16
P.2.1	120	0,01–0,02	0,03–0,05	0,04–0,06	80	0,04	0,08	0,12	0,14
P.2.2	120	0,01–0,02	0,03–0,05	0,04–0,06	80	0,04	0,08	0,12	0,14
P.2.3	80	0,01–0,02	0,03–0,05	0,04–0,06	80	0,04	0,08	0,12	0,14
P.2.4	70	0,01–0,02	0,03–0,05	0,04–0,06	80	0,04	0,08	0,12	0,14
P.3.1	80	0,01–0,02	0,03–0,05	0,04–0,06	60	0,04	0,08	0,12	0,14
P.3.2	70	0,01–0,02	0,03–0,05	0,04–0,06	60	0,04	0,08	0,12	0,14
P.3.3	60	0,01–0,02	0,03–0,05	0,04–0,06	60	0,04	0,08	0,12	0,14
P.4.1	50	0,01–0,02	0,03–0,05	0,04–0,06	60	0,04	0,08	0,12	0,14
P.4.2	50	0,01–0,02	0,03–0,05	0,04–0,06	80	0,04	0,08	0,12	0,14
M.1.1	120	0,03–0,04	0,03–0,04	0,05–0,12	80	0,04	0,05	0,07	0,10
M.2.1	120	0,03–0,04	0,03–0,04	0,05–0,12	80	0,04	0,05	0,07	0,10
M.3.1	120	0,03–0,04	0,03–0,04	0,05–0,12	80	0,04	0,05	0,07	0,10
K.1.1	140	0,03–0,07	0,03–0,07	0,07–0,12	50	0,05	0,09	0,14	0,16
K.1.2	100	0,03–0,07	0,03–0,07	0,07–0,12	50	0,05	0,09	0,14	0,16
K.2.1	140	0,03–0,07	0,03–0,07	0,07–0,12	50	0,05	0,09	0,14	0,16
K.2.2	120	0,03–0,07	0,03–0,07	0,07–0,10	50	0,05	0,09	0,14	0,16
K.3.1	140	0,03–0,07	0,03–0,07	0,07–0,10	50	0,05	0,09	0,14	0,16
K.3.2	100	0,03–0,07	0,03–0,07	0,07–0,10	50	0,05	0,09	0,14	0,16
N.1.1	400	0,05–0,07	0,05–0,07	0,07–0,15	130	0,05	0,09	0,14	0,16
N.1.2	350	0,05–0,07	0,05–0,07	0,07–0,15	130	0,05	0,09	0,14	0,16
N.2.1	350	0,05–0,07	0,05–0,07	0,07–0,15	120	0,04	0,05	0,07	0,10
N.2.2	250	0,05–0,07	0,05–0,07	0,07–0,15	100	0,04	0,05	0,07	0,10
N.2.3	200	0,05–0,07	0,05–0,07	0,07–0,15	100	0,04	0,05	0,07	0,10
N.3.1	160	0,05–0,07	0,05–0,07	0,07–0,15	130	0,05	0,09	0,14	0,16
N.3.2	160	0,05–0,07	0,05–0,07	0,07–0,15	130	0,05	0,09	0,14	0,16
N.3.3	160	0,05–0,07	0,05–0,07	0,07–0,15	130	0,05	0,09	0,14	0,16
N.4.1	160	0,05–0,07	0,05–0,07	0,07–0,15	110	0,04	0,05	0,07	0,10
S.1.1	100	0,02–0,04	0,02–0,04	0,04–0,10	30	0,03	0,04	0,06	0,07
S.1.2	80	0,02–0,04	0,02–0,04	0,04–0,10	30	0,03	0,04	0,06	0,07
S.2.1	60	0,01–0,02	0,03–0,05	0,04–0,06	30	0,03	0,04	0,06	0,07
S.2.2	40	0,01–0,02	0,03–0,05	0,04–0,06	30	0,03	0,04	0,06	0,07
S.2.3	40	0,01–0,02	0,03–0,05	0,04–0,06	30	0,03	0,04	0,06	0,07
S.3.1	100	0,02–0,04	0,02–0,04	0,04–0,10	30	0,03	0,04	0,06	0,07
S.3.2	80	0,01–0,02	0,03–0,05	0,04–0,06	30	0,03	0,04	0,06	0,07
S.3.3	60	0,01–0,02	0,03–0,05	0,04–0,06	30	0,03	0,04	0,06	0,07
H.1.1	60		0,01–0,02	0,03–0,05					
H.1.2	50		0,01–0,02	0,03–0,05					
H.1.3	40		0,01–0,02	0,03–0,05					
H.1.4	30		0,01–0,02	0,03–0,05					
H.2.1	60		0,01–0,02	0,03–0,05					
H.3.1	50		0,01–0,02	0,03–0,05					
O.1.1	180	0,01–0,05	0,05–0,10	0,07–0,25	150	0,06	0,12	0,19	0,19
O.1.2	220	0,01–0,05	0,05–0,10	0,07–0,25	150	0,06	0,12	0,19	0,19
O.2.1	120	0,01–0,05	0,05–0,10	0,07–0,25	150	0,06	0,12	0,19	0,19
O.2.2	120	0,01–0,05	0,05–0,10	0,07–0,25	150	0,06	0,12	0,19	0,19
O.3.1	400	0,01–0,05	0,05–0,10	0,07–0,25	100	0,05	0,09	0,14	0,14



The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

Index	M/MF-BGF 2xD/2,5xD 50 854 ..., 50 862 ..., 50 869 ..., 50 898 ...						HPC solid carbide thread milling cutters 50 806 ..., 50 807 ...				SFSE Micro VHM 50 804 ...	
	v _c TiAlN	v _c uncoated	≤ Ø 6	≤ Ø 12	≤ Ø 6	≤ Ø 12	v _c	Ø 3-5	Ø 6-10	Ø 10-13	v _c	Ø 0,7-2,1
	m/min	m/min	f _s [mm/tooth]	*	f _s [mm/tooth]		m/min	f _s [mm/tooth]	f _s [mm/tooth]	f _s [mm/tooth]	m/min	f _s [mm/tooth]
P.1.1							100-140	0,015-0,03	0,04-0,06	0,06-0,10	20-40	0,01-0,02
P.1.2							100-120	0,015-0,03	0,04-0,06	0,06-0,10	20-40	0,01-0,02
P.1.3							80-100	0,015-0,02	0,03-0,05	0,03-0,07	20-40	0,01-0,02
P.1.4							80-100	0,015-0,02	0,02-0,04	0,03-0,05	20-40	0,01-0,02
P.1.5							80-100	0,015-0,02	0,02-0,03	0,03-0,04	20-40	0,01-0,02
P.2.1							100-120	0,015-0,03	0,04-0,06	0,06-0,10	20-40	0,01-0,02
P.2.2							80-100	0,015-0,03	0,02-0,05	0,03-0,07	20-40	0,01-0,02
P.2.3							80-100	0,015-0,02	0,02-0,03	0,03-0,04	20-40	0,01-0,02
P.2.4							80-100	0,015-0,02	0,02-0,03	0,03-0,04	20-40	0,01-0,02
P.3.1							100-120	0,015-0,03	0,04-0,06	0,06-0,10	20-40	0,01-0,02
P.3.2							80-100	0,015-0,02	0,02-0,03	0,03-0,04	20-40	0,01-0,02
P.3.3							80-100	0,015-0,02	0,02-0,03	0,03-0,04	20-40	0,01-0,02
P.4.1							60-80	0,015-0,03	0,04-0,06	0,06-0,10	20-40	0,01-0,02
P.4.2							60-80	0,015-0,03	0,04-0,06	0,06-0,10	20-40	0,01-0,02
M.1.1							60-80	0,015-0,03	0,04-0,06	0,06-0,10	20-30	0,01-0,02
M.2.1							60-80	0,015-0,03	0,04-0,06	0,06-0,10	20-30	0,01-0,02
M.3.1							60-80	0,015-0,03	0,04-0,06	0,06-0,10	20-30	0,01-0,02
K.1.1	80-120	50-80	0,10-0,15	0,15-0,22	0,02-0,05	0,05-0,10	100-120	0,02-0,04	0,04-0,08	0,06-0,10		
K.1.2	80-120	50-80	0,10-0,15	0,15-0,22	0,02-0,05	0,05-0,10	100-120	0,02-0,04	0,04-0,08	0,06-0,10		
K.2.1							100-120	0,02-0,04	0,04-0,08	0,06-0,10		
K.2.2							80-100	0,02-0,04	0,04-0,08	0,06-0,10		
K.3.1							80-100	0,02-0,04	0,04-0,08	0,06-0,08		
K.3.2							80-100	0,02-0,04	0,04-0,08	0,06-0,08		
N.1.1	100-400	100-400	0,10-0,25	0,25-0,30	0,03-0,06	0,06-0,10					30-50	0,02-0,03
N.1.2	100-400	100-400	0,10-0,25	0,25-0,30	0,03-0,06	0,06-0,10					30-50	0,02-0,03
N.2.1	100-300		0,10-0,25	0,25-0,30	0,03-0,06	0,06-0,10					30-50	0,02-0,03
N.2.2	100-400	100-400	0,10-0,25	0,25-0,30	0,03-0,06	0,06-0,10					30-50	0,02-0,03
N.2.3	100-160		0,10-0,25	0,25-0,30	0,03-0,06	0,06-0,10					30-50	0,02-0,03
N.3.1	100-300	100-300	0,10-0,30	0,25-0,30	0,03-0,06	0,06-0,10					30-50	0,02-0,03
N.3.2											30-50	0,02-0,03
N.3.3											30-50	0,02-0,03
N.4.1	100-400	100-400	0,10-0,25	0,25-0,30	0,03-0,06	0,06-0,10					30-50	0,02-0,03
S.1.1											20-30	0,01-0,02
S.1.2											20-30	0,01-0,02
S.2.1											20-30	0,01-0,02
S.2.2											20-30	0,01-0,015
S.2.3											20-30	0,01-0,015
S.3.1							60-80	0,015-0,02	0,02-0,03	0,03-0,04	20-30	0,01-0,02
S.3.2							60-80	0,01-0,015	0,015-0,02	0,025-0,035	20-30	0,01-0,015
S.3.3											20-30	0,01-0,015
H.1.1											20-30	0,01-0,015
H.1.2											20-30	0,01-0,015
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1	60-100	60-100	0,10-0,25	0,25-0,30	0,03-0,06	0,06-0,10						
O.1.2												
O.2.1												
O.2.2												
O.3.1												

* f_s = drilling feed rate in mm / rev

Cutting data standard values

Index	MiniMill			MicroMill	
	53 006 ..., 53 007 ..., 53 008 ..., 53 009 ..., 53 010 ..., 53 011 ..., 53 012 ..., 53 013 ..., 53 015 ...			53 050 ..., 53 051 ..., 53 052 ..., 53 053 ...	
	v_c m/min	f_z (drilling) [mm/tooth]	f_z (Threading) [mm/tooth]	v_c m/min	f_z [mm/tooth]
P.1.1	120 (80-200)	0,03-0,10	0,05-0,20	70 (40-120)	0,01-0,05
P.1.2	110 (70-190)	0,03-0,10	0,05-0,20	60 (40-110)	0,01-0,05
P.1.3	90 (60-150)	0,03-0,10	0,05-0,20	50 (30-80)	0,01-0,05
P.1.4	90 (60-150)	0,03-0,08	0,05-0,18	50 (30-80)	0,01-0,05
P.1.5	70 (50-120)	0,03-0,08	0,05-0,18	40 (30-70)	0,01-0,05
P.2.1	90 (60-150)	0,03-0,10	0,05-0,20	50 (30-80)	0,01-0,05
P.2.2	70 (50-120)	0,03-0,08	0,05-0,18	40 (30-70)	0,01-0,05
P.2.3	60 (40-110)	0,02-0,07	0,05-0,16	40 (20-70)	0,01-0,05
P.2.4	60 (40-100)	0,03-0,07	0,05-0,16	30 (20-60)	0,01-0,04
P.3.1	60 (40-100)	0,03-0,10	0,05-0,20	30 (20-60)	0,01-0,05
P.3.2	50 (30-80)	0,02-0,07	0,05-0,16	30 (20-50)	0,01-0,04
P.3.3	30 (20-60)	0,02-0,07	0,05-0,16	20 (10-40)	0,005-0,03
P.4.1	80 (50-130)	0,03-0,08	0,05-0,18	40 (30-70)	0,01-0,05
P.4.2	60 (40-110)	0,02-0,07	0,05-0,16	40 (20-70)	0,01-0,05
M.1.1	90 (60-150)	0,02-0,07	0,05-0,16	50 (30-80)	0,01-0,03
M.2.1	60 (40-110)	0,02-0,07	0,05-0,16	40 (20-70)	0,01-0,03
M.3.1	50 (30-90)	0,02-0,07	0,05-0,16	30 (20-50)	0,01-0,03
K.1.1	110 (70-190)	0,03-0,10	0,05-0,20	60 (40-110)	0,008-0,06
K.1.2	80 (50-140)	0,03-0,10	0,05-0,20	50 (30-80)	0,008-0,06
K.2.1	70 (50-120)	0,03-0,10	0,05-0,20	40 (30-70)	0,008-0,06
K.2.2	60 (40-100)	0,03-0,10	0,05-0,20	30 (20-60)	0,008-0,06
K.3.1	110 (70-190)	0,03-0,10	0,05-0,20	60 (40-110)	0,008-0,06
K.3.2	90 (60-160)	0,03-0,10	0,05-0,20	50 (30-90)	0,008-0,06
N.1.1	230 (150-390)	0,04-0,15	0,06-0,25	150 (90-260)	0,01-0,06
N.1.2	220 (140-370)	0,04-0,15	0,06-0,25	140 (90-240)	0,01-0,06
N.2.1	190 (120-320)	0,04-0,15	0,06-0,25	120 (70-210)	0,01-0,06
N.2.2	160 (110-270)	0,04-0,15	0,06-0,25	100 (60-180)	0,01-0,06
N.2.3	90 (60-160)	0,04-0,15	0,06-0,25	60 (40-110)	0,01-0,06
N.3.1	170 (110-280)	0,04-0,15	0,06-0,25	110 (70-180)	0,01-0,06
N.3.2	140 (90-240)	0,04-0,15	0,06-0,25	80 (50-150)	0,01-0,06
N.3.3	120 (80-210)	0,04-0,15	0,06-0,25	80 (50-140)	0,01-0,06
N.4.1	170 (110-280)	0,04-0,15	0,06-0,25	70 (40-120)	0,01-0,06
S.1.1	60 (40-100)	0,04-0,15	0,06-0,25	30 (20-50)	0,01-0,06
S.1.2	40 (30-70)	0,04-0,15	0,06-0,25	20 (10-30)	0,01-0,06
S.2.1	60 (40-100)	0,04-0,15	0,06-0,25	30 (20-50)	0,01-0,06
S.2.2	50 (30-80)	0,04-0,15	0,06-0,25	20 (10-40)	0,01-0,06
S.2.3	30 (20-60)	0,04-0,15	0,06-0,25	20 (10-30)	0,01-0,06
S.3.1	60 (40-100)	0,04-0,15	0,06-0,25	20 (10-40)	0,01-0,06
S.3.2	30 (20-60)	0,04-0,15	0,06-0,25	20 (10-30)	0,01-0,06
S.3.3	30 (20-50)	0,04-0,15	0,06-0,25	10 (10-20)	0,01-0,06
H.1.1	50 (30-90)	0,02-0,06	0,04-0,14	20 (10-40)	0,005-0,03
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1	40 (30-70)	0,02-0,10		20 (10-40)	0,005-0,03
O.1.1	180 (120-310)	0,04-0,15	0,06-0,25	80 (50-130)	0,02-0,09
O.1.2	170 (110-280)	0,04-0,15	0,06-0,25	70 (40-120)	0,02-0,09
O.2.1	140 (90-230)	0,04-0,15	0,06-0,25	50 (30-100)	0,02-0,09
O.2.2	100 (70-170)	0,04-0,15	0,06-0,25	40 (30-70)	0,02-0,09
O.3.1	140 (90-230)	0,005-0,05	0,06-0,25	60 (40-110)	0,02-0,09



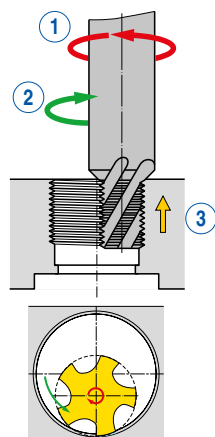
The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Milling Procedures

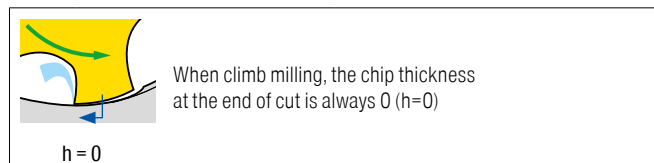
Climb milling

Characteristics:

- ① Tool rotation direction „right“
- ② Toolpath counter clockwise
- ③ Feed direction „outwards“



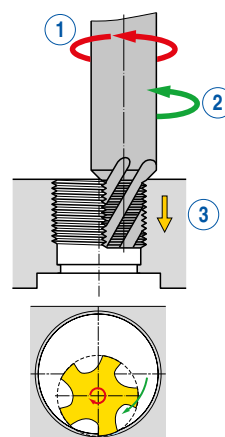
Right hand thread



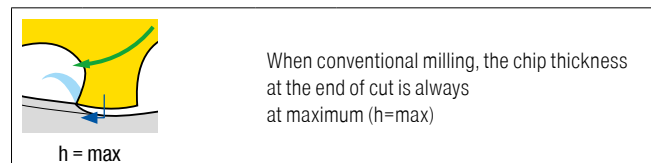
Conventional milling

Characteristics:

- ① Tool rotation direction „right“
- ② Toolpath clockwise
- ③ Feed direction „inwards“

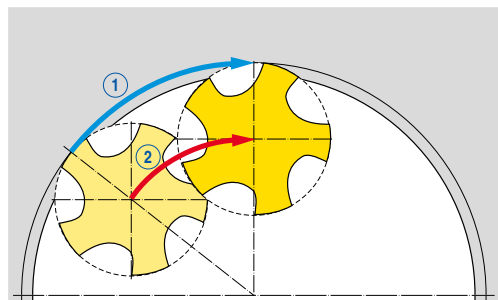


Right hand thread



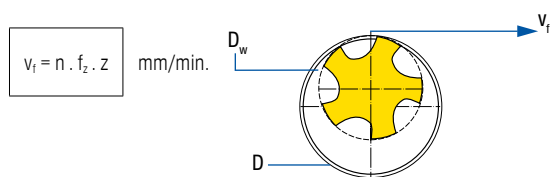
7

Feed rate calculation



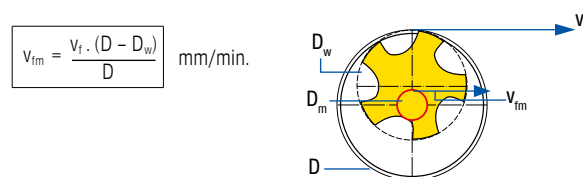
- ① Peripheral feedrate v_f
- ② Centerline feedrate v_{fm}

Peripheral feedrate v_f



D_w = Effective diameter in mm
 n = RPM in min^{-1}
 f_z = Feed per tooth in mm

Centerline feedrate v_{fm}



z = Number of cutting edges (radial)
 D = Nominal thread diameter = external profile diameter in mm
 D_m = Centre path diameter ($D - D_w$) in mm

Tips for the User



With thread milling there are two different programme possibilities with the feed motion of the tool.

On the one hand the machine controls the feed at the diameter of the tool, on the other hand the feed control is the tool center line. In order to ascertain which method the machine control uses, the following method should be employed:

- ▲ Enter the thread milling routine into the control.
- ▲ Enter a safety margin into the program, so that the tool runs in air.
- ▲ Run the program through and check the operating time.
- ▲ Compare the actual time with the calculated theoretical time.

If the time is longer than the calculated time the feed is controlling the tool center line.

If the time is shorter than the calculated time the feed is controlling the diameter of the tool.

Numeric calculation of cutting data for thread milling

$$n = \frac{v_c \cdot 1000}{d \cdot \pi}$$

$$v_c = \frac{d \cdot \pi \cdot n}{1000}$$

$$v_f = f_z \cdot Z \cdot n$$

$$n = \frac{v_f}{f_z \cdot Z}$$

$$f_z = \frac{v_f}{Z \cdot n}$$

Milling – external contour

$$v_{fm} = \frac{v_f \cdot (D + d)}{D}$$

$$v_f = \frac{D \cdot v_{fm}}{(D + d)}$$

Milling – internal contour

$$v_{fm} = \frac{v_f \cdot (D - d)}{D}$$

$$v_f = \frac{D \cdot v_{fm}}{(D - d)}$$

Helical plunging

$$U_{arc} = 0,25 \cdot v_{fm}$$

Ramping in the arc

$$U_{arc} = v_{fm}$$

n = rpm
 v_c = Cutting speed
 d = Tool diameter
 D = Nominal thread-Ø
 v_f = Feed rate at the diameter

rev./min.
 m/min
 mm
 mm
 mm/min.

v_{fm} = Feed rate at the centre
 U_{arc} = programmed ramping feed rate
 f_z = Feed per tooth
 Z = number of cutting edges of the cutter

mm/min.
 mm/min.
 mm
 Piece

Correction values for the internal thread milling

The cutting edge diameter of the thread milling cutter which is entered into the machine control, can be calculated as follows:

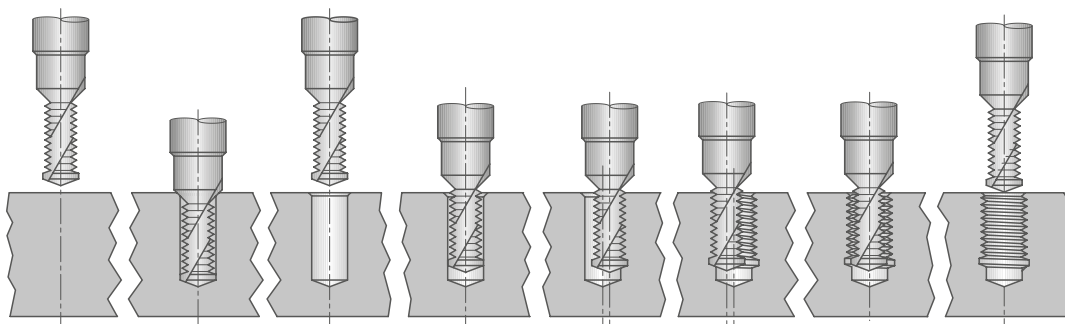
half the cutter Ø – 0.05 x pitch p

Example: M30x3
 Cutter-Ø: 20 mm

$$\frac{\varnothing 20}{2} - (0,05 \cdot 3) = \underline{9,85 \text{ mm}}$$

9,85 mm is the cutting radius to be entered into the machine control

Internal thread production



Thread types

M	Metric ISO standard thread	BSW	Whitworth thread
MF	Metric ISO fine thread	BSF	Whitworth fine thread
G	Whitworth thread	NPT	American taper pipe thread
UN	Unified thread	Pg	Steel conduit thread
UNC	Unified standard thread	Tr	Trapezoidal thread
UNF	Unified fine thread		

Coatings

TiN	▲ TiN coating ▲ Maximum application temperature: 450 °C	CWX500	▲ Carbide, TiAlN-coated ▲ The universal carbide grade for almost all materials
TiAlN	▲ TiAlN multilayer coating ▲ Maximum application temperature: 900 °C	TiCN	▲ TiCN multilayer coating ▲ Maximum application temperature: 450 °C
Ti500	▲ TiAlN-coating ▲ Maximum application temperature: 500 °C	Ti600	▲ TiAlN multilayer coating ▲ Maximum application temperature: 650 °C
Ti601	▲ High-performance TiAlN multilayer coating ▲ Maximum application temperature: 900 °C	Ti602	▲ TiCN multilayer coating ▲ Maximum application temperature: 400 °C
AlCrN	▲ High-performance AlCrN multilayer coating ▲ max.application temperature: > 1100 °C		