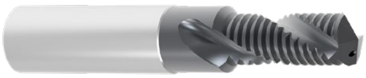
New products for machining technicians

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

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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

- no drilling required
- central internal coolant
- lateral internal coolant
- Coolant supply either via the flange or centrally
- left-hand cutting

Shank

DIN 6535 HA HB

DIN 1835 A B

Thread / Flank angle

- M – Explanation of the types of thread can be found on → **Page 79.**
- 60° – Flank angle 60°

Applications

- DIN 471/472 – Circlip Grooves
- Full radius slot milling
- Slot milling
- Multipurpose milling
- Chamfering and Deburring
- Gear milling
- IR/IL – IR = internal right, IL = internal left
- ER/EL – ER = external right, EL = external left
- IR/IL + ER/EL

● = **Main Application**

○ = Extended application

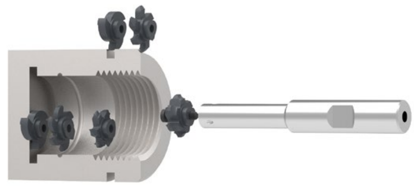
Tool types

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

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

Group	Tool	Image	Features	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
60°	55°	55°	60°	60°	80°	60°	30°	DIN 471/472						
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										

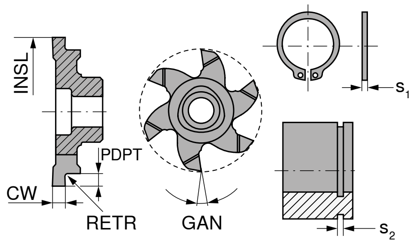
7

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

Milling inserts for circlip grooves without chamfer

Polygon

DIN 471/472



Ti500

Solid carbide

Size	$s_{2\ H13}$ mm	INSL mm	CW $_{-0,03}$ mm	PDPT mm	RETR mm	GAN °	s_1 mm	NOF	50 880 ...
6	0,90	9,6	0,98	1,20	0,3	6	0,80	3	292
	1,10	11,7	1,18	1,00	0,3	6	1,00	3	294
	1,30	11,7	1,38	1,00	0,3	6	1,20	3	296
	1,60	11,7	1,68	1,00	0,3	6	1,50	3	298
7	1,10	16,0	1,18	0,90	0,3	6	1,00	6	301
	1,30	16,0	1,38	1,10	0,3	6	1,20	6	302
	1,60	16,0	1,68	1,25	0,3	6	1,50	6	304
	1,85	16,0	1,93	1,25	0,3	6	1,75	6	306
	1,10	17,7	1,18	0,90	0,3	6	1,00	6	308
	1,30	17,7	1,38	1,10	0,3	6	1,20	6	309
	1,60	17,7	1,68	1,25	0,3	6	1,50	6	310
	1,85	17,7	1,93	1,25	0,3	6	1,75	6	311
9	1,10	20,0	1,18	0,90	0,3	6	1,00	6	313
	1,30	20,0	1,38	1,10	0,3	6	1,20	6	314
	1,60	20,0	1,68	1,25	0,3	6	1,50	6	315
	1,85	20,0	1,93	1,25	0,3	6	1,75	6	316
	1,60	21,7	1,68	1,25	0,3	6	1,50	6	318
	1,85	21,7	1,93	1,25	0,3	6	1,75	6	319
	2,15	21,7	2,23	1,75	0,3	6	2,00	6	320
	2,65	21,7	2,73	1,75	0,3	6	2,50	6	321
10	1,30	26,0	1,38	1,10	0,3	6	1,20	6	322
	1,60	26,0	1,68	1,25	0,3	6	1,50	6	324
	1,85	26,0	1,93	1,25	0,3	6	1,75	6	326
	2,15	26,0	2,23	1,75	0,3	6	2,00	6	328
	2,65	26,0	2,73	1,75	0,3	6	2,20	6	330
	3,15	26,0	3,23	2,20	0,3	6	3,00	6	332
P									●
M									●
K									●
N									●
S									●
H									●
O									●

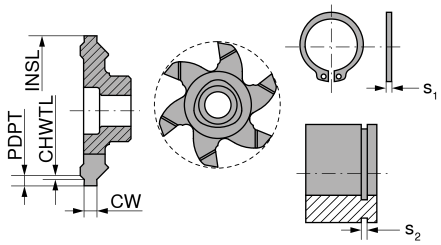
→ v_c/f_z Page 73

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.**

Milling inserts for circlip grooves with chamfer

▲ Both edges chamfered 0.1 x 45°

Polygon | DIN 471/472



Ti500

Solid carbide

Size	$s_{2\ H13}$ mm	INSL mm	CW $_{-0,03}$ mm	PDPT mm	CHWTL mm	s_1 mm	NOF	50 879 ...
7	1,10	16,0	1,18	0,50	0,10	1,00	6	292
	1,30	16,0	1,38	0,85	0,15	1,20	6	302
	1,60	16,0	1,68	1,00	0,15	1,50	6	304
	1,85	16,0	1,93	1,25	0,20	1,75	6	306
9	1,10	20,0	1,18	0,50	0,10	1,00	6	307
	1,30	20,0	1,38	0,85	0,15	1,20	6	308
	1,60	20,0	1,68	1,00	0,15	1,50	6	309
	1,60	21,7	1,68	1,00	0,15	1,50	6	312
	1,85	20,0	1,93	1,25	0,20	1,75	6	310
	1,85	21,7	1,93	1,25	0,20	1,75	6	314
	2,15	21,7	2,23	1,50	0,20	2,00	6	316
	2,65	21,7	2,73	1,75	0,20	2,50	6	318
10	1,30	26,0	1,38	0,85	0,15	1,20	6	322
	1,60	26,0	1,68	1,00	0,15	1,50	6	324
	1,85	26,0	1,93	1,25	0,20	1,75	6	326
	2,15	26,0	2,23	1,50	0,20	2,00	6	328
	2,65	26,0	2,73	1,75	0,20	2,50	6	330
	3,15	26,0	3,23	1,75	0,20	3,00	6	332

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.**

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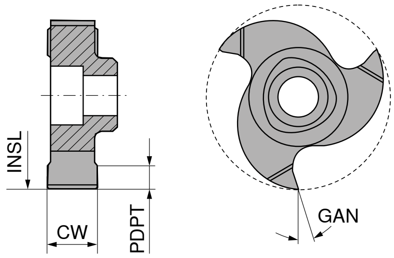
Milling insert without profile

- with double sided edge break of 0.1 x 45°
- Size 7: from 5.0 mm groove width with ground chip breaker
- Size 10: from 6.5 mm groove width with ground chip breaker

Polygon



Ti500

Solid carbide

Size	CW +/-0,02 mm	INSL mm	PDPT mm	GAN °	NOF	50 875 ...
6	1,5	11,7	2,25	6	3	302
6	2,0	11,7	2,25	6	3	304
6	2,5	11,7	2,25	6	3	306
6	3,0	11,7	2,25	6	3	308
7	3,5	16,0	3,50	0	3	310
7	3,5	16,0	3,50	8	3	312
7	3,5	16,0	3,50	12	3	314
7	5,0	16,0	3,50	0	3	316
7	5,0	16,0	3,50	8	3	318
7	5,0	16,0	3,50	12	3	320
10	4,0	25,0	5,70	0	3	330
10	4,0	25,0	5,70	8	3	332
10	4,0	25,0	5,70	12	3	334
10	5,0	25,0	5,70	8	3	337
10	6,5	25,0	5,70	0	3	340
10	6,5	25,0	5,70	8	3	342
10	6,5	25,0	5,70	12	3	344
10	8,0	25,0	5,70	0	3	350
10	8,0	25,0	5,70	8	3	352
10	8,0	25,0	5,70	12	3	354

P	●
M	●
K	●
N	●
S	●
H	●
O	●

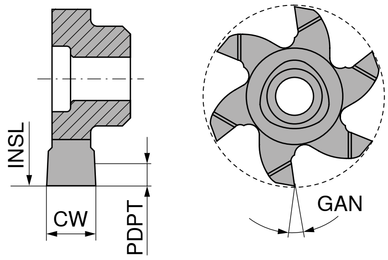
→ v_c/f_z Page 73

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.**

Milling insert without profile

▲ Both edges chamfered 0.1 x 45°

Polygon



Ti500

Solid carbide

Size	CW +/-0,02 mm	INSL mm	PDPT mm	GAN °	NOF	50 876 ...
7	1,5	17,7	4,0	6	6	307
	2,0	17,7	4,0	6	6	308
	2,5	17,7	4,0	6	6	309
	3,0	16,0	3,5	6	6	302
	4,0	16,0	3,5	6	6	304
	5,0	16,0	3,5	6	6	306
9	1,5	21,7	5,0	6	6	314
	2,0	21,7	5,0	6	6	315
	2,5	21,7	5,0	6	6	316
	3,0	21,7	5,0	6	6	317
	3,0	20,0	4,2	6	6	311
	4,0	20,0	4,2	6	6	312
	5,0	20,0	4,2	6	6	313
10	1,5	27,7	6,8	6	6	330
	2,0	27,7	6,8	6	6	332
	2,5	27,7	6,8	6	6	334
	3,0	26,0	6,2	6	6	322
	3,0	27,7	6,8	6	6	336
	4,0	26,0	6,2	6	6	324
	5,0	26,0	6,2	6	6	326
	6,5	26,0	6,2	6	6	328

P	●
M	●
K	●
N	●
S	●
H	●
O	●

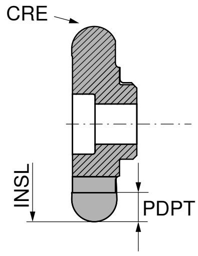
→ v_c/f_z Page 73

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.**

7

Milling inserts for radius milling

Polygon



Ti500

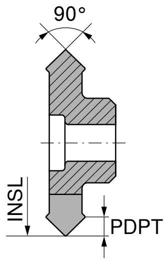
Solid carbide

Size	CRE mm	INSL mm	PDPT mm	NOF	50 886 ...
6	1,100	9,6	1,20	3	702
	0,788	11,7	2,25	3	704
	1,100	11,7	2,25	3	708
	1,190	11,7	2,25	3	706
7	0,788	17,7	4,20	6	712
	1,100	17,7	4,20	6	714
9	0,785	21,7	5,00	6	720
	1,000	21,7	5,00	6	722
	1,200	21,7	5,00	6	724
	1,400	21,7	5,00	6	726
	1,500	21,7	5,00	6	728
P					●
M					●
K					●
N					●
S					●
H					●
O					●

→ v_c/f_z Page 73

Milling inserts for chamfering and deburring

Polygon



Ti500

Solid carbide

Size	PDPT mm	INSL mm	NOF	50 884 ...
6	1,20	9,6	3	292
	1,50	11,7	3	294
7	1,90	16,0	6	302
	1,30	17,7	6	304
9	1,90	20,0	6	312
	1,95	21,7	6	314
10	2,10	26,0	6	322
P				●
M				●
K				●
N				●
S				●
H				●
O				●

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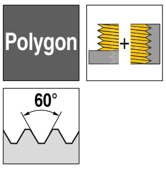
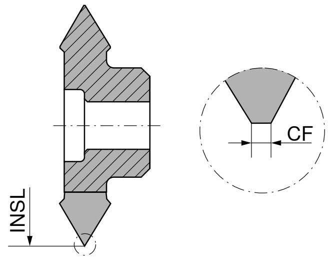
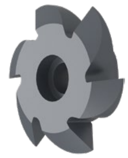
Thread milling insert – Partial profile

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





Ti500



Size	TP mm	INSL mm	CF mm	NOF	Solid carbide 50 882 ...
6	1 - 3	11,7	0,10	3	**292**
7	1 - 3	17,7	0,10	6	**306**
	1 - 4	16,0	0,10	6	**302**
	2,5 - 4	16,0	0,25	6	**304**
9	1 - 2	21,7	0,10	6	**314**
	1 - 3	20,0	0,10	6	**312**
	2 - 4	21,7	0,15	6	**316**
10	1 - 3	26,0	0,10	6	**322**
	2,5 - 5	26,0	0,25	6	**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.**

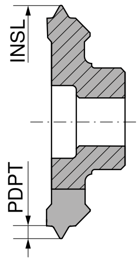
7

Thread milling insert – Full profile

Polygon IR/IL

60°

M



Ti500

Solid carbide

Size	TP mm	INSL mm	PDPT mm	NOF	50 881 ...
6	1	9,6	0,572	3	292
	1,5	9,6	0,875	3	293
	2	10,5	1,157	3	296
7	1,5	16,0	0,875	6	302
	2	16,0	1,157	6	304
	2,5	16,0	1,430	6	306
	3	16,0	1,702	6	310
	M20x2,5	16,0	1,430	6	308 [1)]
9	1,5	20,0	0,875	6	312
	2	20,0	1,157	6	314
	M24x3	20,0	1,702	6	316 [1)]
10	1,5	26,0	0,875	6	322
	2	26,0	1,157	6	324
	3	26,0	1,702	6	330
	3,5	26,0	1,982	6	332
	4	26,0	2,263	6	334
	4,5	26,0	2,553	6	336
	5	26,0	2,836	6	337
	M30x3,5	24,0	1,982	6	331 [1)]
	M36x4	26,0	2,263	6	335 [1)]

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) profile corrected

→ 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.**

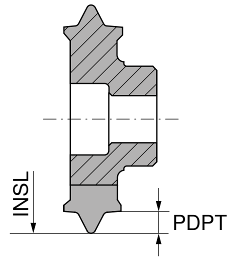
Thread milling insert – Full profile

▲ 50 883 322 for threads > 1"

Polygon

55°

G BSW BSF



Ti500

Solid carbide

Size	TPI 1/"	TP mm	INSL mm	PDPT mm	NOF	50 883 ...
6	19	1,337	9,6	0,871	3	292
7	14	1,814	17,7	1,177	6	308
	14	1,814	16,0	1,177	6	304
	11	2,309	16,0	1,494	6	302
	10	2,540	16,0	1,646	6	306
9	14	1,814	20,0	1,177	6	316
	11	2,309	20,0	1,494	6	314
10	11	2,309	26,0	1,494	6	322

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 73

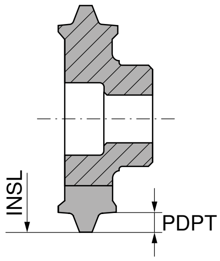
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

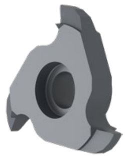
Thread milling insert – Full profile

▲ DIN 103

Polygon
IR/IL
30°
Tr



Ti500



Solid carbide

Size	TP mm	INSL mm	PDPT mm	NOF	Thread	50 872 ...
6	2	11,7	1,25	3	Tr 16x2 - Tr 20x2	292
	3	11,0	1,75	3	Tr 18x3 - Tr 20x3	294
	4	12,0	2,25	3	Tr 20x4	296 1)
7	3	14,0	1,75	3	Tr 24x3 - Tr 32x3	302 2)
	5	15,3	2,75	3	Tr 28x5 - Tr 36x5	306 3)
	5	15,3	2,75	3	Tr 26x5	304 3)
	6	16,2	3,50	3	Tr 34x6 - Tr 42x6	310 2)
	6	16,2	3,50	3	Tr 30x6 - Tr 32x6	308 2)
10	5	25,0	2,75	3	Tr 44x5 - Tr 48x5	322 4)
	7	22,0	3,75	3	Tr 38x7 - Tr 42x7	324 4)
	7	22,0	3,75	3	Tr 44x7	326 1)
	8	25,0	4,50	3	Tr 46x8 - Tr 48x8	328 4)
	8	25,0	4,50	3	Tr 50x8 - Tr 52x8	330 4)
	9	25,0	5,00	3	Tr 55x9 - Tr 60x9	332 4)
	10	25,0	5,50	3	Tr 60x10 - Tr 80x10	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

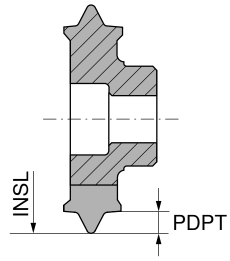
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f 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!

Polygon | IR/IL | 60° | UNC



Ti500

Solid carbide

50 886 ...

Size	TPI 1/"	INSL mm	PDPT mm	NOF	50 886 ...
6	12,0	9,6	1,228	3	202
	11,0	10,5	1,355	3	204
	10,0	11,7	1,485	3	206
7	9,0	16,0	1,577	6	212
9	8,0	18,0	1,809	6	222
	7,0	20,0	2,043	6	224
10	6,0	24,0	2,454	6	232
	5,0	26,0	2,979	6	234
	4,5	26,0	3,289	6	236

P	●
M	●
K	●
N	●
S	●
H	●
O	●

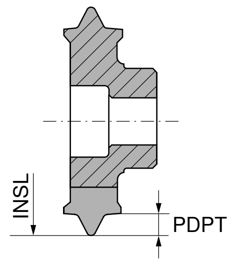
→ v_c/f_z Page 73

7

Thread milling insert – Full profile

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

Polygon | IR/IL | 60° | UNF



Ti500

Solid carbide

50 886 ...

Size	Thread	INSL mm	PDPT mm	NOF	50 886 ...
6	1/2 - 20	9,6	0,733	3	302
	9/16 - 18	10,5	0,827	3	304
	3/4 - 16	11,7	0,945	3	306
7	7/8 - 14	17,7	1,071	6	312
9	1 - 12	20,0	1,228	6	322

P	●
M	●
K	●
N	●
S	●
H	●
O	●

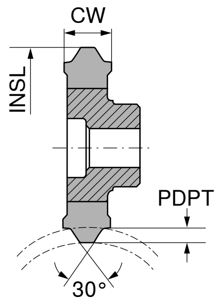
→ v_c/f_z Page 73

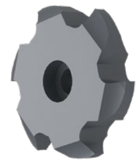
Gear cutters, DIN 5480

▲ Z_W = Tooth Number Wave

Polygon

Ti500





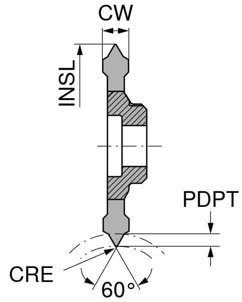
Size	Wave	module	Z w	CW mm	INSL mm	PDPT mm	NOF	Solid carbide 50 874 ...
7	W11	0,80	12	3	15,85	0,80	6	011
	W14	0,80	16	3	16,00	0,80	6	014
	W16	0,80	18	3	16,00	0,80	6	016
	W20	0,80	24	3	16,00	0,80	6	020
	W24	1,25	18	4	16,00	1,25	6	024
	W25	2,00	11	7	16,00	2,00	3	025
	W30	1,25	22	4	16,00	1,25	6	031
	W30	1,25	20	5	16,00	1,25	6	030
	W35	2,00	16	5	16,00	2,00	6	035
	W42	1,25	32	4	16,00	1,25	6	042
	W50	2,00	24	5	16,00	2,00	6	050

Gear cutters, DIN 5481

▲ Z_W = Tooth Number Wave

Polygon

Ti500



Size	Wave	Z w	CW mm	INSL mm	CRE mm	PDPT mm	NOF	Solid carbide 50 874 ...
10	26 x 30	35	3	26	0,3	1,638	6	126
	40 x 44	38	3	26	0,4	1,940	6	140

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 73

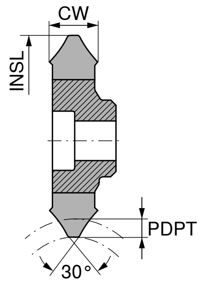
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Gear cutters, DIN 5482

▲ Z_w = Tooth Number Wave

Polygon

Ti500



Solid carbide

Size	Wave	module	Z_w	CW mm	INSL mm	PDPT mm	NOF	50 874 ...
7	15 x 12	1,60	8	3,0	16	1,50	6	**215**
	17 x 14	1,60	9	5,0	16	1,50	6	**217**
	20 x 17	1,60	12	5,0	16	1,50	6	**220**
	25 x 22	1,60	14	5,0	16	1,65	6	**225**
10	35 x 31	1,75	18	6,5	26	2,00	6	**235**
	55 x 50	2,00	26	6,5	26	2,75	6	**255**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

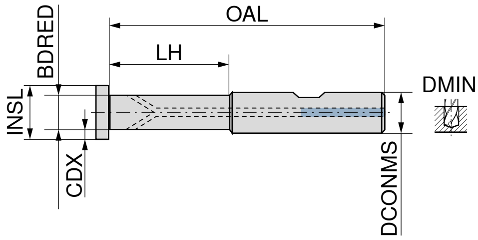
→ v_c/f_z Page 73

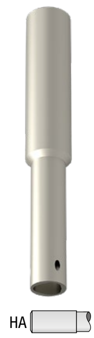
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

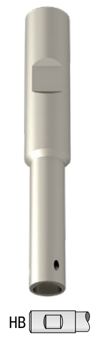
Circular milling cutter

- 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

Polygon







Size	LH mm	CDX mm	DCONMS h6 mm	OAL mm	BDRED mm	DMIN mm	torque moment Nm	HM 50 805 ... (HA)	HM 50 805 ... (HB)
6	20,00	2,25	12	67,5	7,0	12	1,0		050 1)
	20,00	2,25	12	67,5	7,0	12	1,0		051
	20,00	2,25	12	67,5	7,0	12	1,0	052	
	30,00	2,25	12	80,0	7,0	12	1,0		053
	30,00	2,25	12	80,0	7,0	12	1,0	054	
	40,00	2,25	12	100,0	7,0	12	1,0		055
	40,00	2,25	12	100,0	7,0	12	1,0	056	
7	20,90	4,00	12	67,4	9,0	18	1,1		002 1)
	21,00	4,00	12	67,4	9,0	18	1,1		004
	21,00	4,00	12	67,4	9,0	18	1,1	005	
	36,00	4,00	12	82,4	9,0	18	1,1		008
	36,00	4,00	12	82,4	9,0	18	1,1	085	
		4,00	12	122,5	12,0	18	1,1	010	
		4,00	12	82,4	12,0	18	1,1	011	
9	29,75	5,00	16	80,0	11,5	22	3,8		070 1)
	30,00	5,00	16	80,0	11,5	22	3,8		071
	30,00	5,00	16	80,0	11,5	22	3,8	072	
	50,00	5,00	16	100,0	11,5	22	3,8		073
	50,00	5,00	16	100,0	11,5	22	3,8	074	
10	20,50	5,70	16	105,0	15,5	28	5,5	025	
	20,50	6,80	16	149,7	15,5	28	5,5	024	
	20,50	6,80	20	175,4	15,5	28	5,5	026	
	30,40	6,80	16	79,6	13,6	28	5,5		012 1)
	30,50	6,80	16	79,6	13,6	28	5,5	015	
	30,50	6,80	16	79,6	13,6	28	5,5		014
	45,50	6,80	16	94,6	13,6	28	5,5	021	
	45,50	6,80	16	94,6	13,6	28	5,5		020
	60,50	6,80	16	109,6	13,6	28	5,5		022
	60,50	6,80	16	109,6	13,6	28	5,5	023	

1) Steel version

Key D

Clamping screw

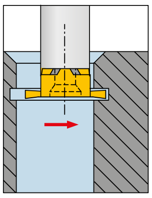
Spare parts

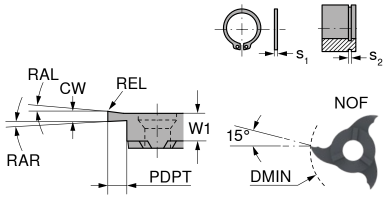
Size	80 950 ...		70 960 ...	
6	T08 - IP	**125**	M2,5x7	**246**
7	T08 - IP	**125**	M3x13	**231**
9	T15 - IP	**128**	M4x13	**236**
10	T20 - IP	**129**	M5x13,5	**243**

MiniMill – Milling insert for circlip grooves

Mini Mill | ≥ Ø 10 mm | DIN 471/472

CWX500





Size	DMIN mm	$s_{2\ H13}$ mm	$CW_{-0.02}$ mm	PDPT mm	W1 mm	RAR °	REL mm	s_1 mm	NOF	53 006 ...
10	10	0,70	0,74	1,5	3,50	1		0,60	3	070
	10	0,80	0,84	1,5	3,50	1		0,70	3	080
	10	0,90	0,94	1,5	3,50	1		0,80	3	090
	10	1,10	1,21	1,5	3,50	3		1,00	3	110
	10	1,30	1,41	1,5	3,50	3	0,10	1,20	3	130
	10	1,60	1,71	1,5	3,50	3	0,10	1,50	3	160
	12	1,10	1,21	2,5	3,50	3		1,00	3	112
	12	1,30	1,41	2,5	3,50	3	0,10	1,20	3	132
	12	1,60	1,71	2,5	3,50	3	0,10	1,50	3	162
18	18	0,70	0,74	1,5	5,75	1		0,60	3	270
	18	0,80	0,84	1,7	5,75	1		0,70	3	280
	18	0,90	0,94	1,9	5,75	1		0,80	3	290
	18	1,10	1,21	3,5	5,75	3		1,00	3	310
	18	1,30	1,41	3,5	5,75	3	0,10	1,20	3	330
	18	1,60	1,71	3,5	5,75	3	0,10	1,50	3	360
22	22	0,70	0,74	1,5	5,70	1		0,60	3	470
	22	0,80	0,84	1,7	5,70	1		0,70	3	480
	22	0,90	0,94	1,9	5,70	1		0,80	3	490
	22	1,00	1,04	2,1	5,70	1		0,90	3	500
	22	1,10	1,21	2,5	5,70	1		1,00	3	510
	22	1,30	1,41	4,5	5,70	3	0,10	1,20	3	530
	22	1,60	1,71	4,5	5,70	3	0,10	1,50	3	560
	22	1,85	1,96	4,5	5,70	3	0,15	1,75	3	585
	22	2,15	2,26	4,5	5,70	3	0,15	2,00	3	615
	22	2,65	2,76	4,5	5,70	3	0,15	2,50	3	665
	22	3,15	3,26	4,5	5,70	3	0,20	3,00	3	415
	22	4,15	4,26	4,5	5,70	3	0,20	4,00	3	515
	22	5,15	5,26	4,5	5,70	3	0,20	5,00	3	605

P	●
M	●
K	●
N	●
S	○
H	○
O	●

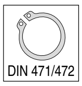
→ v_c/f_z Page 76

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

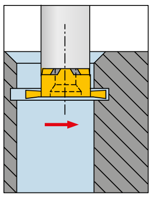
7

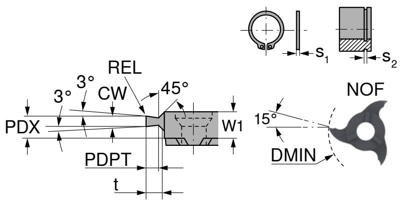
MiniMill – Milling insert for circlip grooves with chamfer facet

Mini Mill | ≥ Ø 22 mm



CWX500





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	53 006 ...
22	22	1,10	1,21	0,50	0,49	5,85	5,07		1,00	3	**805**
	22	1,30	1,41	0,70	0,67	5,85	5,17		1,20	3	**807**
	22	1,30	1,41	0,85	0,83	5,85	5,17		1,20	3	**808**
	22	1,60	1,71	0,85	0,83	5,85	5,07		1,50	3	**809**
	22	1,60	1,71	1,00	0,97	5,85	5,07		1,50	3	**810**
	22	1,85	1,96	1,25	1,23	5,85	5,19	0,15	1,75	3	**812**
	22	2,15	2,26	1,50	1,47	5,85	5,34	0,15	2,00	3	**815**
	22	2,65	2,76	1,75	1,72	5,85	5,09	0,15	2,50	3	**817**
	22	2,65	2,76	1,50	1,47	5,85	5,09	0,15	2,50	3	**816**
	22	3,15	3,26	1,75	1,72	5,85	5,34	0,20	3,00	3	**818**
	22	4,15	4,26	2,50	2,47	5,85	5,34	0,20	4,00	3	**825**
	22	4,15	4,26	2,00	1,97	5,85	5,34	0,20	4,00	3	**820**

P	●
M	●
K	●
N	●
S	○
H	○
O	●

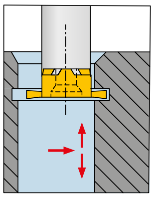
→ v_c/f_z Page 76

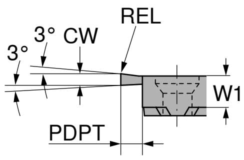
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

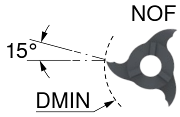
MiniMill – Milling insert for groove milling

Mini Mill | ≥ Ø 10 mm

CWX500







Size	DMIN mm	CW 0.02 mm	PDPT mm	W1 mm	REL mm	NOF	53 007 ...
10	10	1,0	1,5	3,50	0,1	3	010
	10	1,5	1,5	3,50	0,2	3	015
	10	2,0	1,5	3,50	0,2	3	020
	10	2,5	1,5	3,50	0,2	3	025
	12	1,5	2,0	3,50	0,2	6	114
	12	1,5	2,5	3,50	0,2	3	115
	12	2,0	2,0	3,50	0,2	6	119
	12	2,0	2,5	3,50	0,2	3	120
	12	2,5	2,5	3,50	0,2	3	125
14	14	1,0	2,5	4,50		3	210
	14	1,5	2,5	4,50	0,2	3	215
	14	2,0	2,5	4,50	0,2	3	220
	14	2,5	2,5	4,50	0,2	3	225
	16	1,5	3,5	4,50	0,2	3	315
	16	2,0	3,5	4,50	0,2	3	320
	16	2,5	3,5	4,50	0,2	3	325
18	18	1,5	3,5	5,75	0,1	6	414
	18	1,5	3,5	5,75	0,2	3	415
	18	2,0	3,5	5,75	0,2	6	419
	18	2,0	3,5	5,75	0,2	3	420
	18	2,5	3,5	5,75	0,2	6	424
	18	2,5	3,5	5,75	0,2	3	425
	18	3,0	3,5	5,75	0,2	6	429
	18	3,0	3,5	5,75	0,2	3	430
	18	4,0	3,5	5,75	0,2	3	440
22	22	1,0	4,5	6,20	0,1	6	810
	22	1,5	4,5	6,20	0,1	6	815
	22	1,5	4,5	5,70	0,2	3	515
	22	2,0	4,5	5,70	0,2	3	520
	22	2,0	4,5	6,20	0,2	6	820
	22	2,5	4,5	5,70	0,2	3	525
	22	2,5	4,5	6,20	0,2	6	825
	22	3,0	4,5	5,70	0,2	3	530
	22	3,0	4,5	6,20	0,2	6	830
	22	3,5	4,5	5,70	0,2	3	535
	22	4,0	4,5	5,70	0,2	3	540
	22	4,0	4,5	6,20	0,2	6	840
28	25	2,0	5,0	6,50	0,2	3	620
	25	2,5	5,0	6,50	0,2	3	625
	25	3,0	5,0	6,50	0,2	3	630
	25	3,5	5,0	6,50	0,2	3	635
	25	4,0	5,0	6,50	0,2	3	640
	28	1,0	6,5	6,25	0,1	6	610
	28	1,5	6,5	6,25	0,1	6	615
	28	1,5	6,5	6,50	0,2	3	715
	28	2,0	6,5	6,25	0,2	6	721
	28	2,0	6,5	6,50	0,2	3	720
	28	2,5	6,5	6,25	0,2	6	726
	28	2,5	6,5	6,50	0,2	3	725
	28	3,0	6,5	6,50	0,2	3	730
	28	3,0	6,5	6,25	0,2	6	731
	28	3,5	6,5	6,50	0,2	3	735
	28	4,0	6,5	6,25	0,2	6	741
	28	4,0	6,5	6,50	0,2	3	740
	28	5,0	6,5	6,50	0,2	3	750
	28	6,0	6,5	6,50	0,2	3	760
P							●
M							●
K							●
N							●
S							○
H							○
O							●

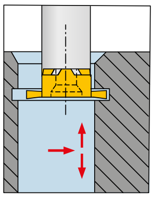
→ v_c/f_z Page 76

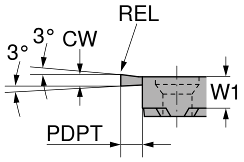
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

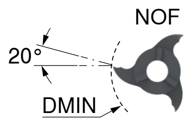
7

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

CWX500





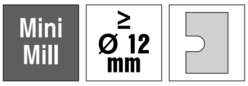


Size	DMIN mm	CW 0,02 mm	PDPT mm	W1 mm	REL mm	NOF	53 007 ...
28	32	2,0	8,5	6,5	0,2	3	920
	32	2,5	8,5	6,5	0,2	3	925
	32	3,0	8,5	6,5	0,2	3	930

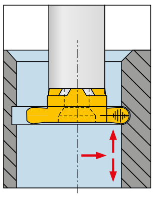
	53 007 ...
P	
M	
K	
N	●
S	
H	
O	

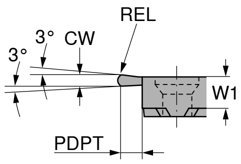
→ v_c/f_z Page 76

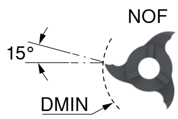
MiniMill – Milling insert for groove milling with full radius



CWX500







Size	DMIN mm	CW +0,03 mm	PDPT mm	W1 mm	REL mm	NOF	53 008 ...
10	12	2,2	2,5	3,50	1,1	3	011
14	16	2,2	3,5	4,60	1,1	3	111
18	18	2,2	3,5	5,75	1,1	3	211
22	22	1,0	4,5	5,75	0,5	3	305
	22	1,6	4,5	5,75	0,8	3	308
	22	2,0	4,5	5,75	1,0	3	310
	22	2,4	4,5	5,75	1,2	3	312
	22	2,8	4,5	5,75	1,4	3	314
	22	3,0	4,5	5,75	1,5	3	315
	22	4,0	4,5	5,75	2,0	3	320
	22	4,4	4,5	5,75	2,2	3	322
	22	5,0	4,5	5,75	2,5	3	325

	53 008 ...
P	●
M	●
K	●
N	●
S	○
H	○
O	●

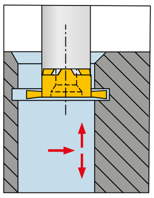
→ v_c/f_z Page 76

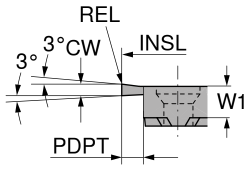
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

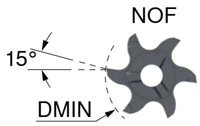
MiniMill – Milling insert for groove milling, cross-pitched

Mini Mill | ≥ Ø 12 mm

CWX500







Size	DMIN mm	INSL mm	CW +0,02 mm	PDPT mm	W1 mm	REL mm	NOF	53 015 ...
10	12	11,7	1,5	2,0	3,5	0,2	6	114
	12	11,7	2,0	2,0	3,5	0,2	6	119
14	16	15,7	1,5	2,5	4,5	0,2	6	314
	16	15,7	2,0	2,5	4,5	0,2	6	319
	16	15,7	2,5	2,5	4,5	0,2	6	324
18	18	17,7	2,0	4,0	5,8	0,2	6	419
	18	17,7	2,5	4,0	5,8	0,2	6	424
	18	17,7	3,0	4,0	5,8	0,2	6	429
	20	19,7	2,0	5,0	5,8	0,2	6	469
	20	19,7	2,5	5,0	5,8	0,2	6	474
	20	19,7	3,0	5,0	5,8	0,2	6	479
22	22	21,7	2,0	4,5	6,2	0,2	6	820
	22	21,7	2,5	4,5	6,2	0,2	6	825
	22	21,7	3,0	4,5	6,2	0,2	6	830
	22	21,7	4,0	4,5	6,2	0,2	6	840
	37	36,7	1,5	12,0	6,2	0,1	6	865
	37	36,7	2,0	12,0	6,2	0,2	6	870
28	25	24,8	2,5	5,0	6,4	0,2	6	626
	25	24,8	3,0	5,0	6,4	0,2	6	631
	25	24,8	4,0	5,0	6,4	0,2	6	641
	25	24,8	5,0	5,0	6,4	0,2	6	651
	25	24,8	6,0	5,0	6,4	0,2	6	661
	28	27,7	2,5	6,5	6,2	0,2	6	726
	28	27,7	3,0	6,5	6,2	0,2	6	731
	28	27,7	4,0	6,5	6,2	0,2	6	741
	28	27,7	5,0	6,5	6,2	0,2	6	751
	28	27,7	6,0	6,5	6,2	0,2	6	761
	35	34,7	2,0	10,0	6,2	0,2	6	770
	35	34,7	2,5	10,0	6,2	0,2	6	775
	35	34,7	3,0	10,0	6,2	0,2	6	780

P	●
M	●
K	●
N	●
S	○
H	○
O	●

→ v_c/f_z Page 76

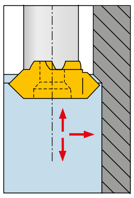
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

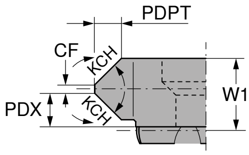
7

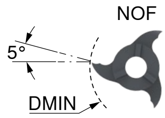
MiniMill – Milling insert for groove milling and chamfering

Mini Mill | ≥ Ø 10 mm

CWX500







Size	DMIN mm	CF +0,03 mm	PDPT mm	W1 mm	KCH °	PDX mm	NOF	53 009 ...
10	10	0,2	0,35	3,60	15	1,80	6	015
	10	0,2	0,45	3,60	20	1,80	6	020
	10	0,2	0,70	3,60	30	1,80	6	030
	10	0,2	1,20	3,60	45	1,80	6	045
	12	1,2	0,80	3,50	45	1,20	3	035
14	16	1,4	1,20	4,50	45	1,60	3	145
18	18	2,5	1,40	5,85	45	1,70	3	258
	18	0,2	2,20	5,75	45	3,00	6	259
22	22	2,0	1,70	5,85	45	2,00	3	358
	22	0,2	2,50	6,40	45	3,90	6	463
	22	3,0	3,00	9,40	45	3,25	3	394 1)
28	28	0,2	1,90	6,05	45	3,75	6	560

P	●
M	●
K	●
N	●
S	○
H	○
O	●

1) Use clamping screw 73 082 006

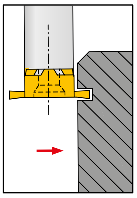
→ v_c/f_z Page 76

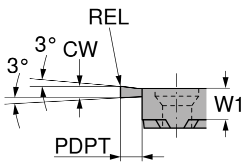
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

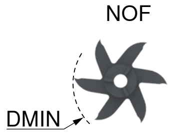
MiniMill – Milling insert for part-off

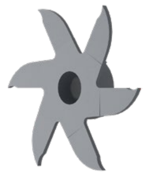
- PDPT = 12,0 mm in combination with holder 53 003 624
- reduce feed rate by 50 %

Mini Mill | ≥ Ø 37 mm | CWX500









Size	DMIN mm	CW $_{+0,02}$ mm	PDPT mm	W1 mm	REL mm	NOF	53 013 ...
22	37	0,5	12	5,6		6	705 1)
	37	0,6	12	5,7		6	706 1)
	37	0,8	12	6,0		6	708 1)
	37	1,0	12	6,2	0,1	6	710
	37	1,5	12	6,2	0,1	6	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

Mini Mill

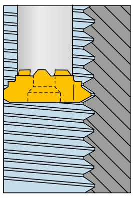
Tool	Designation	Article no.	Bore-Ø mm	Piece	53 014 ...
Inserts	Milling inserts for separating	53 013 715	37	2	990
Tool holder	Endmill short	53 003 624		1	
Screw	M5 x 12	73 082 005		1	
Tightening Key	T20			1	

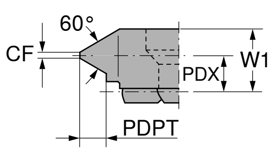
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

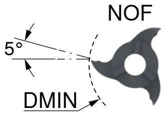
7

MiniMill – Milling insert for internal thread milling – Partial profile

Mini Mill | ≥ M12 | 60° | CWX500







Size	$Thread_{min}$	TP mm	DMIN mm	CF mm	PDPT mm	W1 mm	PDX mm	NOF	53 010 ...
10	M12	1,0 - 1,75	9,8	0,13	1,02	3,20	2,4	6	017
	M14	1,0 - 1,75	11,7	0,13	1,08	3,60	2,8	3	010
	M14	1,0 - 2,0	10,1	0,13	1,25	3,20	2,2	6	021
	M14	1,0 - 2,0	11,7	0,13	1,25	3,60	2,8	3	020
	M16	1,5 - 2,75	11,0	0,19	1,67	3,20	2,0	6	027
	M16	1,5 - 2,75	11,7	0,19	1,67	3,60	2,4	3	015
	M16	2,0 - 3,0	11,1	0,25	1,78	3,20	1,9	6	029
	M16	2,0 - 3,0	11,7	0,25	1,78	3,60	2,2	3	030
14	M18	1,0 - 1,75	15,7	0,12	1,08	4,60	3,8	3	210
	M18	1,0 - 2,0	15,7	0,12	1,25	4,60	3,5	3	220
	M20	1,5 - 2,75	15,7	0,18	1,67	4,60	3,5	3	215
	M22	2,5 - 3,0	15,7	0,31	1,78	4,60	3,4	3	230
18	M22	1,0 - 1,75	17,7	0,12	1,03	5,85	5,0	3	410
	M22	1,0 - 2,0	17,7	0,12	1,19	5,85	4,7	3	412
	M22	1,0 - 2,0	17,7	0,12	1,19	5,85	5,0	6	416
	M22	1,5 - 2,75	17,7	0,19	1,62	5,85	4,6	3	415
	M24	2,0 - 3,0	17,7	0,25	1,73	5,85	4,4	3	425
	M24	2,0 - 3,5	17,7	0,25	2,06	5,85	4,2	3	455
	M24	2,0 - 3,5	17,7	0,25	2,06	5,85	4,3	6	434
	M24	2,0 - 3,75	17,7	0,25	2,22	5,85	4,2	3	420
	M24	2,5 - 5,0	17,7	0,31	2,98	5,85	3,8	3	430
	M24	3,0 - 5,5	17,7	0,38	3,25	5,85	4,2	3	435
22	M27	1,0 - 2,0	21,7	0,12	1,19	5,85	4,6	3	610
	M27	1,0 - 2,0	21,7	0,12	1,19	6,20	5,0	6	710
	M27	1,5 - 2,75	21,7	0,18	1,62	5,85	4,5	3	615
	M27	2,0 - 3,75	21,7	0,25	2,22	5,85	4,2	3	620
	M27	2,5 - 4,5	21,7	0,25	2,70	5,85	3,7	3	655
	M27	2,0 - 4,5	21,7	0,25	2,70	6,05	4,2	6	755
	M30	2,5 - 5,0	21,7	0,31	2,98	5,85	3,8	3	630
	M30	3,5 - 6,0	21,7	0,44	3,52	5,85	3,4	3	640
	M30	3,5 - 6,5	21,7	0,44	3,84	5,85	3,2	3	645
28	M33	1,0 - 2,0	27,7	0,12	1,20	6,60	4,5	3	820
	M33	1,5 - 2,5	27,7	0,18	1,49	6,60	4,3	3	825
	M33	1,5 - 2,5	27,7	0,19	1,60	6,10	5,0	6	826
	M36	2,5 - 5,0	27,7	0,38	2,93	6,10	2,3	6	850
	M36	2,5 - 5,0	27,7	0,37	2,93	6,60	4,0	3	840
	M39	4,0 - 6,0	27,7	0,62	3,37	6,60	3,6	3	860

P	●
M	●
K	●
N	●
S	○
H	○
O	●

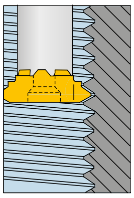
→ v_c/f_z Page 76

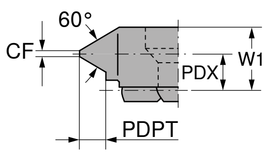
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

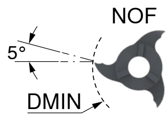
MiniMill – Milling insert for internal thread milling – Full profile

Mini Mill | ≥ M22 | 60° | M

CWX500







Size	Thread$_{min}$	TP mm	DMIN mm	CF mm	PDPT mm	W1 mm	PDX mm	NOF	53 011 ...
18	M22	1,50	17,7	0,18	0,81	5,85	4,8	3	415
	M22	1,75	17,7	0,20	0,95	5,85	4,7	3	417
	M22	2,00	17,7	0,25	1,08	5,85	4,6	3	420
	M24	2,50	17,7	0,31	1,35	5,85	4,4	3	425
	M27	3,00	17,7	0,37	1,62	5,85	4,3	3	430
	M27	3,50	17,7	0,43	1,89	5,85	4,0	3	435
22	M24	1,50	21,7	0,19	0,81	5,85	4,8	3	615
	M24	1,50	21,7	0,19	0,81	6,20	5,3	6	715
	M27	1,75	21,7	0,22	0,95	6,20	5,2	6	717
	M27	1,75	21,7	0,22	0,95	5,85	4,7	3	617
	M27	2,00	21,7	0,25	1,08	5,85	4,6	3	620
	M27	2,00	21,7	0,25	1,08	6,20	5,0	6	720
	M30	3,00	21,7	0,37	1,62	5,85	4,3	3	630
	M30	3,00	21,7	0,37	1,62	6,20	4,8	6	730
	M30	3,50	21,7	0,43	1,89	5,85	4,0	3	635
	M33	4,00	21,7	0,50	2,16	5,85	3,9	3	640
	M33	4,00	21,7	0,50	2,16	6,20	4,4	6	740
	M33	4,50	21,7	0,56	2,43	5,85	3,7	3	645

P	●
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 76

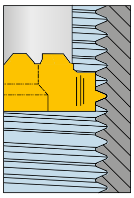
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

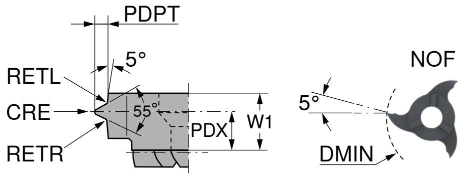
7

MiniMill – Milling insert for internal thread milling – Full profile

Mini Mill | ≥ G 3/8" | 55° | G

CWX500





Size	Thread$_{min}$	TP mm	DMIN mm	TPI 1/"	W1 mm	PDX mm	PDPT mm	CRE mm	RETL mm	RETR mm	NOF	53 012 ...
10	G 3/8"	1,34	11,7	19	3,60	2,5	0,860	0,18	0,18	0,18	3	**113**
	G 1/2"	1,81	11,7	14	3,60	2,3	1,160	0,24	0,24	0,24	3	**118**
	G 1"	2,31	11,7	11	3,60	2,0	1,480	0,31	0,31	0,31	3	**123**
18		1,34	17,7	19	5,85	4,9	0,856	0,18	0,18	0,18	3	**219**
	G 3/4"	1,81	17,7	14	5,85	4,6	1,160	0,24	0,24	0,24	3	**214**
	G 1"	2,31	17,7	11	5,85	4,4	1,480	0,31	0,31	0,31	3	**211**
22	G 1"	2,31	21,7	11	5,85	4,0	1,480	0,31	0,31	0,31	3	**311**
		3,17	21,7	8	5,85	3,5	2,030	0,43	0,43	0,43	3	**308**
	BSW 1 1/2"	4,23	21,7	6	5,85	3,1	2,710	0,58	0,58	0,58	3	**306**

P	●
M	●
K	●
N	●
S	○
H	
O	●

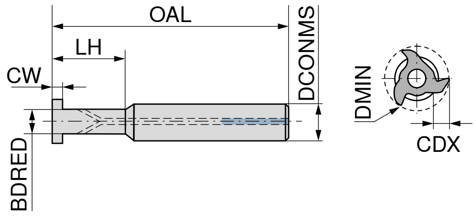
→ v_c/f_z Page 76

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

MiniMill – Circular milling cutter, extra short

▲ Steel Version

Mini Mill



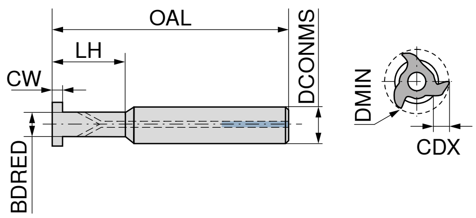
Size	DCONMS h6 mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm	Steel 53 004 ...
10	10	6,0	60	15,2	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	015
14	10	8,0	60	17,7	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	217
	13	8,0	70	25,7	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	225
18	10	9,0	60	17,0	17,7	≤5,6	3,5	4,5	417
	13	9,0	70	25,0	17,7	≤5,6	3,5	4,5	425
22	10	11,3	60	10,7	21,7	≤9,15	4,5	7,0	610
	13	11,3	70	25,7	21,7	≤9,15	4	7,0	625
28	13	14,0	70	10,7	27,7	≤10	6,5	7,0	810
	20	14,0	100	35,7	27,7	≤10	6,5	7,0	835

7

MiniMill – Circular milling cutter, short

▲ Steel Version

Mini Mill

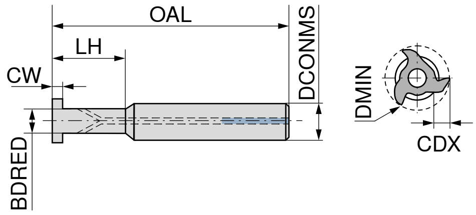


Size	DCONMS h6 mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm	Steel 53 002 ...	Steel 53 003 ...
10	16	6	80	12,0	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	012	012
14	16	8	80	16,0	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	216	216
18	16	9	80	18,0	17,7	≤5,6	3,5	4,5	418	418
22	16	12	80	24,0	21,7	≤9,15	4,5	7,0	624	624
28	20	14	100	35,7	27,7	≤10	6,5	7,0		835

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.**

MiniMill – Circular milling cutter, vibration-damped

Mini Mill



Size	DCONMS h6 mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm	HM 53 001 ...	HM 53 000 ...
10	12	6,0	80	21	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	021	021
	12	6,0	90	30	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	030	030
	12	6,0	100	42	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	042	042
	12	7,3	90	30	9,7 / 11,7	≤3,35	0,9 / 1,85	2,0	130	130
	16	7,3	100	25	9,7 / 11,7	≤3,35	0,9 / 1,85	2,0	025	025
14	12	8,0	95	29	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	229	229
	12	8,0	110	42	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	242	242
	12	8,0	120	56	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	256	256
	12	9,5	110	42	13,7 / 15,7	≤4,35	1,65 / 2,7	3,5	342	342
	16	9,5	110	33	13,7 / 15,7	≤4,35	1,65 / 2,7	3,5	233	233
18	12	9,0	100	32	17,7	≤5,6	3,5	4,5	432	432
	12	9,0	100	45	17,7	≤5,6	3,5	4,5	445	445
	12	9,0	120	64	17,7	≤5,6	3,5	4,5	464	464
	16	9,0	93	25	17,7	≤5,6	3,5	4,5	425	425
	16	9,0	100	32	17,7	≤5,6	3,5	4,5	532	532
	16	9,0	110	45	17,7	≤5,6	3,5	4,5	545	545
	16	9,0	130	64	17,7	≤5,6	3,5	4,5	564	564
	16	13,0	110	64	17,7	≤5,6	1,5	4,5	465	465
	16	13,0	130	66	17,7	≤5,6	1,5	4,5	466	466
22	12		100	42	21,7	≤9,15	4,5	7,0	642	642
	12		130	60	21,7	≤9,15	4,5	7,0	660	660
	16	11,5	90	30	21,7	≤9,15	4,5	7,0	630	630
	16	12,0	100	42	21,7	≤9,15	4,5	7,0	742	742
	16	12,0	130	60	21,7	≤9,15	4,5	7,0	760	760
	16	12,0	160	85	21,7	≤9,15	4,5	7,0	685	685
	20	16,0	110	45	21,7	≤9,15	2,5	7,0	645	645
	20	16,0	130	65	21,7	≤9,15	2,5	7,0	665	665
28	16	14,3	100	42	27,7 / 24,8	≤10	6,5 / 5	7,0	842	842
	16	14,3	130	60	27,7 / 24,8	≤10	6,5 / 5	7,0	860	860
	16	14,3	160	85	27,7 / 24,8	≤10	6,5 / 5	7,0	885	885
	20	13,5	104	35	27,7 / 24,8	≤10	6,5 / 5	7,0	835	835
	20	14,3	160	85	27,7 / 24,8	≤10	6,5 / 5	7,0	985	985


Key D


Clamping screw


Clamping screw

Spare parts

Size		80 950 ...		73 082 ...		73 082 ...
10	T08	110			M2,6	002
14	T10	112			M3,5	003
18	T15	113			M4	004
22	T20	114	M5	006	M5	005
28	T20	114			M5	005

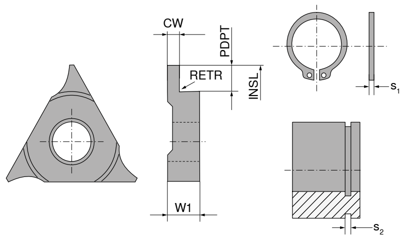
Clamping screw 73 082 006 only for insert 53 009 394

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.**

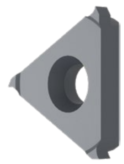
Milling inserts for circlip grooves without chamfer

System 300

DIN 471/472



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	50 853 ...
04	0,90	7,9	2,34	0,98	0,70	0,3	0,80	300
03	0,90	10,6	2,34	0,98	0,70	0,3	0,80	302
	1,10	10,6	2,34	1,18	0,90	0,3	1,00	304
	1,30	10,6	2,34	1,38	1,10	0,3	1,20	306
	1,60	10,6	2,34	1,68	1,25	0,3	1,50	308
	1,85	10,6	2,34	1,93	1,25	0,3	1,75	310
02	0,90	17,5	3,50	0,98	0,70	0,3	0,80	312
	1,10	17,5	3,50	1,18	0,90	0,3	1,00	314
	1,30	17,5	3,50	1,38	1,10	0,3	1,20	316
	1,60	17,5	3,50	1,68	1,25	0,3	1,50	318
	1,85	17,5	3,50	1,93	1,25	0,3	1,75	320
	2,15	17,5	3,50	2,23	1,75	0,3	2,00	322
	2,65	17,5	3,50	2,73	1,75	0,3	2,50	324
	3,15	17,5	3,50	3,23	2,20	0,3	3,00	326
01	0,90	23,0	4,00	0,98	0,70	0,3	0,80	328
	1,10	23,0	4,00	1,18	0,90	0,3	1,00	330
	1,30	23,0	4,00	1,38	1,10	0,3	1,20	332
	1,60	23,0	4,00	1,68	1,25	0,3	1,50	334
	1,85	23,0	4,00	1,93	1,25	0,3	1,75	336
	2,15	23,0	4,00	2,23	1,75	0,3	2,00	338
	2,65	23,0	4,00	2,73	1,75	0,3	2,50	340
	3,15	23,0	4,00	3,23	2,20	0,3	3,00	342
P								●
M								●
K								●
N								●
S								●
H								○
O								●

→ v_c/f_z Page 73

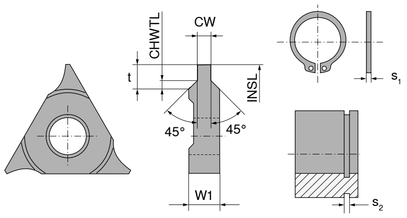
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

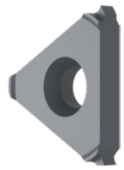
Milling inserts for circlip grooves with chamfer

System 300

DIN 471/472



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	50 852 ...
03	1,10	10,6	2,34	1,18	0,50	0,10	1,00	**302**
02	1,10	17,5	3,50	1,18	0,50	0,10	1,00	**312**
	1,30	17,5	3,50	1,38	0,85	0,15	1,20	**314**
	1,60	17,5	3,50	1,68	1,00	0,15	1,50	**316**
	1,85	17,5	3,50	1,93	1,25	0,20	1,75	**317**
	2,15	17,5	3,50	2,23	1,50	0,20	2,00	**318**
	2,65	17,5	3,50	2,73	1,50	0,20	2,50	**319**
01	1,10	23,0	4,00	1,18	0,50	0,10	1,00	**320**
	1,30	23,0	4,00	1,38	0,70	0,15	1,20	**321**
	1,30	23,0	4,00	1,38	0,85	0,15	1,20	**322**
	1,60	23,0	4,00	1,68	1,00	0,15	1,50	**324**
	1,60	23,0	4,00	1,68	0,85	0,15	1,50	**323**
	1,85	23,0	4,00	1,93	1,25	0,20	1,75	**325**
	2,15	23,0	4,00	2,23	1,50	0,20	2,00	**326**
	2,65	23,0	4,00	2,73	1,75	0,20	2,50	**328**
	2,65	23,0	4,00	2,73	1,50	0,20	2,50	**327**
	3,15	23,0	4,00	3,32	1,75	0,20	3,00	**329**

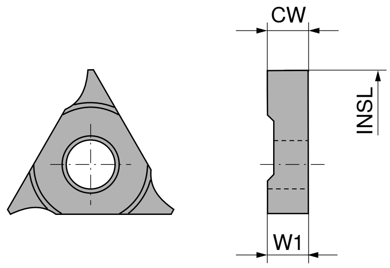
P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 73

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

Milling inserts without profile, ground ready-for-use

System 300



Ti500

Solid carbide

Size	CW +0,02 mm	INSL mm	W1 mm	50 851 ...
04	2,00	7,9	2,34	302
03	2,34	10,6	2,34	304
	3,00	10,6	3,00	306
02	3,50	17,5	3,50	312
	5,00	17,5	5,00	314
	6,00	17,5	6,00	316
01	4,00	23,0	4,00	322 1)
	6,50	23,0	6,50	324 1)

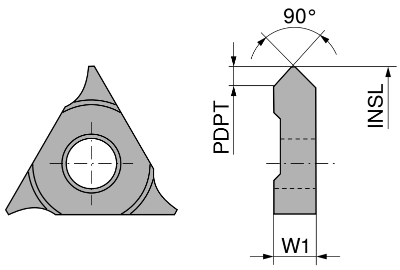
P	●
M	●
K	●
N	●
S	●
H	○
O	●

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

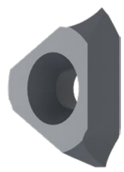
→ v_c/f_z Page 73

Milling inserts for chamfering and deburring

System 300



Ti500



Solid carbide

Size	PDPT mm	INSL mm	W1 mm	50 857 ...
03	1,50	10,6	3,0	304
02	2,50	17,5	5,0	314
01	3,25	23,0	6,5	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 73

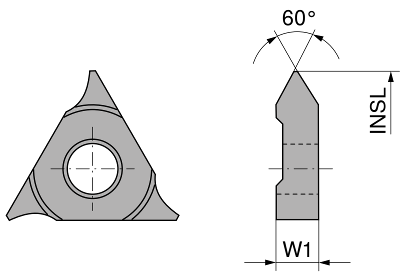
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Thread milling insert – Partial profile

System 300

60°



Ti500

Solid carbide

Size	TP mm	INSL mm	W1 mm	50 855 ...
02	1 - 3,5	17,5	3,5	314
01	1 - 4,0	23,0	4,0	324

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 73

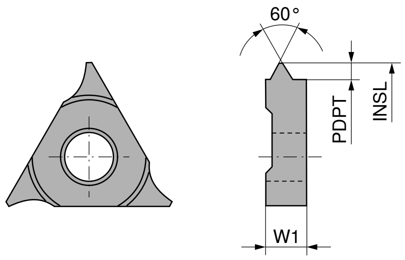
Thread milling insert – Full profile

System 300

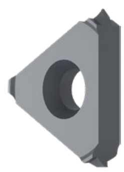
IR/IL

60°

M MF



Ti500



Solid carbide

Size	TP mm	INSL mm	W1 mm	PDPT mm	50 859 ...
03	1,0	10,6	2,34	0,578	304
	1,5	10,6	2,34	0,864	308
	2,0	10,6	2,34	1,159	310
02	1,0	17,5	3,50	0,578	311
	1,5	17,5	3,50	0,864	312
	2,0	17,5	3,50	1,159	314
	2,5	16,0	3,50	1,444	317 [1)]
	2,5	17,5	3,50	1,444	316
	3,0	17,5	3,50	1,728	318
01	1,0	23,0	4,00	0,578	320
	1,5	23,0	4,00	0,864	322
	2,0	23,0	4,00	1,159	324
	2,5	23,0	4,00	1,444	326
	3,0	23,0	4,00	1,728	328
	3,5	23,0	4,00	2,023	330
	4,0	23,0	4,00	2,308	332
	4,5	23,0	6,50	2,602	334
	5,0	23,0	6,50	2,887	336
	6,0	23,0	6,50	3,467	338 [2)]

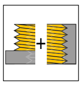
P	●
M	●
K	●
N	●
S	●
H	○
O	●

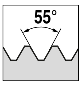
1) M20x2,5 - profile corrected
2) with circular milling cutter 50 800 090 PDPT = 3.0 mm

→ v_c/f_z Page 73

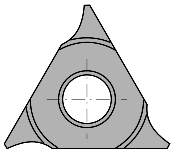
Thread milling insert – Full profile

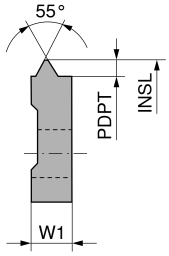
System 300



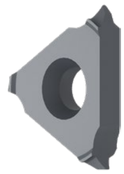


G | BSW | BSF





Ti500



Solid carbide

Size	TP mm	TPI 1/"	INSL mm	W1 mm	PDPT mm	50 858 ...
02	1,814	14	17,5	3,5	1,162	**314**
	2,309	11	17,5	3,5	1,494	**312**
01	2,309	11	23,0	4,0	1,494	**322**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 73

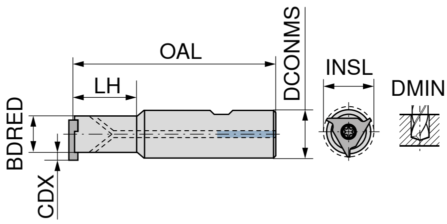
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Circular milling cutter

▲ Size refers to milling inserts

System 300



HB

Size	INSL mm	CDX mm	LH mm	DCONMS h6 mm	OAL mm	BDRED mm	DMIN mm	torque moment Nm	50 800 ...
04	7,9	0,35	17,2	10	57,20	7,1	8	0,9	015 1)
03	10,6	1,60	17,2	10	57,20	7,4	11	0,9	020 1)
	10,6	1,60	34,2	10	74,20	7,4	11	0,9	025 2)
02	17,5	2,60	28,7	12	74,05	12,0	20	3,8	030
	17,5	2,60	63,7	12	108,70	12,0	20	3,8	045 2)
01	23,0	3,45	38,5	16	87,00	16,1	25	5,5	050
	23,0	3,45	67,5	16	116,00	16,1	25	5,5	070
	23,0	3,00	88,5	16	137,00	17,0	25	5,5	090 2)

1) Without Through Coolant
2) Carbide version

Key D

Clamping screw

Spare parts

Size	Key D	80 950 ...	Clamping screw	70 960 ...
04	T06 - IP	123	M2x9	232
03	T06 - IP	123	M2x9	232
02	T15 - IP	128	M4x12,3	233
01	T20 - IP	129	M5x15	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.**

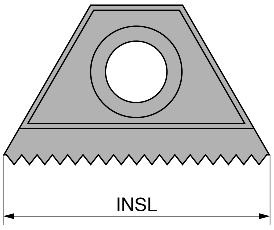
Thread milling insert

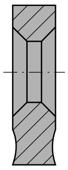
▲ Can be used on both sides (except for INSL 10.4)

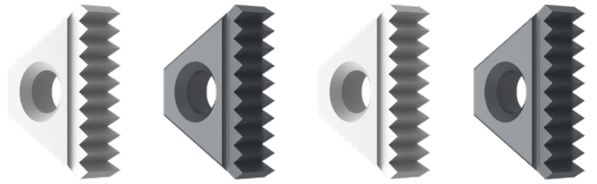
MWN

60°

M MF







INSL mm	TP mm	IR/IL Solid carbide 50 890 ...	IR/IL TiAlN Solid carbide 50 890 ...	ER/EL Solid carbide 50 891 ...	ER/EL TiAlN Solid carbide 50 891 ...
10,4	0,50	100			
	0,75	101			
	1,00	102	302		
	1,25	103			
	1,50	104	304		
11,0	0,50	120			
	0,75	121			
	1,00	122	322		
	1,25	123			
	1,50	124	324		
16,0	0,50	140			
	0,75	141			
	1,00	142	342	142	342
	1,25	143		143	
	1,50	144	344	144	344
	1,75	145		145	
	2,00	146	346	146	346
27,0	1,00	162	362	162	362
	1,25	163		163	
	1,50	164	364	164	364
	1,75	165			
	2,00	166	366	166	366
	2,50	167		167	
	3,00	168	368	168	368
	3,50	169		169	
	4,00	170		170	
P		●	●	●	●
M		○	●	○	●
K		●	●	●	●
N		●	●	●	●
S					
H					
O		●	○	●	○

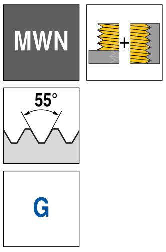
→ v_c/f_z Page 72

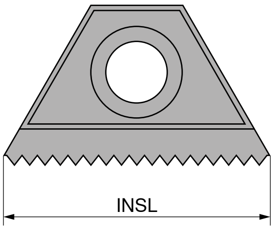
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

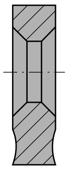
7

Thread milling insert

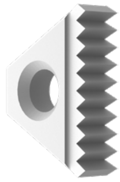
▲ Can be used on both sides (except for INSL 10.4)

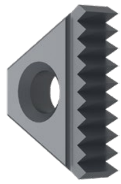






TiAlN





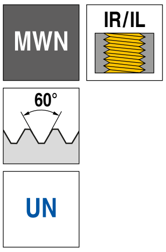
INSL mm	TPI 1/"	TP mm	Solid carbide 50 895 ...	TiAlN Solid carbide 50 895 ...
10,4	19	1,337	100	300
16,0	14	1,814	142	342
	11	2,309	144	344
27,0	11	2,309	166	366

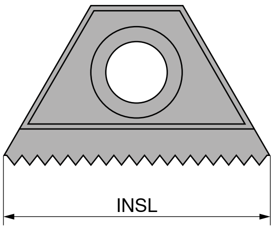
	50 895 ...	50 895 ...
P	●	●
M	○	●
K	●	●
N	●	●
S		
H		
O	●	○

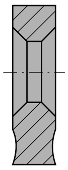
→ v_c/f_z Page 72

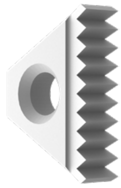
Thread milling insert

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









INSL mm	TPI 1/"	TP mm	Solid carbide 50 892 ...
10,4	20	1,270	100
	18	1,411	102
16,0	16	1,588	144
	12	2,117	146
27,0	12	2,117	166
	8	3,175	168

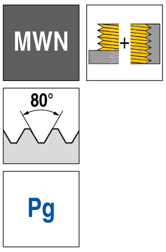
	50 892 ...
P	●
M	○
K	●
N	●
S	
H	
O	●

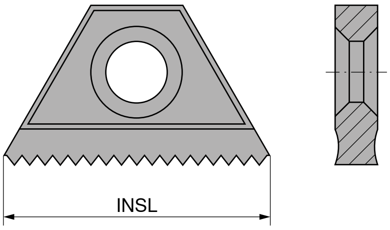
→ v_c/f_z Page 72

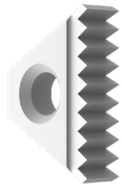
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert

▲ double sided







Solid carbide

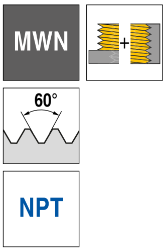
INSL mm	TPI 1/"	TP mm	50 896 ...
11	18	1,411	122
16	18	1,411	142
	16	1,588	144
P			●
M			○
K			●
N			●
S			
H			
O			●

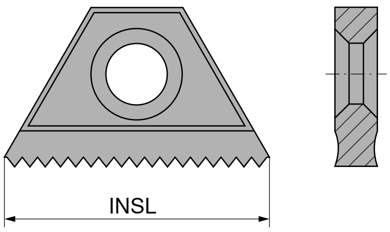
→ v_c/f_z Page 72

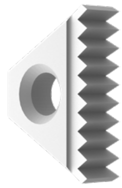
7

Thread milling insert

▲ double sided







Solid carbide

INSL mm	TPI 1/"	TP mm	50 897 ...
16	14,0	1,814	142
	11,5	2,209	144
27	11,5	2,209	164
	8,0	3,175	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_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

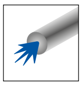
Note! Thread milling inserts are marked R (right-hand thread) and L (left-hand thread). The standard tool holder cannot be used to produce a left-hand thread! Tool holder for left-hand thread available on special request.

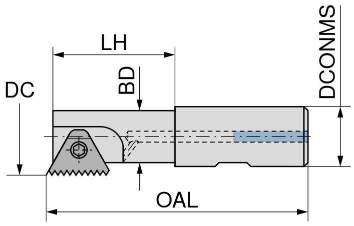
Circular milling cutter

▲ INSL refers to milling inserts

Scope of supply:
includes key

MWN





INSL mm	BD mm	LH mm	DCONMS h6 mm	OAL mm	DC mm	torque moment Nm	50 843 ...
10,4	6,8	12	12	69	9,0	0,9	101
	6,8	17	20	84	9,0	0,9	102
11,0	8,9	12	12	70	11,5	1,2	111
	8,9	20	20	85	11,5	1,2	112
16,0	13,6	22	16	90	17,0	2,5	161
	16,6	43	20	95	20,0	2,5	162
	18,6	25	25	125	22,0	2,5	163
27,0	24,0	52	25	110	30,0	9,0	271
	31,0	58	32	120	37,0	9,0	273
	24,0	92	25	150	30,0	9,0	272
	31,0	98	32	160	37,0	9,0	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

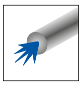
Key D

Clamping screw

Spare parts INSL	Key D	80 950 ...	Clamping screw	70 950 ...
10,4	T07	109	M2,2x5,0	200
11	T08	110	M2,6x6,5	201
16	T10	112	UNC5-40 x 8	202
27	T25	115	M5x15	203

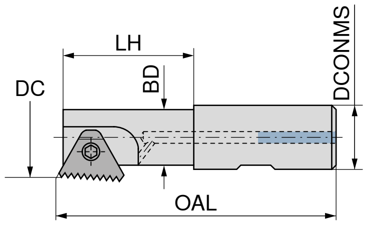
Circular milling cutter

▲ INSL refers to milling inserts



MWN

NPT



INSL mm	BD mm	Thread	LH mm	DCONMS h6 mm	OAL mm	DC mm	torque moment Nm	50 844 ...
16	12,5	NPT 1/2	22	16	90	15,5	2,5	**161**
	15,0	NPT 3/4 - 1 1/4	23	20	85	19,0	2,5	**162**
27	24,0	NPT 1 1/2 - 2	52	25	110	30,0	9,0	**271**
	31,0	NPT > 2	58	32	120	37,0	9,0	**272**

7

Key D

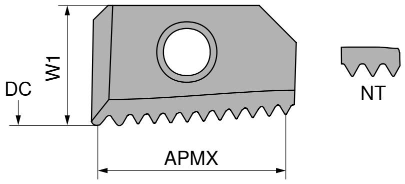
Clamping screw

Spare parts INSL		80 950 ...		70 950 ...
16	T10	**112**	UNC5-40 x 8	**202**
27	T25	**115**	M5x15	**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

GZD | IR/IL | 60° | M | MF



Ti500

Solid carbide

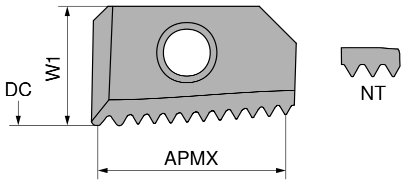
50 863 ...

DC mm	TP mm	W1 mm	APMX mm	NT	Ti500
12	1,0	7,5	12,0	13	**300**
	1,5	7,5	10,5	8	**302**
17	1,0	11,0	16,0	17	**310**
	1,5	11,0	16,5	12	**312**
	2,0	11,0	16,0	9	**314**
20	1,0	7,5	12,0	13	**320**
	1,5	7,5	10,5	8	**322**
25	1,0	11,0	16,0	17	**330**
	1,5	11,0	16,5	12	**332**
	2,0	11,0	16,0	9	**334**
P					●
M					●
K					●
N					●
S					
H					
O					

→ v_c/f_z Page 73

Thread milling insert

GZD | 55° | G



Ti500

Solid carbide

50 864 ...

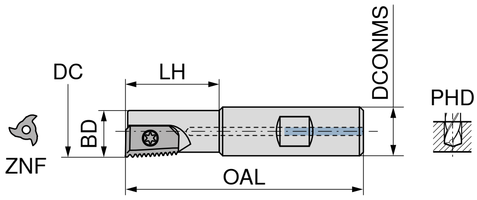
DC mm	TPI 1/"	W1 mm	APMX mm	NT	Ti500
12	14	7,5	9,07	6	**300**
17	14	11,0	16,33	10	**312** 1)
	14	11,0	16,33	10	**314** 2)
	11	11,0	16,16	8	**310**
25	14	11,0	16,33	10	**332**
	11	11,0	16,16	8	**330**
P					●
M					●
K					●
N					●
S					
H					
O					

1) Thread: 5/8 – 3/4 – 7/8
2) 1/2" Profile corrected

→ v_c/f_z Page 73

Circular milling cutter

GZD



DC mm	LH mm	DCONMS h6 mm	OAL mm	BD mm	ZNF	PHD mm	torque moment Nm	50 842 ...
12	18	16	74,0	9,4	1	14	1,1	**121**
17	30	16	79,0	13,7	1	19	3,8	**171**
20	32	20	83,0	17,5	3	22	1,1	**201**
25	50	25	107,6	21,7	3	26	3,8	**251**
	85	25	142,6	21,7	3	26	3,8	**252** 1)

1) Heavy metal version with mounted head


Key D


Clamping screw

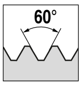
Spare parts DC		80 950 ...		70 960 ...
12	T08 - IP	**125**	M2,5x6,5	**244**
17	T15 - IP	**128**	M4x7,5	**245**
20	T08 - IP	**125**	M2,5x6,5	**244**
25	T15 - IP	**128**	M4x7,5	**245**

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.**

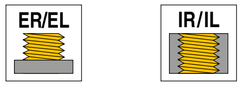
7

Thread milling insert

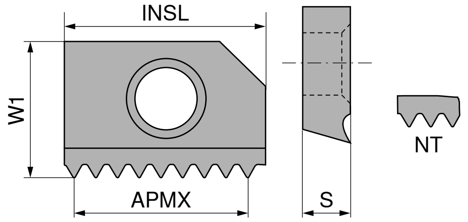
GZG

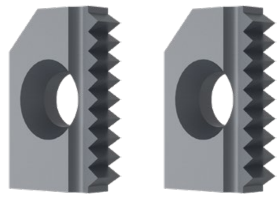


M | MF



Ti500 | Ti500





INSL mm	TP mm	W1 mm	APMX mm	S mm	NT	Solid carbide 50 887 ...	Solid carbide 50 885 ...
14,5	0,50	10,0	13,50	3,18	28		350
	0,75	10,0	13,50	3,18	19		352
	1,00	10,0	13,00	3,18	14	304	354
	1,25	10,0	12,50	3,18	11		356
	1,50	10,0	12,00	3,18	9	308	358
	1,75	10,0	12,25	3,18	8		360
	2,00	10,0	12,00	3,18	7	312	362
	2,50	10,0	10,00	3,18	5		364
	2,50	10,0	10,00	3,18	5		366 1)
15,0	3,00	10,5	12,00	3,18	5		370 2)
	3,50	10,5	10,50	3,18	4		372 2)
21,0	1,00	10,0	19,00	3,18	20		380
	1,50	10,0	19,50	3,18	14		382
	1,50	10,0	18,00	3,18	13	320	
	2,00	10,0	18,00	3,18	10		384
26,0	1,50	15,0	24,00	5,00	17		390
	2,00	15,0	24,00	5,00	13		392
	3,00	15,0	21,00	5,00	8		396
	3,50	15,0	20,00	5,00	7		398
	4,00	15,0	20,00	5,00	6		400

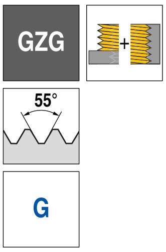
	50 887 ...	50 885 ...
P	●	●
M	●	●
K	●	●
N	●	●
S		
H		
O		

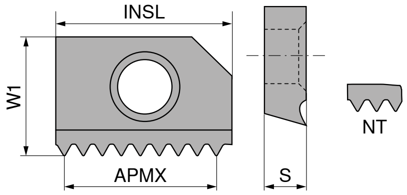
1) M20x2,5 - profile corrected
2) Without chamfer

→ 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





Ti500

Solid carbide

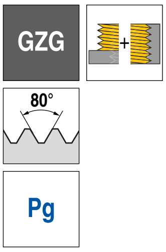
INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	50 888 ...
14,5	18	1,411	10	11,28	3,18	9	310
	16	1,587	10	11,11	3,18	8	312
	14	1,814	10	12,69	3,18	8	314
	12	2,116	10	10,58	3,18	6	316
	11	2,309	10	11,54	3,18	6	318
21,0	14	1,814	10	18,14	3,18	11	320
	11	2,309	10	18,47	3,18	9	322
26,0	11	2,309	15	23,09	5,00	11	330

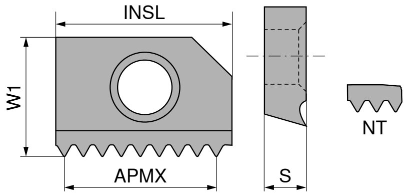
P	●
M	●
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 73

7

Thread milling insert





Ti500

Solid carbide

INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	50 894 ...
14,5	18	1,411	10	12,69	3,18	10	302
	16	1,587	10	11,11	3,18	8	304

P	●
M	●
K	●
N	●
S	
H	
O	

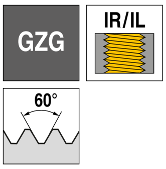
→ v_c/f_z Page 73

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

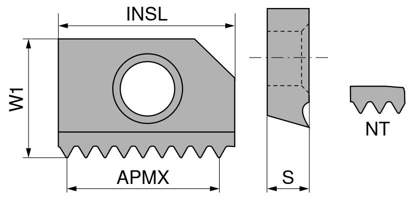
Thread milling insert

GZG

IR/IL



UN



Ti500

Solid carbide

INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	50 889 ...
14,5	18	1,411	10	12,69	3,18	10	310
	16	1,587	10	12,70	3,18	9	312
21,0	16	1,587	10	19,05	3,18	13	320
	14	1,814	10	18,14	3,18	11	322
	12	2,116	10	18,04	3,18	10	324

P	●
M	●
K	●
N	●
S	
H	
O	

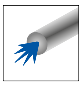
→ v_c/f_z Page 73

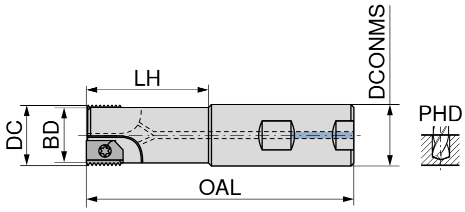
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Circular milling cutter

▲ INSL refers to milling inserts

GZG

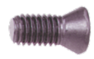




INSL mm	DC mm	LH mm	DCONMS h6 mm	OAL mm	BD mm	ZNP	PHD mm	torque moment Nm	50 841 ...
14,5	16	30,0	16	78	12,7	1	18,5	3,8	016
	16	50,0	16	98	12,7	1	18,5	3,8	017 1)
	20	60,0	20	110	16,8	1	23,0	3,8	020
	25	48,2	25	106	21,5	2	30,0	3,8	025
	25	92,2	25	150	21,5	2	30,0	3,8	026 1)
15,0	18	30,0	16	79	12,7	1	20,0	3,8	218
	22	60,0	20	110	16,8	1	26,0	3,8	222
	27	48,2	25	106	21,5	2	32,0	3,8	227
21,0	16	31,3	20	85	12,7	1	18,5	3,8	316
	22	32,8	25	92	18,7	1	26,0	3,8	322
	22	62,8	25	122	18,7	1	26,0	3,8	323 1)
	28	38,3	32	102	24,7	2	35,0	3,8	328
	28	78,3	32	142	24,5	2	35,0	3,8	327 1)
26,0	25	48,5	25	107	20,0	1	30,0	3,8	125

1) Heavy metal version


Key D


Clamping screw

Spare parts for Article no.	80 950 ...		70 960 ...	
50 841 016	T15 - IP	128	M4x6,9	237
50 841 017	T15 - IP	128	M4x6,9	237
50 841 020	T15 - IP	128	M4x7,5	245
50 841 025	T15 - IP	128	M4x8	242
50 841 026	T15 - IP	128	M4x8	242
50 841 218	T15 - IP	128	M4x6,9	237
50 841 222	T15 - IP	128	M4x6,9	237
50 841 227	T15 - IP	128	M4x8	242
50 841 316	T15 - IP	128	M4x6,9	237
50 841 322	T15 - IP	128	M4x6,9	237
50 841 323	T15 - IP	128	M4x8	242
50 841 328	T15 - IP	128	M4x8	242
50 841 327	T15 - IP	128	M4x8	242
50 841 125	T15 - IP	128	M4x11,5	241

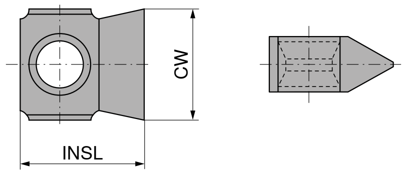
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert – partial profile

EAW

60°

M | UN



TiN

Solid carbide

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	50 867 ...
16,5	1,5 - 3,0	16 - 10	5	7,0	**115**
18	2,5 - 3,5	10 - 7	5	7,8	**225**

55°

G

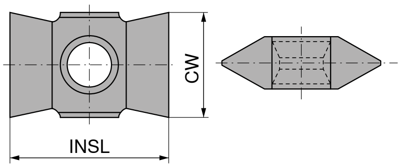
DC mm	TP mm	TPI 1/"	CW mm	INSL mm	50 868 ...
16,5	1,814	14	5	7	**114**

Thread milling insert – partial profile

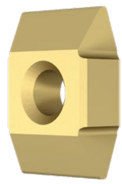
EAW

60°

M | UN



TiN



Solid carbide

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	50 860 ...
23,85	1,5 - 2,5	16 - 10	6,35	9,52	**315**
23,85	2,5 - 4,0	10 - 6	6,35	9,52	**325**
32,85	1,5 - 2,5	16 - 10	8,50	13,50	**415**
32,85	2,5 - 5,5	10 - 4,5	8,50	13,50	**425**

55°

G

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	50 861 ...
23,85	2,309	11	6,35	9,52	**311**
32,85	2,309	11	8,50	13,50	**411**

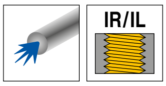
P	●
M	●
K	●
N	●
S	●
H	○
O	○

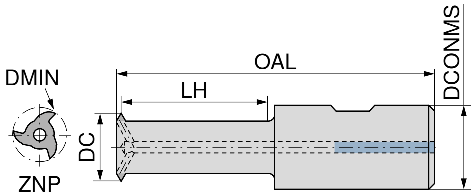
→ v_c/f_z Page 72

Circular milling cutter

Scope of supply:
including key

EAW





DC mm	DMIN mm	TP mm	TPI 1/"	LH mm	DCONMS h6 mm	OAL mm	ZNP	torque moment Nm	50 848 ...
16,5 / 18,0	17,5 / 19,0	1,5 - 3,0	16 - 10	60	20	114	2	0,9	**020**
23,85	25,5	1,5 - 4,0	24 - 6	90	32	154	3	0,9	**030**
32,85	35,0	1,5 - 5,5	16 - 4,5	115	32	179	3	2,5	**040**

7


Key D


Clamping screw

Spare parts for Article no.		80 950 ...		70 950 ...
50 848 020	T07 - IP	**124**	M2,5x8,5	**739**
50 848 030	T07 - IP	**124**	M2,5x8,5	**739**
50 848 040	T09 - IP	**126**	M3x11	**740**

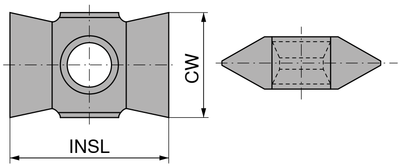
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert – partial profile

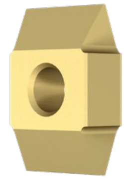
EWM

60°

M UN



TiN



Solid carbide

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	50 870 ...
40,25	1,5 - 3,0	16 - 9	9,5	15,50	**515**
40,25	3,0 - 6,0	9 - 4	9,5	15,50	**530**
52,55 / 66,55	1,5 - 3,0	16 - 9	12,5	19,00	**615**
52,55 / 66,55	3,0 - 6,0	9 - 4	12,5	19,00	**630**
92	6,0 - 8,0	4	14,3	28,58	**760**

55° G

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	50 871 ...
40,25	2,309	11	9,5	15,5	**511**
52,55	2,309	11	12,5	19,0	**611**

P	●
M	●
K	●
N	●
S	●
H	○
O	○

→ v_c/f_z Page 72

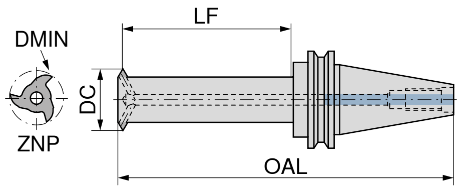
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

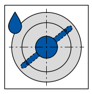
Circular milling cutter

Scope of supply:

including key

EWM | IR/IL





DIN 69871

50 849 ...

7

DC mm	DMIN mm	TP mm	TPI 1/"	LF mm	OAL mm	Adapter	ZNP	torque moment Nm	50 849 ...
40,25	43,0	1,5 - 6,0	16 - 4,0	145	247,0	SK 40	4	5,5	**048**
40,25	43,0	1,5 - 6,0	16 - 4,0	145	280,5	SK 50	4	5,5	**148**
52,55	56,0	1,5 - 6,0	16 - 4,0	195	331,0	SK 50	4	8,0	**164**
66,55	70,5	1,5 - 6,0	16 - 4,0	260	398,0	SK 50	7	8,0	**080**
92,00	100,0	6,0 - 8,0	4,0	360	497,0	SK 50	7	8,0	**115**

Key D

Clamping screw

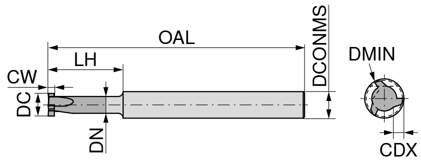
Spare parts DC	Key D	**80 950 ...**	Clamping screw	**70 950 ...**
40,25	T15 - IP	**128**	M4x13	**741**
52,55 - 92	T20 - IP	**129**	M5x15	**742**

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

Micro Mill

CWX500



HA

Solid carbide

DC mm	CW ±0,02 mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	53 050 ...
5,8	0,7	0,8	15,2	58	3,8	6	3	6	070
	0,8	0,8	15,2	58	3,8	6	3	6	080
	0,9	0,8	15,2	58	3,8	6	3	6	090
	1,0	0,8	15,2	58	3,8	6	3	6	100
	1,5	0,8	15,2	58	3,8	6	3	6	150
7,8	0,7	1,2	25,4	68	5,0	8	3	8	170
	0,8	1,2	25,4	68	5,0	8	3	8	180
	0,9	1,2	25,4	68	5,0	8	3	8	190
	1,0	1,2	25,4	68	5,0	8	3	8	200
	1,5	1,2	25,4	68	5,0	8	3	8	250
	2,0	1,2	25,4	68	5,0	8	3	8	300

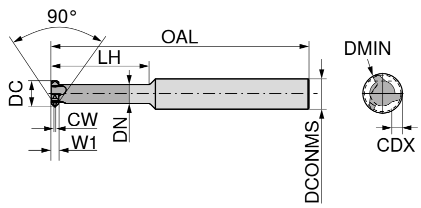
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 76

MicroMill – Solid Carbide Circular End Milling Cutter

Micro Mill

CWX500



HA

Solid carbide

DC mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	53 051 ...
5,8	2	0,2	0,8	15	58	4,2	6	3	6	010
	2	0,2	0,8	25	68	4,2	6	3	6	020
7,8	2	0,2	1,2	25	68	5,0	8	3	8	110
	2	0,2	1,2	35	78	5,0	8	3	8	120

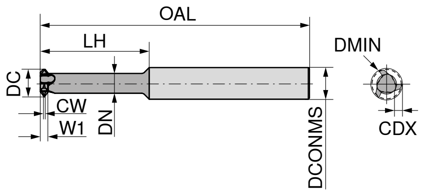
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 76

MicroMill – Solid Carbide Circular Thread Milling Cutter – Full profile

Micro Mill | IR/IL | 60° | M

CWX500



HA

Solid carbide

DC mm	Thread	TP mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	53 052 ...
1,18	M1,6	0,35	0,40	0,04	0,19	4,0	32	0,64	3	3	1,38	**160**
1,38	M1,8	0,35	0,50	0,04	0,19	5,0	32	0,70	3	3	1,58	**180**
1,50	M2	0,40	0,56	0,05	0,22	5,0	32	0,90	3	4	1,70	**200**
1,95	M2,5	0,45	0,60	0,06	0,25	6,0	32	1,15	3	4	2,15	**250**
2,40	M3	0,50	0,60	0,06	0,27	7,0	32	1,60	3	4	2,60	**300**
2,80	M3,5	0,60	0,74	0,08	0,33	8,0	32	1,80	3	4	3,00	**350**
3,10	M4	0,70	0,82	0,09	0,38	9,0	44	1,98	5	4	3,30	**400**
3,60	M5	0,80	0,98	0,10	0,43	10,0	44	2,20	5	4	3,80	**500**
4,10	M6	1,00	0,98	0,13	0,54	12,2	44	2,70	5	4	4,30	**600**

Material	53 052 ...
P	●
M	●
K	●
N	●
S	●
H	●
O	●

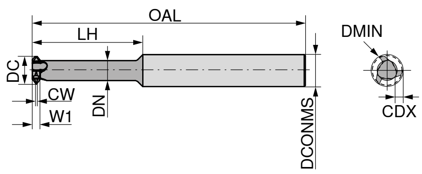
→ v_c/f_z Page 76

7

MicroMill – Solid Carbide Circular Thread Milling Cutter – Partial profile

Micro Mill | IR/IL | 60°

CWX500



HA

Solid carbide

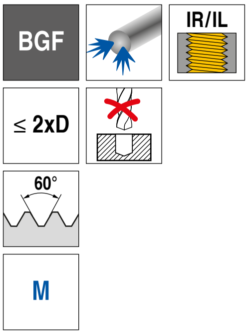
DC mm	TP mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	53 053 ...
5,8	0,5 - 1,5	2	0,06	0,91	15,2	58	3,5	6	3	6	**010**
7,8	0,5 - 1,5	2	0,06	0,91	25,4	68	5,5	8	3	8	**110**
7,8	1,0 - 2,0	2	0,12	1,19	25,4	68	5,0	8	3	8	**120**

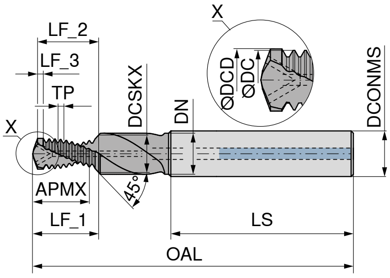
Material	53 053 ...
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 76

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

Drill thread milling cutter with chamfer facet

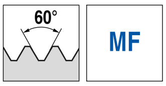




	NEW	NEW Ti601
	 HA Solid carbide	 HA Solid carbide

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	50 869 ...	50 854 ...
2,45	M3	88901001000013	0,50	49	5,8	36	6	2,5	3,3	4,5	6,8	6,4	0,5	2	**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		**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		**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	**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		**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	**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		**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	**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		**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	**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		**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	**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		**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	**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		**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	**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		**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	**16000**	

1) Without Through Coolant



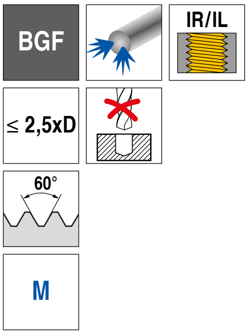
DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP	NEW 50 869 ...	NEW 50 854 ...
6,79	M8x1	88935002000070	1,0	74	15,40	40	10	7,0	8,3	9,0	18,8	17,7	1,0	2		**08100**
6,79	M8x1	88941002000070	1,0	74	15,40	40	10	7,0	8,3	9,0	18,8	17,7	1,0	2	**08100**	
8,75	M10x1	88941002000094	1,0	79	19,40	45	12	9,0	10,3	11,0	23,2	21,8	1,0	2	**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		**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		**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		**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	**12200**	

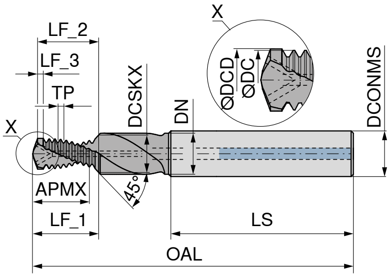
	50 869 ...	50 854 ...
P		
M		
K	○	●
N	●	○
S		
H		
O	●	○

→ v_c/f_z Page 75

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.**

Drill thread milling cutter with chamfer facet





NEW

Solid carbide

50 898 ...

NEW

Ti601

Solid carbide

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	50 898 ...	50 862 ...
4,10	M5	88961001000017	0,80	55	11,57	36	6	4,2	5,3	5,5	14,1	13,4	0,8	2	**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	**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		**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		**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	**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		**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	**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		**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	**12000**	

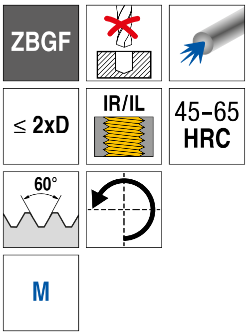
	50 898 ...	50 862 ...
P		
M		
K	○	●
N	●	○
S		
H		
O	●	○

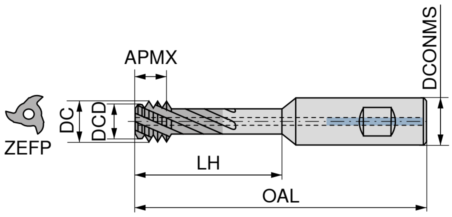
→ v_c/f_z Page 75

7

Circular Thread Milling Cutter

▲ Note: left-hand cutting (M04)





TiCN

Solid carbide

DC mm	Thread	TP mm	APMX mm	LH mm	DCONMS mm	DCD mm	OAL mm	ZEFP	50 840 ...
2,3	M3x0,5	0,50	2,0	7,0	6	2,10	51	4	030 1)
3,0	M4x0,7	0,70	2,8	9,4	6	2,60	51	4	040 1)
3,8	M5x0,8	0,80	3,2	11,6	6	3,40	51	4	050 1)
4,6	M6x1 - M7x1	1,00	4,0	14,0	8	4,10	60	4	060 1)
6,2	M8x1,25 - M10x1,25	1,25	5,0	19,0	10	5,60	71	4	080
7,8	M10x1,5 - M12x1,5	1,50	6,0	25,0	10	7,00	76	4	100
9,2	M12x1,75	1,75	7,0	31,0	12	8,30	86	4	120
11,1	M14x2 - M16x2	2,00	8,0	36,0	16	10,04	98	4	140
P									
M									
K									
N									
S									○
H									●
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_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

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

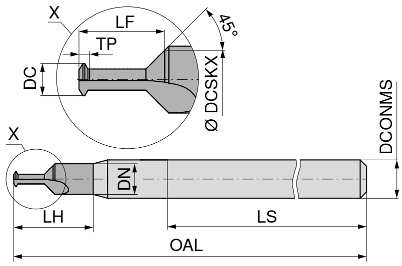
Shank thread milling cutter with shank-end countersink

▲ Note: left-hand cutting

SFSE Micro

60°

M



NEW

Ti602

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	Ti602
0,75	M1	88977001000001	0,25	40	1,8	28	5,2	3	1,5	2,1	2	**01000**
1,10	M1,4	88977001000004	0,30	40	2,0	28	5,7	3	1,7	2,6	2	**01400**
1,25	M1,6	88977001000005	0,35	40	2,4	28	6,0	3	2,1	3,1	2	**01600**
1,60	M2	88977001000008	0,40	40	3,0	28		3	2,6	3,7	2	**02000**
1,75	M2,2	88977001000009	0,45	40	3,0	28		3	2,5	3,9	2	**02200**
2,05	M2,5	88977001000011	0,45	40	3,0	28		3	2,9	4,5	2	**02500**

	Ti602
P	○
M	○
K	
N	○
S	○
H	●
O	

→ v_c/f_z Page 75

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

7

Thread Milling Cutter with Chamfer Facet

SFSE | IR/IL

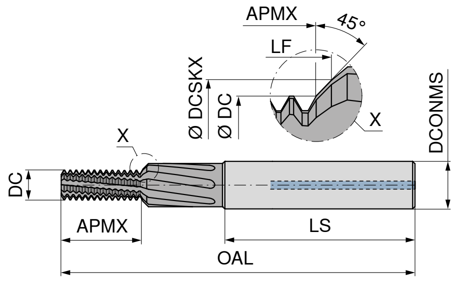
≤ 2xD

60°

M

NEW

AlCrN



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	50 806 ...
3,14	M4	88296001000015	0,70	49	8,0	36	6	4,3	8,6	5	**04000**
3,95	M5	88296001000017	0,80	55	9,9	36	6	5,3	10,6	5	**05000**
4,68	M6	88296001000018	1,00	62	12,3	36	8	6,3	13,2	6	**06000**
6,22	M8	88296001000020	1,25	74	16,6	40	10	8,3	17,8	7	**08000**
7,79	M10	88296001000022	1,50	79	19,9	45	12	10,3	21,3	7	**10000**
9,38	M12	88296001000024	1,75	89	24,9	45	14	12,3	26,6	7	**12000**
10,92	M14	88296001000025	2,00	102	28,5	48	16	14,3	30,4	7	**14000**
12,83	M16	88296001000026	2,00	102	32,4	48	18	16,3	34,4	8	**16000**

60° | MF | ≤ 2xD

NEW

50 807 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	50 807 ...
3,95	M5x0,5	88296002000037	0,50	55	10,2	36	6	5,3	10,8	5	**05100**
4,68	M6x0,75	88296002000048	0,75	62	12,2	36	8	6,3	13,0	5	**06200**
6,22	M8x1	88296002000070	1,00	74	16,2	40	10	8,3	17,3	6	**08300**
7,79	M10x1	88296002000094	1,00	79	20,1	45	12	10,3	21,5	7	**10300**
9,38	M12x1	88296002000111	1,00	89	24,0	45	14	12,3	25,6	7	**12300**
9,38	M12x1,5	88296002000113	1,50	89	24,3	45	14	12,3	25,9	7	**12500**
10,92	M14x1,5	88296002000131	1,50	102	28,7	48	16	14,3	30,6	7	**14500**
12,82	M16X1,5	88296002000147	1,50	102	31,7	48	18	16,3	33,6	8	**16500**

Material	
P	●
M	●
K	●
N	
S	●
H	
O	

→ v_c/f_z Page 75

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.**

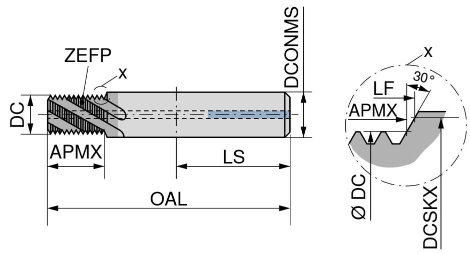
Thread Milling Cutter with Chamfer Facet

SFSE | IR/IL | TiAlN

≤ 2xD

60°

M



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	**050**
4,7	M6	1,00	62	13	36	8	6,3	13,93	3	**060**
6,5	M8	1,25	74	18	40	10	8,3	18,62	3	**080**
8,0	M10	1,50	74	22	40	10			3	**100** 1)
10,0	M12	1,75	90	26	45	14	12,3	26,47	4	**120**
12,5	M16	2,00	100	35	48	16			4	**160** 2)

7

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

60°

MF

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	**082**
8,0	M10x1	1,00	74	22	40	10			3	**102** 1)
8,0	M10x1,25	1,25	74	22	40	10			3	**103** 1)
10,0	M12x1,25	1,25	90	26	45	14	12,3	26,61	4	**123**
10,0	M12x1,5	1,50	90	26	45	14	12,3	27,30	4	**124**
11,0	M14x1	1,00	100	31	48	16	14,3	32,70	4	**142**
11,0	M14x1,5	1,50	100	31	48	16	14,3	32,08	4	**144**
12,5	M16x1,5	1,50	100	35	48	16			4	**164** 2)

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

55°

G

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	**018**
11,0	G 1/4-19	1,337	100	27	48	16	13,5	28,39	4	**014**
13,0	G 3/8-19	1,337	100	34	48	16			4	**038** 1)
16,0	G1/2-14	1,814	110	44	50	20			5	**012** 1)

P	●
M	●
K	●
N	●
S	●
H	
O	●

1) Chamfer section at the front of the tool

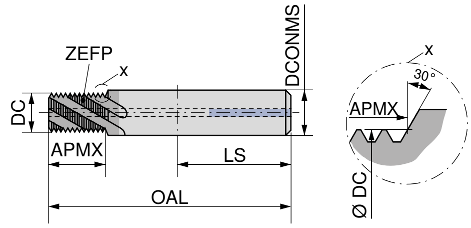
→ v_c/f_z Page 71

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

Thread Milling Cutter with Chamfer Facet

SFSE | IR/IL | ≤ 2xD | 60° | NPT

TiAlN



HA

Solid carbide

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	ZEFP	50 819 ...
5,8	NPT 1/16-27	0,941	62	10	36	8	3	**116** 1)
7,6	NPT 1/8-27	0,941	74	10	40	10	3	**018** 1)
10,1	NPT 1/4-18	1,411	90	15	45	14	3	**014** 1)
16,0	NPT 1/2-14	1,814	110	19	50	20	5	**012** 1)

P	●
M	●
K	●
N	●
S	●
H	
O	●

1) Without chamfer

→ v_c/f_z Page 71

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.**

7

Thread milling cutter with chamfer facet

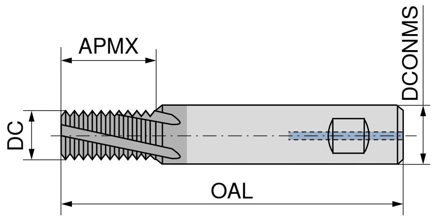
- ▲ Profile-corrected
- ▲ Hard machining to Ø DC = 4 mm possible
- ▲ Chamfer section at end of shank

SFSE IR/IL Ti500

≤ 2xD

60°

M



HB

Solid carbide

54 801 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	54 801 ...
4,00	M5	0,80	11	8	62	3	050 1)
4,80	M6	1,00	13	8	62	3	060 1)
6,50	M8	1,25	18	10	74	3	080
7,95	M10	1,50	22	12	80	3	100
9,90	M12	1,75	26	14	90	4	120
11,60	M14	2,00	31	16	100	4	140
11,95	M16	2,00	35	12	90	4	160 2)
13,95	M18	2,50	39	20	110	4	180
15,95	M20	2,50	44	16	100	4	200 2)

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

60° MF

54 803 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	54 803 ...
6,0	M8x1	1,00	18	10	74	3	080
8,0	M10x1	1,00	22	12	80	3	100
8,0	M10x1,25	1,25	22	12	80	3	101
9,9	M12x1	1,00	26	14	90	4	120
9,9	M12x1,25	1,25	26	14	90	4	121
9,9	M12x1,5	1,50	26	14	90	4	122
11,6	M14x1	1,00	31	16	100	4	140
11,6	M14x1,5	1,50	31	16	100	4	141
12,0	M16x1,5	1,50	35	12	90	4	160 1)
14,0	M18x1,5	1,50	39	20	110	4	180
16,0	M20x1,5	1,50	44	16	100	4	200 1)

1) Chamfer section at the front of the tool

55° G

54 805 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	54 805 ...
6,00	G 1/16-28	0,907	16	10	74	3	116
7,95	G 1/8-28	0,907	20	12	80	3	018
9,90	G 1/4-19	1,337	27	16	100	4	014
13,95	G 3/8-19	1,337	34	14	90	4	038 1)
15,95	G 1/2-14	1,814	43	16	100	4	012 1)
17,95	G 5/8-14	1,814	47	18	110	4	058 1)

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) Chamfer section at the front of the tool

→ v_c/f_z Page 74

Thread milling cutter with chamfer facet

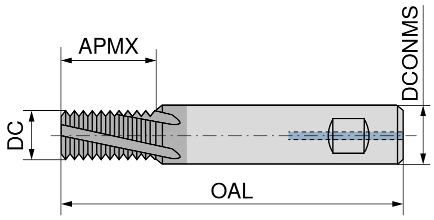
- Profile-corrected
- Hard machining to Ø DC = 4 mm possible
- Chamfer section at end of shank

SFSE | IR/IL | Ti500

≤ 2xD

60°

UNC



Solid carbide

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	54 811 ...
4,80	UNC 1/4-20	1,270	14	8	62	3	014 1)
5,95	UNC 5/16-18	1,411	18	10	74	3	516
7,95	UNC 3/8-16	1,588	22	12	80	3	038
7,95	UNC 7/16-14	1,814	22	14	90	3	716
9,90	UNC 1/2-13	1,954	27	14	90	4	012
11,80	UNC 9/16-12	2,117	31	16	100	4	916
12,70	UNC 5/8-11	2,309	34	14	90	4	058 2)
15,20	UNC 3/4-10	2,540	38	20	110	5	034

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

60° UNF

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	54 813 ...
4,80	UNF 1/4-28	0,907	14	8	62	3	014 1)
5,95	UNF 5/16-24	1,058	18	10	74	3	516
7,60	UNF 3/8-24	1,058	21	12	80	3	038
7,95	UNF 7/16-20	1,270	22	14	90	3	716
9,90	UNF 1/2-20	1,270	26	14	90	4	012
12,00	UNF 9/16-18	1,411	30	16	100	4	916
13,50	UNF 5/8-18	1,411	33	14	90	4	058 2)
17,00	UNF 3/4-16	1,588	38	20	110	5	034

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

60° NPT

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	54 809 ...
10,1	NPT 1/4-18	1,411	15	14	90	3	014 1)
12,8	NPT 3/8-18	1,411	15	16	100	4	038 1)
16,0	NPT 1/2-14	1,814	19	20	110	5	012 1)
18,5	NPT 3/4-14	1,814	19	20	110	5	034 1)

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) Chamfer section at the front of the tool

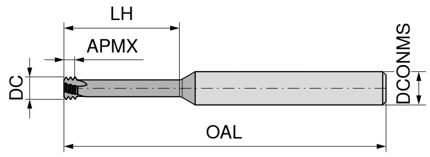
→ v_c/f_z Page 74

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.**

Circular shank thread milling cutter

▲ Available on request from M1

SGF | IR/IL
≤ 3xD
60°
M



NEW
Ti600

Solid carbide

50 802 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS h6 mm	ZEFP	50 802 ...
1,53	M2	0,40	39	0,80	6,0	3	3	**02000**
2,37	M3	0,50	58	1,35	9,5	6	3	**03000**
3,10	M4	0,70	58	1,95	12,5	6	3	**04000**
3,80	M5	0,80	58	2,30	16,0	6	3	**05000**
4,65	M6	1,00	58	2,70	20,0	6	3	**06000**
6,00	M8	1,25	58	3,20	24,0	6	3	**08000**
7,80	M10	1,50	64	3,80	31,5	8	3	**10000**
9,00	M12	1,75	73	4,55	37,8	10	3	**12000**

7

60° | M | ≤ 4xD

NEW

50 803 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS h6 mm	ZEFP	50 803 ...
1,53	M2	0,40	39	1,00	10,4	3	3	**02000**
2,40	M3	0,50	39	1,30	12,5	3	3	**03000**
3,10	M4	0,70	58	1,80	16,7	6	3	**04000**
4,00	M5	0,80	58	2,10	20,8	6	3	**05000**
4,80	M6	1,00	58	2,55	25,0	6	3	**06000**
6,40	M8	1,25	64	3,15	33,5	8	3	**08000**
8,00	M10	1,50	76	3,85	41,5	8	3	**10000**

Material	
P	●
M	●
K	●
N	●
S	●
H	
O	●

→ v_c/f_z Page 74

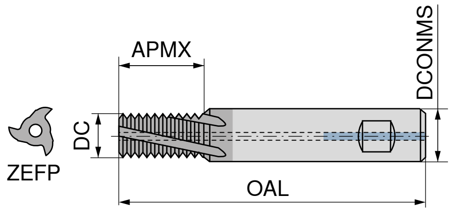
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread Milling Cutter

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

SGF | IR/IL | ≤ 2xD | 60° | M

TiAlN



Solid carbide

50 825 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	50 825 ...
2,40	M3	0,50	6	4	42	3	030 [1)]
3,15	M4	0,70	8	6	55	3	040
4,00	M5	0,80	10	6	55	3	050
4,80	M6	1,00	12	6	55	3	060
6,00	M8	1,25	16	6	63	3	080
8,00	M10	1,50	20	8	70	3	100
9,90	M12	1,75	24	10	80	4	120
11,60	M14	2,00	28	12	90	4	140
12,00	M16	2,00	32	12	90	4	160
14,00	M18	2,50	36	14	90	4	180
14,00	M22	2,50	44	14	95	4	220
14,00	M20	2,50	40	14	90	4	200

1) Without Through Coolant

60° | MF

50 826 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	50 826 ...
3,35	M4x0,5	0,50	8	6	55	3	040
4,20	M5x0,5	0,50	10	6	55	3	050
5,00	M6x0,75	0,75	12	6	55	3	061
6,00	M8x0,75	0,75	16	6	63	3	081
6,00	M8x1	1,00	16	6	63	3	082
8,00	M10x1	1,00	20	8	70	3	102
10,00	M12x1	1,00	24	10	80	4	122
10,00	M12x1,5	1,50	24	10	80	4	124
10,00	M14x1,5	1,50	28	10	80	4	144
12,00	M16x1,5	1,50	32	12	90	4	164
14,00	M18x1,5	1,50	36	14	90	4	184
14,00	M20x1,5	1,50	40	14	90	4	204
14,00	M22x1,5	1,50	44	14	95	4	224
16,00	M24x1,5	1,50	36	16	90	5	244

P	●
M	●
K	●
N	●
S	●
H	
O	●

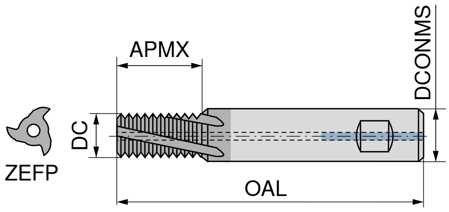
→ v_c/f_z Page 71

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

Thread Milling Cutter

SGF | IR/IL | TiAlN

≤ 2xD | 55° | G



Solid carbide

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	50 827 ...
8	G 1/8-28	0,907	19,5	8	70	3	**018**
11	G 1/4-19	1,337	26,5	12	90	4	**014**
12	G 3/8-19	1,337	33,0	12	90	4	**038**
14	G 1/2-14	1,814	42,0	14	95	4	**012**
16	G 3/4-14	1,814	34,0	16	90	5	**034**
16	G 1-11	2,309	33,0	16	90	5	**100**
16	G 5/8-14	1,814	34,0	16	90	5	**058**

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_f 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

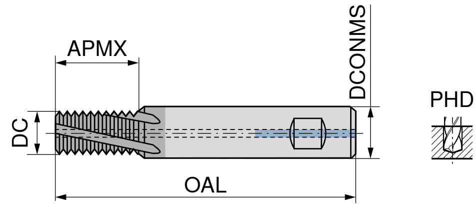
SGF

IR/IL

≤ 2xD

60°

M



Ti500

Solid carbide

54 800 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	
2,40	M3	0,50	6,5	4	42	2	2,50	030 [1]
3,15	M4	0,70	9,0	6	55	3	3,30	040 [2]
4,00	M5	0,80	11,0	6	55	3	4,20	050 [2]
4,80	M6	1,00	13,0	6	55	3	5,00	060 [2]
6,00	M8	1,25	18,0	6	60	3	6,75	080
8,00	M10	1,50	21,0	8	70	3	8,50	100
9,90	M12	1,75	26,0	10	75	4	10,25	120
11,60	M14	2,00	30,0	12	85	4	12,00	140
12,00	M16	2,00	34,0	12	85	4	14,00	160
14,00	M18	2,50	40,0	14	90	4	15,50	180
16,00	M20	2,50	42,0	16	90	4	17,50	200

1) DIN 6535 HA Shank / Without Through Coolant
2) Without Through Coolant

60°

MF

54 802 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	
4,0	M5	0,50	11	6	55	3	4,50	050 [1]
4,8	M6	0,75	13	6	55	3	5,25	060 [1]
6,0	M8	1,00	18	6	60	3	7,00	080
8,0	M10	1,25	21	8	70	3	8,75	100
9,9	M12	1,00	26	10	75	4	11,00	120
9,9	M12	1,25	26	10	75	4	10,75	121
9,9	M12	1,50	26	10	75	4	10,50	122
11,6	M14	1,00	30	12	85	4	13,00	140
11,6	M14	1,50	30	12	85	4	12,50	141
12,0	M16	1,50	34	12	85	4	14,50	160
14,0	M18	1,50	40	14	90	4	16,50	180
16,0	M20	1,50	42	16	90	4	18,50	200

1) DIN 6535 HA Shank / Without Through Coolant

55°

G

54 804 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	
8,0	G 1/8-28	0,907	21	8	70	3	8,80	018
9,9	G 1/4-19	1,337	26	10	75	4	11,80	014
14,0	G 3/8-19	1,337	40	14	90	4	15,25	038
16,0	G 1/2-14	1,814	42	16	90	4	19,00	012

P	●
M	●
K	●
N	●
S	●
H	●
O	●

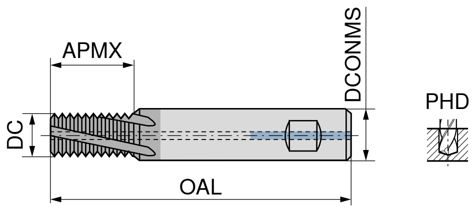
→ v_c/f_z Page 74

Thread milling cutter

▲ Profile corrected

SGF | IR/IL | ≤ 2xD | 60° | UNC

Ti500



Solid carbide

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	54 810 ...
4,80	UNC 1/4-20	1,270	13	6	55	3	5,1	**014** 1)
6,00	UNC 5/16-18	1,411	18	6	60	3	6,6	**516**
7,95	UNC 3/8-16	1,588	21	8	70	3	8,0	**038**
7,95	UNC 7/16-14	1,814	21	8	70	3	9,4	**716**
9,90	UNC 1/2-13	1,954	26	10	75	4	10,8	**012**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) DIN 6535 HA Shank / Without Through Coolant

→ v_c/f_z Page 74

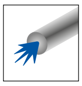
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

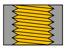
Thread milling cutter

▲ Profile corrected

SGF



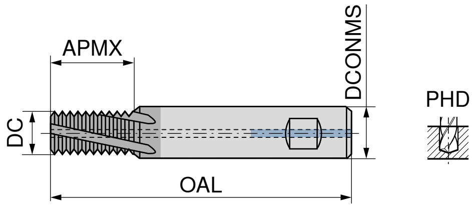
IR/IL



≤ 2xD

60°

UNF



Ti500

HB

Solid carbide

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	54 812 ...
4,8	UNF 1/4-28	0,907	13	6	55	3	5,5	**014** 1)
6,0	UNF 5/16-24	1,058	18	6	60	3	6,9	**516**
8,0	UNF 3/8-24	1,058	21	8	70	3	8,5	**038**
8,0	UNF 7/16-20	1,270	21	8	70	3	9,9	**716**
9,9	UNF 1/2-20	1,270	26	10	75	4	11,5	**012**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) 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

SGF

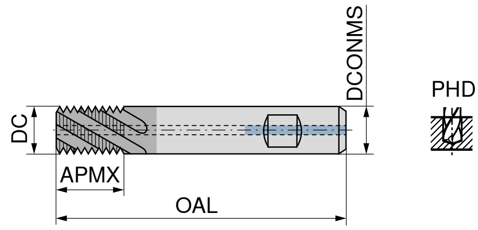
IR/IL

≤ 2xD

60°

M

Ti500



HB

Solid carbide

DC mm	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	54 832 ...
8	0,50	12	8	70	3	10	**008**
8	0,75	12	8	70	3	11	**080**
10	1,00	16	10	75	4	14	**100**
10	1,50	16	10	75	4	14	**101**
12	1,00	20	12	85	4	16	**120**
12	1,50	20	12	85	4	16	**121**
12	2,00	20	12	85	4	18	**122**
16	1,00	25	16	90	5	22	**160**
16	1,50	25	16	90	5	22	**161**
16	2,00	25	16	90	5	22	**162**
16	3,00	25	16	90	5	24	**164**

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.**

7

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	Ni or Co basis	Annealed	840 N/mm^2 / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		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

	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 ...		
Index	v_c m/min	Ø 3–5 f_z [mm/tooth]	Ø 6–10 f_z [mm/tooth]	Ø 12–16 f_z [mm/tooth]	v_c m/min	Ø 6–10 f_z [mm/tooth]	Ø 12–20 f_z [mm/tooth]	v_c m/min	Ø 6–10 f_z [mm/tooth]	Ø 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

7

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

	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 ...		
						EAW	EWM		8 mm	10–16 mm
Index	v_c m/min	f_z [mm/tooth]	v_c m/min	f_z [mm/tooth]	v_c m/min	f_z [mm/tooth]	f_z [mm/tooth]	v_c m/min	f_z [mm/tooth]	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

	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 ...	
		12–17 mm	20–26 mm				
Index	v_c m/min	f_z [mm/tooth]	f_z [mm/tooth]	v_c m/min	f_z [mm/tooth]	v_c m/min	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

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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 f_z [mm/tooth]	Ø 4 f_z [mm/tooth]	Ø 4,8–16 f_z [mm/tooth]	v_c m/min	Ø 1–2 f_z [mm/tooth]	Ø 3–5 f_z [mm/tooth]	Ø 6–8 f_z [mm/tooth]	Ø 9–12 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_B [mm/tooth] *		f_z [mm/tooth]		m/min	f_z [mm/tooth]	f_z [mm/tooth]	f_z [mm/tooth]	m/min	f_z [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_B = drilling feed rate in mm / rev

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Cutting data standard values

	MiniMill 53 006 ..., 53 007 ..., 53 008 ..., 53 009 ..., 53 010 ..., 53 011 ..., 53 012 ..., 53 013 ..., 53 015 ...			MicroMill 53 050 ..., 53 051 ..., 53 052 ..., 53 053 ...	
Index	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

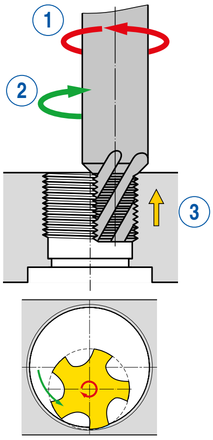
Characteristics:

1 Tool rotation direction „right“

2 Toolpath counter clockwise

3 Feed direction „outwards“

Right hand thread



Conventional milling

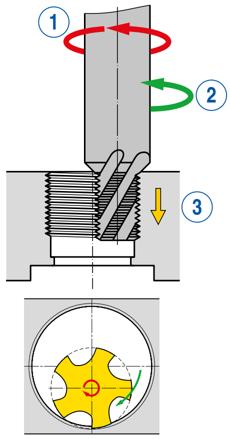
Characteristics:

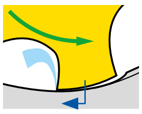
1 Tool rotation direction „right“

2 Toolpath clockwise

3 Feed direction „inwards“

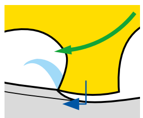
Right hand thread





h = 0

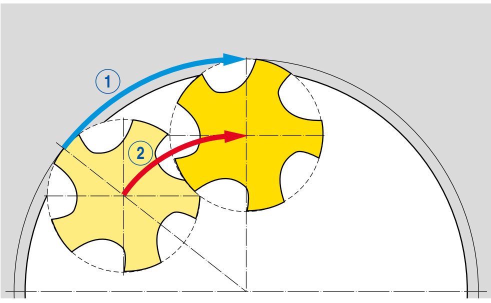
When climb milling, the chip thickness at the end of cut is always 0 (h=0)



h = max

When conventional milling, the chip thickness at the end of cut is always at maximum (h=max)

Feed rate calculation

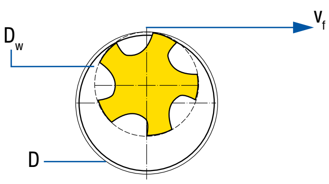


1 Peripheral feedrate v_f

2 Centerline feedrate v_{fm}

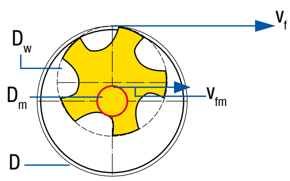
Peripheral feedrate v_f

$v_f = n \cdot f_z \cdot z$ mm/min.



Centerline feedrate v_{fm}

$v_{fm} = \frac{v_f \cdot (D - D_w)}{D}$ mm/min.



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

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	rev./min.
v_c	=	Cutting speed	m/min
d	=	Tool diameter	mm
D	=	Nominal thread-Ø	mm
v_f	=	Feed rate at the diameter	mm/min.
v_{fm}	=	Feed rate at the centre	mm/min.
U_{arc}	=	programmed ramping feed rate	mm/min.
f_z	=	Feed per tooth	mm
z	=	Number of cutting edges of the cutter	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:

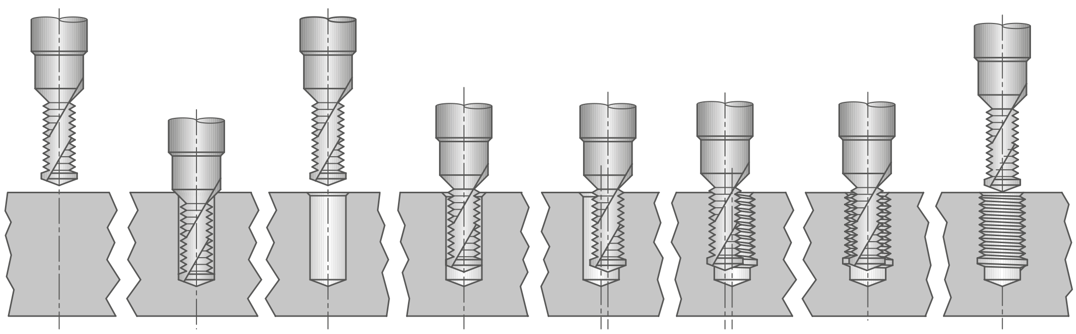
half the cutter Ø – 0.05 x pitch p

Example: M30x3
Cutter-Ø: 20 mm

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

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

Internal thread production



Thread types

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

Coatings

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