



**NEW**

# Carbide internal thread end mills

## *Carbide internal whirl thread end mills*

**(M1,40-M2) Z = 1**

- Carbide thread end mills for the cutting of very small internal thread in titanium and/or stainless steel. The thread is completed in one cycle for the entire finished depth of the thread. The result of a logarithmic relief grinding is an excellent surface finish quality.
- **Standard program for ISO 60° internal threads**  
Shank Ø 3 mm, total length 32 mm. 1 tooth right hand logarithmically relief ground

Art.-No.	Thread	Pitch	drilling Ø	Thread depth
05701	M 1,40	0,30 mm	1,10 mm	3,00 mm
05702	M 1,40	0,30 mm	1,10 mm	4,00 mm
05703	M 1,60	0,35 mm	1,25 mm	4,00 mm
05704	M 1,60	0,35 mm	1,25 mm	5,00 mm
05705	M 1,80	0,35 mm	1,45 mm	3,50 mm
05706	M 1,80	0,35 mm	1,45 mm	5,00 mm
05707	M 2,00	0,40 mm	1,60 mm	4,00 mm
05708	M 2,00	0,40 mm	1,60 mm	6,00 mm



All the cutters can be delivered with Topping.  
In that case please make a note on your order.

Bulk discount, special executions and coolant information look at Site 2 and 3.

Cutting Conditions look at Site 4.

## Carbide internal thread end mills

### (M1,40-M3) Z = 2

- Carbide thread end mills for the cutting of very small internal threads in titanium, stainless steels, etc... For production on conventional machines. (Rotation speed of the end mill between 6000 and 8000 r/min.) or with high frequency spindle. The thread is completed in one cycle for the entire finished depth of thread.

Art.-No.	Thread	Pitch	drilling Ø	Thread depth
05601	M 1,40	0,30 mm	1,10 mm	4,00 mm
05602	M 1,60	0,35 mm	1,25 mm	5,00 mm
05603	M 1,80	0,35 mm	1,45 mm	5,00 mm
05604	M 2,00	0,40 mm	1,60 mm	5,00 mm
05605	M 2,00	0,40 mm	1,60 mm	7,00 mm
05606	M 2,50	0,45 mm	2,05 mm	5,00 mm
05607	M 2,50	0,45 mm	2,05 mm	8,00 mm
05608	M 3,00	0,50 mm	2,50 mm	6,00 mm
05609	M 3,00	0,50 mm	2,50 mm	9,00 mm



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### (M1,40-M4) Z = 3 und 4

#### Standard program for ISO 60° internal threads

Shank Ø 3 mm, total length 32 mm, 3/4 teeth right hand logarithmically relief ground

Art.-No. 3 Teeth	Art.-No. 4 Teeth	Thread	Pitch	drilling Ø	Thread depth
05901	05401	M 1,40	0,30 mm	1,10 mm	4,00 mm
05902	05402	M 1,60	0,35 mm	1,25 mm	5,00 mm
05903	05403	M 1,80	0,35 mm	1,45 mm	5,00 mm
05904	05404	M 2,00	0,40 mm	1,60 mm	6,00 mm
05905	05405	M 2,50	0,45 mm	2,05 mm	7,00 mm
05906	05406	M 3,00	0,50 mm	2,50 mm	8,00 mm
05907	05407	M 3,50	0,60 mm	2,90 mm	9,00 mm
05908	05408	M 4,00	0,70 mm	3,30 mm	10,00 mm



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#### Bulk discount (for same dimensions):

10 pcs	/.	5%
25 pcs	/.	10%
50 pcs	/.	15%
100 pcs	/.	20%
250 pcs	/.	25%

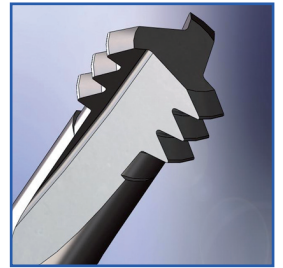
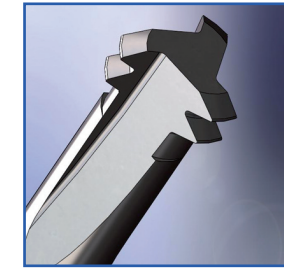
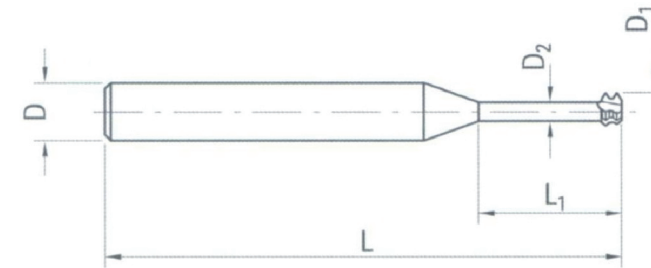
#### Coolant information

Either you should use thin-bodied cutting oil, special emulsion or compressed air.

In case of further questions please feel free to contact us.

## Carbide internal thread end mills, 2 + 3 threads

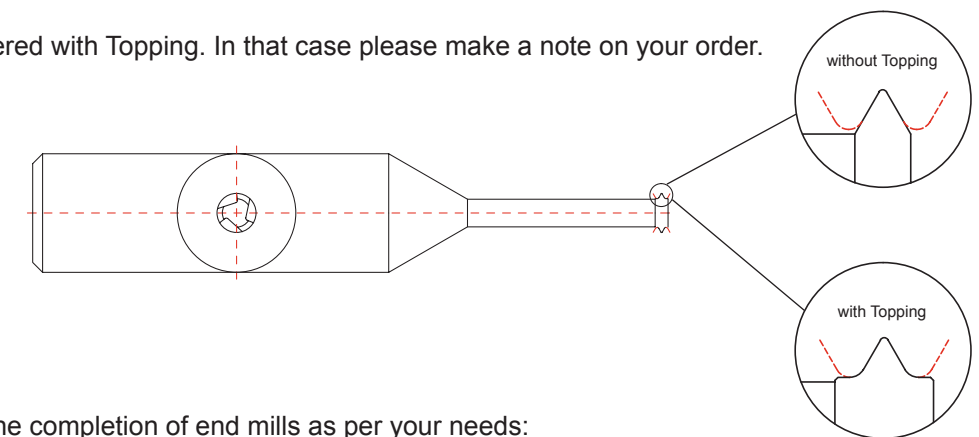
- Thread end mills, 3 teeth, logarithmically relief ground



Art.-No. 2 thread*	Art.-No. 3 thread**	Thread	Pitch	Ø D1	Ø D2	L1	D	L
05201	-	M 1,00	0,20	0,76	0,49	2,80	3,00	32,00
05202	-	M 1,00	0,25	0,70	0,37	3,00	3,00	32,00
05203	05301	M 1,20	0,25	0,89	0,55	3,00	3,00	32,00
05204	05302	M 1,40	0,30	1,04	0,64	4,00	3,00	32,00
05205	05303	M 1,60	0,35	1,18	0,70	4,00	3,00	32,00
05206	05304	M 1,60	0,35	1,18	0,70	6,00	3,00	32,00
05207	05305	M 1,80	0,35	1,37	0,88	5,00	3,00	32,00
05208	05306	M 2,00	0,40	1,52	0,97	5,00	3,00	32,00
05209	05307	M 2,00	0,40	1,52	0,97	7,00	3,00	32,00
05210	05308	M 2,50	0,45	1,98	1,37	6,00	3,00	32,00
05211	05309	M 3,00	0,50	2,42	1,70	7,00	3,00	32,00
05212	05310	M 3,50	0,60	2,80	1,95	8,00	3,00	32,00
05213	05311	M 4,00	0,70	3,20	2,20	8,00	4,00	50,00
05214	05312	M 5,00	0,80	4,05	2,95	10,00	5,00	50,00
05215	05313	M 6,00	1,00	4,80	3,40	10,00	6,00	50,00

\*2 thread = straight toothing    \*\*3 thread = helic fluted

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#### Special executions

Information needed for the completion of end mills as per your needs:

- Thread Ø, pitch and standard (norm) of the thread
- Depth of thread, including information on pilot-drill (drawing off part or sketch)
- Drilling diameter, that is Ø at which part is pilot drilled (prior to the milling of the thread)
- Rotation direction: Right or left-hand end mill

# Cutting conditions

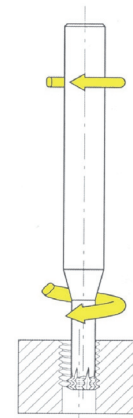
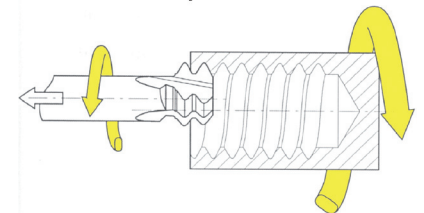
## ■ Machining with standing workpiece

To machining material	Tensile strength	cutting speed $V_c$ (m/min)	Feed per tooth $f_z$ (mm)			
			$\varnothing D_1$ 0,70 - 1,20	$\varnothing D_1$ 1,20 - 2,00	$\varnothing D_1$ 2,00 - 3,00	$\varnothing D_1$ 3,00 - 5,00
Low alloyed/non alloyed steel	< 600 N/mm <sup>2</sup>	65 - 80	0,004 - 0,01	0,01 - 0,03	0,02 - 0,04	0,03 - 0,05
Low alloyed/non alloyed steel	600 - 1500 N/mm <sup>2</sup>	35 - 40	0,004 - 0,01	0,01 - 0,03	0,02 - 0,04	0,03 - 0,05
High alloyed steel	700 - 1500 N/mm <sup>2</sup>	15 - 30	0,004 - 0,01	0,01 - 0,03	0,02 - 0,04	0,03 - 0,05
Stainless steel	400 - 700 N/mm <sup>2</sup>	35 - 40	0,004 - 0,01	0,01 - 0,03	0,02 - 0,04	0,03 - 0,05
Cast iron	< 250 HB	65 - 80	0,004 - 0,01	0,01 - 0,03	0,02 - 0,04	0,03 - 0,05
Alloyed cast iron	> 250 HB	35 - 40	0,004 - 0,01	0,01 - 0,03	0,02 - 0,04	0,03 - 0,05
malleable cast iron	< 150 N/mm <sup>2</sup>	35 - 40	0,004 - 0,01	0,01 - 0,03	0,02 - 0,04	0,03 - 0,05
Nickel alloys / special alloys	Inconel, Nimonic, Hastelloy	15 - 30	0,004 - 0,01	0,01 - 0,03	0,02 - 0,04	0,03 - 0,05
Titanium, titanium alloys		15 - 35	0,004 - 0,01	0,01 - 0,03	0,02 - 0,04	0,03 - 0,05

	n r/min	f (mm/r)
1,00	12 - 36'000	0,012 - 0,020
1,20	8 - 35'000	0,012 - 0,020
1,40	8 - 32'000	0,012 - 0,020
1,60	8 - 28'000	0,012 - 0,020
1,80	6 - 25'000	0,14 - 0,030
2,00	6 - 23'000	0,14 - 0,030

	n r/min	f (mm/r)
2,50	5 - 18'000	0,14 - 0,030
3,00	4 - 15'000	0,020 - 0,040
3,50	4 - 15'000	0,020 - 0,040
4,00	4 - 15'000	0,020 - 0,040
5,00	4 - 15'000	0,025 - 0,050
6,00	3 - 12'000	0,025 - 0,050

## ■ Machining with turning lathes



$$n = \frac{1000 \times V_c}{\pi \times D}$$

$$V_c = \frac{D \times \pi \times n}{1000}$$

$$f_z = \frac{V_f}{n \times z}$$

$$V_f = f_z \times z \times n$$

n (min<sup>-1</sup>) revolutions per minute

$V_c$  (m x Min<sup>-1</sup>) cutting speed

$\pi$  3,14159

D (mm) cutting diameter

$V_f$  (mm x min<sup>-1</sup>) Feed

$f_z$  (mm) Feed per Tooth

z Number of teeth



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