

GÜHRING

MTMH3-Z

**HELICAL DRILL THREAD MILLING
INTO SOLID MATERIAL
UP TO 66 HRC**

PROMOTION
VALID UNTIL
31.12.19

Helical drill thread milling cutter

GÜHRING – YOUR WORLDWIDE PARTNER

MTMH3-Z 2.5xD

HELICAL DRILL THREAD MILLING INTO SOLID MATERIAL UP TO 66 HRC

The new helical drill thread milling cutter for high-strength and hardened steels up to 66 HRC combines core hole and thread production in one tool. The MTMH3-Z guarantees process reliability and true to gauge threads.

Two oil grooves on the shaft ensure optimum cooling with emulsion or air.



Thanks to the special face geometry with hollow grinding, the process-safe core hole and thread milling in almost all steels is possible.



Thanks to the **left cutting geometry** the tool stabilises itself during the climb milling process – perfect, true to gauge threads up to 66 HRC are guaranteed.

Thanks to the **temperature-resistant TiSiN coating**, dry and wet machining is possible.

The MTMH3-Z is made of a **special fine-grained carbide**, which is characterised by its high hardness and is optimally suited for hard machining.

- process reliability guaranteed
- excellent machining results in dry and wet machining
- core holes and threads in one step: significantly shorter cycle and setting time
- universally applicable in unhardened and hardened materials up to 66 HRC

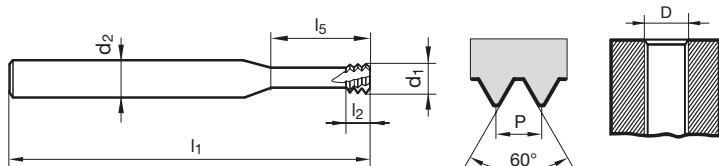


Micro thread milling cutters



P	•
M	•
K	•
N	•
S	•
H	≤ 65 with cooling grooves

Tool material	Solid carbide
Surface	●
Type	MTMH3-Z
Shank form	HB



Article no. 4002

D	P	d1	d2	l1	l2	l5	Z	Code no.	Availability
	mm	mm	mm	mm	mm	mm			
M2	0.400	1.400	3.000	39.000	1.200	5.000	4	2.000	●
M2,5	0.450	1.800	3.000	39.000	1.300	6.500	4	2.500	●
M3	0.500	2.400	6.000	58.000	1.500	7.500	4	3.000	●
M3,5	0.600	2.700	6.000	58.000	1.800	9.000	4	3.500	●
M4	0.700	3.100	6.000	58.000	2.100	10.000	4	4.000	●
M5	0.800	3.800	6.000	58.000	2.400	12.500	4	5.000	●
M6 + M7	1.000	4.600	8.000	64.000	3.000	15.000	4	6.000	●
M8 + M9	1.250	6.200	8.000	64.000	3.600	20.000	4	8.000	●
M10 + M12	1.500	7.500	10.000	73.000	4.500	25.000	4	10.000	●
M12	1.750	9.000	10.000	73.000	5.200	30.000	4	12.000	●
M16	2.000	11.500	12.000	90.000	6.000	40.000	4	16.000	●

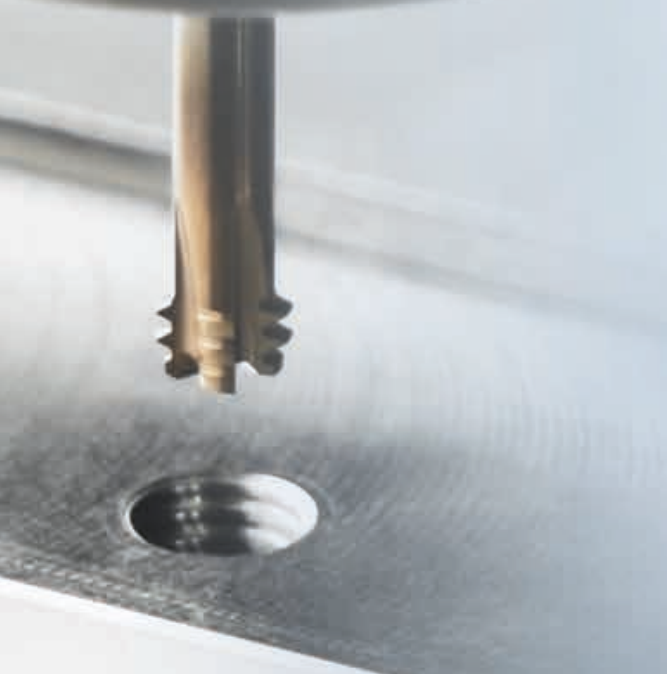


APPLICATION EXAMPLE

Component:	Injection moulding tool
Thread dimension:	M8x(1.25), depth 16 mm, blind hole
Tool:	Article 4002 MTMH3-Z M8 2.5xD SP
Material:	1.2379 / 60+2 HRC
Parameter:	$v_c = 30$ m/min, $f_z = 0.02$ mm (climb milling, M4 counter clockwise)
Coolant:	dry (with air)

**60+2
HRC**

➤ **Tool life: 138 threads incl. core holes**



APPLICATION EXAMPLE

Component:	Holder
Thread dimension:	M6x(1), depth 13 mm, blind hole
Tool:	Article 4002 MTMH3-Z M6 2.5xD SP
Material:	1.4301
Parameter:	$v_c = 50$ m/min, $f_z = 0.02$ mm (climb milling, M4 counter clockwise)
Coolant:	Emulsion 8%

**VA
1.4301**

➤ **Tool life: 618 threads incl. core holes**

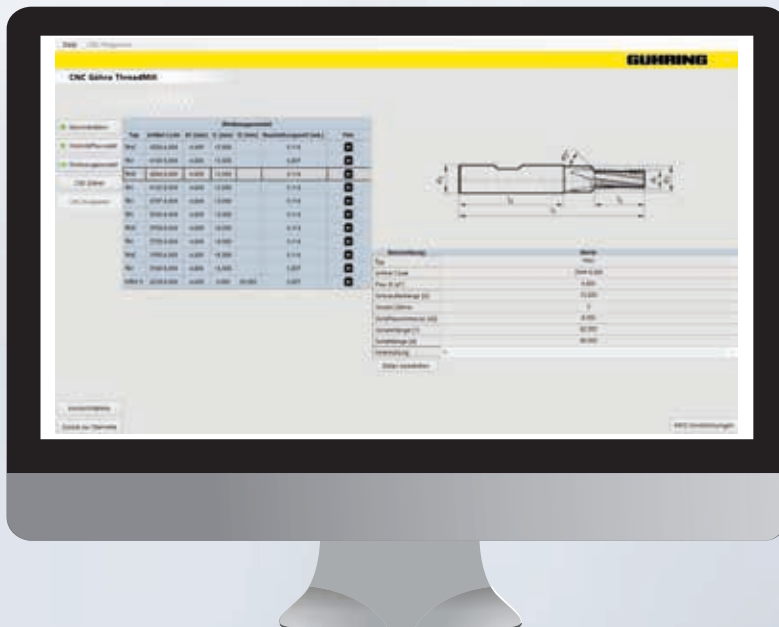
CNC Gühro

ThreadMill



Free programming software

for thread milling cutters and drill thread milling cutters



In order to make the machining with Gühring thread milling cutters even more user friendly, we have developed the intuitive "CNC Gühro ThreadMill".

"CNC Gühro ThreadMill" is available free-of-charge. Simply download it from our homepage www.guehring.com.



To the optimal CNC programme in five steps

1. Specify the thread data
Select from all current thread standards
2. Select the material
You are always referred to the optimal parameters
3. Select the tool
Technical data, drawing, machining time and video simplify selection
4. Record CNC data
Enter required milling strategy and parameters
5. Receive CNC programme with code and data sheet
Programming data (Sinumerik, Haidenhain, Fanuc, Philips, Mazatrol or Hurco) are imported and automatically recognised

APPLICATION RECOMMENDATIONS

MTMH3-Z 2.5xD [Please note, M4 counter clockwise]

ISO	Material group	Hardness	Example materials	Material no.	Cutting speed v_c (m/min)
P	P1 Structural and free cutting steels, heat-treatable steels unalloyed	< 800 N/mm ²	S235JR C15 11SMnPb30	1.0037 1.0401 1.0718	80
	P2 Free-cutting steels, unalloyed case hardened steels, nitriding steels	800-1000 N/mm ²	S355J2 C60 31CrMo12	1.0577 1.0601 1.8515	70
	P3 Alloyed heat-treatable steels, tool steels, high speed steels	800-1200 N/mm ²	42CrMo4 36CrNiMo4 X36CrMo17 HS 6-5-2	1.7225 1.6511 1.2316 1.3343	70
M	M1 Stainless steels, sulphured, austenitic	< 1000 N/mm ²	X5CrNi18-10 X6CrNiTi18-10 X8CrNiS18-9	1.4301 1.4571 1.4305	55
	M2 Stainless- and acidresistant steels, martensitic	< 1000 N/mm ²	X17CrNi16-2 X90CrMoV18 X2CrTi12	1.4057 1.4112 1.4512	50
	M3 Duplex and Super Duplex	< 1300 N/mm ²	X2CrNiMoN22-5-3 X2CrNiMoN25-7-4 X2CrNiMoCuWn25-7-4	1.4462 1.441 1.4501	50
K	K1 Cast iron	300 HB	EN-GJL-150 EN-GJL-250 EN-GJL-300	0.6015 0.6025 0.603	80
	K2 Spheroidal graphite iron and malleable cast iron	350 HB	EN-GJS-400-15 EN-GJS-600-3 EN-GJS-700-2	0.704 0.706 0.707	75
	K3 ADI, GGK	1000 N/mm ² 350 HB	EN-GJS1000-5 EN-GJV250 EN-GJV400		65
N	N1 Aluminium and wrought alloys	< 450 N/mm ²	Al99,5H AlMgSi1 AlZn4,5Mg	3.025 3.2315 3.4335	x
	N2 Al cast alloys	< 600 N/mm ²	GD-ALSi5Cu1Mg GD-ALSi8Cu3 G-ALSi9Mg G-ALSi12	3.2134 3.2162 3.2373 3.2581	120
	N3 Magnesium alloys	< 500 N/mm ²	GDMgAl8Zn1	3.5812.08	x
	N4 Copper and copper alloys	long-chipping short-chipping	CuZn20 CuZn37Pb0,5 CuZn39Pb2 CuZn43Pb2	2.025 2.0332 2.038 2.041	80
	N5 Copper special alloys	< 1400 N/mm ²	Ampco		65
	N6 Plastics [Thermoplastics, Duroplastics]	long-chipping short-chipping	PMMA, POM, PVC Pertinax		x
S	S1 Ti and Ti alloys	< 1200 N/mm ²	Titanium TiAl5Sn2 TiAl6V4	3.7025 3.7115 3.7165	45
	S2 Nickel, cobalt and iron alloys	< 1400 N/mm ²	Hasteloy C4 Inconel 718 Nimonic	2.461 2.4668 2.4634	45
H	H1 High tensile steels, hardened steels	45-55 HRC	Hardox		40
	H2	55-66 HRC	PM30		30

Please note:

The cutting values specified in the respective columns are guide values, they have to be adapted according to application conditions (material, lubrication, tool clamping, machine etc.)

Depending on the machining task the optimal cutting values can differ from those in the table by up to ±30%!



MTMH3-Z



Milling part diameter [d1] / feed per tooth [f _z] [climb milling]											
M2	M2,5	M3	M3,5	M4	M5	M6	M8	M10	M12	M16	
0.4	0.45	0.5	0.6	0.7	0.8	1.0	1.25	1.5	1.75	2	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
0.008	0.008	0.012	0.014	0.018	0.026	0.028	0.030	0.035	0.040	0.048	●●
0.008	0.008	0.012	0.014	0.018	0.026	0.028	0.030	0.035	0.040	0.048	●●
0.007	0.007	0.010	0.011	0.012	0.016	0.020	0.025	0.030	0.036	0.044	●●
0.007	0.007	0.010	0.011	0.012	0.016	0.020	0.025	0.030	0.036	0.044	●●
0.007	0.007	0.010	0.011	0.012	0.016	0.020	0.025	0.030	0.036	0.044	●●
0.005	0.005	0.007	0.008	0.010	0.014	0.016	0.018	0.020	0.026	0.033	●●
0.008	0.008	0.012	0.014	0.016	0.020	0.024	0.030	0.036	0.040	0.048	●●
0.008	0.008	0.012	0.014	0.016	0.020	0.024	0.030	0.036	0.040	0.048	●●
0.007	0.007	0.011	0.013	0.015	0.018	0.022	0.028	0.033	0.038	0.046	●●
x	x	x	x	x	x	x	x	x	x	x	○
0.007	0.007	0.011	0.013	0.015	0.018	0.022	0.028	0.033	0.038	0.046	●●
x	x	x	x	x	x	x	x	x	x	x	○
0.008	0.008	0.012	0.014	0.016	0.020	0.024	0.030	0.036	0.040	0.048	●●
0.007	0.007	0.010	0.011	0.012	0.016	0.020	0.025	0.030	0.036	0.048	●●
x	x	x	x	x	x	x	x	x	x	x	○
0.007	0.007	0.010	0.011	0.012	0.016	0.020	0.025	0.030	0.036	0.044	●●
0.007	0.007	0.010	0.011	0.012	0.016	0.020	0.025	0.030	0.036	0.044	●●
0.007	0.007	0.010	0.011	0.012	0.016	0.020	0.025	0.030	0.036	0.044	●●
0.005	0.005	0.008	0.009	0.010	0.014	0.018	0.022	0.028	0.033	0.042	●●

- optimally suited
- suited
- not suitable



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