

A close-up photograph of a Gühring SC-TM-Z SP thread milling cutter. The cutter is a golden-colored, multi-fluted tool with a complex, multi-fluted design. It is mounted on a dark, cylindrical shank. The cutter is positioned vertically, with its tip just above a circular hole in a dark metal workpiece. The background is a blurred industrial setting. The Gühring logo is visible in the top right corner.

**GÜHRING**

# ***SC-TM-Z SP***

High-performance thread milling cutter with full profile



## SC-Line thread milling cutter SC-TM-Z SP

# Thread milling at the limits

Economical & process-reliable thread milling up to 2.5xD thread depth

The high-performance full-profile thread milling cutter produces the complete thread in two revolutions.

Thanks to its new flute geometry, vibrations are successfully suppressed, which enables higher cutting parameters to be achieved. Users benefit from significantly shorter machining times and high thread quality. Thanks to its outstanding wear resistance, the thread milling cutter can produce true-to-gauge for longer. Tool radius correction therefore is not needed until much later on.

- x 55 % reduction in **machining time** per thread
- x **Tool life** increased by 17 %

- x Excellent running smoothness and surface quality thanks to patent-pending flute geometry
- x New milling strategy & short machining time reduce cost per thread
- x High process reliability with maximum tool life up to 2.5xD thread depth
- x Reduced radial load



**New flute geometry with uneven division** and uneven spiralling suppresses vibrations

**Irregular tooth rows** reduce radial forces and improve dimensional accuracy and process reliability

Optimum combination of **carbide, Sirius coating and tool geometry** ensures maximum wear resistance

### Application example

**Component:** Bearing block St-52, 1,0570, thread depth 20 mm

**Tool:** #4870, M10x(1.5) 2.5xD with internal cooling

**Customer target:** Machining times reduced at thread depth of max. 2.5xD

**Difficulty:** Increased cost-effectiveness compared to competitors' tools

Cutting data:	Gühring	Competitor
$v_c$	120 m/min	110 m/min
$f_z$	0.075 mm/z	0.055 mm/z
<b>Counter rotation</b>	2/3-1/3	2/3-1/3

**Tool life:** 820 parts

700 parts



Thread milling cutters without chamfer for ISO metric threads

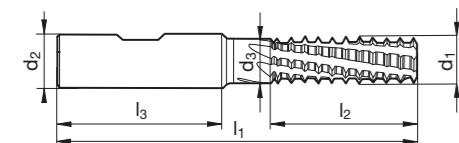
Article no. 4870



maximum performance • unequal flute spacing • unequal helix

cutting data see page 5

Material selection chart with letters P, M, K, N, S, H and a hardness indicator H = 55 HRC.



D	P	d1	d2	d3	dk	l1	l3	l2	Z
		mm	mm	mm	mm	mm	mm	mm	
M3	0.500	2.30	6.00	2.30	2.50	54.00	36.00	7.50	4
M4	0.700	3.10	6.00	3.10	3.30	58.00	36.00	10.50	4
M5	0.800	4.00	6.00	4.00	4.20	58.00	36.00	12.80	4
M6	1.000	4.80	6.00	4.80	5.00	58.00	36.00	16.00	4
M8	1.250	6.30	8.00	6.30	6.80	68.00	36.00	21.25	4
M8 x 1	1.000	6.30	8.00	6.30	7.00	68.00	36.00	21.00	4
M10	1.500	8.00	10.00	8.00	8.50	74.00	40.00	25.50	4
M10 x 1	1.000	8.00	10.00	8.00	9.00	74.00	40.00	25.00	4
M10 x 1,25	1.250	8.00	10.00	8.00	8.80	74.00	40.00	26.25	4
M12	1.750	9.95	12.00	9.95	10.20	90.00	45.00	33.25	4
M12 x 1	1.000	9.95	12.00	9.95	11.00	90.00	45.00	31.00	4
M12 x 1,5	1.500	9.95	12.00	9.95	10.50	90.00	45.00	31.50	4
M14	2.000	11.20	12.00	11.20	12.00	100.00	45.00	38.00	6
M14 x 1,5	1.500	11.20	12.00	11.20	12.50	100.00	45.00	37.50	6
M16	2.000	13.10	16.00	13.10	14.00	105.00	48.00	42.00	6
M16 x 1,5	1.500	13.10	16.00	13.10	14.50	105.00	48.00	40.50	6
M20	2.500	14.95	16.00	14.95	17.50	120.00	48.00	52.50	6
M20 x 1,5	1.500	14.95	16.00	14.95	18.50	120.00	48.00	49.50	6

Standard Article no.	Company std.
	<b>4870</b>
Order no.	
	4870 3.000
	4870 4.000
	4870 5.000
	4870 6.000
	4870 8.000
	4870 8.005
	4870 10.000
	4870 10.005
	4870 10.006
	4870 12.000
	4870 12.005
	4870 12.007
	4870 14.000
	4870 14.007
	4870 16.000
	4870 16.007
	4870 20.000
	4870 20.007

Thread milling cutters

SC-Line Thread milling cutters, SC-TM-Z SP

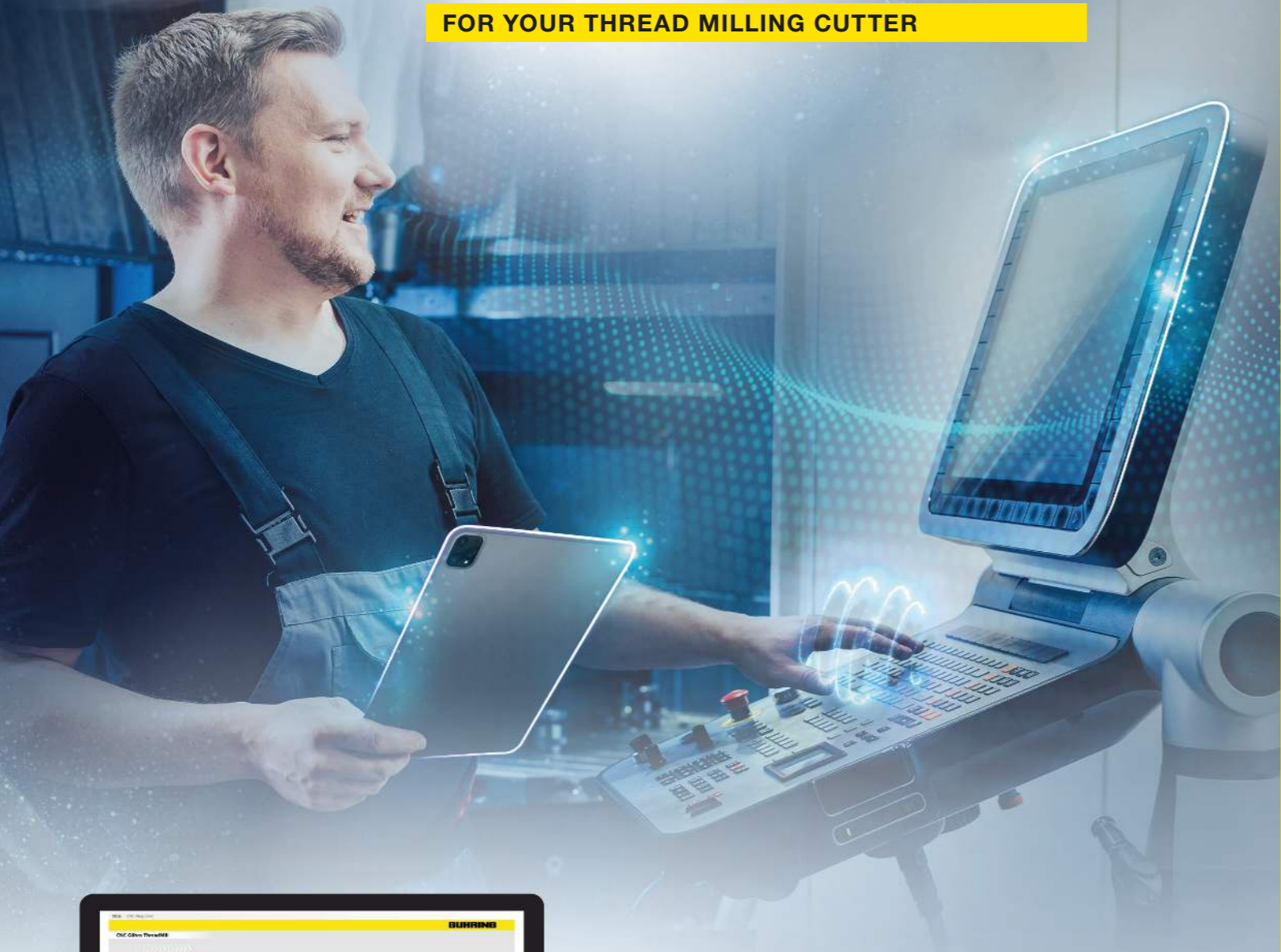


Machining group	vc (m/min)	fz (mm/z) with milling part-Ø (d1)									
		3	4	5	6	8	10	12	14	16	20
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm², 125 HB	120	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm², 125 HB	120	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm², 190 HB	120	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm², 190 HB	120	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm², 250 HB	120	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm², 270 HB	120	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm², 300 HB	120	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm², 180 HB	110	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm², 275 HB	110	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm², 300 HB	110	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm², 350 HB	110	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm², 200 HB	90	0.035	0.040	0.045	0.050	0.060	0.070	0.080	0.085	0.095	0.105
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm², 325 HB	90	0.035	0.040	0.045	0.050	0.060	0.070	0.080	0.085	0.095	0.105
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives	80	0.035	0.040	0.045	0.050	0.060	0.070	0.080	0.085	0.095	0.105
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm², 200 HB	80	0.035	0.040	0.045	0.050	0.060	0.070	0.080	0.085	0.095	0.105
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm², 240 HB	80	0.035	0.040	0.045	0.050	0.060	0.070	0.080	0.085	0.095	0.105
M2.1.1 Stainless steel, austenitic, quenched, 180 HB	55	0.025	0.030	0.035	0.035	0.045	0.050	0.055	0.060	0.065	0.075
M2.2.1 Duplex steel, high-strength stainless steels	50	0.025	0.030	0.035	0.035	0.045	0.050	0.055	0.060	0.065	0.075
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB	110	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB	110	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB	90	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB	90	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
K1.3.1 Malleable cast iron, ferritic, 130 HB	90	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
K1.3.2 Malleable cast iron, pearlitic, 230 HB	90	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
K2.1.1 Vermicular graphite cast iron (GJV)	100	0.035	0.040	0.045	0.050	0.060	0.070	0.080	0.085	0.095	0.105
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)	100	0.035	0.040	0.045	0.050	0.060	0.070	0.080	0.085	0.095	0.105
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB	180	0.055	0.065	0.075	0.080	0.095	0.110	0.120	0.135	0.145	0.165
N1.1.2 Wrought aluminium alloys, hardened, 100 HB	180	0.055	0.065	0.075	0.080	0.095	0.110	0.120	0.135	0.145	0.165
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB	160	0.050	0.060	0.065	0.075	0.090	0.100	0.110	0.120	0.130	0.150
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	160	0.050	0.060	0.065	0.075	0.090	0.100	0.110	0.120	0.130	0.150
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	160	0.050	0.060	0.065	0.075	0.090	0.100	0.110	0.120	0.130	0.150
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %	140	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
N3.1.2 Copper and copper alloys: CuZn, CuSnZn	140	0.045	0.055	0.060	0.065	0.080	0.090	0.100	0.110	0.120	0.135
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte	110	0.040	0.045	0.050	0.055	0.065	0.075	0.085	0.095	0.100	0.115
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics	200	0.040	0.045	0.055	0.060	0.070	0.080	0.090	0.100	0.105	0.120
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.	200	0.040	0.045	0.055	0.060	0.070	0.080	0.090	0.100	0.105	0.120
N4.1.3 Non-metallic materials: Graphite	200	0.040	0.045	0.055	0.060	0.070	0.080	0.090	0.100	0.105	0.120
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB	60	0.025	0.030	0.035	0.035	0.045	0.050	0.055	0.060	0.065	0.075
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB	60	0.025	0.030	0.035	0.035	0.045	0.050	0.055	0.060	0.065	0.075
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB	60	0.025	0.030	0.035	0.035	0.045	0.050	0.055	0.060	0.065	0.075
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB	60	0.025	0.030	0.035	0.035	0.045	0.050	0.055	0.060	0.065	0.075
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB	60	0.025	0.030	0.035	0.035	0.045	0.050	0.055	0.060	0.065	0.075
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm²	45	0.025	0.030	0.035	0.035	0.045	0.050	0.055	0.060	0.065	0.075
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm²	45	0.025	0.030	0.035	0.035	0.045	0.050	0.055	0.060	0.065	0.075
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC	40	0.025	0.030	0.035	0.035	0.045	0.050	0.055	0.060	0.065	0.075
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC	40	0.025	0.030	0.035	0.035	0.045	0.050	0.055	0.060	0.065	0.075
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC	40	0.025	0.030	0.035	0.035	0.045	0.050	0.055	0.060	0.065	0.075
H2.1.1 Chilled cast iron, 400 HB											
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC											

Cutting data

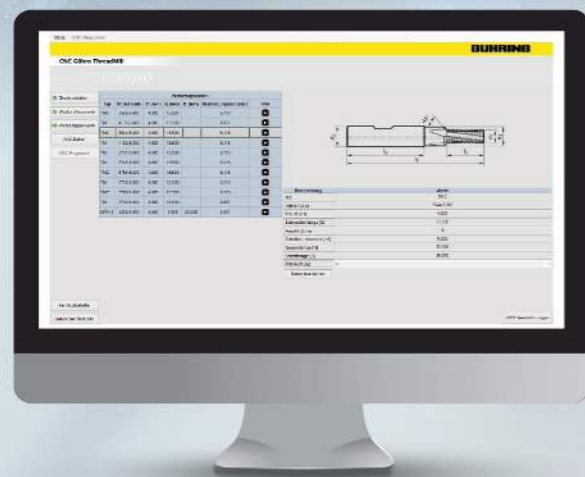
# CNC Gühro ThreadMill

FIND THE OPTIMAL CNC PROGRAMME  
FOR YOUR THREAD MILLING CUTTER



## 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, Fancu, Philips, Mazatrol or Hurco) are imported and automatically recognised





**SC-TM-Z SP**

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**GÜHRING**

Güehring KG | Herderstraße 50–54 | 72458 Albstadt | Germany  
Phone: +49 74 31 17-0 | [info@guehring.de](mailto:info@guehring.de) | [www.guehring.com](http://www.guehring.com)

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