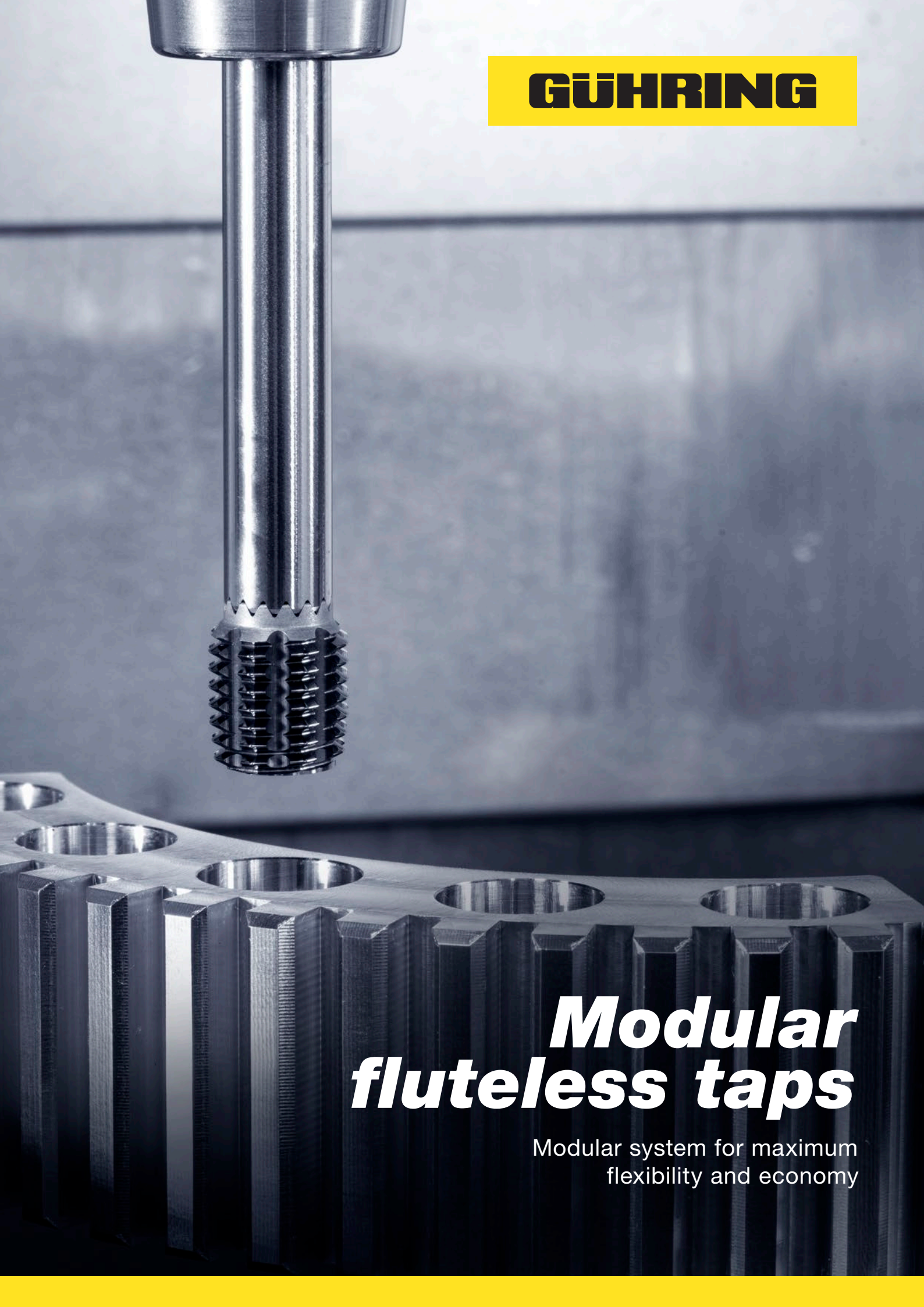
GÜHRING

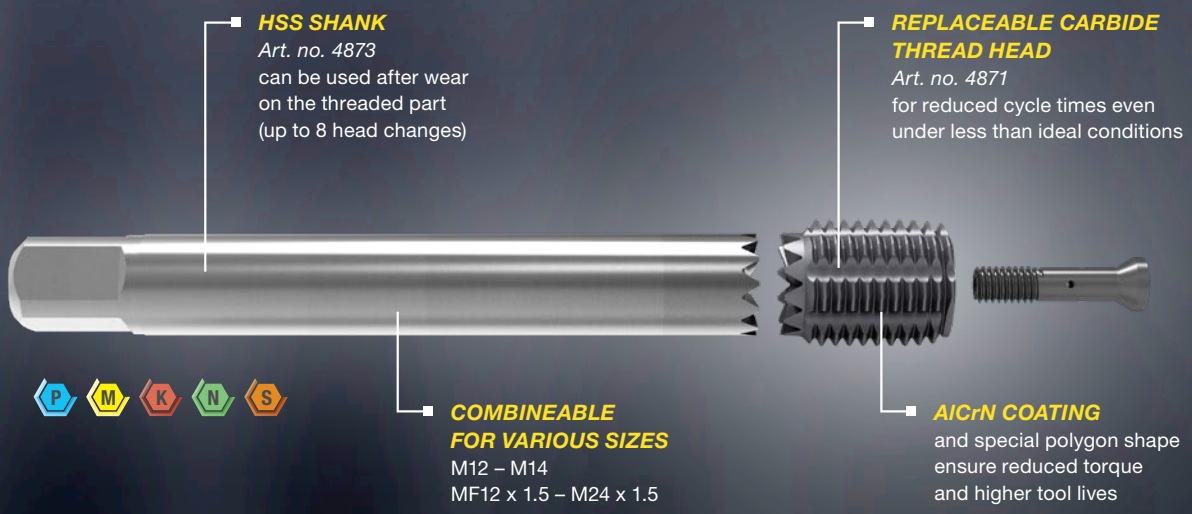


Modular fluteless taps

Modular system for maximum flexibility and economy

MODULAR FLUTELESS TAPS

Modular system for maximum flexibility and efficiency



- ***economical machining of large thread dimensions***
- ***high flexibility thanks to combinable heads and shank lengths***
- ***also suitable for sub-optimal conditions***

THE RIGHT SYSTEM FOR YOUR THREAD

d1 x P	Order no. Head incl. screw	Size Screw	Order no. Shank	Order no. Torque wrench	Order no. Torx Plus bit	Size Torx Plus bit insert	Torque Nm
M12 x 1.75	4871 12.000	M4	4873 12.000	4988 14.000	4879 15.000	IP15	5.5
M12 x 1.50	4871 12.007	M4	4873 12.007	4988 14.000	4879 15.000	IP15	5.5
M14 x 2	4871 14.000	M4	4873 14.000	4988 14.000	4879 15.000	IP15	5.5
M14 x 1.5	4871 14.007	M4	4873 14.007	4988 14.000	4879 15.000	IP15	5.5
M16 x 2	4871 16.000	M5	4873 16.000	4988 14.000 / 4989 50.000	4879 20.000	IP20	10.5
M16 x 1.5	4871 16.007	M5	4873 16.007	4988 14.000 / 4989 50.000	4879 20.000	IP20	10.5
M18 x 2.5	4871 18.000	M5	4873 18.000	4988 14.000 / 4989 50.000	4879 20.000	IP20	10.5
M18 x 1.5	4871 18.007	M5	4873 18.007	4988 14.000 / 4989 50.000	4879 20.000	IP20	10.5
M20 x 2.5	4871 20.000	M5	4873 20.000	4988 14.000 / 4989 50.000	4879 20.000	IP20	10.5
M20 x 1.5	4871 20.007	M5	4873 20.007	4988 14.000 / 4989 50.000	4879 20.000	IP20	10.5
M22 x 2.5	4871 22.000	M8	4873 22.000	4989 50.000	4879 40.000	IP40	40
M22 x 1.5	4871 22.007	M8	4873 22.007	4989 50.000	4879 40.000	IP40	40
M24 x 3	4871 24.000	M8	4873 24.000	4989 50.000	4879 40.000	IP40	40
M24 x 1.5	4871 24.007	M8	4873 24.007	4989 50.000	4879 40.000	IP40	40

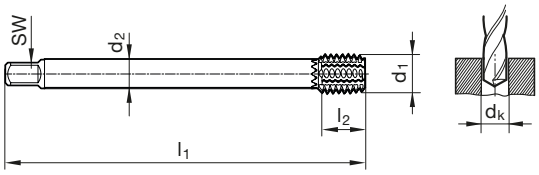
Interchangeable heads

Article no. **4871**

VHM | P | 6HX | R | Cyl | C

P	M	K	N	S	H
●	○	●	●	○	

incl. screw • same interface values can be combined with each other



Standard **~DIN 374/~DIN 376**

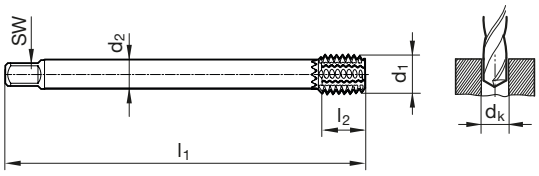
Article no. **4871**

d1	P mm	dk mm	l2 mm	Size Interface	Z		Order no.
M12 x 1,75	1.750	11.20	12.00	1	7	~DIN 376	4871 12.000
M12 x 1,5	1.500	11.30	12.00	1	7	~DIN 374	4871 12.007
M14 x 2	2.000	13.10	14.00	2	7	~DIN 376	4871 14.000
M14 x 1,5	1.500	13.30	14.00	2	7	~DIN 374	4871 14.007
M16 x 2	2.000	15.10	14.00	3	8	~DIN 376	4871 16.000
M16 x 1,5	1.500	15.30	14.00	3	8	~DIN 374	4871 16.007
M18 x 2,5	2.500	16.90	18.00	4	8	~DIN 376	4871 18.000
M18 x 1,5	1.500	17.30	18.00	4	8	~DIN 374	4871 18.007
M20 x 2,5	2.500	18.90	18.00	5	8	~DIN 376	4871 20.000
M20 x 1,5	1.500	19.30	18.00	5	8	~DIN 374	4871 20.007
M22 x 2,5	2.500	20.90	18.00	6	8	~DIN 376	4871 22.000
M22 x 1,5	1.500	21.30	18.00	6	8	~DIN 374	4871 22.007
M24 x 3	3.000	22.70	21.00	6	8	~DIN 376	4871 24.000
M24 x 1,5	1.500	23.30	21.00	6	8	~DIN 374	4871 24.007

Interchangeable shafts

Article no. **4873**

HSS-E | Cyl



Standard **~DIN 374/~DIN 376**

Article no. **4873**

d2 mm	SW mm	l1 mm	Size Interface		Order no.
9.00	7.00	110.00	1	~DIN 376	4873 12.000
9.00	7.00	100.00	1	~DIN 374	4873 12.007
11.00	9.00	110.00	2	~DIN 376	4873 14.000
11.00	9.00	100.00	2	~DIN 374	4873 14.007
12.00	9.00	110.00	3	~DIN 376	4873 16.000
12.00	9.00	100.00	3	~DIN 374	4873 16.007
14.00	11.00	125.00	4	~DIN 376	4873 18.000
14.00	11.00	110.00	4	~DIN 374	4873 18.007
16.00	12.00	140.00	5	~DIN 376	4873 20.000
16.00	12.00	125.00	5	~DIN 374	4873 20.007
18.00	14.50	140.00	6	~DIN 376	4873 22.000
18.00	14.50	125.00	6	~DIN 374	4873 22.007
18.00	14.50	160.00	6	~DIN 376	4873 24.000
18.00	14.50	140.00	6	~DIN 374	4873 24.007

Torque wrenches — Article no. 4988

Product information:

- incl. torque setting tool and bit holder

Suitable accessories separately available:

- hexagonal insert art. no. 4916
- Torx Plus insert art. no. 4879

Article no. **4988**

	Drive	Torque Nm	Order no.
T-handle	1/4”	5-14	4988 14.000

Torque wrenches — Article no. 4989

Product information:

- with ratchet

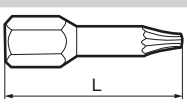
Suitable accessories separately available:

- hexagonal insert art. no. 4916
- Torx Plus insert art. no. 4879

Article no. **4989**

L mm	Drive	Torque Nm	Order no.
390.00	3/8”	10-50	4989 50.000

Torx Plus bit inserts — Article no. 4879



WN

Article no. **4879**

L mm	Size	Order no.
25.00	IP15	4879 15.000
25.00	IP20	4879 20.000
25.00	IP40	4879 40.000

Recommended hole diameter for thread forming

Std. ISO metric threads DIN 13

Nom. Ø	Pitch P	Tapp. size hole Ø	Tapp. size hole Ø		Core Ø of int. thread 7H*	
			min.	max.	min.	max.
	mm	mm	mm	mm	mm	mm
M1	0.25	**0.90**	0.89	0.92	0.729	0.819
M1.2	0.25	**1.10**	1.09	1.12	0.929	1.019
M1.4	0.30	**1.28**	1.27	1.30	1.075	1.181
M1.6	0.35	**1.46**	1.45	1.48	1.221	1.346
M1.7	0.35	**1.56**	1.55	1.58	1.321	1.446
M1.8	0.35	**1.66**	1.65	1.68	1.421	1.546
M 2	0.40	**1.85**	1.84	1.88	1.567	1.679
M 2.2	0.45	**2.00**	2.01	2.05	1.713	1.838
M 2.5	0.45	**2.30**	2.28	2.32	2.013	2.138
M 3	0.50	**2.80**	2.78	2.85	2.459	2.639
M 3.5	0.60	**3.25**	3.23	3.30	2.850	3.050
M 4	0.70	**3.70**	3.68	3.76	3.242	3.466
M 4.5	0.75	**4.20**				
M 5	0.80	**4.65**	4.62	4.71	4.134	4.384
M 6	1.00	**5.55**	5.52	5.62	4.917	5.217
M 7	1.00	**6.55**	6.52	6.62	5.917	6.217
M 8	1.25	**7.40**	7.36	7.47	6.647	6.982
M 9	1.25	**8.40**	8.36	8.47	7.647	7.982
M 10	1.50	**9.30**	9.26	9.38	8.376	8.751
M 11	1.50	**10.30**	10.26	10.38	9.376	9.751
M 12	1.75	**11.20**	11.15	11.29	10.106	10.531
M 14	2.00	**13.10**	13.05	13.20	11.835	12.310
M 16	2.00	**15.10**	15.05	15.20	13.835	14.310
M 18	2.50	**16.90**	16.83	17.02	15.294	15.854
M 20	2.50	**18.90**	18.83	19.02	17.294	17.854
M 22	2.50	**20.90**	20.83	21.02	19.294	19.854
M 24	3.00	**22.70**	22.62	22.80	20.752	21.382
M 27	3.00	**25.70**	25.62	25.80	23.752	24.382
M 30	3.50	**28.50**	28.40	28.60	26.211	26.921
M 33	3.50	**31.50**	31.40	31.60	29.211	29.921
M 36	4.00	**34.30**	34.17	34.40	31.670	32.420
M 39	4.00	**37.30**	37.17	37.40	34.670	35.420
M 42	4.50	**40.10**	39.95	40.20	37.129	37.979

* M 2 up to M 2.5 tapping size hole of int. thread 6H

ISO metric fine threads DIN 13

Nom. Ø x Pitch P	Tapp. size hole Ø	Tapp. size hole Ø		Core Ø of int. thread 7H*	
		min.	max.	min.	max.
mm	mm	mm	mm	mm	mm
M 2.5 x 0.35	**2.35**	2.35	2.38	2.121	2.221
M 3 x 0.35	**2.85**	2.85	2.88	2.621	2.721
M 4 x 0.35	**3.85**	3.85	3.88	3.621	3.721
M 4 x 0.50	**3.80**	3.78	3.83	3.459	3.639
M 5 x 0.50	**4.80**	4.78	4.83	4.459	4.639
M 5.5 x 0.50	**5.30**	5.28	5.33	4.959	5.139
M 6 x 0.75	**5.65**	5.62	5.70	5.188	5.424
M 7 x 0.75	**6.65**	6.62	6.70	6.188	6.424
M 8 x 0.75	**7.65**	7.62	7.70	7.188	7.424
M 8 x 1.00	**7.55**	7.52	7.62	6.917	7.217
M 9 x 0.75	**8.65**	8.62	8.70	8.188	8.424
M 9 x 1.00	**8.55**	8.52	8.62	7.917	8.217
M 10 x 0.75	**9.65**	9.62	9.70	9.188	9.424
M 10 x 1.00	**9.55**	9.52	9.62	8.917	9.217
M 10 x 1.25	**9.40**	9.36	9.47	8.647	8.982
M 11 x 0.75	**10.65**	10.62	10.70	10.188	10.424
M 11 x 1.00	**10.55**	10.52	10.62	9.917	10.217
M 12 x 1.00	**11.55**	11.52	11.62	10.917	11.217
M 12 x 1.25	**11.40**	11.36	11.47	10.647	10.982
M 12 x 1.50	**11.30**	11.26	11.38	10.376	10.751
M 14 x 1.00	**13.55**	13.52	13.62	12.917	13.217
M 14 x 1.25	**13.40**	13.36	13.47	12.647	12.982
M 14 x 1.50	**13.30**	13.26	13.38	12.376	12.751
M 15 x 1.00	**14.55**	14.52	14.62	13.917	14.217
M 15 x 1.50	**14.30**	14.26	14.38	13.376	13.751
M 16 x 1.00	**15.55**	15.52	15.62	14.917	15.217
M 16 x 1.50	**15.30**	15.26	15.38	14.376	14.751
M 17 x 1.00	**16.55**	16.52	16.62	15.917	16.217

* M 2.5x0.35 up to M 4x0.35 tapping size hole of int. thread 6H

Nom. Ø x Pitch P	Tapp. size hole Ø	Tapp. size hole Ø		Core Ø of int. thread 7H*	
		min.	max.	min.	max.
mm	mm	mm	mm	mm	mm
M 17 x 1.50	**16.30**	16.26	16.38	15.376	15.751
M 18 x 1.00	**17.55**	17.52	17.62	16.917	17.217
M 18 x 1.50	**17.30**	17.26	17.38	16.376	16.751
M 18 x 2.00	**17.10**	17.05	17.20	15.835	16.310
M 20 x 1.00	**19.55**	19.52	19.62	18.917	19.217
M 20 x 1.50	**19.30**	19.26	19.38	18.376	19.751
M 24 x 1.00	**23.55**	23.52	23.62	22.917	23.217
M 24 x 1.50	**23.30**	23.26	23.38	22.376	22.751
M 24 x 2.00	**23.10**	23.05	23.20	21.835	22.310
M 27 x 1.50	**26.30**	26.26	26.38	25.376	25.751
M 30 x 1.50	**29.30**	29.26	29.38	28.376	28.751
M 33 x 1.50	**32.30**	32.26	32.38	31.376	31.751
M 36 x 1.50	**35.30**	35.26	35.38	34.376	34.751
M 39 x 1.50	**38.30**	38.26	38.38	37.376	37.751
M 42 x 1.50	**41.30**	41.26	41.38	42.376	42.751

Tapping size hole diameter tolerance zone for thread forming (to DIN 13, section 50)

Due to the tensile strength it is not necessary to adhere to the tapping size hole diameter tolerance class 6H; tolerance class 7H satisfies the requirement that the flank coverage of external and internal threads should not fall below 0.32xP. In addition, formed threads generally possess a higher tensile strength in comparison to cut threads thanks to an uninterrupted grain flow and subsequent work hardening.

UNC-threads ASME B1.1

Nom. Ø	Thread per inch	Tapp. size hole Ø	Tapp. size hole Ø		Core Ø of int. thread 2B	
			min.	max.	min.	max.
		mm	mm	mm	mm	mm
No. 1	64	**1.68**	1.67	1.70	1.425	1.580
No. 2	56	**1.98**	1.97	2.01	1.694	1.872
No. 3	48	**2.28**	2.27	2.32	1.941	2.146
No. 4	40	**2.55**	2.54	2.59	2.157	2.385
No. 5	40	**2.90**	2.89	2.94	2.487	2.698
No. 6	32	**3.15**	3.14	3.19	2.642	2.896
No. 8	32	**3.80**	3.78	3.82	3.302	3.531
No. 10	24	**4.35**	4.33	4.39	3.683	3.937
No. 12	24	**5.00**	4.97	5.03	4.343	4.597
1/4	20	**5.75**	5.72	5.80	4.978	5.258
5/16	18	**7.30**	7.26	7.37	6.401	6.731
3/8	16	**8.80**	8.77	8.88	7.798	8.153
7/16	14	**10.30**	10.27	10.37	9.144	9.550
1/2	13	**11.80**	11.77	11.88	10.592	11.024
9/16	12	**13.30**	13.28	13.39	11.989	12.446
5/8	11	**14.80**	14.78	14.90	13.386	13.868
3/4	10	**17.90**	17.85	17.97	16.307	16.840
7/8	9	**21.00**	20.95	21.10	19.177	19.761
1	8	**24.00**	23.95	24.12	21.971	22.606

UNF-threads ASME B1.1

Nom. Ø	Thread per inch	Tapp. size hole Ø	Tapp. size hole Ø		Core Ø of int. thread 2B	
			min.	max.	min.	max.
		mm	mm	mm	mm	mm
No. 1	72	**1.70**	1.69	1.72	1.473	1.610
No. 2	64	**2.00**	1.99	2.03	1.755	1.910
No. 3	56	**2.30**	2.29	2.34	2.024	2.197
No. 4	48	**2.60**	2.59	2.63	2.271	2.459
No. 5	44	**2.90**	2.89	2.93	2.550	2.741
No. 6	40	**3.20**	3.19	3.24	2.819	3.023
No. 8	36	**3.85**	3.83	3.88	3.404	3.607
No. 10	32	**4.45**	3.43	4.49	3.962	4.166
No. 12	28	**5.10**	5.07	5.13	4.496	4.724
1/4	28	**5.95**	5.92	5.99	5.359	5.588
5/16	24	**7.45**	7.42	7.50	6.782	7.036
3/8	24	**9.05**	9.02	9.10	8.382	8.682
7/16	20	**10.55**	10.48	10.58	9.728	10.033
1/2	20	**12.10**	12.08	12.18	11.328	11.608
9/16	18	**13.65**	13.61	13.72	12.751	13.081
5/8	18	**15.25**	15.21	15.32	14.351	14.681
3/4	16	**18.35**	15.30	18.41	17.323	17.678
7/8	14	**21.40**	21.35	21.49	20.269	20.650
1	12	**24.45**	24.40	24.54	23.114	23.571

(Whitworth-) pipe thread G DIN EN ISO 228-1

Nom. Ø	Thread per inch	Tapp. size hole Ø	Tapp. size hole Ø		Core Ø of int. thread	
			min.	max.	min.	max.
inch		mm	mm	mm	mm	mm
G 1/16	28	**7.30**	7.28	7.35	6.561	6.843
G 1/8	28	**9.30**	9.28	9.35	8.566	8.848
G 1/4	19	**12.50**	12.48	12.55	11.445	11.890
G 3/8	19	**16.00**	15.98	16.05	14.950	15.395
G 1/2	14	**20.00**	19.98	20.12	18.631	19.172
G 5/8	14	**22.00**	21.98	22.12	20.587	21.128
G 3/4	14	**25.50**	25.48	25.62	24.117	24.658
G 7/8	14	**29.25**	29.23	29.37	27.877	28.418
G 1	11	**32.00**	31.98	32.15	30.291	30.931
G 1 1/4	11	**40.75**	40.70	40.85	38.952	39.592

Modular fluteless taps

Machining group	Through-hole, blind hole
	Solid carbide
	P
	v_c (m/min)
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm², 125 HB	48
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm², 125 HB	48
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm², 190 HB	48
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm², 190 HB	48
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm², 250 HB	48
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm², 270 HB	48
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm², 300 HB	48
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm², 180 HB	38
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm², 275 HB	38
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm², 300 HB	38
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm², 350 HB	38
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm², 200 HB	29
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm², 325 HB	29
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives	19
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm², 200 HB	19
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm², 240 HB	14
M2.1.1 Stainless steel, austenitic, quenched, 180 HB	12
M2.2.1 Duplex steel, high-strength stainless steels	12
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB	
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB	
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB	48
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB	48
K1.3.1 Malleable cast iron, ferritic, 130 HB	48
K1.3.2 Malleable cast iron, pearlitic, 230 HB	48
K2.1.1 Vermicular graphite cast iron (GJV)	38
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)	38
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB	58
N1.1.2 Wrought aluminium alloys, hardened, 100 HB	58
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB	58
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	58
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	48
N3.1.1 Copper and copper alloys: Free-machining alloy, Pb > 1 %	
N3.1.2 Copper and copper alloys: CuZn, CuSnZn	
N3.1.3 Copper and copper alloys: CuSn, lead-free copper and copper electrolyte	
N4.1.1 Non-metallic materials: Duroplastics, fibre-reinforced plastics	
N4.1.2 Non-metallic materials: Hard rubber, wood, etc.	
N4.1.3 Non-metallic materials: Graphite	
S1.1.1 Heat-resistant alloys, Fe-based, annealed, 200 HB	6
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB	6
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB	6
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB	6
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB	6
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm²	6
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm²	6
H1.1.1 Hardened steel, hardened and tempered, < 55 HRC	
H1.1.2 Hardened steel, hardened and tempered, < 60 HRC	
H1.1.3 Hardened steel, hardened and tempered, > 60 HRC	
H2.1.1 Chilled cast iron, 400 HB	
H2.1.2 Chilled cast iron, hardened and tempered, < 55 HRC	

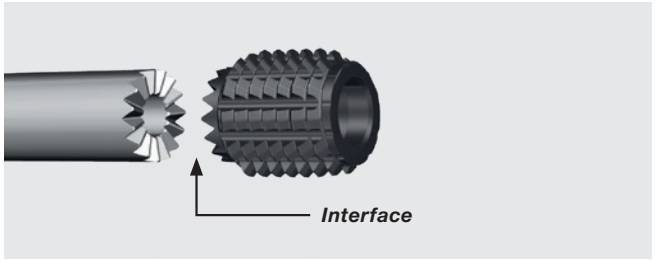
All the values stated are guide values. You can find detailed cutting values online in our Gühring Navigator at navigator.guehring.de.

ASSEMBLY INSTRUCTION

4 steps to a working tool

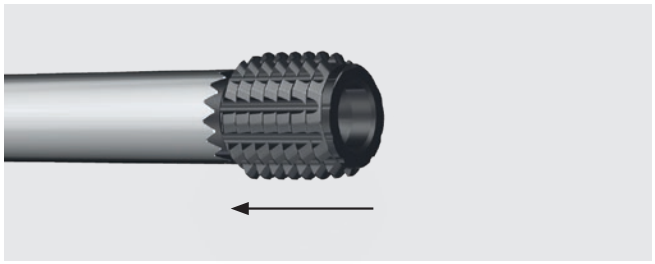
Step 1

Clean the solid carbide head interface and the shank interface.



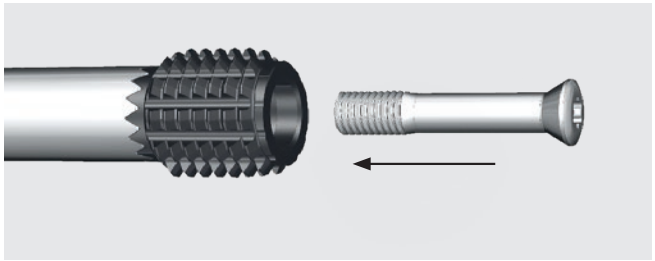
Step 2

Position the solid carbide head on the shank.



Step 3

Insert the supplied screw into the carbide head.
Attention: A new screw must be used for each new assembly.



Step 4

Tighten the screw to the recommended tightening torque M_Z using a torque wrench with IP... bits.

Thread	*Screw*	*M_Z*	*Bits*
M12-M14	M4	5.5 Nm	IP15
M16-M20	M5	10.5 Nm	IP20
M22-M24	M8	40 Nm	IP40

Modular fluteless taps

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