



GÜHRING



***Energy
high-performance
taps***

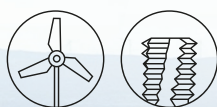
High-performance taps for the energy industry

Strong performance in steel, reliable process stability

The industry specialist for demanding threads

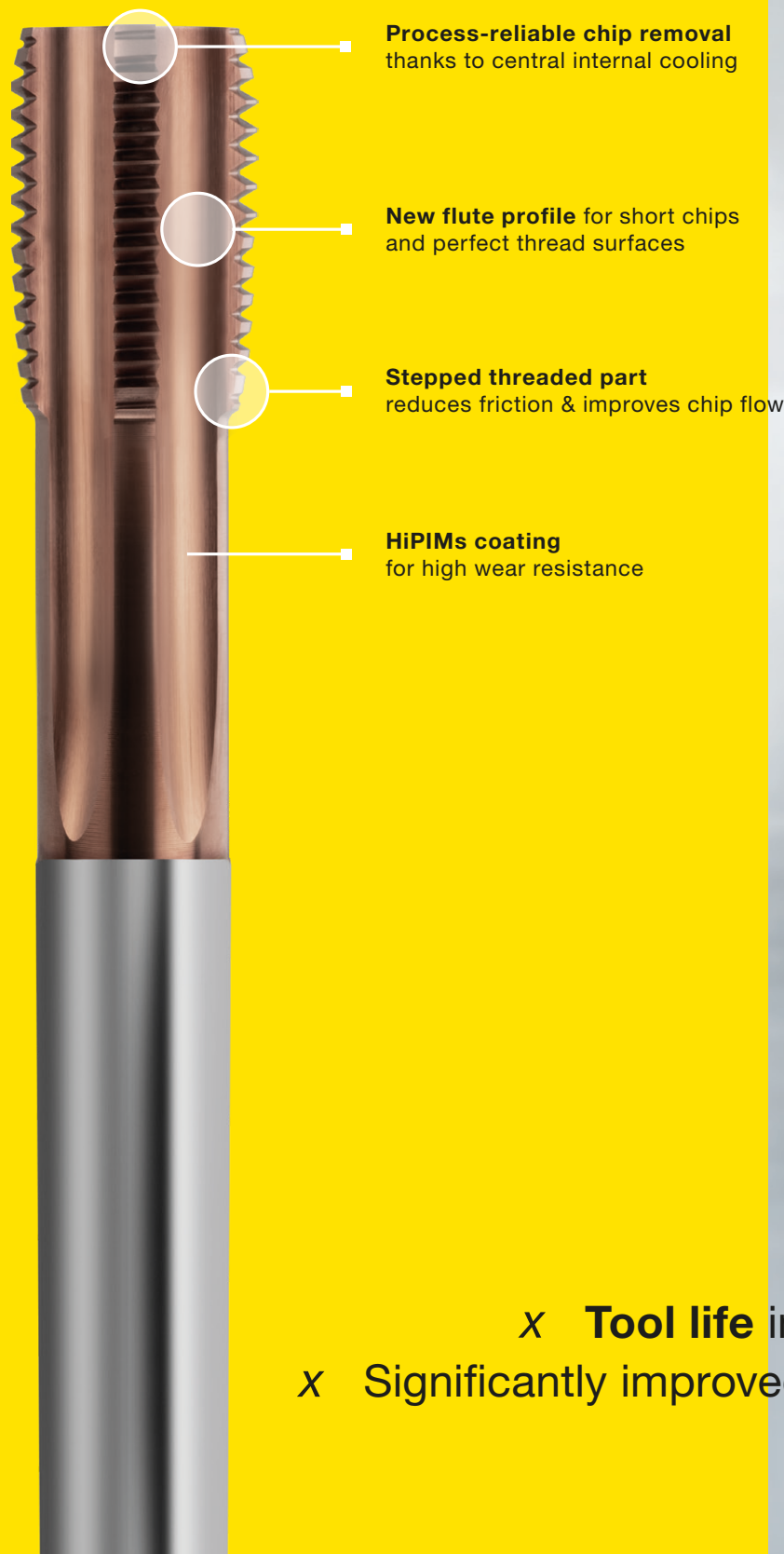
Large components, special thread solutions and narrow tolerances - these challenges are part of everyday life in the energy industry and place the highest demands on machining.

Threading tools, which are usually used in the final working step, must be reliable and absolutely process-reliable. With the Energy high-performance tap, Gühring has developed an industry specialist that shows its strengths in typical materials such as high-strength steels or cast materials: short chips and optimum chip removal ensure process-reliable threads, which also score points with maximum cost-effectiveness thanks to long tool lives.





Energy high-performance taps



Process-reliable chip removal thanks to central internal cooling

New flute profile for short chips and perfect thread surfaces

Stepped threaded part reduces friction & improves chip flow

HiPIMs coating for high wear resistance

- x Tool life increased by 20 %
- x Significantly improved surface quality

- x Short chips & safe chip removal
- x Perfect thread quality
- x Outstanding tool lifes

Application example

Component:	Large gear ring 42CrMo4, thread depth 70 mm, blind hole	
Tool:	#8314, tap M36	
Customer target:	Increased tool life & high thread surface quality	
Difficulty:	Long chips are difficult to transport, jam & damage tool & component surfaces	
Cutting data:	Gühring	Competition
	v_c 11 m/min	v_c 11 m/min
	f 4.0 mm/U	f 4.0 mm/U
Tool life:	17 meters	11 Meter

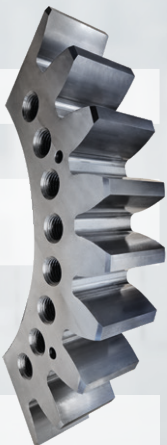
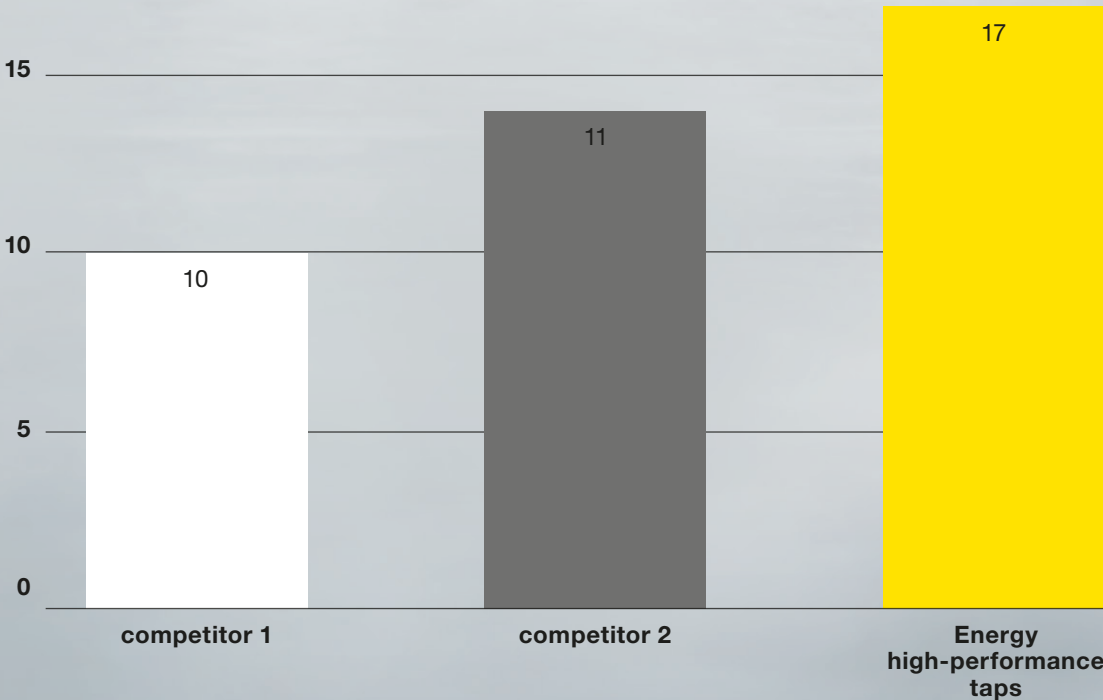


Chart of tool life [m] 42CrMo4



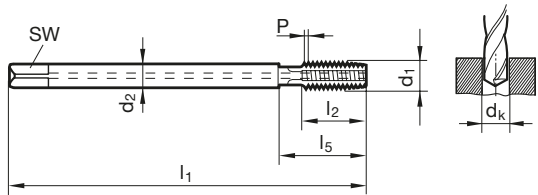


Taps with coolant ducts for ISO metric threads

Article no. 8313



for short chips and optimal thread surface



d1	P	d2	SW	dk	l1	l2	l5
M16	2.000	12.00	9.00	14.00	110.00	26.00	54.00
M20	2.500	16.00	12.00	17.50	140.00	32.00	62.00
M24	3.000	18.00	14.50	21.00	160.00	36.00	73.00
M27	3.000	20.00	16.00	24.00	160.00	36.00	73.00
M30	3.500	22.00	18.00	26.50	180.00	40.00	85.00
M33	3.500	25.00	20.00	29.50	180.00	40.00	91.00
M36	4.000	28.00	22.00	32.00	200.00	50.00	102.00
M39	4.000	32.00	24.00	35.00	200.00	50.00	107.00
M42	4.500	32.00	24.00	37.50	200.00	56.00	112.00
M48	5.000	36.00	29.00	43.00	250.00	65.00	127.00

Standard
Article no.

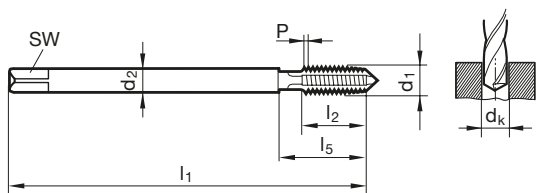
DIN 376
8313
Order no.
8313 16.000
8313 20.000
8313 24.000
8313 27.000
8313 30.000
8313 33.000
8313 36.000
8313 39.000
8313 42.000
8313 48.000

Taps with coolant ducts for ISO metric threads

Article no. 8314



for short chips and optimal thread surface • long design



d1	P	d2	SW	dk	l1	l2	l5
M16	2.000	12.00	9.00	14.00	160.00	26.00	100.00
M20	2.500	16.00	12.00	17.50	180.00	32.00	120.00
M24	3.000	18.00	14.50	21.00	200.00	36.00	120.00
M27	3.000	20.00	16.00	24.00	225.00	36.00	145.00
M30	3.500	22.00	18.00	26.50	250.00	40.00	160.00
M33	3.500	25.00	20.00	29.50	275.00	40.00	170.00
M36	4.000	28.00	22.00	32.00	300.00	50.00	180.00
M39	4.000	32.00	24.00	35.00	325.00	50.00	210.00
M42	4.500	32.00	24.00	37.50	350.00	56.00	235.00
M48	5.000	36.00	29.00	43.00	400.00	65.00	275.00

Standard
Article no.

~DIN 376
8314
Order no.
8314 16.000
8314 20.000
8314 24.000
8314 27.000
8314 30.000
8314 33.000
8314 36.000
8314 39.000
8314 42.000
8314 48.000

Taps Energy



Machining group	Through-, blind holes
	HSS-E-PM
	P
	v _c (m/min)
P1.1.1 Unalloyed steel, annealed, 0.15 % C, Rm 420 N/mm ² , 125 HB	
P1.1.2 Unalloyed steel, heat-treated, 0.15 % C, Rm 420 N/mm ² , 125 HB	
P1.1.3 Unalloyed steel, annealed, 0.45 % C, Rm 640 N/mm ² , 190 HB	
P1.1.4 Unalloyed steel, heat-treated, 0.45 % C, Rm 640 N/mm ² , 190 HB	
P1.1.5 Unalloyed steel, heat-treated, 0.45 % C, Rm 850 N/mm ² , 250 HB	
P1.1.6 Unalloyed steel, annealed, 0.75 % C, Rm 915 N/mm ² , 270 HB	
P1.1.7 Unalloyed steel, heat-treated, 0.75 % C, Rm 1020 N/mm ² , 300 HB	
P2.1.1 Low-alloy steel, annealed, Rm 610 N/mm ² , 180 HB	
P2.1.2 Low-alloy steel, heat-treated, Rm 930 N/mm ² , 275 HB	18
P2.1.3 Low-alloy steel, heat-treated, Rm 1020 N/mm ² , 300 HB	15
P2.1.4 Low-alloy steel, heat-treated, Rm 1190 N/mm ² , 350 HB	12
P3.1.1 High-alloy steel and tool steel, annealed, Rm 680 N/mm ² , 200 HB	10
P3.1.2 High-alloy steel and tool steel, hardened and tempered, Rm 1100 N/mm ² , 325 HB	10
M1.1.1 Stainless steel, ferritic/martensitic, with machining additives	
M1.1.2 Stainless steel, ferritic/martensitic, annealed, Rm 680 N/mm ² , 200 HB	
M1.1.3 Stainless steel, ferritic/martensitic, heat-treated, Rm 810 N/mm ² , 240 HB	
M2.1.1 Stainless steel, austenitic, quenched, 180 HB	
M2.2.1 Duplex steel, high-strength stainless steels	
K1.1.1 Grey cast iron, pearlitic/ferritic, 180 HB	28
K1.1.2 Grey cast iron, pearlitic/martensitic, 260 HB	28
K1.2.1 Cast iron with spheroidal graphite, ferritic, 160 HB	28
K1.2.2 Cast iron with spheroidal graphite, pearlitic, 250 HB	28
K1.3.1 Malleable cast iron, ferritic, 130 HB	28
K1.3.2 Malleable cast iron, pearlitic, 230 HB	28
K2.1.1 Vermicular graphite cast iron (GVJ)	14
K2.2.1 Austenitic-ferritic spheroidal graphite cast iron (ADI)	14
N1.1.1 Wrought aluminium alloys, non-hardened, 60 HB	
N1.1.2 Wrought aluminium alloys, hardened, 100 HB	
N2.1.1 Aluminium casting alloys, non-hardened, ≤ 12 % Si, 75 HB	
N2.1.2 Aluminium casting alloys, hardened, ≤ 12 % Si, 90 HB	
N2.1.3 Aluminium casting alloys, non-hardened, > 12 % Si, 130 HB	
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	
S1.1.2 Heat-resistant alloys, Fe-based, hardened, 280 HB	
S1.1.3 Heat-resistant alloys, Ni- or Co-based, annealed, 250 HB	
S1.1.4 Heat-resistant alloys, Ni- or Co-based, hardened, 350 HB	
S1.1.5 Heat-resistant alloys, Ni- or Co-based, cast, 320 HB	
S2.1.1 Titanium alloys, pure titanium, Rm 400 N/mm ²	
S2.1.2 Titanium alloys, Alpha and Beta alloys, hardened, Rm 1050 N/mm ²	
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	



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