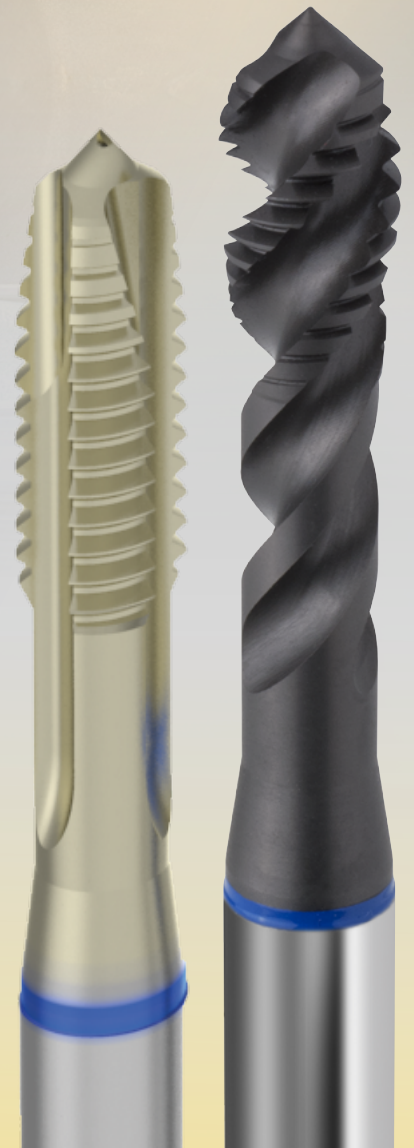


GUHRING



- universal application for an economical production
- low friction chip evacuation thanks to special tool geometry
- effective wear protection and longer tool life thanks to improved coating



The new generation of VA taps (M, MF, G)

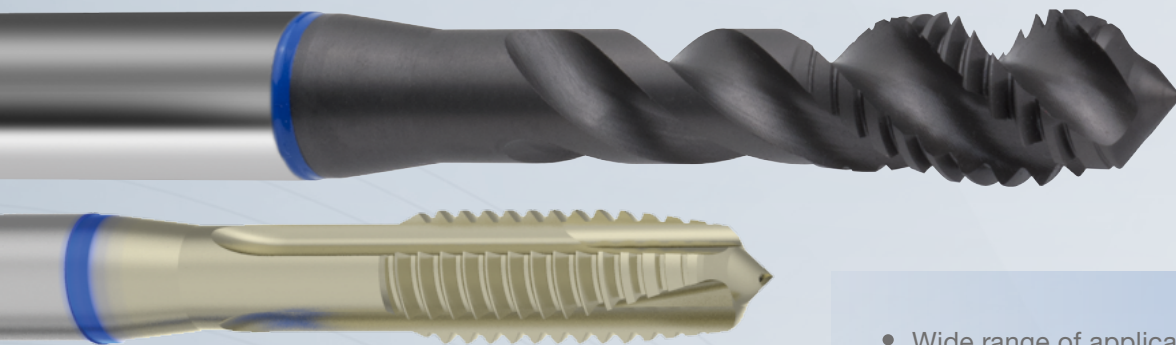
GUHRING - YOUR WORLD-WIDE PARTNER

Economical and process reliable manufacture

Different materials mean different cutting behaviours.

Guhring has succeeded in compiling a new VA tap range with which a wide range of materials can be machined.

The tool geometries and the coating of our VA taps have been individually designed and adapted to do this.



- Wide range of application:
 - stainless steel (martensitic/austenitic)
 - steel materials max. 1300 N/m²
 - copper aluminium-alloys and aluminium cast-alloys
- Thread types M, MF and G

Controlled chip evacuation

Special geometries and coatings guarantee process reliable threads





SIRIUS[®]-coating

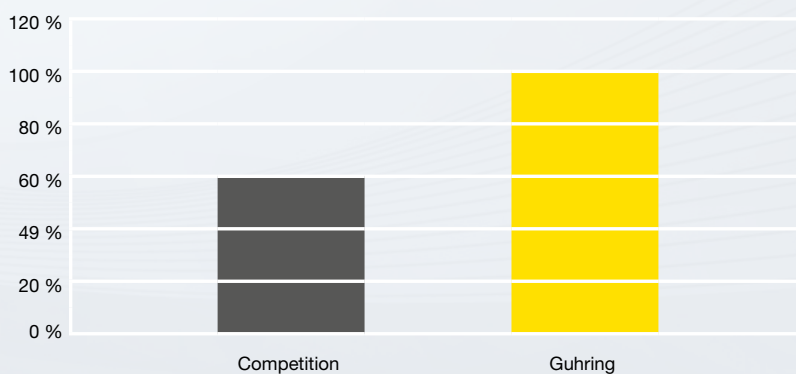
During the cutting process the flanks of the taps are subjected to high loads. In order to prevent damage to the tools, a mechanically especially wear-resistant coating is required that simultaneously displays a low friction value. Basic pre-requisite for this is – as well as a low roughness – a very low chemical interaction with the chip material.

The unique material-mix of the Sirius-coating of the mechanically highly stressed TiAlN and chemically extremely stable zirconium nitride offers the best conditions in order to be able to machine a wide range of materials.



Considerably longer tool life and increased performance

Combination of TiAlN wear-protection coating and glide coating










ISO-code

P	Steel, high-alloyed steel
M	Stainless steel
K	Grey cast iron, spheroidal cast iron and malleable cast iron
N	Aluminium and other non-ferrous metals
S	Special-, super- and titanium-alloys
H	Hardened steel and chilled cast iron

The product pages recommendations for every tool regarding the suitability for the application groups/
data of maximum tensile strength and hardness

- optimal suitability
- limited suitability
- unsuitable

Pictograms

Tool material	HSS	HSS-E	HSS-E-PM				
	high speed steel						
Ø-tolerance	2B	2BX	3B	3BX	4HX	6H	6HX
Thread type							
	through hole	blind hole		through hole/blind hole			
Cutting direction							
	right-hand	left-hand					
Internal cooling							
	with internal cooling	without internal cooling					
Form	A	B	C	C(K)	D	E	
Description	V	M			F		
	first tap	second tap			finish tap		
Standard	DIN 352	DIN 371	DIN 376	DIN 374	DIN 371/6	DIN 2189	DIN 5156
	to DIN						
Type	N	NR40	H	HR15	VA	AI	GG TiNi

Coatings

- bright
- steam tempered
- nitrided
- **A** TiAlN
- **C** TiCN
- **Cb** Carbo
- **P** AlCrN
- **S** TiN
- **M** MolyGlide
- **S** Sirius

CONTENTS

P	M	K	N	S	H	Tool illustration	Standard	Type	Form	Ø-tolerance	Tool material	Surface finish	d1	Guhring no.	Page
---	---	---	---	---	---	-------------------	----------	------	------	-------------	---------------	----------------	----	-------------	------

Blind hole taps

•	•	○	○	○			DIN 371/6	VA R45	C	6HX	HSS-E	A	M 2 - M30	393	6
•	•	○	○	○			DIN 374	VA R45	C	6HX	HSS-E	A	M 6 X0.75 - M24 X1.5	394	8
•	•	○	○	○			DIN 5156	VA R45	C		HSS-E	A	G 1/16 - G1	395	10

Through hole taps

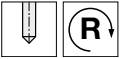
•	•	○	○	○			DIN 371/6	N	B	6HX	HSS-E	S	M 2 - M30	4218	7
•	•	○	○	○			DIN 374	N	B	6HX	HSS-E	S	M 6 X0.75 - M24 X1.5	4219	9
•	•	○	○	○			DIN 5156	N	B		HSS-E	S	G 1/16 - G1	4220	11

APPLICATION TABLE

Tool material	HSS-E					
Surface finish	A	A	A	S	S	S
Guhring no.	393	394	395	4218	4219	4220

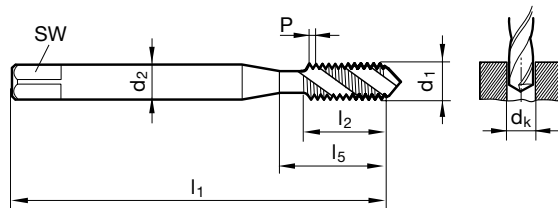
Material group	Recommended cutting speed v _c m/min						
P Common structural steels	Free-cutting steels	18	18	18	20	20	20
	Unalloyed case hardened steels	18	18	18	20	20	20
	Unalloyed heat treatable steels	18	18	18	20	20	20
M Alloyed steels	Alloyed case hardened steels	15	15	15	18	18	18
	Alloyed heat treatable steels	15	15	15	18	18	18
	Alloyed tool steels	15	15	15	18	18	18
K Stainless and acid resistant steels	Sulphured steels	8 to 10	8 to 10	8 to 10	10 to 12	10 to 12	10 to 12
	Austenitic steels	8 to 10	8 to 10	8 to 10	10 to 12	10 to 12	10 to 12
	Martensitic steels	8 to 10	8 to 10	8 to 10	10 to 12	10 to 12	10 to 12
N Non-ferrous metals	Grey cast iron, cast iron with spheroidal graphite iron and malleable cast iron	20	20	20	25	25	25
	Aluminium and other non-ferrous metals	25	25	25	30	30	30
	Copper alloys	25	25	25	30	30	30
S Plastics	Plastics	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3
	Special alloys and titanium	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3
H Hardened steel (45HRC-65HRC)	x	x	x	x	x	x	

Taps for ISO-metric threads



P	•
M	•
K	○
N	○
S	○
H	

Tool material	HSS-E
Ø-tolerance	6HX
Surface finish	A
Type	VA R45
Form	C
Internal cooling	<input checked="" type="checkbox"/>



DIN 2184-1 DIN 371/DIN 376

Gühring no.

393

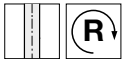
d1	P	d2	SW	dk	l1	l2	l5	Availability
	mm	mm	mm	mm	mm	mm	mm	
M 2	0.400	2.800	2.100	1.60	45.000	4.500	13.500	•
M 2.5	0.450	2.800	2.100	2.05	50.000	5.000	14.500	•
M 3	0.500	3.500	2.700	2.50	56.000	6.000	18.000	•
M 4	0.700	4.500	3.400	3.30	63.000	7.500	21.000	•
M 5	0.800	6.000	4.900	4.20	70.000	8.500	25.000	•
M 6	1.000	6.000	4.900	5.00	80.000	11.000	30.000	•
M 8	1.250	8.000	6.200	6.80	90.000	14.000	35.000	•
M10	1.500	10.000	8.000	8.50	100.000	16.000	39.000	•
M12	1.750	9.000	7.000	10.20	110.000	18.500	49.000	•
M14	2.000	11.000	9.000	12.00	110.000	20.000	53.000	•
M16	2.000	12.000	9.000	14.00	110.000	20.000	54.000	•
M18	2.500	14.000	11.000	15.50	125.000	25.000	62.000	•
M20	2.500	16.000	12.000	17.50	140.000	25.000	62.000	•
M24	3.000	18.000	14.500	21.00	160.000	30.000	73.000	•
M30	3.500	22.000	18.000	26.50	180.000	35.000	85.000	•

Application table

ISO	P	M	K	N	S	H
Materials	Steel	Stainless steel	Cast iron	Aluminium	Special alloys	Hardened steel
Characteristics:	<700 <850 <1000	martensitic austenitic	GG GGG	short long	Ti Ni	>45 HRC
v_c / m/min	15 to 18	8 to 10	20	25	2 to 3	x

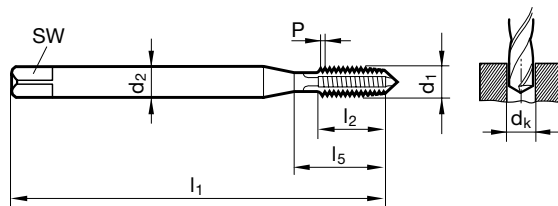


Taps for ISO-metric threads



P	•
M	•
K	○
N	○
S	○
H	

Tool material	HSS-E
Ø-tolerance	6HX
Surface finish	S
Type	N
Form	B
Internal cooling	<input checked="" type="checkbox"/>



DIN 2184-1 DIN 371/DIN 376

Guhring no.

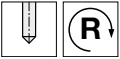
4218

d1	P	d2	SW	dk	l1	l2	l5	Availability
	mm	mm	mm	mm	mm	mm	mm	
M 2	0.400	2.800	2.100	1.60	45.000	8.000	13.500	•
M 2.5	0.450	2.800	2.100	2.05	50.000	9.000	14.500	•
M 3	0.500	3.500	2.700	2.50	56.000	10.000	18.000	•
M 4	0.700	4.500	3.400	3.30	63.000	12.000	21.000	•
M 5	0.800	6.000	4.900	4.20	70.000	14.000	25.000	•
M 6	1.000	6.000	4.900	5.00	80.000	16.000	30.000	•
M 8	1.250	8.000	6.200	6.80	90.000	17.000	35.000	•
M10	1.500	10.000	8.000	8.50	100.000	20.000	39.000	•
M12	1.750	9.000	7.000	10.20	110.000	24.000	49.000	•
M14	2.000	11.000	9.000	12.00	110.000	26.000	53.000	•
M16	2.000	12.000	9.000	14.00	110.000	26.000	54.000	•
M18	2.500	14.000	11.000	15.50	125.000	30.000	62.000	•
M20	2.500	16.000	12.000	17.50	140.000	32.000	62.000	•
M24	3.000	18.000	14.500	21.00	160.000	36.000	73.000	•
M30	3.500	22.000	18.000	26.50	180.000	40.000	85.000	•

Application table

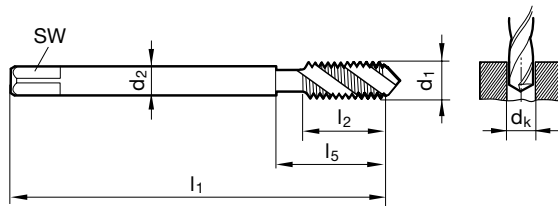
ISO	P	M	K	N	S	H
Materials	Steel	Stainless steel	Cast iron	Aluminium	Special alloys	Hardened steel
Characteristics:	<700 <850 <1000	martensitic austenitic	GG GGG	short long	Ti Ni	>45 HRC
v _c / m/min	18 to 20	10 to 12	25	30	2 to 3	x

Taps for ISO-metric fine threads



P	•
M	•
K	○
N	○
S	○
H	

Tool material	HSS-E
Ø-tolerance	6HX
Surface finish	A
Type	VA R45
Form	C
Internal cooling	<input checked="" type="checkbox"/>



DIN 2184-1 DIN 374

Gühring no.

394

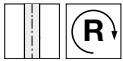
d1	d2	SW	dk	l1	l2	l5	Code no.	Availability
	mm	mm	mm	mm	mm	mm		
M 6 X0.75	4.500	3.400	5.20	80.000	8.000	30.000	6.004	•
M 8 X0.75	6.000	4.900	7.20	80.000	8.000	30.000	8.004	•
M 8 X1	6.000	4.900	7.00	90.000	11.000	35.000	8.005	•
M10 X1	7.000	5.500	9.00	90.000	11.000	35.000	10.005	•
M10 X1.25	7.000	5.500	8.80	100.000	14.000	39.000	10.006	•
M12 X1	9.000	7.000	11.00	100.000	11.000	40.000	12.005	•
M12 X1.25	9.000	7.000	10.80	100.000	16.000	40.000	12.006	•
M12 X1.5	9.000	7.000	10.50	100.000	16.000	40.000	12.007	•
M14 X1.5	11.000	9.000	12.50	100.000	15.000	40.000	14.007	•
M16 X1.5	12.000	9.000	14.50	100.000	15.000	44.000	16.007	•
M18 X1.5	14.000	11.000	16.50	110.000	16.000	44.000	18.007	•
M20 X1.5	16.000	12.000	18.50	125.000	16.000	44.000	20.007	•
M24 X1.5	18.000	14.500	22.50	140.000	16.000	48.000	24.007	•

Application table

ISO	P	M	K	N	S	H
Materials	Steel	Stainless steel	Cast iron	Aluminium	Special alloys	Hardened steel
Characteristics	<700 <850 <1000	martensitic austenitic	GG GGG	short long	Ti Ni	>45 HRC
v_c / m/min	15 to 18	8 to 10	20	25	2 to 3	x

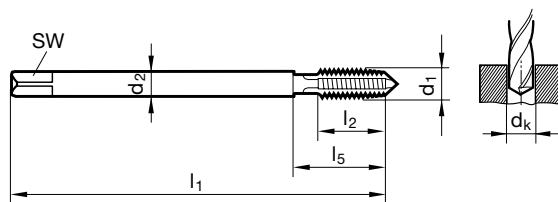


Taps for ISO-metric fine threads



P	≤ 1000
M	•
K	
N	
S	
H	

Tool material	HSS-E
Ø-tolerance	6HX
Surface finish	S
Type	N
Form	B
Internal cooling	<input checked="" type="checkbox"/>



DIN 2184-1 DIN 374

Guhring no.

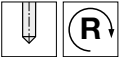
4219

d1	d2	SW	dk	l1	l2	l5	Code no.	Availability
	mm	mm	mm	mm	mm	mm		
M 6 X0.75	4.500	3.400	5.20	80.000	13.000	30.000	6.004	•
M 8 X0.75	6.000	4.900	7.20	80.000	14.000	30.000	8.004	•
M 8 X1	6.000	4.900	7.00	90.000	16.000	35.000	8.005	•
M10 X1	7.000	5.500	9.00	90.000	16.000	35.000	10.005	•
M10 X1.25	7.000	5.500	8.80	100.000	20.000	39.000	10.006	•
M12 X1	9.000	7.000	11.00	100.000	20.000	40.000	12.005	•
M12 X1.25	9.000	7.000	10.80	100.000	20.000	40.000	12.006	•
M12 X1.5	9.000	7.000	10.50	100.000	20.000	40.000	12.007	•
M14 X1.5	11.000	9.000	12.50	100.000	20.000	40.000	14.007	•
M16 X1.5	12.000	9.000	14.50	100.000	22.000	44.000	16.007	•
M18 X1.5	14.000	11.000	16.50	110.000	25.000	44.000	18.007	•
M20 X1.5	16.000	12.000	18.50	125.000	25.000	44.000	20.007	•
M24 X1.5	18.000	14.500	22.50	140.000	28.000	48.000	24.007	•

Application table

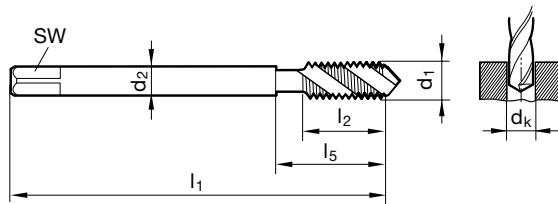
ISO	P	M	K	N	S	H
Materials	Steel	Stainless steel	Cast iron	Aluminium	Special alloys	Hardened steel
Characteristics:	<700 <850 <1000	martensitic austenitic	GG GGG	short long	Ti Ni	>45 HRC
v _c / m/min	18 to 20	10 to 12	25	30	2 to 3	x

Taps for BSP-threads



P	•
M	•
K	○
N	○
S	○
H	

Tool material	HSS-E
Ø-tolerance	-
Surface finish	A
Type	VA R45
Form	C
Internal cooling	<input checked="" type="checkbox"/>



DIN 2184-1 DIN 5156

Guhring no.

395

d1	P	d2	SW	dk	l1	l2	l5	Code no.	Availability
	G/inch	mm	mm	mm	mm	mm	mm		
G 1/16	28.000	6.000	4.900	6.80	90.000	11.000	30.000	7.723	•
G 1/8	28.000	7.000	5.500	8.80	90.000	11.000	35.000	9.728	•
G 1/4	19.000	11.000	9.000	11.80	100.000	14.000	40.000	13.157	•
G 3/8	19.000	12.000	9.000	15.25	100.000	14.000	44.000	16.662	•
G 1/2	14.000	16.000	12.000	19.00	125.000	18.000	44.000	20.955	•
G 5/8	14.000	18.000	14.500	21.00	125.000	18.000	48.000	22.911	•
G 3/4	14.000	20.000	16.000	24.50	140.000	20.000	53.000	26.441	•
G 7/8	14.000	22.000	18.000	28.25	150.000	22.000	53.000	30.201	•
G1	11.000	25.000	20.000	30.75	160.000	24.000	56.000	33.249	•

Application table

ISO	P	M	K	N	S	H
Materials	Steel	Stainless steel	Cast iron	Aluminium	Special alloys	Hardened steel
Characteristics	<700 <850 <1000	martensitic austenitic	GG GGG	short long	Ti Ni	>45 HRC
v_c / m/min	15 to 18	8 to 10	20	25	2 to 3	x

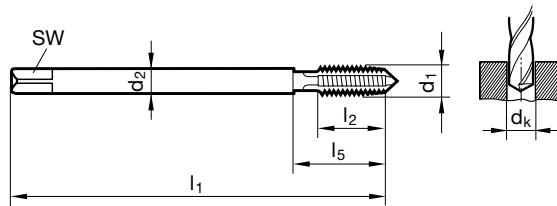


Taps for BSP-threads



P	•
M	•
K	○
N	○
S	○
H	

Tool material	HSS-E
Ø-tolerance	X
Surface finish	S
Type	N
Form	B
Internal cooling	<input checked="" type="checkbox"/>



DIN 2184-1 DIN 5156

Guhring no.

4220

d1	P	d2	SW	dk	l1	l2	l5	Code no.	Availability
	G/inch	mm	mm	mm	mm	mm	mm		
G 1/16	28.000	6.000	4.900	6.80	90.000	18.000	30.000	7.723	•
G 1/8	28.000	7.000	5.500	8.80	90.000	18.000	35.000	9.728	•
G 1/4	19.000	11.000	9.000	11.80	100.000	20.000	40.000	13.157	•
G 3/8	19.000	12.000	9.000	15.25	100.000	22.000	44.000	16.662	•
G 1/2	14.000	16.000	12.000	19.00	125.000	25.000	44.000	20.955	•
G 5/8	14.000	18.000	14.500	21.00	125.000	25.000	48.000	22.911	•
G 3/4	14.000	20.000	16.000	24.50	140.000	28.000	53.000	26.441	•
G 7/8	14.000	22.000	18.000	28.25	150.000	28.000	53.000	30.201	•
G1	11.000	25.000	20.000	30.75	160.000	30.000	56.000	33.249	•

Application table

ISO	P			M		K		N		S		H
Materials	Steel			Stainless steel		Cast iron		Aluminium		Special alloys		Hardened steel
Characteristics:	<700	<850	<1000	martensitic	austenitic	GG	GGG	short	long	Ti	Ni	>45 HRC
v _c / m/min	18 to 20			10 to 12		25		30		2 to 3		x

DRILLING

TAPPING/THREAD MILLING/
FLUTELESS TAPPING

MILLING

REAMING

PCD



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GUHRING

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