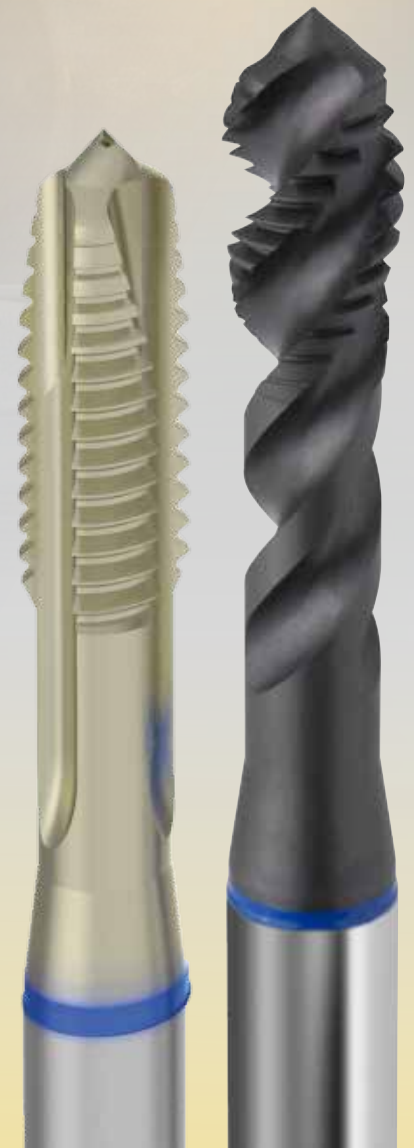


# GUHRING



- 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)

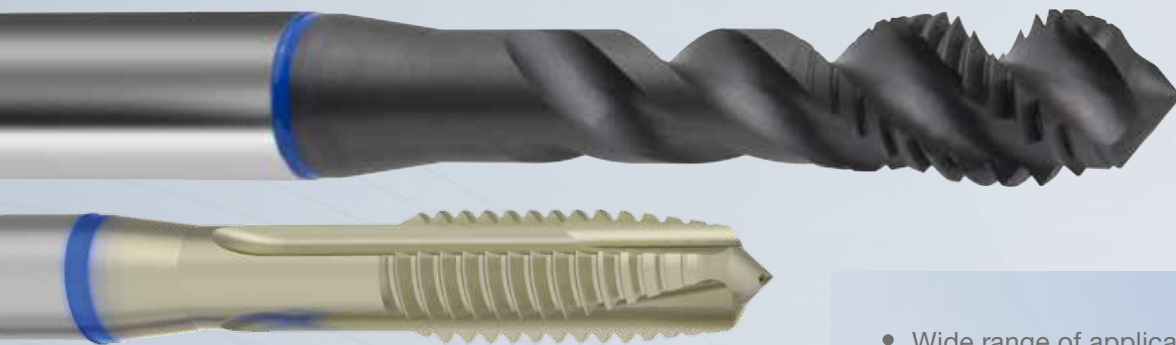
GUHRING - YOUR WORLD-WIDE PARTNER

# 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/m<sup>2</sup>
  - 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

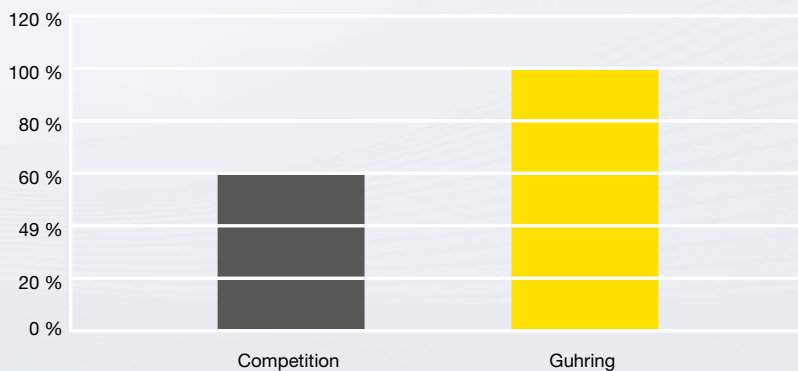
During the cutting process the flanks of the taps are subjected to high loads. In order to prevent damage to the tools, a mechanically especially wear-resistant coating is required that simultaneously displays a low friction value. Basic pre-requisite for this is – as well as a low roughness – a very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

<b>P</b>	Steel, high-alloyed steel
<b>M</b>	Stainless steel
<b>K</b>	Grey cast iron, spheroidal cast iron and malleable cast iron
<b>N</b>	Aluminium and other non-ferrous metals
<b>S</b>	Special-, super- and titanium-alloys
<b>H</b>	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	<b>HSS</b>	<b>HSS-E</b>	<b>HSS-E-PM</b>				
	high speed steel						
Ø-tolerance	<b>2B</b>	<b>2BX</b>	<b>3B</b>	<b>3BX</b>	<b>4HX</b>	<b>6H</b>	<b>6HX</b>
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	<b>A</b>	<b>B</b>	<b>C</b>	<b>C(K)</b>	<b>D</b>	<b>E</b>	
Description	V	M			F		
	first tap	second tap			finish tap		
Standard	<b>DIN 352</b>	<b>DIN 371</b>	<b>DIN 376</b>	<b>DIN 374</b>	<b>DIN 371/376</b>	<b>DIN 2189</b>	<b>DIN 5156</b> ....
	to DIN						
Type	<b>N</b>	<b>NR40</b>	<b>H</b>	<b>HR15</b>	<b>VA</b>	<b>AI</b>	<b>GG</b> <b>TiNi</b> ....




## 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 371/376	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

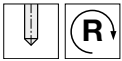
•	•	○	○	○			DIN 371/376	N	B	6HX	HSS-E	S	M 2 - M30	4218	7
•	•	○	○	○			DIN 374	N	B	6HX	HSS-E	S	M 6 X0.75 - M24 X1.5	4219	9
•	•	○	○	○			DIN 5156	N	B		HSS-E	S	G 1/16 - G1	4220	11

# APPLICATION TABLE

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

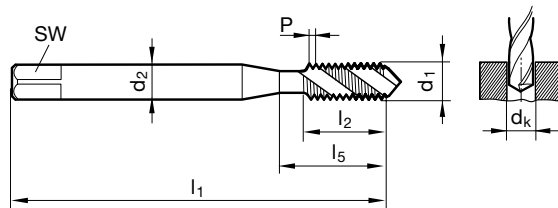
Material group	Recommended cutting speed v <sub>c</sub> m/min					
P Common structural steels Free-cutting steels Unalloyed case hardened steels Unalloyed heat treatable steels	18	18	18	20	20	20
	15	15	15	18	18	18
Alloyed heat treatable steels						
M Stainless and acid resistant steels Sulphured steels Austenitic steels Martensitic steels	8 to 10	8 to 10	8 to 10	10 to 12	10 to 12	10 to 12
	20	20	20	25	25	25
N Non-ferrous metals Aluminium and other non-ferrous metals Copper alloys Plastics						
	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	



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

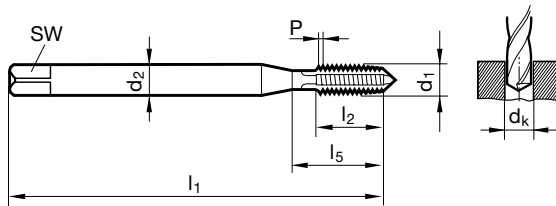


**Taps for ISO-metric threads**



<b>P</b>	•
<b>M</b>	•
<b>K</b>	○
<b>N</b>	○
<b>S</b>	○
<b>H</b>	

Tool material	<b>HSS-E</b>
Ø-tolerance	6HX
Surface finish	<b>S</b>
Type	N
Form	B
Internal cooling	



**DIN 2184-1 DIN 371/DIN 376**

Guhring no.

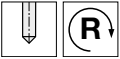
**4218**

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**

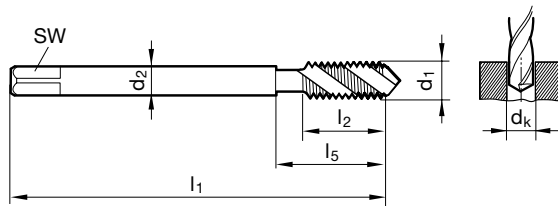
ISO	<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>	<b>H</b>
Materials	Steel	Stainless steel	Cast iron	Aluminium	Special alloys	Hardened steel
Characteristics:	<700   <850   <1000	martensitic   austenitic	GG   GGG	short   long	Ti   Ni	>45 HRC
v <sub>c</sub> / m/min	18 to 20	10 to 12	25	30	2 to 3	x

## 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	



DIN 2184-1 DIN 374

Guhring 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



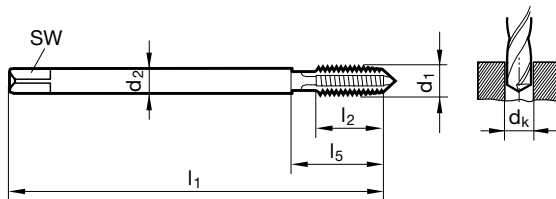


Taps for ISO-metric fine threads



P	≤ 1000
M	•
K	
N	
S	
H	

Tool material	HSS-E
Ø-tolerance	6HX
Surface finish	S
Type	N
Form	B
Internal cooling	



DIN 2184-1 DIN 374

Guhring no.

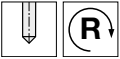
4219

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

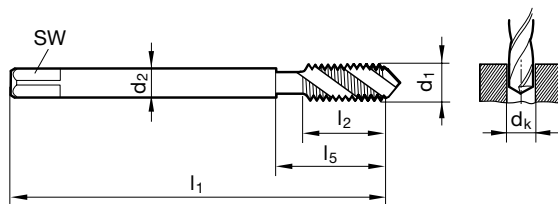
ISO	P	M	K	N	S	H
Materials	Steel	Stainless steel	Cast iron	Aluminium	Special alloys	Hardened steel
Characteristics:	<700   <850   <1000	martensitic   austenitic	GG   GGG	short   long	Ti   Ni	>45 HRC
v <sub>c</sub> / m/min	18 to 20	10 to 12	25	30	2 to 3	x

## 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	



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 <sub>c</sub> / m/min	15 to 18	8 to 10	20	25	2 to 3	x

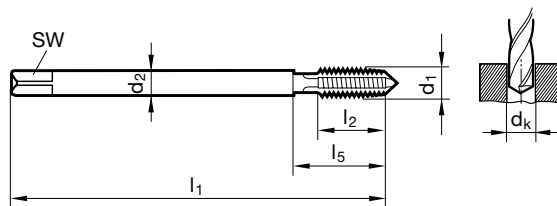


**Taps for BSP-threads**



<b>P</b>	•
<b>M</b>	•
<b>K</b>	○
<b>N</b>	○
<b>S</b>	○
<b>H</b>	

Tool material	<b>HSS-E</b>
Ø-tolerance	X
Surface finish	<b>S</b>
Type	N
Form	B
Internal cooling	



**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	<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>	<b>H</b>
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



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