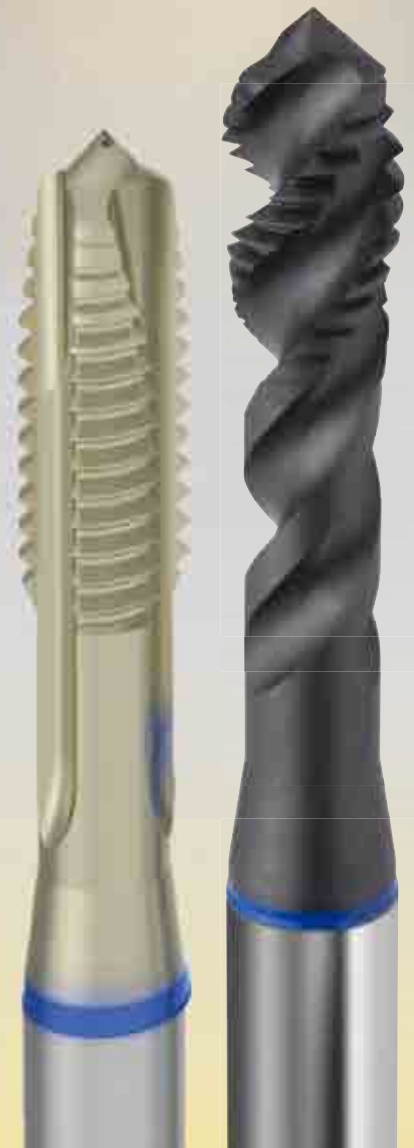


GUHRING



- 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.

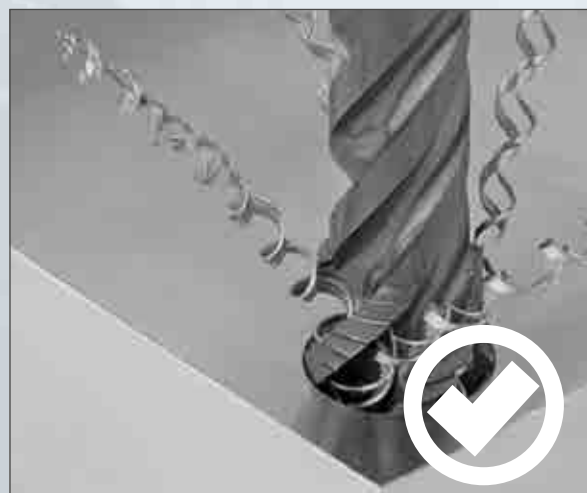
The tool geometries and the coating of our VA taps have been individually designed and adapted to do this.



- 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

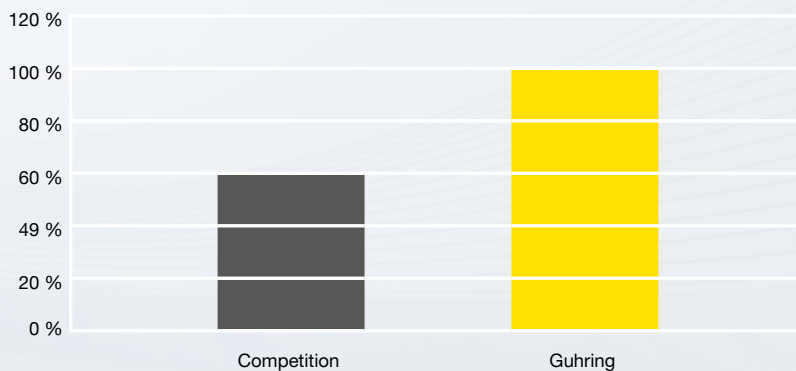
During the cutting process the flanks of the taps are subjected to high loads. In order to prevent damage to the tools, a mechanically especially wear-resistant coating is required that simultaneously displays a low friction value. Basic pre-requisite for this is – as well as a low roughness – a very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

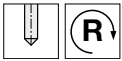
| | | | | | | | | | | | | | | | |
|---|---|---|---|---|--|--|-----------|---|---|-----|-------|---|----------------------|------|----|
| • | • | ○ | ○ | ○ | | | DIN 371/6 | N | B | 6HX | HSS-E | S | M 2 - M30 | 4218 | 7 |
| • | • | ○ | ○ | ○ | | | DIN 374 | N | B | 6HX | HSS-E | S | M 6 X0.75 - M24 X1.5 | 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 |

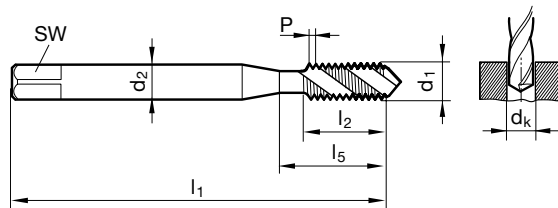
| Material group | Recommended cutting speed v _c m/min | | | | | |
|---|--|---------|---------|----------|----------|----------|
| P Common structural steels Free-cutting steels Unalloyed case hardened steels Unalloyed heat treatable steels | 18 | 18 | 18 | 20 | 20 | 20 |
| | 15 | 15 | 15 | 18 | 18 | 18 |
| | | | | | | |
| 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 | 25 | 25 | 25 | 30 | 30 | 30 |
| | 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

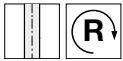
| d1 | P | d2 | SW | dk | l1 | l2 | l5 | Availability |
|-------|-------|--------|--------|-------|---------|--------|--------|--------------|
| | mm | mm | mm | mm | mm | mm | mm | |
| M 2 | 0.400 | 2.800 | 2.100 | 1.60 | 45.000 | 4.500 | 13.500 | • |
| M 2.5 | 0.450 | 2.800 | 2.100 | 2.05 | 50.000 | 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 |

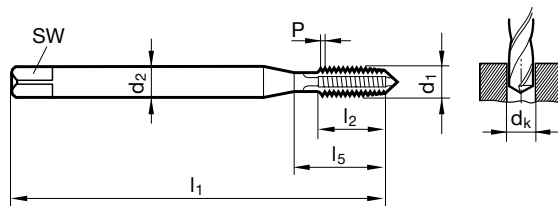


Taps for ISO-metric threads



| | |
|----------|---|
| 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.

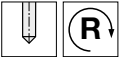
4218

| 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

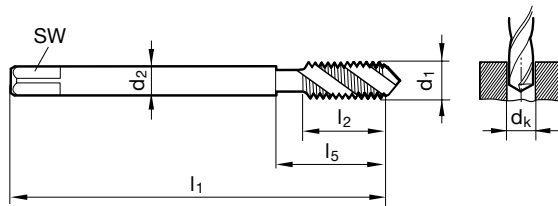
| ISO | P | M | K | N | S | H |
|------------------------|---------------------|--------------------------|-----------|--------------|----------------|----------------|
| Materials | Steel | Stainless steel | Cast iron | Aluminium | Special alloys | Hardened steel |
| Characteristics: | <700 <850 <1000 | 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 |

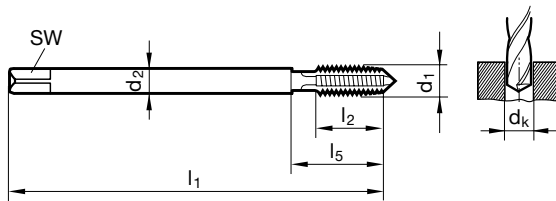


Taps for ISO-metric fine threads



| | |
|----------|--------|
| 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.

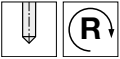
4219

| 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

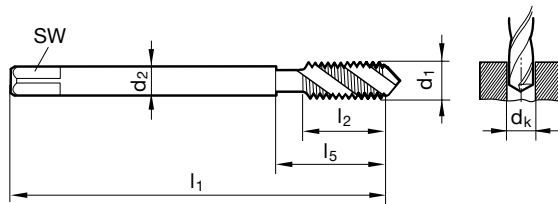
| ISO | P | M | K | N | S | H |
|------------------------|---------------------|--------------------------|-----------|--------------|----------------|----------------|
| Materials | Steel | Stainless steel | Cast iron | Aluminium | Special alloys | Hardened steel |
| Characteristics: | <700 <850 <1000 | 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 |

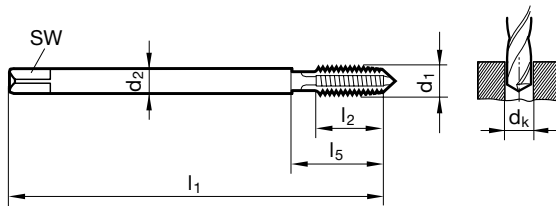


Taps for BSP-threads



| | |
|----------|---|
| 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 |

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