SERIES

# M HSS-E SPIRAL FLUTE TAPS for MULTI-PURPOSE
# ISO Metric Coarse Threads - DIN 13

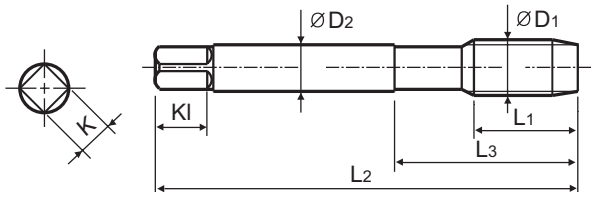
| | | | |
|---|---|---|---|
| Vap | TB804 | TiN | TD804 |
| Bright | TC804 | FSH | TC804-U |

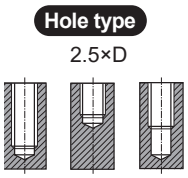
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry.

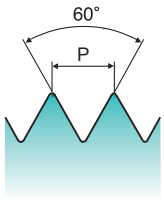


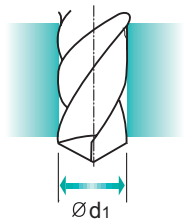







Material groups **MU** | HSS-E | DIN 371/376 | 6H | 60° | C | R40 | Vap Bright TiN | FSH Coating

p.5-6

## Machine Taps

Unit : mm

| SIZE | Pitch | EDP No. | | | NEW AOS TAP | Thread Length | Overall Length | Neck Length | Shank Diameter | Square Size | Square Length | No. of Flute | Tapping Drill Diameter |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ØD1 | P | Vap | Bright | TiN | FSH | L1 | L2 | L3 | ØD2 | K | Kl | Z | Ød1 |
| M2 | 0.4 | TB804136 | TC804136 | TD804136 | TC804136U | 8 | 45 | 13 | 2.8 | 2.1 | 5 | 3 | 1.6 |
| M2.2 | 0.45 | TB804156 | TC804156 | TD804156 | - | 8 | 45 | 13 | 2.8 | 2.1 | 5 | 3 | 1.75 |
| M2.3 | 0.4 | TB804196 | TC804196 | TD804196 | - | 8 | 45 | 13 | 2.8 | 2.1 | 5 | 3 | 1.9 |
| M2.5 | 0.45 | TB804176 | TC804176 | TD804176 | - | 9 | 50 | 15 | 2.8 | 2.1 | 5 | 3 | 2.05 |
| M2.6 | 0.45 | TB804496 | TC804496 | TD804496 | - | 9 | 50 | 15 | 2.8 | 2.1 | 5 | 3 | 2.15 |
| M3 | 0.5 | TB804206 | TC804206 | TD804206 | TC804206U | 6 | 56 | 18 | 3.5 | 2.7 | 6 | 3 | 2.5 |
| M3.5 | 0.6 | TB804226 | TC804226 | TD804226 | - | 7 | 56 | 20 | 4 | 3 | 6 | 3 | 2.9 |
| M4 | 0.7 | TB804246 | TC804246 | TD804246 | TC804246U | 7 | 63 | 21 | 4.5 | 3.4 | 6 | 3 | 3.3 |
| M4.5 | 0.75 | TB804266 | TC804266 | TD804266 | - | 8 | 70 | 25 | 6 | 4.9 | 8 | 3 | 3.8 |
| M5 | 0.8 | TB804286 | TC804286 | TD804286 | TC804286U | 8 | 70 | 25 | 6 | 4.9 | 8 | 3 | 4.2 |
| M6 | 1.0 | TB804316 | TC804316 | TD804316 | TC804316U | 10 | 80 | 30 | 6 | 4.9 | 8 | 3 | 5.0 |
| M7 | 1.0 | TB804346 | TC804346 | TD804346 | - | 10 | 80 | 30 | 7 | 5.5 | 8 | 3 | 6.0 |
| M8 | 1.25 | TB804366 | TC804366 | TD804366 | TC804366U | 13 | 90 | 35 | 8 | 6.2 | 9 | 3 | 6.8 |
| M9 | 1.25 | TB804396 | TC804396 | TD804396 | - | 13 | 90 | 35 | 9 | 7 | 10 | 3 | 7.8 |
| M10 | 1.5 | TB804426 | TC804426 | TD804426 | TC804426U | 15 | 100 | 39 | 10 | 8 | 11 | 3 | 8.5 |
| M11 | 1.5 | TB804466 | TC804466 | TD804466 | - | 17 | 100 | 40 | 8 | 6.2 | 9 | 3 | 9.5 |
| M12 | 1.75 | TB804506 | TC804506 | TD804506 | TC804506U | 18 | 110 | 44 | 9 | 7 | 10 | 3 | 10.3 |
| M14 | 2.0 | TB804546 | TC804546 | TD804546 | TC804546U | 20 | 110 | 52 | 11 | 9 | 12 | 3 | 12.0 |
| M16 | 2.0 | TB804606 | TC804606 | TD804606 | TC804606U | 20 | 110 | 52 | 12 | 9 | 12 | 3 | 14.0 |
| M18 | 2.5 | TB804656 | TC804656 | TD804656 | TC804656U | 25 | 125 | 66 | 14 | 11 | 14 | 4 | 15.5 |
| M20 | 2.5 | TB804706 | TC804706 | TD804706 | TC804706U | 25 | 140 | 72 | 16 | 12 | 15 | 4 | 17.5 |
| M22 | 2.5 | TB804746 | TC804746 | TD804746 | TC804746U | 25 | 140 | 78 | 18 | 14.5 | 17 | 4 | 19.5 |

▶ NEXT PAGE

▶ DIN 371(M2~M10) and DIN 376(M11~M52)
* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

| ISO | P | | | | | | | | | | | M | | | K | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Material Description | Non-alloy steel | | | | | Low alloy steel | | | | High alloyed steel, and tool steel | | Stainless steel | | | Grey cast iron | | Nodular cast iron | | Malleable cast iron | |
| VDI 3323 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| HRc | | 13 | 25 | 28 | 32 | 10 | 29 | 32 | 38 | 15 | 35 | 15 | 23 | 10 | 10 | 26 | 3 | 25 | | 21 |
| HB | 125 | 190 | 250 | 270 | 300 | 180 | 275 | 300 | 350 | 200 | 325 | 200 | 240 | 180 | 180 | 260 | 160 | 250 | 130 | 230 |
| Recommended | ○ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | | |

| ISO | N | | | | | | | | | | S | | | | | | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Material Description | Aluminum-wrought alloy | | Aluminum-cast, alloyed | | | Copper and Copper Alloys (Bronze / Brass) | | | Non Metallic Materials | | Heat Resistant Super Alloys | | | | | Titanium Alloys | | Hardened steel | | Chilled Cast Iron | Hardened Cast Iron |
| VDI 3323 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
| HRc | | | | | | | | | | | 15 | 30 | 25 | 38 | 34 | | | 55 | 60 | 42 | 55 |
| HB | 60 | 100 | 75 | 90 | 130 | 110 | 90 | 100 | | | 200 | 280 | 250 | 350 | 320 | 400 Rm | 1050 Rm | 550 | 630 | 400 | 550 |
| Recommended | | | ◎ | | | ◎ | ◎ | ◎ | | | | | | | | | | | | | |


Phone: +82-32-526-0909, www.yg1.solutions, E-mail: yg1@yg1.solutions

# M HSS-E SPIRAL FLUTE TAPS for MULTI-PURPOSE
# ISO Metric Coarse Threads - DIN 13

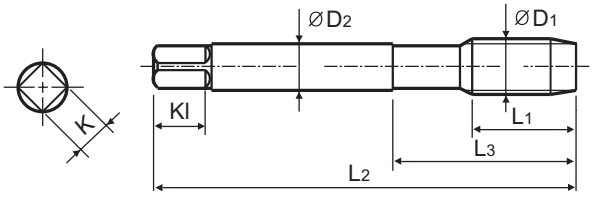
| | | | |
|---|---|---|---|
| Vap | TB804 | TiN | TD804 |
| Bright | TC804 | FSH | TC804-U |

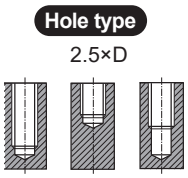
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry.

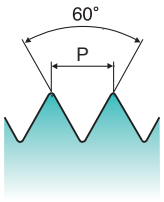


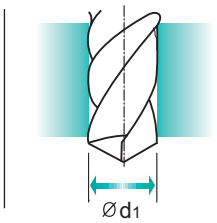







Material groups **MU** | HSS-E | DIN 371/376 | 6H | 60° | C | R40 | Vap Bright TiN | FSH Coating

p.5-6

## Machine Taps

Unit : mm

| SIZE | | Pitch | EDP No. | | | NEW AOS TAP | Thread Length | Overall Length | Neck Length | Shank Diameter | Square Size | Square Length | No. of Flute | Tapping Drill Diameter |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ØD1 | | P | Vap | Bright | TiN | FSH | L1 | L2 | L3 | ØD2 | K | Kl | Z | Ød1 |
| M24 | × | 3.0 | TB804786 | TC804786 | TD804786 | TC804786U | 30 | 160 | 85 | 18 | 14.5 | 17 | 4 | 21.0 |
| M27 | × | 3.0 | TB804866 | TC804866 | TD804866 | TC804866U | 30 | 160 | 92 | 20 | 16 | 19 | 4 | 24.0 |
| M30 | × | 3.5 | TB804946 | TC804946 | TD804946 | TC804946U | 35 | 180 | 102 | 22 | 18 | 21 | 4 | 26.5 |
| M33 | x | 3.5 | - | TC804A46 | TD804A46 | - | 35 | 180 | 105 | 25 | 20 | 23 | 4 | 29.5 |
| M36 | x | 4.0 | - | TC804B36 | TD804B36 | - | 40 | 200 | 120 | 28 | 22 | 25 | 4 | 32.0 |
| M39 | x | 4.0 | - | TC804C06 | TD804C06 | - | 40 | 200 | 120 | 32 | 24 | 27 | 4 | 35.0 |
| M42 | x | 4.5 | - | TC804C86 | TD804C86 | - | 45 | 200 | 120 | 32 | 24 | 27 | 4 | 37.5 |
| M45 | x | 4.5 | - | TC804D56 | TD804D56 | - | 45 | 220 | 100 | 36 | 29 | 32 | 4 | 40.5 |
| M48 | x | 5.0 | - | TC804E26 | TD804E26 | - | 50 | 250 | 130 | 36 | 29 | 32 | 4 | 43.0 |
| M52 | x | 5.0 | - | TC804F36 | TD804F36 | - | 50 | 250 | 130 | 40 | 32 | 35 | 4 | 47.0 |

▶ DIN 371(M2~M10) and DIN 376(M11~M52)

* The other coating(TiCN or TiAlN) is available on your request.

◎ : Excellent ○ : Good

| ISO | P | | | | | | | | | | | M | | | K | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Material Description | Non-alloy steel | | | | | Low alloy steel | | | | High alloyed steel, and tool steel | | Stainless steel | | | Grey cast iron | | Nodular cast iron | | Malleable cast iron | |
| VDI 3323 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| HRc | | 13 | 25 | 28 | 32 | 10 | 29 | 32 | 38 | 15 | 35 | 15 | 23 | 10 | 10 | 26 | 3 | 25 | | 21 |
| HB | 125 | 190 | 250 | 270 | 300 | 180 | 275 | 300 | 350 | 200 | 325 | 200 | 240 | 180 | 180 | 260 | 160 | 250 | 130 | 230 |
| Recommended | ○ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | | |

| ISO | N | | | | | | | | | | S | | | | | | | H | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Material Description | Aluminum-wrought alloy | | Aluminum-cast, alloyed | | | Copper and Copper Alloys (Bronze / Brass) | | | Non Metallic Materials | | Heat Resistant Super Alloys | | | | | Titanium Alloys | | Hardened steel | | Chilled Cast Iron | Hardened Cast Iron |
| VDI 3323 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
| HRc | | | | | | | | | | | 15 | 30 | 25 | 38 | 34 | | | 55 | 60 | 42 | 55 |
| HB | 60 | 100 | 75 | 90 | 130 | 110 | 90 | 100 | | | 200 | 280 | 250 | 350 | 320 | 400 Rm | 1050 Rm | 550 | 630 | 400 | 550 |
| Recommended | | | ◎ | | | ◎ | ◎ | ◎ | | | | | | | | | | | | | |

# COMBO TAPS

## RECOMMENDED CUTTING CONDITIONS
## EMPFOHLENE SCHNEIDKONDITIONEN

| ISO | VDI 3323 | Material Description | HB | HRc | TC804 TC844 TC824 TC864 | TD804 TD844 TD824 TD864 | TB804 TB844 TB824 TB864 | TCE05 TCE09 TCE01 TCE02 | TDE05 TDE09 TDE01 TDE02 | TBE05 | TCE06 | TDE06 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Vc (m/min) | | | | | | | |
| P | 1 | Non-alloy steel | 125 | | 15-20 | 20-25 | 15-20 | 15-20 | 20-25 | 15-20 | 15-20 | 20-25 |
| | 2 | | 190 | 13 | 15-20 | 20-25 | 15-20 | 15-20 | 20-25 | 15-20 | 15-20 | 20-25 |
| | 3 | | 250 | 25 | 12-18 | 18-24 | 12-18 | 12-18 | 18-24 | 12-18 | 12-18 | 18-24 |
| | 4 | | 270 | 28 | 10-15 | 15-20 | 10-15 | 10-15 | 15-20 | 10-15 | 10-15 | 15-20 |
| | 5 | | 300 | 32 | 6-10 | 10-14 | 6-10 | 6-10 | 10-14 | 6-10 | 6-10 | 10-14 |
| | 6 | Low alloy steel | 180 | 10 | 10-15 | 15-20 | 10-15 | 10-15 | 15-20 | 10-15 | 10-15 | 15-20 |
| | 7 | | 275 | 29 | 10-15 | 15-20 | 10-15 | 10-15 | 15-20 | 10-15 | 10-15 | 15-20 |
| | 8 | | 300 | 32 | 6-10 | 10-14 | 6-10 | 6-10 | 10-14 | 6-10 | 6-10 | 10-14 |
| | 9 | | 350 | 38 | 3-5 | 5-7 | 3-5 | 3-5 | 5-7 | 3-5 | 3-5 | 5-7 |
| | 10 | High alloyed steel, and tool steel | 200 | 15 | 3-5 | 5-7 | 3-5 | 3-5 | 5-7 | 3-5 | 3-5 | 5-7 |
| | 11 | | 325 | 35 | | | | | | | | |
| M | 12 | Stainless steel | 200 | 15 | 7-10 | 10-15 | 7-10 | 7-10 | 10-15 | 7-10 | 7-10 | 10-15 |
| | 13 | | 240 | 23 | 5-8 | 8-11 | 5-8 | 5-8 | 8-11 | 5-8 | 5-8 | 8-11 |
| | 14 | | 180 | 10 | 4-6 | 6-8 | 4-6 | 4-6 | 6-8 | 4-6 | 4-6 | 6-8 |
| K | 15 | Grey cast iron | 180 | 10 | 10-15 | 15-20 | 10-15 | 10-15 | 15-20 | 10-15 | 10-15 | 15-20 |
| | 16 | | 260 | 26 | 5-8 | 8-11 | 5-8 | 5-8 | 8-11 | 5-8 | 5-8 | 8-11 |
| | 17 | Nodular cast iron | 160 | 3 | 10-15 | 15-20 | 10-15 | 10-15 | 15-20 | 10-15 | 10-15 | 15-20 |
| | 18 | | 250 | 25 | 5-8 | 8-11 | 5-8 | 5-8 | 8-11 | 5-8 | 5-8 | 8-11 |
| | 19 | Malleable cast iron | 130 | | | | | | | | | |
| | 20 | | 230 | 21 | | | | | | | | |
| N | 21 | Aluminum-wrought alloy | 60 | | | | | | | | | |
| | 22 | | 100 | | | | | | | | | |
| | 23 | Aluminum-cast, alloyed | 75 | | 15-20 | 20-25 | 15-20 | 15-20 | 20-25 | 15-20 | 15-20 | 20-25 |
| | 24 | | 90 | | | | | | | | | |
| | 25 | | 130 | | | | | | | | | |
| | 26 | Copper and Copper Alloys (Bronze / Brass) | 110 | | 25-35 | 35-40 | 25-35 | 25-35 | 35-40 | 25-35 | 25-35 | 35-40 |
| | 27 | | 90 | | 8-12 | 12-17 | 8-12 | 8-12 | 12-17 | 8-12 | 8-12 | 12-17 |
| | 28 | | 100 | | 15-20 | 20-25 | 15-20 | 15-20 | 20-25 | 15-20 | 15-20 | 20-25 |
| | 29 | Non Metallic Materials | | | | | | | | | | |
| | 30 | | | | | | | | | | | |
| S | 31 | Heat Resistant Super Alloys | 200 | 15 | | | | | | | | |
| | 32 | | 280 | 30 | | | | | | | | |
| | 33 | | 250 | 25 | | | | | | | | |
| | 34 | | 350 | 38 | | | | | | | | |
| | 35 | | 320 | 34 | | | | | | | | |
| | 36 | Titanium Alloys | 400 Rm | | | | | | | | | |
| | 37 | | 1050 Rm | | | | | | | | | |
| H | 38 | Hardened steel | 550 | 55 | | | | | | | | |
| | 39 | | 630 | 60 | | | | | | | | |
| | 40 | Chilled Cast Iron | 400 | 42 | | | | | | | | |
| | 41 | Hardened Cast Iron | 550 | 55 | | | | | | | | |

# SURFACE TREATMENT AND COATING

The applied High Speed Steels holds a grant of good wear resistance and toughness. Therefore YG-1 normally delivers taps with bright and unfinished surface. For certain materials, various surface treatments provide higher advantage in machining.

## STEAM TEMPERED - Vap

Steam Tempered is a Fe3O4-oxyd-coating which reduces friction between the tool and workpiece, also preventing cold welding.

## NITRIDING - NI

Recommend surface treatment for machining materials that affect wear abrasion, such as grey cast iron, alu-alloys with high Si-percentages (more than 10%).

Below are the various surface treatments for excellent finish surfaces suitable for many applications. The surface treatments are produced and developed within the company.

## TiN-COATING

TiN-coating yields a hardness of approx. 2,300 HV and also a heat resistant up to approx. 600°C. The current coating is an excellent all-round coating for normal applications.
Colour : Golden Coefficient of friction against steel : 0.4

## TiCN-COATING

TiCN takes place of TiN when the conditions require the coating to have a different hardness and toughness.
The TiCN brings advantages for machining very difficult steels or cutting interrupted bores.
The TiCN-coating has a hardness of approx. 3,000 HV, but is heat resistance only holds up to approx. 400°C, meaning that the TiCN needs an excellent cooling system for a long service life.
Colour : Blue-Grey Coefficient of friction against steel : 0.4

## TiAlN-COATING

A special coating for machining abrasive materials such as grey cast iron, alu-alloys with silicon, fiber reinforced plastics, etc., or machining at high temperatures with insufficient cooling, or at high speeds ≥ 600m/min. TiAlN has a hardness of approx. 3,000 HV and is heat resistant up to approx. 800°C.
Colour : Violet-Grey Coefficient of friction against steel : 0.4

## Hardslick-COATING

Hardslick combines the advantages of an extremely hard, thermally stable TiAlN-coating with the sliding and lubricating properties of an outer WC/C(Tungsten carbide/carbon)-coating in a novel way. The Hardslick coating has a hardness of approx. 3,000 HV and is temperature-resistant up to approx. 800°C.
Colour : Violet-Grey Coefficient of friction against steel : 0.2

SELECTION GUIDE

# HSS-E COMBO TAPS

HSS-E Taps for Multi-Purpose

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

| HOLE TYPE | | | Max. 2.5xD Blind Hole | | | | |
|---|---|---|---|---|---|---|---|
| TOOL MATERIAL | | | HSS-E | | | | |
| CHAMFER LEAD ACC. TO DIN2197 | | | C | | | | |
| FLUTE TYPE | | | Spiral Flute | | | | |
| SPIRAL FLUTE ANGLE | | | R40 | | | | |
| CLASS OF THREAD | | | 6H | 2B | 6H | 6H | 2B |
| SERIES | M | DIN371/376 | TC804 (p.10~11) | | TC804-U (p.10~11) | TD804 (p.10~11) | |
| | | DIN352 | | | | | |
| | | DIN357/LONG | | | | | |
| | MF | DIN374 | TC844 (p.16~18) | | TC844-U (p.16~18) | TD844 (p.16~18) | |
| | | DIN2181 | | | | | |
| | UNC | DIN371/376 | | TC824 (p.24) | | | TD824 (p.24) |
| | | DIN351 | | | | | |
| | UNF | DIN371/374 | | TC864 (p.26) | | | TD864 (p.26) |
| SURFACE TREATMENT | | | Bright | Bright | FSH | TiN | TiN |
| MODEL | | | | | NEW | | |

| ISO | VDI 3323 | Material Description | Composition / Structure / Heat Treatment | | HB | HRc | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| P | 1 | Non-alloy steel | About 0.15% C | Annealed | 125 | | ○ (15-20) | ○ (15-20) | ○ (20-25) | ○ (20-25) | ○ (20-25) |
| | 2 | | About 0.45% C | Annealed | 190 | 13 | ◎ (15-20) | ◎ (15-20) | ◎ (20-25) | ◎ (20-25) | ◎ (20-25) |
| | 3 | | About 0.45% C | Quenched & Tempered | 250 | 25 | ◎ (12-18) | ◎ (12-18) | ◎ (18-24) | ◎ (18-24) | ◎ (18-24) |
| | 4 | | About 0.75% C | Annealed | 270 | 28 | ◎ (10-15) | ◎ (10-15) | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) |
| | 5 | | About 0.75% C | Quenched & Tempered | 300 | 32 | ◎ (6-10) | ◎ (6-10) | ◎ (10-14) | ◎ (10-14) | ◎ (10-14) |
| | 6 | Low alloy steel | | Annealed | 180 | 10 | ◎ (10-15) | ◎ (10-15) | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) |
| | 7 | | | Quenched & Tempered | 275 | 29 | ◎ (10-15) | ◎ (10-15) | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) |
| | 8 | | | Quenched & Tempered | 300 | 32 | ◎ (6-10) | ◎ (6-10) | ◎ (10-14) | ◎ (10-14) | ◎ (10-14) |
| | 9 | | | Quenched & Tempered | 350 | 38 | ◎ (3-5) | ◎ (3-5) | ◎ (5-7) | ◎ (5-7) | ◎ (5-7) |
| | 10 | High alloyed steel, and tool steel | | Annealed | 200 | 15 | ○ (3-5) | ○ (3-5) | ○ (5-7) | ○ (5-7) | ○ (5-7) |
| | 11 | | | Quenched & Tempered | 325 | 35 | | | | | |
| M | 12 | Stainless steel | Ferritic / Martensitic | Annealed | 200 | 15 | ◎ (7-10) | ◎ (7-10) | ◎ (10-15) | ◎ (10-15) | ◎ (10-15) |
| | 13 | | Martensitic | Quenched & Tempered | 240 | 23 | ◎ (5-8) | ◎ (5-8) | ◎ (8-11) | ◎ (8-11) | ◎ (8-11) |
| | 14 | | | Austenitic | 180 | 10 | ◎ (4-6) | ◎ (4-6) | ◎ (6-8) | ◎ (6-8) | ◎ (6-8) |
| K | 15 | Grey cast iron | Pearlitic / ferritic | | 180 | 10 | ◎ (10-15) | ◎ (10-15) | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) |
| | 16 | | Pearlitic (Martensitic) | | 260 | 26 | ◎ (5-8) | ◎ (5-8) | ◎ (8-11) | ◎ (8-11) | ◎ (8-11) |
| | 17 | Nodular cast iron | Ferritic | | 160 | 3 | ◎ (10-15) | ◎ (10-15) | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) |
| | 18 | | Pearlitic | | 250 | 25 | ◎ (5-8) | ◎ (5-8) | ◎ (8-11) | ◎ (8-11) | ◎ (8-11) |
| | 19 | Malleable cast iron | Ferritic | | 130 | | | | | | |
| | 20 | | Pearlitic | | 230 | 21 | | | | | |
| N | 21 | Aluminum-wrought alloy | Not Curable | | 60 | | | | | | |
| | 22 | | Curable | Hardened | 100 | | | | | | |
| | 23 | Aluminum-cast, alloyed | ≤ 12% Si, Not Curable | | 75 | | ◎ (15-20) | ◎ (15-20) | ◎ (20-25) | ◎ (20-25) | ◎ (20-25) |
| | 24 | | ≤ 12% Si, Curable | Hardened | 90 | | | | | | |
| | 25 | | > 12% Si, Not Curable | | 130 | | | | | | |
| | 26 | Copper and Copper Alloys (Bronze / Brass) | Cutting Alloys, PB>1% | | 110 | | ◎ (25-35) | ◎ (25-35) | ◎ (35-40) | ◎ (35-40) | ◎ (35-40) |
| | 27 | | CuZn, CuSnZn (Brass) | | 90 | | ◎ (8-12) | ◎ (8-12) | ◎ (12-17) | ◎ (12-17) | ◎ (12-17) |
| | 28 | | CuSn, lead-free copper and electrolytic copper | | 100 | | ◎ (15-20) | ◎ (15-20) | ◎ (20-25) | ◎ (20-25) | ◎ (20-25) |
| | 29 | Non Metallic Materials | Duroplastic, Fiber Reinforced Plastic | | | | | | | | |
| | 30 | | Rubber, Wood, etc. | | | | | | | | |
| S | 31 | Heat Resistant Super Alloys | Fe Based | Annealed | 200 | 15 | | | | | |
| | 32 | | | Cured | 280 | 30 | | | | | |
| | 33 | | Ni or Co Based | Annealed | 250 | 25 | | | | | |
| | 34 | | | Cured | 350 | 38 | | | | | |
| | 35 | | | Cast | 320 | 34 | | | | | |
| | 36 | Titanium Alloys | Pure Titanium | | 400 Rm | | | | | | |
| | 37 | | Alpha + Beta Alloys | Hardened | 1050 Rm | | | | | | |
| H | 38 | Hardened steel | | Hardened | 550 | 55 | | | | | |
| | 39 | | | Hardened | 630 | 60 | | | | | |
| | 40 | Chilled Cast Iron | | Cast | 400 | 42 | | | | | |
| | 41 | Hardened Cast Iron | | Hardened | 550 | 55 | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HOLE TYPE | | | Max. 2.5xD Blind Hole | | | | | | | | | | |
| TOOL MATERIAL | | | HSS-E | | | | | | | | | | |
| CHAMFER LEAD ACC. TO DIN2197 | | | C | | | | | | | | | | |
| FLUTE TYPE | | | Spiral Flute | | | | | | | | | | |
| SPIRAL FLUTE ANGLE | | | R40 | | | | | | | | | | |
| CLASS OF THREAD | | | 6H | 2B | 4H | 6G | 3B | 4H | 6G | 3B | 4H | 6H+0.1 | 6H+0.1 |
| SERIES | M | DIN371/376 | TB804 (p.10~11) | | TCE05 (p.12) | | | TDE05 (p.12) | | | TBE05 (p.12) | TCE06 (p.13) | TDE06 (p.13) |
| | | DIN352 | | | | | | | | | | | |
| | | DIN357/LONG | | | | | | | | | | | |
| | MF | DIN374 | TB844 (p.16~18) | | | TCE09 (p.19~20) | | | TDE09 (p.19~20) | | | | |
| | | DIN2181 | | | | | | | | | | | |
| | UNC | DIN371/376 | | TB824 (p.24) | | | TCE01 (p.25) | | | TDE01 (p.25) | | | |
| | | DIN351 | | | | | | | | | | | |
| | UNF | DIN371/374 | | TB864 (p.26) | | | TCE02 (p.27) | | | TDE02 (p.27) | | | |
| SURFACE TREATMENT | | | VAP | VAP | Bright | Bright | Bright | TiN | TiN | TiN | VAP | Bright | TiN |
| MODEL | | |  |  |  |  |  |  |  |  |  |  |  |
| ISO | VDI 3323 | Material Description | | | | | | | | | | | |
| P | 1 | Non-alloy steel | ○ (15-20) | ○ (15-20) | ○ (15-20) | ○ (15-20) | ○ (15-20) | ○ (20-25) | ○ (20-25) | ○ (20-25) | ○ (15-20) | ○ (15-20) | ○ (20-25) |
| | 2 | | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) | ◎ (20-25) | ◎ (20-25) | ◎ (20-25) | ◎ (15-20) | ◎ (15-20) | ◎ (20-25) |
| | 3 | | ◎ (12-18) | ◎ (12-18) | ◎ (12-18) | ◎ (12-18) | ◎ (12-18) | ◎ (18-24) | ◎ (18-24) | ◎ (18-24) | ◎ (12-18) | ◎ (12-18) | ◎ (18-24) |
| | 4 | | ◎ (10-15) | ◎ (10-15) | ◎ (10-15) | ◎ (10-15) | ◎ (10-15) | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) | ◎ (10-15) | ◎ (10-15) | ◎ (15-20) |
| | 5 | | ◎ (6-10) | ◎ (6-10) | ◎ (6-10) | ◎ (6-10) | ◎ (6-10) | ◎ (10-14) | ◎ (10-14) | ◎ (10-14) | ◎ (6-10) | ◎ (6-10) | ◎ (10-14) |
| | 6 | Low alloy steel | ◎ (10-15) | ◎ (10-15) | ◎ (10-15) | ◎ (10-15) | ◎ (10-15) | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) | ◎ (10-15) | ◎ (10-15) | ◎ (15-20) |
| | 7 | | ◎ (10-15) | ◎ (10-15) | ◎ (10-15) | ◎ (10-15) | ◎ (10-15) | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) | ◎ (10-15) | ◎ (10-15) | ◎ (15-20) |
| | 8 | | ◎ (6-10) | ◎ (6-10) | ◎ (6-10) | ◎ (6-10) | ◎ (6-10) | ◎ (10-14) | ◎ (10-14) | ◎ (10-14) | ◎ (6-10) | ◎ (6-10) | ◎ (10-14) |
| | 9 | | ◎ (3-5) | ◎ (3-5) | ◎ (3-5) | ◎ (3-5) | ◎ (3-5) | ◎ (5-7) | ◎ (5-7) | ◎ (5-7) | ◎ (3-5) | ◎ (3-5) | ◎ (5-7) |
| | 10 | High alloyed steel, and tool steel | ○ (3-5) | ○ (3-5) | ○ (3-5) | ○ (3-5) | ○ (3-5) | ○ (5-7) | ○ (5-7) | ○ (5-7) | ○ (3-5) | ○ (3-5) | ○ (5-7) |
| | 11 | | | | | | | | | | | | |
| M | 12 | Stainless steel | ◎ (7-10) | ◎ (7-10) | ◎ (7-10) | ◎ (7-10) | ◎ (7-10) | ◎ (10-15) | ◎ (10-15) | ◎ (10-15) | ◎ (7-10) | ◎ (7-10) | ◎ (10-15) |
| | 13 | | ◎ (5-8) | ◎ (5-8) | ◎ (5-8) | ◎ (5-8) | ◎ (5-8) | ◎ (8-11) | ◎ (8-11) | ◎ (8-11) | ◎ (5-8) | ◎ (5-8) | ◎ (8-11) |
| | 14 | | ◎ (4-6) | ◎ (4-6) | ◎ (4-6) | ◎ (4-6) | ◎ (4-6) | ◎ (6-8) | ◎ (6-8) | ◎ (6-8) | ◎ (4-6) | ◎ (4-6) | ◎ (6-8) |
| K | 15 | Grey cast iron | ◎ (10-15) | ◎ (10-15) | ◎ (10-15) | ◎ (10-15) | ◎ (10-15) | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) | ◎ (10-15) | ◎ (10-15) | ◎ (15-20) |
| | 16 | | ◎ (5-8) | ◎ (5-8) | ◎ (5-8) | ◎ (5-8) | ◎ (5-8) | ◎ (8-11) | ◎ (8-11) | ◎ (8-11) | ◎ (5-8) | ◎ (5-8) | ◎ (8-11) |
| | 17 | Nodular cast iron | ◎ (10-15) | ◎ (10-15) | ◎ (10-15) | ◎ (10-15) | ◎ (10-15) | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) | ◎ (10-15) | ◎ (10-15) | ◎ (15-20) |
| | 18 | | ◎ (5-8) | ◎ (5-8) | ◎ (5-8) | ◎ (5-8) | ◎ (5-8) | ◎ (8-11) | ◎ (8-11) | ◎ (8-11) | ◎ (5-8) | ◎ (5-8) | ◎ (8-11) |
| | 19 | Malleable cast iron | | | | | | | | | | | |
| | 20 | | | | | | | | | | | | |
| N | 21 | Aluminum-wrought alloy | | | | | | | | | | | |
| | 22 | | | | | | | | | | | | |
| | 23 | Aluminum-cast, alloyed | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) | ◎ (20-25) | ◎ (20-25) | ◎ (20-25) | ◎ (15-20) | ◎ (15-20) | ◎ (20-25) |
| | 24 | | | | | | | | | | | | |
| | 25 | | | | | | | | | | | | |
| | 26 | Copper and Copper Alloys (Bronze / Brass) | ◎ (25-35) | ◎ (25-35) | ◎ (25-35) | ◎ (25-35) | ◎ (25-35) | ◎ (35-40) | ◎ (35-40) | ◎ (35-40) | ◎ (25-35) | ◎ (25-35) | ◎ (35-40) |
| | 27 | | ◎ (8-12) | ◎ (8-12) | ◎ (8-12) | ◎ (8-12) | ◎ (8-12) | ◎ (12-17) | ◎ (12-17) | ◎ (12-17) | ◎ (8-12) | ◎ (8-12) | ◎ (12-17) |
| | 28 | | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) | ◎ (15-20) | ◎ (20-25) | ◎ (20-25) | ◎ (20-25) | ◎ (15-20) | ◎ (15-20) | ◎ (20-25) |
| | 29 | Non Metallic Materials | | | | | | | | | | | |
| | 30 | | | | | | | | | | | | |
| S | 31 | Heat Resistant Super Alloys | | | | | | | | | | | |
| | 32 | | | | | | | | | | | | |
| | 33 | | | | | | | | | | | | |
| | 34 | | | | | | | | | | | | |
| | 35 | | | | | | | | | | | | |
| | 36 | Titanium Alloys | | | | | | | | | | | |
| | 37 | | | | | | | | | | | | |
| H | 38 | Hardened steel | | | | | | | | | | | |
| | 39 | | | | | | | | | | | | |
| | 40 | Chilled Cast Iron | | | | | | | | | | | |
| | 41 | Hardened Cast Iron | | | | | | | | | | | |