

Threading Tools

Catalogue

Boring Tools

2022



ZCC Cutting Tools Europe GmbH

your Partner | your Value



WELCOME TO ZCC CUTTING TOOLS EUROPE

ZCC-CT, one of the World's leading carbide tooling manufacturers, welcomes you to its products. We are able to offer you a wide product range of high performance cutting tools at economic prices and a good supply service to support the production and productivity at your manufacturing facilities. You will find the main tool types in the various sections of the catalogue, Turning is in section A, Milling in section B and Drilling in section C of the catalogue.

We are looking forward to working with you and developing good cooperation together. Our team at ZCC Cutting Tools Europe is ready to support you in all of your requirements.



Member of Minmetals Group



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The image features a dark background with a blue and red gradient. In the upper half, two forming taps are shown diagonally, highlighting their serrated, chip-free cutting edges. In the lower half, a forming tap is shown in the process of cutting a hole into a metal workpiece, with a bright, glowing cutting zone. The overall composition is industrial and technical.

Forming Taps

Chip-free internal threading tools

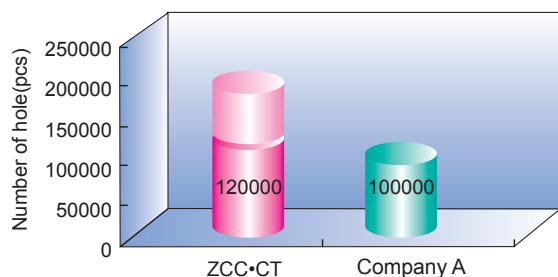
- ◆ Super micro grain cemented carbide with good toughness and abrasion resistance has long tool life.
- ◆ With particularly section-sharp design has good rigidity and strength.
- ◆ Thanks to the special technique treatment on cutting edge surface, ensuring good threading machining quality and high dimensional accuracy.

It is apply for high efficiency through-hole and blind-hole machining of high tensility material such as soft steel, stainless steel, Al alloys and cast Al alloy, etc.

Application case

Work piece: auto engine shell
 Work piece material: Al alloy (HB90~120)
 Tool type: 4222ACS-M10×1.25-6H
 Cutting parameters: n=1300r/min
 F=1625mm/min
 h=29mm, through hole or blind hole machining
 Machining tool: horizontal machining center
 Cooling style: emulsified liquid cooling

Comparison of hole number



ZCC-CT: 120000 holes (still usable)
 Company A: 100000 holes (failure)

Boring Tools



Drills

- C2-C143
- Solid carbide drills C2-C98
- Indexable U drill C99-C129
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Reamers

- C144-C155
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Threading tools

- C156-C184
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BORING TOOL Threading tools

How to choose the right solid carbide threading tools

How to choose the right solid carbide threading tools

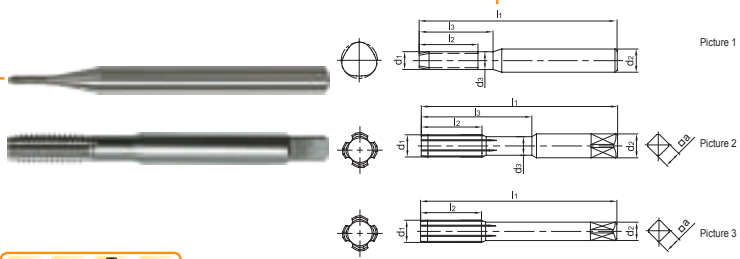
- Shape
- Product name
- Product category

Application

Shape size

Solid carbide threading cutter

Forming taps - Al alloys machining



| Type | Cooling mode | Basic dimension(mm) | | | | | | | | | | Thread profile | Geometry | Number of teeth | Grade | | Pre-hole diameter d |
|---------------------|------------------|-------------------------|------|------|-----|-----|----|----|----|-------|--------|----------------|-----------|-----------------|-------|---|---------------------|
| | | Length of Forming taper | d1 | P | d2 | d3 | l1 | l2 | l3 | a × a | KTG402 | | | | YK40F | | |
| 4122M-M1*0.25-6H | External coolant | 3P | M1 | 0.25 | 3 | | 40 | 5 | | | | 60° | Picture 1 | 4 | ● | ○ | 0.9 |
| 4122MS-M1*0.25-6H | | 2P | M1 | 0.25 | 3 | | 40 | 5 | | | | 60° | Picture 1 | 4 | ● | ○ | 0.9 |
| 4122M-M1.2*0.25-6H | | 3P | M1.2 | 0.25 | 3 | | 40 | 5 | | | | 60° | Picture 1 | 4 | ● | ○ | 1.1 |
| 4122MS-M1.2*0.25-6H | | 2P | M1.2 | 0.25 | 3 | | 40 | 5 | | | | 60° | Picture 1 | 4 | ● | ○ | 1.1 |
| 4122M-M1.6*0.35-6H | | 3P | M1.6 | 0.35 | 3 | 1.1 | 40 | 5 | 11 | | | 60° | Picture 1 | 4 | ● | ○ | 1.47 |
| 4122MS-M1.6*0.35-6H | | 2P | M1.6 | 0.35 | 3 | 1.1 | 40 | 5 | 11 | | | 60° | Picture 1 | 4 | ● | ○ | 1.47 |
| 4122M-M2*0.4-6H | | 3P | M2 | 0.4 | 3 | 1.5 | 45 | 6 | 12 | | | 60° | Picture 1 | 4 | ● | ○ | 1.85 |
| 4122MS-M2*0.4-6H | | 2P | M2 | 0.4 | 3 | 1.5 | 45 | 6 | 12 | | | 60° | Picture 1 | 4 | ● | ○ | 1.85 |
| 4122M-M2.5*0.45-6H | | 3P | M2.5 | 0.45 | 3 | 1.9 | 50 | 6 | 14 | | | 60° | Picture 1 | 4 | ● | ○ | 2.33 |
| 4122MS-M2.5*0.45-6H | | 2P | M2.5 | 0.45 | 3 | 1.9 | 50 | 6 | 14 | | | 60° | Picture 1 | 4 | ● | ○ | 2.33 |
| 4222M-M3*0.5-6H | | 3P | M3 | 0.5 | 3.5 | 2.3 | 56 | 6 | 18 | 2.7 | | 60° | Picture 2 | 4 | ● | ○ | 2.8 |
| 4222MS-M3*0.5-6H | | 2P | M3 | 0.5 | 3.5 | 2.3 | 56 | 6 | 18 | 2.7 | | 60° | Picture 2 | 4 | ● | ○ | 2.8 |
| 4222M-M4*0.5-6H | | 3P | M4 | 0.5 | 4.5 | 3.1 | 63 | 8 | 21 | 3.4 | | 60° | Picture 2 | 4 | ● | ○ | 3.8 |
| 4222MS-M4*0.5-6H | | 2P | M4 | 0.5 | 4.5 | 3.1 | 63 | 8 | 21 | 3.4 | | 60° | Picture 2 | 4 | ● | ○ | 3.8 |
| 4222M-M4*0.7-6H | | 3P | M4 | 0.7 | 4.5 | 3.1 | 63 | 8 | 21 | 3.4 | | 60° | Picture 2 | 4 | ● | ○ | 3.7 |
| 4222MS-M4*0.7-6H | | 2P | M4 | 0.7 | 4.5 | 3.1 | 63 | 8 | 21 | 3.4 | | 60° | Picture 2 | 4 | ● | ○ | 3.7 |
| 4222M-M5*0.5-6H | | 3P | M5 | 0.5 | 6 | 4.3 | 70 | 10 | 25 | 4.9 | | 60° | Picture 2 | 4 | ● | ○ | 4.8 |
| 4222MS-M5*0.5-6H | | 2P | M5 | 0.5 | 6 | 4.3 | 70 | 10 | 25 | 4.9 | | 60° | Picture 2 | 4 | ● | ○ | 4.8 |

● Stock available ○ Make-to-order

| Grade | Workpiece material | | | | | | | | | | |
|--------|--------------------|---------------------------|---|--------|--------|-----------------|-----------|-------------------|----------------|--------------|----------------------|
| | Mild steel HBS180 | Carbon steel, Alloy steel | Pre-hardened steel, Hardened steel ~40HRC | ~50HRC | ~60HRC | Stainless steel | Cast iron | Nodular cast iron | Aluminum alloy | Copper alloy | Heat resistant alloy |
| KTG402 | ○ | | | | | ○ | | | | | |
| YK40F | ○ | | | | | ○ | | | ○ | | |



- Applicable workpiece material range
- Thread profile angle, shank type, precision class

- Specification: Type, basic dimensions, number of tooth and grade.
- Code key, cutting parameter, technical information, Non-standard customization



BORING TOOL



Threading tools

Solid carbide threading tools overview ● C160

Icons information of solid carbide ● C160
threading tools

Code key of solid carbide threading tools ● C161

Detail information of solid carbide ● C162-C175
threading tools

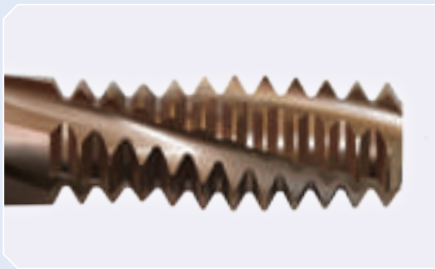
Solid carbide threading cutters C162-C173

Solid carbide threading end mills C174-C175

Recommended cutting parameters of solid ● C176
carbide threading tools



Technical information of solid carbide ● C177-C182
threading tools

Non-standard customization for ● C183-C184
threading tools





Threading tools overview

| Name | Type | Shape | Diameter range | Workpiece material | | | | | | Page | | |
|----------------------------|-------|---|----------------|--------------------|--------------|-----------------|-----------|----------------|----------------------|---------------|--------------------|---------------------|
| | | | | P | M | K | N | S | H | Specification | Cutting parameters | |
| | | | | Mild steel | Common steel | Stainless steel | Cast iron | Aluminum alloy | Heat resistant alloy | | | High hardness steel |
| Forming tap | 4122A |  | M1~M2.5 | | | | | ○ | | | C162 | C176 |
| | 4222A |  | M3~M16 | | | | | ○ | | | C163 | C176 |
| | 4122M |  | M1~M2.5 | ○ | | ○ | | ○ | | | C164 | C176 |
| | 4222M |  | M3~M16 | ○ | | ○ | | ○ | | | C165 | C176 |
| Helical-flute cutting taps | 4201C |  | M3~M16 | | | | | ○ | | | C166-C167 | C176 |
| | 4201A | | | | | | | ○ | | | C170-C171 | C176 |
| Straight-flute cutting tap | 4202C |  | M3~M16 | | | | | ○ | | | C168-C169 | C176 |
| | 4202A | | | | | | | ○ | | | C172-C173 | C176 |
| Threading end mills | 4111 |  | M3~M20 | ○ | ○ | | ○ | ○ | | | C175 | C176 |

○ Very suitable ○ Suitable

Icons information

Shank type



Straight shank



Square straight shank as per DIN10

Thread profile angle of tap



60° shown

Precision class of screw thread



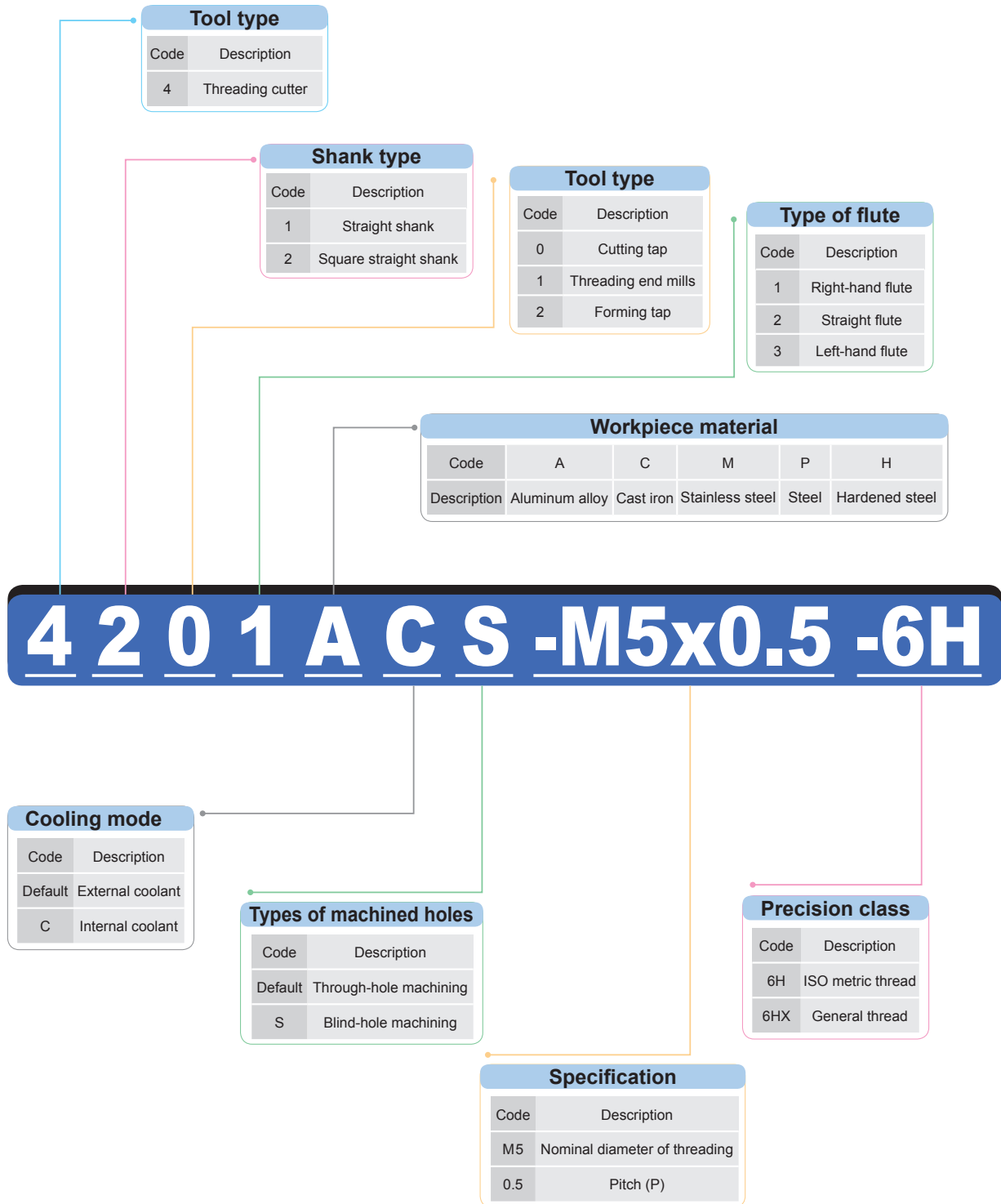
Precision class of screw thread



Precision class of screw thread



Threading tools code key



Tool type

| Code | Description |
|------|------------------|
| 4 | Threading cutter |

Shank type

| Code | Description |
|------|-----------------------|
| 1 | Straight shank |
| 2 | Square straight shank |

Tool type

| Code | Description |
|------|---------------------|
| 0 | Cutting tap |
| 1 | Threading end mills |
| 2 | Forming tap |

Type of flute

| Code | Description |
|------|------------------|
| 1 | Right-hand flute |
| 2 | Straight flute |
| 3 | Left-hand flute |

Workpiece material

| Code | A | C | M | P | H |
|-------------|----------------|-----------|-----------------|-------|----------------|
| Description | Aluminum alloy | Cast iron | Stainless steel | Steel | Hardened steel |

4 2 0 1 A C S - M5x0.5 - 6H

Cooling mode

| Code | Description |
|---------|------------------|
| Default | External coolant |
| C | Internal coolant |

Types of machined holes

| Code | Description |
|---------|------------------------|
| Default | Through-hole machining |
| S | Blind-hole machining |

Specification

| Code | Description |
|------|-------------------------------|
| M5 | Nominal diameter of threading |
| 0.5 | Pitch (P) |

Precision class

| Code | Description |
|------|-------------------|
| 6H | ISO metric thread |
| 6HX | General thread |

- Drilling tools
- Reaming Tools
- Threading Cutter**

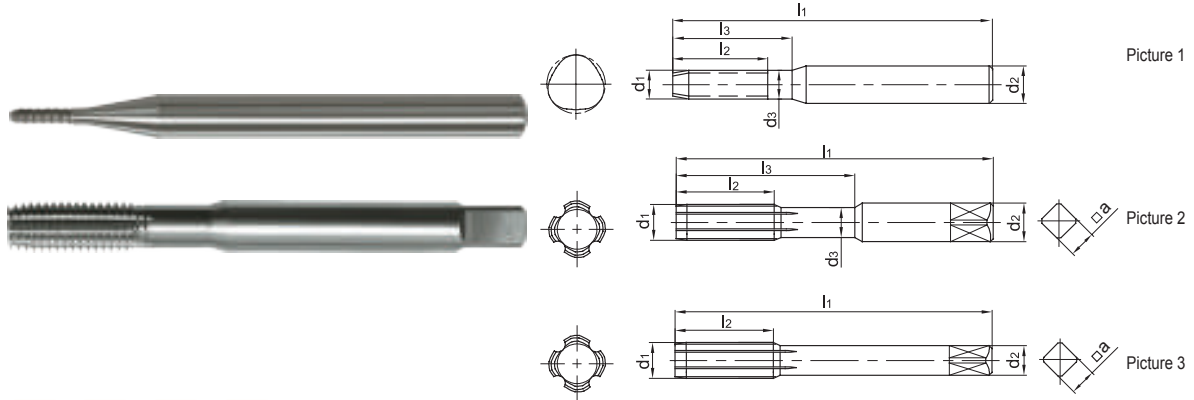
Threading cutter code key



BORING TOOL Threading tools

Forming taps -Al alloys machining

Forming taps -Al alloys machining



| Type | Cooling mode | Basic dimension(mm) | | | | | | | | | | | Grade | Pre-hole diameter | | |
|---------------------|------------------|-------------------------|----------------|------|----------------|----------------|----------------|----------------|----------------|-------|----------------|-----------|-----------|-------------------|-----------------|-------|
| | | Length of Forming taper | d ₁ | P | d ₂ | d ₃ | l ₁ | l ₂ | l ₃ | a × a | Thread profile | Geometry | | | Number of teeth | YK40F |
| 4122A-M1*0.25-6H | External coolant | 3P | M1 | 0.25 | 3 | | 40 | 5 | | | | | Picture 1 | 3 | ● | 0.9 |
| 4122AS-M1*0.25-6H | | 1.5P | M1 | 0.25 | 3 | | 40 | 5 | | | | | | 3 | ● | 0.9 |
| 4122A-M1.2*0.25-6H | | 3P | M1.2 | 0.25 | 3 | | 40 | 5 | | | | | Picture 1 | 3 | ● | 1.1 |
| 4122AS-M1.2*0.25-6H | | 1.5P | M1.2 | 0.25 | 3 | | 40 | 5 | | | | | | 3 | ● | 1.1 |
| 4122A-M1.6*0.35-6H | | 3P | M1.6 | 0.35 | 3 | 1.1 | 40 | 5 | 11 | | | | Picture 1 | 3 | ● | 1.47 |
| 4122AS-M1.6*0.35-6H | | 1.5P | M1.6 | 0.35 | 3 | 1.1 | 40 | 5 | 11 | | | | | 3 | ● | 1.47 |
| 4122A-M2*0.4-6H | | 3P | M2 | 0.4 | 3 | 1.5 | 45 | 6 | 12 | | | | Picture 1 | 3 | ● | 1.85 |
| 4122AS-M2*0.4-6H | | 1.5P | M2 | 0.4 | 3 | 1.5 | 45 | 6 | 12 | | | | | 3 | ● | 1.85 |
| 4122A-M2.5*0.45-6H | | 3P | M2.5 | 0.45 | 3 | 1.9 | 50 | 6 | 14 | | | | Picture 1 | 3 | ● | 2.33 |
| 4122AS-M2.5*0.45-6H | | 1.5P | M2.5 | 0.45 | 3 | 1.9 | 50 | 6 | 14 | | | | | 3 | ● | 2.33 |
| 4222A-M3*0.5-6H | | 3P | M3 | 0.5 | 3.5 | 2.3 | 56 | 6 | 18 | 2.7 | | | Picture 2 | 4 | ● | 2.8 |
| 4222AS-M3*0.5-6H | | 1.5P | M3 | 0.5 | 3.5 | 2.3 | 56 | 6 | 18 | 2.7 | | | | 4 | ● | 2.8 |
| 4222A-M4*0.5-6H | | 3P | M4 | 0.5 | 4.5 | 3.1 | 63 | 8 | 21 | 3.4 | 60° | | Picture 2 | 4 | ● | 3.8 |
| 4222AS-M4*0.5-6H | | 1.5P | M4 | 0.5 | 4.5 | 3.1 | 63 | 8 | 21 | 3.4 | 60° | | | 4 | ● | 3.8 |
| 4222A-M4*0.7-6H | | 3P | M4 | 0.7 | 4.5 | 3.1 | 63 | 8 | 21 | 3.4 | 60° | | Picture 2 | 4 | ● | 3.7 |
| 4222AS-M4*0.7-6H | | 1.5P | M4 | 0.7 | 4.5 | 3.1 | 63 | 8 | 21 | 3.4 | 60° | | | 4 | ● | 3.7 |
| 4222A-M5*0.5-6H | | 3P | M5 | 0.5 | 6 | 4.3 | 70 | 10 | 25 | 4.9 | 60° | | Picture 2 | 4 | ● | 4.8 |
| 4222AS-M5*0.5-6H | | 1.5P | M5 | 0.5 | 6 | 4.3 | 70 | 10 | 25 | 4.9 | 60° | | | 4 | ● | 4.8 |
| 4222A-M5*0.8-6H | | 3P | M5 | 0.8 | 6 | 4 | 70 | 10 | 25 | 4.9 | 60° | | Picture 2 | 4 | ● | 4.65 |
| 4222AS-M5*0.8-6H | | 1.5P | M5 | 0.8 | 6 | 4 | 70 | 10 | 25 | 4.9 | 60° | | | 4 | ● | 4.65 |
| 4222A-M6*0.75-6H | 3P | M6 | 0.75 | 6 | 5 | 80 | 12 | 30 | 4.9 | 60° | | Picture 2 | 4 | ● | 5.7 | |
| 4222AS-M6*0.75-6H | 1.5P | M6 | 0.75 | 6 | 5 | 80 | 12 | 30 | 4.9 | 60° | | | 4 | ● | 5.7 | |
| 4222A-M6*1-6H | 3P | M6 | 1 | 6 | 4.7 | 80 | 12 | 30 | 4.9 | 60° | | Picture 2 | 4 | ● | 5.6 | |
| 4222AS-M6*1-6H | 1.5P | M6 | 1 | 6 | 4.7 | 80 | 12 | 30 | 4.9 | 60° | | | 4 | ● | 5.6 | |
| 4222A-M7*1-6H | 3P | M7 | 1 | 7 | 5.7 | 80 | 14 | 30 | 5.5 | 60° | | Picture 2 | 4 | ● | 6.6 | |
| 4222AS-M7*1-6H | 1.5P | M7 | 1 | 7 | 5.7 | 80 | 14 | 30 | 5.5 | 60° | | | 4 | ● | 6.6 | |

● Stock available ○ Make-to-order

Drilling tools
 Reaming Tools
 Threading Cutter
 Forming taps-Al alloys machining



| Type | Cooling mode | Basic dimension(mm) | | | | | | | | | | | | Grade | Pre-hole diameter |
|--------------------|------------------|-------------------------|----------------|------|----------------|----------------|----------------|----------------|----------------|-----------|----------------|-----------|-----------------|-------|-------------------|
| | | Length of Forming taper | d ₁ | P | d ₂ | d ₃ | l ₁ | l ₂ | l ₃ | a × a | Thread profile | Geometry | Number of teeth | YK40F | d |
| 4222A-M8*1-6H | External coolant | 3P | M8 | 1 | 8 | 6.7 | 90 | 16 | 35 | 6.2 | 60° | Picture 2 | 4 | ● | 7.6 |
| 4222AS-M8*1-6H | | 1.5P | | | | | | | | | | | | | |
| 4222A-M8*1.25-6H | | 3P | M8 | 1.25 | 8 | 6.4 | 90 | 16 | 35 | 6.2 | | Picture 2 | 4 | ● | 7.45 |
| 4222AS-M8*1.25-6H | | 1.5P | | | | | | | | | | | | | |
| 4222A-M10*1-6H | | 3P | M10 | 1 | 10 | 8.7 | 100 | 20 | 39 | 8 | | Picture 2 | 5 | ● | 9.6 |
| 4222AS-M10*1-6H | | 1.5P | | | | | | | | | | | | | |
| 4222A-M10*1.25-6H | | 3P | M10 | 1.25 | 10 | 8.4 | 100 | 20 | 39 | 8 | | Picture 2 | 5 | ● | 9.45 |
| 4222AS-M10*1.25-6H | | 1.5P | | | | | | | | | | | | | |
| 4222A-M10*1.5-6H | 3P | M10 | 1.5 | 10 | 8.1 | 100 | 20 | 39 | 8 | Picture 2 | 5 | ● | 9.35 | | |
| 4222AS-M10*1.5-6H | 1.5P | | | | | | | | | | | | | | |
| 4222AC-M10*1.5-6H | Internal coolant | 3P | M12 | 1.25 | 9 | 110 | 24 | 7 | 7 | Picture 3 | 5 | ● | 11.45 | | |
| 4222ACS-M10*1.5-6H | | 1.5P | | | | | | | | | | | | | |
| 4222A-M12*1.25-6H | External coolant | 3P | M12 | 1.5 | 9 | 110 | 24 | 7 | 7 | Picture 3 | 5 | ● | 11.35 | | |
| 4222AS-M12*1.25-6H | | 1.5P | | | | | | | | | | | | | |
| 4222A-M12*1.5-6H | | 3P | M12 | 1.75 | 9 | 110 | 24 | 7 | Picture 3 | 5 | ● | 11.25 | | | |
| 4222AS-M12*1.5-6H | | 1.5P | | | | | | | | | | | | | |
| 4222A-M12*1.75-6H | Internal coolant | 3P | M14 | 1.5 | 11 | 110 | 26 | 9 | 9 | Picture 3 | 6 | ● | 13.35 | | |
| 4222AS-M12*1.75-6H | | 1.5P | | | | | | | | | | | | | |
| 4222AC-M12*1.75-6H | External coolant | 3P | M14 | 2 | 11 | 110 | 26 | 9 | 9 | Picture 3 | 6 | ● | 13.1 | | |
| 4222AS-M14*1.5-6H | | 1.5P | | | | | | | | | | | | | |
| 4222A-M14*1.5-6H | External coolant | 3P | M16 | 1.5 | 12 | 110 | 27 | 9 | 9 | Picture 3 | 6 | ● | 15.35 | | |
| 4222AS-M14*2-6H | | 1.5P | | | | | | | | | | | | | |
| 4222A-M16*1.5-6H | Internal coolant | 3P | M16 | 2 | 12 | 110 | 27 | 9 | 9 | Picture 3 | 6 | ● | 15.1 | | |
| 4222AS-M16*1.5-6H | | 1.5P | | | | | | | | | | | | | |
| 4222A-M16*2-6H | Internal coolant | 3P | M16 | 2 | 12 | 110 | 27 | 9 | 9 | Picture 3 | 6 | ● | 15.1 | | |
| 4222AS-M16*2-6H | | 1.5P | | | | | | | | | | | | | |
| 4222AC-M16*2-6H | Internal coolant | 3P | M16 | 2 | 12 | 110 | 27 | 9 | 9 | Picture 3 | 6 | ● | 15.1 | | |
| 4222ACS-M16*2-6H | | 1.5P | | | | | | | | | | | | | |

● Stock available ○ Make-to-order

Drilling tools
 Reaming Tools
 Threading Cutter

Forming taps-Al alloys machining

▶ Applicable material table

◎Very suitable ○Suitable

| Grade | Workpiece material | | | | | | | | | |
|-------|----------------------|---------------------------------|------------------------------------|--------|--------|--------------------|-----------|----------------------|-------------------|-----------------|
| | Mild steel HB≤180 | Carbon steel, Alloy steel | Pre-hardened steel, Hardened steel | | | Stainless steel | Cast iron | Nodular cast iron | Aluminum alloy | Copper alloy |
| YK40F | | | ~40HRC | ~50HRC | ~60HRC | | | | ◎ | |

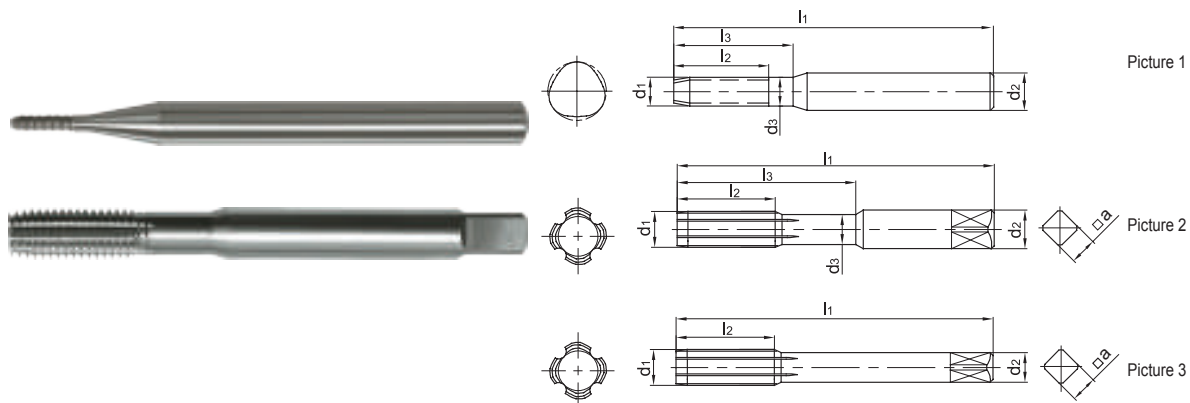
Code key C161 Cutting parameters C176 Technical information C177-C182 Non-standard customization C183



BORING TOOL / Threading tools

Forming taps -stainless steel machining

Forming taps -stainless steel machining



| Type | Cooling mode | Basic dimension(mm) | | | | | | | | | | | Grade | | Pre-hole diameter | | | | |
|---------------------|------------------|-------------------------|----------------|------|----------------|----------------|----------------|----------------|----------------|-------|----------------|----------|-----------------|--------|-------------------|-------|---|---|------|
| | | Length of Forming taper | d ₁ | P | d ₂ | d ₃ | l ₁ | l ₂ | l ₃ | a × a | Thread profile | Geometry | Number of teeth | KTG402 | | YK40F | d | | |
| 4122M-M1*0.25-6H | External coolant | 3P | M1 | 0.25 | 3 | | 40 | 5 | | | | | | 60° | Picture 1 | 4 | ● | ○ | 0.9 |
| 4122MS-M1*0.25-6H | | 2P | M1 | 0.25 | 3 | | 40 | 5 | | | | | | | Picture 1 | 4 | ● | ○ | 0.9 |
| 4122M-M1.2*0.25-6H | | 3P | M1.2 | 0.25 | 3 | | 40 | 5 | | | | | | | Picture 1 | 4 | ● | ○ | 1.1 |
| 4122MS-M1.2*0.25-6H | | 2P | M1.2 | 0.25 | 3 | | 40 | 5 | | | | | | | Picture 1 | 4 | ● | ○ | 1.1 |
| 4122M-M1.6*0.35-6H | | 3P | M1.6 | 0.35 | 3 | 1.1 | 40 | 5 | 11 | | | | | | Picture 1 | 4 | ● | ○ | 1.47 |
| 4122MS-M1.6*0.35-6H | | 2P | M1.6 | 0.35 | 3 | 1.1 | 40 | 5 | 11 | | | | | | Picture 1 | 4 | ● | ○ | 1.47 |
| 4122M-M2*0.4-6H | | 3P | M2 | 0.4 | 3 | 1.5 | 45 | 6 | 12 | | | | | | Picture 1 | 4 | ● | ○ | 1.85 |
| 4122MS-M2*0.4-6H | | 2P | M2 | 0.4 | 3 | 1.5 | 45 | 6 | 12 | | | | | | Picture 1 | 4 | ● | ○ | 1.85 |
| 4122M-M2.5*0.45-6H | | 3P | M2.5 | 0.45 | 3 | 1.9 | 50 | 6 | 14 | | | | | | Picture 1 | 4 | ● | ○ | 2.33 |
| 4122MS-M2.5*0.45-6H | | 2P | M2.5 | 0.45 | 3 | 1.9 | 50 | 6 | 14 | | | | | | Picture 1 | 4 | ● | ○ | 2.33 |
| 4222M-M3*0.5-6H | | 3P | M3 | 0.5 | 3.5 | 2.3 | 56 | 6 | 18 | 2.7 | | | | | Picture 2 | 4 | ● | ○ | 2.8 |
| 4222MS-M3*0.5-6H | | 2P | M3 | 0.5 | 3.5 | 2.3 | 56 | 6 | 18 | 2.7 | | | | | Picture 2 | 4 | ● | ○ | 2.8 |
| 4222M-M4*0.5-6H | | 3P | M4 | 0.5 | 4.5 | 3.1 | 63 | 8 | 21 | 3.4 | | | | | Picture 2 | 4 | ● | ○ | 3.8 |
| 4222MS-M4*0.5-6H | | 2P | M4 | 0.5 | 4.5 | 3.1 | 63 | 8 | 21 | 3.4 | | | | | Picture 2 | 4 | ● | ○ | 3.8 |
| 4222M-M4*0.7-6H | | 3P | M4 | 0.7 | 4.5 | 3.1 | 63 | 8 | 21 | 3.4 | | | | | Picture 2 | 4 | ● | ○ | 3.7 |
| 4222MS-M4*0.7-6H | | 2P | M4 | 0.7 | 4.5 | 3.1 | 63 | 8 | 21 | 3.4 | | | | | Picture 2 | 4 | ● | ○ | 3.7 |
| 4222M-M5*0.5-6H | | 3P | M5 | 0.5 | 6 | 4.3 | 70 | 10 | 25 | 4.9 | | | | | Picture 2 | 4 | ● | ○ | 4.8 |
| 4222MS-M5*0.5-6H | | 2P | M5 | 0.5 | 6 | 4.3 | 70 | 10 | 25 | 4.9 | | | | | Picture 2 | 4 | ● | ○ | 4.8 |
| 4222M-M5*0.8-6H | | 3P | M5 | 0.8 | 6 | 4 | 70 | 10 | 25 | 4.9 | | | | | Picture 2 | 4 | ● | ○ | 4.65 |
| 4222MS-M5*0.8-6H | | 2P | M5 | 0.8 | 6 | 4 | 70 | 10 | 25 | 4.9 | | | | | Picture 2 | 4 | ● | ○ | 4.65 |
| 4222M-M6*0.75-6H | | 3P | M6 | 0.75 | 6 | 5 | 80 | 12 | 30 | 4.9 | | | | | Picture 2 | 4 | ● | ○ | 5.7 |
| 4222MS-M6*0.75-6H | | 2P | M6 | 0.75 | 6 | 5 | 80 | 12 | 30 | 4.9 | | | | | Picture 2 | 4 | ● | ○ | 5.7 |
| 4222M-M6*1-6H | | 3P | M6 | 1 | 6 | 4.7 | 80 | 12 | 30 | 4.9 | | | | | Picture 2 | 4 | ● | ○ | 5.6 |
| 4222MS-M6*1-6H | | 2P | M6 | 1 | 6 | 4.7 | 80 | 12 | 30 | 4.9 | | | | | Picture 2 | 4 | ● | ○ | 5.6 |
| 4222M-M7*1-6H | | 3P | M7 | 1 | 7 | 5.7 | 80 | 14 | 30 | 5.5 | | | | | Picture 2 | 4 | ● | ○ | 6.6 |
| 4222MS-M7*1-6H | | 2P | M7 | 1 | 7 | 5.7 | 80 | 14 | 30 | 5.5 | | | | | Picture 2 | 4 | ● | ○ | 6.6 |

● Stock available ○ Make-to-order

Drilling tools

Reaming Tools

Threading Cutter

Forming taps-stainless steel machining



| Type | Cooling mode | Basic dimension(mm) | | | | | | | | | | | Grade | | Pre-hole diameter | | | | | | |
|---------------------|------------------|-------------------------|------------------|------|----------------|----------------|----------------|----------------|----------------|-------|----------------|-----------|-----------------|--------|-------------------|-------|-----------|-------|-------|------|-------|
| | | Length of Forming taper | d ₁ | P | d ₂ | d ₃ | l ₁ | l ₂ | l ₃ | a × a | Thread profile | Geometry | Number of teeth | KTG402 | | YK40F | d | | | | |
| 4222M-M8*1-6H | External coolant | 3P | M8 | 1 | 8 | 6.7 | 90 | 16 | 35 | 6.2 | 60° | Picture 2 | 4 | ● | ○ | 7.6 | | | | | |
| 4222MS-M8*1-6H | | 2P | | | | | | | | | | | | | | | | | | | |
| 4222M-M8*1.25-6H | | 3P | M8 | 1.25 | 8 | 6.4 | 90 | 16 | 35 | 6.2 | | | | | 4 | ● | ○ | 7.45 | | | |
| 4222MS-M8*1.25-6H | | 2P | | | | | | | | | | | | | | | | | | | |
| 4222M-M10*1-6H | | Internal coolant | 3P | M10 | 1 | 10 | 8.7 | 100 | 20 | 39 | | | 8 | | Picture 2 | 5 | ● | ○ | 9.6 | | |
| 4222MS-M10*1-6H | | | 2P | | | | | | | | | | | | | | | | | | |
| 4222M-M10*1.25-6H | | | 3P | M10 | 1.25 | 10 | 8.4 | 100 | 20 | 39 | | | 8 | | | | 5 | ● | ○ | 9.45 | |
| 4222MS-M10*1.25-6H | | | 2P | | | | | | | | | | | | | | | | | | |
| 4222M-M10*1.5-6H | | | 3P | | | | | | | | | | | | | | | | | | |
| 4222MS-M10*1.5-6H | | | 2P | M10 | 1.5 | 10 | 8.1 | 100 | 20 | 39 | | | 8 | | | | 5 | ● | ○ | 9.35 | |
| 4222MC-M10*1.5-6H | | Internal coolant | 3P | | | | | | | | | | | | | | | | | | |
| 4222MCS-M10*1.5-6H | | | 2P | | | | | | | | | | | | | | | | | | |
| 4222M-M12*1.25-6H | External coolant | 3P | M12 | 1.25 | 9 | | 110 | 24 | | 7 | 60° | Picture 3 | 5 | ● | ○ | 11.45 | | | | | |
| 4222MS-M12*1.25-6H | | 2P | | | | | | | | | | | | | | | | | | | |
| 4222M-M12*1.5-6H | | 3P | M12 | 1.5 | 9 | | 110 | 24 | | 7 | | | | | 5 | ● | ○ | 11.35 | | | |
| 4222MS-M12*1.5-6H | | 2P | | | | | | | | | | | | | | | | | | | |
| 4222M-M12*1.75-6H | | Internal coolant | 3P | M12 | 1.75 | 9 | | 110 | 24 | | | | 7 | | Picture 3 | 5 | ● | ○ | 11.25 | | |
| 4222MS-M12*1.75-6H | | | 2P | | | | | | | | | | | | | | | | | | |
| 4222MC-M12*1.75-6H | | | 3P | | | | | | | | | | | | | | | | | | |
| 4222MCS-M12*1.75-6H | | | 2P | | | | | | | | | | | | | | | | | | |
| 4222M-M14*1.5-6H | | | External coolant | 3P | M14 | 1.5 | 11 | | 110 | 26 | | | | 9 | | | Picture 3 | 6 | ● | ○ | 13.35 |
| 4222MS-M14*1.5-6H | | | | 2P | | | | | | | | | | | | | | | | | |
| 4222M-M14*2-6H | | 3P | | M14 | 2 | 11 | | 110 | 26 | | | | 9 | | | 6 | | ● | ○ | 13.1 | |
| 4222MS-M14*2-6H | | 2P | | | | | | | | | | | | | | | | | | | |
| 4222M-M16*1.5-6H | Internal coolant | 3P | | M16 | 1.5 | 12 | | 110 | 27 | | 9 | | Picture 3 | 6 | ● | ○ | | 15.35 | | | |
| 4222MS-M16*1.5-6H | | 2P | | | | | | | | | | | | | | | | | | | |
| 4222M-M16*2-6H | | 3P | | | | | | | | | | | | | | | | | | | |
| 4222MS-M16*2-6H | | 2P | M16 | 2 | 12 | | 110 | 27 | | 9 | | | | 6 | ● | ○ | 15.1 | | | | |
| 4222MC-M16*2-6H | | 3P | | | | | | | | | | | | | | | | | | | |
| 4222MCS-M16*2-6H | | 2P | | | | | | | | | | | | | | | | | | | |

● Stock available ○ Make-to-order

Drilling tools
Reaming Tools
Threading Cutter

➤ Applicable material table

◎Very suitable ○Suitable

| Grade | Workpiece material | | | | | | | | | |
|--------|----------------------|------------------------------|------------------------------------|--------|--------|-----------------|-----------|-------------------|----------------|--------------|
| | Mild steel HB≤180 | Carbon steel, Alloy steel | Pre-hardened steel, Hardened steel | | | Stainless steel | Cast iron | Nodular cast iron | Aluminum alloy | Copper alloy |
| | | | ~40HRC | ~50HRC | ~60HRC | | | | | |
| KTG402 | ◎ | | | | | ◎ | | | | |
| YK40F | ○ | | | | | ○ | | ○ | | |

Code key C161 Cutting parameters C176 Technical information C177-C182 Non-standard customization C183

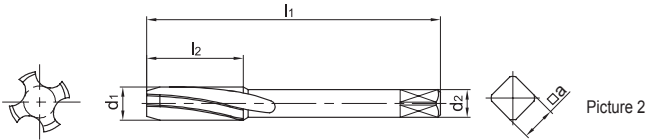
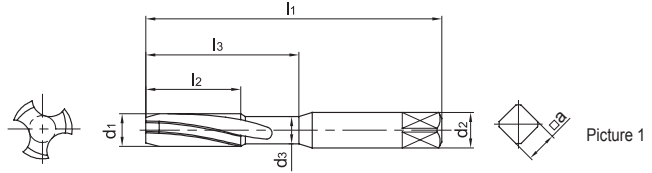
Forming taps-stainless steel machining



BORING TOOL / Threading tools

Helical-flute cutting taps - cast iron machining

Helical-flute cutting taps - cast iron machining



| Type | Basic dimension(mm) | | | | | | | | | | Thread profile | Geometry | Number of teeth | Grade YK40F | Pre-hole diameter d |
|--------------------|-----------------------|----|------|-----|-----|----|----|----|-------|-----|----------------|----------|-----------------|----------------|------------------------|
| | Length of Cutting tap | d1 | P | d2 | d3 | l1 | l2 | l3 | a × a | | | | | | |
| 4201C-M3*0.5-6H | 3P | M3 | 0.5 | 3.5 | 2.3 | 56 | 11 | 18 | 2.7 | 60° | Picture 1 | 3 | ● | 2.5 | |
| 4201C-M3*0.5-6HX | 3P | | | | | | | | | | | | | | |
| 4201CS-M3*0.5-6H | 1.5P | | | | | | | | | | | | | | |
| 4201CS-M3*0.5-6HX | 1.5P | M4 | 0.7 | 4.5 | 3.1 | 63 | 13 | 21 | 3.4 | 60° | Picture 1 | 3 | ● | 3.3 | |
| 4201C-M4*0.7-6H | 3P | | | | | | | | | | | | | | |
| 4201CS-M4*0.7-6H | 1.5P | | | | | | | | | | | | | | |
| 4201CS-M4*0.7-6HX | 1.5P | M5 | 0.8 | 6 | 4 | 70 | 16 | 25 | 4.9 | 60° | Picture 1 | 3 | ● | 4.2 | |
| 4201C-M5*0.8-6H | 3P | | | | | | | | | | | | | | |
| 4201CS-M5*0.8-6H | 1.5P | | | | | | | | | | | | | | |
| 4201CS-M5*0.8-6HX | 1.5P | M6 | 0.75 | 6 | 5 | 80 | 19 | 30 | 4.9 | 60° | Picture 1 | 3 | ● | 5.25 | |
| 4201C-M6*0.75-6H | 3P | | | | | | | | | | | | | | |
| 4201CS-M6*0.75-6H | 1.5P | | | | | | | | | | | | | | |
| 4201CS-M6*0.75-6HX | 1.5P | M6 | 1 | 6 | 4.7 | 80 | 19 | 30 | 4.9 | 60° | Picture 1 | 3 | ● | 5 | |
| 4201C-M6*1-6H | 3P | | | | | | | | | | | | | | |
| 4201CC-M6*1-6H | 3P | | | | | | | | | | | | | | |
| 4201C-M6*1-6HX | 3P | M7 | 1 | 7 | 5.7 | 80 | 19 | 30 | 5.5 | 60° | Picture 1 | 3 | ● | 6 | |
| 4201CS-M6*1-6H | 1.5P | | | | | | | | | | | | | | |
| 4201CCS-M6*1-6H | 1.5P | | | | | | | | | | | | | | |
| 4201CS-M6*1-6HX | 1.5P | M8 | 1 | 8 | 6.7 | 90 | 20 | 35 | 6.2 | 60° | Picture 1 | 3 | ● | 7 | |
| 4201C-M7*1-6H | 3P | | | | | | | | | | | | | | |
| 4201CS-M7*1-6H | 1.5P | | | | | | | | | | | | | | |
| 4201C-M8*1-6H | 3P | M8 | 1.25 | 8 | 6.4 | 90 | 22 | 35 | 6.2 | 60° | Picture 1 | 3 | ● | 6.75 | |
| 4201CS-M8*1-6H | 1.5P | | | | | | | | | | | | | | |
| 4201CC-M8*1.25-6H | 3P | | | | | | | | | | | | | | |
| 4201C-M8*1.25-6H | 3P | M8 | 1.25 | 8 | 6.4 | 90 | 22 | 35 | 6.2 | 60° | Picture 1 | 3 | ● | 6.75 | |
| 4201CS-M8*1.25-6H | 1.5P | | | | | | | | | | | | | | |
| 4201CCS-M8*1.25-6H | 1.5P | | | | | | | | | | | | | | |
| 4201CS-M8*1.25-6HX | 1.5P | | | | | | | | | | | | | | |

● Stock available ○ Make-to-order

Drilling tools
 Reaming Tools
 Threading
 Cutter

Helical-flute cutting taps-cast
 iron machining



Guide to selecting general turning tools

General turning

Guide to selecting turning tools

Selection A

| | | | | | | | | | | |
|---------------------------|------------|--------|------------|-----|----------------|------------|----------------|------------|------------|------------|
| For roughing | | | | | | | | | | |
| Cutting edge length | 12, 16, 19 | 15 | 12 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Page | A58 | A65 | A71 | A78 | A82 | A86 | A88 | A88 | A88 | A88 |
| For heavy roughing | | | | | | | | | | |
| Cutting edge length | 19, 25 | 19, 25 | 12, 16, 19 | 15 | 12, 16, 19, 25 | 12, 16, 19 | 12, 16, 19, 25 | 12, 16, 19 | 16, 22, 27 | 16, 22, 27 |
| Page | A59 | A72 | A59 | A66 | A72 | A79 | A79 | A79 | A79 | A79 |



CNMG-DR
Cutting edge length 12, 16, 19
Page A58



Step 1: I want to order inserts
•Shape, •Size, •Chipbreaker

CN (Negative inserts)

Good working condition Normal working condition Bad working condition

Material: Cast iron, Non-ferrous metal, Not recommended

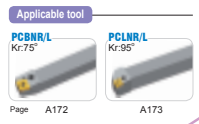
| Inserts shape | Type | Dimensions(mm) | | | | | Coated cemented carbide | | | | | | | | | | | | | | | |
|---------------|---------------|----------------|--------|------|------|-----|-------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|---|
| | | L | I.C | S | d | r | PC9012 | PC9015 | PC9016 | PC9018 | PC9020 | PC9025 | PC9030 | PC9040 | PC9050 | PC9060 | PC9070 | PC9080 | PC9090 | PC9100 | | |
| NM | CNMG120404-NM | 12.0 | 12.7 | 4.76 | 5.16 | 0.4 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | CNMG120405-NM | 12.0 | 12.7 | 4.76 | 5.16 | 0.8 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | CNMG120412-NM | 12.0 | 12.7 | 4.76 | 5.16 | 1.2 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | CNMG120415-NM | 12.0 | 12.7 | 4.76 | 5.16 | 1.5 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| LR | CNMM180804-LR | 16.0 | 11.875 | 8.35 | 8.35 | 0.8 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | CNMM180812-LR | 16.0 | 11.875 | 8.35 | 8.35 | 1.2 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | CNMM180815-LR | 16.0 | 11.875 | 8.35 | 8.35 | 1.5 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | CNMM180820-LR | 16.0 | 11.875 | 8.35 | 8.35 | 2.0 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | CNMM180825-LR | 16.0 | 11.875 | 8.35 | 8.35 | 2.5 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | CNMM180830-LR | 16.0 | 11.875 | 8.35 | 8.35 | 3.0 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | CNMM180840-LR | 16.0 | 11.875 | 8.35 | 8.35 | 4.0 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | CNMM180850-LR | 16.0 | 11.875 | 8.35 | 8.35 | 5.0 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |

Applicable tool: PCBNR/L Kc72, PCLNR/L Kc95

Dimensions(mm)

| L | I.C | S | d | r |
|------|------|------|------|-----|
| 12.9 | 12.7 | 4.76 | 5.16 | 0.4 |

Step 2: Details of inserts
•Shape, •Size, •Chipbreaker, •Grade, •Stock
Applicable tool holders
•Approach angle, Page



Step 3: Selecting tool holder
•Tool holder type, Size, •Stock
•Operation gener, •Applicable inserts

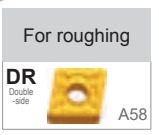
Corresponding tool holders of insert CN (R-type design)

PCBNR/L Kc72

| Type | Stock | Basic dimensions(mm) | | | | | Screw | Shut | Wrench | Lever | Shut pin | |
|------------------|-------|----------------------|----|-----|----|----|-------|-----------|----------|-------|----------|-----|
| | | R | L | A | T | H | | | | | | |
| PCBNR/L 2020K12 | A | 25 | 20 | 125 | 30 | 11 | 27 | | | | | |
| PCBNR/L 2020M12 | A | 25 | 20 | 150 | 25 | 22 | 27 | LEM8-21 | CT5AP | WH05L | L4 | SP4 |
| PCBNR/L 2020P12 | A | 35 | 30 | 170 | 32 | 27 | 33 | | | | | |
| PCBNR/L 2020M16 | A | 25 | 20 | 150 | 25 | 22 | 27 | | | | | |
| PCBNR/L 2020P16 | A | 35 | 30 | 170 | 32 | 27 | 33 | LEM8-25 | CT5AP | WH05L | L5 | SP5 |
| PCBNR/L 4040R16 | A | 40 | 40 | 200 | 40 | 35 | 35 | | | | | |
| PCBNR/L 4040M16 | A | 40 | 40 | 200 | 40 | 35 | 35 | LEM10-27 | CT5AP | WH05L | L6 | SP6 |
| PCBNR/L 4040P16 | A | 40 | 40 | 200 | 40 | 35 | 35 | | | | | |
| PCBNR/L 4040S200 | A | 40 | 40 | 250 | 40 | 35 | 35 | LEM12-30A | CT5AP-07 | WH05L | L6 | SP6 |
| PCBNR/L 4040S250 | A | 40 | 40 | 250 | 40 | 35 | 35 | | | | | |

Applicable Inserts

| Application | For finishing | | For semi-finishing | | For roughing | | For heavy roughing | | For cast iron roughing | |
|---------------|---------------|-----|--------------------|-----|--------------|-----|--------------------|-----|------------------------|-----|
| | DF | WGM | DF | WGM | DR | DR | DR | DR | DR | DR |
| Inserts shape | SF | PM | DF | PM | DR | DR | HFR | HFR | DR | DR |
| | WGF | DM | DF | DM | ER | ER | ER | ER | ER | ER |
| Inserts shape | EF | EM | DF | EM | ER | ER | ER | ER | ER | ER |
| | NF | NM | DF | NM | SNR | SNR | SNR | SNR | SNR | SNR |
| Inserts shape | | | DF | | LR | LR | LR | LR | LR | LR |
| | | | DF | | LR | LR | LR | LR | LR | LR |



Step 4: Return to locate inserts



Helical-flute cutting taps - cast iron machining

| Type | Basic dimension(mm) | | | | | | | | | | | | Grade | Pre-hole diameter |
|---------------------|-----------------------|----------------|------|----------------|----------------|----------------|----------------|----------------|-------|----------------|-----------|-----------------|-------|-------------------|
| | Length of Cutting tap | d ₁ | P | d ₂ | d ₃ | l ₁ | l ₂ | l ₃ | a × a | Thread profile | Geometry | Number of teeth | YK40F | d |
| 4201C-M10*1-6H | 3P | M10 | 1 | 10 | 8.7 | 100 | 20 | 39 | 8 | 60° | Picture 1 | 4 | ● | 9 |
| 4201CS-M10*1-6H | 1.5P | | | | | | | | | | | | | |
| 4201C-M10*1.25-6H | 3P | M10 | 1.25 | 10 | 8.4 | 100 | 24 | 39 | 8 | | Picture 1 | 4 | ● | 8.75 |
| 4201CS-M10*1.25-6H | 1.5P | | | | | | | | | | | | | |
| 4201C-M10*1.5-6H | 3P | M10 | 1.5 | 10 | 8.1 | 100 | 24 | 39 | 8 | | Picture 1 | 4 | ● | 8.5 |
| 4201CC-M10*1.5-6H | 3P | | | | | | | | | | | | | |
| 4201C-M10*1.5-6HX | 3P | | | | | | | | | | | | | |
| 4201CS-M10*1.5-6H | 1.5P | | | | | | | | | | | | | |
| 4201CCS-M10*1.5-6H | 1.5P | M12 | 1.25 | 9 | | 110 | 29 | | 7 | | Picture 2 | 4 | ● | 10.75 |
| 4201C-M12*1.25-6H | 3P | | | | | | | | | | | | | |
| 4201CS-M12*1.25-6H | 1.5P | | | | | | | | | | | | | |
| 4201C-M12*1.5-6H | 3P | | | | | | | | | | | | | |
| 4201CS-M12*1.5-6H | 1.5P | M12 | 1.5 | 9 | | 110 | 29 | | 7 | | | 4 | ● | 10.5 |
| 4201C-M12*1.75-6H | 3P | | | | | | | | | | | | | |
| 4201CC-M12*1.75-6H | 3P | | | | | | | | | | | | | |
| 4201C-M12*1.75-6HX | 3P | | | | | | | | | | | | | |
| 4201CS-M12*1.75-6H | 1.5P | M12 | 1.75 | 9 | | 110 | 29 | | 7 | | Picture 2 | 4 | ● | 10.25 |
| 4201CCS-M12*1.75-6H | 1.5P | | | | | | | | | | | | | |
| 4201CS-M12*1.75-6HX | 1.5P | | | | | | | | | | | | | |
| 4201C-M14*1.5-6H | 3P | | | | | | | | | | | | | |
| 4201CS-M14*1.5-6H | 1.5P | | | | | | | | | | | | | |
| 4201C-M14*2-6H | 3P | M14 | 2 | 11 | | 110 | 30 | | 9 | | Picture 2 | 4 | ● | 12 |
| 4201CS-M14*2-6H | 1.5P | | | | | | | | | | | | | |
| 4201C-M16*1.5-6H | 3P | M16 | 1.5 | 12 | | 110 | 32 | | 9 | | Picture 2 | 4 | ● | 14.5 |
| 4201CS-M16*1.5-6H | 1.5P | | | | | | | | | | | | | |
| 4201C-M16*2-6H | 3P | M16 | 2 | 12 | | 110 | 32 | | 9 | Picture 2 | 4 | ● | 14 | |
| 4201C-M16*2-6HX | 3P | | | | | | | | | | | | | |
| 4201CS-M16*2-6H | 1.5P | | | | | | | | | | | | | |
| 4201CS-M16*2-6HX | 1.5P | | | | | | | | | | | | | |

● Stock available ○ Make-to-order

Drilling tools

Reaming Tools

Threading Cutter

Helical-flute cutting taps-cast iron machining

➤ Applicable material table

○ Very suitable ○ Suitable

| Grade | Workpiece material | | | | | | | | | |
|-------|----------------------|---------------------------------|------------------------------------|--------|--------|--------------------|-----------|----------------------|-------------------|-----------------|
| | Mild steel HB≤180 | Carbon steel, Alloy steel | Pre-hardened steel, Hardened steel | | | Stainless steel | Cast iron | Nodular cast iron | Aluminum alloy | Copper alloy |
| YK40F | | | ~40HRC | ~50HRC | ~60HRC | | ○ | ○ | | |

Code key

C161

Cutting parameters

C176

Technical information

C177-C182

Non-standard customization

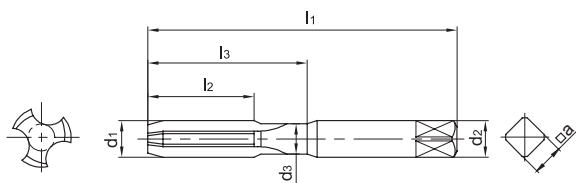
C183



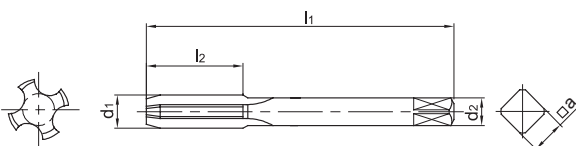
BORING TOOL / Threading tools

Straight-flute cutting taps - cast iron machining

Straight-flute cutting taps - cast iron machining



Picture 1



Picture 2



| Type | Basic dimension(mm) | | | | | | | | | | | Grade | Pre-hole diameter | |
|--------------------|-----------------------|----|------|-----|-----|----|----|----|-------|----------------|-----------|-------|-------------------|-----------------|
| | Length of Cutting tap | d1 | P | d2 | d3 | l1 | l2 | l3 | a × a | Thread profile | Geometry | | | Number of teeth |
| 4202C-M3*0.5-6H | 3P | M3 | 0.5 | 3.5 | 2.3 | 56 | 11 | 18 | 2.7 | 60° | Picture 1 | 3 | ● | 2.5 |
| 4202C-M3*0.5-6HX | 3P | | | | | | | | | | | | | |
| 4202CS-M3*0.5-6H | 1.5P | M3 | 0.5 | 3.5 | 2.3 | 56 | 11 | 18 | 2.7 | 60° | Picture 1 | 3 | ● | 2.5 |
| 4202CS-M3*0.5-6HX | 1.5P | | | | | | | | | | | | | |
| 4202C-M4*0.7-6H | 3P | M4 | 0.7 | 4.5 | 3.1 | 63 | 13 | 21 | 3.4 | 60° | Picture 1 | 3 | ● | 3.3 |
| 4202C-M4*0.7-6HX | 3P | | | | | | | | | | | | | |
| 4202CS-M4*0.7-6H | 1.5P | M4 | 0.7 | 4.5 | 3.1 | 63 | 13 | 21 | 3.4 | 60° | Picture 1 | 3 | ● | 3.3 |
| 4202CS-M4*0.7-6HX | 1.5P | | | | | | | | | | | | | |
| 4202C-M5*0.8-6H | 3P | M5 | 0.8 | 6 | 4 | 70 | 16 | 25 | 4.9 | 60° | Picture 1 | 3 | ● | 4.2 |
| 4202C-M5*0.8-6HX | 3P | | | | | | | | | | | | | |
| 4202CS-M5*0.8-6H | 1.5P | M5 | 0.8 | 6 | 4 | 70 | 16 | 25 | 4.9 | 60° | Picture 1 | 3 | ● | 4.2 |
| 4202CS-M5*0.8-6HX | 1.5P | | | | | | | | | | | | | |
| 4202C-M6*0.75-6H | 3P | M6 | 0.75 | 6 | 5 | 80 | 19 | 30 | 4.9 | 60° | Picture 1 | 3 | ● | 5.25 |
| 4202C-M6*0.75-6HX | 3P | | | | | | | | | | | | | |
| 4202CS-M6*0.75-6H | 1.5P | M6 | 0.75 | 6 | 5 | 80 | 19 | 30 | 4.9 | 60° | Picture 1 | 3 | ● | 5.25 |
| 4202CS-M6*0.75-6HX | 1.5P | | | | | | | | | | | | | |
| 4202C-M6*1-6H | 3P | M6 | 1 | 6 | 4.7 | 80 | 19 | 30 | 4.9 | 60° | Picture 1 | 3 | ● | 5 |
| 4202CC-M6*1-6H | 3P | | | | | | | | | | | | | |
| 4202C-M6*1-6HX | 3P | M6 | 1 | 6 | 4.7 | 80 | 19 | 30 | 4.9 | 60° | Picture 1 | 3 | ● | 5 |
| 4202CS-M6*1-6H | 1.5P | | | | | | | | | | | | | |
| 4202CCS-M6*1-6H | 1.5P | M6 | 1 | 6 | 4.7 | 80 | 19 | 30 | 4.9 | 60° | Picture 1 | 3 | ● | 5 |
| 4202CS-M6*1-6HX | 1.5P | | | | | | | | | | | | | |
| 4202C-M7*1-6H | 3P | M7 | 1 | 7 | 5.7 | 80 | 19 | 30 | 5.5 | 60° | Picture 1 | 3 | ● | 6 |
| 4202CS-M7*1-6H | 1.5P | | | | | | | | | | | | | |
| 4202C-M8*1-6H | 3P | M8 | 1 | 8 | 6.7 | 90 | 20 | 35 | 6.2 | 60° | Picture 1 | 3 | ● | 7 |
| 4202CS-M8*1-6H | 1.5P | | | | | | | | | | | | | |
| 4202C-M8*1.25-6H | 3P | M8 | 1.25 | 8 | 6.4 | 90 | 22 | 35 | 6.2 | 60° | Picture 1 | 3 | ● | 6.75 |
| 4202CC-M8*1.25-6H | 3P | | | | | | | | | | | | | |
| 4202C-M8*1.25-6HX | 3P | M8 | 1.25 | 8 | 6.4 | 90 | 22 | 35 | 6.2 | 60° | Picture 1 | 3 | ● | 6.75 |
| 4202CS-M8*1.25-6H | 1.5P | | | | | | | | | | | | | |
| 4202CCS-M8*1.25-6H | 1.5P | M8 | 1.25 | 8 | 6.4 | 90 | 22 | 35 | 6.2 | 60° | Picture 1 | 3 | ● | 6.75 |
| 4202CS-M8*1.25-6HX | 1.5P | | | | | | | | | | | | | |

● Stock available ○ Make-to-order

Drilling tools
 Reaming Tools
 Threading Cutter

Straight-flute cutting tap-cast iron machining



Straight-flute cutting taps - cast iron machining

| Type | Basic dimension(mm) | | | | | | | | | | | | Grade | Pre-hole diameter |
|---------------------|-----------------------|----------------|------|----------------|----------------|----------------|----------------|----------------|-------|----------------|-----------|-----------------|-------|-------------------|
| | Length of Cutting tap | d ₁ | P | d ₂ | d ₃ | l ₁ | l ₂ | l ₃ | a × a | Thread profile | Geometry | Number of teeth | YK40F | d |
| 4202C-M10*1-6H | 3P | M10 | 1 | 10 | 8.7 | 100 | 20 | 39 | 8 | 60° | Picture 1 | 4 | ● | 9 |
| 4202CS-M10*1-6H | 1.5P | | | | | | | | | | | | | |
| 4202C-M10*1.25-6H | 3P | M10 | 1.25 | 10 | 8.4 | 100 | 24 | 39 | 8 | | Picture 1 | 4 | ● | 8.75 |
| 4202CS-M10*1.25-6H | 1.5P | | | | | | | | | | | | | |
| 4202C-M10*1.5-6H | 3P | M10 | 1.5 | 10 | 8.1 | 100 | 24 | 39 | 8 | | Picture 1 | 4 | ● | 8.5 |
| 4202CC-M10*1.5-6H | 3P | | | | | | | | | | | | | |
| 4202C-M10*1.5-6HX | 3P | | | | | | | | | | | | | |
| 4202CS-M10*1.5-6H | 1.5P | | | | | | | | | | | | | |
| 4202CCS-M10*1.5-6H | 1.5P | | | | | | | | | | | | | |
| 4202CS-M10*1.5-6HX | 1.5P | | | | | | | | | | | | | |
| 4202C-M12*1.25-6H | 3P | M12 | 1.25 | 9 | | 110 | 29 | | 7 | | Picture 2 | 4 | ● | 10.75 |
| 4202CS-M12*1.25-6H | 1.5P | | | | | | | | | | | | | |
| 4202C-M12*1.5-6H | 3P | M12 | 1.5 | 9 | | 110 | 29 | | 7 | | | 4 | ● | 10.5 |
| 4202CS-M12*1.5-6H | 1.5P | | | | | | | | | | | | | |
| 4202C-M12*1.75-6H | 3P | M12 | 1.75 | 9 | | 110 | 29 | | 7 | | Picture 2 | 4 | ● | 10.25 |
| 4202CC-M12*1.75-6H | 3P | | | | | | | | | | | | | |
| 4202C-M12*1.75-6HX | 3P | | | | | | | | | | | | | |
| 4202CS-M12*1.75-6H | 1.5P | | | | | | | | | | | | | |
| 4202CCS-M12*1.75-6H | 1.5P | | | | | | | | | | | | | |
| 4202CS-M12*1.75-6HX | 1.5P | | | | | | | | | | | | | |
| 4202C-M14*1.5-6H | 3P | M14 | 1.5 | 11 | | 110 | 30 | | 9 | | Picture 2 | 4 | ● | 12.5 |
| 4202CS-M14*1.5-6H | 1.5P | | | | | | | | | | | | | |
| 4202C-M14*2-6H | 3P | M14 | 2 | 11 | | 110 | 30 | | 9 | | Picture 2 | 4 | ● | 12 |
| 4202CS-M14*2-6H | 1.5P | | | | | | | | | | | | | |
| 4202C-M16*1.5-6H | 3P | M16 | 1.5 | 12 | | 110 | 32 | | 9 | Picture 2 | 4 | ● | 14.5 | |
| 4202CS-M16*1.5-6H | 1.5P | | | | | | | | | | | | | |
| 4202C-M16*2-6H | 3P | M16 | 2 | 12 | | 110 | 32 | | 9 | Picture 2 | 4 | ● | 14 | |
| 4202C-M16*2-6HX | 3P | | | | | | | | | | | | | |
| 4202CS-M16*2-6H | 1.5P | | | | | | | | | | | | | |
| 4202CS-M16*2-6HX | 1.5P | | | | | | | | | | | | | |

● Stock available ○ Make-to-order



Straight-flute cutting tap-cast iron machining

➤ Applicable material table

○ Very suitable ○ Suitable

| Grade | Workpiece material | | | | | | | | | |
|-------|----------------------|------------------------------|------------------------------------|--------|--------|-----------------|-----------|-------------------|----------------|--------------|
| | Mild steel HB≤180 | Carbon steel, Alloy steel | Pre-hardened steel, Hardened steel | | | Stainless steel | Cast iron | Nodular cast iron | Aluminum alloy | Copper alloy |
| YK40F | | | ~40HRC | ~50HRC | ~60HRC | | ○ | ○ | | |

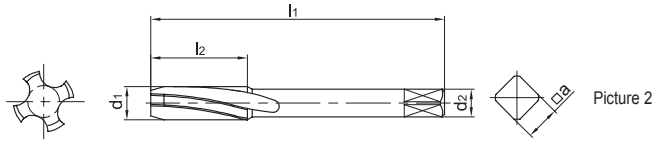
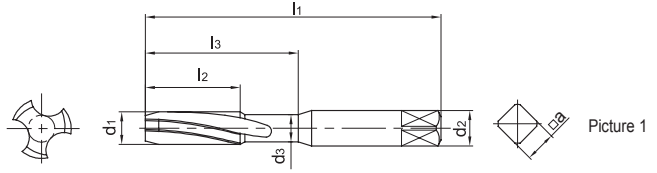




BORING TOOL / Threading tools

Helical-flute cutting taps - Al alloys machining

Helical-flute cutting taps - Al alloys machining



| Type | Basic dimension(mm) | | | | | | | | | | | Grade | Pre-hole diameter | |
|--------------------|-----------------------|----|------|-----|-----|----|----|----|-------|----------------|-----------|-----------------|-------------------|------|
| | Length of Cutting tap | d1 | P | d2 | d3 | l1 | l2 | l3 | a × a | Thread profile | Geometry | Number of teeth | YK40F | d |
| 4201A-M3*0.5-6H | 3P | M3 | 0.5 | 3.5 | 2.3 | 56 | 11 | 18 | 2.7 | 60° | Picture 1 | 3 | ● | 2.5 |
| 4201A-M3*0.5-6HX | 3P | | | | | | | | | | | | | |
| 4201AS-M3*0.5-6H | 1.5P | M4 | 0.7 | 4.5 | 3.1 | 63 | 13 | 21 | 3.4 | | Picture 1 | 3 | ● | 3.3 |
| 4201AS-M3*0.5-6HX | 1.5P | | | | | | | | | | | | | |
| 4201A-M4*0.7-6H | 3P | M5 | 0.8 | 6 | 4 | 70 | 16 | 25 | 4.9 | | Picture 1 | 3 | ● | 4.2 |
| 4201A-M4*0.7-6HX | 3P | | | | | | | | | | | | | |
| 4201AS-M4*0.7-6H | 1.5P | M6 | 0.75 | 6 | 5 | 80 | 19 | 30 | 4.9 | | Picture 1 | 3 | ● | 5.25 |
| 4201AS-M4*0.7-6HX | 1.5P | | | | | | | | | | | | | |
| 4201A-M5*0.8-6H | 3P | M6 | 1 | 6 | 4.7 | 80 | 19 | 30 | 4.9 | | Picture 1 | 3 | ● | 5 |
| 4201A-M5*0.8-6HX | 3P | | | | | | | | | | | | | |
| 4201AS-M5*0.8-6H | 1.5P | M7 | 1 | 7 | 5.7 | 80 | 19 | 30 | 5.5 | | Picture 1 | 3 | ● | 6 |
| 4201AS-M5*0.8-6HX | 1.5P | | | | | | | | | | | | | |
| 4201A-M6*0.75-6H | 3P | M8 | 1 | 8 | 6.7 | 90 | 20 | 35 | 6.2 | Picture 1 | 3 | ● | 7 | |
| 4201A-M6*0.75-6HX | 3P | | | | | | | | | | | | | |
| 4201AS-M6*0.75-6H | 1.5P | | | | | | | | | | | | | |
| 4201AS-M6*0.75-6HX | 1.5P | | | | | | | | | | | | | |
| 4201A-M6*1-6H | 3P | | | | | | | | | | | | | |
| 4201AC-M6*1-6H | 3P | | | | | | | | | | | | | |
| 4201A-M6*1-6HX | 3P | | | | | | | | | | | | | |
| 4201AS-M6*1-6H | 1.5P | | | | | | | | | | | | | |
| 4201ACS-M6*1-6H | 1.5P | | | | | | | | | | | | | |
| 4201AS-M6*1-6HX | 1.5P | | | | | | | | | | | | | |
| 4201A-M7*1-6H | 3P | | | | | | | | | | | | | |
| 4201AS-M7*1-6H | 1.5P | | | | | | | | | | | | | |
| 4201A-M8*1-6H | 3P | | | | | | | | | | | | | |
| 4201AS-M8*1-6H | 1.5P | | | | | | | | | | | | | |

● Stock available ○ Make-to-order

Drilling tools
 Reaming Tools
 Threading Cutter

Helical-flute cutting taps --Al alloys machining



Helical-flute cutting taps - Al alloys machining

| Type | Basic dimension(mm) | | | | | | | | | | | | Grade | Pre-hole diameter | | | | | | | | | | | | |
|---------------------|-----------------------|----------------|------|----------------|----------------|----------------|----------------|----------------|-------|----------------|-----------|-----------------|-------|-------------------|-----------|------|----|------|-----|----|--|---|-----------|---|---|-------|
| | Length of Cutting tap | d ₁ | P | d ₂ | d ₃ | l ₁ | l ₂ | l ₃ | a × a | Thread profile | Geometry | Number of teeth | YK40F | d | | | | | | | | | | | | |
| 4201A-M8*1.25-6H | 3P | M8 | 1.25 | 8 | 6.4 | 90 | 22 | 35 | 6.2 | 60° | Picture 1 | 3 | ● | 6.75 | | | | | | | | | | | | |
| 4201AC-M8*1.25-6H | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201A-M8*1.25-6HX | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201AS-M8*1.25-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201ACS-M8*1.25-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201AS-M8*1.25-6HX | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201A-M10*1-6H | 3P | M10 | 1 | 10 | 8.7 | 100 | 20 | 39 | 8 | | Picture 1 | 4 | ● | 9 | | | | | | | | | | | | |
| 4201AS-M10*1-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201A-M10*1.25-6H | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201AS-M10*1.25-6H | 1.5P | M10 | 1.25 | 10 | 8.4 | 100 | 24 | 39 | 8 | | | | | | Picture 1 | 4 | ● | 8.75 | | | | | | | | |
| 4201A-M10*1.5-6H | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201AC-M10*1.5-6H | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201A-M10*1.5-6HX | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201AS-M10*1.5-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201ACS-M10*1.5-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201AS-M10*1.5-6HX | 1.5P | M10 | 1.5 | 10 | 8.1 | 100 | 24 | 39 | 8 | | Picture 1 | 4 | ● | 8.5 | | | | | | | | | | | | |
| 4201A-M12*1.25-6H | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201AS-M12*1.25-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201A-M12*1.5-6H | 3P | | | | | | | | | | | | | | M12 | 1.25 | 9 | | 110 | 29 | | 7 | Picture 2 | 4 | ● | 10.75 |
| 4201AS-M12*1.25-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201A-M12*1.5-6H | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201AS-M12*1.5-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201A-M12*1.75-6H | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201AC-M12*1.75-6H | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201A-M12*1.75-6HX | 3P | M12 | 1.75 | 9 | | 110 | 29 | | 7 | | Picture 2 | 4 | ● | 10.25 | | | | | | | | | | | | |
| 4201AS-M12*1.75-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201ACS-M12*1.75-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201AS-M12*1.75-6HX | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201A-M14*1.5-6H | 3P | | | | | | | | | | | | | | M14 | 1.5 | 11 | | 110 | 30 | | 9 | Picture 2 | 4 | ● | 12.5 |
| 4201AS-M14*1.5-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201A-M14*2-6H | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201AS-M14*2-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201A-M16*1.5-6H | 3P | M16 | 1.5 | 12 | | 110 | 32 | | 9 | Picture 2 | 4 | ● | 14.5 | | | | | | | | | | | | | |
| 4201AS-M16*1.5-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201A-M16*2-6H | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201A-M16*2-6HX | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201AS-M16*2-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201AS-M16*2-6HX | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |

● Stock available ○ Make-to-order

➤ Applicable material table

○ Very suitable ○ Suitable

| Grade | Workpiece material | | | | | | | | | |
|-------|----------------------|---------------------------------|------------------------------------|--------|--------|--------------------|-----------|----------------------|-------------------|-----------------|
| | Mild steel HB≤180 | Carbon steel, Alloy steel | Pre-hardened steel, Hardened steel | | | Stainless steel | Cast iron | Nodular cast iron | Aluminum alloy | Copper alloy |
| YK40F | | | ~40HRC | ~50HRC | ~60HRC | | | | ○ | |



Drilling tools
 Reaming Tools
 Threading
 Cutter

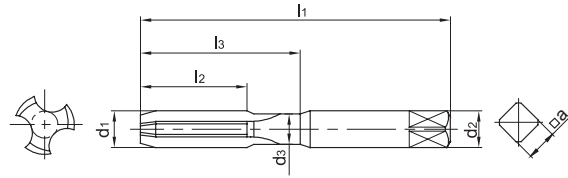
Helical-flute cutting taps --Al
 alloys machining



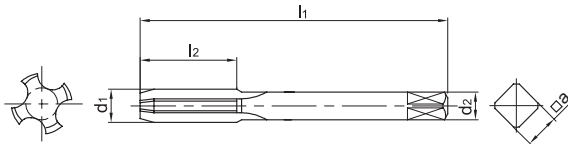
BORING TOOL / Threading tools

Straight-flute cutting taps - Al alloys machining

Straight-flute cutting taps - Al alloys machining



Picture 1



Picture 2



| Type | Basic dimension(mm) | | | | | | | | | | | Grade | Pre-hole diameter | |
|--------------------|-----------------------|----|------|-----|-----|----|----|----|-------|----------------|-----------|-------|-------------------|-----------------|
| | Length of Cutting tap | d1 | P | d2 | d3 | l1 | l2 | l3 | a × a | Thread profile | Geometry | | | Number of teeth |
| 4202A-M3*0.5-6H | 3P | M3 | 0.5 | 3.5 | 2.3 | 56 | 11 | 18 | 2.7 | 60° | Picture 1 | 3 | ● | 2.5 |
| 4202A-M3*0.5-6HX | 3P | | | | | | | | | | | | | |
| 4202AS-M3*0.5-6H | 1.5P | | | | | | | | | | | | | |
| 4202AS-M3*0.5-6HX | 1.5P | M4 | 0.7 | 4.5 | 3.1 | 63 | 13 | 21 | 3.4 | | Picture 1 | 3 | ● | 3.3 |
| 4202A-M4*0.7-6H | 3P | | | | | | | | | | | | | |
| 4202AS-M4*0.7-6H | 1.5P | | | | | | | | | | | | | |
| 4202AS-M4*0.7-6HX | 1.5P | M5 | 0.8 | 6 | 4 | 70 | 16 | 25 | 4.9 | | Picture 1 | 3 | ● | 4.2 |
| 4202A-M5*0.8-6H | 3P | | | | | | | | | | | | | |
| 4202AS-M5*0.8-6H | 1.5P | | | | | | | | | | | | | |
| 4202AS-M5*0.8-6HX | 1.5P | M6 | 0.75 | 6 | 5 | 80 | 19 | 30 | 4.9 | | Picture 1 | 3 | ● | 5.25 |
| 4202A-M6*0.75-6H | 3P | | | | | | | | | | | | | |
| 4202AS-M6*0.75-6H | 1.5P | | | | | | | | | | | | | |
| 4202AS-M6*0.75-6HX | 1.5P | M6 | 1 | 6 | 4.7 | 80 | 19 | 30 | 4.9 | Picture 1 | 3 | ● | 5 | |
| 4202A-M6*1-6H | 3P | | | | | | | | | | | | | |
| 4202AC-M6*1-6H | 3P | | | | | | | | | | | | | |
| 4202A-M6*1-6HX | 3P | M7 | 1 | 7 | 5.7 | 80 | 19 | 30 | 5.5 | Picture 1 | 3 | ● | 6 | |
| 4202AS-M6*1-6H | 1.5P | | | | | | | | | | | | | |
| 4202ACS-M6*1-6H | 1.5P | | | | | | | | | | | | | |
| 4202AS-M6*1-6HX | 1.5P | M8 | 1 | 8 | 6.7 | 90 | 20 | 35 | 6.2 | Picture 1 | 3 | ● | 7 | |
| 4202A-M7*1-6H | 3P | | | | | | | | | | | | | |
| 4202AS-M7*1-6H | 1.5P | | | | | | | | | | | | | |
| 4202A-M8*1-6H | 3P | M8 | 1 | 8 | 6.7 | 90 | 20 | 35 | 6.2 | Picture 1 | 3 | ● | 7 | |
| 4202AS-M8*1-6H | 1.5P | | | | | | | | | | | | | |

● Stock available ○ Make-to-order

Drilling tools
 Reaming Tools
 Threading Cutter

Helical-flute cutting taps --Al alloys machining



Straight-flute cutting taps - Al alloys machining

| Type | Basic dimension(mm) | | | | | | | | | | | | Grade | Pre-hole diameter | | | | | | | | | | | | |
|---------------------|-----------------------|-----|------|----|-----|-----|----|----|-------|----------------|-----------|-----------------|-------|-------------------|-----|------|---|--|-----|----|--|---|-----------|---|---|-------|
| | Length of Cutting tap | d1 | P | d2 | d3 | l1 | l2 | l3 | a × a | Thread profile | Geometry | Number of teeth | YK40F | d | | | | | | | | | | | | |
| 4202A-M8*1.25-6H | 3P | M8 | 1.25 | 8 | 6.4 | 90 | 22 | 35 | 6.2 | 60° | Picture 1 | 3 | ● | 6.75 | | | | | | | | | | | | |
| 4202AC-M8*1.25-6H | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202A-M8*1.25-6HX | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202AS-M8*1.25-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202ACS-M8*1.25-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202AS-M8*1.25-6HX | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202A-M10*1-6H | 3P | M10 | 1 | 10 | 8.7 | 100 | 20 | 39 | 8 | | Picture 1 | 4 | ● | 9 | | | | | | | | | | | | |
| 4202AS-M10*1-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202A-M10*1.25-6H | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202AS-M10*1.25-6H | 1.5P | M10 | 1.25 | 10 | 8.4 | 100 | 24 | 39 | 8 | | Picture 1 | 4 | ● | 8.75 | | | | | | | | | | | | |
| 4202A-M10*1.5-6H | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202AC-M10*1.5-6H | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202A-M10*1.5-6HX | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202AS-M10*1.5-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202ACS-M10*1.5-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202AS-M10*1.5-6HX | 1.5P | M10 | 1.5 | 10 | 8.1 | 100 | 24 | 39 | 8 | | Picture 1 | 4 | ● | 8.5 | | | | | | | | | | | | |
| 4202AS-M10*1.5-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202ACS-M10*1.5-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202AS-M10*1.5-6HX | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202A-M12*1.25-6H | 3P | | | | | | | | | | | | | | M12 | 1.25 | 9 | | 110 | 29 | | 7 | Picture 2 | 4 | ● | 10.75 |
| 4202AS-M12*1.25-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202A-M12*1.5-6H | 3P | M12 | 1.5 | 9 | | 110 | 29 | | 7 | | Picture 2 | 4 | ● | 10.5 | | | | | | | | | | | | |
| 4202AS-M12*1.5-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202A-M12*1.75-6H | 3P | M12 | 1.75 | 9 | | 110 | 29 | | 7 | | Picture 2 | 4 | ● | 10.25 | | | | | | | | | | | | |
| 4202AC-M12*1.75-6H | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202A-M12*1.75-6HX | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202AS-M12*1.75-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202ACS-M12*1.75-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202AS-M12*1.75-6HX | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202A-M14*1.5-6H | 3P | M14 | 1.5 | 11 | | 110 | 30 | | 9 | Picture 2 | 4 | ● | 12.5 | | | | | | | | | | | | | |
| 4202AS-M14*1.5-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202A-M14*2-6H | 3P | M14 | 2 | 11 | | 110 | 30 | | 9 | Picture 2 | 4 | ● | 12 | | | | | | | | | | | | | |
| 4202AS-M14*2-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202A-M16*1.5-6H | 3P | M16 | 1.5 | 12 | | 110 | 32 | | 9 | Picture 2 | 4 | ● | 14.5 | | | | | | | | | | | | | |
| 4202AS-M16*1.5-6H | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202A-M16*2-6H | 3P | M16 | 2 | 12 | | 110 | 32 | | 9 | Picture 2 | 4 | ● | 14 | | | | | | | | | | | | | |
| 4202AS-M16*2-6H | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202A-M16*2-6HX | 3P | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4202AS-M16*2-6HX | 1.5P | | | | | | | | | | | | | | | | | | | | | | | | | |

● Stock available ○ Make-to-order

➤ Applicable material table

○ Very suitable ○ Suitable

| Grade | Workpiece material | | | | | | | | | |
|-------|----------------------|---------------------------------|------------------------------------|--------|--------|--------------------|-----------|----------------------|-------------------|-----------------|
| | Mild steel HB≤180 | Carbon steel, Alloy steel | Pre-hardened steel, Hardened steel | | | Stainless steel | Cast iron | Nodular cast iron | Aluminum alloy | Copper alloy |
| YK40F | | | ~40HRC | ~50HRC | ~60HRC | | | | ○ | |



Drilling tools
 Reaming Tools
 Threading
 Cutter

Helical-flute cutting taps --Al
 alloys machining

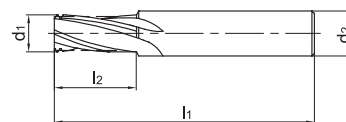


Newly upgraded!

Solid carbide
Thread mills



Thread mills



| Type | Basic dimension(mm) | | | | | | | Recommended grade | | Pre-hole diameter d |
|---------------|---------------------|----------------|------|----------------|----------------|----------------|-----------------|-------------------|-------|------------------------|
| | D | d ₁ | P | d ₂ | l ₁ | l ₂ | Number of teeth | KTG4015 | YK40F | |
| 4111-M3*0.5 | M3 | 2.35 | 0.5 | 4 | 50 | 6 | 3 | ● | ○ | 2.5 |
| 4111-M4*0.7 | M4 | 3.15 | 0.7 | 4 | 50 | 8 | 3 | ● | ○ | 3.3 |
| 4111-M5*0.5 | M5 | 4.3 | 0.5 | 6 | 50 | 10 | 3 | ● | ○ | 4.5 |
| 4111-M5*0.8 | M5 | 4 | 0.8 | 6 | 50 | 10 | 3 | ● | ○ | 4.2 |
| 4111-M6*0.75 | M6 | 5 | 0.75 | 6 | 60 | 12 | 4 | ● | ○ | 5.25 |
| 4111-M6*1 | M6 | 4.75 | 1 | 6 | 60 | 12 | 4 | ● | ○ | 5 |
| 4111-M8*1 | M8 | 6.65 | 1 | 8 | 60 | 16 | 4 | ● | ○ | 7 |
| 4111-M8*1.25 | M8 | 6.45 | 1.25 | 8 | 60 | 16 | 4 | ● | ○ | 6.75 |
| 4111-M10*1 | M10 | 8.55 | 1 | 10 | 75 | 20 | 4 | ● | ○ | 9 |
| 4111-M10*1.5 | M10 | 8.1 | 1.5 | 10 | 75 | 20 | 4 | ● | ○ | 8.5 |
| 4111-M12*1.25 | M12 | 10.25 | 1.25 | 12 | 75 | 24 | 4 | ● | ○ | 10.75 |
| 4111-M12*1.75 | M12 | 9.75 | 1.75 | 12 | 75 | 24 | 4 | ● | ○ | 10.25 |
| 4111-M14*1 | M14 | 12.35 | 1 | 14 | 75 | 20 | 4 | ● | ○ | 13 |
| 4111-M14*1.5 | M14 | 11.9 | 1.5 | 14 | 75 | 28 | 4 | ● | ○ | 12.5 |
| 4111-M14*2 | M14 | 11.4 | 2 | 14 | 75 | 28 | 4 | ● | ○ | 12 |
| 4111-M16*2 | M16 | 13.3 | 2 | 16 | 90 | 32 | 6 | ● | ○ | 14 |
| 4111-M18*1 | M18 | 16.15 | 1 | 18 | 90 | 20 | 6 | ● | ○ | 17 |
| 4111-M18*2.5 | M18 | 14.75 | 2.5 | 18 | 90 | 36 | 6 | ● | ○ | 15.5 |
| 4111-M20*2 | M20 | 17.1 | 2 | 18 | 100 | 40 | 6 | ● | ○ | 18 |
| 4111-M20*2.5 | M20 | 16.65 | 2.5 | 18 | 100 | 40 | 6 | ● | ○ | 17.5 |

● Stock available ○ Make-to-order

Drilling tools

Reaming Tools

Threading
Cutter

Thread milling cutter

▶▶ Applicable material table

○ Very suitable ○ Suitable

| Grade | Workpiece material | | | | | | | | | |
|---------|----------------------|---------------------------------|------------------------------------|--------|--------|--------------------|-----------|----------------------|-------------------|-----------------|
| | Mild steel HB≤180 | Carbon steel, Alloy steel | Pre-hardened steel, Hardened steel | | | Stainless steel | Cast iron | Nodular cast iron | Aluminum alloy | Copper alloy |
| | | | ~40HRC | ~50HRC | ~60HRC | | | | | |
| KTG4015 | ○ | ⊙ | ○ | | | | ○ | ○ | | |
| YK40F | | | | | | | ○ | ○ | ○ | |

Code key C161

Cutting parameters C176

Technical information C177-C182

Non-standard customization C184



Recommended cutting parameters

Forming tap

| Workpiece material | Cutting speed (m/min) |
|------------------------------|-----------------------|
| Stainless steel / Mild steel | 5~20 |
| Aluminium alloy | 20~50 |
| Cast aluminium alloy(Si<10%) | 15~40 |

Cutting tap

| Workpiece material | Cutting speed (m/min) |
|---------------------------------|-----------------------|
| Grey cast iron | 15~30 |
| Nodular cast iron | 10~20 |
| Aluminium alloy | 20~50 |
| Cast aluminium alloy (Si < 10%) | 20~45 |
| Cast aluminium alloy (Si ≥ 10%) | 15~40 |

Thread mills

| Workpiece material | Cutting speed (m/min) | | Feed rate (mm/z) | |
|--------------------------|-----------------------|--------|------------------|-----------|
| | Uncoated | Coated | D≤8 | D>8 |
| Alloy steel、Common steel | 20~60 | 40~120 | 0.02~0.05 | 0.04~0.12 |
| Aluminium alloy | 100~250 | --- | 0.05~0.2 | |

Note:

The tool entering feed is less than 70% of threading feed. It is in direct proportion to the diameter of the tap. The above cut parameters are suitable for thread cutters with helical flute. Please reduce feed rate and cutting speed by 20% ~ 40% if it is straight-flute tools.

Drilling tools

Reaming Tools

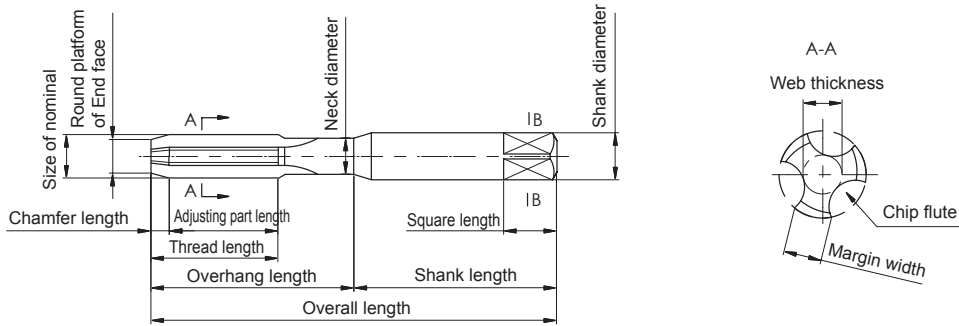
Threading Cutter

Recommended cutting parameters

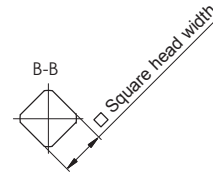
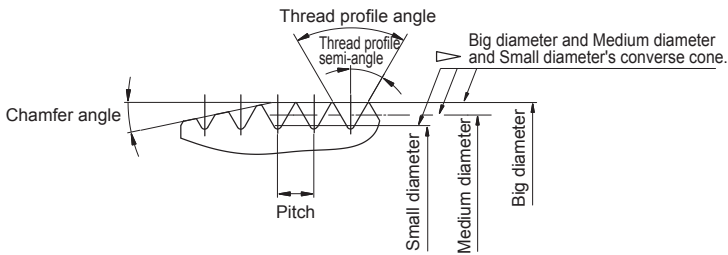


Tap

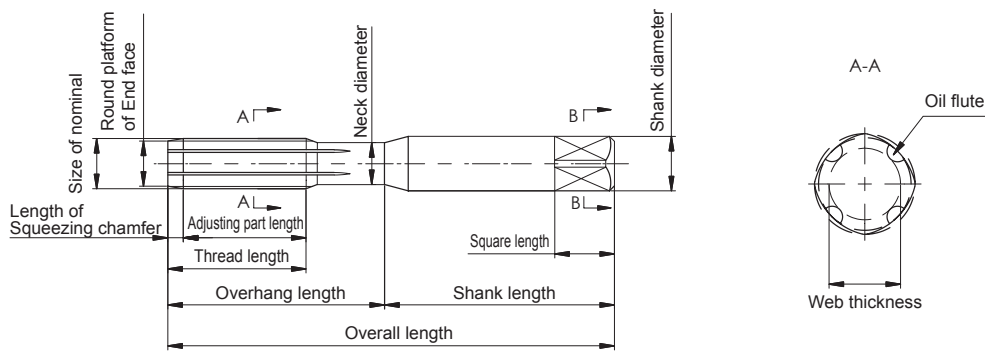
Parts terminology of cutting taps



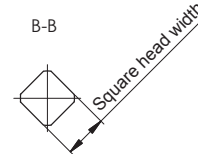
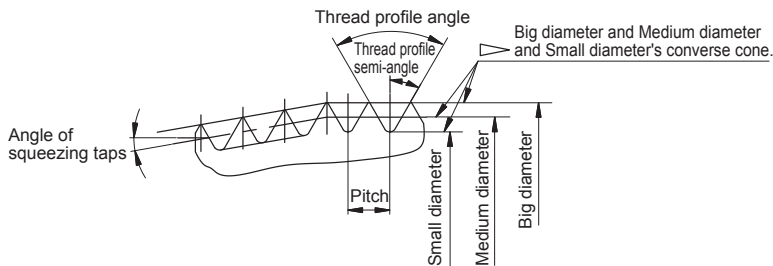
Magnifying fig of chamfer and thread profile



Parts terminology of forming taps



Magnifying fig of squeezing chamfer and guided threads



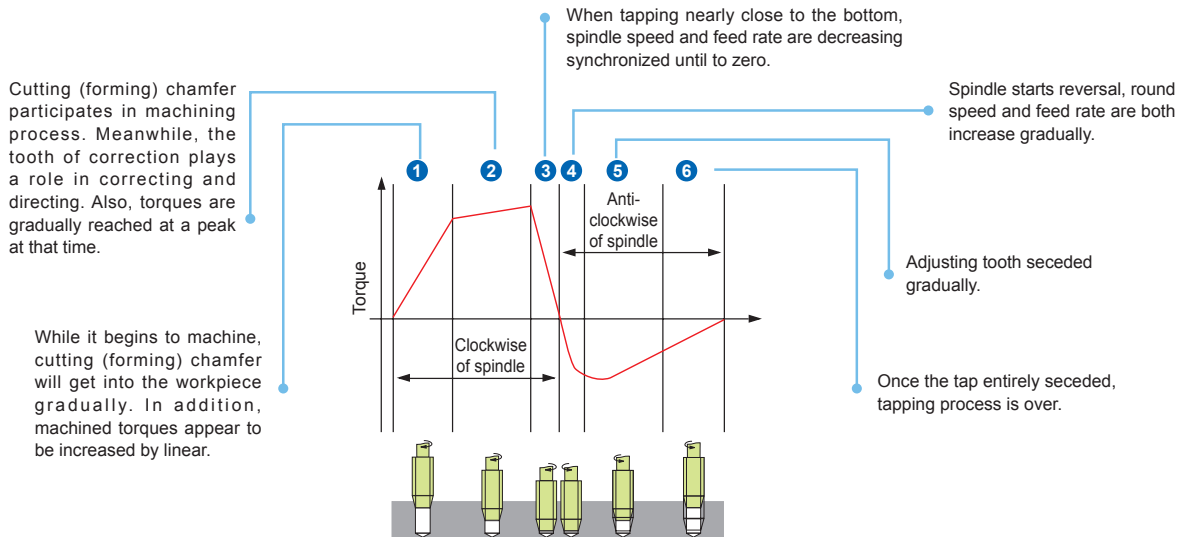
Drilling tools

Reaming Tools

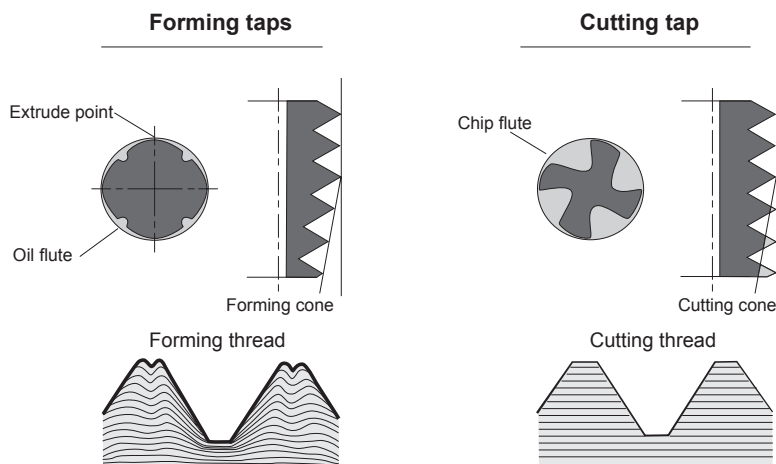
**Threading
Cutter**

Technical information

Process of tapping and tapping torques



Comparison of forming taps and cutting taps



Tapping types of cutting taps

Due to different machines, tapping types of cutting taps can be broadly divided into flexible tapping and rigid tapping. Due to different pre-hole, it can also be divided into through-hole tapping and blind-hole tapping.

Rigid tapping: Machine tool has good precision, the spindle feed rate is consistent with the tap pitch. Used general chucks.




Flexible tapping: Machine tool has poor precision, the spindle feed rate cannot be strictly in accordance with the pitch. Compensating floating chucks should be used to compensate the error between the tapping feed and the tap pitch, so that the tap can feed in accordance with the pitch.

Through-hole tapping: chip removal along the direction of tapping feed, so that the chip clogging and scratching and squeezing on the machined surface caused by chips can be reduced and the accuracy of thread processing can be improved.

Bind-hole tapping: chips removal along the direction of tap shank. Increase of cutting force, which is caused by chips blocked in the groove, can be prevented.



Features and applications of tap flute

| Classification | Advantages | Disadvantages | Recommend applications |
|---|--|--|---|
| <p>Straight-flute taps</p>  | <ul style="list-style-type: none"> ● general performance is good ● high cutting edge strength ● easy to regrind | <ul style="list-style-type: none"> ● large cutting torque by machining ● bad chip-breaking and chip removal ability ● cannot tapping to the bottom of blind holes | <ul style="list-style-type: none"> ● for machining of high hardness material ● material generating powdered chips ● material easy to cause abrasion ● tap shot through and blind hole |
| <p>Helical-flute taps</p>  | <ul style="list-style-type: none"> ● small cutting torque by machining ● better chip-breaking and chip removal ability ● available for tapping to the bottom of blind holes ● penetrate to pre-hole easily | <ul style="list-style-type: none"> ● bad cutting edge strength ● easily fall in tooth when seceding | <ul style="list-style-type: none"> ● tap long through and blind hole ● material generating long curling chips ● the hole with axial slot on inner wall |
| <p>Forming taps</p>  | <ul style="list-style-type: none"> ● no chips ● high precision of internal thread ● high tool strength ● available for tapping to the bottom of blind holes | <ul style="list-style-type: none"> ● only for machining of specific material ● high requirement of pre-hole ● high requirement of lubrication liquid | <ul style="list-style-type: none"> ● for soft materials with good toughness and ductility ● tap through and blind hole |

Drilling tools

Reaming Tools

Threading Cutter

Technical information





The common problems in tapping

| Common problems | Reasons | Solutions |
|--|---|--|
| Too large Internal thread | Wrong tap type selection | Selecting right tap according to work materials and requirement |
| | Pre-hole is too large | Select appropriate prehole drills |
| | Pre-hole is off center | Improve prehole quality |
| | | Change to floated tapping method |
| | Axial feed not equable | Mechanical feed |
| | | Use flexible tapping |
| | Build-up edge | Regrinding in time or change taps |
| | | Adopt coated taps |
| | | Fully lubricated |
| | Extremely high cutting speed | Lower cutting speed |
| Insufficient lubrication or cooling | Check lubricating oil density | |
| | Increase cooling liquid pressure and volume | |
| Wrong selection of tap tolerance level | Select taps with right tolerance | |
| Too small internal thread | Wrong selection of tap tolerance level | Select taps with right tolerance |
| | Wrong tapping | Avoid taps bear higher axial stress in the process of tapping |
| | The rigidity of machine tool spindle is too well | Adopt axial floated chuck |
| Thread disorderly buckle | When starts tapping, force too much press on right helical taps | Decrease pressure when starts tapping |
| | When starts tapping, force too small press on left helical taps | increase pressure when starts tapping |
| | Unmatched of machine tool feed and thread pitch | Change to floated tapping |
| Unsmooth on internal thread surface | Wrong selection of taps | Selecting right tap according to work materials and requirement |
| | Too high Cutting speed | Lower cutting speed |
| | Insufficient cooling | Use right cooling liquid and enough volume or select taps with inner coolant |
| | Obstructed chip removal | Select helical flute taps |
| | Too small pre-hole diameter | Adjust pre-hole drill |
| | Build-up edge | Adopt coated taps |
| Fully lubricated | | |
| Tap breakage | Too small pre-hole | Adjust pre-hole drill |
| | Torque is too large when tapping | Increase length of cutting chamfer |
| | | Increase cutting edge |
| | Tap touch hole bottom | Check the depth of pre-hole |
| | | Adopt floated tapping |
| | Pre-hole chamfer is too small, pre-hole location or angle error | Check pre-hole |
| | | adopt floated tapping |
| Cutting speed is too high | Lower cutting speed | |
| | Select helical flute taps | |

Drilling tools

Reaming Tools

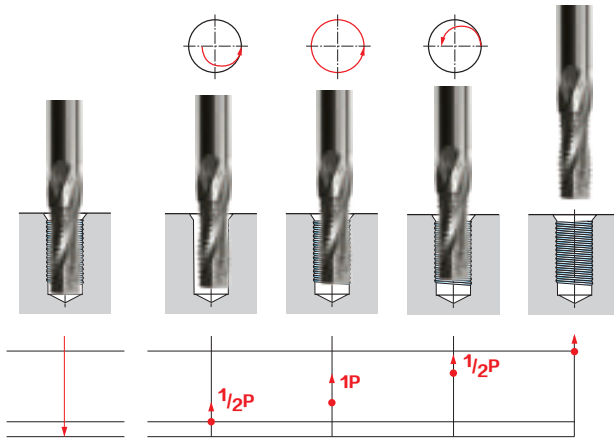
Threading Cutter

Technical Information

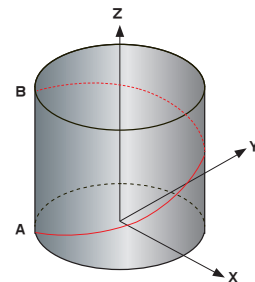


Thread mills

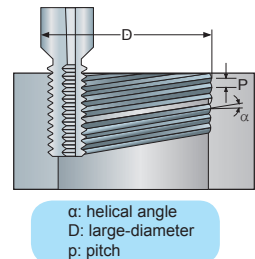
Thread mills (graphic demonstration)



Thread milling is composed of tool rotation and helical interpolate mill of machine tool. In a circle interpolation process, required threads are machined by using the geometry shape of tool and moving axially with a pitch.



Picture A



Picture B

alpha: helical angle
D: large-diameter
p: pitch

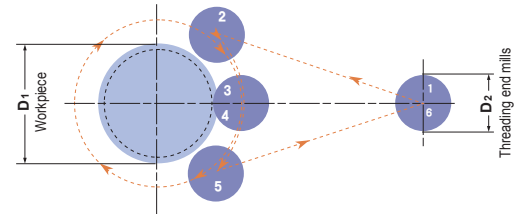
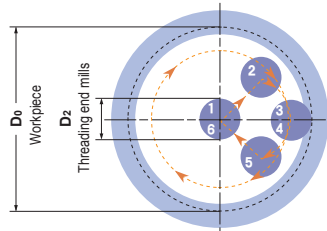
Arc entering method

Internal thread

External thread

Thread milling can use arc entering method and radial entering method.

Arc entering: placidly entering and out leads to almost no cutting traces or vibration, so that it is particularly suitable for materials difficult to be machined and precise threading.



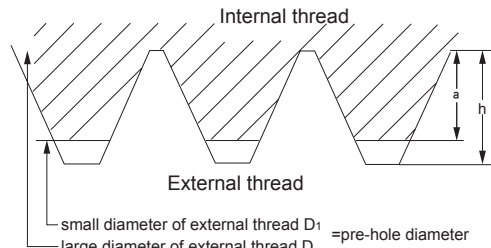
- 1-2 rapid positioning
- 2-3 entering by arc feed and interpolating along the Z axis at the same time
- 3-4 360° full circle cutting interpolation and axial moving of one pitch
- 4-5 cutting-out by arc feed and interpolating along the Z axis at the same time
- 5-6 quick return

Thread overlap ratio

The thread overlap ratio is the ratio of effective chimeric height of external thread and internal thread and the height of standard tooth. It must be considered before machining of internal thread pre-hole.

$$\text{Thread overlap ratio} = \frac{\text{Reference dimension of large diameter of external thread} - \text{pre-hole diameter}}{2 \times (\text{height of standard tooth type})} \times 100\%$$

while external thread appears to be standardized tooth



$$a = 1/2 \times (D - D_1)$$

$$h = \text{height of standard tooth of external thread}$$

$$\text{chimerism ratio} = a/h \times 100\%$$

Drilling tools
Reaming Tools
Threading Cutter

Technical information



The solutions of common problems in thread milling

| | Common problems | reasons | solutions |
|-----------------------|---|-------------------------------------|---|
| Thread milling cutter | Roughness on internal thread milling cutter surface | Too long overhang | Decrease the length of overhang |
| | | Select wrong type | Select appropriate tool(e.g. tool with helix flute) |
| | | Poor chip removal | Select helix flute tap |
| | | | Adopt inner cooling |
| | | Too large cutting force | Decrease cutting force |
| | Unreasonable cutting parameter | Adjust cutting parameter | |
| | Severe tool wear | Unreasonable cutting parameter | Lower cutting speed |
| | | | Increase the feed rate per tooth |
| | | Unreasonable machining mode | Adopt down milling |
| | | | Adopt Arc cut-in milling. |
| | | Uncoated tools/inappropriate coated | Adopt Coated tool/ instead coat |
| | Too large overhang | Decrease length of overhang | |
| | Falling on cutting edge | Unreasonable cutting parameter | Decrease the feed rate per tooth |
| | | Unreasonable machining mode | Adopt down milling |
| | | | Adopt Arc cut-in milling |
| | | Uncoated tools/inappropriate coated | Adopt Coated tool/instead coat |
| Thread is taper | Too large overhang | Decrease length of overhang | |
| | Unreasonable cutting parameter | Decrease the feed rate per tooth | |
| | Unreasonable machining mode | Adopt up milling | |
| | Too large cutting force | Decrease cutting force | |

Drilling tools

Reaming Tools

Threading Cutter

Technical information



Company name:



Fax:

Huanghe Southern Road, Tianyuan Zone,
Zhuzhou. Hunan province

Tel:

Fax: 0731-22882721 22885420 22887878

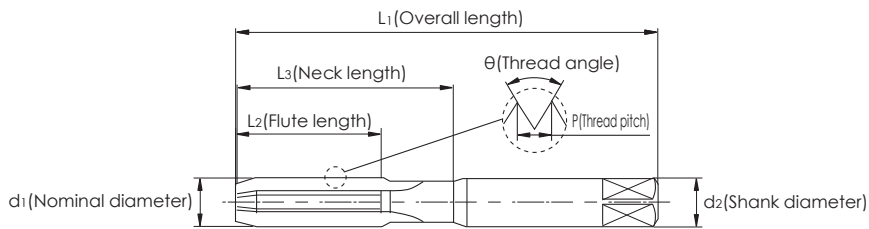
E-MAIL:

Zip code: 412007 E-mail: zccct@zccct.com

| Workpiece materials | | Hole Form | | | |
|--------------------------------|--------------------------|--------------------------|-------------------|------------------|--|
| Grey cast iron | | Through hole | Blind hole | | |
| Ductile Iron | | | | | |
| Aluminum alloy | | | | | |
| Silicon Aluminum Alloy(Si<10%) | | | | | |
| Silicon Aluminum Alloy(Si>10%) | | Bottom hole diameter | | | |
| Stainless Stee | | Bottom hole depth | | | |
| Soft steel | | Thread form | | | |
| Hardened steel (HRC48-63) | | Threading precision | | | |
| Other materials | Workpiece material grade | Tapping depth | | | |
| | | Threading rotation speed | | | |
| | Hardness | Tapping form | | | |
| | | Rigid tapping | | Flexible tapping | |
| Tool Information (attachment) | | | | | |
| Shank form | | | Chip pocket form | | |
| Square shank | | Straight flute | | | |
| Round shank | | Right handed flute | Left handed flute | | |
| Coolant form | | | Coating | | |
| External coolant | | Coated | | | |
| Internal coolant | | Non-Coated | | | |

Unit: mm ;

Check mark for copy to fill the form:



Applying tools: Cutting tap Thread forming tap

Nominal diameter d1= Shank diameter d2= Thread pitch P= Thread angle theta=

Overall length l1= Flute length l2= Neck length l3=

Note:

Order Quantity: PCS Expected delivery date:

Quotation: Confirmation:

Date:

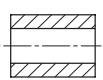
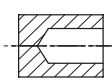
Drilling tools
 Reaming Tools
 Threading Cutter
 Non-standard customization for special application (Taps)



BORING TOOL / Threading tools

Non-standard customization for special application (Taps)

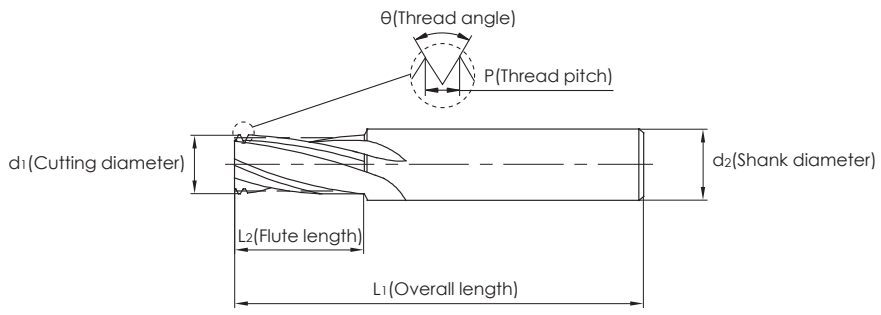
| | |
|---------------|--|
| Company name: |  Huanghe Southern Road, Tianyuan Zone, Zhuzhou. Hunan province Fax: 0731-22882721 22885420 22887878 Zip code: 412007 E-mail: zccct@zccct.com |
| Fax: | |
| Tel: | |
| E-MAIL: | |

| Workpiece materials | | Hole Form | |
|--------------------------------|--------------------------|---|---|
| Grey cast iron | |  Through hole |  Blind hole |
| Ductile Iron | | | |
| Aluminum alloy | | | |
| Silicon Aluminum Alloy(Si≤10%) | | Bottom hole diameter | |
| Silicon Aluminum Alloy(Si>10%) | | Bottom hole depth | |
| Stainless Steel | | Thread form | |
| Soft steel | | Threading precision | |
| Ordinary steel | | Tapping depth | |
| Other materials | Workpiece material grade | Threading rotation speed | |
| | Hardness | Thread form | |
| | | External threading | Internal threading |

Tool Information (attachment)

| | | | |
|--------------|--------------------|-------------------|----------------|
| Chip pocket | Right handed flute | Left handed flute | Straight flute |
| Coating | Coated | Non-Coated | |
| Coolant type | External coolant | Internal coolant | |

Unit: mm ; Check mark for copy to fill the form:



Thread specification= _____ Cutting diameter d1= _____ Shank diameter d2= _____ Thread angle θ = _____
 Overall length l1= _____ Flute length l2= _____ Thread pitch P= _____

Note:

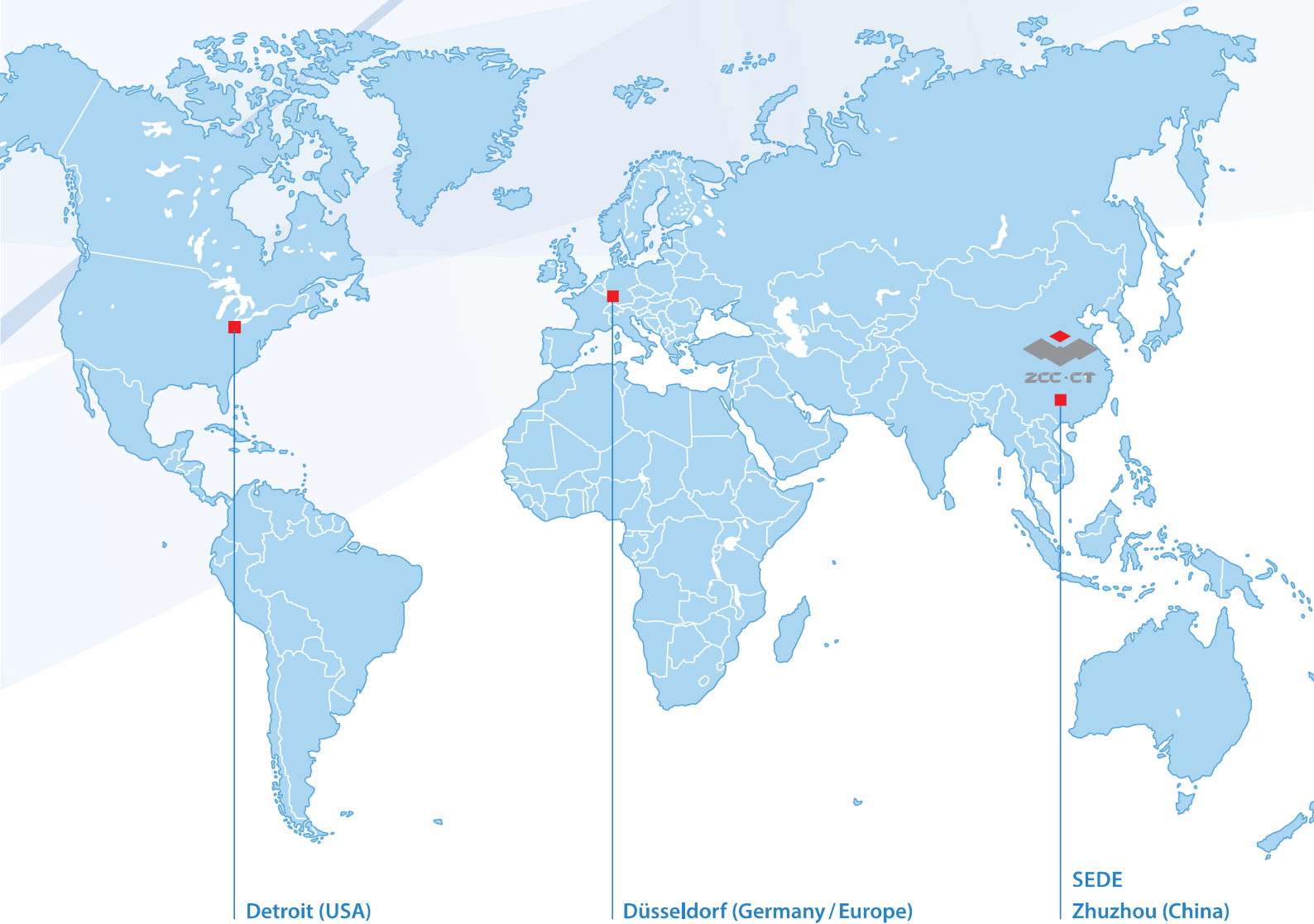
Order Quantity: PCS Expected delivery date:

Quotation: Confirmation:

Date:

Drilling tools
 Reaming Tools
 Threading Cutter
 Non-standard customization for special application (Taps)





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Düsseldorf (Germany / Europe)

SEDE
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