



**TAPPING**  
**TOOLS** [www.conprofecnc.com](http://www.conprofecnc.com)



CONPROFE

CONverging of Global Resources  
PROFEssional as Industry Leader

2003

Green  
**2023**

Intelligent

Efficient  
**2030**



Embarking on a New Journey



## » Field of Application

Tapping tools are extensively used in almost all cnc machining industries including automotive, aviation & aerospace, electronic consumer, die & mold, machine and tool, general machinery (home hardware/fasteners), power generation, oil & gas, military & national defense, etc.





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## » Company Profile

Conprofe Ultrasonic Green Tool Business Unit (CUGT BU) is committed to providing precision tools and ultrasonic green manufacturing solutions. In the past two decades, we have been adhering to the idea of "**CONverging of Global Resources, PROFEssional as Industry Leader**", focusing closely on the thread of "**green, intelligent and efficient**", leading the innovation of processing technology applications by integrating traditional machining with ultrasonic technologies and green technologies, successfully making the breakthrough in hard brittle materials, hard-to-cut metal materials and composite materials machining, forming five product categories including **Super-hard Tools, Tapping Tools, Precision Tool Holders, Ultrasonic Technologies and Green Technologies**, which consists of eight product series such as Carbide Tools, Diamond Tools, Tapping Tools, Thread Milling Tools, Hydraulic Tool Holders, Shrink-fit Tool Holders, Ultrasonic Machining and Welding Systems, Clean Machining Equipment, which have been widely used at well-known customers' from consumable electronics, semiconductor, automotive, aerospace, medical field, general precision manufacturing, etc.

Located at Guangzhou Science City, based on the group platform, CUGT BU has established a network of R&D, sales and service based in Hong Kong, Taiwan, the United States, South Korea, India and Vietnam, etc., with intellectual property distributed in over 30 countries and regions and products exported to over 70 countries and regions across six continents, gradually shaping an integrated distribution of R&D, production, sales and service around the globe.

CUGT BU owns strong technical advantages possessing over 200 sets of the world's state-of-art production and inspection equipment such as STUDER, DMG, SMS, ROLLOMATIC, CEMECON, ZEISS, POLYTEC, etc., and has established a Provincial Engineering Technology Center and Laboratory. Over 500 core technology patents were developed. The BU has undertaken a number of major national and provincial scientific and technological projects in the field of advanced manufacturing. **Its ultrasonic green product technologies contribute to achieving "Carbon Peaking" and "Carbon Neutrality" goals**, and have reached international advanced level as assessed and acknowledged by experts led by members of the Chinese Academy of Engineering (CAE). Furthermore, Conprofe has successively been granted the Guangdong Scientific and Technological Progress Award (First Prize), Guangdong Patent Award (Silver), China Patent Award (Excellence), etc.

CONPROFE

## » Definition of CONPROFE



Converging of Global Resources

Professional as Industry Leader

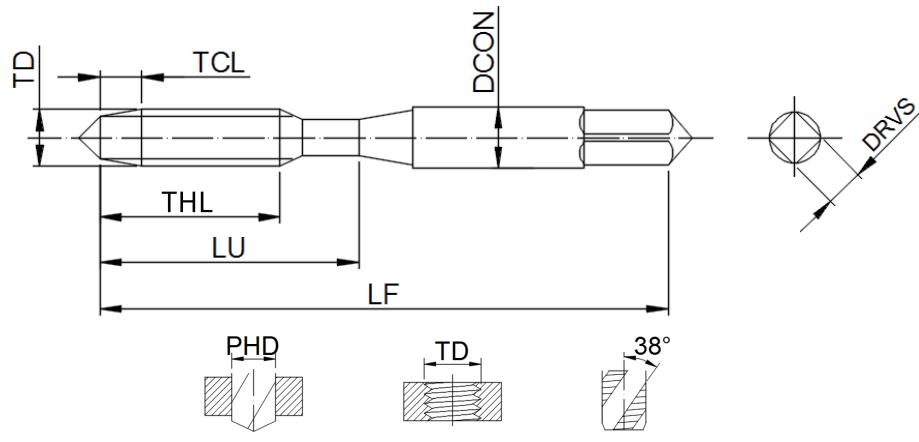
“**CONPROFE**”



## » Production Equipment



## 1. Terminology



\*The name of each part of the tap adopts the ISO 13399 standard, an international standard for convenient and efficient data exchange between cutting tools. By using uniform parameters and definitions, tool information exchange between software systems will definitely get easier.

| Parameter | Definition                       | Parameter | Definition  |
|-----------|----------------------------------|-----------|---|
| DCON      | Connection diameter              | TCTR      | Thread tolerance class                                |
| DRVS      | Drive size                       | THL       | Thread length   |
| LF        | Functional length                | TP        | Thread pitch  |
| LU        | Usable length (max. recommended) | TPI       | Threads per inch                                      |
| PHD       | Premachined hole diameter        | CXSC1     | Coolant exit style code of axial concentric           |
| TCL       | Thread chamfer length            | CXSC2     | Coolant exit style code of radial exit                |
| TD        | Thread diameter                  | CXSC4     | Coolant exit style code of axial concentric on circle |

## 2. Limit Information

|                         |
|-------------------------|
| Technical Information   |
| Application Index Table |
| Selection Guide         |
| SFT-M                   |
| SFT-MF                  |
| SFT-UNC                 |
| SFT-UNF                 |
| POT-M                   |
| POT-MF                  |
| POT-UNC                 |
| POT-UNF                 |
| NRT-M                   |
| NRT-MF                  |
| Marking Information     |
| Customized Request      |

### 2.1 HZ Limits

①  $P \leq 0.6$  ( $TPI \geq 40$ )      ②  $P \geq 0.7$  ( $TPI \leq 36$ )

Upper limit:  $0.01 + 0.015 * n$

Lower limit: (upper limit) - 0.015

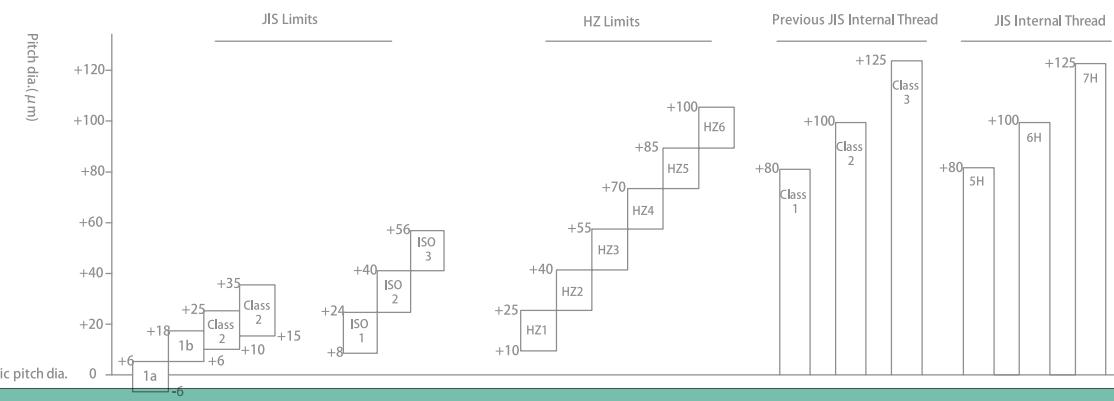
Unit: mm      (n: HZ number)

Upper limit:  $0.02 * n$

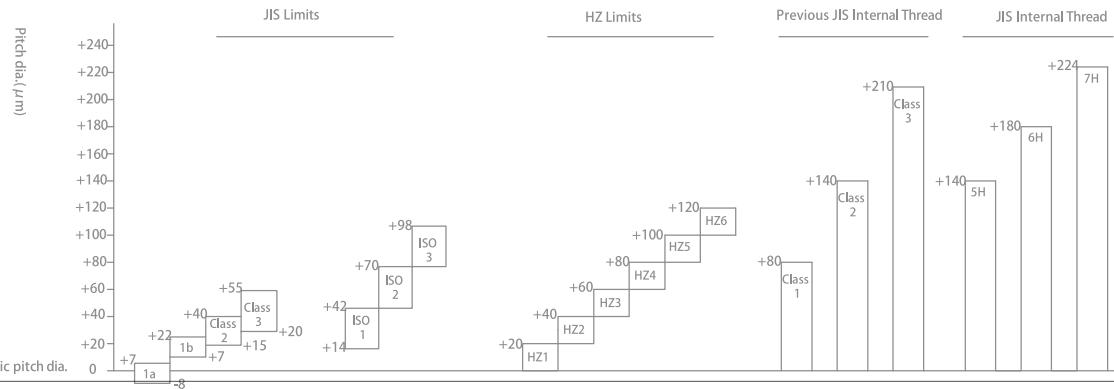
Lower limit: (upper limit) - 0.02

Unit: mm      (n: HZ number)

Example: M3x0.5-HZ2 (STD)



Example: M10x1.5-HZ3 (STD)



## 2. Limit Information

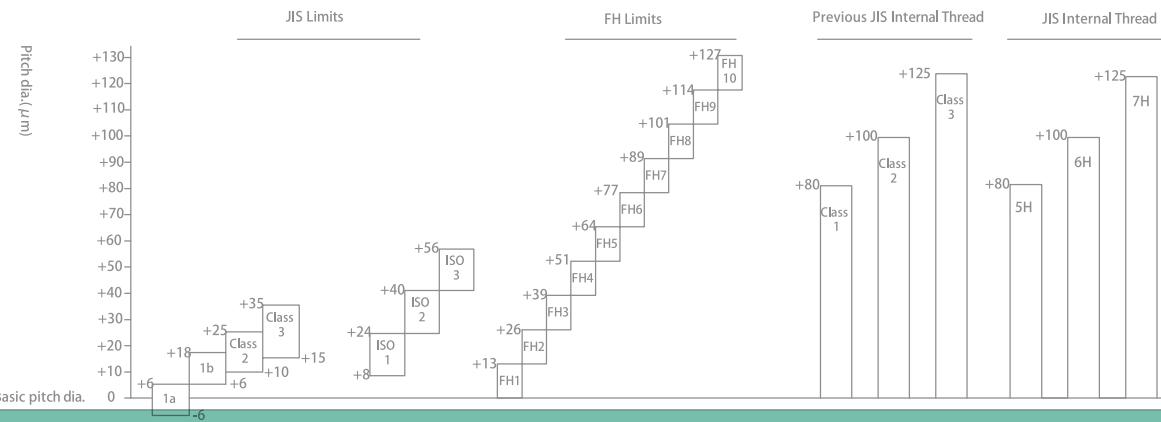
### 2.2 FH Limits

Upper limit:  $0.0127 * n$

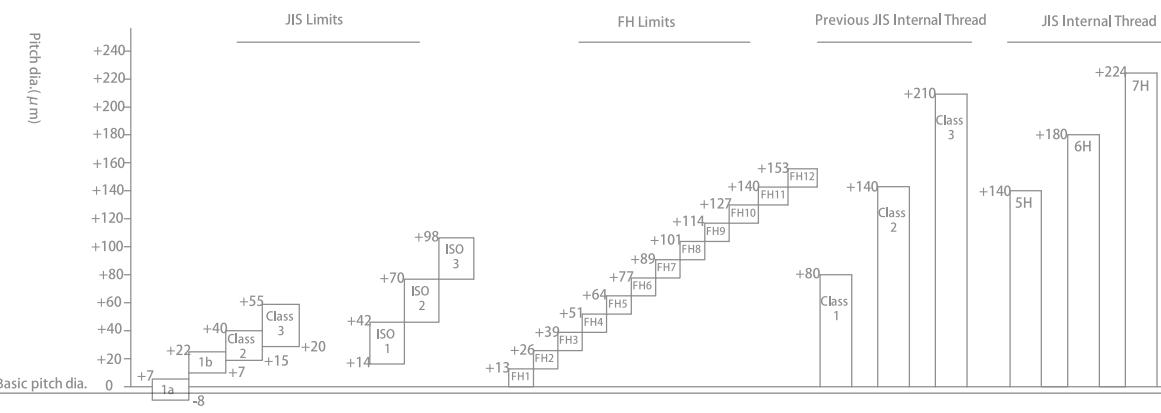
Lower limit: (upper limit) - 0.0127

Unit: mm (n: FH number)

#### Example: M3x0.5-FH5 (STD)



#### Example: M10x1.5-FH7 (STD)



#### Grade Notes:

- ① STD: Recommended limit for 6H and class 2
- ② STD+1: Recommended limit for 1 oversized 6H and class 2
- ③ STD+2: Recommended limit for 2 oversized 6H and class 2

### 3. Workpiece Material

| Item | Description                             |
|------|---|
| HSS  | High-speed steel                        |
| HSSE | High vanadium high-speed steel (cobalt) |
| HSCO | Cobalt high-speed steel                 |
| HSPM | High-speed power steel                  |
| HM   | Hard material                           |

Application Index Table

Selection Guide

SFT-M

SFT-MF

SFT-UNC

SFT-UNF

POT-M

POT-MF

POT-UNC

POT-UNF

NRT-M

NRT-MF

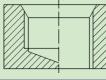
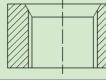
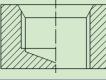
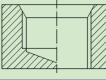
Marking Information

Customized Request

### 4. Surface Treatment

| Item   | Description                                | Applicable Materials                                  |
|--------|--|---|
| Bright | Polished finish                            | Copper, aluminum alloy, etc.                          |
| HAP    | A black AlTiN-based coating                | Non-alloy steel, alloy steel, high speed steel, etc.  |
| SAP    | A bronze TiSiN-based coating               | Hardened steel, stainless steel, titanium alloy, etc. |
| GTS    | A bright gold TiN-based coating            | Carbon steel, aluminum alloy, cast iron, etc.         |
| TDS    | A dark grey TiCN-based coating             | Alloy steel, stainless steel, cast iron, etc.         |
| DLC    | A bright black diamond-like carbon coating | Non-ferrous metals such as aluminum alloy, etc.       |

### 5. Types and Features

| Type        | Spiral Flute Taps (SFT)  | Spiral Pointed Taps (POT)  | Straight Flute Taps (HT)   | Forming Taps (NRT)   |
|-------------|--|--|--|--|
| Type        |   |   |   |   |
| Features    | <ul style="list-style-type: none"> <li>Spiral flute</li> </ul>   | <ul style="list-style-type: none"> <li>Spiral point</li> </ul>   | <ul style="list-style-type: none"> <li>Straight flute</li> </ul>   | <ul style="list-style-type: none"> <li>Taps do not produce chips</li> </ul>  |
| Features    | <ul style="list-style-type: none"> <li>Chips flow out against tapping direction</li> </ul>   | <ul style="list-style-type: none"> <li>Stronger style</li> </ul>   | <ul style="list-style-type: none"> <li>Strong cutting edges</li> </ul>   | <ul style="list-style-type: none"> <li>Precise uniformity of tapped thread limit</li> </ul>  |
| Features    | <ul style="list-style-type: none"> <li>Lower tapping torque</li> </ul>   | <ul style="list-style-type: none"> <li>Pushes chips forward through the hole</li> </ul>  | <ul style="list-style-type: none"> <li>Easy to re-grind</li> </ul>   | <ul style="list-style-type: none"> <li>High strength of resistance to damage</li> </ul>  |
| Application |   |   |   |   |
| Application | <ul style="list-style-type: none"> <li>First choice for blind holes</li> <li>Recommended for the material giving long chips</li> </ul> | <ul style="list-style-type: none"> <li>First choice for through holes</li> <li>Common tap style</li> <li>High speed tapping</li> </ul> | <ul style="list-style-type: none"> <li>For through holes and blind holes</li> <li>For short chipped material like cast iron</li> <li>Hard materials</li> </ul> | <ul style="list-style-type: none"> <li>Can be used for all types of holes and depth</li> <li>Materials with formability</li> </ul> |

| CONPROFE<br>Machining Application Index Table |     |                                      | multiTAP                              |       |                |                |                |                |               |               |               |               |             |            |  |
|---|-----|--------------------------------------|---------------------------------------|-------|----------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|-------------|------------|--|
| Explanation:                                  |     |                                      | Type                                  | SFT   | SFT-GTS        | POT            | POT-GTS        | NRT            | NRT-DLC       | NRT           | NRT-DLC       | NRT           | NRT-GTS     |            |  |
|   |     |                                      | Tool material-coating                 | HSSE  | HSSE-GTS       | HSSE           | HSSE-GTS       | HSPM           | HSPM-DLC      | HM            | HM-DLC        | HSCO          | HSCO-GTS    |            |  |
|   |     |                                      | Chamfer (TCL) <sup>②</sup>            | 2.5P  | 2.5P           | 5P             | 5P             | 1P             | 1P            | 1P            | 1P            | 2P/4P         | 2P/4P       |            |  |
|   |     |                                      | Thread depth <sup>③</sup>             | <2TD  | <2TD           | <2TD           | <2TD           | <3TD           | <3TD          | <3TD          | <3TD          | <3TD          | <3TD        |            |  |
|   |     |                                      | Hole type <sup>④</sup>                |       |                |                |                |                |               |               |               |               |             |            |  |
|   |     |                                      | Thread type<br><br>Page (Range)       | M     | 15-16 (M2-30)  | 15-16 (M2-30)  | 24-25 (M2-30)  | 24-25 (M2-30)  | 33 (M0.8-1.6) | 33 (M0.8-1.6) | 33 (M0.8-1.6) | 33 (M0.8-1.6) | 34 (M2-16)  | 34 (M2-16) |  |
|   |     |                                      |                                       | MF    | 17-19 (MF3-30) | 17-19 (MF3-30) | 26-28 (MF3-30) | 26-28 (MF3-30) |               |               |               |               | 35 (M6-16)  | 35 (M6-16) |  |
|   |     |                                      |                                       | UNC   | 20-21 (No.4-1) | 20-21 (No.4-1) | 29-30 (No.4-1) | 29-30 (No.4-1) |               |               |               |               |             |            |  |
|   |     |                                      |                                       | UNF   | 22-23 (No.4-1) | 22-23 (No.4-1) | 31-32 (No.4-1) | 31-32 (No.4-1) |               |               |               |               |             |            |  |
|   |     |                                      |                                       | G     |                |                |                |                |               |               |               |               |             |            |  |
|   |     |                                      |                                       | NPT   |                |                |                |                |               |               |               |               |             |            |  |
|   |     |                                      |                                       | NPTF  |                |                |                |                |               |               |               |               |             |            |  |
|   |     |                                      |                                       | Rc    |                |                |                |                |               |               |               |               |             |            |  |
| ISO Material Group                            |     |                                      | Cutting Speed (Vc m/min) <sup>①</sup> |       |                |                |                |                |               |               |               |               |             |            |  |
| P   | 1.1 | Low carbon steel (C<0.25%)           | -                                     | 8~13  | -              | 15~25          | -              | -              | -             | -             | -             | -             | 5~10        | 8~13       |  |
|   | 1.2 | Medium carbon steel (C0.25~C0.45%)   | 5~10                                  | 7~12  | 7~12           | <b>10~15</b>   | -              | -              | -             | -             | -             | -             | 3~8         | 7~10       |  |
|   | 1.3 | High carbon steel (C>0.45%)          | -                                     | 6~9   | 5~10           | <b>8~13</b>    | -              | -              | -             | -             | -             | -             | -           | 5~8        |  |
|   | 1.4 | Alloy steel                          | 5~10                                  | 7~12  | 8~13           | 10~15          | -              | -              | -             | -             | -             | -             | -           | 5~8        |  |
|   | 1.5 | Tool steel                           | -                                     | 6~9   | -              | 7~12           | -              | -              | -             | -             | -             | -             | -           | 5~8        |  |
|   | 1.6 | Cast steel                           | -                                     | 6~11  | -              | 10~15          | -              | -              | -             | -             | -             | -             | -           | -          |  |
|   | 1.7 | Heat-treatable steel (HRC25~35)      | 2~4                                   | 3~5   | -              | 4~6            | -              | -              | -             | -             | -             | -             | -           | -          |  |
| M   | 2.1 | Martensitic stainless steel          | -                                     | 5~8   | -              | <b>8~13</b>    | 2~5            | 3~6            | 3~7           | 5~8           | 3~8           | <b>5~10</b>   | <b>5~10</b> |            |  |
|   | 2.2 | Austenitic stainless steel           | -                                     | 3~5   | -              | 4~6            | 1~3            | 2~4            | 3~5           | 4~6           | -             | -             | -           | -          |  |
| K   | 3.1 | Grey cast iron                       | -                                     | -     | 8~13           | 10~15          | -              | -              | -             | -             | -             | -             | -           | -          |  |
|   | 3.2 | Ductile cast iron                    | 5~10                                  | 7~12  | 8~15           | 10~20          | -              | -              | -             | -             | -             | -             | -           | -          |  |
|   | 3.3 | Vermicular graphite cast iron        | -                                     | -     | -              | -              | -              | -              | -             | -             | -             | -             | -           | -          |  |
|   | 3.4 | Malleable cast iron                  | -                                     | -     | -              | -              | -              | -              | -             | -             | -             | -             | -           | -          |  |
| N   | 4.1 | Wrought aluminum alloy               | 8~18                                  | 10~20 | <b>10~20</b>   | 15~25          | 2~5            | 3~8            | 3~8           | 5~10          | 8~15          | 10~20         |             |            |  |
|   | 4.2 | Cast aluminum alloy                  | 8~13                                  | 10~15 | 10~15          | 15~20          | 2~5            | 3~8            | 3~8           | 5~10          | <b>7~12</b>   | 10~15         |             |            |  |
|   | 4.3 | Pure copper, low-alloyed copper      | 5~10                                  | 7~12  | 5~10           | 7~12           | -              | -              | -             | -             | 5~10          | 7~12          |             |            |  |
|   | 4.4 | Brass                                | 8~18                                  | 10~20 | 10~18          | 15~25          | -              | -              | -             | -             | 5~10          | 7~12          |             |            |  |
|   | 4.5 | Aluminum bronze                      | 5~10                                  | 7~12  | 8~15           | 10~20          | -              | -              | -             | -             | -             | -             |             | 7~12       |  |
|   | 4.6 | Magnesium alloy                      | 6~11                                  | 8~13  | 8~13           | 10~15          | -              | -              | -             | -             | -             | -             |             | -          |  |
|   | 4.7 | Zinc alloy                           | 6~11                                  | 8~13  | 8~13           | 10~15          | -              | -              | -             | -             | -             | 5~10          | 7~12        |            |  |
| S   | 5.1 | Titanium alloy                       | -                                     | -     | -              | 5~7            | -              | -              | 1~2           | 1~3           | -             | -             | -           | -          |  |
|   | 5.2 | Nickel-based alloy                   | -                                     | -     | -              | -              | -              | -              | -             | -             | -             | -             | -           | -          |  |
|   | 5.3 | Duro plastic                         | -                                     | -     | -              | -              | -              | -              | -             | -             | -             | -             | -           | -          |  |
|   | 5.4 | Thermo plastic                       | 7~12                                  | 10~15 | 8~13           | 10~20          | -              | -              | -             | -             | -             | -             | -           | -          |  |
|   | 5.5 | Fiber reinforced synthetic materials | -                                     | -     | -              | -              | -              | -              | -             | -             | -             | -             | -           | -          |  |
| H   | 6.1 | High tensile strength steel          | -                                     | -     | -              | -              | -              | -              | -             | -             | -             | -             | -           | -          |  |
|   | 6.2 | Hardened steel                       | -                                     | -     | -              | -              | -              | -              | -             | -             | -             | -             | -           | -          |  |
|   | 6.3 | Hard cast iron                       | -                                     | -     | -              | -              | -              | -              | -             | -             | -             | -             | -           | -          |  |

## Selection Guide

Steps &gt;&gt;&gt;&gt;

| CONPROFE<br>Machining Application Index Table   |  |          | <b>multiTAP</b>                           |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|---|--|----------|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
|   |  |          | Type                                      | SFT                         | SFT-GTS                     | POT                         | POT-GTS                     | NRT                         | NRT-DLC                     | NRT                         | NRT-DLC                     | NRT                         | NRT-GTS                     |
| Explanation:  |  |          | Tool material-coating                     | HSSE                        | HSSE-GTS                    | HSSE                        | HSSE-GTS                    | HSPM                        | HSPM-DLC                    | HM                          | HM-DLC                      | HSCO                        | HSCO-GTS                    |
| Note①: The cutting speeds ( $V_c$ ) listed in the respective columns are recommended values which should be adjusted based on specific machining conditions (workpiece material, coolant type, machine type, etc.). |  |          | Chamfer (TCL) ②                           | 2.5P                        | 2.5P                        | 5P                          | 5P                          | 1P                          | 1P                          | 1P                          | 1P                          | 2P/4P                       | 2P/4P                       |
| - Preferred choice<br>- Alternative choice  |  |          | Thread depth ③                            | <2TD                        | <2TD                        | <2TD                        | <2TD                        | <3TD                        | <3TD                        | <3TD                        | <3TD                        | <3TD                        | <3TD                        |
| Note②: Chamfer (TCL): 2.5P means 2.5 times the thread pitch, 5P means 5 times the thread pitch, and so on and so forth.   |  |          | Hole type ④                               | Blind hole and through hole |
| Note③: Thread depth <2TD means the thread depth is less than 2 times the nominal diameter of the thread.  |  |          | Thread type                               | M                           | 15-16 (M2-30)               | 15-16 (M2-30)               | 24-25 (M2-30)               | 24-25 (M2-30)               | 33 (M0.8-1.6)               | 33 (M0.8-1.6)               | 33 (M0.8-1.6)               | 34 (M2-16)                  | 34 (M2-16)                  |
| Note④: Hole types   |  |          | MF  | 17-19 (MF3-30)              | 17-19 (MF3-30)              | 26-28 (MF3-30)              | 26-28 (MF3-30)              |                             |                             |                             |                             | 35 (M6-16)                  | 35 (M6-16)                  |
|   |  |          | UNC                                       | 20-21 (No.4-1)              | 20-21 (No.4-1)              | 29-30 (No.4-1)              | 29-30 (No.4-1)              |                             |                             |                             |                             |                             |                             |
|   |  |          | UNF                                       | 22-23 (No.4-1)              | 22-23 (No.4-1)              | 31-32 (No.4-1)              | 31-32 (No.4-1)              |                             |                             |                             |                             |                             |                             |
|   |  |          | G   |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  |          | NPT                                       |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  |          | NPTF                                      |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  |          | Rc  |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| ISO Material Group  |  | Subgroup | Workpiece Material                        |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| P   |  | 1.1      | Cutting Speed ( $V_c$ m/min) <sup>①</sup> |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 1.2      | Low carbon steel (C<0.25%)                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 1.3      | Medium carbon steel (C0.25~C0.45%)        |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 1.4      | 5~10                                      |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 1.5      | Alloy steel                               |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 1.6      | Tool steel                                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 1.7      | Cast steel                                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| M   |  | 2.1      | Heat-treatable steel (HRC25~35)           |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 2.2      | 2~4                                       |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 3.1      | Wrought aluminum alloy                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 3.2      | Austenitic stainless steel                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 3.3      | Grey cast iron                            |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 3.4      | Ductile cast iron                         |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 4.1      | Vermicular graphite cast iron             |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| N   |  | 4.2      | Malleable cast iron                       |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 4.3      | Wrought aluminum alloy                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 4.4      | Cast aluminum alloy                       |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 4.5      | Pure copper, low-alloyed copper           |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 4.6      | Brass                                     |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 4.7      | Aluminum bronze                           |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 4.8      | Magnesium alloy                           |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| S   |  | 4.9      | Zinc alloy                                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 5.1      | Wrought aluminum alloy                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 5.2      | Cast aluminum alloy                       |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 5.3      | Pure copper, low-alloyed copper           |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 5.4      | Brass                                     |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 5.5      | Aluminum bronze                           |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 5.6      | Magnesium alloy                           |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| H   |  | 5.7      | Zinc alloy                                |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 5.8      | Wrought aluminum alloy                    |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 5.9      | Cast aluminum alloy                       |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 6.0      | Pure copper, low-alloyed copper           |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 6.1      | Brass                                     |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 6.2      | Aluminum bronze                           |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|   |  | 6.3      | Magnesium alloy                           |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |

| HSSE Spiral Flute Taps (SFT)                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|--|--|--|
| CONPROFE Multi-SFT Multi-SFT-GTS                               |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>HSSE Type</b><br><b>M-Metric coarse thread</b><br>JIS B4430 |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

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| POT-UNC                 |
| POT-UNF                 |
| NRT-M                   |
| NRT-MF                  |
| Marking Information     |
| Customized Request      |

| Type                                       | Multi-SFT                                    | Multi-SFT-GTS   |
|--|--|---|
| <b>M-Metric coarse thread</b><br>JIS B4430 |  |   |
|  |  |   |
| Thread tolerance class (TCTR)              | 6H/JIS2                                      | 6H/JIS2   |
| Thread depth                               | <2TD   | <2TD  |
| Hole type                                  |  |   |
| Tool material                              | HSSE   | HSSE  |
| Surface treatment                          | Bright                                       | GTS   |
| Chamfer (TCL)                              | 2.5P   | 2.5P  |
| Tolerance of shank diameter                | h9   | h9  |
| Rotation direction                         | RH   | RH  |
| Machining application                      | P 1.2 1.4 1.7<br>K 3.2<br>N 4.1-4.7<br>S 5.4 | P 1.1-1.7<br>M 2.1 2.2<br>K 3.2<br>N 4.1-4.7<br>S 5.4 |

| TD    | TP   | Grade | Limit | LF | THL | LU | DCON | DRVS | NOF | PHD       | Ordering Code |           |           |   |  |
|-------|------|-------|-------|----|-----|----|------|------|-----|-----------|---------------|-----------|-----------|---|--|
| M2*   | 0.4  | STD   | HZ1   | 40 | 4.5 | 15 | 3    | 2.5  | 2   | 1.6       | 1.0000865     | ●         | 1.0000866 | ○ |  |
| M2.2* | 0.45 | STD   | HZ2   | 42 | 5   | 16 | 3    | 2.5  |     | 1.75      | 1.0000643     | ●         | 1.0000644 | ○ |  |
| M2.5* | 0.45 | STD   | HZ2   | 44 | 5   | 16 | 3    | 2.5  |     | 2.05      | 1.0000874     | ●         | 1.0000723 | ○ |  |
| M3*   | 0.5  | STD   | HZ2   | 46 | 6   | 19 | 4    | 3.2  | 3   | 1.0000894 | ●             | 1.0000495 | ●         |   |  |
| M3*   | 0.5  | STD+1 | HZ3   |    |     |    |      |      |     | 2.5       | 1.0000496     | ○         | 1.0000566 | ○ |  |
| M3*   | 0.5  | STD+2 | HZ4   |    |     |    |      |      |     | 3.0       | 1.0000497     | ○         | 1.0000567 | ○ |  |
| M3.5  | 0.6  | STD   | HZ2   | 48 | 7   | 20 | 4    | 3.2  |     | 2.9       | 1.0000873     | ●         | 1.0000568 | ○ |  |
| M4    | 0.7  | STD   | HZ2   | 52 | 7.5 | 21 | 5    | 4    |     | 3.3       | 1.0000863     | ●         | 1.0000864 | ● |  |
| M4    | 0.7  | STD+1 | HZ3   |    |     |    |      |      |     | 3.3       | 1.0000847     | ○         | 1.0000848 | ○ |  |
| M4    | 0.7  | STD+2 | HZ4   |    |     |    |      |      |     | 3.7       | 1.0000867     | ○         | 1.0000569 | ○ |  |
| M4.5  | 0.75 | STD   | HZ2   | 55 | 8   | 21 | 5    | 4    |     | 4.2       | 1.0000645     | ●         | 1.0000646 | ● |  |
| M5    | 0.8  | STD   | HZ2   | 60 | 8.5 | 24 | 5.5  | 4.5  |     | 4.2       | 1.0000861     | ●         | 1.0000862 | ● |  |
| M5    | 0.8  | STD+1 | HZ3   |    |     |    |      |      |     | 4.2       | 1.0000868     | ○         | 1.0000570 | ○ |  |
| M5    | 0.8  | STD+2 | HZ4   |    |     |    |      |      |     | 5         | 1.0000869     | ○         | 1.0000571 | ○ |  |
| M6    | 1    | STD-1 | HZ2   | 62 | 11  | 29 | 6    | 4.5  |     | 5         | 1.0000884     | ○         | 1.0000885 | ○ |  |
| M6    | 1    | STD   | HZ3   |    |     |    |      |      |     | 5         | 1.0000886     | ●         | 1.0000887 | ● |  |
| M6    | 1    | STD+1 | HZ4   |    |     |    |      |      |     | 5         | 1.0000870     | ○         | 1.0000572 | ○ |  |

① STD in the Grade column indicates the recommended Limit of the tap.

② Spiral flute taps in size larger than M6 have no point.

③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

④ See Page 36 for tap marking style.

⑤ The helix angle of spiral flute taps in size M3 and smaller is 40° or above.

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| NRT-MF                  |
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| Customized Request      |

| Type                                       | Multi-SFT                                    | Multi-SFT-GTS   |
|--|--|---|
| <b>M-Metric coarse thread</b><br>JIS B4430 |  |   |
|  |  |   |
| Thread tolerance class (TCTR)              | 6H/JIS2                                      | 6H/JIS2   |
| Thread depth                               | <2TD   | <2TD  |
| Hole type                                  |  |   |
| Tool material                              | HSSE   | HSSE  |
| Surface treatment                          | Bright                                       | GTS   |
| Chamfer (TCL)                              | 2.5P   | 2.5P  |
| Tolerance of shank diameter                | h9   | h9  |
| Rotation direction                         | RH   | RH  |
| Machining application                      | P 1.2 1.4 1.7<br>K 3.2<br>N 4.1-4.7<br>S 5.4 | P 1.1-1.7<br>M 2.1-2.2<br>K 3.2<br>N 4.1-4.7<br>S 5.4 |

| TD  | TP   | Grade | Limit | LF  | THL  | LU | DCON | DRVS | NOF | PHD       | Ordering Code |           |           |           |   |
|-----|------|-------|-------|-----|------|----|------|------|-----|-----------|---------------|-----------|-----------|-----------|---|
|     |      |       |       |     |      |    |      |      |     |           | 3             | 4         | •         | ○         |   |
| M7  | 1    | STD   | HZ3   | 65  | 12   | 33 | 6.2  | 5    |     | 6         | 1.0000573     | •         | 1.0000574 | ○         |   |
| M8  | 1.25 | STD   | HZ3   |     |      |    |      |      |     | 6.8       | 1.0000849     | •         | 1.0000850 | •         |   |
| M8  | 1.25 | STD+1 | HZ4   | 70  | 14   | 37 | 6.2  | 5    |     | 1.0000883 | ○             | 1.0000648 | ○         |           |   |
| M10 | 1.5  | STD   | HZ3   |     |      |    |      |      |     | 8.5       | 1.0000871     | •         | 1.0000872 | •         |   |
| M10 | 1.5  | STD+1 | HZ4   | 75  | 16   | 41 | 7    | 5.5  |     | 1.0000575 | ○             | 1.0000576 | ○         |           |   |
| M12 | 1.75 | STD   | HZ4   |     |      |    |      |      |     | 10.2      | 1.0000853     | •         | 1.0000854 | •         |   |
| M12 | 1.75 | STD+1 | HZ5   | 82  | 18.5 | 48 | 8.5  | 6.5  |     | 1.0000725 | ○             | 1.0000726 | ○         |           |   |
| M14 | 2    | STD   | HZ4   | 88  | 20   | 48 | 10.5 | 8    |     | 12        | 1.0000857     | •         | 1.0000858 | •         |   |
| M16 | 2    | STD   | HZ4   | 95  | 20   | 52 | 12.5 | 10   |     | 14        | 1.0000859     | •         | 1.0000860 | •         |   |
| M18 | 2.5  | STD   | HZ4   | 100 | 25   | 55 | 14   | 11   |     |           | 15.5          | 1.0000655 | •         | 1.0000656 | • |
| M20 | 2.5  | STD   | HZ4   | 105 | 25   | 58 | 15   | 12   |     |           | 17.5          | 1.0000657 | •         | 1.0000658 | • |
| M22 | 2.5  | STD   | HZ4   | 115 | 27   | 63 | 17   | 13   |     |           | 19.5          | 1.0000659 | •         | 1.0000660 | • |
| M24 | 3    | STD   | HZ5   | 120 | 30   | 66 | 19   | 15   |     |           | 21            | 1.0000661 | •         | 1.0000662 | • |
| M27 | 3    | STD   | HZ5   | 130 | 30   | 71 | 20   | 15   |     |           | 24            | 1.0000663 | •         | 1.0000664 | • |
| M30 | 3.5  | STD   | HZ5   | 135 | 35   | 74 | 23   | 17   |     |           | 26.5          | 1.0000665 | •         | 1.0000666 | • |

① STD in the Grade column indicates the recommended Limit of the tap.

② Spiral flute taps in size larger than M6 have no point.

③ The Ordering Code column: • Standard stock item; ○ Stock inquiry required

④ See Page 36 for tap marking style.

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| POT-MF                  |
| POT-UNC                 |
| POT-UNF                 |
| NRT-M                   |
| NRT-MF                  |
| Marking Information     |
| Customized Request      |

| Type                                      | Multi-SFT                                    |  | Multi-SFT-GTS |      |     |
|---|--|--|---------------|------|-----|
| <b>MF-Metric fine thread</b><br>JIS B4430 | <b>MultiTAP</b>                              |  |               |      |     |
|   | TD   | TCL                                      | DCON          | DRVS |     |
| MF  | 60°  | TP                                       | PHD           | TD   | 38° |
| Thread tolerance class (TCTR)             | 6H/JIS2                                      | 6H/JIS2                                  |               |      |     |
| Thread depth                              | <2TD   | <2TD                                     |               |      |     |
| Hole type                                 |  |  |               |      |     |
| Tool material                             | HSSE   | HSSE                                     |               |      |     |
| Surface treatment                         | Bright                                       | GTS                                      |               |      |     |
| Chamfer (TCL)                             | 2.5P   | 2.5P                                     |               |      |     |
| Tolerance of shank diameter               | h9   | h9                                       |               |      |     |
| Rotation direction                        | RH   | RH                                       |               |      |     |
| Machining application                     | P 1.2 1.4 1.7<br>K 3.2<br>N 4.1-4.7<br>S 5.4 | M 2.1 2.2<br>K 3.2<br>N 4.1-4.7<br>S 5.4 |               |      |     |

| TD   | TP   | Grade | Limit | LF | THL | LU | DCON | DRVS | NOF | PHD  | Ordering Code |   |             |
|------|------|-------|-------|----|-----|----|------|------|-----|------|---------------|---|-------------|
| M3*  | 0.35 | STD   | HZ1   | 46 | 4   | 19 | 4    | 3.2  | 3   | 2.65 | 1.0000577     | ● | 1.0000578 ○ |
| M3.5 | 0.35 | STD   | HZ1   | 48 | 4   | 20 | 4    | 3.2  |     | 3.15 | 1.0000653     | ● | 1.0000654 ○ |
| M4   | 0.5  | STD   | HZ2   | 52 | 5   | 21 | 5    | 4    |     | 3.5  | 1.0000882     | ● | 1.0000580 ○ |
| M5   | 0.5  | STD   | HZ2   | 60 | 5   | 24 | 5.5  | 4.5  |     | 4.5  | 1.0000875     | ● | 1.0000581 ○ |
| M6   | 0.75 | STD   | HZ2   | 62 | 8   | 29 | 6    | 4.5  |     | 5.2  | 1.0000876     | ● | 1.0000582 ○ |

① STD in the Grade column indicates the recommended Limit of the tap.

② Spiral flute taps in size larger than M6 have no point.

③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

④ See Page 36 for tap marking style.

⑤ The helix angle of spiral flute taps in size M3 and smaller is 40° or above.

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| POT-M                   |
| POT-MF                  |
| POT-UNC                 |
| POT-UNF                 |
| NRT-M                   |
| NRT-MF                  |
| Marking Information     |
| Customized Request      |

| Type                                      | Multi-SFT                                    | Multi-SFT-GTS   |
|---|--|---|
| <b>MF-Metric fine thread</b><br>JIS B4430 |  |   |
|   |  |   |
| Thread tolerance class (TCTR)             | 6H/JIS2                                      | 6H/JIS2   |
| Thread depth                              | <2TD   | <2TD  |
| Hole type                                 |  |   |
| Tool material                             | HSSE   | HSSE  |
| Surface treatment                         | Bright                                       | GTS   |
| Chamfer (TCL)                             | 2.5P   | 2.5P  |
| Tolerance of shank diameter               | h9   | h9  |
| Rotation direction                        | RH   | RH  |
| Machining application                     | P 1.2 1.4 1.7<br>K 3.2<br>N 4.1-4.7<br>S 5.4 | P 1.1-1.7<br>M 2.1 2.2<br>K 3.2<br>N 4.1-4.7<br>S 5.4 |

| TD  | TP   | Grade | Limit | LF | THL | LU | DCON | DRVS | NOF | PHD  | Ordering Code |       |               |   |  |
|-----|------|-------|-------|----|-----|----|------|------|-----|------|---------------|-------|---------------|---|--|
|     |      |       |       |    |     |    |      |      |     |      | Code          | Stock | Stock Inquiry |   |  |
| M7  | 0.75 | STD   | HZ2   | 65 | 8   | 33 | 6.2  | 5    | 3   | 6.2  | 1.0000583     | ○     | 1.0000584     | ○ |  |
| M8  | 0.75 | STD   | HZ2   | 70 | 11  | 37 | 6.2  | 5    |     | 7.2  | 1.0000649     | ●     | 1.0000650     | ○ |  |
| M8  | 1    | STD   | HZ3   |    |     |    |      |      |     | 7    | 1.0000877     | ●     | 1.0000585     | ○ |  |
| M10 | 0.75 | STD   | HZ2   | 75 | 11  | 41 | 7    | 5.5  |     | 9.2  | 1.0000651     | ●     | 1.0000652     | ○ |  |
| M10 | 1    | STD   | HZ3   |    |     |    |      |      |     | 9    | 1.0000878     | ●     | 1.0000724     | ○ |  |
| M10 | 1.25 | STD   | HZ3   |    |     |    |      |      |     | 8.8  | 1.0000851     | ●     | 1.0000852     | ○ |  |
| M12 | 1    | STD   | HZ3   | 82 | 11  | 48 | 8.5  | 6.5  |     | 11   | 1.0000687     | ●     | 1.0000688     | ○ |  |
| M12 | 1.25 | STD   | HZ3   |    |     |    |      |      |     | 10.8 | 1.0000689     | ●     | 1.0000690     | ○ |  |
| M12 | 1.5  | STD   | HZ3   | 88 | 15  | 48 | 10.5 | 8    |     | 10.5 | 1.0000855     | ●     | 1.0000856     | ○ |  |
| M14 | 1    | STD   | HZ3   |    |     |    |      |      |     | 13   | 1.0000691     | ●     | 1.0000692     | ○ |  |
| M14 | 1.25 | STD   | HZ3   |    |     |    |      |      |     | 12.8 | 1.0000693     | ●     | 1.0000694     | ○ |  |
| M14 | 1.5  | STD   | HZ3   | 95 | 11  | 52 | 12.5 | 10   |     | 12.5 | 1.0000626     | ●     | 1.0000627     | ○ |  |
| M16 | 1    | STD   | HZ3   |    |     |    |      |      |     | 15   | 1.0000695     | ●     | 1.0000696     | ○ |  |
| M16 | 1.5  | STD   | HZ3   |    |     |    |      |      |     | 14.5 | 1.0000697     | ●     | 1.0000698     | ○ |  |

① STD in the Grade column indicates the recommended Limit of the tap.

② Spiral flute taps in size larger than M6 have no point.

③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

④ See Page 36 for tap marking style.

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| SFT-UNF                 |
| POT-M                   |
| POT-MF                  |
| POT-UNC                 |
| POT-UNF                 |
| NRT-M                   |
| NRT-MF                  |
| Marking Information     |
| Customized Request      |

| Type                                      | Multi-SFT                                    | Multi-SFT-GTS   |
|---|--|---|
| <b>MF-Metric fine thread</b><br>JIS B4430 |  |   |
|   |  |   |
| Thread tolerance class (TCTR)             | 6H/JIS2                                      | 6H/JIS2   |
| Thread depth                              | <2TD   | <2TD  |
| Hole type                                 |  |   |
| Tool material                             | HSSE   | HSSE  |
| Surface treatment                         | Bright                                       | GTS   |
| Chamfer (TCL)                             | 2.5P   | 2.5P  |
| Tolerance of shank diameter               | h9   | h9  |
| Rotation direction                        | RH   | RH  |
| Machining application                     | P 1.2 1.4 1.7<br>K 3.2<br>N 4.1-4.7<br>S 5.4 | P 1.1-1.7<br>M 2.1 2.2<br>K 3.2<br>N 4.1-4.7<br>S 5.4 |

| TD  | TP  | Grade | Limit | LF  | THL | LU | DCON | DRVS | NOF | PHD  | Ordering Code |   |           |   |  |
|-----|-----|-------|-------|-----|-----|----|------|------|-----|------|---------------|---|-----------|---|--|
| M18 | 1.5 | STD   | HZ4   | 100 | 16  | 55 | 14   | 11   | 4   | 16.5 | 1.0000699     | ● | 1.0000700 | ○ |  |
| M18 | 2   | STD   | HZ4   |     | 20  |    |      |      |     | 16   | 1.0000701     | ● | 1.0000702 | ○ |  |
| M20 | 1.5 | STD   | HZ4   | 105 | 16  | 58 | 15   | 12   |     | 18.5 | 1.0000703     | ● | 1.0000704 | ○ |  |
| M20 | 2   | STD   | HZ4   |     | 20  |    |      |      |     | 18   | 1.0000705     | ● | 1.0000706 | ○ |  |
| M22 | 1.5 | STD   | HZ4   | 115 | 16  | 63 | 17   | 13   |     | 20.5 | 1.0000707     | ● | 1.0000708 | ○ |  |
| M22 | 2   | STD   | HZ4   |     | 20  |    |      |      |     | 20   | 1.0000709     | ● | 1.0000710 | ○ |  |
| M24 | 1.5 | STD   | HZ4   | 120 | 17  | 66 | 19   | 15   |     | 22.5 | 1.0000711     | ● | 1.0000712 | ○ |  |
| M24 | 2   | STD   | HZ4   |     | 20  |    |      |      |     | 22   | 1.0000713     | ● | 1.0000714 | ○ |  |
| M27 | 1.5 | STD   | HZ4   | 130 | 17  | 71 | 20   | 15   |     | 25.5 | 1.0000715     | ● | 1.0000716 | ○ |  |
| M27 | 2   | STD   | HZ4   |     | 20  |    |      |      |     | 25   | 1.0000717     | ● | 1.0000718 | ○ |  |
| M30 | 1.5 | STD   | HZ4   | 135 | 18  | 74 | 23   | 17   |     | 28.5 | 1.0000719     | ● | 1.0000720 | ○ |  |
| M30 | 2   | STD   | HZ4   |     | 22  |    |      |      |     | 28   | 1.0000721     | ● | 1.0000722 | ○ |  |

① STD in the Grade column indicates the recommended Limit of the tap.

② Spiral flute taps in size larger than M6 have no point.

③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

④ See Page 36 for tap marking style.

| Type  | Spiral Flute Taps (SFT)                      | Multi-SFT                                | Multi-SFT-GTS   |
|---|--|--|---|
| American unified coarse thread<br>UNC, ANSI B-1.1 |  |  |   |
| Thread tolerance class (TCTR)                     | 6H/JIS2                                      | 6H/JIS2                                  |   |
| Thread depth                                      | <2TD   | <2TD                                     |   |
| Hole type   |  |  |   |
| Tool material                                     | HSSE   | HSSE                                     |   |
| Surface treatment                                 | Bright                                       | GTS                                      |   |
| Chamfer (TCL)                                     | 2.5P   | 2.5P                                     |   |
| Tolerance of shank diameter                       | h9   | h9                                       |   |
| Rotation direction                                | RH   | RH                                       |   |
| Machining application                             | P 1.2 1.4 1.7<br>K 3.2<br>N 4.1-4.7<br>S 5.4 | M 2.1 2.2<br>K 3.2<br>N 4.1-4.7<br>S 5.4 | P 1.1-1.7<br>M 2.1-2.2<br>K 3.2<br>N 4.1-4.7<br>S 5.4 |

| TD    | TPI | Grade | Limit | LF | THL | LU | DCON | DRVS | NOF | PHD  | Ordering Code |   |           |   |
|-------|-----|-------|-------|----|-----|----|------|------|-----|------|---------------|---|-----------|---|
| NO.4* | 40  | STD   | HZ2   | 44 | 7   | 17 | 3    | 2.5  | 3   | 2.35 | 1.0000514     | ● | 1.0000589 | ○ |
| NO.5* | 40  | STD   | HZ2   | 46 | 7   | 19 | 4    | 3.2  |     | 2.65 | 1.0000590     | ● | 1.0000591 | ○ |
| NO.6* | 32  | STD   | HZ2   | 48 | 8   | 21 | 4    | 3.2  |     | 2.85 | 1.0000515     | ● | 1.0000592 | ○ |
| NO.8  | 32  | STD   | HZ2   | 52 | 8   | 21 | 5    | 4    |     | 3.5  | 1.0000516     | ● | 1.0000593 | ○ |
| NO.10 | 24  | STD   | HZ2   | 60 | 11  | 24 | 5.5  | 4.5  |     | 3.9  | 1.0000530     | ● | 1.0000594 | ○ |
| NO.12 | 24  | STD   | HZ2   | 60 | 11  | 25 | 5.5  | 4.5  |     | 4.5  | 1.0000595     | ● | 1.0000596 | ○ |
| 1/4   | 20  | STD   | HZ2   | 62 | 13  | 29 | 6    | 4.5  |     | 5.1  | 1.0000879     | ● | 1.0000597 | ○ |

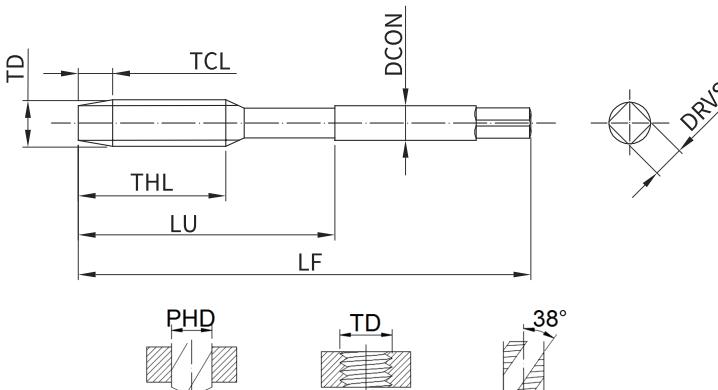
① STD in the Grade column indicates the recommended Limit of the tap.

② Spiral flute taps in size larger than 1/4 have no point.

③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

④ See Page 36 for tap marking style.

⑤ The helix angle of spiral flute taps in size No.6 and smaller is 40° or above.

| Type   | Multi-SFT  |  | Multi-SFT-GTS   |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
|--|--|--|---|-------------|---|-----|---|---------|---|-----|---|--|---|---------|---|---------|---|-----|---|---------|---|-----|
| <b>American unified coarse thread</b><br>UNC, ANSI B-1.1 | <b>multiTAP</b>  |  |  |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
|  |    |  |  |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
| <b>UNC</b>   |   |  |    |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
| Thread tolerance class (TCTR)                            | 6H/JIS2  |  | 6H/JIS2   |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
| Thread depth   | <2TD   |  | <2TD  |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
| Hole type  |   |  |  |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
| Tool material  | HSSE   |  | HSSE  |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
| Surface treatment  | Bright   |  | GTS   |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
| Chamfer (TCL)  | 2.5P   |  | 2.5P  |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
| Tolerance of shank diameter                              | h9   |  | h9  |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
| Rotation direction                                       | RH   |  | RH  |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
| Machining application                                    | <table border="1" style="width: 100%; text-align: center;"> <tr> <td>P</td><td>1.2 1.4 1.7</td></tr> <tr> <td>K</td><td>3.2</td></tr> <tr> <td>N</td><td>4.1-4.7</td></tr> <tr> <td>S</td><td>5.4</td></tr> </table> |  | P   | 1.2 1.4 1.7 | K | 3.2 | N | 4.1-4.7 | S | 5.4 | <table border="1" style="width: 100%; text-align: center;"> <tr> <td>P</td><td>1.1-1.7</td></tr> <tr> <td>M</td><td>2.1 2.2</td></tr> <tr> <td>K</td><td>3.2</td></tr> <tr> <td>N</td><td>4.1-4.7</td></tr> <tr> <td>S</td><td>5.4</td></tr> </table> |  | P | 1.1-1.7 | M | 2.1 2.2 | K | 3.2 | N | 4.1-4.7 | S | 5.4 |
| P  | 1.2 1.4 1.7  |  |   |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
| K  | 3.2  |  |   |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
| N  | 4.1-4.7  |  |   |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
| S  | 5.4  |  |   |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
| P  | 1.1-1.7  |  |   |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
| M  | 2.1 2.2  |  |   |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
| K  | 3.2  |  |   |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
| N  | 4.1-4.7  |  |   |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |
| S  | 5.4  |  |   |             |   |     |   |         |   |     |   |  |   |         |   |         |   |     |   |         |   |     |

| TD   | TPI | Grade | Limit | LF  | THL | LU | DCON | DRVS | NOF | PHD   | Ordering Code |   |           |   |
|------|-----|-------|-------|-----|-----|----|------|------|-----|-------|---------------|---|-----------|---|
|      |     |       |       |     |     |    |      |      |     |       | 1             | 2 | 3         | 4 |
| 5/16 | 18  | STD   | HZ3   | 70  | 14  | 37 | 6.1  | 5    | 3   | 6.6   | 1.0000881     | ● | 1.0000598 | ○ |
| 3/8  | 16  | STD   | HZ3   | 75  | 16  | 41 | 7    | 5.5  |     | 8     | 1.0000599     | ● | 1.0000600 | ○ |
| 7/16 | 14  | STD   | HZ3   | 80  | 18  | 48 | 8    | 6    |     | 9.4   | 1.0000601     | ● | 1.0000602 | ○ |
| 1/2  | 13  | STD   | HZ4   | 85  | 20  | 48 | 9    | 7    |     | 10.8  | 1.0000603     | ● | 1.0000604 | ○ |
| 9/16 | 12  | STD   | HZ4   | 90  | 21  | 48 | 10.5 | 8    |     | 12.2  | 1.0000667     | ● | 1.0000668 | ○ |
| 5/8  | 11  | STD   | HZ4   | 95  | 24  | 52 | 12   | 9    |     | 13.5  | 1.0000669     | ● | 1.0000670 | ○ |
| 3/4  | 10  | STD   | HZ4   | 105 | 25  | 58 | 14   | 11   | 4   | 16.5  | 1.0000671     | ● | 1.0000672 | ○ |
| 7/8  | 9   | STD   | HZ4   | 115 | 28  | 63 | 17   | 13   |     | 19.5  | 1.0000673     | ● | 1.0000674 | ○ |
| 1    | 8   | STD   | HZ5   | 125 | 32  | 68 | 20   | 15   |     | 22.25 | 1.0000675     | ● | 1.0000676 | ○ |

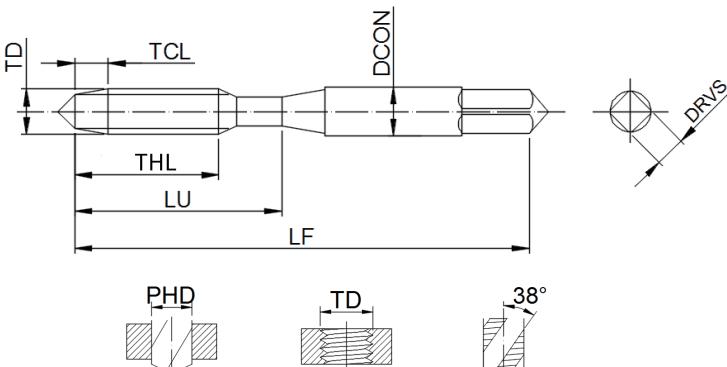
① STD in the Grade column indicates the recommended Limit of the tap.

② Spiral flute taps in size larger than 1/4 have no point.

③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

④ See Page 36 for tap marking style.

|                         |
|-------------------------|
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| SFT-UNC                 |
| SFT-UNF                 |
| POT-M                   |
| POT-MF                  |
| POT-UNC                 |
| POT-UNF                 |
| NRT-M                   |
| NRT-MF                  |
| Marking Information     |
| Customized Request      |

| Type   | Multi-SFT   | Multi-SFT-GTS   |
|--|---|---|
| American unified fine thread<br>UNF, ANSI B-1.1                                    |   |   |
|  |  |  |
| Thread tolerance class (TCTR)  | 6H/JIS2   | 6H/JIS2   |
| Thread depth   | <2TD  | <2TD  |
| Hole type  |  |  |
| Tool material  | HSSE  | HSSE  |
| Surface treatment  | Bright  | GTS   |
| Chamfer (TCL)  | 2.5P  | 2.5P  |
| Tolerance of shank diameter  | h9  | h9  |
| Rotation direction   | RH  | RH  |
| Machining application  | P 1.2 1.4 1.7<br>K 3.2<br>N 4.1-4.7<br>S 5.4  | P 1.1-1.7<br>M 2.1 2.2<br>K 3.2<br>N 4.1-4.7<br>S 5.4                               |

| TD    | TPI | Grade | Limit | LF | THL | LU | DCON | DRVS | NOF | PHD  | Ordering Code |   |           |   |
|-------|-----|-------|-------|----|-----|----|------|------|-----|------|---------------|---|-----------|---|
| NO.4* | 48  | STD   | HZ2   | 44 | 5.5 | 17 | 3    | 2.5  | 3   | 2.4  | 1.0000605     | ○ | 1.0000606 | ○ |
| NO.5* | 44  | STD   | HZ2   | 46 | 6   | 19 | 4    | 3.2  |     | 2.7  | 1.0000607     | ○ | 1.0000608 | ○ |
| NO.6* | 40  | STD   | HZ2   | 48 | 6.5 | 21 | 4    | 3.2  |     | 2.95 | 1.0000609     | ○ | 1.0000610 | ○ |
| NO.8  | 36  | STD   | HZ2   | 52 | 7   | 21 | 5    | 4    |     | 3.5  | 1.0000611     | ○ | 1.0000612 | ○ |
| NO.10 | 32  | STD   | HZ2   | 60 | 8.5 | 24 | 5.5  | 4.5  |     | 4.1  | 1.0000531     | ● | 1.0000613 | ○ |
| NO.12 | 28  | STD   | HZ2   | 60 | 9   | 25 | 5.5  | 4.5  |     | 4.6  | 1.0000614     | ● | 1.0000615 | ○ |
| 1/4   | 28  | STD   | HZ2   | 62 | 9   | 29 | 6    | 4.5  |     | 5.5  | 1.0000880     | ● | 1.0000616 | ○ |

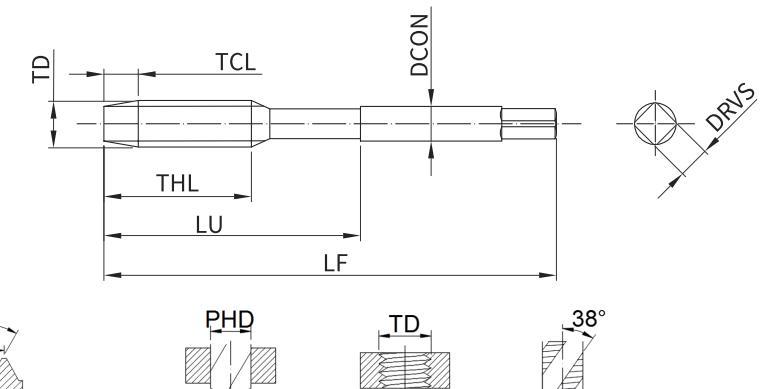
① STD in the Grade column indicates the recommended Limit of the tap.

② Spiral flute taps in size larger than 1/4 have no point.

③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

④ See Page 36 for tap marking style.

⑤ The helix angle of spiral flute taps in size No.6 and smaller is 40° or above.

| Type  | Spiral Flute Taps (SFT)  |  |  |  |  |  |  |  | Multi-SFT   | Multi-SFT-GTS   |
|---|--|--|--|--|--|--|--|--|---|---|
| American unified fine thread<br>UNF, ANSI B-1.1 | <br><b>UNF</b>  |  |  |  |  |  |  |  |  |  |
| Thread tolerance class (TCTR)                   |  |  |  |  |  |  |  |  | 6H/JIS2   | 6H/JIS2   |
| Thread depth                                    |  |  |  |  |  |  |  |  | <2TD  | <2TD  |
| Hole type                                       |  |  |  |  |  |  |  |  |  |  |
| Tool material                                   |  |  |  |  |  |  |  |  | HSSE  | HSSE  |
| Surface treatment                               |  |  |  |  |  |  |  |  | Bright  | GTS   |
| Chamfer (TCL)                                   |  |  |  |  |  |  |  |  | 2.5P  | 2.5P  |
| Tolerance of shank diameter                     |  |  |  |  |  |  |  |  | h9  | h9  |
| Rotation direction                              |  |  |  |  |  |  |  |  | RH  | RH  |
| Machining application                           |  |  |  |  |  |  |  |  | P 1.2 1.4 1.7<br>K 3.2<br>N 4.1-4.7<br>S 5.4  | P 1.1-1.7<br>M 2.1 2.2<br>K 3.2<br>N 4.1-4.7<br>S 5.4                               |

| TD   | TPI | Grade | Limit | LF  | THL | LU | DCON | DRVS | NOF | PHD   | Ordering Code |   |           |   |
|------|-----|-------|-------|-----|-----|----|------|------|-----|-------|---------------|---|-----------|---|
| 5/16 | 24  | STD   | HZ3   | 70  | 11  | 37 | 6.1  | 5    | 3   | 6.9   | 1.0000733     | ● | 1.0000617 | ○ |
| 3/8  | 24  | STD   | HZ3   | 75  | 11  | 41 | 7    | 5.5  |     | 8.5   | 1.0000618     | ● | 1.0000619 | ○ |
| 7/16 | 20  | STD   | HZ3   | 80  | 13  | 48 | 8    | 6    |     | 9.9   | 1.0000620     | ● | 1.0000621 | ○ |
| 1/2  | 20  | STD   | HZ3   | 85  | 13  | 48 | 9    | 7    |     | 11.5  | 1.0000622     | ● | 1.0000623 | ○ |
| 9/16 | 18  | STD   | HZ3   | 90  | 14  | 48 | 10.5 | 8    |     | 12.9  | 1.0000677     | ● | 1.0000678 | ○ |
| 5/8  | 18  | STD   | HZ3   | 95  | 15  | 52 | 12   | 9    |     | 14.5  | 1.0000679     | ● | 1.0000680 | ○ |
| 3/4  | 16  | STD   | HZ3   | 105 | 16  | 58 | 14   | 11   | 4   | 17.5  | 1.0000681     | ● | 1.0000682 | ○ |
| 7/8  | 14  | STD   | HZ4   | 115 | 19  | 63 | 17   | 13   |     | 20.4  | 1.0000683     | ● | 1.0000684 | ○ |
| 1    | 12  | STD   | HZ4   | 125 | 22  | 68 | 20   | 15   |     | 23.25 | 1.0000685     | ● | 1.0000686 | ○ |

① STD in the Grade column indicates the recommended Limit of the tap.

② Spiral flute taps in size larger than 1/4 have no point.

③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

④ See Page 36 for tap marking style.

|                         |
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| SFT-UNF                 |
| POT-M                   |
| POT-MF                  |
| POT-UNC                 |
| POT-UNF                 |
| NRT-M                   |
| NRT-MF                  |
| Marking Information     |
| Customized Request      |

| Type                                | Multi-POT                                    | Multi-POT-GTS   |
|-------------------------------------|--|---|
| M-Metric coarse thread<br>JIS B4430 |  |   |
|                                     |  |   |
| Thread tolerance class (TCTR)       | 6H/JIS2                                      | 6H/JIS2   |
| Thread depth                        | <2TD   | <2TD  |
| Hole type                           |  |   |
| Tool material                       | HSSE   | HSSE  |
| Surface treatment                   | Bright                                       | GTS   |
| Chamfer (TCL)                       | 5P   | 5P  |
| Tolerance of shank diameter         | h9   | h9  |
| Rotation direction                  | RH   | RH  |
| Machining application               | P 1.2-1.4<br>K 3.1-3.2<br>N 4.1-4.7<br>S 5.4 | P 1.1-1.7<br>M 2.1-2.2<br>K 3.1-3.2<br>N 4.1-4.7<br>S 5.1-5.4 |

| TD   | TP   | Grade | Limit | LF | THL | LU | DCON | DRVS | NOF | PHD       | Ordering Code |           |           |   |  |
|------|------|-------|-------|----|-----|----|------|------|-----|-----------|---------------|-----------|-----------|---|--|
| M2   | 0.4  | STD   | HZ1   | 40 | 8   | 15 | 3    | 2.5  | 2   | 1.6       | 4.0000596     | ●         | 4.0000379 |   |  |
| M2.2 | 0.45 | STD   | HZ2   | 42 | 9   | 16 | 3    | 2.5  |     | 1.75      | 4.0000380     | ●         | 4.0000381 |   |  |
| M2.5 | 0.45 | STD   | HZ2   | 44 | 9   | 16 | 3    | 2.5  |     | 2.05      | 4.0000593     | ●         | 4.0000460 |   |  |
| M3   | 0.5  | STD   | HZ2   | 46 | 10  | 19 | 4    | 3.2  | 3   | 4.0000575 | ●             | 4.0000557 | ●         |   |  |
| M3   | 0.5  | STD+1 | HZ3   |    |     |    |      |      |     | 2.5       | 4.0000580     | ○         | 4.0000308 | ○ |  |
| M3   | 0.5  | STD+2 | HZ4   |    |     |    |      |      |     | 4.0000551 | ○             | 4.0000309 | ○         |   |  |
| M3.5 | 0.6  | STD   | HZ2   | 48 | 11  | 20 | 4    | 3.2  |     | 2.9       | 4.0000310     | ○         | 4.0000311 | ○ |  |
| M4   | 0.7  | STD   | HZ2   | 52 | 12  | 21 | 5    | 4    |     | 4.0000576 | ●             | 4.0000558 | ●         |   |  |
| M4   | 0.7  | STD+1 | HZ3   |    |     |    |      |      |     | 3.3       | 4.0000581     | ○         | 4.0000312 | ○ |  |
| M4   | 0.7  | STD+2 | HZ4   |    |     |    |      |      |     | 4.0000552 | ○             | 4.0000594 | ○         |   |  |
| M4.5 | 0.75 | STD   | HZ2   | 55 | 13  | 21 | 5    | 4    |     | 3.7       | 4.0000382     | ●         | 4.0000383 | ● |  |
| M5   | 0.8  | STD   | HZ2   | 60 | 14  | 24 | 5.5  | 4.5  |     | 4.0000577 | ●             | 4.0000559 | ●         |   |  |
| M5   | 0.8  | STD+1 | HZ3   |    |     |    |      |      |     | 4.2       | 4.0000582     | ○         | 4.0000579 | ○ |  |
| M5   | 0.8  | STD+2 | HZ4   |    |     |    |      |      |     | 4.0000553 | ○             | 4.0000315 | ○         |   |  |
| M6   | 1    | STD-1 | HZ2   | 62 | 16  | 29 | 6    | 4.5  |     | 4.0000578 | ○             | 4.0000560 | ○         |   |  |
| M6   | 1    | STD   | HZ3   |    |     |    |      |      |     | 5         | 4.0000583     | ●         | 4.0000313 | ● |  |
| M6   | 1    | STD+1 | HZ4   |    |     |    |      |      |     | 4.0000554 | ○             | 4.0000316 | ○         |   |  |
| M7   | 1    | STD   | HZ3   | 65 | 16  | 33 | 6.2  | 5    |     | 6         | 4.0000317     | ●         | 4.0000318 | ○ |  |

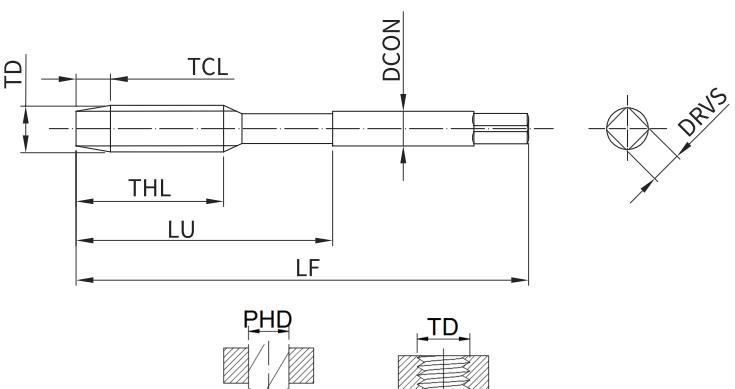
① STD in the Grade column indicates the recommended Limit of the tap.

② Spiral pointed taps in size larger than M8 have no point (M8 POT has only one point, on its thread end).

③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

④ See Page 36 for tap marking style.

multiTAP

| Type   | Multi-POT   | Multi-POT-GTS   |
|--|---|---|
| <b>M-Metric coarse thread</b><br>JIS B4430   |   |   |
|  |  |  |
| Thread tolerance class (TCTR)  | 6H/JIS2   | 6H/JIS2   |
| Thread depth   | <2TD  | <2TD  |
| Hole type  |  |  |
| Tool material  | HSSE  | HSSE  |
| Surface treatment  | Bright  | GTS   |
| Chamfer (TCL)  | 5P  | 5P  |
| Tolerance of shank diameter  | h9  | h9  |
| Rotation direction   | RH  | RH  |
| Machining application  | P 1.2-1.4<br>K 3.1 3.2<br>N 4.1-4.7<br>S 5.4  | P 1.1-1.7<br>M 2.1 2.2<br>K 3.1 3.2<br>N 4.1-4.7<br>S 5.1 5.4                       |

| TD  | TP   | Grade | Limit | LF  | THL | LU | DCON | DRVS | NOF | PHD  | Ordering Code |   |           |   |
|-----|------|-------|-------|-----|-----|----|------|------|-----|------|---------------|---|-----------|---|
| M8  | 1.25 | STD   | HZ3   |     |     |    |      |      |     | 6.8  | 4.0000555     | ● | 4.0000561 | ● |
| M8  | 1.25 | STD+1 | HZ4   | 70  | 17  | 37 | 6.2  | 5    |     |      | 4.0000319     | ○ | 4.0000320 | ○ |
| M10 | 1.5  | STD   | HZ3   |     |     |    |      |      |     | 8.5  | 4.0000556     | ● | 4.0000562 | ● |
| M10 | 1.5  | STD+1 | HZ4   | 75  | 20  | 41 | 7    | 5.5  |     |      | 4.0000322     | ○ | 4.0000323 | ○ |
| M12 | 1.75 | STD   | HZ4   |     |     |    |      |      |     | 10.2 | 4.0000571     | ● | 4.0000564 | ● |
| M12 | 1.75 | STD+1 | HZ5   | 82  | 24  | 48 | 8.5  | 6.5  |     |      | 4.0000325     | ○ | 4.0000326 | ○ |
| M14 | 2    | STD   | HZ4   | 88  | 26  | 48 | 10.5 | 8    |     | 12   | 4.0000573     | ● | 4.0000566 | ● |
| M16 | 2    | STD   | HZ4   | 95  | 26  | 52 | 12.5 | 10   |     | 14   | 4.0000574     | ● | 4.0000569 | ● |
| M18 | 2.5  | STD   | HZ4   | 100 | 30  | 55 | 14   | 11   |     | 15.5 | 4.0000384     | ● | 4.0000385 | ● |
| M20 | 2.5  | STD   | HZ4   | 105 | 30  | 58 | 15   | 12   |     | 17.5 | 4.0000595     | ● | 4.0000387 | ● |
| M22 | 2.5  | STD   | HZ4   | 115 | 30  | 63 | 17   | 14   |     | 19.5 | 4.0000388     | ● | 4.0000389 | ● |
| M24 | 3    | STD   | HZ5   | 120 | 36  | 66 | 19   | 15   |     | 21   | 4.0000390     | ● | 4.0000391 | ● |
| M27 | 3    | STD   | HZ5   | 130 | 36  | 71 | 20   | 15   |     | 24   | 4.0000392     | ● | 4.0000393 | ● |
| M30 | 3.5  | STD   | HZ5   | 135 | 42  | 74 | 23   | 17   |     | 26.5 | 4.0000394     | ● | 4.0000395 | ● |

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① STD in the Grade column indicates the recommended Limit of the tap.

② Spiral pointed taps in size larger than M8 have no point (M8 POT has only one point, on its thread end).

③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

④ See Page 36 for tap marking style.

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| Type                               | Multi-POT                                    | Multi-POT-GTS   |
|------------------------------------|--|---|
| MF-Metric fine thread<br>JIS B4430 |  |   |
|                                    |  |   |
| Thread tolerance class (TCTR)      | 6H/JIS2                                      | 6H/JIS2   |
| Thread depth                       | <2TD   | <2TD  |
| Hole type                          |  |   |
| Tool material                      | HSSE   | HSSE  |
| Surface treatment                  | Bright                                       | GTS   |
| Chamfer (TCL)                      | 5P   | 5P  |
| Tolerance of shank diameter        | h9   | h9  |
| Rotation direction                 | RH   | RH  |
| Machining application              | P 1.2-1.4<br>K 3.1 3.2<br>N 4.1-4.7<br>S 5.4 | P 1.1-1.7<br>M 2.1 2.2<br>K 3.1 3.2<br>N 4.1-4.7<br>S 5.1 5.4 |

| TD   | TP   | Grade | Limit | LF | THL | LU | DCON | DRVS | NOF | PHD  | Ordering Code |   |           |   |
|------|------|-------|-------|----|-----|----|------|------|-----|------|---------------|---|-----------|---|
|      |      |       |       |    |     |    |      |      |     |      | P             | M | K         |   |
| M3   | 0.35 | STD   | HZ1   | 46 | 8   | 19 | 4    | 3.2  | 3   | 2.65 | 4.0000328     | ● | 4.0000329 | ○ |
| M3.5 | 0.35 | STD   | HZ1   | 48 | 8   | 20 | 4    | 3.2  |     | 3.15 | 4.0000396     | ● | 4.0000397 | ○ |
| M4   | 0.5  | STD   | HZ2   | 52 | 10  | 21 | 5    | 4    |     | 3.5  | 4.0000330     | ● | 4.0000331 | ○ |
| M5   | 0.5  | STD   | HZ2   | 60 | 10  | 24 | 5.5  | 4.5  |     | 4.5  | 4.0000332     | ● | 4.0000333 | ○ |
| M6   | 0.75 | STD   | HZ2   | 62 | 13  | 29 | 6    | 4.5  |     | 5.2  | 4.0000334     | ● | 4.0000335 | ○ |
| M7   | 0.75 | STD   | HZ2   | 65 | 13  | 33 | 6.2  | 5    |     | 6.2  | 4.0000336     | ○ | 4.0000337 | ○ |

① STD in the Grade column indicates the recommended Limit of the tap.

② Spiral pointed taps in size larger than M8 have no point (M8 POT has only one point, on its thread end).

③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

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| POT-UNF                 |
| NRT-M                   |
| NRT-MF                  |
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| Customized Request      |

| Type   | Multi-POT  | Multi-POT-GTS   |
|--|--|---|
| <b>MF-Metric fine thread</b><br>JIS B4430  |  |   |
| Thread tolerance class (TCTR)<br>Thread depth<br>Hole type<br>Tool material<br>Surface treatment<br>Chamfer (TCL)<br>Tolerance of shank diameter<br>Rotation direction | TD<br>TCL<br>THL<br>LU<br>LF<br><br><br>60°<br>TP<br>6H/JIS2<br><2TD<br><br>HSSE<br>Bright<br>5P<br>h9<br>RH | TD<br>DCON<br>DRVS<br>PHD<br>TD<br>6H/JIS2<br><2TD<br><br>HSSE<br>GTS<br>5P<br>h9<br>RH |
| Machining application  | P 1.2-1.4<br>K 3.1 3.2<br>N 4.1-4.7<br>S 5.4   | P 1.1-1.7<br>M 2.1 2.2<br>K 3.1 3.2<br>N 4.1-4.7<br>S 5.1 5.4                           |

| TD  | TP   | Grade | Limit | LF | THL | LU | DCON | DRVS | NOF | PHD  | Ordering Code |   |           |   |  |
|-----|------|-------|-------|----|-----|----|------|------|-----|------|---------------|---|-----------|---|--|
| M8  | 0.75 | STD   | HZ2   | 70 | 13  | 37 | 6.2  | 5    | 3   | 7.2  | 4.0000418     | ● | 4.0000419 | ○ |  |
| M8  | 1    | STD   | HZ3   |    | 16  |    |      |      |     | 7    | 4.0000338     | ● | 4.0000341 | ○ |  |
| M10 | 0.75 | STD   | HZ2   | 75 | 13  | 41 | 7    | 5.5  |     | 9.2  | 4.0000420     | ● | 4.0000421 | ○ |  |
| M10 | 1    | STD   | HZ3   |    | 16  |    |      |      |     | 9    | 4.0000422     | ● | 4.0000423 | ○ |  |
| M10 | 1.25 | STD   | HZ3   |    | 20  |    |      |      |     | 8.8  | 4.0000570     | ● | 4.0000563 | ○ |  |
| M12 | 1    | STD   | HZ3   | 82 | 20  | 48 | 8.5  | 6.5  |     | 11   | 4.0000424     | ● | 4.0000425 | ○ |  |
| M12 | 1.25 | STD   | HZ3   |    | 20  |    |      |      |     | 10.8 | 4.0000426     | ● | 4.0000427 | ○ |  |
| M12 | 1.5  | STD   | HZ3   |    | 20  |    |      |      |     | 10.5 | 4.0000572     | ● | 4.0000565 | ○ |  |
| M14 | 1    | STD   | HZ3   |    | 20  |    |      |      |     | 13   | 4.0000428     | ● | 4.0000429 | ○ |  |
| M14 | 1.25 | STD   | HZ3   |    | 20  |    |      |      |     | 12.8 | 4.0000430     | ● | 4.0000431 | ○ |  |
| M14 | 1.5  | STD   | HZ3   | 88 | 20  | 48 | 10.5 | 8    |     | 12.5 | 4.0000567     | ● | 4.0000568 | ○ |  |
| M16 | 1    | STD   | HZ3   |    | 22  |    |      |      |     | 15   | 4.0000432     | ● | 4.0000433 | ○ |  |
| M16 | 1.5  | STD   | HZ3   |    | 22  |    |      |      |     | 14.5 | 4.0000434     | ● | 4.0000435 | ○ |  |

① STD in the Grade column indicates the recommended Limit of the tap.

② Spiral pointed taps in size larger than M8 have no point (M8 POT has only one point, on its thread end).

③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

④ See Page 36 for tap marking style.

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| Type                                      | Multi-POT                                    | Multi-POT-GTS   |
|---|--|---|
| <b>MF-Metric fine thread</b><br>JIS B4430 |  |   |
|   |  |   |
| Thread tolerance class (TCTR)             | 6H/JIS2                                      | 6H/JIS2   |
| Thread depth                              | <2TD   | <2TD  |
| Hole type                                 |  |   |
| Tool material                             | HSSE   | HSSE  |
| Surface treatment                         | Bright                                       | GTS   |
| Chamfer (TCL)                             | 5P   | 5P  |
| Tolerance of shank diameter               | h9   | h9  |
| Rotation direction                        | RH   | RH  |
| Machining application                     | P 1.2-1.4<br>K 3.1 3.2<br>N 4.1-4.7<br>S 5.4 | P 1.1-1.7<br>M 2.1 2.2<br>K 3.1 3.2<br>N 4.1-4.7<br>S 5.1 5.4 |

| TD  | TP  | Grade | Limit | LF  | THL | LU | DCON | DRVS | NOF | PHD  | Ordering Code |   |           |   |
|-----|-----|-------|-------|-----|-----|----|------|------|-----|------|---------------|---|-----------|---|
| M18 | 1.5 | STD   | HZ4   | 100 | 25  | 55 | 14   | 11   | 3   | 16.5 | 4.0000436     | ● | 4.0000437 | ○ |
| M18 | 2   | STD   | HZ4   |     |     |    |      |      |     | 16   | 4.0000438     | ● | 4.0000439 | ○ |
| M20 | 1.5 | STD   | HZ4   |     |     |    |      |      |     | 18.5 | 4.0000440     | ● | 4.0000441 | ○ |
| M20 | 2   | STD   | HZ4   |     |     |    |      |      |     | 18   | 4.0000442     | ● | 4.0000443 | ○ |
| M22 | 1.5 | STD   | HZ4   |     |     |    |      |      |     | 20.5 | 4.0000444     | ● | 4.0000445 | ○ |
| M22 | 2   | STD   | HZ4   |     |     |    |      |      |     | 20   | 4.0000446     | ● | 4.0000447 | ○ |
| M24 | 1.5 | STD   | HZ4   |     |     |    |      |      |     | 22.5 | 4.0000448     | ● | 4.0000449 | ○ |
| M24 | 2   | STD   | HZ4   |     |     |    |      |      |     | 22   | 4.0000450     | ● | 4.0000451 | ○ |
| M27 | 1.5 | STD   | HZ4   |     |     |    |      |      |     | 25.5 | 4.0000452     | ● | 4.0000453 | ○ |
| M27 | 2   | STD   | HZ4   |     |     |    |      |      |     | 25   | 4.0000454     | ● | 4.0000455 | ○ |
| M30 | 1.5 | STD   | HZ4   |     |     |    |      |      |     | 28.5 | 4.0000456     | ● | 4.0000457 | ○ |
| M30 | 2   | STD   | HZ4   |     |     |    |      |      |     | 28   | 4.0000458     | ● | 4.0000459 | ○ |

① STD in the Grade column indicates the recommended Limit of the tap.

② Spiral pointed taps in size larger than M8 have no point (M8 POT has only one point, on its thread end).

③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

④ See Page 36 for tap marking style.

| Type   |  |  | Multi-POT                                    | Multi-POT-GTS   |
|--|--|--|--|---|
| <b>American unified coarse thread</b><br>UNC, ANSI B-1.1 |  |  |  |   |
|  |  |  |  |   |
| UNC  |  |  |  |   |
| Thread tolerance class (TCTR)                            |  |  | 6H/JIS2                                      | 6H/JIS2   |
| Thread depth   |  |  | <2TD   | <2TD  |
| Hole type  |  |  |  |   |
| Tool material  |  |  | HSSE   | HSSE  |
| Surface treatment  |  |  | Bright                                       | GTS   |
| Chamfer (TCL)  |  |  | 5P   | 5P  |
| Tolerance of shank diameter                              |  |  | h9   | h9  |
| Rotation direction                                       |  |  | RH   | RH  |
| Machining application                                    |  |  | P 1.2-1.4<br>K 3.1 3.2<br>N 4.1-4.7<br>S 5.4 | P 1.1-1.7<br>M 2.1 2.2<br>K 3.1 3.2<br>N 4.1-4.7<br>S 5.1 5.4 |

| TD    | TPI | Grade | Limit | LF | THL | LU | DCON | DRVS | NOF | PHD  | Ordering Code |   |           |
|-------|-----|-------|-------|----|-----|----|------|------|-----|------|---------------|---|-----------|
| NO.4  | 40  | STD   | HZ2   | 44 | 8   | 17 | 3    | 2.5  | 3   | 2.35 | 4.0000585     | ● | 4.0000342 |
| NO.5  | 40  | STD   | HZ2   | 46 | 10  | 19 | 4    | 3.2  |     | 2.65 | 4.0000339     | ● | 4.0000340 |
| NO.6  | 32  | STD   | HZ2   | 48 | 12  | 21 | 4    | 3.2  |     | 2.85 | 4.0000586     | ● | 4.0000343 |
| NO.8  | 32  | STD   | HZ2   | 52 | 12  | 21 | 5    | 4    |     | 3.5  | 4.0000587     | ● | 4.0000344 |
| NO.10 | 24  | STD   | HZ2   | 60 | 14  | 24 | 5.5  | 4.5  |     | 3.9  | 4.0000588     | ● | 4.0000345 |
| NO.12 | 24  | STD   | HZ2   | 60 | 16  | 25 | 5.5  | 4.5  |     | 4.5  | 4.0000346     | ● | 4.0000347 |
| 1/4   | 20  | STD   | HZ3   | 62 | 16  | 29 | 6    | 4.5  |     | 5.1  | 4.0000584     | ● | 4.0000348 |

- ① STD in the Grade column indicates the recommended Limit of the tap.
- ② Spiral pointed taps in size larger than 5/16 have no point (5/16 POT has only one point, on its thread end).
- ③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required
- ④ See Page 36 for tap marking style.

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| POT-UNC                 |
| POT-UNF                 |
| NRT-M                   |
| NRT-MF                  |
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| Type  | Multi-POT                                    | Multi-POT-GTS   |
|---|--|---|
| American unified coarse thread<br>UNC, ANSI B-1.1 |  |   |
|   |  |   |
| Thread tolerance class (TCTR)                     | 6H/JIS2                                      | 6H/JIS2   |
| Thread depth                                      | <2TD   | <2TD  |
| Hole type   |  |   |
| Tool material                                     | HSSE   | HSSE  |
| Surface treatment                                 | Bright                                       | GTS   |
| Chamfer (TCL)                                     | 5P   | 5P  |
| Tolerance of shank diameter                       | h9   | h9  |
| Rotation direction                                | RH   | RH  |
| Machining application                             | P 1.2-1.4<br>K 3.1 3.2<br>N 4.1-4.7<br>S 5.4 | P 1.1-1.7<br>M 2.1 2.2<br>K 3.1 3.2<br>N 4.1-4.7<br>S 5.1 5.4 |

| TD   | TPI | Grade | Limit | LF  | THL | LU | DCON | DRVS | NOF | PHD   | Ordering Code |   |           |   |
|------|-----|-------|-------|-----|-----|----|------|------|-----|-------|---------------|---|-----------|---|
| 5/16 | 18  | STD   | HZ3   | 70  | 18  | 37 | 6.1  | 5    | 3   | 6.6   | 4.0000591     | ● | 4.0000349 | ○ |
| 3/8  | 16  | STD   | HZ3   | 75  | 20  | 41 | 7    | 5.5  |     | 8     | 4.0000350     | ● | 4.0000351 | ○ |
| 7/16 | 14  | STD   | HZ3   | 80  | 22  | 48 | 8    | 6    |     | 9.4   | 4.0000352     | ● | 4.0000353 | ○ |
| 1/2  | 13  | STD   | HZ4   | 85  | 25  | 48 | 9    | 7    |     | 10.8  | 4.0000354     | ● | 4.0000355 | ○ |
| 9/16 | 12  | STD   | HZ4   | 90  | 28  | 48 | 10.5 | 8    |     | 12.2  | 4.0000398     | ● | 4.0000399 | ○ |
| 5/8  | 11  | STD   | HZ4   | 95  | 30  | 52 | 12   | 9    |     | 13.5  | 4.0000400     | ● | 4.0000401 | ○ |
| 3/4  | 10  | STD   | HZ4   | 105 | 33  | 58 | 14   | 11   |     | 16.5  | 4.0000402     | ● | 4.0000403 | ○ |
| 7/8  | 9   | STD   | HZ4   | 115 | 35  | 63 | 17   | 13   |     | 19.5  | 4.0000404     | ● | 4.0000405 | ○ |
| 1    | 8   | STD   | HZ5   | 125 | 38  | 68 | 20   | 15   |     | 22.25 | 4.0000406     | ● | 4.0000407 | ○ |

① STD in the Grade column indicates the recommended Limit of the tap.

② Spiral pointed taps in size larger than 5/16 have no point (5/16 POT has only one point, on its thread end).

③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

④ See Page 36 for tap marking style.

| Type  | Multi-POT                                    | Multi-POT-GTS   |
|---|--|---|
| American unified fine thread<br>UNF, ANSI B-1.1 |  |   |
|   |  |   |
| Thread tolerance class (TCTR)                   | 6H/JIS2                                      | 6H/JIS2   |
| Thread depth                                    | <2TD   | <2TD  |
| Hole type                                       |  |   |
| Tool material                                   | HSSE   | HSSE  |
| Surface treatment                               | Bright                                       | GTS   |
| Chamfer (TCL)                                   | 5P   | 5P  |
| Tolerance of shank diameter                     | h9   | h9  |
| Rotation direction                              | RH   | RH  |
| Machining application                           | P 1.2-1.4<br>K 3.1 3.2<br>N 4.1-4.7<br>S 5.4 | P 1.1-1.7<br>M 2.1 2.2<br>K 3.1 3.2<br>N 4.1-4.7<br>S 5.1 5.4 |

| TD    | TPI | Grade | Limit | LF | THL | LU | DCON | DRVS | NOF | PHD  | Ordering Code |   |           |   |
|-------|-----|-------|-------|----|-----|----|------|------|-----|------|---------------|---|-----------|---|
| NO.4  | 48  | STD   | HZ2   | 44 | 7   | 17 | 3    | 2.5  | 3   | 2.4  | 4.0000356     | ○ | 4.0000357 | ○ |
| NO.5  | 44  | STD   | HZ2   | 46 | 9   | 19 | 4    | 3.2  |     | 2.7  | 4.0000358     | ○ | 4.0000359 | ○ |
| NO.6  | 40  | STD   | HZ2   | 48 | 11  | 21 | 4    | 3.2  |     | 2.95 | 4.0000360     | ○ | 4.0000361 | ○ |
| NO.8  | 36  | STD   | HZ2   | 52 | 12  | 21 | 5    | 4    |     | 3.5  | 4.0000362     | ○ | 4.0000363 | ○ |
| NO.10 | 32  | STD   | HZ2   | 60 | 14  | 24 | 5.5  | 4.5  |     | 4.1  | 4.0000589     | ● | 4.0000364 | ○ |
| NO.12 | 28  | STD   | HZ2   | 60 | 16  | 25 | 5.5  | 4.5  |     | 4.6  | 4.0000365     | ● | 4.0000366 | ○ |
| 1/4   | 28  | STD   | HZ2   | 62 | 16  | 29 | 6    | 4.5  |     | 5.5  | 4.0000590     | ● | 4.0000367 | ○ |

① STD in the Grade column indicates the recommended Limit of the tap.

② Spiral pointed taps in size larger than 5/16 have no point (5/16 POT has only one point, on its thread end).

③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

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| POT-UNC                 |
| POT-UNF                 |
| NRT-M                   |
| NRT-MF                  |
| Marking Information     |
| Customized Request      |

| Type  | Multi-POT                                    | Multi-POT-GTS   |
|---|--|---|
| American unified fine thread<br>UNF, ANSI B-1.1 |  |   |
| <br><br><br>                                    |  |   |
| Thread tolerance class (TCTR)                   | 6H/JIS2                                      | 6H/JIS2   |
| Thread depth                                    | <2TD   | <2TD  |
| Hole type                                       |  |   |
| Tool material                                   | HSSE   | HSSE  |
| Surface treatment                               | Bright                                       | GTS   |
| Chamfer (TCL)                                   | 5P   | 5P  |
| Tolerance of shank diameter                     | h9   | h9  |
| Rotation direction                              | RH   | RH  |
| Machining application                           | P 1.2-1.4<br>K 3.1 3.2<br>N 4.1-4.7<br>S 5.4 | P 1.1-1.7<br>M 2.1 2.2<br>K 3.1 3.2<br>N 4.1-4.7<br>S 5.1 5.4 |

| TD   | TPI | Grade | Limit | LF  | THL | LU | DCON | DRVS | NOF | PHD   | Ordering Code |   |           |   |
|------|-----|-------|-------|-----|-----|----|------|------|-----|-------|---------------|---|-----------|---|
| 5/16 | 24  | STD   | HZ3   | 70  | 18  | 37 | 6.1  | 5    | 3   | 6.9   | 4.0000592     | ● | 4.0000368 | ○ |
| 3/8  | 24  | STD   | HZ3   | 75  | 18  | 41 | 7    | 5.5  |     | 8.5   | 4.0000369     | ● | 4.0000370 | ○ |
| 7/16 | 20  | STD   | HZ3   | 80  | 20  | 48 | 8    | 6    |     | 9.9   | 4.0000371     | ● | 4.0000372 | ○ |
| 1/2  | 20  | STD   | HZ3   | 85  | 20  | 48 | 9    | 7    |     | 11.5  | 4.0000373     | ● | 4.0000374 | ○ |
| 9/16 | 18  | STD   | HZ3   | 90  | 22  | 48 | 10.5 | 8    |     | 12.9  | 4.0000408     | ● | 4.0000409 | ○ |
| 5/8  | 18  | STD   | HZ3   | 95  | 22  | 52 | 12   | 9    |     | 14.5  | 4.0000410     | ● | 4.0000411 | ○ |
| 3/4  | 16  | STD   | HZ3   | 105 | 25  | 58 | 14   | 11   |     | 17.5  | 4.0000412     | ● | 4.0000413 | ○ |
| 7/8  | 14  | STD   | HZ4   | 115 | 25  | 63 | 17   | 13   |     | 20.4  | 4.0000414     | ● | 4.0000415 | ○ |
| 1    | 12  | STD   | HZ4   | 125 | 28  | 68 | 20   | 15   |     | 23.25 | 4.0000416     | ● | 4.0000417 | ○ |

① STD in the Grade column indicates the recommended Limit of the tap.

② Spiral pointed taps in size larger than 5/16 have no point (5/16 POT has only one point, on its thread end).

③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

④ See Page 36 for tap marking style.

|                         |
|-------------------------|
| Technical Information   |
| Application Index Table |
| Selection Guide         |
| SFT-M                   |
| SFT-MF                  |
| SFT-UNC                 |
| SFT-UNF                 |
| POT-M                   |
| POT-MF                  |
| POT-UNC                 |
| POT-UNF                 |
| <b>NRT-M</b>            |
| NRT-MF                  |
| Marking Information     |
| Customized Request      |

| Type                                       | Multi-NRT              | Multi-NRT-DLC          | Multi-NRT                       | Multi-NRT-DLC                   |
|--|------------------------|------------------------|---------------------------------|---------------------------------|
| <b>M-Metric coarse thread</b><br>JIS B4430 | <b>MultiTAP</b>        |                        |                                 |                                 |
|  |                        |                        |                                 |                                 |
| Thread tolerance class (TCTR)              | 6H/JIS2                | 6H/JIS2                | 6H/JIS2                         | 6H/JIS2                         |
| Thread depth                               | <3TD                   | <3TD                   | <3TD                            | <3TD                            |
| Hole type                                  |                        |                        |                                 |                                 |
| Tool material                              | HSPM                   | HSPM                   | HM                              | HM                              |
| Surface treatment                          | Bright                 | DLC                    | Bright                          | DLC                             |
| Chamfer (TCL)                              | 1P                     | 1P                     | 1P                              | 1P                              |
| Tolerance of shank diameter                | h9                     | h9                     | h7                              | h7                              |
| Rotation direction                         | RH                     | RH                     | RH                              | RH                              |
| Machining application                      | M 2.1 2.2<br>N 4.1 4.2 | M 2.1 2.2<br>N 4.1 4.2 | M 2.1 2.2<br>N 4.1 4.2<br>S 5.1 | M 2.1 2.2<br>N 4.1 4.2<br>S 5.1 |

| TD   | TP   | Grade | Limit | LF | THL | LU | DCON | DRVS | PHD  | Ordering Code |   |           |   |           |   |           |   |
|------|------|-------|-------|----|-----|----|------|------|------|---------------|---|-----------|---|-----------|---|-----------|---|
| M0.8 | 0.2  | STD   | FH3   | 40 | 2.5 | -  | 3    | 2.5  | 0.7  | 3.0000653     | ○ | 3.0000581 | ● | 3.0000709 | ○ | 3.0000710 | ● |
| M1.0 | 0.25 | STD   | FH4   | 40 | 3   | -  | 3    | 2.5  | 0.9  | 3.0000655     | ○ | 3.0000583 | ● | 3.0000711 | ○ | 3.0000712 | ● |
| M1.2 | 0.25 | STD   | FH4   | 40 | 4   | -  | 3    | 2.5  | 1.1  | 3.0000657     | ○ | 3.0000584 | ● | 3.0000713 | ○ | 3.0000714 | ● |
| M1.4 | 0.3  | STD   | FH4   | 40 | 4.5 | -  | 3    | 2.5  | 1.28 | 3.0000635     | ○ | 3.0000658 | ● | 3.0000715 | ○ | 3.0000716 | ● |
| M1.6 | 0.35 | STD   | FH4   | 40 | 5   | -  | 3    | 2.5  | 1.47 | 3.0000660     | ○ | 3.0000585 | ● | 3.0000717 | ○ | 3.0000718 | ● |

① STD in the Grade column indicates the recommended Limit of the tap.

② Forming Taps in size smaller than M7: TCL=2P has no point; TCL=4P has two points respectively on its thread end and shank end.

③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

④ See Page 36 for tap marking style.

|                         |
|-------------------------|
| Technical Information   |
| Application Index Table |
| Selection Guide         |
| SFT-M                   |
| SFT-MF                  |
| SFT-UNC                 |
| SFT-UNF                 |
| POT-M                   |
| POT-MF                  |
| POT-UNC                 |
| POT-UNF                 |
| NRT-M                   |
| NRT-MF                  |
| Marking Information     |
| Customized Request      |

| Type                          | M-Metric coarse thread<br>JIS B4430 | Multi-NRT                           | Multi-NRT-GTS                       | Multi-NRT                           | Multi-NRT-GTS                       |
|-------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
|                               |                                     |                                     |                                     |                                     |                                     |
| Thread tolerance class (TCTR) |                                     | 6H/JIS2                             | 6H/JIS2                             | 6H/JIS2                             | 6H/JIS2                             |
| Thread depth                  | <3TD                                | <3TD                                | <3TD                                | <3TD                                | <3TD                                |
| Hole type                     |                                     |                                     |                                     |                                     |                                     |
| Tool material                 | HSCO                                | HSCO                                | HSCO                                | HSCO                                | HSCO                                |
| Surface treatment             | Bright                              | GTS                                 | Bright                              | GTS                                 |                                     |
| Chamfer (TCL)                 | 2P                                  | 2P                                  | 4P                                  | 4P                                  |                                     |
| Tolerance of shank diameter   | h9                                  | h9                                  | h9                                  | h9                                  |                                     |
| Rotation direction            | RH                                  | RH                                  | RH                                  | RH                                  |                                     |
| Machining application         | P 1.1 1.2<br>M 2.1<br>N 4.1-4.4 4.7 | P 1.1-1.5<br>M 2.1<br>N 4.1-4.5 4.7 | P 1.1 1.2<br>M 2.1<br>N 4.1-4.4 4.7 | P 1.1-1.5<br>M 2.1<br>N 4.1-4.5 4.7 | P 1.1-1.5<br>M 2.1<br>N 4.1-4.5 4.7 |

| TD   | TP   | Grade | Limit | LF | THL | LU | DCON | DRVS | PHD   | Ordering Code |   |           |   |           |   |           |   |
|------|------|-------|-------|----|-----|----|------|------|-------|---------------|---|-----------|---|-----------|---|-----------|---|
|      |      |       |       |    |     |    |      |      |       | 1             | 2 | 3         | 4 | 5         | 6 | 7         | 8 |
| M2   | 0.4  | STD   | FH4   | 40 | 4   | 12 | 3    | 2.5  | 1.85  | 3.0000637     | ○ | 3.0000638 | ● | 3.0000639 | ○ | 3.0000640 | ● |
| M2.5 | 0.45 | STD   | FH4   | 44 | 5   | 14 | 3    | 2.5  | 2.33  | 3.0000641     | ○ | 3.0000642 | ● | 3.0000630 | ○ | 3.0000661 | ● |
| M3   | 0.5  | STD   | FH5   | 46 | 6   | 18 | 4    | 3.2  | 2.8   | 3.0000631     | ○ | 3.0000662 | ● | 3.0000632 | ○ | 3.0000663 | ● |
| M4   | 0.7  | STD   | FH6   | 52 | 7   | 20 | 5    | 4    | 3.7   | 3.0000633     | ○ | 3.0000664 | ● | 3.0000634 | ○ | 3.0000665 | ● |
| M5   | 0.8  | STD   | FH6   | 60 | 8   | 22 | 5.5  | 4.5  | 4.65  | 3.0000643     | ○ | 3.0000644 | ● | 3.0000645 | ○ | 3.0000646 | ● |
| M6   | 1    | STD   | FH7   | 62 | 10  | 24 | 6    | 4.5  | 5.6   | 3.0000647     | ○ | 3.0000648 | ● | 3.0000649 | ○ | 3.0000650 | ● |
| M8   | 1.25 | STD   | FH7   | 70 | 14  | -  | 6.2  | 5    | 7.45  | 3.0000651     | ○ | 3.0000666 | ● | 3.0000667 | ○ | 3.0000668 | ● |
| M10  | 1.5  | STD   | FH7   | 75 | 16  | -  | 7    | 5.5  | 9.35  | 3.0000669     | ○ | 3.0000670 | ○ | 3.0000671 | ○ | 3.0000672 | ○ |
| M12  | 1.75 | STD   | FH8   | 82 | 18  | -  | 8.5  | 6.5  | 11.25 | 3.0000673     | ○ | 3.0000674 | ○ | 3.0000675 | ○ | 3.0000676 | ○ |
| M14  | 2    | STD   | FH10  | 88 | 20  | -  | 10.5 | 8    | 13.1  | 3.0000677     | ○ | 3.0000678 | ○ | 3.0000679 | ○ | 3.0000680 | ○ |
| M16  | 2    | STD   | FH10  | 95 | 20  | -  | 12.5 | 10   | 15.1  | 3.0000681     | ○ | 3.0000682 | ○ | 3.0000683 | ○ | 3.0000684 | ○ |

① STD in the Grade column indicates the recommended Limit of the tap.

② Forming Taps in size smaller than M7: TCL=2P has no point; TCL=4P has two points respectively on its thread end and shank end.

③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

④ See Page 36 for tap marking style.

HSCO

## Forming Taps (NRT)

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|                         |
|-------------------------|
| Technical Information   |
| Application Index Table |
| Selection Guide         |
| SFT-M                   |
| SFT-MF                  |
| SFT-UNC                 |
| SFT-UNF                 |
| POT-M                   |
| POT-MF                  |
| POT-UNC                 |
| POT-UNF                 |
| NRT-M                   |
| <b>NRT-MF</b>           |
| Marking Information     |
| Customized Request      |

| Type                                      | Multi-NRT                           | Multi-NRT-GTS                       | Multi-NRT                           | Multi-NRT-GTS                       |
|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| <b>MF-Metric fine thread</b><br>JIS B4430 |                                     |                                     |                                     |                                     |
|   |                                     |                                     |                                     |                                     |
| <b>Thread tolerance class (TCTR)</b>      | 6H/JIS2                             | 6H/JIS2                             | 6H/JIS2                             | 6H/JIS2                             |
| Thread depth                              | <3TD                                | <3TD                                | <3TD                                | <3TD                                |
| Hole type                                 |                                     |                                     |                                     |                                     |
| Tool material                             | HSCO                                | HSCO                                | HSCO                                | HSCO                                |
| Surface treatment                         | Bright                              | GTS                                 | Bright                              | GTS                                 |
| Chamfer (TCL)                             | 2P                                  | 2P                                  | 4P                                  | 4P                                  |
| Tolerance of shank diameter               | h9                                  | h9                                  | h9                                  | h9                                  |
| Rotation direction                        | RH                                  | RH                                  | RH                                  | RH                                  |
| Machining application                     | P 1.1 1.2<br>M 2.1<br>N 4.1-4.4 4.7 | P 1.1-1.5<br>M 2.1<br>N 4.1-4.5 4.7 | P 1.1 1.2<br>M 2.1<br>N 4.1-4.4 4.7 | P 1.1-1.5<br>M 2.1<br>N 4.1-4.5 4.7 |

| TD  | TP   | Grade | Limit | LF | THL | LU | DCON | DRVS | PHD   | Ordering Code |   |           |   |           |   |           |   |
|-----|------|-------|-------|----|-----|----|------|------|-------|---------------|---|-----------|---|-----------|---|-----------|---|
| M6  | 0.75 | STD   | FH6   | 62 | 10  | 24 | 6    | 4.5  | 5.7   | 3.0000685     | ○ | 3.0000686 | ○ | 3.0000687 | ○ | 3.0000688 | ○ |
| M8  | 1    | STD   | FH7   | 70 | 14  | -  | 6.2  | 5    | 7.6   | 3.0000689     | ○ | 3.0000690 | ○ | 3.0000691 | ○ | 3.0000692 | ○ |
| M10 | 1.25 | STD   | FH7   | 75 | 16  | -  | 7    | 5.5  | 9.45  | 3.0000693     | ○ | 3.0000694 | ○ | 3.0000695 | ○ | 3.0000696 | ○ |
| M12 | 1.5  | STD   | FH7   | 82 | 18  | -  | 8.5  | 6.5  | 11.35 | 3.0000697     | ○ | 3.0000698 | ○ | 3.0000699 | ○ | 3.0000700 | ○ |
| M14 | 1.5  | STD   | FH9   | 88 | 20  | -  | 10.5 | 8    | 13.35 | 3.0000701     | ○ | 3.0000702 | ○ | 3.0000703 | ○ | 3.0000704 | ○ |
| M16 | 1.5  | STD   | FH9   | 95 | 20  | -  | 12.5 | 10   | 15.35 | 3.0000705     | ○ | 3.0000706 | ○ | 3.0000707 | ○ | 3.0000708 | ○ |

① STD in the Grade column indicates the recommended Limit of the tap.

② Forming Taps in size smaller than M7: TCL=2P has no point; TCL=4P has two points respectively on its thread end and shank end.

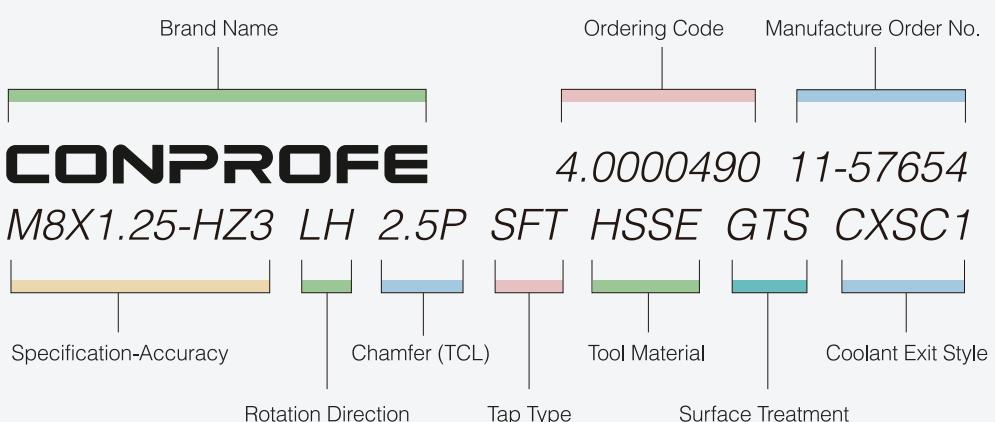
③ The Ordering Code column: ● Standard stock item; ○ Stock inquiry required

④ See Page 36 for tap marking style.

## Marking Information

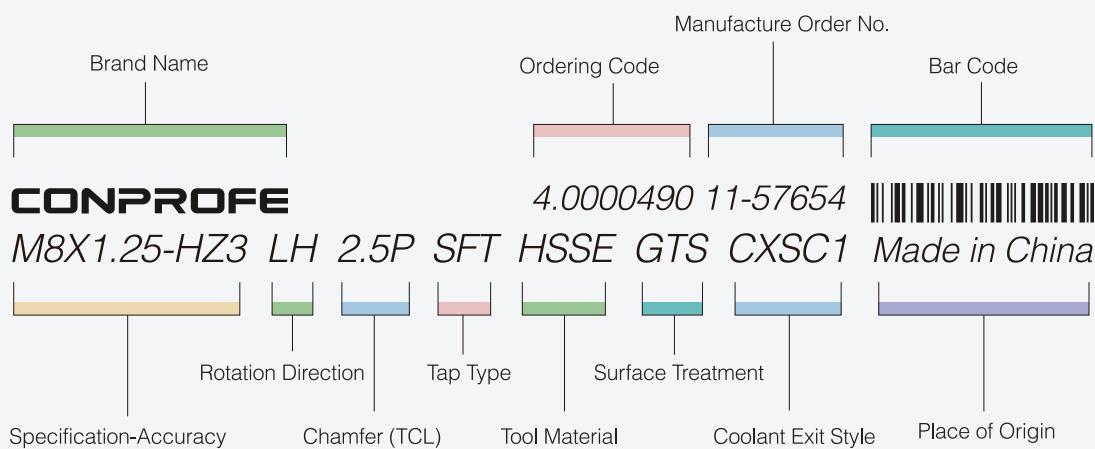
|                         |
|-------------------------|
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| SFT-MF                  |
| SFT-UNC                 |
| SFT-UNF                 |
| POT-M                   |
| POT-MF                  |
| POT-UNC                 |
| POT-UNF                 |
| NRT-M                   |
| NRT-MF                  |
| Marking Information     |
| Customized Request      |

### Tap Marking



\* Please refer to page 7-10 for tap terminology and related technical information.

### Package Marking



\* Please refer to page 7-10 for tap terminology and related technical information.

# Customized Tapping Tool Request Form



## Basic Information

|                       |                         |
|-----------------------|-------------------------|
| Customer Name *       | Sales Engineer          |
| Project Name          | Customer No.            |
| RFQ Date *            | Expected Lead Time(wks) |
| Expected Quote Date * |                         |

## Industry

|                  |                             |                     |
|------------------|-----------------------------|---------------------|
| Automotive       | Die & Mold                  | General Machinery   |
| Power Generation | Aviation & Aerospace        | Machine & Tools     |
| Oil & Gas        | Military & National Defense | Electronic Consumer |

## Workpiece

|                      |                   |
|----------------------|-------------------|
| Part Name            | Output (pcs/year) |
| Workpiece Material * | HB/HRC Hardness * |
| Inhomogeneity        | Other Information |
| CMC Code             |                   |
| Blank Molding Method |                   |

## Machine Information

|                          |                    |                 |
|--------------------------|--------------------|-----------------|
| Machine Maker            | Machine Type *     | Spindle Taper * |
| Process System Stability | Machine Conditions | Cooling Method  |
| Spindle Speed (rpm)      | Max. Torque (N·m)  | Max. Power (kW) |

## Tool | Coolant | Fixture | Tool Holder \*

|                          |                                     |                          |
|--------------------------|-------------------------------------|--------------------------|
| Brand of Taps in Use Now | Tool Specification                  |                          |
| No. of Threads           | Tap Size                            |                          |
| Coating Type             | Coolant Exit Style Code             | Cooling Method           |
| Coolant                  | Coolant Pressure/Concentration      | Hand (LH/RH)             |
| Pre-Hole Diameter(mm)    | Pre-Hole Depth (mm)                 | Thread Depth (mm)        |
| Premachined Hole Type    |                                     | Thread Limit             |
| Special Description      |                                     | Thread Inspection Method |
| Cutting Speed Vc (m/min) | Rotation Speed (rev/min)            | Retract Rate             |
| Tool Holder Type         | Tool Holder Brand and Specification |                          |
| Drill Brand              | Drill Specification & Life          |                          |
| Current Tap Life (holes) | Unit Price of Current Tap           | Current Lead Time (wks)  |

## Expectations \*

## Special Requirements \*

Note: \* indicates a required field.

# CONPROFE

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