

# ISO M

Material Specific taps for stainless steel



SP+VA  
SP-VA  
SP-VA E(1.5P)  
SU2-SP



SL+VA



PO-VA



MATERIAL  
SPECIFIC

 Think threads with  
**YAMAWA**

## Stainless steel features

Austenitic stainless steel has the following characteristics and is classified as difficult to cut material.

- They harden while machining
- Cold welding occurs frequently.
- Poor chip ejection.
- Tend to shrink.
- Tool friction is high.

|                            | Machinability       | Steel grade                                  | Element Content (%)        |                            |
|----------------------------|---------------------|----------------------------------------------|----------------------------|----------------------------|
|                            |                     |                                              | Ni                         | Cr                         |
|                            | Low<br><b>M2</b>    | 1.4466<br>(AISI 317)<br>1.4401<br>(AISI 316) | 11.00~15.00<br>10.00~14.00 | 18.00~20.00<br>16.00~18.00 |
| Austenitic stainless steel | Medium<br><b>M1</b> | 1.4350<br>(AISI 304)<br>1.4305<br>(AISI 303) | 8.00~10.50<br>8.00~11.00   | 18.00~20.00<br>17.00~19.00 |

## SP+VA / SP-VA / SP-VA E (1.5P)

MATERIAL SPECIFIC SERIES **MS**



SP+VA



SP-VA



SP-VA E (1.5P)



### The difference between SP+VA and SP-VA

"+" means version up taps

SP+VA: Medium speed machining.

Effective for use with synchronous feed (rigid) tapping on CNC machining centers.

SP-VA is for low speed machining on drilling machines and machining centers.

Effective tapping on drilling machines.

| Steel grade                       | Recommended tapping speed         |          |
|-----------------------------------|-----------------------------------|----------|
|                                   | 5 m/min                           | 10 m/min |
| 1.4350<br>(AISI 304)<br><b>M1</b> | <div>SP+VA</div> <div>SP-VA</div> |          |
| 1.4305<br>(AISI 303)<br><b>M1</b> |                                   |          |

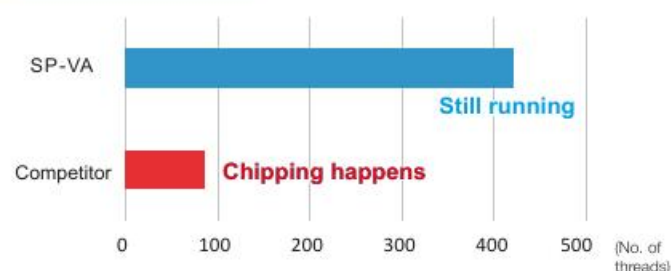
### For blind hole application

Yamawa "Blue ring series" taps can be used especially for stainless steels.

SP+VA and SP-VA are recommended for tapping stainless steels such as 1.4350 (AISI 304) and 1.4305 (AISI 303). SP+VA and SP-VA can also be used for chrome steels, chrome molybdenum steels, and other ductile materials with great tendency to harden while machining

|  | Machinability       | Steel grade                                  | Element Content (%)      |                            |
|--|---------------------|----------------------------------------------|--------------------------|----------------------------|
|  |                     |                                              | Ni                       | Cr                         |
|  | Medium<br><b>M1</b> | 1.4350<br>(AISI 304)<br>1.4305<br>(AISI 303) | 8.00~10.50<br>8.00~11.00 | 18.00~20.00<br>17.00~19.00 |

## Process data



| Product            | SP-VA M12             |
|--------------------|-----------------------|
|                    | Competitor M12        |
| Workpiece material | 1.4350 (AISI 304)     |
| Tapping speed      | 8 m/min               |
| Hole diameter      | ø10.3                 |
| Threading length   | 25 mm, Blind hole     |
| Machine            | CNC                   |
| Lubrication        | Non-water soluble oil |

## Product for low machinability stainless steel

# SU2-SP

MATERIAL SPECIFIC SERIES **MS**

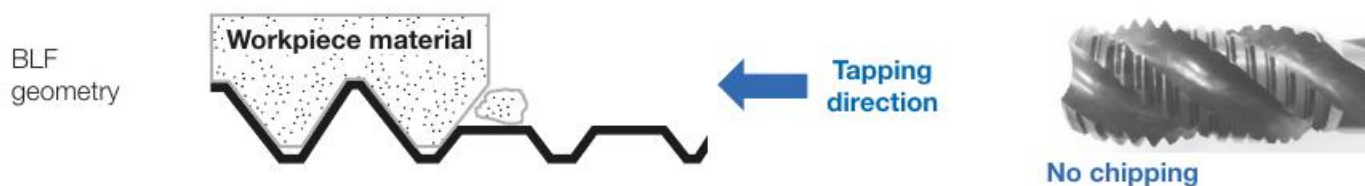


SU2-SP is designed with the first 3 threads at full height and the balance of the threads at about the pitch diameter in height. By adopting this unique thread design (BLF shape), SU2-SP realizes smooth chip ejection.

Tapping with conventional SP type => Chipping happens on full thread portion.



Tapping with SU2-SP => No chipping.



Recommendation for using SU2-SP

- Use with fully synchronized feed machine.
- Use with complete fix holder.
- Use with non-water soluble oil.
- Recommended tapping speed is 5 - 15 m/min.

| Steel grade                    | Recommended tapping speed |          |          |
|--------------------------------|---------------------------|----------|----------|
|                                | 5 m/min                   | 10 m/min | 15 m/min |
| 1.4350 (AISI 304)<br><b>M2</b> | <b>SU2-SP</b>             |          |          |
| 1.4305 (AISI 303)<br><b>M1</b> |                           |          |          |

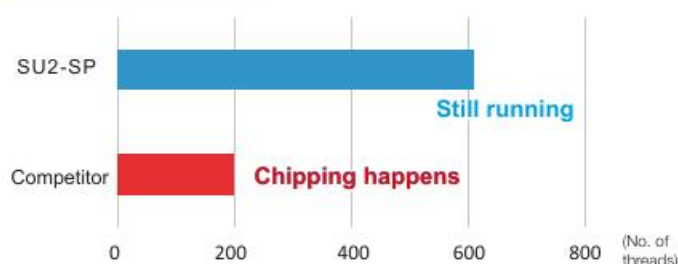
## For low machinability stainless steel, blind hole application

Austenitic stainless steels with high Nickel (Ni) content such as 1.4401 (AISI 316) and 1.4466 (AISI 317) are classified as "difficult-to-cut stainless steels".

SU2-SP is the best recommendation for tapping such tough stainless steels.

| Austenitic stainless steels | Machinability | Steel grade       | Element Content (%) |             |
|-----------------------------|---------------|-------------------|---------------------|-------------|
|                             |               |                   | Ni                  | Cr          |
| <b>Low</b><br><b>M2</b>     |               | 1.4466 (AISI 317) | 11.00~15.00         | 18.00~20.00 |
|                             |               | 1.4401 (AISI 316) | 10.00~14.00         | 17.00~19.00 |

## Process data



| Product            | SU2-SP M12            |
|--------------------|-----------------------|
|                    | Competitor M12        |
| Workpiece material | 1.4401(AISI 316)      |
| Tapping speed      | 8 m/min               |
| Hole diameter      | ø10.3                 |
| Threading length   | 25 mm, Blind hole     |
| Machine            | CNC                   |
| Lubrication        | Non-water soluble oil |

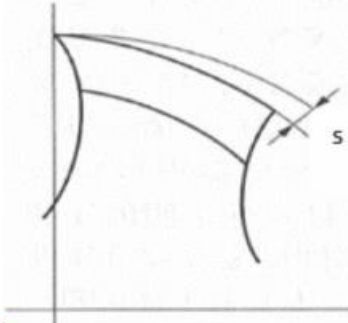
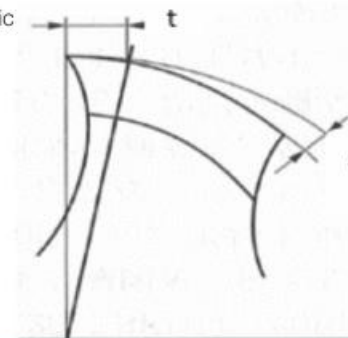
## Thread relief depending on Taps

· Eccentric thread relief: excellent cutting performance.

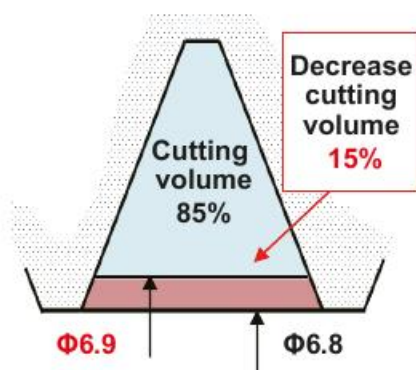
This type should be used with a machine that has a full synchronous feed and a full fixed tap holder.

· Con-eccentric thread relief: high cutting performance.

This type can be used with machines having full synchronous feed mechanism and other types of machines.

| Taps                                                                                         | Type of thread relief<br>(s=thread relief, t=width of margin)                                                     | Specification                                                                                                                                                               | Applicable Machine                                      |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| SU2-SP<br>  | Eccentric thread relief<br>      | Relief (s) begins from the edge of the flute at the cutting edge.<br><br><Advantage><br>· Minimizing of cutting torque and friction resistance.<br>· Minimizing of welding. | Full synchronous feed                                   |
| SP+VA<br>   | Con-eccentric thread relief<br> | Relief (s) begins after the margin (t).<br><br><Advantage><br>Self-guidance property enables stable cutting.                                                                | High spindle speed tapping.<br>=> Full synchronous feed |
| SP-VA<br> |                                                                                                                   |                                                                                                                                                                             | Low spindle speed tapping.<br>=> Asynchronous feed      |
|                                                                                              |                                                                                                                   |                                                                                                                                                                             | Both for Full synchronized feed and Asynchronous feed   |

## Troubleshooting in stainless steels tapping



When tapping troubles occur, the 1st solution is to make larger bored hole size before tapping.

For example, tapping M8x1.25 thread, by adjusting the bored hole diameter from 6.8 mm to 6.9 mm, the cutting volume decreases by 15%. The tapping load decreases as well.

Larger bored hole diameter can help to solve tap breakage and welding problems.

| Size      | Minor diameter of 6H internal threads |        | Recommended bored hole size |
|-----------|---------------------------------------|--------|-----------------------------|
|           | Max.                                  | Min.   |                             |
| M 4X0.7   | 3.422                                 | 3.242  | 3.38                        |
| M 5X0.8   | 4.334                                 | 4.134  | 4.28                        |
| M 6X1     | 5.153                                 | 4.917  | 5.09                        |
| M 8X1.25  | 6.912                                 | 6.647  | 6.85                        |
| M 10X1.5  | 8.676                                 | 8.376  | 8.6                         |
| M 12X1.75 | 10.441                                | 10.106 | 10.4                        |

· For other sizes, please refer to the technical page of Yamawa product catalogue.

Please make the hole before tapping as close as Max value of minor diameter of 6H internal threads.



SL+VA



PO-VA



## For through hole application

Yamawa offers 2 types of taps SL and PO for through hole use.

SL+VA and PO-VA can be used on stainless steels, chrome steels, chrome molybdenum steels, and other ductile materials with tendency to work harden.

<How to distinguish SL+VA and PO-VA >

SL+VA: Recommended tapping speed is 6 - 18 m/min.

PO-VA: Recommended tapping speed is approximately 5 m/min.

Tapping with a fully synchronous feed is recommended for tapping speeds higher than 8 m/min.

| Steel grade                       | Recommended tapping speed |         |          |          |
|-----------------------------------|---------------------------|---------|----------|----------|
|                                   | 5 m/min                   | 8 m/min | 10 m/min | 15 m/min |
| 1.4350<br>(AISI 304)<br><b>M1</b> | PO-VA                     | SL+VA   |          |          |
| 1.4305<br>(AISI 303)<br><b>M1</b> | PO-VA                     | SL+VA   |          |          |

## Chip shape

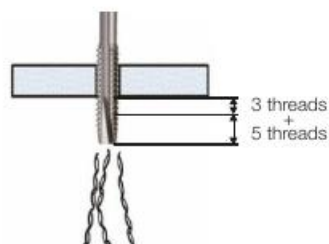


Ejected by SL+VA at 15 m/min



Ejected by PO-VA at 4 m/min

## Process data



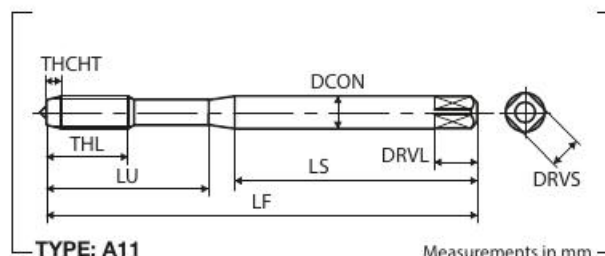
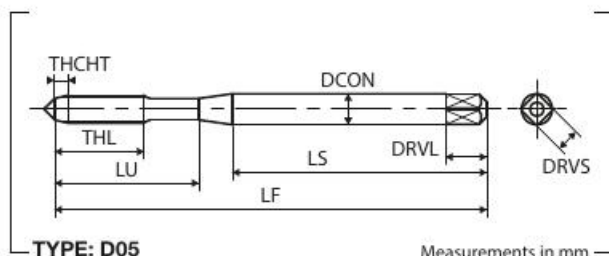
Chamfer portion must completely come out of the hole. If not, during the reverse motion, the chips might be brought back into the hole causing edge chipping problems.

Please try to lengthen the feed stroke by 3 additional threads to ensure that the cutting chamfer is completely out of the bored hole.



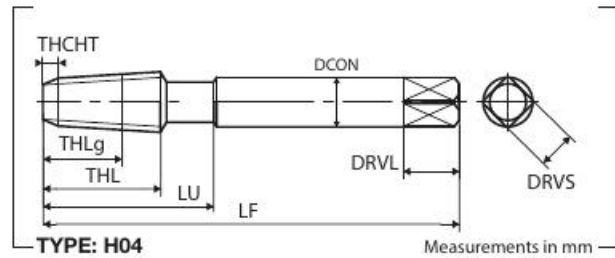
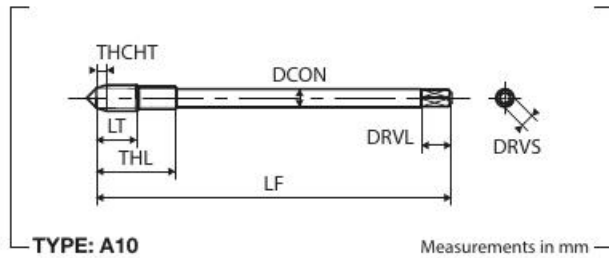
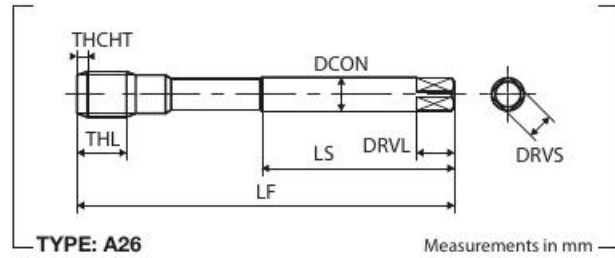
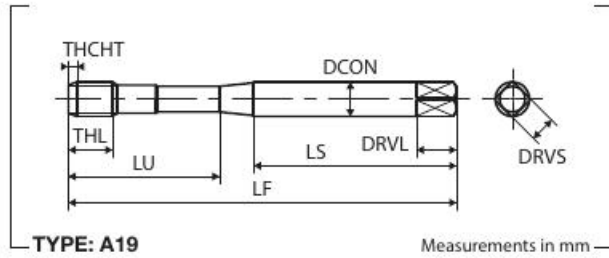
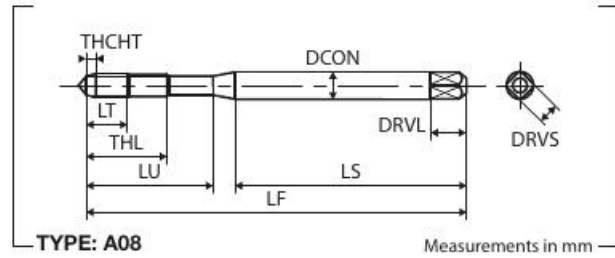
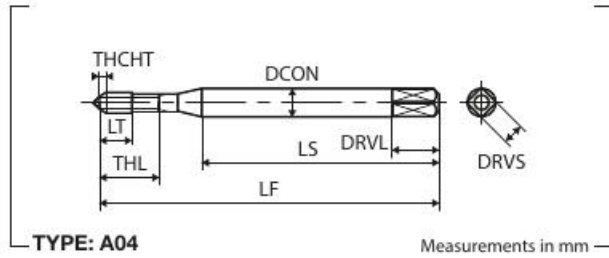
No space enough for chip ejection on through-hole tapping

- In case of thin plate tapping, or if there is no space enough for chip ejection between the workpiece material and the jig, we recommend PO more than SL type.
- In some cases, ejected chips get stuck in the fixture and new chips can not be ejected smoothly. => Remove chips regularly.
- For tapping long threading length, we recommend the SL type that allows smoother chip discharge.



● stock standard, ○ check stock, ⊙ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

| M        | TCTR<br>(tolerance) | $\varnothing$<br>(mm) | Hole $\varnothing$<br>(mm) | Code       | THCHT | LF  | LT | THL | LU | LS | DCON | DRVS | DRVL | NOF | Type | Stock |
|----------|---------------------|-----------------------|----------------------------|------------|-------|-----|----|-----|----|----|------|------|------|-----|------|-------|
| DIN 371  |                     |                       |                            |            |       |     |    |     |    |    |      |      |      |     |      |       |
| M3x0.5   | IS02(6H)            | 2.5                   | 2.56                       | SE3.0GAGEX | 2.5P  | 56  | -  | 9   | 18 | 34 | 3.5  | 2.7  | 6    | 3   | D05  | ●     |
| M4x0.7   | IS02(6H)            | 3.3                   | 3.38                       | SE4.0IAGEX | 2.5P  | 63  | -  | 13  | 21 | 38 | 4.5  | 3.4  | 6    | 3   | D05  | ●     |
| M5x0.8   | IS02(6H)            | 4.2                   | 4.28                       | SE5.0KAGEX | 2.5P  | 70  | -  | 14  | 25 | 39 | 6    | 4.9  | 8    | 3   | D05  | ●     |
| M6x1     | IS02(6H)            | 5                     | 5.09                       | SZ6.0MAGEX | 2.5P  | 80  | -  | 15  | 30 | 45 | 6    | 4.9  | 8    | 3   | A11  | ●     |
| M8x1.25  | IS02(6H)            | 6.8                   | 6.85                       | SZ8.0NAGEX | 2.5P  | 90  | -  | 19  | 35 | 48 | 8    | 6.2  | 9    | 3   | A11  | ●     |
| M10x1.5  | IS02(6H)            | 8.5                   | 8.6                        | SZ0100AGEX | 2.5P  | 100 | -  | 23  | 39 | 53 | 10   | 8    | 11   | 4   | A11  | ●     |
| M12x1.75 | IS02(6H)            | 10.3                  | 10.36                      | SZ012PAGEX | 2.5P  | 110 | -  | 26  | 45 | 56 | 12   | 9    | 12   | 4   | A11  | ●     |



Oversized ● stock standard, ○ check stock, ⊙ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

| M         | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT | LF  | LT | THL | LU | LS | DCON | DRVS | DRVL | NOF | Type | Stock |
|-----------|---------------------|-----------|----------------|------------|-------|-----|----|-----|----|----|------|------|------|-----|------|-------|
| DIN 371   |                     |           |                |            |       |     |    |     |    |    |      |      |      |     |      |       |
| M2x0.4    | ISO2(6H)            | 1.6       | 1.65           | SD2.0EAGEX | 2.5P  | 45  | 4  | 8   | -  | 32 | 2.8  | 2.1  | 5    | 2   | A04  | ●     |
| M2.5x0.45 | ISO2(6H)            | 2.1       | 2.11           | SD2.5FAGEX | 2.5P  | 50  | 4  | 8   | 15 | 33 | 2.8  | 2.1  | 5    | 2   | A08  | ●     |
| M3x0.5    | ISO2(6H)            | 2.5       | 2.56           | SD3.0GAGEX | 2.5P  | 56  | 5  | 9   | 18 | 34 | 3.5  | 2.7  | 6    | 2   | A08  | ●     |
|           | ISO3(6G)            | 2.5       | 2.56           | SD3.0GMGEX | 2.5P  | 56  | 5  | 9   | 18 | 34 | 3.5  | 2.7  | 6    | 2   | A08  | ●     |
| M4x0.7    | ISO2(6H)            | 3.3       | 3.38           | SD4.0IAGEX | 2.5P  | 63  | 7  | 13  | 21 | 38 | 4.5  | 3.4  | 6    | 3   | A08  | ●     |
|           | ISO3(6G)            | 3.3       | 3.38           | SD4.0IMGEX | 2.5P  | 63  | 7  | 13  | 21 | 38 | 4.5  | 3.4  | 6    | 3   | A08  | ▲★    |
| M5x0.8    | ISO2(6H)            | 4.2       | 4.28           | SD5.0KAGEX | 2.5P  | 70  | 9  | 14  | 25 | 39 | 6    | 4.9  | 8    | 3   | A08  | ●     |
|           | ISO3(6G)            | 4.2       | 4.28           | SD5.0KMGEX | 2.5P  | 70  | 9  | 14  | 25 | 39 | 6    | 4.9  | 8    | 3   | A08  | ●     |
| M6x1      | ISO2(6H)            | 5         | 5.09           | SD6.0MAGEX | 2.5P  | 80  | 11 | 15  | 30 | 45 | 6    | 4.9  | 8    | 3   | A08  | ●     |
|           | ISO3(6G)            | 5         | 5.09           | SD6.0MMGEX | 2.5P  | 80  | 11 | 15  | 30 | 45 | 6    | 4.9  | 8    | 3   | A08  | ●     |
| M8x1.25   | ISO2(6H)            | 6.8       | 6.85           | SD8.0NAGEX | 2.5P  | 90  | -  | 12  | 35 | 47 | 8    | 6.2  | 9    | 3   | A19  | ●     |
|           | ISO3(6G)            | 6.8       | 6.85           | SD8.0NMGEX | 2.5P  | 90  | -  | 12  | 35 | 47 | 8    | 6.2  | 9    | 3   | A19  | ●     |
| M10x1.5   | ISO2(6H)            | 8.5       | 8.6            | SD0100AGEX | 2.5P  | 100 | -  | 13  | 39 | 52 | 10   | 8    | 11   | 3   | A19  | ●     |
|           | ISO3(6G)            | 8.5       | 8.6            | SD0100MGEX | 2.5P  | 100 | -  | 13  | 39 | 52 | 10   | 8    | 11   | 3   | A19  | ●     |
| DIN 376   |                     |           |                |            |       |     |    |     |    |    |      |      |      |     |      |       |
| M8x1.25   | ISO2(6H)            | 6.8       | 6.85           | SG8.0NAGEX | 2.5P  | 90  | -  | 12  | -  | 46 | 6    | 4.9  | 8    | 3   | A26  | ●     |
| M10x1.5   | ISO2(6H)            | 8.5       | 8.6            | SG0100AGEX | 2.5P  | 100 | -  | 13  | -  | 51 | 7    | 5.5  | 8    | 3   | A26  | ●     |
| M12x1.75  | ISO2(6H)            | 10.3      | 10.36          | SG012PAGEX | 2.5P  | 110 | -  | 15  | -  | 56 | 9    | 7    | 10   | 3   | A26  | ●     |
|           | ISO3(6G)            | 10.3      | 10.36          | SG012PMGEX | 2.5P  | 110 | -  | 15  | -  | 56 | 9    | 7    | 10   | 3   | A26  | ●     |
| M14x2     | ISO2(6H)            | 12        | 12.12          | SG014QAGEX | 2.5P  | 110 | -  | 18  | -  | 56 | 11   | 9    | 12   | 3   | A26  | ●     |

| M           | TCTR<br>(tolerance) |  $\emptyset$<br>(mm)    | Hole $\emptyset$<br>(mm) | Code       | THCHT | LF  | LT | THL | LU | LS  | DCON | DRVS | DRVL | NOF | Type | Stock |
|-------------|---------------------|---------------------------------------------------------------------------------------------------------|--------------------------|------------|-------|-----|----|-----|----|-----|------|------|------|-----|------|-------|
| DIN 376     |                     |                                                                                                         |                          |            |       |     |    |     |    |     |      |      |      |     |      |       |
| M16x2       | IS02(6H)            | 14                                                                                                      | 14.12                    | SG016QAGEX | 2.5P  | 110 | -  | 18  | -  | 56  | 12   | 9    | 12   | 3   | A26  | ●     |
| M18x2.5     | IS02(6H)            | 15.5                                                                                                    | 15.63                    | SG018RAGEX | 2.5P  | 125 | -  | 20  | -  | 64  | 14   | 11   | 14   | 4   | A26  | ●     |
| M20x2.5     | IS02(6H)            | 17.5                                                                                                    | 17.63                    | SG020RAGEX | 2.5P  | 140 | -  | 20  | -  | 71  | 16   | 12   | 15   | 4   | A26  | ●     |
| M22x2.5     | IS02(6H)            | 19.5                                                                                                    | 19.63                    | SG022RAGEX | 2.5P  | 140 | -  | 20  | -  | 71  | 18   | 14.5 | 17   | 4   | A26  | ●     |
| M24x3       | IS02(6H)            | 21                                                                                                      | 21.13                    | SG024SAGEX | 2.5P  | 160 | -  | 25  | -  | 82  | 18   | 14.5 | 17   | 4   | A26  | ●     |
| M27x3       | IS02(6H)            | 24                                                                                                      | 24.13                    | SG027SAGEX | 2.5P  | 160 | -  | 25  | -  | 82  | 20   | 16   | 19   | 4   | A26  | ●     |
| M30x3.5     | IS02(6H)            | 26.5                                                                                                    | 26.63                    | SG030TAGEX | 2.5P  | 180 | -  | 30  | -  | 92  | 22   | 18   | 21   | 4   | A26  | ●     |
| M36x4       | IS02(6H)            | 32                                                                                                      | 32.12                    | SG036UAGEX | 2.5P  | 200 | -  | 40  | -  | 102 | 28   | 22   | 25   | 4   | A26  | ●     |
| MF          | TCTR<br>(tolerance) |  $\emptyset$<br>(mm)   | Hole $\emptyset$<br>(mm) | Code       | THCHT | LF  | LT | THL | LU | LS  | DCON | DRVS | DRVL | NOF | Type | Stock |
| DIN 374     |                     |                                                                                                         |                          |            |       |     |    |     |    |     |      |      |      |     |      |       |
| M6x0.75     | IS02(6H)            | 5.3                                                                                                     | 5.33                     | SM6.0JAGEX | 2.5P  | 80  | 13 | 13  | -  | -   | 4.5  | 3.4  | 6    | 3   | A10  | ●     |
| M8x1        | IS02(6H)            | 7                                                                                                       | 7.09                     | SM8.0MAGEX | 2.5P  | 90  | -  | 12  | -  | 46  | 6    | 4.9  | 8    | 3   | A26  | ●     |
| M8x0.75     | IS02(6H)            | 7.3                                                                                                     | 7.33                     | SM8.0JAGEX | 2.5P  | 80  | -  | 12  | -  | 41  | 6    | 4.9  | 8    | 3   | A26  | ●     |
| M10x1.25    | IS02(6H)            | 8.8                                                                                                     | 8.85                     | SM010NAGEX | 2.5P  | 100 | -  | 13  | -  | 51  | 7    | 5.5  | 8    | 3   | A26  | ●     |
| M10x1       | IS02(6H)            | 9                                                                                                       | 9.09                     | SM010MAGEX | 2.5P  | 90  | -  | 13  | -  | 46  | 7    | 5.5  | 8    | 3   | A26  | ●     |
| M12x1.5     | IS02(6H)            | 10.5                                                                                                    | 10.6                     | SM012OAGEX | 2.5P  | 100 | -  | 15  | -  | 51  | 9    | 7    | 10   | 3   | A26  | ●     |
| M12x1.25    | IS02(6H)            | 10.8                                                                                                    | 10.85                    | SM012NAGEX | 2.5P  | 100 | -  | 15  | -  | 51  | 9    | 7    | 10   | 3   | A26  | ●     |
| M12x1       | IS02(6H)            | 11                                                                                                      | 11.09                    | SM012MAGEX | 2.5P  | 100 | -  | 15  | -  | 51  | 9    | 7    | 10   | 3   | A26  | ●     |
| M14x1.5     | IS02(6H)            | 12.5                                                                                                    | 12.6                     | SM014OAGEX | 2.5P  | 100 | -  | 14  | -  | 51  | 11   | 9    | 12   | 3   | A26  | ●     |
| M14x1       | IS02(6H)            | 13                                                                                                      | 13.09                    | SM014MAGEX | 2.5P  | 100 | -  | 14  | -  | 51  | 11   | 9    | 12   | 3   | A26  | ●     |
| M16x1.5     | IS02(6H)            | 14.5                                                                                                    | 14.6                     | SM016OAGEX | 2.5P  | 100 | -  | 14  | -  | 51  | 12   | 9    | 12   | 3   | A26  | ●     |
| M16x1       | IS02(6H)            | 15                                                                                                      | 15.09                    | SM016MAGEX | 2.5P  | 100 | -  | 14  | -  | 51  | 12   | 9    | 12   | 3   | A26  | ●     |
| M18x1.5     | IS02(6H)            | 16.5                                                                                                    | 16.6                     | SM018OAGEX | 2.5P  | 110 | -  | 14  | -  | 56  | 14   | 11   | 14   | 4   | A26  | ●     |
| M20x1.5     | IS02(6H)            | 18.5                                                                                                    | 18.6                     | SM020OAGEX | 2.5P  | 125 | -  | 14  | -  | 64  | 16   | 12   | 15   | 4   | A26  | ●     |
| M22x1.5     | IS02(6H)            | 20.5                                                                                                    | 20.6                     | SM022OAGEX | 2.5P  | 125 | -  | 14  | -  | 64  | 18   | 14.5 | 17   | 4   | A26  | ●     |
| M24x2       | IS02(6H)            | 22                                                                                                      | 22.12                    | SM024QAGEX | 2.5P  | 140 | -  | 18  | -  | 71  | 18   | 14.5 | 17   | 4   | A26  | ●     |
| M24x1.5     | IS02(6H)            | 22.5                                                                                                    | 22.6                     | SM024OAGEX | 2.5P  | 140 | -  | 18  | -  | 71  | 18   | 14.5 | 17   | 4   | A26  | ●     |
| M27x2       | IS02(6H)            | 25                                                                                                      | 25.12                    | SM027QAGEX | 2.5P  | 140 | -  | 20  | -  | 71  | 20   | 16   | 19   | 4   | A26  | ●     |
| M30x2       | IS02(6H)            | 28                                                                                                      | 28.12                    | SM030QAGEX | 2.5P  | 150 | -  | 20  | -  | 77  | 22   | 18   | 21   | 4   | A26  | ●     |
| M30x1.5     | IS02(6H)            | 28.5                                                                                                    | 28.6                     | SM030OAGEX | 2.5P  | 150 | -  | 20  | -  | 77  | 22   | 18   | 21   | 4   | A26  | ●     |
| UNC         | TCTR<br>(tolerance) |  $\emptyset$<br>(mm) | Hole $\emptyset$<br>(mm) | Code       | THCHT | LF  | LT | THL | LU | LS  | DCON | DRVS | DRVL | NOF | Type | Stock |
| DIN 371     |                     |                                                                                                         |                          |            |       |     |    |     |    |     |      |      |      |     |      |       |
| No.4-40UNC  | 2B                  | 2.3                                                                                                     | 2.33                     | SDUN4HXGEX | 2.5P  | 56  | 5  | 9   | 18 | 34  | 3.5  | 2.7  | 6    | 2   | A08  | ●     |
| No.6-32UNC  | 2B                  | 2.8                                                                                                     | 2.83                     | SDUN6JXGEX | 2.5P  | 56  | 7  | 11  | 19 | 32  | 4    | 3    | 6    | 3   | A08  | ●     |
| No.8-32UNC  | 2B                  | 3.4                                                                                                     | 3.47                     | SDUN8JXGEX | 2.5P  | 63  | 7  | 13  | 21 | 38  | 4.5  | 3.4  | 6    | 3   | A08  | ●     |
| No.10-24UNC | 2B                  | 3.89                                                                                                    | 3.9                      | SDUNAMXGEX | 2.5P  | 70  | 9  | 14  | 24 | 39  | 6    | 4.9  | 8    | 3   | A08  | ●     |
| 1/4-20UNC   | 2B                  | 5.1                                                                                                     | 5.19                     | SDU04NXGEX | 2.5P  | 80  | 11 | 15  | 30 | 42  | 7    | 5.5  | 8    | 3   | A08  | ●     |
| 5/16-18UNC  | 2B                  | 6.6                                                                                                     | 6.65                     | SDU050XGEX | 2.5P  | 90  | -  | 12  | 35 | 47  | 8    | 6.2  | 9    | 3   | A19  | ●     |
| 3/8-16UNC   | 2B                  | 8                                                                                                       | 8.07                     | SDU06PXGEX | 2.5P  | 100 | -  | 13  | 39 | 54  | 9    | 7    | 10   | 3   | A19  | ●     |
| UNC         | TCTR<br>(tolerance) |  $\emptyset$<br>(mm) | Hole $\emptyset$<br>(mm) | Code       | THCHT | LF  | LT | THL | LU | LS  | DCON | DRVS | DRVL | NOF | Type | Stock |
| DIN 376     |                     |                                                                                                         |                          |            |       |     |    |     |    |     |      |      |      |     |      |       |
| 7/16-14UNC  | 2B                  | 9.4                                                                                                     | 9.45                     | SGU07QXGEX | 2.5P  | 100 | -  | 13  | -  | 51  | 8    | 6.2  | 9    | 3   | A26  | ●     |
| 1/2-13UNC   | 2B                  | 10.9                                                                                                    | 10.91                    | SGU08RXGEX | 2.5P  | 110 | -  | 15  | -  | 56  | 9    | 7    | 10   | 3   | A26  | ●     |
| 9/16-12UNC  | 2B                  | 12.2                                                                                                    | 12.33                    | SGU09SXGEX | 2.5P  | 110 | -  | 18  | -  | 56  | 11   | 9    | 12   | 3   | A26  | ●     |
| 5/8-11UNC   | 2B                  | 13.6                                                                                                    | 13.75                    | SGU10UXGEX | 2.5P  | 110 | -  | 18  | -  | 56  | 12   | 9    | 12   | 3   | A26  | ●     |
| 3/4-10UNC   | 2B                  | 16.6                                                                                                    | 16.7                     | SGU12VXGEX | 2.5P  | 125 | -  | 20  | -  | 64  | 14   | 11   | 14   | 4   | A26  | ●     |
| 7/8-9UNC    | 2B                  | 19.6                                                                                                    | 19.61                    | SGU14WXGEX | 2.5P  | 140 | -  | 20  | -  | 71  | 18   | 14.5 | 17   | 4   | A26  | ●     |
| 1-8UNC      | 2B                  | 22.3                                                                                                    | 22.45                    | SGU16XXGEX | 2.5P  | 160 | -  | 25  | -  | 82  | 18   | 14.5 | 17   | 4   | A26  | ●     |
| 1 1/8-7UNC  | 2B                  | 25                                                                                                      | 25.17                    | SGU18YXGEX | 2.5P  | 180 | -  | 30  | -  | 92  | 22   | 18   | 21   | 4   | A26  | ●     |
| 1 1/4-7UNC  | 2B                  | 28.2                                                                                                    | 28.35                    | SGU20YXGEX | 2.5P  | 180 | -  | 30  | -  | 92  | 22   | 18   | 21   | 4   | A26  | ●     |

| UNC         | TCTR<br>(tolerance) | $\varnothing$<br>(mm) | Hole $\varnothing$<br>(mm) | Code       | THCHT | LF  | LT | THL | LU | LS  | DCON | DRVS | DRVL | NOF | Type | Stock |
|-------------|---------------------|-----------------------|----------------------------|------------|-------|-----|----|-----|----|-----|------|------|------|-----|------|-------|
| DIN 376     |                     |                       |                            |            |       |     |    |     |    |     |      |      |      |     |      |       |
| 1 3/8-6UNC  | 2B                  | 30.8                  | 30.92                      | SGU22ZXGEX | 2.5P  | 200 | -  | 40  | -  | 102 | 28   | 22   | 25   | 4   | A26  | ●     |
| 1 1/2-6UNC  | 2B                  | 34                    | 34.1                       | SGU24ZXGEX | 2.5P  | 200 | -  | 40  | -  | 102 | 32   | 24   | 27   | 4   | A26  | ●     |
| DIN 371     |                     |                       |                            |            |       |     |    |     |    |     |      |      |      |     |      |       |
| No.10-32UNF | 2B                  | 4.1                   | 4.12                       | SDUNAJXGEX | 2.5P  | 70  | 9  | 14  | 24 | 39  | 6    | 4.9  | 8    | 3   | A08  | ●     |
| 1/4-28UNF   | 2B                  | 5.5                   | 5.53                       | SDU04KXGEX | 2.5P  | 80  | 11 | 15  | 30 | 42  | 7    | 5.5  | 8    | 3   | A08  | ●     |
| DIN 374     |                     |                       |                            |            |       |     |    |     |    |     |      |      |      |     |      |       |
| 5/16-24UNF  | 2B                  | 6.9                   | 6.97                       | SMU05MXGEX | 2.5P  | 90  | -  | 12  | -  | 46  | 6    | 4.9  | 8    | 3   | A26  | ●     |
| 3/8-24UNF   | 2B                  | 8.5                   | 8.57                       | SMU06MXGEX | 2.5P  | 100 | -  | 13  | -  | 51  | 7    | 5.5  | 8    | 3   | A26  | ●     |
| 7/16-20UNF  | 2B                  | 9.9                   | 9.96                       | SMU07NXGEX | 2.5P  | 100 | -  | 13  | -  | 51  | 8    | 6.2  | 9    | 3   | A26  | ●     |
| 1/2-20UNF   | 2B                  | 11.5                  | 11.54                      | SMU08NXGEX | 2.5P  | 100 | -  | 15  | -  | 51  | 9    | 7    | 10   | 3   | A26  | ●     |
| 9/16-18UNF  | 2B                  | 12.9                  | 13                         | SMU09OXGEX | 2.5P  | 100 | -  | 14  | -  | 51  | 11   | 9    | 12   | 3   | A26  | ●     |
| 5/8-18UNF   | 2B                  | 14.5                  | 14.6                       | SMU10OXGEX | 2.5P  | 100 | -  | 14  | -  | 51  | 12   | 9    | 12   | 3   | A26  | ●     |
| 3/4-16UNF   | 2B                  | 17.5                  | 17.59                      | SMU12PXGEX | 2.5P  | 110 | -  | 14  | -  | 56  | 14   | 11   | 14   | 4   | A26  | ●     |
| 7/8-14UNF   | 2B                  | 20.5                  | 20.57                      | SMU14QXGEX | 2.5P  | 125 | -  | 20  | -  | 64  | 18   | 14.5 | 17   | 4   | A26  | ●     |
| 1-12UNF     | 2B                  | 23.3                  | 23.46                      | SMU16SXGEX | 2.5P  | 140 | -  | 18  | -  | 71  | 18   | 14.5 | 17   | 4   | A26  | ●     |
| 1 1/8-12UNF | 2B                  | 26.5                  | 26.63                      | SMU18SXGEX | 2.5P  | 150 | -  | 20  | -  | 77  | 22   | 18   | 21   | 4   | A26  | ●     |
| 1 1/4-12UNF | 2B                  | 29.6                  | 29.81                      | SMU20SXGEX | 2.5P  | 150 | -  | 20  | -  | 77  | 22   | 18   | 21   | 4   | A26  | ●     |
| 1 3/8-12UNF | 2B                  | 32.8                  | 32.98                      | SMU22SXGEX | 2.5P  | 170 | -  | 20  | -  | 87  | 28   | 22   | 25   | 4   | A26  | ●     |
| 1 1/2-12UNF | 2B                  | 36                    | 36.16                      | SMU24SXGEX | 2.5P  | 170 | -  | 20  | -  | 87  | 32   | 24   | 27   | 4   | A26  | ●     |
| DIN 374     |                     |                       |                            |            |       |     |    |     |    |     |      |      |      |     |      |       |
| 1 1/8-8UN   | 2B                  | 25.5                  | 25.62                      | SMU18XXGEX | 2.5P  | 180 | -  | 28  | -  | 92  | 22   | 18   | 21   | 4   | A26  | ●     |
| 1 1/4-8UN   | 2B                  | 28.5                  | 28.8                       | SMU20XXGEX | 2.5P  | 180 | -  | 28  | -  | 92  | 22   | 18   | 21   | 4   | A26  | ●     |
| 1 3/8-8UN   | 2B                  | 31.8                  | 31.97                      | SMU22XXGEX | 2.5P  | 200 | -  | 30  | -  | 102 | 28   | 22   | 25   | 4   | A26  | ●     |
| 1 1/2-8UN   | 2B                  | 35                    | 35.15                      | SMU24XXGEX | 2.5P  | 200 | -  | 30  | -  | 102 | 32   | 24   | 27   | 4   | A26  | ●     |
| 1 5/8-8UN   | 2B                  | 38.1                  | 38.32                      | SMU26XXGEX | 2.5P  | 200 | -  | 30  | -  | 102 | 32   | 24   | 27   | 4   | A26  | ●     |
| 1 3/4-8UN   | 2B                  | 41.3                  | 41.5                       | SMU28XXGEX | 2.5P  | 200 | -  | 40  | -  | 102 | 36   | 29   | 32   | 4   | A26  | ●     |
| 2-8UN       | 2B                  | 47.8                  | 47.85                      | SMU32XXGEX | 2.5P  | 225 | -  | 40  | -  | 115 | 40   | 32   | 35   | 4   | A26  | ●     |
| DIN 5156    |                     |                       |                            |            |       |     |    |     |    |     |      |      |      |     |      |       |
| 1/8-28      | -                   | 8.75                  | 8.78                       | SVG0020GEX | 2.5P  | 90  | -  | 12  | -  | 46  | 7    | 5.5  | 8    | 3   | A26  | ●     |
| 1/4-19      | -                   | 11.75                 | 11.78                      | SVG0040GEX | 2.5P  | 100 | -  | 14  | -  | 51  | 11   | 9    | 12   | 3   | A26  | ●     |
| 3/8-19      | -                   | 15.25                 | 15.28                      | SVG0060GEX | 2.5P  | 100 | -  | 14  | -  | 51  | 12   | 9    | 12   | 3   | A26  | ●     |
| 1/2-14      | -                   | 19                    | 19.04                      | SVG0080GEX | 2.5P  | 125 | -  | 18  | -  | 64  | 16   | 12   | 15   | 4   | A26  | ●     |
| 3/4-14      | -                   | 24.5                  | 24.52                      | SVG0120GEX | 2.5P  | 140 | -  | 20  | -  | 71  | 20   | 16   | 19   | 4   | A26  | ●     |
| 1-11        | -                   | 30.75                 | 30.77                      | SVG0160GEX | 2.5P  | 160 | -  | 20  | -  | 82  | 25   | 20   | 23   | 4   | A26  | ●     |
| DIN 371     |                     |                       |                            |            |       |     |    |     |    |     |      |      |      |     |      |       |
| 1/8-27      | -                   | 8.35                  | 8.39                       | OAFBZ002   | 2.5P  | 90  | -  | 12  | 26 | 64  | 10   | 8    | 11   | 3   | H04  | ●     |
| 1/4-18      | -                   | 10.8                  | 10.85                      | NHFBZ008   | 2.5P  | 100 | -  | 18  | 43 | 57  | 14   | 11   | 14   | 3   | H04  | ●     |
| DIN 374     |                     |                       |                            |            |       |     |    |     |    |     |      |      |      |     |      |       |
| 3/8-18      | -                   | 14.25                 | 14.27                      | NFFBZ007   | 2.5P  | 110 | -  | 18  | -  | 90  | 14   | 11   | 14   | 4   | H05  | ●     |
| 1/2-14      | -                   | 17.5                  | 17.6                       | ODFBZ003   | 2.5P  | 140 | -  | 23  | -  | 114 | 16   | 12   | 15   | 4   | H05  | ●     |
| 3/4-14      | -                   | 22.9                  | 22.91                      | NHFBZ006   | 2.5P  | 150 | -  | 24  | -  | 123 | 20   | 16   | 19   | 4   | H05  | ●     |
| 1-11 1/2    | -                   | 28.75                 | 28.78                      | YDFBZ001   | 2.5P  | 170 | -  | 30  | -  | 136 | 25   | 20   | 23   | 4   | H05  | ●     |

# SP-VA E (1.5P)

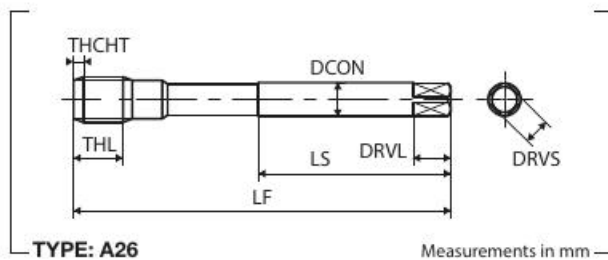
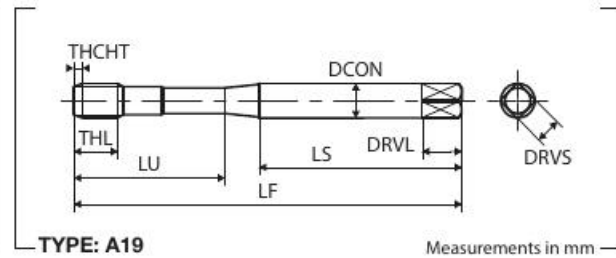
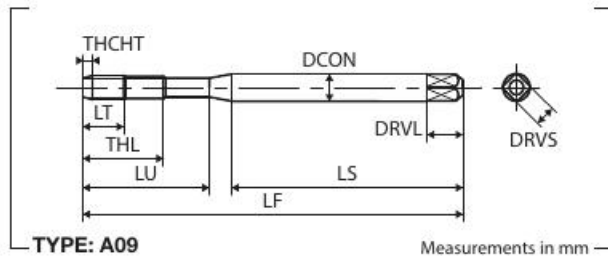
MATERIAL SPECIFIC SERIES **MS**



DIN

HSS-E

OX

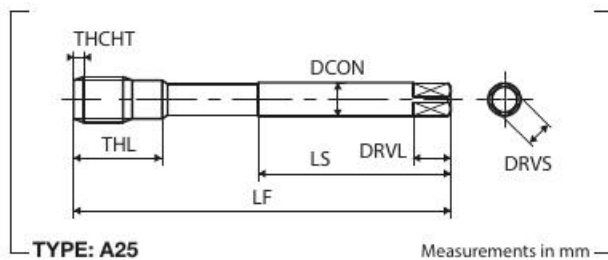
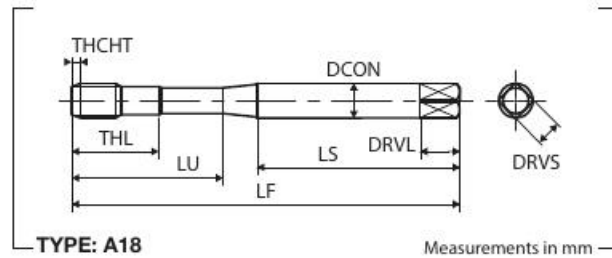
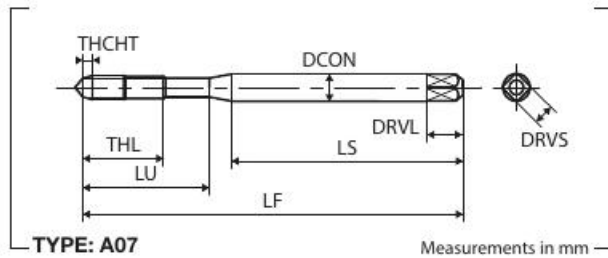


● stock standard, ● check stock, ⊙ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

| M       | TCTR<br>(tolerance) | ∅<br>(mm) | Hole ∅<br>(mm) | Code        | THCHT | LF  | LT | THL | LU | LS | DCON | DRVS | DRVL | NOF | Type | Stock |
|---------|---------------------|-----------|----------------|-------------|-------|-----|----|-----|----|----|------|------|------|-----|------|-------|
| DIN 371 |                     |           |                |             |       |     |    |     |    |    |      |      |      |     |      |       |
| M3x0.5  | IS02(6H)            | 2.5       | 2.56           | SD3.0GAGEXA | 1.5P  | 56  | 5  | 9   | 18 | 34 | 3.5  | 2.7  | 6    | 2   | A09  | ●     |
| M4x0.7  | IS02(6H)            | 3.3       | 3.38           | SD4.0IAGEXA | 1.5P  | 63  | 7  | 13  | 21 | 38 | 4.5  | 3.4  | 6    | 3   | A09  | ●     |
| M5x0.8  | IS02(6H)            | 4.2       | 4.28           | SD5.0KAGEXA | 1.5P  | 70  | 9  | 14  | 25 | 39 | 6    | 4.9  | 8    | 3   | A09  | ●     |
| M6x1    | IS02(6H)            | 5         | 5.09           | SD6.0MAGEXA | 1.5P  | 80  | 11 | 15  | 30 | 45 | 6    | 4.9  | 8    | 3   | A09  | ●     |
| M8x1.25 | IS02(6H)            | 6.8       | 6.85           | SD8.0NAGEXA | 1.5P  | 90  | -  | 12  | 35 | 47 | 8    | 6.2  | 9    | 3   | A19  | ●     |
| M10x1.5 | IS02(6H)            | 8.5       | 8.6            | SD0100AGEXA | 1.5P  | 100 | -  | 13  | 39 | 52 | 10   | 8    | 11   | 3   | A19  | ●     |

| M        | TCTR<br>(tolerance) | ∅<br>(mm) | Hole ∅<br>(mm) | Code        | THCHT | LF  | LT | THL | LU | LS | DCON | DRVS | DRVL | NOF | Type | Stock |
|----------|---------------------|-----------|----------------|-------------|-------|-----|----|-----|----|----|------|------|------|-----|------|-------|
| DIN 376  |                     |           |                |             |       |     |    |     |    |    |      |      |      |     |      |       |
| M12x1.75 | IS02(6H)            | 10.3      | 10.36          | SG012PAGEXA | 1.5P  | 110 | -  | 15  | -  | 56 | 9    | 7    | 10   | 3   | A26  | ●     |
| M14x2    | IS02(6H)            | 12        | 12.12          | SG014QAGEXA | 1.5P  | 110 | -  | 18  | -  | 56 | 11   | 9    | 12   | 3   | A26  | ●     |
| M16x2    | IS02(6H)            | 14        | 14.12          | SG016QAGEXA | 1.5P  | 110 | -  | 18  | -  | 56 | 12   | 9    | 12   | 3   | A26  | ●     |
| M20x2.5  | IS02(6H)            | 17.5      | 17.63          | SG020RAGEXA | 1.5P  | 140 | -  | 20  | -  | 71 | 16   | 12   | 15   | 4   | A26  | ●     |

| MF       | TCTR<br>(tolerance) | ∅<br>(mm) | Hole ∅<br>(mm) | Code        | THCHT | LF  | LT | THL | LU | LS | DCON | DRVS | DRVL | NOF | Type | Stock |
|----------|---------------------|-----------|----------------|-------------|-------|-----|----|-----|----|----|------|------|------|-----|------|-------|
| DIN 374  |                     |           |                |             |       |     |    |     |    |    |      |      |      |     |      |       |
| M8x1     | IS02(6H)            | 7         | 7.09           | SM8.0MAGEXA | 1.5P  | 90  | -  | 12  | -  | 46 | 6    | 4.9  | 8    | 3   | A26  | ●     |
| M10x1.25 | IS02(6H)            | 8.8       | 8.85           | SM010NAGEXA | 1.5P  | 100 | -  | 13  | -  | 51 | 7    | 5.5  | 8    | 3   | A26  | ●     |
| M10x1    | IS02(6H)            | 9         | 9.09           | SM010MAGEXA | 1.5P  | 90  | -  | 13  | -  | 46 | 7    | 5.5  | 8    | 3   | A26  | ●     |
| M12x1.5  | IS02(6H)            | 10.5      | 10.6           | SM0120AGEXA | 1.5P  | 100 | -  | 15  | -  | 51 | 9    | 7    | 10   | 3   | A26  | ●     |
| M12x1.25 | IS02(6H)            | 10.8      | 10.85          | SM012NAGEXA | 1.5P  | 100 | -  | 15  | -  | 51 | 9    | 7    | 10   | 3   | A26  | ●     |
| M14x1.5  | IS02(6H)            | 12.5      | 12.6           | SM0140AGEXA | 1.5P  | 100 | -  | 14  | -  | 51 | 11   | 9    | 12   | 3   | A26  | ●     |
| M16x1.5  | IS02(6H)            | 14.5      | 14.6           | SM0160AGEXA | 1.5P  | 100 | -  | 14  | -  | 51 | 12   | 9    | 12   | 3   | A26  | ●     |

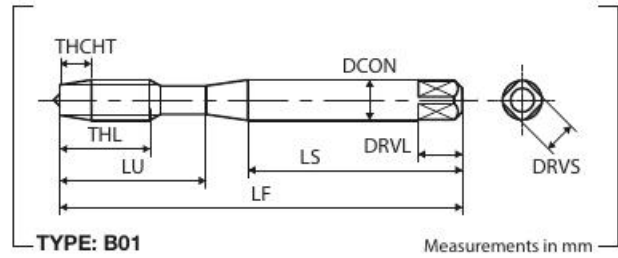
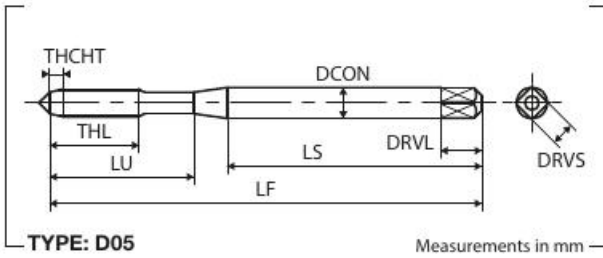


● stock standard, ● check stock, ⊕ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

| M       | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code        | THCHT | LF  | LT | THL | LU | LS | DCON | DRVS | DRVL | NOF | Type | Stock |
|---------|---------------------|-----------|----------------|-------------|-------|-----|----|-----|----|----|------|------|------|-----|------|-------|
| DIN 371 |                     |           |                |             |       |     |    |     |    |    |      |      |      |     |      |       |
| M3x0.5  | IS02(6H)            | 2.5       | 2.56           | SD3.0GAGEXJ | 2.5P  | 56  | -  | 9   | 18 | 34 | 3.5  | 2.7  | 6    | 3   | A07  | ●     |
| M4x0.7  | IS02(6H)            | 3.3       | 3.38           | SD4.0IAGEXJ | 2.5P  | 63  | -  | 13  | 21 | 38 | 4.5  | 3.4  | 6    | 3   | A07  | ●     |
| M5x0.8  | IS02(6H)            | 4.2       | 4.28           | SD5.0KAGEXJ | 2.5P  | 70  | -  | 14  | 25 | 39 | 6    | 4.9  | 8    | 3   | A07  | ●     |
| M6x1    | IS02(6H)            | 5         | 5.09           | SD6.0MAGEXJ | 2.5P  | 80  | -  | 15  | 30 | 45 | 6    | 4.9  | 8    | 3   | A07  | ●     |
| M8x1.25 | IS02(6H)            | 6.8       | 6.85           | SD8.0NAGEXJ | 2.5P  | 90  | -  | 19  | 35 | 47 | 8    | 6.2  | 9    | 3   | A18  | ●     |
| M10x1.5 | IS02(6H)            | 8.5       | 8.6            | SD0100AGEXJ | 2.5P  | 100 | -  | 23  | 39 | 52 | 10   | 8    | 11   | 3   | A18  | ●     |

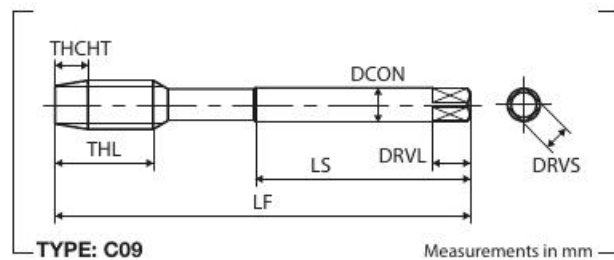
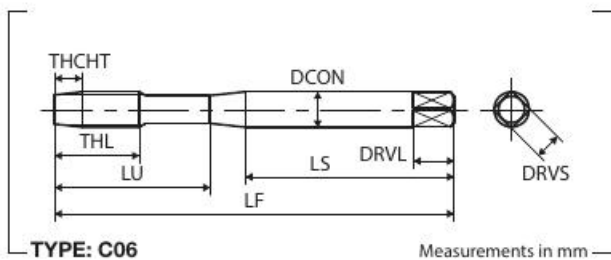
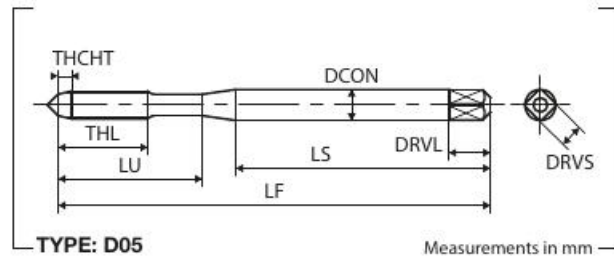
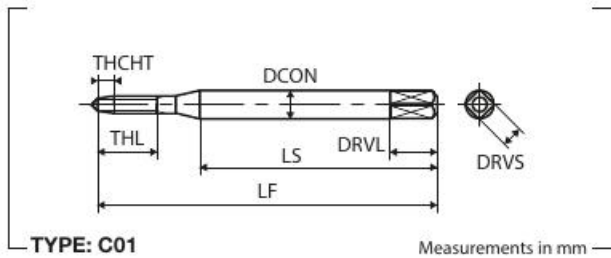
| M        | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code        | THCHT | LF  | LT | THL | LU | LS | DCON | DRVS | DRVL | NOF | Type | Stock |
|----------|---------------------|-----------|----------------|-------------|-------|-----|----|-----|----|----|------|------|------|-----|------|-------|
| DIN 376  |                     |           |                |             |       |     |    |     |    |    |      |      |      |     |      |       |
| M12x1.75 | IS02(6H)            | 10.3      | 10.36          | SG012PAGEXJ | 2.5P  | 110 | -  | 26  | -  | 56 | 9    | 7    | 10   | 4   | A25  | ●     |
| M14x2    | IS02(6H)            | 12        | 12.12          | SG014QAGEXJ | 2.5P  | 110 | -  | 26  | -  | 56 | 11   | 9    | 12   | 4   | A25  | ●     |
| M16x2    | IS02(6H)            | 14        | 14.12          | SG016QAGEXJ | 2.5P  | 110 | -  | 26  | -  | 56 | 12   | 9    | 12   | 4   | A25  | ●     |
| M18x2.5  | IS02(6H)            | 15.5      | 15.63          | SG018RAGEXJ | 2.5P  | 125 | -  | 33  | -  | 64 | 14   | 11   | 14   | 4   | A25  | ▽     |
| M20x2.5  | IS02(6H)            | 17.5      | 17.63          | SG020RAGEXJ | 2.5P  | 140 | -  | 33  | -  | 71 | 16   | 12   | 15   | 4   | A25  | ●     |
| M24x3    | IS02(6H)            | 21        | 21.13          | SG024SAGEXJ | 2.5P  | 160 | -  | 37  | -  | 82 | 18   | 14.5 | 17   | 4   | A25  | ●     |

| G (BSP)  | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code        | THCHT | LF  | LT | THL | LU | LS | DCON | DRVS | DRVL | NOF | Type | Stock |
|----------|---------------------|-----------|----------------|-------------|-------|-----|----|-----|----|----|------|------|------|-----|------|-------|
| DIN 5156 |                     |           |                |             |       |     |    |     |    |    |      |      |      |     |      |       |
| 1/8-28   | -                   | 8.75      | 8.78           | SVG0020GEXJ | 2.5P  | 90  | -  | 19  | -  | 46 | 7    | 5.5  | 8    | 3   | A25  | ●     |
| 1/4-19   | -                   | 11.75     | 11.78          | SVG0040GEXJ | 2.5P  | 100 | -  | 21  | -  | 51 | 11   | 9    | 12   | 4   | A25  | ●     |
| 3/8-19   | -                   | 15.25     | 15.28          | SVG0060GEXJ | 2.5P  | 100 | -  | 21  | -  | 51 | 12   | 9    | 12   | 4   | A25  | ●     |
| 1/2-14   | -                   | 19        | 19.04          | SVG0080GEXJ | 2.5P  | 125 | -  | 24  | -  | 64 | 16   | 12   | 15   | 4   | A25  | ●     |
| 3/4-14   | -                   | 24.5      | 24.52          | SVG0120GEXJ | 2.5P  | 140 | -  | 27  | -  | 71 | 20   | 16   | 19   | 4   | A25  | ●     |



● stock standard, ● check stock, ⊙ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

| M        | TCTR<br>(tolerance) | ∅<br>(mm) | Hole ∅<br>(mm) | Code       | THCHT | LF  | THL | LU | LS | DCON | DRVS | DRVL | NOF | Type | Stock |
|----------|---------------------|-----------|----------------|------------|-------|-----|-----|----|----|------|------|------|-----|------|-------|
| DIN 371  |                     |           |                |            |       |     |     |    |    |      |      |      |     |      |       |
| M3x0.5   | ISO2X(6HX)          | 2.5       | 2.56           | LE3.0GBGEX | 5P    | 56  | 9   | 18 | 34 | 3.5  | 2.7  | 6    | 3   | D05  | ●     |
| M4x0.7   | ISO2X(6HX)          | 3.3       | 3.38           | LE4.0IBGEX | 5P    | 63  | 13  | 21 | 38 | 4.5  | 3.4  | 6    | 3   | D05  | ●     |
| M5x0.8   | ISO2X(6HX)          | 4.2       | 4.28           | LE5.0KBGEX | 5P    | 70  | 14  | 25 | 39 | 6    | 4.9  | 8    | 3   | D05  | ●     |
| M6x1     | ISO2X(6HX)          | 5         | 5.09           | LZ6.0MBGEX | 5P    | 80  | 15  | 30 | 45 | 6    | 4.9  | 8    | 3   | B01  | ●     |
| M8x1.25  | ISO2X(6HX)          | 6.8       | 6.85           | LZ8.0NBGEX | 5P    | 90  | 19  | 35 | 48 | 8    | 6.2  | 9    | 3   | B01  | ●     |
| M10x1.5  | ISO2X(6HX)          | 8.5       | 8.6            | LZ0100BGEX | 5P    | 100 | 23  | 39 | 53 | 10   | 8    | 11   | 3   | B01  | ●     |
| M12x1.75 | ISO2X(6HX)          | 10.3      | 10.36          | LZ012PBGEX | 5P    | 110 | 26  | 45 | 56 | 12   | 9    | 12   | 3   | B01  | ●     |



● stock standard, ○ check stock, ⊙ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

| M         | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT | LF  | THL | LU | LS | DCON | DRVS | DRVL | NOF | Type | Stock |
|-----------|---------------------|-----------|----------------|------------|-------|-----|-----|----|----|------|------|------|-----|------|-------|
| DIN 371   |                     |           |                |            |       |     |     |    |    |      |      |      |     |      |       |
| M2x0.4    | ISO2X(6HX)          | 1.6       | 1.65           | PD2.0EBGEX | 4.5P  | 45  | 8   | -  | 32 | 2.8  | 2.1  | 5    | 2   | C01  | ●     |
| M2.5x0.45 | ISO2X(6HX)          | 2.1       | 2.11           | PD2.5FBGEX | 4.5P  | 50  | 8   | 15 | 33 | 2.8  | 2.1  | 5    | 2   | D05  | ●     |
| M3x0.5    | ISO2X(6HX)          | 2.5       | 2.56           | PD3.0GBGEX | 4.5P  | 56  | 9   | 18 | 34 | 3.5  | 2.7  | 6    | 3   | D05  | ●     |
| M4x0.7    | ISO2X(6HX)          | 3.3       | 3.38           | PD4.0IBGEX | 4.5P  | 63  | 13  | 21 | 38 | 4.5  | 3.4  | 6    | 3   | D05  | ●     |
| M5x0.8    | ISO2X(6HX)          | 4.2       | 4.28           | PD5.0KBGEX | 4.5P  | 70  | 14  | 25 | 39 | 6    | 4.9  | 8    | 3   | D05  | ●     |
| M6x1      | ISO2X(6HX)          | 5         | 5.09           | PD6.0MBGEX | 4.5P  | 80  | 15  | 30 | 45 | 6    | 4.9  | 8    | 3   | D05  | ●     |
| M8x1.25   | ISO2X(6HX)          | 6.8       | 6.85           | PD8.0NBGEX | 4.5P  | 90  | 19  | 35 | 47 | 8    | 6.2  | 9    | 3   | C06  | ●     |
| M10x1.5   | ISO2X(6HX)          | 8.5       | 8.6            | PD10.0BGEX | 4.5P  | 100 | 23  | 39 | 52 | 10   | 8    | 11   | 3   | C06  | ●     |

| M        | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code        | THCHT | LF  | THL | LU | LS  | DCON | DRVS | DRVL | NOF | Type | Stock |
|----------|---------------------|-----------|----------------|-------------|-------|-----|-----|----|-----|------|------|------|-----|------|-------|
| DIN 376  |                     |           |                |             |       |     |     |    |     |      |      |      |     |      |       |
| M8x1.25  | ISO2X(6HX)          | 6.8       | 6.85           | PG8.0NBGEX  | 4.5P  | 90  | 19  | -  | 46  | 6    | 4.9  | 8    | 3   | C09  | ●     |
| M10x1.5  | ISO2X(6HX)          | 8.5       | 8.6            | PG10.0BGEX  | 4.5P  | 100 | 23  | -  | 51  | 7    | 5.5  | 8    | 3   | C09  | ●     |
| M12x1.75 | ISO2X(6HX)          | 10.3      | 10.36          | PG12.0PBGEX | 4.5P  | 110 | 26  | -  | 56  | 9    | 7    | 10   | 3   | C09  | ●     |
| M14x2    | ISO2X(6HX)          | 12        | 12.12          | PG14.0QBGEX | 4.5P  | 110 | 26  | -  | 56  | 11   | 9    | 12   | 3   | C09  | ●     |
| M16x2    | ISO2X(6HX)          | 14        | 14.12          | PG16.0QBGEX | 4.5P  | 110 | 26  | -  | 56  | 12   | 9    | 12   | 3   | C09  | ●     |
| M18x2.5  | ISO2X(6HX)          | 15.5      | 15.63          | PG18.0RBGEX | 4.5P  | 125 | 33  | -  | 64  | 14   | 11   | 14   | 3   | C09  | ●     |
| M20x2.5  | ISO2X(6HX)          | 17.5      | 17.63          | PG20.0RBGEX | 4.5P  | 140 | 33  | -  | 71  | 16   | 12   | 15   | 3   | C09  | ●     |
| M22x2.5  | ISO2X(6HX)          | 19.5      | 19.63          | PG22.0RBGEX | 4.5P  | 140 | 33  | -  | 71  | 18   | 14.5 | 17   | 3   | C09  | ●     |
| M24x3    | ISO2X(6HX)          | 21        | 21.13          | PG24.0SBGEX | 4.5P  | 160 | 37  | -  | 82  | 18   | 14.5 | 17   | 3   | C09  | ●     |
| M27x3    | ISO2X(6HX)          | 24        | 24.13          | PG27.0SBGEX | 4.5P  | 160 | 37  | -  | 82  | 20   | 16   | 19   | 4   | C09  | ●     |
| M30x3.5  | ISO2X(6HX)          | 26.5      | 26.63          | PG30.0TBGEX | 4.5P  | 180 | 44  | -  | 92  | 22   | 18   | 21   | 4   | C09  | ●     |
| M36x4    | ISO2X(6HX)          | 32        | 32.12          | PG36.0UBGEX | 4.5P  | 200 | 52  | -  | 102 | 28   | 22   | 25   | 4   | C09  | ●     |

| MF       | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code        | THCHT | LF  | THL | LU | LS | DCON | DRVS | DRVL | NOF | Type | Stock |
|----------|---------------------|-----------|----------------|-------------|-------|-----|-----|----|----|------|------|------|-----|------|-------|
| DIN 374  |                     |           |                |             |       |     |     |    |    |      |      |      |     |      |       |
| M8x1     | ISO2X(6HX)          | 7         | 7.09           | PM8.0MBGEX  | 4.5P  | 90  | 19  | -  | 46 | 6    | 4.9  | 8    | 3   | C09  | ●     |
| M10x1.25 | ISO2X(6HX)          | 8.8       | 8.85           | PM10.0NBGEX | 4.5P  | 100 | 23  | -  | 51 | 7    | 5.5  | 8    | 3   | C09  | ●     |

| MF       | TCTR<br>(tolerance) |  $\emptyset$<br>(mm) | Hole $\emptyset$<br>(mm) | Code       | THCHT | LF  | THL | LU | LS | DCON | DRVS | DRVL | NOF | Type | Stock |
|----------|---------------------|------------------------------------------------------------------------------------------------------|--------------------------|------------|-------|-----|-----|----|----|------|------|------|-----|------|-------|
| DIN 374  |                     |                                                                                                      |                          |            |       |     |     |    |    |      |      |      |     |      |       |
| M10x1    | ISO2X(6HX)          | 9                                                                                                    | 9.09                     | PM010MBGEX | 4.5P  | 90  | 19  | -  | 46 | 7    | 5.5  | 8    | 3   | C09  | ●     |
| M12x1.5  | ISO2X(6HX)          | 10.5                                                                                                 | 10.6                     | PM0120BGEX | 4.5P  | 100 | 21  | -  | 51 | 9    | 7    | 10   | 3   | C09  | ●     |
| M12x1.25 | ISO2X(6HX)          | 10.8                                                                                                 | 10.85                    | PM012NBGEX | 4.5P  | 100 | 21  | -  | 51 | 9    | 7    | 10   | 3   | C09  | ●     |
| M12x1    | ISO2X(6HX)          | 11                                                                                                   | 11.09                    | PM012MBGEX | 4.5P  | 100 | 21  | -  | 51 | 9    | 7    | 10   | 3   | C09  | ●     |
| M14x1.5  | ISO2X(6HX)          | 12.5                                                                                                 | 12.6                     | PM0140BGEX | 4.5P  | 100 | 21  | -  | 51 | 11   | 9    | 12   | 3   | C09  | ●     |
| M16x1.5  | ISO2X(6HX)          | 14.5                                                                                                 | 14.6                     | PM0160BGEX | 4.5P  | 100 | 21  | -  | 51 | 12   | 9    | 12   | 3   | C09  | ●     |
| M18x1.5  | ISO2X(6HX)          | 16.5                                                                                                 | 16.6                     | PM0180BGEX | 4.5P  | 110 | 24  | -  | 56 | 14   | 11   | 14   | 3   | C09  | ●     |
| M20x1.5  | ISO2X(6HX)          | 18.5                                                                                                 | 18.6                     | PM0200BGEX | 4.5P  | 125 | 24  | -  | 64 | 16   | 12   | 15   | 3   | C09  | ●     |
| M22x1.5  | ISO2X(6HX)          | 20.5                                                                                                 | 20.6                     | PM0220BGEX | 4.5P  | 125 | 24  | -  | 64 | 18   | 14.5 | 17   | 3   | C09  | ●     |
| M24x1.5  | ISO2X(6HX)          | 22.5                                                                                                 | 22.6                     | PM0240BGEX | 4.5P  | 140 | 27  | -  | 71 | 18   | 14.5 | 17   | 3   | C09  | ●     |

| UNC         | TCTR<br>(tolerance) |  $\emptyset$<br>(mm) | Hole $\emptyset$<br>(mm) | Code       | THCHT | LF  | THL | LU | LS | DCON | DRVS | DRVL | NOF | Type | Stock |
|-------------|---------------------|-------------------------------------------------------------------------------------------------------|--------------------------|------------|-------|-----|-----|----|----|------|------|------|-----|------|-------|
| DIN 371     |                     |                                                                                                       |                          |            |       |     |     |    |    |      |      |      |     |      |       |
| No.4-40UNC  | 2BX                 | 2.3                                                                                                   | 2.33                     | PDUN4HYGEX | 4.5P  | 56  | 9   | 18 | 34 | 3.5  | 2.7  | 6    | 3   | D05  | ●     |
| No.6-32UNC  | 2BX                 | 2.8                                                                                                   | 2.83                     | PDUN6JYGEX | 4.5P  | 56  | 11  | 19 | 32 | 4    | 3    | 6    | 3   | D05  | ●     |
| No.8-32UNC  | 2BX                 | 3.4                                                                                                   | 3.47                     | PDUN8JYGEX | 4.5P  | 63  | 13  | 21 | 38 | 4.5  | 3.4  | 6    | 3   | D05  | ●     |
| No.10-24UNC | 2BX                 | 3.89                                                                                                  | 3.9                      | PDUNAMYGEX | 4.5P  | 70  | 14  | 24 | 39 | 6    | 4.9  | 8    | 3   | D05  | ●     |
| 1/4-20UNC   | 2BX                 | 5.1                                                                                                   | 5.19                     | PDU04NYGEX | 4.5P  | 80  | 15  | 30 | 42 | 7    | 5.5  | 8    | 3   | D05  | ●     |
| 5/16-18UNC  | 2BX                 | 6.6                                                                                                   | 6.65                     | PDU050YGEX | 4.5P  | 90  | 19  | 35 | 47 | 8    | 6.2  | 9    | 3   | C06  | ●     |
| 3/8-16UNC   | 2BX                 | 8                                                                                                     | 8.07                     | PDU06PYGEX | 4.5P  | 100 | 23  | 39 | 54 | 9    | 7    | 10   | 3   | C06  | ●     |

| UNC        | TCTR<br>(tolerance) |  $\emptyset$<br>(mm) | Hole $\emptyset$<br>(mm) | Code       | THCHT | LF  | THL | LU | LS | DCON | DRVS | DRVL | NOF | Type | Stock |
|------------|---------------------|-------------------------------------------------------------------------------------------------------|--------------------------|------------|-------|-----|-----|----|----|------|------|------|-----|------|-------|
| DIN 376    |                     |                                                                                                       |                          |            |       |     |     |    |    |      |      |      |     |      |       |
| 7/16-14UNC | 2BX                 | 9.4                                                                                                   | 9.45                     | PGU07QYGEX | 4.5P  | 100 | 23  | -  | 51 | 8    | 6.2  | 9    | 3   | C09  | ●     |
| 1/2-13UNC  | 2BX                 | 10.9                                                                                                  | 10.91                    | PGU08RYGEX | 4.5P  | 110 | 26  | -  | 56 | 9    | 7    | 10   | 3   | C09  | ●     |
| 9/16-12UNC | 2BX                 | 12.2                                                                                                  | 12.33                    | PGU09SYGEX | 4.5P  | 110 | 26  | -  | 56 | 11   | 9    | 12   | 3   | C09  | ●     |
| 5/8-11UNC  | 2BX                 | 13.6                                                                                                  | 13.75                    | PGU10UYGEX | 4.5P  | 110 | 26  | -  | 56 | 12   | 9    | 12   | 3   | C09  | ●     |
| 3/4-10UNC  | 2BX                 | 16.6                                                                                                  | 16.7                     | PGU12VYGEX | 4.5P  | 125 | 33  | -  | 64 | 14   | 11   | 14   | 3   | C09  | ●     |
| 7/8-9UNC   | 2BX                 | 19.6                                                                                                  | 19.61                    | PGU14WYGEX | 4.5P  | 140 | 33  | -  | 71 | 18   | 14.5 | 17   | 3   | C09  | ●     |
| 1-8UNC     | 2BX                 | 22.3                                                                                                  | 22.45                    | PGU16XYGEX | 4.5P  | 160 | 37  | -  | 82 | 18   | 14.5 | 17   | 3   | C09  | ●     |

| UNF         | TCTR<br>(tolerance) |  $\emptyset$<br>(mm) | Hole $\emptyset$<br>(mm) | Code       | THCHT | LF | THL | LU | LS | DCON | DRVS | DRVL | NOF | Type | Stock |
|-------------|---------------------|---------------------------------------------------------------------------------------------------------|--------------------------|------------|-------|----|-----|----|----|------|------|------|-----|------|-------|
| DIN 371     |                     |                                                                                                         |                          |            |       |    |     |    |    |      |      |      |     |      |       |
| No.10-32UNF | 2BX                 | 4.1                                                                                                     | 4.12                     | PDUNAJYGEX | 4.5P  | 70 | 14  | 24 | 39 | 6    | 4.9  | 8    | 3   | D05  | ●     |
| 1/4-28UNF   | 2BX                 | 5.5                                                                                                     | 5.53                     | PDU04KYGEX | 4.5P  | 80 | 15  | 30 | 42 | 7    | 5.5  | 8    | 3   | D05  | ●     |

| UNF        | TCTR<br>(tolerance) |  $\emptyset$<br>(mm) | Hole $\emptyset$<br>(mm) | Code       | THCHT | LF  | THL | LU | LS | DCON | DRVS | DRVL | NOF | Type | Stock |
|------------|---------------------|---------------------------------------------------------------------------------------------------------|--------------------------|------------|-------|-----|-----|----|----|------|------|------|-----|------|-------|
| DIN 374    |                     |                                                                                                         |                          |            |       |     |     |    |    |      |      |      |     |      |       |
| 5/16-24UNF | 2BX                 | 6.9                                                                                                     | 6.97                     | PMU05MYGEX | 4.5P  | 90  | 19  | -  | 46 | 6    | 4.9  | 8    | 3   | C09  | ●     |
| 3/8-24UNF  | 2BX                 | 8.5                                                                                                     | 8.57                     | PMU06MYGEX | 4.5P  | 100 | 23  | -  | 51 | 7    | 5.5  | 8    | 3   | C09  | ●     |
| 1/2-20UNF  | 2BX                 | 11.5                                                                                                    | 11.54                    | PMU08NYGEX | 4.5P  | 100 | 21  | -  | 51 | 9    | 7    | 10   | 3   | C09  | ●     |
| 9/16-18UNF | 2BX                 | 12.9                                                                                                    | 13                       | PMU090YGEX | 4.5P  | 100 | 21  | -  | 51 | 11   | 9    | 12   | 3   | C09  | ●     |
| 5/8-18UNF  | 2BX                 | 14.5                                                                                                    | 14.6                     | PMU100YGEX | 4.5P  | 100 | 21  | -  | 51 | 12   | 9    | 12   | 3   | C09  | ●     |
| 3/4-16UNF  | 2BX                 | 17.5                                                                                                    | 17.59                    | PMU12PYGEX | 4.5P  | 110 | 24  | -  | 56 | 14   | 11   | 14   | 3   | C09  | ●     |
| 7/8-14UNF  | 2BX                 | 20.5                                                                                                    | 20.57                    | PMU14QYGEX | 4.5P  | 125 | 24  | -  | 64 | 18   | 14.5 | 17   | 3   | C09  | ●     |
| 1-12UNF    | 2BX                 | 23.3                                                                                                    | 23.46                    | PMU16SYGEX | 4.5P  | 140 | 27  | -  | 71 | 18   | 14.5 | 17   | 3   | C09  | ●     |

| G (BSP)  | TCTR<br>(tolerance) |  $\emptyset$<br>(mm) | Hole $\emptyset$<br>(mm) | Code       | THCHT | LF  | THL | LU | LS | DCON | DRVS | DRVL | NOF | Type | Stock |
|----------|---------------------|---------------------------------------------------------------------------------------------------------|--------------------------|------------|-------|-----|-----|----|----|------|------|------|-----|------|-------|
| DIN 5156 |                     |                                                                                                         |                          |            |       |     |     |    |    |      |      |      |     |      |       |
| 1/8-28   | -                   | 8.75                                                                                                    | 8.78                     | PVG0020GEX | 4.5P  | 90  | 19  | -  | 46 | 7    | 5.5  | 8    | 3   | C09  | ●     |
| 1/4-19   | -                   | 11.75                                                                                                   | 11.78                    | PVG0040GEX | 4.5P  | 100 | 21  | -  | 51 | 11   | 9    | 12   | 3   | C09  | ●     |
| 3/8-19   | -                   | 15.25                                                                                                   | 15.28                    | PVG0060GEX | 4.5P  | 100 | 21  | -  | 51 | 12   | 9    | 12   | 3   | C09  | ●     |

| G (BSP)       | TCTR<br>(tolerance) |  Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT | LF  | THL | LU | LS | DCON | DRVS | DRVL | NOF | Type | Stock |
|---------------|---------------------|--------------------------------------------------------------------------------------------|----------------|------------|-------|-----|-----|----|----|------|------|------|-----|------|-------|
| DIN 5156      |                     |                                                                                            |                |            |       |     |     |    |    |      |      |      |     |      |       |
| <b>1/2-14</b> | -                   | 19                                                                                         | 19.04          | PVG0080GEX | 4.5P  | 125 | 24  | -  | 64 | 16   | 12   | 15   | 3   | C09  | ●     |
| <b>3/4-14</b> | -                   | 24.5                                                                                       | 24.52          | PVG0120GEX | 4.5P  | 140 | 27  | -  | 71 | 20   | 16   | 19   | 4   | C09  | ●     |
| <b>1-11</b>   | -                   | 30.75                                                                                      | 30.77          | PVG0160GEX | 4.5P  | 160 | 29  | -  | 82 | 25   | 20   | 23   | 4   | C09  | ●     |



Yamawa Europe S.p.A. Socio Unico

Via Don F. Tosatto 8 - 30174 Mestre Venezia, ITALY - t. +39 041.952.543 / f. +39 041.50.44.216 info@yamawa.eu - www.yamawa.eu



JQA-QMA14664 JQA-EM3465



Download  
the Yamawa's  
Catalogue



Download the  
Yamawa's APP

9/2026



\$YISOM