

# VU SERIES

**Z-PRO** La serie de machos de última generación.  
La evolución del roscado de alto rendimiento.

 **Z-PRO**  
*Ultimate Machining Taps*



**VUSP**

**VUPO**

# VUSP - VUSP LONG (LS)



## Machos helicoidales recubiertos

- Mayor duración gracias al uso de aceros sinterizados HSSP Premium Grade y al recubrimiento de última generación.
- Una mejor evacuación de viruta y mayor reducción del esfuerzo de corte, gracias a la especial geometría de las ranuras, garantizan una larga duración y roscas de excelente calidad.
- Los Z-PRO VUSP están diseñados específicamente para uso con emulsión.
- Compatible con una amplia gama de materiales.

| Lubricante | Tipo de agujero | Roscado a mano | Taladro | Baja velocidad | Media velocidad              |
|------------|-----------------|----------------|---------|----------------|------------------------------|
| Emulsión   |                 |                |         |                | <b>VUSP</b><br>Vc ≤ 25 m/min |
|            |                 |                |         |                | VUPO                         |
| Aceite     |                 | HT set         | ISP     | SP             | AU+SP                        |
|            |                 | IHT            | IPO     | PO             | AU+SL                        |

## Características del producto

### Condiciones de corte recomendadas

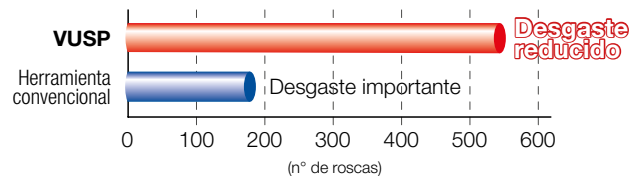
| Material                      | Vc (m/min) |
|-------------------------------|------------|
| P1 Acero de construcción      | 10÷20      |
| P2 Acero al carbono           | 10÷25      |
| P3 Acero de media aleación    | 10÷20      |
| P4 Acero de alta aleación     | 10÷20      |
| M Acero inoxidable            | 5÷10       |
| N Para materiales no ferrosos | 10÷30      |

## Parámetros aplicativos

### M3x0.5

|                      |                               |
|----------------------|-------------------------------|
| Material             | 1.0540 - Ck50                 |
| Profundidad de rosca | 4.5 mm                        |
| Velocidad de corte   | 20 m/min                      |
| Máquina              | Centro de mecanizado vertical |
| Lubricante           | Emulsión                      |

Después de 250 roscas.  
Desgaste reducido,  
sin astillado



### M8x1.25

|                    |                                   |
|--------------------|-----------------------------------|
| Material           | 1.4301 - AISI304 - X 5 CrNi 18 10 |
| Velocidad de corte | 10 m/min                          |
| Máquina            | Centro de mecanizado vertical     |
| Lubricante         | Emulsión                          |

### Excelente evacuación de viruta



La exclusiva geometría del filo de corte y de las ranuras garantiza una excelente evacuación de las virutas y un abundante flujo de refrigerante.

### Excelente acabado de la rosca



En el roscado de 1.4301 - AISI 304 - X 5 CrNi 18 10, VUSP permite obtener un excelente acabado de la rosca incluso cuando se utiliza con emulsión.

# VUSP E (1.5P)



HSS-P

COATING



1.5P  
THCHT

ISO2X  
(6HX)  
TCTR

## VUSP 1.5P machos helicoidales recubiertos

- La longitud de la entrada es de 1,5 hilos, ideal para mecanizar agujeros ciegos donde hay poco espacio entre la profundidad del agujero y la longitud total de rosca.
- Mayor duración gracias al uso de aceros sinterizado HSSP Premium Grade y al recubrimiento de última generación.
- Una mejor evacuación de viruta y mayor reducción del esfuerzo de corte, gracias a la especial geometría de las ranuras, garantizan una larga duración y roscas de excelente calidad.
- Los Z-PRO VUSP E(1.5P) están diseñados específicamente para uso con emulsión.
- Compatible con una amplia gama de materiales.

| Lubricante | Tipo de agujero | Roscado a mano | Taladro | Baja velocidad | Media velocidad              |
|------------|-----------------|----------------|---------|----------------|------------------------------|
| Emulsión   |                 |                |         |                | <b>VUSP</b><br>Vc ≤ 25 m/min |
|            |                 |                |         |                | VUPO                         |
| Aceite     |                 | HT set         | ISP     | SP             | +SP                          |
|            |                 | IHT            | IPO     | PO             | +PO                          |
|            |                 |                |         |                | AU+SP                        |
|            |                 |                |         |                | AU+SL                        |

## Características del producto

### Condiciones de corte recomendadas

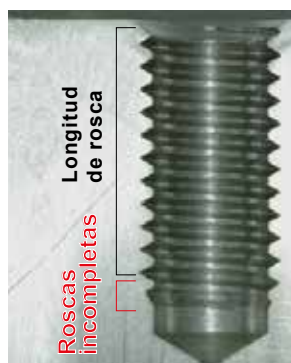
| Material                      | Vc (m/min) |
|-------------------------------|------------|
| P1 Acero de construcción      | 5÷15       |
| P2 Acero al carbono           | 5÷15       |
| P3 Acero de media aleación    | 5÷15       |
| P4 Acero de alta aleación     | 5÷10       |
| M Acero inoxidable            | 3÷5        |
| N Para materiales no ferrosos | 5÷20       |

## Parámetros aplicativos

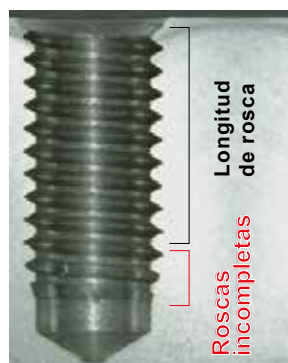
### M6

|                      |                               |
|----------------------|-------------------------------|
| Material             | 1.0540 - Ck50                 |
| Profundidad de rosca | Agujero ciego, 13 mm          |
| Velocidad de corte   | 15 m/min                      |
| Máquina              | Centro de mecanizado vertical |
| Lubricante           | Emulsión                      |

### Superficie zona roscada



VUSP E (1.5P)



VUSP (2.5P)

# VUSP CH



## Machos helicoidales recubiertos con refrigeración interior

- Mayor duración gracias al uso de aceros sinterizado HSSP Premium Grade y al recubrimiento de última generación.
- Una mejor evacuación de viruta y mayor reducción del esfuerzo de corte, gracias a la especial geometría de las ranuras, garantizan una larga duración y roscas de excelente calidad.
- Adecuado para corte con emulsión.
- El diámetro del agujero de refrigeración interna está optimizado para favorecer una abundante lubricación en la zona de roscado y reducir así el sobrecalentamiento y la soldadura, mejorando el desgaste y la calidad de la rosca interna.

| Lubricante | Tipo de agujero | Roscado a mano | Taladro | Baja velocidad | Media velocidad              |
|------------|-----------------|----------------|---------|----------------|------------------------------|
| Emulsión   |                 |                |         |                | <b>VUSP</b><br>Vc ≤ 25 m/min |
| Acetate    |                 | HTset          | ISP     | SP             | AU+SP                        |
|            |                 | IHT            | IPO     | PO             | AU+SL                        |

- La evacuación de la viruta es suave, favoreciendo un roscado continuo y una alta fiabilidad del proceso.

## Características del producto

### Condiciones de corte recomendadas

| Material                      | Vc (m/min) |
|-------------------------------|------------|
| P1 Acero de construcción      | 10÷20      |
| P2 Acero al carbono           | 10÷25      |
| P3 Acero de media aleación    | 10÷20      |
| P4 Acero de alta aleación     | 10÷20      |
| M Acero inoxidable            | 5÷10       |
| N Para materiales no ferrosos | 10÷30      |

### Aplicación con refrigerante interno



Expulsión con presión a 1,5 MPa (15 Bar)



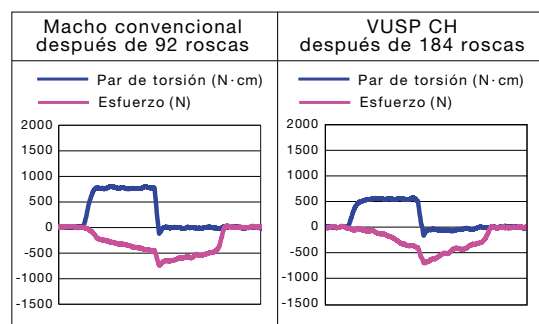
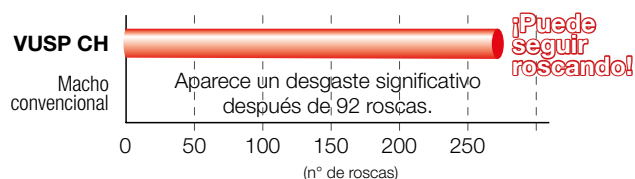
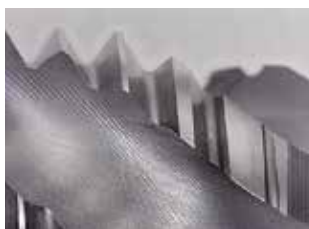
Expulsión con presión a 6 MPa (60 Bar)

## Parámetros aplicativos

### M8x1.25

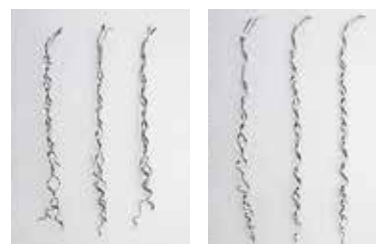
|                             |                                      |
|-----------------------------|--------------------------------------|
| Material                    | 1.7225 - 42CrMo4                     |
| Profundidad de rosca        | 16 mm (2D ciego)                     |
| Velocidad de corte          | 15 m/min                             |
| Máquina                     | Centro de mecanizado vertical (BT30) |
| Lubricante                  | Emulsión FX-30 al 5 %                |
| Avance                      | Sincronizado                         |
| Diámetro del agujero previo | ø 6.8 mm                             |

No hay señales de desgaste incluso después de 184 roscas.



Después de roscar 184 agujeros con el VUSP CH, el acabado de la superficie sigue siendo excelente.

### Forma de las virutas



Macho convencional después de 92 roscas

VUSP CH después de 184 roscas

# VUPO - VUPO LONG (LS)



## Machos helicoidales recubiertos con entrada corregida

- Mayor duración gracias al uso de aceros sinterizado HSSP Premium Grade y al recubrimiento de última generación.
- Una mejor evacuación de viruta y mayor reducción del esfuerzo de corte, gracias a la especial geometría de las ranuras, garantizan una larga duración y roscas de excelente calidad.
- Z-PRO VUPO está diseñado para un uso con emulsión.

| Lubricante | Tipo de orificio | Roscado a mano | Taladro    | Baja velocidad | Media velocidad               |
|------------|------------------|----------------|------------|----------------|-------------------------------|
| Emulsión   |                  |                |            |                | VUSP<br>VUPO<br>Vc ≤ 30 m/min |
| Acetate    |                  | HTset<br>IHT   | ISP<br>IPO | SP<br>PO       | AU+SP<br>AU+SL                |

## Características del producto

### Condiciones de corte recomendadas

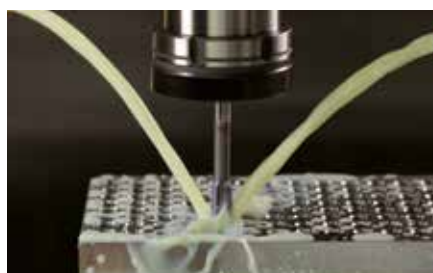
| Material                      | Vc (m/min) |
|-------------------------------|------------|
| P1 Acero de construcción      | 10÷30      |
| P2 Acero al carbono           | 10÷30      |
| P3 Acero de media aleación    | 10÷30      |
| P4 Acero de alta aleación     | 10÷25      |
| M Acero inoxidable            | 5÷15       |
| N Para materiales no ferrosos | 10÷40      |

## Parámetros aplicativos

### M10x1.5

|                    |                                    |
|--------------------|------------------------------------|
| Material           | 1.4301 - AISI 304 - X 5 CrNi 18 10 |
| Velocidad de corte | 10 m/min                           |
| Máquina            | Centro de mecanizado vertical      |
| Lubricante         | Emulsión                           |

### Suministro de refrigerante



El exclusivo diseño de las ranuras permite un abundante suministro de refrigerante y un excelente control de las virutas.

### Calidad de la rosca



Gracias a la geometría de corte y al revestimiento especial, se obtienen roscas de excelente calidad incluso en el roscado de 1.4301 - AISI 304 - X 5 CrNi 18 10 con el uso de emulsión.

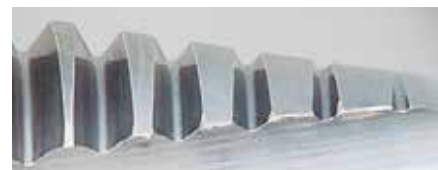
### M10x1.5

|                      |                               |
|----------------------|-------------------------------|
| Material             | 1.0540 - Ck50                 |
| Profundidad de rosca | 20 mm (2D)                    |
| Velocidad de corte   | 20 m/min                      |
| Máquina              | Centro de mecanizado vertical |
| Lubricante           | Emulsión                      |

### Desgaste después de 560 roscas



VUPO



Macho convencional

## VUSP

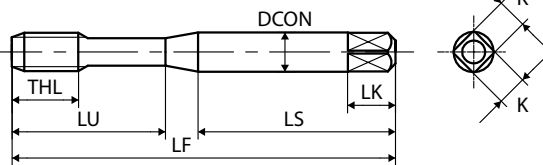


HSS-P

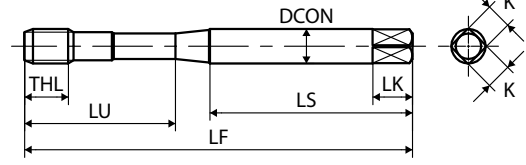
COATING



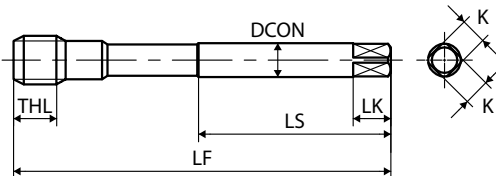
TIPO: VU\_004



TIPO: VU\_005



TIPO: VU\_006

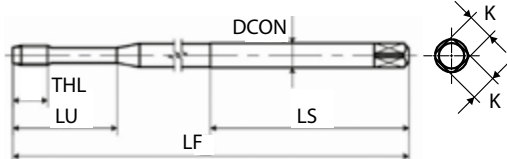


● En stock, ○ Consultar disponibilidad

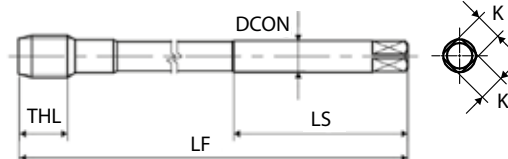
| M         | TCTR<br>(tolerance) | Hole Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | LT<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
|-----------|---------------------|----------------|----------------|------------|--------------------|------------|------------|-------------|------------|------------|--------------|-----------|------------|-----|------|-------|
| DIN 371   |                     |                |                |            |                    |            |            |             |            |            |              |           |            |     |      |       |
| M2X0.4    | ISO2X(6HX)          | 1.6            | 1.65           | 3101101021 | 2.5P               | 45         | -          | 4           | 10         | 32         | 2.8          | 2.1       | 5          | 2   | 004  | ●     |
| M2.2X0.45 | ISO2X(6HX)          | 1.75           | 1.81           | 3101101024 | 2.5P               | 45         | -          | 4           | 11         | 32         | 2.8          | 2.1       | 5          | 2   | 004  | ●     |
| M2.3X0.4  | ISO2X(6HX)          | 1.9            | 1.95           | 3101101026 | 2.5P               | 45         | -          | 4           | 11         | 32         | 2.8          | 2.1       | 5          | 2   | 004  | ●     |
| M2.5X0.45 | ISO2X(6HX)          | 2.1            | 2.11           | 3101101029 | 2.5P               | 50         | -          | 4           | 15         | 32         | 2.8          | 2.1       | 5          | 2   | 004  | ●     |
| M2.6X0.45 | ISO2X(6HX)          | 2.2            | 2.21           | 3101101032 | 2.5P               | 50         | -          | 4           | 15         | 32         | 2.8          | 2.1       | 5          | 2   | 004  | ●     |
| M3X0.5    | ISO2X(6HX)          | 2.5            | 2.56           | 3101101035 | 2.5P               | 56         | -          | 5           | 18         | 34         | 3.5          | 2.7       | 6          | 3   | 004  | ●     |
| M4X0.7    | ISO2X(6HX)          | 3.3            | 3.38           | 3101101042 | 2.5P               | 63         | -          | 7           | 21         | 38         | 4.5          | 3.4       | 6          | 3   | 004  | ●     |
| M5X0.8    | ISO2X(6HX)          | 4.2            | 4.28           | 3101101049 | 2.5P               | 70         | -          | 9           | 25         | 39         | 6            | 4.9       | 8          | 3   | 004  | ●     |
| M6X1      | ISO2X(6HX)          | 5              | 5.09           | 3101101055 | 2.5P               | 80         | -          | 11          | 30         | 45         | 6            | 4.9       | 8          | 3   | 004  | ●     |
| M8X1.25   | ISO2X(6HX)          | 6.8            | 6.85           | 3101101064 | 2.5P               | 90         | -          | 12          | 35         | 47         | 8            | 6.2       | 9          | 3   | 005  | ●     |
| M10X1.5   | ISO2X(6HX)          | 8.5            | 8.6            | 3101101078 | 2.5P               | 100        | -          | 13          | 39         | 52.5       | 10           | 8         | 11         | 3   | 005  | ●     |
| M         | TCTR<br>(tolerance) | Hole Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | LT<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
| DIN 376   |                     |                |                |            |                    |            |            |             |            |            |              |           |            |     |      |       |
| M12X1.75  | ISO2X(6HX)          | 10.3           | 10.36          | 3101101088 | 2.5P               | 110        | -          | 15          | -          | 56         | 9            | 7         | 10         | 3   | 006  | ●     |
| M14X2     | ISO2X(6HX)          | 12             | 12.12          | 3101101100 | 2.5P               | 110        | -          | 18          | -          | 56         | 11           | 9         | 12         | 3   | 006  | ●     |
| M16X2     | ISO2X(6HX)          | 14             | 14.12          | 3101101114 | 2.5P               | 110        | -          | 18          | -          | 56         | 12           | 9         | 12         | 3   | 006  | ●     |
| M18x2.5   | ISO2X(6HX)          | 15.5           | 15.63          | 3101101128 | 2.5P               | 125        | -          | 20          | -          | 64         | 14           | 11        | 14         | 4   | 006  | ●     |
| M20x2.5   | ISO2X(6HX)          | 17.5           | 17.63          | 3101101141 | 2.5P               | 140        | -          | 20          | -          | 71         | 16           | 12        | 15         | 4   | 006  | ●     |
| M22x2.5   | ISO2X(6HX)          | 19.5           | 19.63          | 3101101156 | 2.5P               | 140        | -          | 20          | -          | 71         | 18           | 14.5      | 17         | 4   | 006  | ●     |
| M24x3     | ISO2X(6HX)          | 21             | 21.13          | 3101101167 | 2.5P               | 160        | -          | 25          | -          | 82         | 18           | 14.5      | 17         | 4   | 006  | ●     |
| MF        | TCTR<br>(tolerance) | Hole Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | LT<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
| DIN 371   |                     |                |                |            |                    |            |            |             |            |            |              |           |            |     |      |       |
| M3X0.35   | ISO2X(6HX)          | 2.65           | 2.7            | 3101101036 | 2.5P               | 56         | -          | 5           | 18         | 34         | 3.5          | 2.7       | 6          | 3   | 004  | ●     |
| M4X0.5    | ISO2X(6HX)          | 3.5            | 3.56           | 3101101043 | 2.5P               | 63         | -          | 5           | 21         | 38         | 4.5          | 3.4       | 6          | 3   | 004  | ●     |
| M5X0.5    | ISO2X(6HX)          | 4.5            | 4.56           | 3101101051 | 2.5P               | 70         | -          | 6           | 25         | 39         | 6            | 4.9       | 8          | 3   | 004  | ●     |
| M6X0.75   | ISO2X(6HX)          | 5.25           | 5.33           | 3101101056 | 2.5P               | 80         | -          | 8           | 30         | 45         | 6            | 4.9       | 8          | 3   | 004  | ●     |
| M6X0.5    | ISO2X(6HX)          | 5.5            | 5.56           | 3101101057 | 2.5P               | 80         | -          | 8           | 30         | 45         | 6            | 4.9       | 8          | 3   | 004  | ●     |

| MF          | TCTR<br>(tolerance) |  Hole Ø<br>(mm)   | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | LT<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
|-------------|---------------------|----------------------------------------------------------------------------------------------------|----------------|------------|--------------------|------------|------------|-------------|------------|------------|--------------|-----------|------------|-----|------|-------|
| DIN 374     |                     |                                                                                                    |                |            |                    |            |            |             |            |            |              |           |            |     |      |       |
| M8X1        | ISO2X(6HX)          | 7                                                                                                  | 7.09           | 3101101065 | 2.5P               | 90         | -          | 12          | -          | 46         | 6            | 4.9       | 8          | 3   | 006  | ●     |
| M10X1.25    | ISO2X(6HX)          | 8.8                                                                                                | 8.85           | 3101101079 | 2.5P               | 100        | -          | 13          | -          | 51         | 7            | 5.5       | 8          | 3   | 006  | ●     |
| M10X1       | ISO2X(6HX)          | 9                                                                                                  | 9.09           | 3101101080 | 2.5P               | 90         | -          | 13          | -          | 46         | 7            | 5.5       | 8          | 3   | 006  | ●     |
| M12X1.5     | ISO2X(6HX)          | 10.5                                                                                               | 10.6           | 3101101089 | 2.5P               | 100        | -          | 15          | -          | 51         | 9            | 7         | 10         | 3   | 006  | ●     |
| M12X1.25    | ISO2X(6HX)          | 10.8                                                                                               | 10.85          | 3101101090 | 2.5P               | 100        | -          | 15          | -          | 51         | 9            | 7         | 10         | 3   | 006  | ●     |
| M14X1.5     | ISO2X(6HX)          | 12.5                                                                                               | 12.6           | 3101101102 | 2.5P               | 100        | -          | 14          | -          | 51         | 11           | 9         | 12         | 3   | 006  | ●     |
| M16X1.5     | ISO2X(6HX)          | 14.5                                                                                               | 14.6           | 3101101116 | 2.5P               | 100        | -          | 14          | -          | 51         | 12           | 9         | 12         | 3   | 006  | ●     |
| M18x1.5     | ISO2X(6HX)          | 16.5                                                                                               | 16.6           | 3101101130 | 2.5P               | 110        | -          | 14          | -          | 56         | 14           | 11        | 14         | 3   | 006  | ●     |
| M20x1.5     | ISO2X(6HX)          | 18.5                                                                                               | 18.6           | 3101101144 | 2.5P               | 125        | -          | 14          | -          | 64         | 16           | 12        | 15         | 3   | 006  | ●     |
| M22x1.5     | ISO2X(6HX)          | 20.5                                                                                               | 20.6           | 3101101158 | 2.5P               | 125        | -          | 14          | -          | 64         | 18           | 14.5      | 17         | 3   | 006  | ●     |
| M24x1.5     | ISO2X(6HX)          | 22.5                                                                                               | 22.6           | 3101101170 | 2.5P               | 140        | -          | 18          | -          | 71         | 18           | 14.5      | 17         | 3   | 006  | ●     |
|             |                     |                                                                                                    |                |            |                    |            |            |             |            |            |              |           |            |     |      |       |
| UNC         | TCTR<br>(tolerance) |  Hole Ø<br>(mm)   | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | LT<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
| DIN 371     |                     |                                                                                                    |                |            |                    |            |            |             |            |            |              |           |            |     |      |       |
| No.5-40UNC  | 2BX                 | 2.6                                                                                                | 2.64           | 3101103021 | 2.5P               | 56         | -          | 5           | 18         | 34         | 3.5          | 2.7       | 6          | 2   | 004  | ●     |
| No.6-32UNC  | 2BX                 | 2.8                                                                                                | 2.83           | 3101103023 | 2.5P               | 56         | -          | 7           | 19         | 32         | 4            | 3         | 6          | 2   | 004  | ●     |
| No.8-32UNC  | 2BX                 | 3.4                                                                                                | 3.47           | 3101103029 | 2.5P               | 63         | -          | 7           | 21         | 38         | 4.5          | 3.4       | 6          | 2   | 004  | ●     |
| No.10-24UNC | 2BX                 | 3.89                                                                                               | 3.9            | 3101103039 | 2.5P               | 70         | -          | 9           | 24         | 39         | 6            | 4.9       | 8          | 2   | 004  | ●     |
| No.12-24UNC | 2BX                 | 4.5                                                                                                | 4.53           | 3101103047 | 2.5P               | 80         | -          | 9           | 28         | 45         | 6            | 4.9       | 8          | 2   | 004  | ●     |
| 1/4-20UNC   | 2BX                 | 5.1                                                                                                | 5.19           | 3101103058 | 2.5P               | 80         | -          | 11          | 30         | 42         | 7            | 5.5       | 8          | 2   | 004  | ●     |
| 5/16-18UNC  | 2BX                 | 6.6                                                                                                | 6.65           | 3101103071 | 2.5P               | 90         | -          | 12          | 35         | 47         | 8            | 6.2       | 9          | 3   | 005  | ●     |
| 3/8-16UNC   | 2BX                 | 8                                                                                                  | 8.07           | 3101103082 | 2.5P               | 100        | -          | 13          | 39         | 54         | 9            | 7         | 10         | 3   | 005  | ●     |
|             |                     |                                                                                                    |                |            |                    |            |            |             |            |            |              |           |            |     |      |       |
| UNC         | TCTR<br>(tolerance) |  Hole Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | LT<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
| DIN 376     |                     |                                                                                                    |                |            |                    |            |            |             |            |            |              |           |            |     |      |       |
| 7/16-14UNC  | 2BX                 | 9.4                                                                                                | 9.45           | 3101103098 | 2.5P               | 100        | -          | 13          | -          | 51         | 8            | 6.2       | 9          | 3   | 006  | ●     |
| 1/2-13UNC   | 2BX                 | 10.9                                                                                               | 10.91          | 3101103111 | 2.5P               | 110        | -          | 15          | -          | 56         | 9            | 7         | 10         | 3   | 006  | ●     |
| 9/16-12UNC  | 2BX                 | 12.2                                                                                               | 12.33          | 3101103126 | 2.5P               | 110        | -          | 18          | -          | 56         | 11           | 9         | 12         | 3   | 006  | ●     |
| 5/8-11UNC   | 2BX                 | 13.6                                                                                               | 13.75          | 3101103138 | 2.5P               | 110        | -          | 18          | -          | 56         | 12           | 9         | 12         | 3   | 006  | ●     |
|             |                     |                                                                                                    |                |            |                    |            |            |             |            |            |              |           |            |     |      |       |
| UNF         | TCTR<br>(tolerance) |  Hole Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | LT<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
| DIN 371     |                     |                                                                                                    |                |            |                    |            |            |             |            |            |              |           |            |     |      |       |
| No.5-44UNF  | 2BX                 | 2.7                                                                                                | 2.69           | 3101103022 | 2.5P               | 56         | -          | 5           | 18         | 34         | 3.5          | 2.7       | 6          | 2   | 004  | ●     |
| No.6-40UNF  | 2BX                 | 2.9                                                                                                | 2.97           | 3101103024 | 2.5P               | 56         | -          | 7           | 19         | 32         | 4            | 3         | 6          | 2   | 004  | ●     |
| No.8-36UNF  | 2BX                 | 3.5                                                                                                | 3.55           | 3101103030 | 2.5P               | 63         | -          | 7           | 21         | 38         | 4.5          | 3.4       | 6          | 2   | 004  | ●     |
| No.10-32UNF | 2BX                 | 4.1                                                                                                | 4.12           | 3101103041 | 2.5P               | 70         | -          | 9           | 24         | 39         | 6            | 4.9       | 8          | 2   | 004  | ●     |
| No.12-28UNF | 2BX                 | 4.6                                                                                                | 4.67           | 3101103048 | 2.5P               | 80         | -          | 9           | 28         | 45         | 6            | 4.9       | 8          | 2   | 004  | ●     |
| 1/4-28UNF   | 2BX                 | 5.5                                                                                                | 5.53           | 3101103062 | 2.5P               | 80         | -          | 11          | 30         | 42         | 7            | 5.5       | 8          | 2   | 004  | ●     |

TIPO: VU\_010



TIPO: VU\_011



● En stock, ○ Consultar disponibilidad, ◐ Comprobar la disponibilidad de stock UE

| M        | TCTR<br>(tolerance) |  Hole Ø<br>(mm)  | Code  | THCHT<br>(chamfer) | LF<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
|----------|---------------------|---------------------------------------------------------------------------------------------------|-------|--------------------|------------|-------------|------------|------------|--------------|-----------|------------|-----|------|-------|
| JIS      |                     |                                                                                                   |       |                    |            |             |            |            |              |           |            |     |      |       |
| M3X0.5   | P2                  | 2.5                                                                                               | 2.56  | 2101101035         | 2.5P       | 100         | 5          | 18         | 40           | 4         | 3.2        | 6   | 3    | 010 ● |
| M4X0.7   | P2                  | 3.3                                                                                               | 3.38  | 2101101042         | 2.5P       | 100         | 7          | 21         | 40           | 5         | 4          | 7   | 3    | 010 ● |
| M5X0.8   | P2                  | 4.2                                                                                               | 4.28  | 2101101049         | 2.5P       | 100         | 9          | 25         | 40           | 5.5       | 4.5        | 7   | 3    | 010 ● |
| M6X1     | P2                  | 5                                                                                                 | 5.09  | 2101101055         | 2.5P       | 100         | 11         | 30         | 40           | 6         | 4.5        | 7   | 3    | 010 ● |
| M8X1.25  | P3                  | 6.8                                                                                               | 6.85  | 2101101064         | 2.5P       | 150         | 12         | -          | 50           | 6.2       | 5          | 8   | 3    | 011 ● |
| M10X1.5  | P3                  | 8.5                                                                                               | 8.6   | 2101101078         | 2.5P       | 150         | 13         | -          | 50           | 7         | 5.5        | 8   | 3    | 011 ● |
| M12X1.75 | P4                  | 10.3                                                                                              | 10.36 | 2101101088         | 2.5P       | 150         | 15         | -          | 50           | 8.5       | 6.5        | 9   | 3    | 011 ● |
| M14X2    | P4                  | 12                                                                                                | 12.12 | 2101101100         | 2.5P       | 150         | 18         | -          | 60           | 10.5      | 8          | 11  | 3    | 011 ○ |
| M16X2    | P4                  | 14                                                                                                | 14.12 | 2101101114         | 2.5P       | 150         | 18         | -          | 60           | 12.5      | 10         | 13  | 3    | 011 ● |
| MF       | TCTR<br>(tolerance) |  Hole Ø<br>(mm) | Code  | THCHT<br>(chamfer) | LF<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
| JIS      |                     |                                                                                                   |       |                    |            |             |            |            |              |           |            |     |      |       |
| M3X0.35  | P2                  | 2.65                                                                                              | 2.7   | 2101101036         | 2.5P       | 100         | 5          | 18         | 40           | 4         | 3.2        | 6   | 3    | 010 ○ |
| M4X0.5   | P2                  | 3.5                                                                                               | 3.56  | 2101101043         | 2.5P       | 100         | 5          | 21         | 40           | 5         | 4          | 7   | 3    | 010 ○ |
| M5X0.5   | P2                  | 4.5                                                                                               | 4.56  | 2101101051         | 2.5P       | 100         | 6          | 25         | 40           | 5.5       | 4.5        | 7   | 3    | 010 ○ |
| M6X0.75  | P2                  | 5.25                                                                                              | 5.33  | 2101101056         | 2.5P       | 100         | 8          | 30         | 40           | 6         | 4.5        | 7   | 3    | 010 ◐ |
| M6X0.5   | P2                  | 5.5                                                                                               | 5.56  | 2101101057         | 2.5P       | 100         | 8          | 30         | 40           | 6         | 4.5        | 7   | 3    | 010 ○ |
| M8X1     | P3                  | 7                                                                                                 | 7.09  | 2101101065         | 2.5P       | 150         | 12         | -          | 50           | 6.2       | 5          | 8   | 3    | 011 ◐ |
| M10X1.25 | P3                  | 8.8                                                                                               | 8.85  | 2101101079         | 2.5P       | 150         | 13         | -          | 50           | 7         | 5.5        | 8   | 3    | 011 ◐ |
| M10X1    | P3                  | 9                                                                                                 | 9.09  | 2101101080         | 2.5P       | 150         | 13         | -          | 50           | 7         | 5.5        | 8   | 3    | 011 ○ |
| M12X1.5  | P3                  | 10.5                                                                                              | 10.6  | 2101101089         | 2.5P       | 150         | 15         | -          | 50           | 8.5       | 6.5        | 9   | 3    | 011 ◐ |
| M12X1.25 | P3                  | 10.8                                                                                              | 10.85 | 2101101090         | 2.5P       | 150         | 15         | -          | 50           | 8.5       | 6.5        | 9   | 3    | 011 ◐ |
| M14X1.5  | P3                  | 12.5                                                                                              | 12.6  | 2101101102         | 2.5P       | 150         | 14         | -          | 60           | 10.5      | 8          | 11  | 3    | 011 ◐ |
| M16X1.5  | P3                  | 14.5                                                                                              | 14.6  | 2101101116         | 2.5P       | 150         | 14         | -          | 60           | 12.5      | 10         | 13  | 3    | 011 ◐ |

# VUSP E (1.5P)



HSS-P

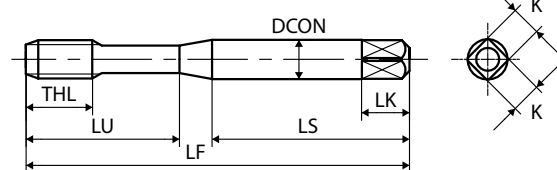
COATING



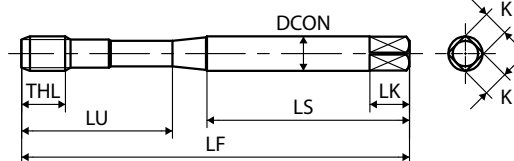
1.5P  
THCHT

ISO2X  
(6HX)  
TCTR

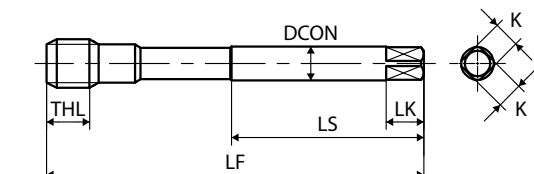
TIPO: VU\_004



TIPO: VU\_005

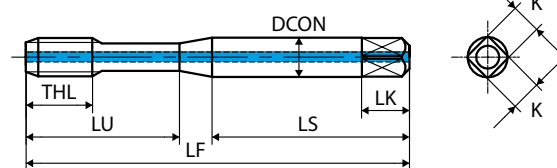
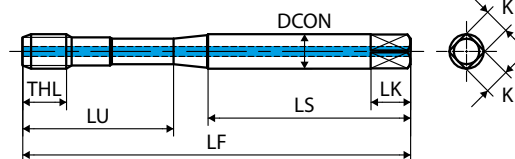
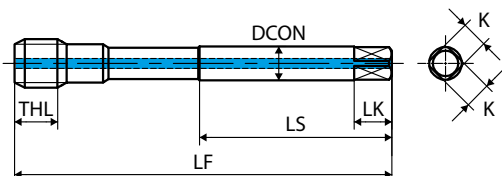


TIPO: VU\_006



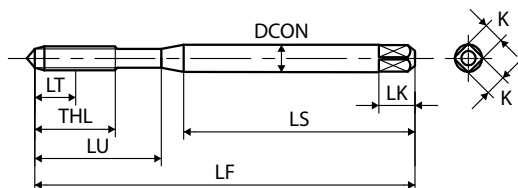
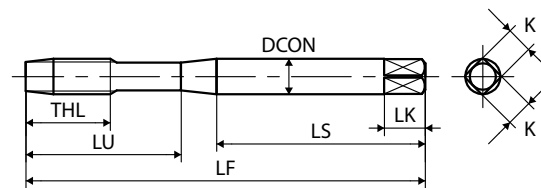
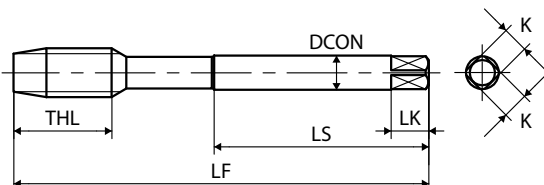
● En stock, ○ Consultar disponibilidad

| M        | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | LT<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
|----------|---------------------|-----------|----------------|------------|--------------------|------------|------------|-------------|------------|------------|--------------|-----------|------------|-----|------|-------|
| DIN 371  |                     |           |                |            |                    |            |            |             |            |            |              |           |            |     |      |       |
| M3X0.5   | ISO2X(6HX)          | 2.5       | 2.56           | 3103101035 | 1.5P               | 56         | -          | 5           | 18         | 34         | 3.5          | 2.7       | 6          | 3   | 004  | ●     |
| M4X0.7   | ISO2X(6HX)          | 3.3       | 3.38           | 3103101042 | 1.5P               | 63         | -          | 7           | 21         | 38         | 4.5          | 3.4       | 6          | 3   | 004  | ●     |
| M5X0.8   | ISO2X(6HX)          | 4.2       | 4.28           | 3103101049 | 1.5P               | 70         | -          | 9           | 25         | 39         | 6            | 4.9       | 8          | 3   | 004  | ●     |
| M6X1     | ISO2X(6HX)          | 5         | 5.09           | 3103101055 | 1.5P               | 80         | -          | 11          | 30         | 45         | 6            | 4.9       | 8          | 3   | 004  | ●     |
| M8X1.25  | ISO2X(6HX)          | 6.8       | 6.85           | 3103101064 | 1.5P               | 90         | -          | 12          | 35         | 47         | 8            | 6.2       | 9          | 3   | 005  | ●     |
| M10X1.5  | ISO2X(6HX)          | 8.5       | 8.6            | 3103101078 | 1.5P               | 100        | -          | 13          | 39         | 52.5       | 10           | 8         | 11         | 3   | 005  | ●     |
| M        | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | LT<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
| DIN 376  |                     |           |                |            |                    |            |            |             |            |            |              |           |            |     |      |       |
| M12X1.75 | ISO2X(6HX)          | 10.3      | 10.36          | 3103101088 | 1.5P               | 110        | -          | 15          | -          | 56         | 9            | 7         | 10         | 3   | 006  | ●     |
| M14X2    | ISO2X(6HX)          | 12        | 12.12          | 3103101100 | 1.5P               | 110        | -          | 18          | -          | 56         | 11           | 9         | 12         | 3   | 006  | ●     |
| M16X2    | ISO2X(6HX)          | 14        | 14.12          | 3103101114 | 1.5P               | 110        | -          | 18          | -          | 56         | 12           | 9         | 12         | 3   | 006  | ●     |
| MF       | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | LT<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
| DIN 371  |                     |           |                |            |                    |            |            |             |            |            |              |           |            |     |      |       |
| M3X0.35  | ISO2X(6HX)          | 2.65      | 2.7            | 3103101036 | 1.5P               | 56         | -          | 5           | 18         | 34         | 3.5          | 2.7       | 6          | 3   | 004  | ○     |
| M4X0.5   | ISO2X(6HX)          | 3.5       | 3.56           | 3103101043 | 1.5P               | 63         | -          | 5           | 21         | 38         | 4.5          | 3.4       | 6          | 3   | 004  | ○     |
| M5X0.5   | ISO2X(6HX)          | 4.5       | 4.56           | 3103101051 | 1.5P               | 70         | -          | 6           | 25         | 39         | 6            | 4.9       | 8          | 3   | 004  | ○     |
| M6X0.75  | ISO2X(6HX)          | 5.25      | 5.33           | 3103101056 | 1.5P               | 80         | -          | 8           | 30         | 45         | 6            | 4.9       | 8          | 3   | 004  | ○     |
| M6X0.5   | ISO2X(6HX)          | 5.5       | 5.56           | 3103101057 | 1.5P               | 80         | -          | 8           | 30         | 45         | 6            | 4.9       | 8          | 3   | 004  | ○     |
| MF       | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | LT<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
| DIN 374  |                     |           |                |            |                    |            |            |             |            |            |              |           |            |     |      |       |
| M8X1     | ISO2X(6HX)          | 7         | 7.09           | 3103101065 | 1.5P               | 90         | -          | 12          | -          | 46         | 6            | 4.9       | 8          | 3   | 006  | ●     |
| M10X1.25 | ISO2X(6HX)          | 8.8       | 8.85           | 3103101079 | 1.5P               | 100        | -          | 13          | -          | 51         | 7            | 5.5       | 8          | 3   | 006  | ●     |
| M10X1    | ISO2X(6HX)          | 9         | 9.09           | 3103101080 | 1.5P               | 90         | -          | 13          | -          | 46         | 7            | 5.5       | 8          | 3   | 006  | ●     |
| M12X1.5  | ISO2X(6HX)          | 10.5      | 10.6           | 3103101089 | 1.5P               | 100        | -          | 15          | -          | 51         | 9            | 7         | 10         | 3   | 006  | ●     |
| M12X1.25 | ISO2X(6HX)          | 10.8      | 10.85          | 3103101090 | 1.5P               | 100        | -          | 15          | -          | 51         | 9            | 7         | 10         | 3   | 006  | ●     |
| M14X1.5  | ISO2X(6HX)          | 12.5      | 12.6           | 3103101102 | 1.5P               | 100        | -          | 14          | -          | 51         | 11           | 9         | 12         | 3   | 006  | ●     |
| M16X1.5  | ISO2X(6HX)          | 14.5      | 14.6           | 3103101116 | 1.5P               | 100        | -          | 14          | -          | 51         | 12           | 9         | 12         | 3   | 006  | ●     |


**TIPO: VU\_007**

**TIPO: VU\_008**

**TIPO: VU\_009**


● En stock, ○ Consultar disponibilidad

| M        | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | LT<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
|----------|---------------------|-----------|----------------|------------|--------------------|------------|------------|-------------|------------|------------|--------------|-----------|------------|-----|------|-------|
| DIN 371  |                     |           |                |            |                    |            |            |             |            |            |              |           |            |     |      |       |
| M6X1     | ISO2X(6HX)          | 5         | 5.09           | 3201101055 | 2.5P               | 80         | -          | 11          | 30         | 45         | 6            | 4.9       | 8          | 3   | 007  | ●     |
| M8X1.25  | ISO2X(6HX)          | 6.8       | 6.85           | 3201101064 | 2.5P               | 90         | -          | 12          | 35         | 47         | 8            | 6.2       | 9          | 3   | 008  | ●     |
| M10X1.5  | ISO2X(6HX)          | 8.5       | 8.6            | 3201101078 | 2.5P               | 100        | -          | 13          | 39         | 52.5       | 10           | 8         | 11         | 3   | 008  | ●     |
| M        | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | LT<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
| DIN 376  |                     |           |                |            |                    |            |            |             |            |            |              |           |            |     |      |       |
| M12X1.75 | ISO2X(6HX)          | 10.3      | 10.36          | 3201101088 | 2.5P               | 110        | -          | 15          | -          | 56         | 9            | 7         | 10         | 3   | 009  | ●     |
| M14X2    | ISO2X(6HX)          | 12        | 12.12          | 3201101100 | 2.5P               | 110        | -          | 18          | -          | 56         | 11           | 9         | 12         | 3   | 009  | ●     |
| M16X2    | ISO2X(6HX)          | 14        | 14.12          | 3201101114 | 2.5P               | 110        | -          | 18          | -          | 56         | 12           | 9         | 12         | 3   | 009  | ●     |
| MF       | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | LT<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
| DIN 374  |                     |           |                |            |                    |            |            |             |            |            |              |           |            |     |      |       |
| M8X1     | ISO2X(6HX)          | 7         | 7.09           | 3201101065 | 2.5P               | 90         | -          | 12          | -          | 46         | 6            | 4.9       | 8          | 3   | 009  | ●     |
| M10X1.25 | ISO2X(6HX)          | 8.8       | 8.85           | 3201101079 | 2.5P               | 100        | -          | 13          | -          | 51         | 7            | 5.5       | 8          | 3   | 009  | ●     |
| M10X1    | ISO2X(6HX)          | 9         | 9.09           | 3201101080 | 2.5P               | 90         | -          | 13          | -          | 46         | 7            | 5.5       | 8          | 3   | 009  | ●     |
| M12X1.5  | ISO2X(6HX)          | 10.5      | 10.6           | 3201101089 | 2.5P               | 100        | -          | 15          | -          | 51         | 9            | 7         | 10         | 3   | 009  | ●     |
| M12X1.25 | ISO2X(6HX)          | 10.8      | 10.85          | 3201101090 | 2.5P               | 100        | -          | 15          | -          | 51         | 9            | 7         | 10         | 3   | 009  | ●     |
| M14X1.5  | ISO2X(6HX)          | 12.5      | 12.6           | 3201101102 | 2.5P               | 100        | -          | 14          | -          | 51         | 11           | 9         | 12         | 3   | 009  | ●     |
| M16X1.5  | ISO2X(6HX)          | 14.5      | 14.6           | 3201101116 | 2.5P               | 100        | -          | 14          | -          | 51         | 12           | 9         | 12         | 3   | 009  | ●     |


**TIPO: VU\_001**

**TIPO: VU\_002**

**TIPO: VU\_003**


● En stock, ○ Consultar disponibilidad

| M         | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
|-----------|---------------------|-----------|----------------|------------|--------------------|------------|-------------|------------|------------|--------------|-----------|------------|-----|------|-------|
| DIN 371   |                     |           |                |            |                    |            |             |            |            |              |           |            |     |      |       |
| M2X0.4    | ISO2X(6HX)          | 1.6       | 1.65           | 3102101021 | 5P                 | 45         | 8           | -          | 32         | 2.8          | 2.1       | 5          | 2   | 001  | ●     |
| M2.2X0.45 | ISO2X(6HX)          | 1.75      | 1.81           | 3102101024 | 5P                 | 45         | 9           | -          | 32         | 2.8          | 2.1       | 5          | 2   | 001  | ●     |
| M2.3X0.4  | ISO2X(6HX)          | 1.9       | 1.95           | 3102101026 | 5P                 | 45         | 9           | -          | 32         | 2.8          | 2.1       | 5          | 2   | 001  | ●     |
| M2.5X0.45 | ISO2X(6HX)          | 2.1       | 2.11           | 3102101029 | 5P                 | 50         | 8           | 15         | 33         | 2.8          | 2.1       | 5          | 2   | 001  | ●     |
| M2.6X0.45 | ISO2X(6HX)          | 2.2       | 2.21           | 3102101032 | 5P                 | 50         | 8           | 15         | 33         | 2.8          | 2.1       | 5          | 2   | 001  | ●     |
| M3X0.5    | ISO2X(6HX)          | 2.5       | 2.56           | 3102101035 | 5P                 | 56         | 9           | 18         | 34         | 3.5          | 2.7       | 6          | 3   | 001  | ●     |
| M4X0.7    | ISO2X(6HX)          | 3.3       | 3.38           | 3102101042 | 5P                 | 63         | 13          | 21         | 38         | 4.5          | 3.4       | 6          | 3   | 001  | ●     |
| M5X0.8    | ISO2X(6HX)          | 4.2       | 4.28           | 3102101049 | 5P                 | 70         | 14          | 25         | 39         | 6            | 4.9       | 8          | 3   | 001  | ●     |
| M6X1      | ISO2X(6HX)          | 5         | 5.09           | 3102101055 | 5P                 | 80         | 15          | 30         | 45         | 6            | 4.9       | 8          | 3   | 001  | ●     |
| M8X1.25   | ISO2X(6HX)          | 6.8       | 6.85           | 3102101064 | 5P                 | 90         | 19          | 35         | 47         | 8            | 6.2       | 9          | 3   | 002  | ●     |
| M10X1.5   | ISO2X(6HX)          | 8.5       | 8.6            | 3102101078 | 5P                 | 100        | 23          | 39         | 52.5       | 10           | 8         | 11         | 3   | 002  | ●     |
| M         | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
| DIN 376   |                     |           |                |            |                    |            |             |            |            |              |           |            |     |      |       |
| M12X1.75  | ISO2X(6HX)          | 10.3      | 10.36          | 3102101088 | 5P                 | 110        | 26          | -          | 56         | 9            | 7         | 10         | 3   | 003  | ●     |
| M14X2     | ISO2X(6HX)          | 12        | 12.12          | 3102101100 | 5P                 | 110        | 26          | -          | 56         | 11           | 9         | 12         | 3   | 003  | ●     |
| M16X2     | ISO2X(6HX)          | 14        | 14.12          | 3102101114 | 5P                 | 110        | 26          | -          | 56         | 12           | 9         | 12         | 3   | 003  | ●     |
| M18X2.5   | ISO2X(6HX)          | 15.5      | 15.63          | 3102101128 | 5P                 | 125        | 33          | -          | 64         | 14           | 11        | 14         | 3   | 003  | ●     |
| M20X2.5   | ISO2X(6HX)          | 17.5      | 17.63          | 3102101141 | 5P                 | 140        | 33          | -          | 71         | 16           | 12        | 15         | 3   | 003  | ●     |
| M22X2.5   | ISO2X(6HX)          | 19.5      | 19.63          | 3102101156 | 5P                 | 140        | 33          | -          | 71         | 18           | 14.5      | 17         | 3   | 003  | ●     |
| M24X3     | ISO2X(6HX)          | 21        | 21.13          | 3102101167 | 5P                 | 160        | 37          | -          | 82         | 18           | 14.5      | 17         | 3   | 003  | ●     |
| MF        | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
| DIN 371   |                     |           |                |            |                    |            |             |            |            |              |           |            |     |      |       |
| M3X0.35   | ISO2X(6HX)          | 2.65      | 2.7            | 3102101036 | 5P                 | 56         | 6.5         | 18         | 34         | 3.5          | 2.7       | 6          | 3   | 001  | ●     |
| M4X0.5    | ISO2X(6HX)          | 3.5       | 3.56           | 3102101043 | 5P                 | 63         | 9           | 21         | 38         | 4.5          | 3.4       | 6          | 3   | 001  | ●     |
| M5X0.5    | ISO2X(6HX)          | 4.5       | 4.56           | 3102101051 | 5P                 | 70         | 9           | 25         | 39         | 6            | 4.9       | 8          | 3   | 001  | ●     |
| M6X0.75   | ISO2X(6HX)          | 5.25      | 5.33           | 3102101056 | 5P                 | 80         | 15          | 30         | 45         | 6            | 4.9       | 8          | 3   | 001  | ●     |
| M6X0.5    | ISO2X(6HX)          | 5.5       | 5.56           | 3102101057 | 5P                 | 80         | 9           | 30         | 45         | 6            | 4.9       | 8          | 3   | 001  | ●     |

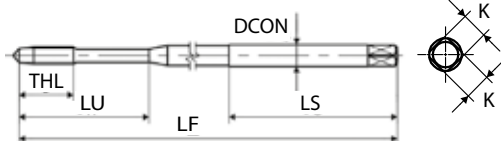
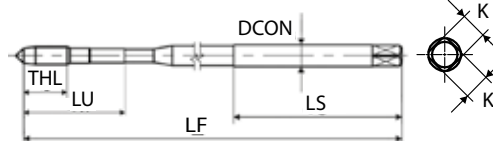
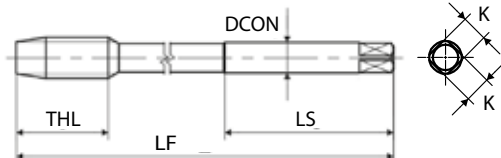
| MF       | TCTR<br>(tolerance) |  Hole Ø<br>(mm) | Code  | THCHT<br>(chamfer) | LF<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |   |
|----------|---------------------|-------------------------------------------------------------------------------------------------|-------|--------------------|------------|-------------|------------|------------|--------------|-----------|------------|-----|------|-------|---|
| DIN 374  |                     |                                                                                                 |       |                    |            |             |            |            |              |           |            |     |      |       |   |
| M8X1     | ISO2X(6HX)          | 7                                                                                               | 7.09  | 3102101065         | 5P         | 90          | 19         | -          | 46           | 6         | 4.9        | 8   | 3    | 003   | ● |
| M10X1.25 | ISO2X(6HX)          | 8.8                                                                                             | 8.85  | 3102101079         | 5P         | 100         | 23         | -          | 51           | 7         | 5.5        | 8   | 3    | 003   | ● |
| M10X1    | ISO2X(6HX)          | 9                                                                                               | 9.09  | 3102101080         | 5P         | 90          | 19         | -          | 46           | 7         | 5.5        | 8   | 3    | 003   | ● |
| M12X1.5  | ISO2X(6HX)          | 10.5                                                                                            | 10.6  | 3102101089         | 5P         | 100         | 21         | -          | 51           | 9         | 7          | 10  | 3    | 003   | ● |
| M12X1.25 | ISO2X(6HX)          | 10.8                                                                                            | 10.85 | 3102101090         | 5P         | 100         | 21         | -          | 51           | 9         | 7          | 10  | 3    | 003   | ● |
| M14X1.5  | ISO2X(6HX)          | 12.5                                                                                            | 12.6  | 3102101102         | 5P         | 100         | 21         | -          | 51           | 11        | 9          | 12  | 3    | 003   | ● |
| M16X1.5  | ISO2X(6HX)          | 14.5                                                                                            | 14.6  | 3102101116         | 5P         | 100         | 21         | -          | 51           | 12        | 9          | 12  | 3    | 003   | ● |
| M18X1.5  | ISO2X(6HX)          | 16.5                                                                                            | 16.6  | 3102101130         | 5P         | 110         | 24         | -          | 56           | 14        | 11         | 14  | 3    | 003   | ● |
| M20X1.5  | ISO2X(6HX)          | 18.5                                                                                            | 18.6  | 3102101144         | 5P         | 125         | 24         | -          | 64           | 16        | 12         | 15  | 3    | 003   | ● |
| M22X1.5  | ISO2X(6HX)          | 20.5                                                                                            | 20.6  | 3102101158         | 5P         | 125         | 24         | -          | 64           | 18        | 14.5       | 17  | 3    | 003   | ● |
| M24X1.5  | ISO2X(6HX)          | 22.5                                                                                            | 22.6  | 3102101170         | 5P         | 140         | 27         | -          | 71           | 18        | 14.5       | 17  | 3    | 003   | ● |

| UNC         | TCTR<br>(tolerance) |  Hole Ø<br>(mm) | Code | THCHT<br>(chamfer) | LF<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |   |
|-------------|---------------------|--------------------------------------------------------------------------------------------------|------|--------------------|------------|-------------|------------|------------|--------------|-----------|------------|-----|------|-------|---|
| DIN 371     |                     |                                                                                                  |      |                    |            |             |            |            |              |           |            |     |      |       |   |
| No.5-40UNC  | 2BX                 | 2.6                                                                                              | 2.64 | 3102103021         | 5P         | 56          | 11         | 18         | 34           | 3.5       | 2.7        | 6   | 2    | 001   | ● |
| No.6-32UNC  | 2BX                 | 2.8                                                                                              | 2.83 | 3102103023         | 5P         | 56          | 11         | 19         | 32           | 4         | 3          | 6   | 2    | 001   | ● |
| No.8-32UNC  | 2BX                 | 3.4                                                                                              | 3.47 | 3102103029         | 5P         | 63          | 13         | 21         | 38           | 4.5       | 3.4        | 6   | 2    | 001   | ● |
| No.10-24UNC | 2BX                 | 3.89                                                                                             | 3.9  | 3102103039         | 5P         | 70          | 14         | 24         | 39           | 6         | 4.9        | 8   | 2    | 001   | ● |
| No.12-24UNC | 2BX                 | 4.5                                                                                              | 4.53 | 3102103047         | 5P         | 80          | 15         | 28         | 45           | 6         | 4.9        | 8   | 3    | 001   | ● |
| 1/4-20UNC   | 2BX                 | 5.1                                                                                              | 5.19 | 3102103058         | 5P         | 80          | 15         | 30         | 42           | 7         | 5.5        | 8   | 3    | 001   | ● |
| 5/16-18UNC  | 2BX                 | 6.6                                                                                              | 6.65 | 3102103071         | 5P         | 90          | 19         | 35         | 47           | 8         | 6.2        | 9   | 3    | 002   | ● |
| 3/8-16UNC   | 2BX                 | 8                                                                                                | 8.07 | 3102103082         | 5P         | 100         | 23         | 39         | 54           | 9         | 7          | 10  | 3    | 002   | ● |

| UNC        | TCTR<br>(tolerance) |  Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
|------------|---------------------|----------------------------------------------------------------------------------------------|----------------|------------|--------------------|------------|-------------|------------|------------|--------------|-----------|------------|-----|------|-------|
| DIN 376    |                     |                                                                                              |                |            |                    |            |             |            |            |              |           |            |     |      |       |
| 7/16-14UNC | 2BX                 | 9.4                                                                                          | 9.45           | 3102103098 | 5P                 | 100        | 23          | -          | 51         | 8            | 6.2       | 9          | 3   | 003  | ●     |
| 1/2-13UNC  | 2BX                 | 10.9                                                                                         | 10.91          | 3102103111 | 5P                 | 110        | 26          | -          | 56         | 9            | 7         | 10         | 3   | 003  | ●     |
| 9/16-12UNC | 2BX                 | 12.2                                                                                         | 12.33          | 3102103126 | 5P                 | 110        | 26          | -          | 56         | 11           | 9         | 12         | 3   | 003  | ●     |
| 5/8-11UNC  | 2BX                 | 13.6                                                                                         | 13.75          | 3102103138 | 5P                 | 110        | 26          | -          | 56         | 12           | 9         | 12         | 3   | 003  | ●     |
| 3/4-10UNC  | 2BX                 | 16.6                                                                                         | 16.7           | 3102103161 | 5P                 | 125        | 33          | -          | 64         | 14           | 11        | 14         | 3   | 003  | ●     |
| 7/8-9UNC   | 2BX                 | 19.6                                                                                         | 19.61          | 3102103181 | 5P                 | 140        | 33          | -          | 71         | 18           | 14.5      | 17         | 3   | 003  | ●     |

| UNF         | TCTR<br>(tolerance) |  Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
|-------------|---------------------|-----------------------------------------------------------------------------------------------|----------------|------------|--------------------|------------|-------------|------------|------------|--------------|-----------|------------|-----|------|-------|
| DIN 371     |                     |                                                                                               |                |            |                    |            |             |            |            |              |           |            |     |      |       |
| No.5-44UNF  | 2BX                 | 2.7                                                                                           | 2.69           | 3102103022 | 5P                 | 56         | 11          | 18         | 34         | 3.5          | 2.7       | 6          | 2   | 001  | ●     |
| No.6-40UNF  | 2BX                 | 2.9                                                                                           | 2.97           | 3102103024 | 5P                 | 56         | 11          | 19         | 32         | 4            | 3         | 6          | 2   | 001  | ●     |
| No.8-36UNF  | 2BX                 | 3.5                                                                                           | 3.55           | 3102103030 | 5P                 | 63         | 13          | 21         | 38         | 4.5          | 3.4       | 6          | 2   | 001  | ●     |
| No.10-32UNF | 2BX                 | 4.1                                                                                           | 4.12           | 3102103041 | 5P                 | 70         | 14          | 24         | 39         | 6            | 4.9       | 8          | 2   | 001  | ●     |
| No.12-28UNF | 2BX                 | 4.6                                                                                           | 4.67           | 3102103048 | 5P                 | 80         | 15          | 28         | 45         | 6            | 4.9       | 8          | 3   | 001  | ●     |
| 1/4-28UNF   | 2BX                 | 5.5                                                                                           | 5.53           | 3102103062 | 5P                 | 80         | 15          | 30         | 42         | 7            | 5.5       | 8          | 3   | 001  | ●     |

| UNF        | TCTR<br>(tolerance) |  $\varnothing$<br>(mm) | Hole $\varnothing$<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
|------------|---------------------|-----------------------------------------------------------------------------------------------------------|----------------------------|------------|--------------------|------------|-------------|------------|------------|--------------|-----------|------------|-----|------|-------|
| DIN 374    |                     |                                                                                                           |                            |            |                    |            |             |            |            |              |           |            |     |      |       |
| 5/16-24UNF | 2BX                 | 6.9                                                                                                       | 6.97                       | 3102103074 | 5P                 | 90         | 19          | -          | 46         | 6            | 4.9       | 8          | 3   | 003  | ●     |
| 3/8-24UNF  | 2BX                 | 8.5                                                                                                       | 8.57                       | 3102103085 | 5P                 | 100        | 23          | -          | 51         | 7            | 5.5       | 8          | 3   | 003  | ●     |
| 7/16-20UNF | 2BX                 | 9.9                                                                                                       | 9.96                       | 3102103101 | 5P                 | 100        | 23          | -          | 51         | 8            | 6.2       | 9          | 3   | 003  | ●     |
| 1/2-20UNF  | 2BX                 | 11.5                                                                                                      | 11.54                      | 3102103115 | 5P                 | 100        | 21          | -          | 51         | 9            | 7         | 10         | 3   | 003  | ●     |
| 9/16-18UNF | 2BX                 | 12.9                                                                                                      | 13                         | 3102103129 | 5P                 | 100        | 21          | -          | 51         | 11           | 9         | 12         | 3   | 003  | ●     |
| 5/8-18UNF  | 2BX                 | 14.5                                                                                                      | 14.6                       | 3102103142 | 5P                 | 100        | 21          | -          | 51         | 12           | 9         | 12         | 3   | 003  | ●     |
| 3/4-16UNF  | 2BX                 | 17.5                                                                                                      | 17.59                      | 3102103164 | 5P                 | 110        | 24          | -          | 56         | 14           | 11        | 14         | 3   | 003  | ●     |
| 7/8-14UNF  | 2BX                 | 20.5                                                                                                      | 20.57                      | 3102103184 | 5P                 | 125        | 24          | -          | 64         | 18           | 14.5      | 17         | 3   | 003  | ●     |


**TIPO: VU\_012**

**TIPO: VU\_013**

**TIPO: VU\_014**


● En stock, ○ Consultar disponibilidad, ◐ Comprobar la disponibilidad de stock UE

| M        | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
|----------|---------------------|-----------|----------------|------------|--------------------|------------|-------------|------------|------------|--------------|-----------|------------|-----|------|-------|
| JIS      |                     |           |                |            |                    |            |             |            |            |              |           |            |     |      |       |
| M3X0.5   | P2                  | 2.5       | 2.56           | 2102101035 | 2.5P               | 100        | 9           | 18         | 40         | 4            | 3.2       | 6          | 3   | 012  | ●     |
| M4X0.7   | P3                  | 3.3       | 3.38           | 2102101042 | 2.5P               | 100        | 11          | 21         | 40         | 5            | 4         | 7          | 3   | 012  | ●     |
| M5X0.8   | P3                  | 4.2       | 4.28           | 2102101049 | 2.5P               | 100        | 13          | 25         | 40         | 5.5          | 4.5       | 7          | 3   | 012  | ●     |
| M6X1     | P3                  | 5         | 5.09           | 2102101055 | 2.5P               | 100        | 15          | 30         | 40         | 6            | 4.5       | 7          | 3   | 012  | ●     |
| M8X1.25  | P3                  | 6.8       | 6.85           | 2102101064 | 2.5P               | 150        | 19          | -          | 50         | 6.2          | 5         | 8          | 3   | 014  | ●     |
| M10X1.5  | P3                  | 8.5       | 8.6            | 2102101078 | 2.5P               | 150        | 23          | -          | 50         | 7            | 5.5       | 8          | 3   | 014  | ●     |
| M12X1.75 | P4                  | 10.3      | 10.36          | 2102101088 | 2.5P               | 150        | 26          | -          | 50         | 8.5          | 6.5       | 9          | 3   | 014  | ●     |
| M14X2    | P4                  | 12        | 12.12          | 2102101100 | 2.5P               | 150        | 26          | -          | 60         | 10.5         | 8         | 11         | 3   | 014  | ○     |
| M16X2    | P4                  | 14        | 14.12          | 2102101114 | 2.5P               | 150        | 26          | -          | 60         | 12.5         | 10        | 13         | 3   | 014  | ●     |

| MF       | TCTR<br>(tolerance) | Ø<br>(mm) | Hole Ø<br>(mm) | Code       | THCHT<br>(chamfer) | LF<br>(mm) | THL<br>(mm) | LU<br>(mm) | LS<br>(mm) | DCON<br>(mm) | K<br>(mm) | LK<br>(mm) | NOF | Type | Stock |
|----------|---------------------|-----------|----------------|------------|--------------------|------------|-------------|------------|------------|--------------|-----------|------------|-----|------|-------|
| JIS      |                     |           |                |            |                    |            |             |            |            |              |           |            |     |      |       |
| M3X0.35  | P2                  | 2.65      | 2.7            | 2102101036 | 2.5P               | 100        | 6.5         | 18         | 40         | 4            | 3.2       | 6          | 3   | 013  | ○     |
| M4X0.5   | P2                  | 3.5       | 3.56           | 2102101043 | 2.5P               | 100        | 9           | 21         | 40         | 5            | 4         | 7          | 3   | 013  | ○     |
| M5X0.5   | P2                  | 4.5       | 4.56           | 2102101051 | 2.5P               | 100        | 9           | 25         | 40         | 5.5          | 4.5       | 7          | 3   | 013  | ○     |
| M6X0.75  | P2                  | 5.25      | 5.33           | 2102101056 | 2.5P               | 100        | 15          | 30         | 40         | 6            | 4.5       | 7          | 3   | 012  | ◐     |
| M6X0.5   | P2                  | 5.5       | 5.56           | 2102101057 | 2.5P               | 100        | 9           | 30         | 40         | 6            | 4.5       | 7          | 3   | 013  | ○     |
| M8X1     | P3                  | 7         | 7.09           | 2102101065 | 2.5P               | 150        | 19          | -          | 50         | 6.2          | 5         | 8          | 3   | 014  | ◐     |
| M10X1.25 | P3                  | 8.8       | 8.85           | 2102101079 | 2.5P               | 150        | 23          | -          | 50         | 7            | 5.5       | 8          | 3   | 014  | ◐     |
| M10X1    | P3                  | 9         | 9.09           | 2102101080 | 2.5P               | 150        | 23          | -          | 50         | 7            | 5.5       | 8          | 3   | 014  | ○     |
| M12X1.5  | P3                  | 10.5      | 10.6           | 2102101089 | 2.5P               | 150        | 26          | -          | 50         | 8.5          | 6.5       | 9          | 3   | 014  | ◐     |
| M12X1.25 | P4                  | 10.8      | 10.85          | 2102101090 | 2.5P               | 150        | 26          | -          | 50         | 8.5          | 6.5       | 9          | 3   | 014  | ◐     |
| M14X1.5  | P3                  | 12.5      | 12.6           | 2102101102 | 2.5P               | 150        | 26          | -          | 60         | 10.5         | 8         | 11         | 3   | 014  | ◐     |
| M16X1.5  | P3                  | 14.5      | 14.6           | 2102101116 | 2.5P               | 150        | 26          | -          | 60         | 12.5         | 10        | 13         | 3   | 014  | ◐     |

## Ejemplos de aplicación

| VUSP            | Material mecanizado                     | Condiciones de uso / Rendimiento |                           |         |            |                 |                |                       | Notas                                                                                        |
|-----------------|-----------------------------------------|----------------------------------|---------------------------|---------|------------|-----------------|----------------|-----------------------|----------------------------------------------------------------------------------------------|
| Tamaño          | Material (dureza)                       | Agujero previo (mm)              | Longitud de la rosca (mm) | Máquina | Vc (m/min) | Avance          | Lubricante     | Duración (n.º roscas) | Rendimiento de la competencia<br><b>*Pieza mecanizada</b>                                    |
| <b>M4x0.7</b>   | 1.2379 - X155Cr-VMo12 1 - K110 (25 HRC) | 3.3                              | 8 (2D)                    | NC      | 10         | Sincronizado    | Emulsión       | 500                   | Reemplazado por astillado después de 400 roscas                                              |
| <b>M5x0.8</b>   | 1.7220 - 34CrMo4                        | 4.2                              | 15 (3D)                   | NC      | 4          | Tornillo patrón | Emulsión       | 1.400                 | Rotura por enredo después de 100 roscas                                                      |
| <b>M8x1.25</b>  | GG700                                   | 6.8                              | 20 (2.5D)                 | NC      | 20         | Sincronizado    | Emulsión       | 1.500                 | Reemplazado por astillado después de 1.000 roscas                                            |
| <b>M8x1.25</b>  | 1.4301 - AISI 304 - X 5 CrNi 18 10      | 6.75                             | 16 (2D)                   | NC      | 15         | Sincronizado    | Emulsión       | 1.390                 | Astillado después de 600 roscas                                                              |
| <b>M8x1.25</b>  | 1.0044 - St 44-2                        | 6.8                              | 16 (2D)                   | NC      | 30         | Sincronizado    | Emulsión       | 1.500                 | Duración 800 roscas<br><b>*Culata</b>                                                        |
| <b>M8x1.25</b>  | 1.0540 - Ck50                           | 6.8                              | 16 (2D)                   | NC      | 15         | Sincronizado    | Emulsión       | 900                   | Duración 700 roscas                                                                          |
| <b>M10x1.5</b>  | 1.0044 - St 44-2                        | 8.5                              | 15 (1.5D)                 | NC      | 10         | Sincronizado    | Emulsión       | 1.500                 | Duración irregular                                                                           |
| <b>M12x1.75</b> | 1.0044 - St 44-2                        | 10.4                             | 24 (2D)                   | NC      | 12         | Sincronizado    | Emulsión       | 2.800                 | Astillado y rotura después de 2.000 roscas                                                   |
| <b>M12x1.75</b> | PVC (termoplástico)                     | 10.3                             | 18 (1.5D)                 | NC      | 19         | Sincronizado    | Emulsión       | 5.000                 | Reemplazado para control con tampón después de 3.000 roscas                                  |
| <b>M12x1.75</b> | 1.7262 - 15CrMo                         | 10.3                             | 24 (2D)                   | NC      | 7          | Sincronizado    | Emulsión       | 800                   | Reemplazado para control con tampón después de 500 roscas<br><b>*Pieza máquina (husillo)</b> |
| <b>M12x1.75</b> | 1.1191 - C45                            | 10.8                             | 24 (2D)                   | Taladro | 5.6        | No sincronizado | Aceite (spray) | 1.100                 | Duración 1.000 roscas                                                                        |
| <b>M14x2</b>    | 1.7220 - 34CrMo4 (35 HRC)               | 12.1                             | 21 (1.5D)                 | NC      | 10         | Sincronizado    | Aceite         | 150                   | Rotura después de 10 roscas debido a enredo<br><b>*Eje</b>                                   |
| <b>M16x1.5</b>  | 1.1191 - C45                            | 14.5                             | 32 (2D)                   | NC      | 20         | Sincronizado    | Emulsión       | 1.900                 | Reemplazado para control con tampón después de 1.500 roscas                                  |

| VUPO            | Material mecanizado                | Condiciones de uso / Rendimiento |                           |         |            |                 |            |                       | Notas                                                                           |
|-----------------|------------------------------------|----------------------------------|---------------------------|---------|------------|-----------------|------------|-----------------------|---------------------------------------------------------------------------------|
| Tamaño          | Material (dureza)                  | Agujero previo (mm)              | Longitud de la rosca (mm) | Máquina | Vc (m/min) | Avance          | Lubricante | Duración (n.º roscas) | Rendimiento de la competencia<br><b>*Pieza mecanizada</b>                       |
| <b>M3x0.5</b>   | 1.7225 - 42CrMo4 (30HRC)           | 2.5                              | 6 (2D)                    | N/C     | 5.6        | Sincronizado    | Emulsión   | 1.260                 | Duración inestable y mal acabado<br><b>*Brida</b>                               |
| <b>M3x0.5</b>   | 1.1191 - C45 (25HRC)               | 2.5                              | 9 (3D)                    | NC      | 10         | Sincronizado    | Emulsión   | 500                   | Duración 400 roscas                                                             |
| <b>M4x0.7</b>   | 1.4301 - AISI 304 - X 5 CrNi 18 10 | 3.3                              | 10 (2.5D)                 | NC      | 10         | Sincronizado    | Emulsión   | 830                   | Reemplazado por desgaste de entrada después de 300 roscas                       |
| <b>M4x0.7</b>   | 3.3523 - AlMg2,5 - A5052           | 3.4                              | 12 (3D)                   | NC      | 12         | Sincronizado    | Emulsión   | 1.500                 | Duración 1.000 roscas<br><b>*Componente médico</b>                              |
| <b>M6x1</b>     | 1.1170 - 28Mn6                     | 5.1                              | 9 (1.5D)                  | NC      | 20         | Sincronizado    | Emulsión   | 4.500                 | Duración 3.400 roscas<br><b>*Cubo de la rueda</b>                               |
| <b>M8x1.25</b>  | 1.4305 - AISI303 - X 10 CrNiS 18 9 | 6.8                              | 12 (1.5D)                 | NC      | 11         | Sincronizado    | Emulsión   | 33.000                | Reemplazado por desgaste y astillado después de 10.000 roscas<br><b>*Tuerca</b> |
| <b>M10x1.5</b>  | 1.1191 - C45                       | 8.5                              | 25 (2.5D)                 | NC      | 7.5        | Sincronizado    | Emulsión   | 3.600                 | Rotura después de 1.000 roscas<br><b>*Biela</b>                                 |
| <b>M12x1.75</b> | 1.7262 - 15CrMo                    | 10.3                             | 24 (2D)                   | NC      | 15         | Sincronizado    | Emulsión   | 1.000                 | Reemplazado por astillado después de 700 roscas                                 |
| <b>M12x1.75</b> | 1.7225 - 42CrMo4 (30HRC)           | 10.4                             | 30 (2.5D)                 | NC      | 11         | Sincronizado    | Emulsión   | 650                   | Reemplazado por astillado después de 420 roscas                                 |
| <b>M12x1.25</b> | 1.1191 - C45                       | 10.2                             | 36 (3D)                   | NC      | 30         | No sincronizado | Emulsión   | 1.100                 | Duración irregular                                                              |
| <b>M12x1.25</b> | 1.1154 - C42D2                     | 10.8                             | 24 (2D)                   | NC      | 15         | Sincronizado    | Emulsión   | 1.500                 | Duración 1000 roscas                                                            |

## ADVERTENCIAS

- Las herramientas pueden astillarse durante el uso. Usar gafas de protección para evitar lesiones.
- Utilizar las herramientas con las condiciones de roscado adecuadas.
- No usar guantes. La tela del guante se podría enganchar en el filo de corte de la herramienta en rotación.
- Usar zapatos de protección para evitar lesiones por la caída de herramientas pesadas y afiladas.
- Asegurarse de que la herramienta esté bien apretada en el husillo para evitar vibraciones y desviaciones.
- Asegurarse de que la pieza que se va a roscar esté bien sujeta y no pueda moverse durante el mecanizado. No utilizar herramientas desgastadas o dañadas.
- Evitar que se produzcan llamas y calor excesivo durante el mecanizado.



