



# 2024

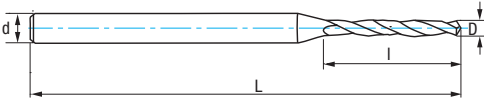
**NOVEDADES**  
**NEW PRODUCTS**  
**NOUVEAUTÉS**



[izartool.com](http://izartool.com)

Ref. **8402**

**MICRO BROCA METAL DURO GRAN RENDIMIENTO CNC 5XD**  
5XD CNC High Performance Carbide Micro Drill Bit  
Micro foret carbure haut rendement CNC 5XD



MD/HM  
Carbure  
Grano UF

TIALCN

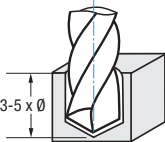
IZAR  
Std.

HRC  
45-55

Tol.  
h8

Pulido Espejo  
Mirror Polished  
Polyglass

5XD



$$r.p.m. = \frac{V_c \times 1.000}{\pi \times \varnothing}$$

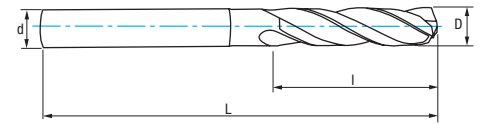
$$V_f (mm/min.) = r.p.m. \times f$$

| Material |      | Vc (m/min) | Avances f/rev. (mm/rev) - Feed - Pas |
|----------|------|------------|--------------------------------------|
| Grupo    | Sub. | TIALCN     | Diam. 1,0-2,9                        |
| P        | P.1  | 28-48      | 0,080-0,160                          |
|          | P.2  | 24-45      | 0,070-0,160                          |
|          | P.3  | 20-40      | 0,065-0,145                          |
|          | P.5  | 24-40      | 0,070-0,145                          |
| M        |      | 16-32      | 0,048-0,120                          |
| K        | K.1  | 32-48      | 0,080-0,160                          |
|          | K.2  | 28-44      | 0,080-0,160                          |

| D<br>mm | d<br>mm | L<br>mm | I<br>mm |   | Nº Art.<br>TIALCN | € |
|---------|---------|---------|---------|---|-------------------|---|
| 1,00    | 3,00    | 50      | 8       | 1 | 69992             |   |
| 1,10    | 3,00    | 50      | 8       | 1 | 70004             |   |
| 1,20    | 3,00    | 50      | 8       | 1 | 70007             |   |
| 1,30    | 3,00    | 50      | 8       | 1 | 70031             |   |
| 1,40    | 3,00    | 50      | 9       | 1 | 70034             |   |
| 1,50    | 3,00    | 50      | 9       | 1 | 70037             |   |
| 1,60    | 3,00    | 50      | 10      | 1 | 70040             |   |
| 1,70    | 3,00    | 50      | 10      | 1 | 70043             |   |
| 1,80    | 3,00    | 50      | 12      | 1 | 70046             |   |
| 1,90    | 3,00    | 50      | 12      | 1 | 70055             |   |

| D<br>mm | d<br>mm | L<br>mm | I<br>mm |   | Nº Art.<br>TIALCN | € |
|---------|---------|---------|---------|---|-------------------|---|
| 2,00    | 3,00    | 50      | 12      | 1 | 70058             |   |
| 2,10    | 3,00    | 50      | 12      | 1 | 70061             |   |
| 2,20    | 3,00    | 50      | 13      | 1 | 70064             |   |
| 2,30    | 3,00    | 50      | 13      | 1 | 70067             |   |
| 2,40    | 3,00    | 50      | 14      | 1 | 70070             |   |
| 2,50    | 3,00    | 50      | 14      | 1 | 70073             |   |
| 2,60    | 3,00    | 50      | 14      | 1 | 70076             |   |
| 2,70    | 3,00    | 50      | 16      | 1 | 70079             |   |
| 2,80    | 3,00    | 50      | 16      | 1 | 70082             |   |
| 2,90    | 3,00    | 50      | 16      | 1 | 70085             |   |

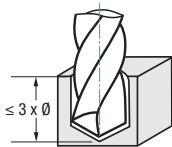


Ref. **9075****BROCA MD 3Z ALTO AVANCE**High Feed **3Z** Carbide Drill BitForet carbure **3Z** haute avance
**MD/HM**  
Carbure  
Grano UF

X-AICr

IZAR  
Std.

3 Z

**Pulido Espejo**  
Mirror Polished  
Polyglass
**3XD**

| Material |            | Vc (m/min) | Avances f/rev. (mm/rev) - Feed - Pas |       |       |       |       |
|----------|------------|------------|--------------------------------------|-------|-------|-------|-------|
| Grupo    | Sub.       | X-AICr     | Ø 4                                  | Ø 6   | Ø 8   | Ø 10  | Ø 12  |
| <b>P</b> | <b>P.1</b> | 100-120    | 0,135                                | 0,210 | 0,300 | 0,360 | 0,420 |
|          | <b>P.2</b> | 90-110     | 0,135                                | 0,210 | 0,300 | 0,360 | 0,420 |
|          | <b>P.5</b> | 50-65      | 0,060                                | 0,098 | 0,128 | 0,180 | 0,210 |
| <b>M</b> |            | 60-70      | 0,060                                | 0,098 | 0,128 | 0,180 | 0,210 |
| <b>K</b> | <b>K.1</b> | 125-150    | 0,203                                | 0,218 | 0,300 | 0,353 | 0,398 |
|          | <b>K.2</b> | 90-110     | 0,180                                | 0,203 | 0,263 | 0,278 | 0,300 |
| <b>N</b> | <b>N.3</b> | 90-300     | 0,120                                | 0,190 | 0,266 | 0,320 | 0,370 |
|          | <b>N.4</b> | 90-300     | 0,120                                | 0,190 | 0,266 | 0,320 | 0,370 |
|          | <b>N.5</b> | 70-150     | 0,120                                | 0,190 | 0,266 | 0,320 | 0,370 |

$$\text{r.p.m.} = \frac{V_c \times 1.000}{\pi \times \phi}$$

$$V_f (\text{mm/min.}) = \text{r.p.m.} \times f$$

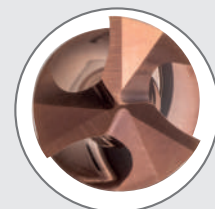
| D<br>mm | d<br>mm | L<br>mm | l<br>mm |   | Nº Art.<br>X-AICr | € |
|---------|---------|---------|---------|---|-------------------|---|
| 3,00    | 4,00    | 46      | 16      | 1 | 20210             |   |
| 3,30    | 4,00    | 49      | 18      | 1 | 20211             |   |
| 3,50    | 4,00    | 52      | 20      | 1 | 20213             |   |
| 4,00    | 4,00    | 55      | 22      | 1 | 20215             |   |
| 4,20    | 6,00    | 55      | 22      | 1 | 20216             |   |
| 4,50    | 6,00    | 58      | 24      | 1 | 20221             |   |
| 5,00    | 6,00    | 62      | 26      | 1 | 20226             |   |
| 5,50    | 6,00    | 66      | 28      | 1 | 20228             |   |
| 6,00    | 6,00    | 66      | 28      | 1 | 20236             |   |
| 6,50    | 8,00    | 70      | 31      | 1 | 20242             |   |
| 6,80    | 8,00    | 74      | 34      | 1 | 20247             |   |
| 7,00    | 8,00    | 74      | 34      | 1 | 20253             |   |

| D<br>mm | d<br>mm | L<br>mm | l<br>mm |   | Nº Art.<br>X-AICr | € |
|---------|---------|---------|---------|---|-------------------|---|
| 7,50    | 8,00    | 74      | 34      | 1 | 20262             |   |
| 8,00    | 8,00    | 79      | 36      | 1 | 20270             |   |
| 8,50    | 10,00   | 79      | 36      | 1 | 20273             |   |
| 9,00    | 10,00   | 84      | 40      | 1 | 20275             |   |
| 9,50    | 10,00   | 84      | 40      | 1 | 20280             |   |
| 10,00   | 10,00   | 89      | 43      | 1 | 20282             |   |
| 10,20   | 12,00   | 89      | 43      | 1 | 20284             |   |
| 10,50   | 12,00   | 89      | 43      | 1 | 20288             |   |
| 11,00   | 12,00   | 95      | 47      | 1 | 20290             |   |
| 11,50   | 12,00   | 95      | 47      | 1 | 20291             |   |
| 12,00   | 12,00   | 102     | 51      | 1 | 20294             |   |
| 13,00   | 14,00   | 102     | 51      | 1 | 20295             |   |

- Avance hasta **x2** comparando con broca 2Z convencional.
- Recubrimiento Alto Rendimiento X-AICr.
- Agujeros más precisos con mejor acabado superficial.
- Punta Autocentrante.
- Up to **x2** feed vs standard 2Z drill bits.
- High performance X-AICr coating with polished surface.
- Remarkably accurate holes and outstanding surface finishing.
- Self-centering function geometry.
- Avance jusqu'à **x2** par rapport au foret 2Z conventionnel.
- Revêtement haute performance X-AICr avec surface polie.
- Trous plus précis avec une meilleure finition de surface.
- Pointe d'auto-centrage.



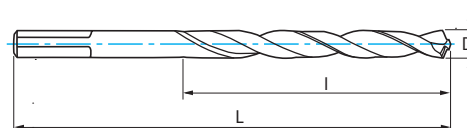
Video



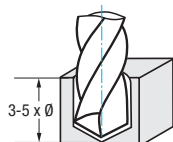
Ref. **1032****BROCA COBALTO ESPECIAL TUBOS**

Tube and Sheet Cobalt Drill Bit

Foret cobalt spécial tube



|              |              |  |  |  |  |  |                                     |                                       |              |
|--------------|--------------|--|--|--|--|--|-------------------------------------|---------------------------------------|--------------|
| HSSE<br>5%Co | DIN<br>338 W |  |  |  |  |  | Ambar<br>Gold Finish<br>Finition Or | Rectificado<br>Ground<br>Taillé meulé | Tol. D<br>h8 |
|--------------|--------------|--|--|--|--|--|-------------------------------------|---------------------------------------|--------------|



$$r.p.m. = \frac{V_c \times 1.000}{\pi \times \varnothing}$$

$$V_f (mm/min.) = r.p.m. \times f$$

| Material |      | Vc (m/min) | Avances f/rev. (mm/rev) - Feed - Pas |       |       |       |       |       |       |       |
|----------|------|------------|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Grupo    | Sub. | 5% Co      | Ø 2                                  | Ø 3   | Ø 4   | Ø 5   | Ø 6   | Ø 8   | Ø 10  | Ø 12  |
| P        | P.1  | 30-35      | 0,045                                | 0,055 | 0,070 | 0,080 | 0,100 | 0,120 | 0,150 | 0,160 |
|          | P.5  | 8-12       | 0,030                                | 0,040 | 0,050 | 0,060 | 0,070 | 0,090 | 0,100 | 0,120 |
| M        |      | 6-12       | 0,030                                | 0,040 | 0,050 | 0,060 | 0,070 | 0,090 | 0,100 | 0,120 |
| N        | N.1  | 30-40      | 0,050                                | 0,070 | 0,080 | 0,100 | 0,120 | 0,140 | 0,170 | 0,200 |
|          | N.2  |            | 0,060                                | 0,090 | 0,100 | 0,120 | 0,150 | 0,180 | 0,210 | 0,250 |
|          | N.3  | 60-80      | 0,080                                | 0,110 | 0,130 | 0,150 | 0,190 | 0,220 | 0,260 | 0,320 |
|          | N.4  |            | 0,080                                | 0,110 | 0,130 | 0,150 | 0,190 | 0,220 | 0,260 | 0,320 |
|          | N.5  | 40-50      | 0,060                                | 0,090 | 0,100 | 0,120 | 0,150 | 0,180 | 0,210 | 0,250 |

| D<br>mm | L<br>mm | I<br>mm |    | N° Art.<br>5% Co | € |
|---------|---------|---------|----|------------------|---|
| 1,00    | 34      | 12      | 10 | 44820            |   |
| 1,50    | 40      | 18      | 10 | 44822            |   |
| 2,00    | 49      | 24      | 10 | 15169            |   |
| 2,50    | 57      | 30      | 10 | 44823            |   |
| 3,00    | 61      | 33      | 10 | 15191            |   |
| 3,30    | 65      | 36      | 10 | 84181            |   |
| 3,50    | 70      | 39      | 10 | 15193            |   |
| 4,00    | 75      | 43      | 10 | 15215            |   |
| 4,20    | 75      | 43      | 10 | 15238            |   |
| 4,50    | 80      | 47      | 10 | 15243            |   |
| 5,00    | 86      | 52      | 10 | 15244            |   |
| 5,50    | 93      | 57      | 10 | 15247            |   |
| 6,00    | 93      | 57      | 10 | 15265            |   |
| 6,50    | 101     | 63      | 10 | 15270            |   |
| 6,80    | 109     | 69      | 10 | 84182            |   |

| D<br>mm | L<br>mm | I<br>mm |    | N° Art.<br>5% Co | € |
|---------|---------|---------|----|------------------|---|
| 7,00    | 109     | 69      | 10 | 15273            |   |
| 7,50    | 109     | 69      | 10 | 15280            |   |
| 8,00    | 117     | 75      | 10 | 15282            |   |
| 8,50    | 117     | 75      | 5  | 15283            |   |
| 9,00    | 125     | 81      | 5  | 15285            |   |
| 9,50    | 125     | 81      | 5  | 44825            |   |
| 10,00   | 133     | 87      | 5  | 15291            |   |
| 10,20   | 133     | 87      | 5  | 84183            |   |
| 10,50   | 133     | 87      | 5  | 15292            |   |
| 11,00   | 142     | 94      | 5  | 15298            |   |
| 11,50   | 142     | 94      | 5  | 44828            |   |
| 12,00   | 151     | 101     | 5  | 15303            |   |
| 12,50   | 151     | 101     | 5  | 44831            |   |
| 13,00   | 151     | 101     | 5  | 15304            |   |



Set 1466  
**19 PCS.**  
(1-10 × 0,50 mm)



Set 1456  
**25 PCS.**  
(1-13 × 0,50 mm)



Set 1459  
**29 PCS.**  
(1-13 × 0,50 mm)

\*  
+ Previos Roscado  
Before Threading  
Pré-Taradage  
(3,3 - 4,2 - 6,8 - 10,2 mm)

| N° Art.<br>5% Co | € |
|------------------|---|
| 80139            |   |

| N° Art.<br>5% Co | € |
|------------------|---|
| 34348            |   |

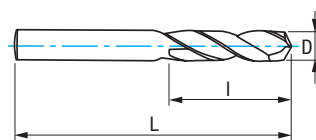
| N° Art.<br>5% Co | € |
|------------------|---|
| 84159            |   |



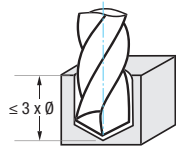
Ref. **1052****BROCA MANGO CILÍNDRICO HSS ZIRKONIO. SERIE EXTRA CORTA**

HSS Zirkonio Straight Shank Drill Bit. Stub Series

Foret queue cylindrique HSS Zirkonio. Série extra-courte



|     |          |            |      |                   |  |  |                                       |              |
|-----|----------|------------|------|-------------------|--|--|---------------------------------------|--------------|
| HSS | Zirkonio | DIN 1897 N | 135° | DIN 1412 C ≥ 2 mm |  |  | Rectificado<br>Ground<br>Taillé meulé | Tol. D<br>h8 |
|-----|----------|------------|------|-------------------|--|--|---------------------------------------|--------------|



| Material |      | Vc (m/min) | Avances f/rev. (mm/rev) - Feed - Pas |       |       |       |       |       |       |       |       |  |
|----------|------|------------|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| Grupo    | Sub. | Zirkonio   | Ø 2                                  | Ø 3   | Ø 4   | Ø 5   | Ø 6   | Ø 8   | Ø 10  | Ø 12  | Ø 16  |  |
| P        | P.1  | 33-40      | 0,045                                | 0,055 | 0,070 | 0,080 | 0,100 | 0,120 | 0,150 | 0,160 | 0,180 |  |
| K        | K.1  | 40-45      | 0,060                                | 0,090 | 0,100 | 0,120 | 0,150 | 0,180 | 0,210 | 0,250 | 0,300 |  |
|          | K.2  | 33-40      | 0,050                                | 0,070 | 0,080 | 0,100 | 0,120 | 0,140 | 0,170 | 0,200 | 0,240 |  |
| N        | N.3  | 80-105     | 0,080                                | 0,110 | 0,130 | 0,150 | 0,190 | 0,220 | 0,260 | 0,320 | 0,380 |  |
|          | N.4  |            | 0,080                                | 0,110 | 0,130 | 0,150 | 0,190 | 0,220 | 0,260 | 0,320 | 0,380 |  |
|          | N.5  | 50-65      | 0,060                                | 0,090 | 0,100 | 0,120 | 0,150 | 0,180 | 0,210 | 0,250 | 0,300 |  |

$$r.p.m. = \frac{Vc \times 1.000}{\pi \times \phi} \quad Vf (mm/min.) = r.p.m. \times f$$

| D mm | L mm | I mm |    | Nº Art. Zirkonio | € |
|------|------|------|----|------------------|---|
| 1,00 | 26   | 6    | 10 | 44999            |   |
| 1,10 | 28   | 7    | 10 | 48470            |   |
| 1,20 | 30   | 8    | 10 | 48476            |   |
| 1,25 | 30   | 8    | 10 | 45458            |   |
| 1,30 | 30   | 8    | 10 | 48479            |   |
| 1,40 | 32   | 9    | 10 | 48482            |   |
| 1,50 | 32   | 9    | 10 | 45002            |   |
| 1,60 | 34   | 10   | 10 | 45005            |   |
| 1,70 | 34   | 10   | 10 | 48488            |   |
| 1,75 | 36   | 11   | 10 | 45464            |   |
| 1,80 | 36   | 11   | 10 | 45026            |   |
| 1,90 | 36   | 11   | 10 | 45028            |   |
| 2,00 | 38   | 12   | 10 | 24853            |   |
| 2,10 | 40   | 13   | 10 | 45065            |   |
| 2,20 | 40   | 13   | 10 | 45068            |   |
| 2,25 | 40   | 13   | 10 | 48785            |   |
| 2,30 | 40   | 13   | 10 | 45071            |   |
| 2,40 | 43   | 14   | 10 | 45074            |   |
| 2,50 | 43   | 14   | 10 | 24898            |   |
| 2,60 | 43   | 14   | 10 | 24899            |   |
| 2,70 | 46   | 16   | 10 | 45078            |   |
| 2,75 | 46   | 16   | 10 | 45470            |   |
| 2,80 | 46   | 16   | 10 | 45080            |   |
| 2,90 | 46   | 16   | 10 | 45083            |   |
| 3,00 | 46   | 16   | 10 | 24900            |   |
| 3,10 | 49   | 18   | 10 | 45128            |   |
| 3,20 | 49   | 18   | 10 | 24901            |   |
| 3,25 | 49   | 18   | 10 | 24902            |   |
| 3,30 | 49   | 18   | 10 | 24903            |   |
| 3,40 | 52   | 20   | 10 | 45134            |   |
| 3,50 | 52   | 20   | 10 | 24905            |   |
| 3,60 | 52   | 20   | 10 | 45153            |   |
| 3,70 | 52   | 20   | 10 | 45154            |   |
| 3,75 | 52   | 20   | 10 | 45473            |   |
| 3,80 | 55   | 22   | 10 | 45163            |   |
| 3,90 | 55   | 22   | 10 | 45165            |   |
| 4,00 | 55   | 22   | 10 | 24906            |   |
| 4,10 | 55   | 22   | 10 | 24913            |   |
| 4,20 | 55   | 22   | 10 | 24943            |   |
| 4,25 | 55   | 22   | 10 | 45491            |   |
| 4,30 | 58   | 24   | 10 | 25027            |   |
| 4,40 | 58   | 24   | 10 | 45197            |   |
| 4,50 | 58   | 24   | 10 | 25028            |   |
| 4,60 | 58   | 24   | 10 | 45200            |   |
| 4,70 | 58   | 24   | 10 | 45203            |   |
| 4,75 | 58   | 24   | 10 | 45500            |   |
| 4,80 | 62   | 26   | 10 | 45206            |   |
| 4,90 | 62   | 26   | 10 | 25061            |   |

| D mm | L mm | I mm |    | Nº Art. Zirkonio | € |
|------|------|------|----|------------------|---|
| 5,00 | 62   | 26   | 10 | 25064            |   |
| 5,10 | 62   | 26   | 10 | 45212            |   |
| 5,20 | 62   | 26   | 10 | 25066            |   |
| 5,25 | 62   | 26   | 10 | 45512            |   |
| 5,30 | 62   | 26   | 10 | 45218            |   |
| 5,40 | 66   | 28   | 10 | 45221            |   |
| 5,50 | 66   | 28   | 10 | 25072            |   |
| 5,60 | 66   | 28   | 10 | 45224            |   |
| 5,70 | 66   | 28   | 10 | 45227            |   |
| 5,75 | 66   | 28   | 10 | 45515            |   |
| 5,80 | 66   | 28   | 10 | 45230            |   |
| 5,90 | 66   | 28   | 10 | 45341            |   |
| 6,00 | 66   | 28   | 10 | 25075            |   |
| 6,10 | 70   | 31   | 10 | 45353            |   |
| 6,20 | 70   | 31   | 10 | 45356            |   |
| 6,25 | 70   | 31   | 10 | 45524            |   |
| 6,30 | 70   | 31   | 10 | 45359            |   |
| 6,40 | 70   | 31   | 10 | 45362            |   |
| 6,50 | 70   | 31   | 10 | 25078            |   |
| 6,60 | 70   | 31   | 10 | 45365            |   |
| 6,70 | 70   | 31   | 10 | 45368            |   |
| 6,75 | 74   | 34   | 10 | 45527            |   |
| 6,80 | 74   | 34   | 10 | 25081            |   |
| 6,90 | 74   | 34   | 10 | 48494            |   |
| 7,00 | 74   | 34   | 10 | 25085            |   |
| 7,10 | 74   | 34   | 10 | 48497            |   |
| 7,20 | 74   | 34   | 10 | 45374            |   |
| 7,25 | 74   | 34   | 10 | 45530            |   |
| 7,30 | 74   | 34   | 10 | 48503            |   |
| 7,40 | 74   | 34   | 10 | 45377            |   |
| 7,50 | 74   | 34   | 10 | 25091            |   |
| 7,60 | 79   | 37   | 10 | 48506            |   |
| 7,70 | 79   | 37   | 10 | 48533            |   |
| 7,75 | 79   | 37   | 10 | 45536            |   |
| 7,80 | 79   | 37   | 10 | 45380            |   |
| 7,90 | 79   | 37   | 10 | 48539            |   |
| 8,00 | 79   | 37   | 10 | 25102            |   |
| 8,10 | 79   | 37   | 10 | 48542            |   |
| 8,20 | 79   | 37   | 10 | 48548            |   |
| 8,25 | 79   | 37   | 10 | 45539            |   |
| 8,30 | 79   | 37   | 10 | 48551            |   |
| 8,40 | 79   | 37   | 10 | 48554            |   |
| 8,50 | 79   | 37   | 10 | 25106            |   |
| 8,70 | 84   | 40   | 10 | 45383            |   |
| 8,75 | 84   | 40   | 10 | 45542            |   |
| 8,80 | 84   | 40   | 10 | 48557            |   |
| 8,90 | 84   | 40   | 10 | 48560            |   |
| 9,00 | 84   | 40   | 10 | 25130            |   |

| D mm  | L mm | I mm |    | Nº Art. Zirkonio | € |
|-------|------|------|----|------------------|---|
| 9,10  | 84   | 40   | 10 | 45386            |   |
| 9,20  | 84   | 40   | 10 | 48563            |   |
| 9,25  | 84   | 40   | 10 | 45545            |   |
| 9,30  | 84   | 40   | 10 | 48566            |   |
| 9,40  | 84   | 40   | 10 | 48569            |   |
| 9,50  | 84   | 40   | 10 | 25132            |   |
| 9,60  | 89   | 43   | 10 | 48572            |   |
| 9,70  | 89   | 43   | 10 | 48575            |   |
| 9,75  | 89   | 43   | 10 | 45548            |   |
| 9,80  | 89   | 43   | 10 | 48578            |   |
| 9,90  | 89   | 43   | 10 | 48581            |   |
| 10,00 | 89   | 43   | 10 | 25135            |   |
| 10,10 | 89   | 43   | 1  | 48584            |   |
| 10,20 | 89   | 43   | 1  | 25137            |   |
| 10,25 | 89   | 43   | 1  | 45551            |   |
| 10,30 | 89   | 43   | 1  | 48587            |   |
| 10,50 | 89   | 43   | 1  | 25138            |   |
| 10,80 | 95   | 47   | 1  | 48590            |   |
| 11,00 | 95   | 47   | 1  | 25139            |   |
| 11,10 | 95   | 47   | 1  | 48788            |   |
| 11,20 | 95   | 47   | 1  | 48593            |   |
| 11,25 | 95   | 47   | 1  | 45557            |   |
| 11,50 | 95   | 47   | 1  | 45389            |   |
| 11,80 | 95   | 47   | 1  | 48602            |   |
| 12,00 | 102  | 51   | 1  | 25141            |   |
| 12,10 | 102  | 51   | 1  | 48605            |   |
| 12,20 | 102  | 51   | 1  | 48608            |   |
| 12,25 | 102  | 51   | 1  | 45560            |   |
| 12,50 | 102  | 51   | 1  | 25142            |   |
| 12,70 | 102  | 51   | 1  | 45563            |   |
| 13,00 | 102  | 51   | 1  | 25143            |   |
| 13,50 | 107  | 54   | 1  | 45392            |   |
| 14,00 | 107  | 54   | 1  | 45398            |   |
| 14,50 | 111  | 56   | 1  | 45419            |   |
| 15,00 | 111  | 56   | 1  | 45422            |   |
| 15,25 | 115  | 58   | 1  | 48800            |   |
| 15,50 | 115  | 58   | 1  | 45425            |   |
| 15,75 | 115  | 58   | 1  | 48791            |   |
| 16,00 | 115  | 58   | 1  | 45428            |   |
| 16,50 | 119  | 60   | 1  | 45572            |   |
| 17,00 | 119  | 60   | 1  | 45575            |   |
| 17,50 | 123  | 62   | 1  | 45577            |   |
| 18,00 | 123  | 62   | 1  | 45578            |   |
| 18,50 | 127  | 64   | 1  | 45585            |   |
| 19,00 | 127  | 64   | 1  | 45588            |   |
| 19,50 | 131  | 66   | 1  | 45597            |   |
| 20,00 | 131  | 66   | 1  | 45614            |   |





Set **1029**  
**BROCA MULTI ACERO**  
 Multi-Steel Drill Bit  
 Foret multi-acier



| Ø mm | Uds | Ø mm | Uds | Ø mm  | Uds |
|------|-----|------|-----|-------|-----|
| 1,00 | 10  | 5,50 | 10  | 10,00 | 10  |
| 1,50 | 10  | 6,00 | 10  | 10,50 | 5   |
| 2,00 | 10  | 6,50 | 10  | 11,00 | 5   |
| 2,50 | 10  | 7,00 | 10  | 11,50 | 5   |
| 3,00 | 10  | 7,50 | 10  | 12,00 | 5   |
| 3,50 | 10  | 8,00 | 10  | 12,50 | 5   |
| 4,00 | 10  | 8,50 | 10  | 13,00 | 5   |
| 4,50 | 10  | 9,00 | 10  |       |     |
| 5,00 | 10  | 9,50 | 10  |       |     |

220 Pcs

| Nº Art.  | € |
|----------|---|
| BORDEAUX |   |
| 41037    |   |

Set **1032**  
**BROCA COBALTO METALMAX**  
 METALMAX Cobalt Drill Bit  
 Foret cobalt METALMAX



| Ø mm | Uds | Ø mm | Uds | Ø mm  | Uds |
|------|-----|------|-----|-------|-----|
| 1,00 | 10  | 5,50 | 10  | 10,00 | 10  |
| 1,50 | 10  | 6,00 | 10  | 10,50 | 5   |
| 2,00 | 10  | 6,50 | 10  | 11,00 | 5   |
| 2,50 | 10  | 7,00 | 10  | 11,50 | 5   |
| 3,00 | 10  | 7,50 | 10  | 12,00 | 5   |
| 3,50 | 10  | 8,00 | 10  | 12,50 | 5   |
| 4,00 | 10  | 8,50 | 10  | 13,00 | 5   |
| 4,50 | 10  | 9,00 | 10  |       |     |
| 5,00 | 10  | 9,50 | 10  |       |     |

220 Pcs

| Nº Art. | € |
|---------|---|
| HSSE    |   |
| 41034   |   |

Sets **1404** **JUEGO BROCAS 99 PCS** (1-10×0,1mm + 10-13×0,5mm + Previos roscado 10-13mm)  
 Drill Bit Set. **99 pcs.** (1-10×0,1mm + 10-13×0,5mm + Before Threading sizes 10-13mm)  
 Jeu de forets. **99 pcs.** (1-10×0,1mm + 10-13×0,5mm + Pré Taraudage 10-13mm)

Ref.  
1016

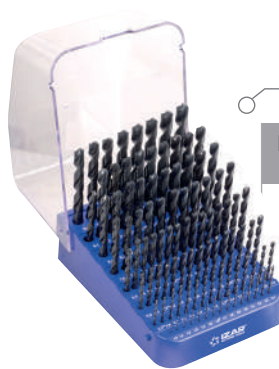
| Nº Art. | € |
|---------|---|
| 5% Co   |   |
| 48821   |   |

Ref.  
1015

| Nº Art.  | € |
|----------|---|
| Zirkonio |   |
| 48824    |   |

Ref.  
1013

| Nº Art. | € |
|---------|---|
| HSS     |   |
| 48818   |   |

Ref.  
1010

| Nº Art. | € |
|---------|---|
| HSS     |   |
| 48815   |   |



Sets

1410

## MEDIDOR DE DIÁMETROS

Diameter gauge  
Jauge de diamètres

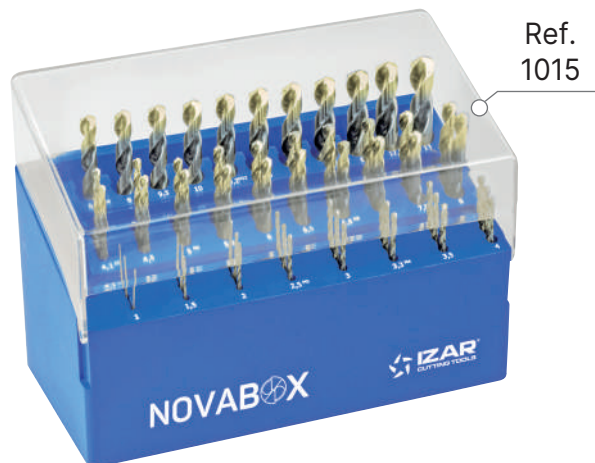
55 Pcs:

1-13 x 0,5 mm

- Ø1,0 – 4,0 mm: 3 pcs
- Ø4,2 – 8,0 mm: 2 pcs
- Ø8,50 – 13,0 mm: 1 pcs



| Cont. Ø         | Nº Art. 5% Co | € |
|-----------------|---------------|---|
| 1 - 13 x 0,5 mm | 19537         |   |



| Cont. Ø         | Nº Art. Zirkonio | € |
|-----------------|------------------|---|
| 1 - 13 x 0,5 mm | 28360            |   |



| Cont. Ø         | Nº Art. HSS | € |
|-----------------|-------------|---|
| 1 - 13 x 0,5 mm | 19535       |   |



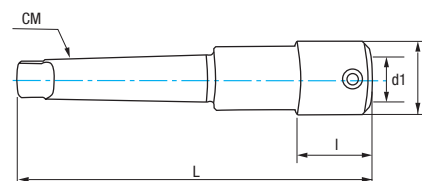
| Cont. Ø         | Nº Art. HSS | € |
|-----------------|-------------|---|
| 1 - 13 x 0,5 mm | 19536       |   |

Ref. 4073

## CONO PORTA FRESAS HUECAS

Holder for annular cutters

Cône pour porte-fraise à carotter pour unité de perçage électromagnétique

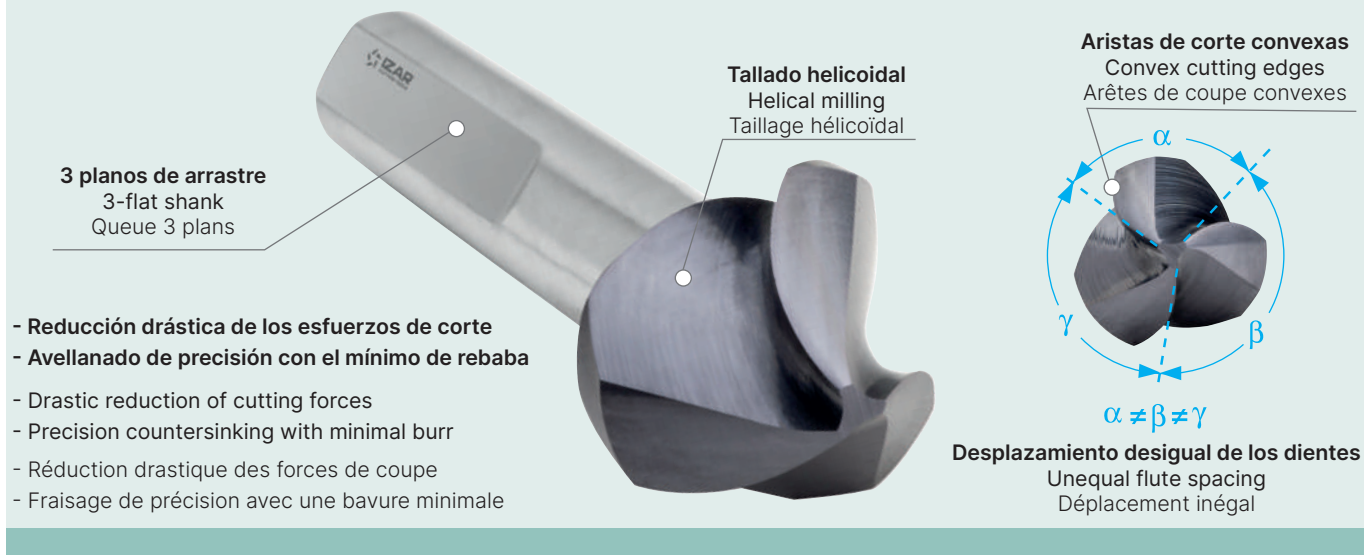


| CM | D mm | L mm | I mm | d1 mm | Nº Art. HSS | € |
|----|------|------|------|-------|-------------|---|
| 2  | 37   | 165  | 37   | 19    | 84115       |   |
| 3  | 37   | 175  | 37   | 19    | 84116       |   |

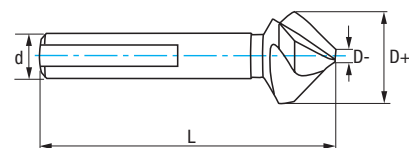


Llave Allen incluida - Allen key included - Clé Allen incluse



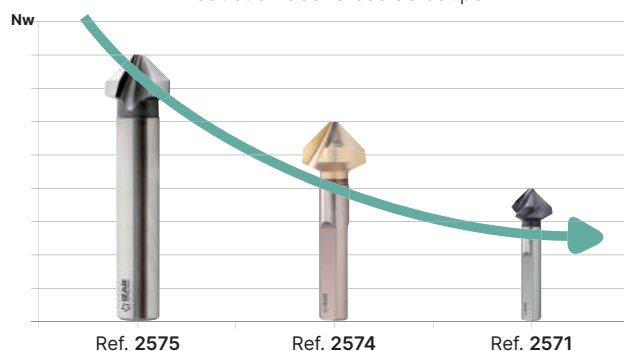


# Ref. **2571** **AVELLANADOR ANTIVIBRACIÓN 3Z HELICOIDAL DESPLAZAMIENTO DESIGUAL** **Unequal Flute Spacing Spiral Anti-Vibration 3Z Countersink** **Fraise à noyer anti-vibration 3Z hélicoïdal déplacement inégal**



|               |       |              |  |  |  |     |                    |                |                 |                                   |
|---------------|-------|--------------|--|--|--|-----|--------------------|----------------|-----------------|-----------------------------------|
| HSSE<br>5% Co | TIALN | DIN<br>335 C |  |  |  | 3 Z | Tol. D<br>(± 0,05) | Tol. d<br>(h9) | Tol. L<br>(± 1) | Tol. α <sub>-1</sub> <sup>0</sup> |
|---------------|-------|--------------|--|--|--|-----|--------------------|----------------|-----------------|-----------------------------------|

## **REDUCCIÓN DE LAS FUERZAS DE CORTE** **Cutting forces decreased** **Réduction des forces de coupe**



| Material |      | Vc (m/min) | Avances f/rev. (mm/rev) - Feed - Pas |       |       |       |       |       |
|----------|------|------------|--------------------------------------|-------|-------|-------|-------|-------|
| Grupo    | Sub. | TIALN      | Ø 6                                  | Ø 8   | Ø 10  | Ø 12  | Ø 16  | Ø 25  |
| P        | P.1  | 25-40      | 0,100                                | 0,100 | 0,100 | 0,120 | 0,160 | 0,200 |
|          | P.2  | 15-20      | 0,100                                | 0,100 | 0,100 | 0,120 | 0,160 | 0,200 |
|          | P.3  | 10-20      | 0,100                                | 0,100 | 0,100 | 0,120 | 0,160 | 0,200 |
|          | P.4  | 5-10       | 0,040                                | 0,040 | 0,040 | 0,050 | 0,050 | 0,080 |
|          | P.5  | 10-15      | 0,050                                | 0,050 | 0,060 | 0,070 | 0,070 | 0,080 |
| M        |      | 15-20      | 0,050                                | 0,050 | 0,060 | 0,070 | 0,070 | 0,080 |
| K        | K.1  | 20-30      | 0,100                                | 0,100 | 0,100 | 0,120 | 0,160 | 0,200 |
|          | K.2  | 20-30      | 0,100                                | 0,100 | 0,100 | 0,120 | 0,160 | 0,200 |
| S        |      | 10-12      | 0,050                                | 0,050 | 0,060 | 0,070 | 0,070 | 0,080 |
| N        | N.1  | 30-40      | 0,150                                | 0,160 | 0,170 | 0,190 | 0,210 | 0,260 |
|          | N.2  | 25-30      | 0,150                                | 0,160 | 0,170 | 0,190 | 0,210 | 0,260 |
|          | N.3  | 40-100     | 0,150                                | 0,160 | 0,170 | 0,190 | 0,210 | 0,260 |
|          | N.4  | 40-100     | 0,150                                | 0,160 | 0,170 | 0,190 | 0,210 | 0,260 |
|          | N.5  | 30-40      | 0,120                                | 0,120 | 0,140 | 0,140 | 0,180 | 0,220 |
|          | N.6  | 20-50      | 0,150                                | 0,160 | 0,170 | 0,190 | 0,210 | 0,260 |
|          | N.7  | 20-40      | 0,120                                | 0,120 | 0,140 | 0,140 | 0,180 | 0,220 |

### \* Nota:

- Se recomienda para avellanar a máquina (siempre con la pieza fijada o amordazada)
- No recomendado para taladros manuales

### \* Note:

- It is recommended for machine countersinking (always with the workpiece fixed or clamped)
- Not recommended for portable drilling machines

### \* Note :

- Il est recommandé pour le fraisage machine (toujours avec la pièce fixée ou serrée)
- Non recommandé pour les perceuses à main

$$r.p.m. = \frac{Vc \times 1.000}{\pi \times \phi} \quad Vf (mm/min.) = r.p.m. \times f$$



## Set 6 Pcs

| Cont. Ø                     | Nº Art TIALN | €          |
|-----------------------------|--------------|------------|
| 6,3-8,3-10,4-12,4-16,5-20,5 | 85218        | Set Price! |

| D+ mm | D- mm | d mm | L mm | Nº Art TIALN | € |
|-------|-------|------|------|--------------|---|
| 06,30 | 1,50  | 5    | 45   | 85211        |   |
| 08,30 | 2,00  | 6    | 50   | 85212        |   |
| 10,40 | 2,50  | 6    | 50   | 85213        |   |
| 12,40 | 2,80  | 8    | 56   | 85214        |   |
| 16,50 | 3,20  | 10   | 60   | 85215        |   |
| 20,50 | 3,50  | 10   | 63   | 85216        |   |
| 25,00 | 3,80  | 10   | 67   | 85217        |   |



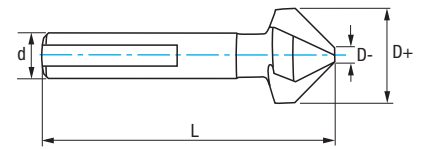


Ref. **2574**

# AVELLANADOR **ANTIVIBRACIÓN 3Z** DESPLAZAMIENTO DESIGUAL

Unequal Flute Spacing **Anti-Vibration 3Z** Countersink

Fraise à noyer **anti-vibration 3Z** déplacement inégal



|               |          |              |  |  |  |     |                    |                |                 |                   |
|---------------|----------|--------------|--|--|--|-----|--------------------|----------------|-----------------|-------------------|
| HSSE<br>5% Co | Zirkonio | DIN<br>335 C |  |  |  | 3 Z | Tol. D<br>(± 0,05) | Tol.<br>d (h9) | Tol.<br>L (± 1) | Tol. $\alpha_1^0$ |
|---------------|----------|--------------|--|--|--|-----|--------------------|----------------|-----------------|-------------------|

\* Mango liso hasta fin de existencias  
Plain Shank while stock lasts  
Queue plane jusqu'à la fin de stock

$$r.p.m. = \frac{Vc \times 1.000}{\pi \times \phi}$$

$$Vf (mm/min.) = r.p.m. \times f$$

| Material |      | Vc (m/min) |          | Avances f/rev. (mm/rev) - Feed - Pas |       |       |       |       |       |       |       |
|----------|------|------------|----------|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Grupo    | Sub. | HSSE       | Zirkonio | Ø 6                                  | Ø 8   | Ø 10  | Ø 16  | Ø 20  | Ø 25  | Ø 32  | Ø 40  |
| P        | P.1  | 15-20      | 17-23    | 0,060                                | 0,080 | 0,100 | 0,120 | 0,150 | 0,180 | 0,200 | 0,220 |
|          | P.5  | 4-8        | 5-9      | 0,030                                | 0,040 | 0,050 | 0,060 | 0,080 | 0,090 | 0,100 | 0,120 |
| M        |      | 4-8        | 5-9      | 0,040                                | 0,050 | 0,060 | 0,080 | 0,100 | 0,120 | 0,140 | 0,160 |
| N        | N.1  | 20-30      | 23-35    | 0,060                                | 0,080 | 0,100 | 0,120 | 0,150 | 0,180 | 0,200 | 0,220 |
|          | N.3  | 15-25      | 17-29    | 0,090                                | 0,110 | 0,130 | 0,160 | 0,190 | 0,210 | 0,260 | 0,290 |
|          | N.4  | 15-25      | 17-29    | 0,090                                | 0,110 | 0,130 | 0,160 | 0,190 | 0,210 | 0,260 | 0,290 |
|          | N.5  | 8-12       | 9-14     | 0,090                                | 0,110 | 0,130 | 0,160 | 0,190 | 0,210 | 0,260 | 0,290 |
|          | N.6  | 20-30      | 23-35    | 0,100                                | 0,120 | 0,150 | 0,180 | 0,200 | 0,220 | 0,280 | 0,320 |

| D+<br>mm | D-<br>mm | d<br>mm | L<br>mm | Nº Art.<br>5% Co | € | Nº Art.<br>Zirkonio | € |
|----------|----------|---------|---------|------------------|---|---------------------|---|
| 4,30     | 1,30     | 4       | 40      | 84766            |   | 84741               |   |
| 5,30     | 1,50     | 4       | 40      | 84767            |   | 84746               |   |
| 6,00     | 1,50     | 5       | 45      | 84768            |   | 84747               |   |
| 6,30     | 1,50     | 5       | 45      | 84769            |   | 84748               |   |
| 8,00     | 2,00     | 6       | 50      | 84770            |   | 84749               |   |
| 8,30     | 2,00     | 6       | 50      | 84771            |   | 84750               |   |
| 9,40     | 2,20     | 6       | 50      | 84772            |   | 84751               |   |
| 10,00    | 2,50     | 6       | 50      | 84773            |   | 84752               |   |
| 10,40    | 2,50     | 6       | 50      | 84774            |   | 84753               |   |
| 11,50    | 2,80     | 8       | 56      | 84775            |   | 84754               |   |
| 12,40    | 2,80     | 8       | 56      | 84776            |   | 84757               |   |
| 15,00    | 3,20     | 10      | 60      | 84777            |   | 84758               |   |
| 16,50    | 3,20     | 10      | 60      | 84778            |   | 84759               |   |
| 20,50    | 3,50     | 10      | 63      | 84779            |   | 84760               |   |
| 25,00    | 3,80     | 10      | 67      | 84781            |   | 84761               |   |
| 28,00    | 4,00     | 12      | 71      | 84782            |   | 84762               |   |
| 30,00    | 4,20     | 12      | 71      | 84783            |   | 84763               |   |
| 31,00    | 4,20     | 12      | 71      | 84784            |   | 84764               |   |
| 40,00    | 5,00     | 15      | 80      | 84785            |   | 84765               |   |

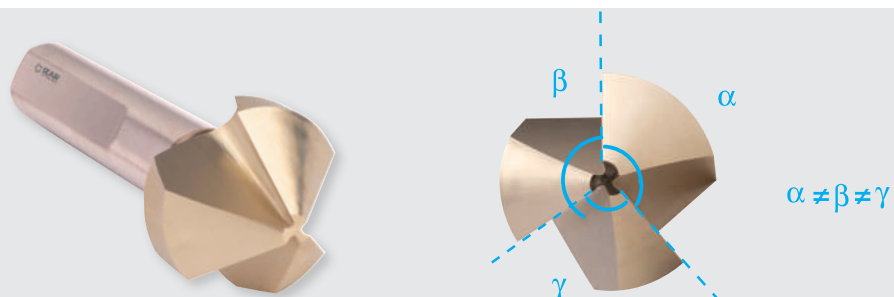


Set 6 Pcs

Set Price!

| Cont.<br>Ø                  | Nº Art.<br>Zirkonio | € |
|-----------------------------|---------------------|---|
| 6,3-8,3-10,4-12,4-16,5-20,5 | 85219               |   |

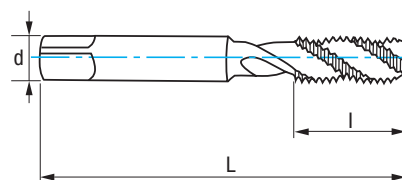
- Avellanador 3Z a 90° "Antivibración"
- Desplazamiento desigual de los dientes que evita vibraciones y mejora los acabados superficiales de los avellanados.
- Recubrimiento especial de Zirkonio.
- 3 planos de arrastre: evita el deslizamiento en el portabrocas.
- Anti-vibration 90° 3Z countersink.
- Unequal flute spacing geometry avoids vibrations and improves the surface finishing.
- Special Zirkonio coating.
- 3-flat shank: Prevents slipping in the chuck
- Fraise anti-vibration 90° 3Z.
- Déplacement inégal des dents qui évite les vibrations et améliore les finitions de surface des fraises.
- Revêtement spécial Zirkonium.
- 3 plans : empêche le glissement dans le mandrin



Ref. **3113****MACHO HELICOIDAL MÁQUINA MÉTRICA NORMA ISO 529**

ISO 529 Standard Metric Machine Spiral Tap

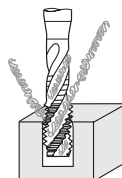
Taraud hélicoïdal machine métrique norme ISO 529

HSSE  
5%CoISO  
529C  
2-3hTol.  
6H

45°

 $\alpha$   
12-14°

60°

**Vaporizado**  
Vaporized  
Vaporisée

&lt; 2D

| Material |      | Vc (m/min) |
|----------|------|------------|
| Grupo    | Sub. | 5% Co      |
| P        | P.1  | 6-10       |
| M        |      | 8-12       |
| N        | N.1  | 5-8        |
|          | N.3  | 15-35      |
|          | N.4  | 14-20      |

Avance  $f = P$  (Paso - Pitch - Pas) $V_f \text{ (mm/min.)} = r.p.m. \times f$ 

$$r.p.m. = \frac{V_c \times 1.000}{\pi \times \phi}$$

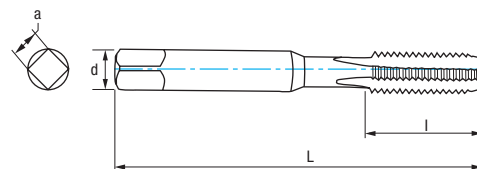
| M    | P    | L<br>mm | l<br>mm | d<br>mm | a<br>mm | Z | N° Art.<br>5% Co | € |
|------|------|---------|---------|---------|---------|---|------------------|---|
| M2   | 0,40 | 41      | 8       | 2,50    | 2,00    | 2 | 48989            |   |
| M2,5 | 0,45 | 44      | 9,5     | 2,80    | 2,24    | 2 | 48992            |   |
| M3   | 0,50 | 48      | 6       | 3,15    | 2,50    | 3 | 49004            |   |
| M3,5 | 0,60 | 50      | 6       | 3,55    | 2,80    | 3 | 49016            |   |
| M4   | 0,70 | 53      | 7       | 4,00    | 3,15    | 3 | 49019            |   |
| M5   | 0,80 | 58      | 8       | 5,00    | 4,00    | 3 | 49022            |   |
| M6   | 1,00 | 66      | 10      | 6,30    | 5,00    | 3 | 49025            |   |
| M7   | 1,00 | 66      | 13      | 7,10    | 5,60    | 3 | 49028            |   |
| M8   | 1,25 | 72      | 12      | 8,00    | 6,30    | 3 | 49031            |   |
| M10  | 1,50 | 80      | 15      | 10,00   | 8,00    | 3 | 49034            |   |
| M12  | 1,75 | 89      | 16      | 9,00    | 7,10    | 3 | 49187            |   |
| M14  | 2,00 | 95      | 18      | 11,20   | 9,00    | 3 | 49190            |   |
| M16  | 2,00 | 102     | 18      | 12,50   | 10,00   | 4 | 49193            |   |
| M18  | 2,50 | 112     | 29      | 14,00   | 11,20   | 4 | 49196            |   |
| M20  | 2,50 | 112     | 29      | 14,00   | 11,20   | 4 | 49199            |   |
| M22  | 2,50 | 118     | 29      | 16,00   | 12,50   | 4 | 49202            |   |
| M24  | 3,00 | 130     | 35      | 18,00   | 14,00   | 4 | 49205            |   |
| M27  | 3,00 | 135     | 35      | 20,00   | 16,00   | 4 | 77480            |   |
| M30  | 3,50 | 138     | 42      | 20,00   | 16,00   | 4 | 77481            |   |



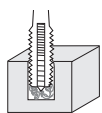
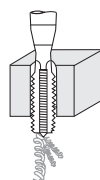
Ref. **3039****MACHO ÚNICO MANO MÉTRICA / MÉTRICA FINA NORMA ISO**

ISO Standard Metric / Metric Fine Hand Single Tap

Taraud à main unique métrique / métrique pas fin norme ISO



HSS

ISO  
529Tol.  
6H $\alpha$   
 $10^\circ \pm 2$ Grupo  
Group-Groupe  
**P**Subgrup.  
P.1Grupo  
Group-Groupe  
**K**Grupo  
Group-Groupe  
**N**Subgrup.  
N.1 - N.3  
N.4 - N.5

≤ 1,5D

**Nº3 Acabado**  
Finishing  
FinitionA  
6-8hB  
3,5-5hC  
2-3h

| M     | P    | L<br>mm | l<br>mm | d<br>mm | a<br>mm | Z | Nº Art.<br>HSS | € | Nº Art.<br>HSS | € | Nº Art.<br>HSS | € |
|-------|------|---------|---------|---------|---------|---|----------------|---|----------------|---|----------------|---|
| M1    | 0,25 | 38,50   | 5,50    | 2,50    | 2,00    | 3 | 29121          |   | 29122          |   | 29123          |   |
| M1,2  | 0,25 | 38,50   | 5,50    | 2,50    | 2,00    | 3 | 29124          |   | 29125          |   | 29126          |   |
| M1,4  | 0,30 | 40,00   | 7,00    | 2,50    | 2,00    | 3 | 29127          |   | 29128          |   | 29129          |   |
| M1,6  | 0,35 | 41,00   | 8,00    | 2,50    | 2,00    | 3 | 29130          |   | 29131          |   | 29132          |   |
| M1,7  | 0,35 | 41,00   | 8,00    | 2,50    | 2,00    | 3 | 29133          |   | 29134          |   | 29159          |   |
| M1,8  | 0,35 | 41,00   | 8,00    | 2,50    | 2,00    | 3 | 29160          |   | 29162          |   | 29164          |   |
| M2    | 0,40 | 41,00   | 8,00    | 2,50    | 2,00    | 3 | 29171          |   | 29172          |   | 29175          |   |
| M2    | 0,45 | 41,00   | 8,00    | 2,50    | 2,00    | 3 | 29176          |   | 29177          |   | 29193          |   |
| M2,2  | 0,45 | 44,50   | 9,50    | 2,80    | 2,24    | 3 | 29195          |   | 29196          |   | 29197          |   |
| M2,3  | 0,45 | 44,50   | 9,50    | 2,80    | 2,24    | 3 | 29199          |   | 29211          |   | 29212          |   |
| M2,5  | 0,45 | 44,50   | 9,50    | 2,80    | 2,24    | 3 | 29214          |   | 29216          |   | 29217          |   |
| M2,6  | 0,45 | 44,50   | 9,50    | 2,80    | 2,24    | 3 | 29218          |   | 29234          |   | 29277          |   |
| MF3   | 0,35 | 48,00   | 11,00   | 3,15    | 2,50    | 3 | 45629          |   | 45644          |   | 45647          |   |
| M3    | 0,50 | 48,00   | 11,00   | 3,15    | 2,50    | 3 | 29475          |   | 29477          |   | 29484          |   |
| M3    | 0,60 | 48,00   | 11,00   | 3,15    | 2,50    | 3 | 29494          |   | 29633          |   | 29846          |   |
| MF3,5 | 0,35 | 50,00   | 13,00   | 3,55    | 2,80    | 3 |                |   |                |   | 45650          |   |
| M3,5  | 0,60 | 50,00   | 13,00   | 3,55    | 2,80    | 3 | 29861          |   | 29862          |   | 29865          |   |
| MF4   | 0,50 | 53,00   | 13,00   | 4,00    | 3,15    | 3 | 45659          |   | 45662          |   | 45665          |   |
| M4    | 0,70 | 53,00   | 13,00   | 4,00    | 3,15    | 3 | 29866          |   | 29867          |   | 29872          |   |
| M4    | 0,75 | 53,00   | 13,00   | 4,00    | 3,15    | 3 | 29879          |   | 29886          |   | 29887          |   |
| M4,5  | 0,75 | 53,00   | 9,50    | 4,50    | 3,55    | 3 | 29889          |   | 29890          |   | 29892          |   |
| MF5   | 0,50 | 58,00   | 16,00   | 5,00    | 4,00    | 3 | 45668          |   | 45671          |   | 45698          |   |
| MF5   | 0,75 | 58,00   | 16,00   | 5,00    | 4,00    | 3 | 45701          |   | 45705          |   | 45744          |   |
| M5    | 0,80 | 58,00   | 16,00   | 5,00    | 4,00    | 3 | 29943          |   | 29948          |   | 29956          |   |
| M5    | 0,90 | 58,00   | 16,00   | 5,00    | 4,00    | 3 | 29957          |   | 29966          |   | 29973          |   |
| M5,5  | 0,90 | 62,00   | 17,00   | 5,60    | 4,50    | 3 | 29982          |   | 29983          |   | 29984          |   |
| MF6   | 0,50 | 66,00   | 19,00   | 6,30    | 5,00    | 3 | 45819          |   | 45822          |   | 45845          |   |
| MF6   | 0,75 | 66,00   | 19,00   | 6,30    | 5,00    | 3 | 45854          |   | 45856          |   | 45859          |   |
| M6    | 1,00 | 66,00   | 19,00   | 6,30    | 5,00    | 3 | 29986          |   | 29987          |   | 30006          |   |
| MF7   | 0,75 | 66,00   | 19,00   | 7,10    | 5,60    | 3 | 45869          |   | 45875          |   | 45878          |   |
| M7    | 1,00 | 66,00   | 19,00   | 7,10    | 5,60    | 3 | 30007          |   | 30009          |   | 30010          |   |
| MF8   | 0,50 | 66,00   | 19,00   | 8,00    | 6,30    | 3 | 45884          |   | 45890          |   | 45893          |   |
| MF8   | 0,75 | 66,00   | 19,00   | 8,00    | 6,30    | 3 | 45902          |   | 45904          |   | 45917          |   |
| MF8   | 1,00 | 72,00   | 22,00   | 8,00    | 6,30    | 3 | 45931          |   | 45934          |   | 45935          |   |
| M8    | 1,25 | 72,00   | 22,00   | 8,00    | 6,30    | 3 | 30011          |   | 30013          |   | 30016          |   |
| MF9   | 0,75 | 66,00   | 19,00   | 9,00    | 7,10    | 3 |                |   |                |   | 45936          |   |
| MF9   | 1,00 | 72,00   | 22,00   | 9,00    | 7,10    | 3 | 45938          |   | 45939          |   | 45940          |   |
| M9    | 1,25 | 72,00   | 22,00   | 9,00    | 7,10    | 3 | 30017          |   | 30018          |   | 30020          |   |
| MF10  | 0,50 | 73,00   | 20,00   | 10,00   | 8,00    | 3 |                |   |                |   | 45942          |   |
| MF10  | 0,75 | 73,00   | 20,00   | 10,00   | 8,00    | 3 | 46031          |   | 46034          |   | 46037          |   |
| MF10  | 1,00 | 80,00   | 24,00   | 10,00   | 8,00    | 3 | 46040          |   | 46043          |   | 46046          |   |
| MF10  | 1,25 | 80,00   | 24,00   | 10,00   | 8,00    | 3 | 46049          |   | 46052          |   | 46055          |   |
| M10   | 1,50 | 80,00   | 24,00   | 10,00   | 8,00    | 3 | 30021          |   | 30063          |   | 30064          |   |
| MF11  | 0,75 | 80,00   | 22,00   | 8,00    | 6,30    | 4 | 46058          |   | 46061          |   | 46067          |   |
| MF11  | 1,00 | 80,00   | 22,00   | 8,00    | 6,30    | 4 | 46070          |   | 46075          |   | 46078          |   |
| MF11  | 1,25 | 80,00   | 24,00   | 8,00    | 6,30    | 4 |                |   |                |   | 46089          |   |





| M    | P    | L<br>mm | I<br>mm | d<br>mm | a<br>mm | Z | Nº Art.<br>HSS | € | Nº Art.<br>HSS | € | Nº Art.<br>HSS | € |
|------|------|---------|---------|---------|---------|---|----------------|---|----------------|---|----------------|---|
| M11  | 1,50 | 85,00   | 25,00   | 8,00    | 6,30    | 4 | 30065          |   | 30066          |   | 30067          |   |
| MF12 | 0,75 | 80,00   | 22,00   | 9,00    | 7,10    | 4 |                |   |                |   | 46091          |   |
| MF12 | 1,00 | 80,00   | 22,00   | 9,00    | 7,10    | 4 | 46093          |   | 46095          |   | 46098          |   |
| MF12 | 1,25 | 89,00   | 29,00   | 9,00    | 7,10    | 4 | 46101          |   | 46103          |   | 46104          |   |
| MF12 | 1,50 | 89,00   | 29,00   | 9,00    | 7,10    | 4 | 46105          |   | 46155          |   | 46156          |   |
| M12  | 1,75 | 89,00   | 29,00   | 9,00    | 7,10    | 4 | 30068          |   | 30069          |   | 30070          |   |
| MF13 | 1,50 | 89,00   | 29,00   | 9,00    | 7,10    | 4 |                |   |                |   | 46158          |   |
| MF14 | 1,00 | 87,00   | 22,00   | 11,20   | 9,00    | 4 | 46159          |   | 46161          |   | 46162          |   |
| MF14 | 1,25 | 95,00   | 30,00   | 11,20   | 9,00    | 4 | 46164          |   | 46165          |   | 46167          |   |
| MF14 | 1,50 | 95,00   | 30,00   | 11,20   | 9,00    | 4 | 46168          |   | 46169          |   | 46170          |   |
| M14  | 2,00 | 95,00   | 30,00   | 11,20   | 9,00    | 4 | 30071          |   | 30072          |   | 30073          |   |
| MF15 | 1,50 | 95,00   | 30,00   | 11,20   | 9,00    | 4 |                |   | 46171          |   | 46173          |   |
| MF16 | 1,00 | 92,00   | 22,00   | 12,50   | 10,00   | 4 | 46176          |   | 46177          |   | 46178          |   |
| MF16 | 1,25 | 102,00  | 32,00   | 12,50   | 10,00   | 4 |                |   |                |   | 46179          |   |
| MF16 | 1,50 | 102,00  | 32,00   | 12,50   | 10,00   | 4 | 46180          |   | 46181          |   | 46182          |   |
| M16  | 2,00 | 102,00  | 32,00   | 12,50   | 10,00   | 4 | 30074          |   | 30075          |   | 30076          |   |
| MF18 | 1,00 | 97,00   | 22,00   | 14,00   | 11,20   | 4 | 46183          |   | 46184          |   | 46315          |   |
| MF18 | 1,50 | 112,00  | 37,00   | 14,00   | 11,20   | 4 | 46327          |   | 46348          |   | 46525          |   |
| MF18 | 2,00 | 112,00  | 37,00   | 14,00   | 11,20   | 4 | 46531          |   | 46540          |   | 46631          |   |
| M18  | 2,50 | 112,00  | 37,00   | 14,00   | 11,20   | 4 | 30077          |   | 30078          |   | 30080          |   |
| MF20 | 1,00 | 102,00  | 22,00   | 14,00   | 11,20   | 4 | 46901          |   | 46823          |   | 46898          |   |
| MF20 | 1,50 | 112,00  | 37,00   | 14,00   | 11,20   | 4 | 46919          |   | 46925          |   | 46931          |   |
| MF20 | 2,00 | 112,00  | 37,00   | 14,00   | 11,20   | 4 | 46940          |   | 46967          |   | 46976          |   |
| M20  | 2,50 | 112,00  | 37,00   | 14,00   | 11,20   | 4 | 30082          |   | 30083          |   | 30085          |   |
| MF22 | 1,00 | 109,00  | 24,00   | 16,00   | 12,50   | 4 |                |   | 46979          |   | 46982          |   |
| MF22 | 1,50 | 118,00  | 38,00   | 16,00   | 12,50   | 4 | 46985          |   | 46988          |   | 46994          |   |
| MF22 | 2,00 | 118,00  | 38,00   | 16,00   | 12,50   | 4 | 46997          |   | 47000          |   | 47006          |   |
| M22  | 2,50 | 118,00  | 38,00   | 16,00   | 12,50   | 4 | 30086          |   | 30087          |   | 30088          |   |
| MF24 | 1,00 | 114,00  | 24,00   | 18,00   | 14,00   | 4 |                |   | 47012          |   | 47015          |   |
| MF24 | 1,50 | 130,00  | 45,00   | 18,00   | 14,00   | 4 | 47018          |   | 47021          |   | 47024          |   |
| MF24 | 2,00 | 130,00  | 45,00   | 18,00   | 14,00   | 4 | 47027          |   | 47033          |   | 47036          |   |
| M24  | 3,00 | 130,00  | 45,00   | 18,00   | 14,00   | 4 | 30089          |   | 30090          |   | 30091          |   |
| MF25 | 1,50 | 130,00  | 45,00   | 18,00   | 14,00   | 4 | 47198          |   | 47273          |   | 47276          |   |
| MF26 | 1,50 | 120,00  | 35,00   | 18,00   | 14,00   | 4 |                |   | 47279          |   | 47282          |   |
| MF27 | 1,50 | 127,00  | 37,00   | 20,00   | 16,00   | 4 |                |   | 47288          |   | 47300          |   |
| MF27 | 2,00 | 127,00  | 37,00   | 20,00   | 16,00   | 4 |                |   |                |   | 47435          |   |
| M27  | 3,00 | 135,00  | 45,00   | 20,00   | 16,00   | 4 | 30092          |   | 30093          |   | 30111          |   |
| MF28 | 1,50 | 127,00  | 37,00   | 20,00   | 16,00   | 4 |                |   | 47444          |   | 47453          |   |
| MF30 | 1,50 | 127,00  | 37,00   | 20,00   | 16,00   | 4 |                |   | 47960          |   | 47963          |   |
| MF30 | 2,00 | 127,00  | 37,00   | 20,00   | 16,00   | 4 |                |   | 47966          |   | 47969          |   |
| M30  | 3,50 | 138,00  | 48,00   | 20,00   | 16,00   | 4 | 30112          |   | 30113          |   | 30115          |   |
| MF32 | 1,50 | 137,00  | 37,00   | 22,40   | 18,00   | 4 | 48092          |   | 48095          |   | 48098          |   |
| MF33 | 2,00 | 137,00  | 37,00   | 22,40   | 18,00   | 4 |                |   | 48104          |   | 48107          |   |
| M33  | 3,50 | 151,00  | 51,00   | 22,40   | 18,00   | 4 | 30118          |   | 30120          |   | 30125          |   |
| MF35 | 1,50 | 144,00  | 39,00   | 25,00   | 20,00   | 4 |                |   | 48110          |   | 48113          |   |
| MF36 | 1,50 | 144,00  | 39,00   | 25,00   | 20,00   | 4 |                |   |                |   | 48140          |   |
| MF36 | 2,00 | 144,00  | 39,00   | 25,00   | 20,00   | 4 |                |   | 48149          |   | 48152          |   |
| MF36 | 3,00 | 162,00  | 57,00   | 25,00   | 20,00   | 4 |                |   | 48161          |   | 48164          |   |
| M36  | 4,00 | 162,00  | 57,00   | 25,00   | 20,00   | 4 | 30126          |   | 30138          |   | 30145          |   |
| MF39 | 3,00 | 170,00  | 60,00   | 28,00   | 22,40   | 4 |                |   | 48176          |   | 48188          |   |
| M39  | 4,00 | 170,00  | 60,00   | 28,00   | 22,40   | 4 | 30146          |   | 30147          |   | 30148          |   |
| MF40 | 1,50 | 149,00  | 39,00   | 28,00   | 22,40   | 4 |                |   | 48191          |   | 48194          |   |
| MF42 | 1,50 | 149,00  | 39,00   | 28,00   | 22,40   | 4 |                |   | 48197          |   | 48200          |   |
| MF42 | 3,00 | 170,00  | 60,00   | 28,00   | 22,40   | 4 |                |   |                |   | 48203          |   |
| M42  | 4,50 | 170,00  | 60,00   | 28,00   | 22,40   | 4 | 30149          |   | 30150          |   | 30151          |   |
| MF45 | 1,50 | 165,00  | 45,00   | 31,50   | 25,00   | 4 |                |   | 48206          |   | 48209          |   |
| M45  | 4,50 | 187,00  | 67,00   | 31,50   | 25,00   | 4 | 30152          |   | 30430          |   | 30459          |   |
| MF48 | 1,50 | 165,00  | 45,00   | 31,50   | 25,00   | 4 |                |   |                |   | 48212          |   |
| MF48 | 2,00 | 165,00  | 45,00   | 31,50   | 25,00   | 4 |                |   |                |   | 48218          |   |
| MF48 | 3,00 | 187,00  | 67,00   | 31,50   | 25,00   | 4 |                |   |                |   | 48224          |   |
| M48  | 5,00 | 187,00  | 67,00   | 31,50   | 25,00   | 4 | 30487          |   | 30493          |   | 30494          |   |
| MF50 | 1,50 | 165,00  | 45,00   | 31,50   | 25,00   | 4 |                |   | 48284          |   | 48287          |   |
| M52  | 5,00 | 200,00  | 70,00   | 35,50   | 28,00   | 4 |                |   |                |   | 30495          |   |
| M56  | 5,50 | 200,00  | 70,00   | 35,50   | 28,00   | 4 |                |   |                |   | 30500          |   |





Set **3039****MACHO ÚNICO MANO MÉTRICA / MÉTRICA FINA NORMA ISO**

ISO Standard Metric / Metric Fine Hand Single Tap

Taraud à main unique métrique / métrique pas fin norme ISO

Ref. 3039 + 1015 Zirkonio



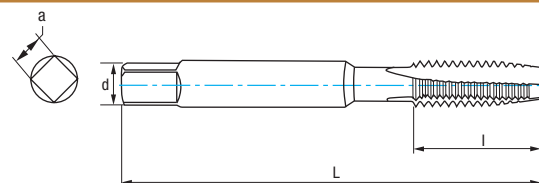
14 Pcs

| Cont.                                                                                                                                                            | Nº Art. Zirkonio | € |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---|
| <b>Machos / Taps / Tarauds</b><br><b>ISO 529: M3-M4-M5-M6-M8-M10-M12</b><br><b>Brocas / Drill Bits / Forets</b><br><b>Zirkonio: 2,5-3,3-4,2-5,0-6,8-8,5-10,2</b> | 26020            |   |

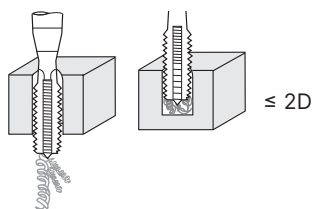
Ref. **3103****MACHO RECTO MÁQUINA UNC NORMA ISO 529**

ISO 529 Norm Standard UNC Machine Straight Tap

Taraud droit machine UNC norme ISO 529



|     |         |          |        |         |     |                 |     |
|-----|---------|----------|--------|---------|-----|-----------------|-----|
| HSS | ISO 529 | B 3,5-5h | C 2-3h | Tol. 6H | GUN | $\alpha$ 10-12° | 60° |
|-----|---------|----------|--------|---------|-----|-----------------|-----|



$$\text{Avance } f = P \text{ (Paso - Pitch - Pas)}$$

$$V_f \text{ (mm/min.)} = r.p.m. \times f$$

$$r.p.m. = \frac{V_c \times 1.000}{\pi \times \phi}$$

| Material |      | Vc (m/min) |
|----------|------|------------|
| Grupo    | Sub. | HSS        |
| P        | P.1  | 6-10       |
| N        | N.1  | 5-8        |
| N        | N.3  | 15-35      |
| N        | N.4  | 14-20      |

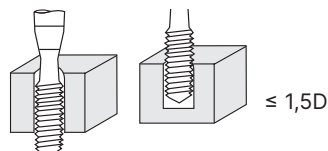
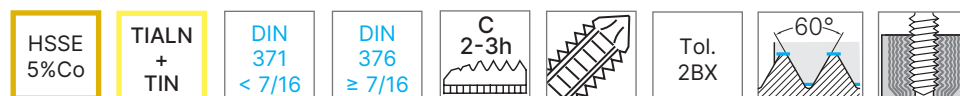
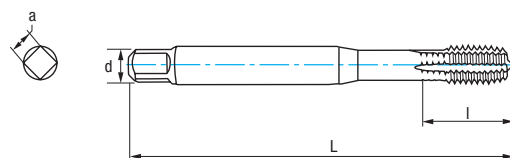


| UNC       | Hilos Threads Filets | L mm | I mm | d mm  | a mm  | Z | Nº Art. HSS | € | Nº Art. HSS | € |
|-----------|----------------------|------|------|-------|-------|---|-------------|---|-------------|---|
| UNC N°1   | 64                   | 41   | 8    | 2,50  | 2,00  | 3 | 62989       |   | 62990       |   |
| UNC N°2   | 56                   | 45   | 10   | 2,80  | 2,24  | 3 | 62991       |   | 62992       |   |
| UNC N°3   | 48                   | 45   | 10   | 2,80  | 2,24  | 3 | 62994       |   | 62995       |   |
| UNC N°4   | 40                   | 48   | 11   | 3,15  | 2,50  | 3 | 62996       |   | 62997       |   |
| UNC N°5   | 40                   | 48   | 11   | 3,15  | 2,50  | 3 | 62998       |   | 62999       |   |
| UNC N°6   | 32                   | 50   | 13   | 3,55  | 2,80  | 3 | 63000       |   | 63001       |   |
| UNC N°8   | 32                   | 53   | 13   | 4,50  | 3,55  | 3 | 63003       |   | 63004       |   |
| UNC N°10  | 24                   | 58   | 16   | 5,00  | 4,00  | 3 | 63006       |   | 63007       |   |
| UNC N°12  | 24                   | 62   | 17   | 5,60  | 4,50  | 3 | 63009       |   | 63012       |   |
| UNC 1/4   | 20                   | 66   | 19   | 6,30  | 5,00  | 3 | 63016       |   | 63018       |   |
| UNC 5/16  | 18                   | 72   | 22   | 8,00  | 6,30  | 3 | 63019       |   | 63021       |   |
| UNC 3/8   | 16                   | 80   | 24   | 10,00 | 8,00  | 3 | 63022       |   | 63027       |   |
| UNC 7/16  | 14                   | 85   | 25   | 8,00  | 6,30  | 3 | 63028       |   | 63030       |   |
| UNC 1/2   | 13                   | 89   | 29   | 9,00  | 7,10  | 3 | 63031       |   | 63033       |   |
| UNC 9/16  | 12                   | 95   | 30   | 11,20 | 9,00  | 3 | 63034       |   | 63036       |   |
| UNC 5/8   | 11                   | 102  | 32   | 12,50 | 10,00 | 3 | 63038       |   | 63039       |   |
| UNC 3/4   | 10                   | 112  | 37   | 14,00 | 11,20 | 3 | 63040       |   | 63042       |   |
| UNC 7/8   | 9                    | 118  | 38   | 16,00 | 12,50 | 3 | 63043       |   | 63045       |   |
| UNC 1"    | 8                    | 130  | 45   | 18,00 | 14,00 | 3 | 63046       |   | 63047       |   |
| UNC 1 1/8 | 7                    | 138  | 48   | 20,00 | 16,00 | 4 | 63048       |   | 63049       |   |
| UNC 1 1/4 | 7                    | 151  | 51   | 22,40 | 18,00 | 4 | 63051       |   | 63052       |   |
| UNC 1 3/8 | 6                    | 162  | 57   | 25,00 | 20,00 | 4 | 63054       |   | 63057       |   |
| UNC 1 1/2 | 6                    | 170  | 60   | 28,00 | 22,40 | 4 | 63058       |   | 63060       |   |
| UNC 1 3/4 | 5                    | 187  | 67   | 31,50 | 25,00 | 4 | 63061       |   | 63063       |   |
| UNC 2"    | 4                    | 200  | 70   | 35,50 | 28,00 | 4 | 63064       |   | 63066       |   |



Ref. **3141**

**MACHO LAMINACIÓN ALTO RENDIMIENTO UNC/UNF**  
 UNC/UNF High Performance **Cold Forming** Machine Tap  
 Taraud machine **réfouleur** haut rendement UNC/UNF



$$\text{Avance } f = P \text{ (Paso - Pitch - Pas)}$$

$$V_f \text{ (mm/min.)} = r.p.m. \times f$$

$$r.p.m. = \frac{V_c \times 1.000}{\pi \times \phi}$$

| Material |      | Vc (m/min.) |
|----------|------|-------------|
| Grupo    | Sub. | TIALN-TIN   |
| P        | P.1  | 10-30       |
|          | P.2  | 10-30       |
|          | P.3  | 8-15        |
|          | P.5  | 10-25       |
| M        |      | 10-25       |
| N        | N.1  | 20-40       |
|          | N.2  | 20-40       |
|          | N.3  | 20-40       |
|          | N.4  | 20-40       |
|          | N.5  | 20-40       |

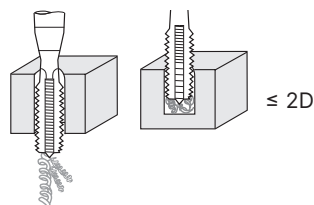
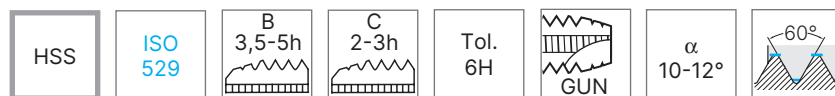
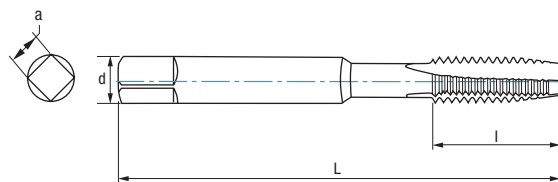
| UNC      | Hilos<br>Threads Filets | L<br>mm | l<br>mm | d<br>mm | a<br>mm | Nº Art.<br>5% Co | € |
|----------|-------------------------|---------|---------|---------|---------|------------------|---|
| UNC Nº5  | 40                      | 56      | 7       | 3,5     | 2,7     | 10812            |   |
| UNC Nº6  | 32                      | 56      | 6       | 4,0     | 3,0     | 10818            |   |
| UNC Nº8  | 32                      | 63      | 7       | 4,5     | 3,4     | 10821            |   |
| UNC Nº10 | 24                      | 70      | 8       | 6,0     | 4,9     | 10824            |   |
| UNC Nº12 | 24                      | 80      | 10      | 6,0     | 4,9     | 10828            |   |
| UNC 1/4  | 20                      | 80      | 13      | 7,0     | 5,5     | 10829            |   |
| UNC 5/16 | 18                      | 90      | 13      | 8,0     | 6,2     | 10830            |   |
| UNC 3/8  | 16                      | 100     | 15      | 10,0    | 8,0     | 10848            |   |
| UNC 7/16 | 14                      | 100     | 15      | 8,0     | 6,2     | 10850            |   |
| UNC 1/2  | 13                      | 110     | 18      | 9,0     | 7,0     | 10851            |   |
| UNC 5/8  | 11                      | 110     | 20      | 12,0    | 9,0     | 10860            |   |



| UNF      | Hilos<br>Threads Filets | L<br>mm | l<br>mm | d<br>mm | a<br>mm | Nº Art.<br>5% Co | € |
|----------|-------------------------|---------|---------|---------|---------|------------------|---|
| UNF Nº5  | 44                      | 56      | 7,0     | 3,5     | 2,7     | 10861            |   |
| UNF Nº6  | 40                      | 56      | 6,0     | 4,0     | 3,0     | 10863            |   |
| UNF Nº8  | 36                      | 63      | 7,0     | 4,5     | 3,4     | 10864            |   |
| UNF Nº10 | 32                      | 70      | 8,0     | 6,0     | 4,9     | 10866            |   |
| UNF Nº12 | 28                      | 80      | 10,0    | 6,0     | 4,9     | 10873            |   |
| UNF 1/4  | 28                      | 80      | 10,0    | 6,0     | 4,9     | 10887            |   |
| UNF 5/16 | 24                      | 90      | 13,0    | 8,0     | 6,2     | 10888            |   |
| UNF 3/8  | 24                      | 100     | 15,0    | 10,0    | 8,0     | 10891            |   |
| UNF 7/16 | 20                      | 100     | 15,0    | 8,0     | 6,2     | 10892            |   |
| UNF 1/2  | 20                      | 110     | 15,0    | 9,0     | 7,0     | 10893            |   |
| UNF 5/8  | 18                      | 110     | 15,0    | 12,0    | 9,0     | 10896            |   |
| UNF 3/4  | 16                      | 120     | 17,0    | 14,0    | 11,0    | 10905            |   |

Ref. 3141 bajo demanda / upon request / sur demande



Ref. **3123**
**MACHO RECTO MÁQUINA UNF NORMA ISO 529**  
 ISO 529 Norm Standard UNF Machine Straight Tap  
 Taraud droit machine UNF norme ISO 529


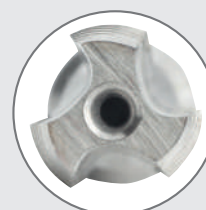
| Material |      | Vc (m/min) |
|----------|------|------------|
| Grupo    | Sub. | HSS        |
| P        | P.1  | 6-10       |
| N        | N.1  | 5-8        |
|          | N.3  | 15-35      |
|          | N.4  | 14-20      |

$$\text{Avance } f = P \text{ (Paso - Pitch - Pas)}$$

$$Vf \text{ (mm/min.)} = r.p.m. \times f$$

$$r.p.m. = \frac{Vc \times 1.000}{\pi \times \phi}$$

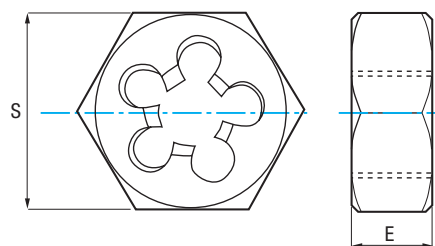
| UNF       | Hilos<br>Threads Filets | L<br>mm | l<br>mm | d<br>mm | a<br>mm | Z | N° Art.<br>HSS | € | N° Art.<br>HSS | € |
|-----------|-------------------------|---------|---------|---------|---------|---|----------------|---|----------------|---|
|           |                         |         |         |         |         |   |                |   |                |   |
| UNF N°0   | 80                      | 41      | 8       | 2,50    | 2,00    | 3 | 63067          |   | 66203          |   |
| UNF N°1   | 72                      | 41      | 8       | 2,50    | 2,00    | 3 | 63069          |   | 66205          |   |
| UNF N°2   | 64                      | 45      | 10      | 2,80    | 2,24    | 3 | 63070          |   | 66398          |   |
| UNF N°3   | 56                      | 45      | 10      | 2,80    | 2,24    | 3 | 84231          |   | 84232          |   |
| UNF N°4   | 48                      | 48      | 11      | 3,15    | 2,50    | 3 | 63072          |   | 66410          |   |
| UNF N°5   | 44                      | 48      | 11      | 3,15    | 2,50    | 3 | 63075          |   | 66413          |   |
| UNF N°6   | 40                      | 50      | 13      | 3,55    | 2,80    | 3 | 63076          |   | 66509          |   |
| UNF N°8   | 36                      | 53      | 13      | 4,50    | 3,55    | 3 | 63079          |   | 66512          |   |
| UNF N°10  | 32                      | 58      | 16      | 5,00    | 4,00    | 3 | 63112          |   | 66566          |   |
| UNF N°12  | 28                      | 62      | 17      | 5,60    | 4,50    | 3 | 63171          |   | 66596          |   |
| UNF 1/4   | 28                      | 66      | 19      | 6,30    | 5,00    | 3 | 63172          |   | 66722          |   |
| UNF 5/16  | 24                      | 72      | 22      | 8,00    | 6,30    | 3 | 63173          |   | 66728          |   |
| UNF 3/8   | 24                      | 80      | 24      | 10,00   | 8,00    | 3 | 63174          |   | 67163          |   |
| UNF 7/16  | 20                      | 85      | 25      | 8,00    | 6,30    | 3 | 63175          |   | 67169          |   |
| UNF 1/2   | 20                      | 89      | 29      | 9,00    | 7,10    | 3 | 63177          |   | 67349          |   |
| UNF 9/16  | 18                      | 95      | 30      | 11,20   | 9,00    | 3 | 63180          |   | 67358          |   |
| UNF 5/8   | 18                      | 102     | 32      | 12,50   | 10,00   | 3 | 63181          |   | 67359          |   |
| UNF 3/4   | 16                      | 112     | 37      | 14,00   | 11,20   | 3 | 63184          |   | 67361          |   |
| UNF 7/8   | 14                      | 118     | 38      | 16,00   | 12,50   | 3 | 63213          |   | 67364          |   |
| UNF 1"    | 12                      | 130     | 45      | 18,00   | 14,00   | 3 | 63326          |   | 67370          |   |
| UNF 1 1/8 | 12                      | 127     | 37      | 20,00   | 16,00   | 4 | 63389          |   | 67373          |   |
| UNF 1 1/4 | 12                      | 137     | 37      | 22,40   | 18,00   | 4 | 63392          |   | 67376          |   |
| UNF 1 3/8 | 12                      | 144     | 39      | 25,00   | 20,00   | 4 | 63446          |   | 67394          |   |
| UNF 1 1/2 | 12                      | 149     | 39      | 28,00   | 22,40   | 4 | 64121          |   | 67403          |   |



Ref. **3560****COJINETE MANO HEXAGONAL MÉTRICA / MÉTRICA FINA**

Metric / Metric Fine HEX Hand Die

Filière à main hexagonale métrique / métrique pas fin



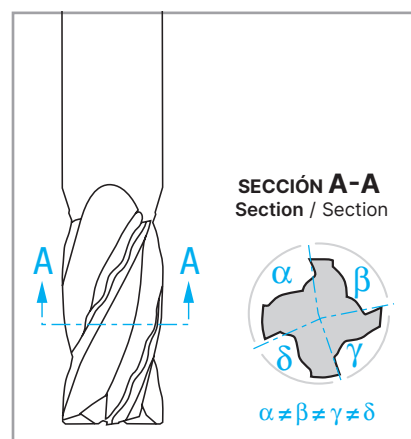
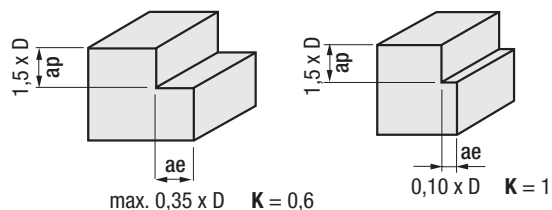
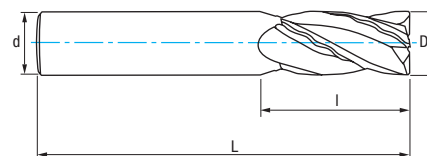
| M/MF        | P           | S<br>mm | E<br>mm | N° Art.<br>HSS | € |
|-------------|-------------|---------|---------|----------------|---|
| MF3         | 0,35        | 19      | 5       | 84244          |   |
| <b>M3</b>   | <b>0,50</b> | 19      | 5       | 84245          |   |
| <b>M3,5</b> | <b>0,60</b> | 19      | 5       | 84246          |   |
| MF4         | 0,50        | 19      | 5       | 84247          |   |
| <b>M4</b>   | <b>0,70</b> | 19      | 5       | 84248          |   |
| <b>M4,5</b> | <b>0,75</b> | 19      | 7       | 84249          |   |
| MF5         | 0,50        | 19      | 7       | 84250          |   |
| <b>M5</b>   | <b>0,80</b> | 19      | 7       | 84251          |   |
| MF6         | 0,75        | 19      | 7       | 84252          |   |
| <b>M6</b>   | <b>1,00</b> | 19      | 7       | 84253          |   |
| MF7         | 0,75        | 22      | 9       | 84254          |   |
| <b>M7</b>   | <b>1,00</b> | 22      | 9       | 84255          |   |
| MF8         | 0,75        | 22      | 9       | 84256          |   |
| MF8         | 1,00        | 22      | 9       | 84259          |   |
| <b>M8</b>   | <b>1,25</b> | 22      | 9       | 84260          |   |
| MF9         | 1,00        | 22      | 9       | 84261          |   |
| <b>M9</b>   | <b>1,25</b> | 22      | 9       | 84262          |   |
| MF10        | 1,00        | 27      | 11      | 84263          |   |
| <b>M10</b>  | <b>1,50</b> | 27      | 11      | 84264          |   |
| MF11        | 1,00        | 27      | 11      | 84266          |   |
| <b>M11</b>  | <b>1,50</b> | 27      | 11      | 84267          |   |
| MF12        | 1,00        | 36      | 10      | 84268          |   |
| MF12        | 1,25        | 36      | 10      | 84269          |   |
| MF12        | 1,50        | 36      | 10      | 84270          |   |
| <b>M12</b>  | <b>1,75</b> | 36      | 14      | 84271          |   |
| MF14        | 1,00        | 36      | 10      | 84272          |   |
| MF14        | 1,25        | 36      | 10      | 84273          |   |
| MF14        | 1,50        | 36      | 10      | 84274          |   |
| <b>M14</b>  | <b>2,00</b> | 36      | 14      | 84275          |   |
| MF16        | 1,50        | 41      | 14      | 84276          |   |

| M/MF       | P           | S<br>mm | E<br>mm | N° Art.<br>HSS | € |
|------------|-------------|---------|---------|----------------|---|
| <b>M16</b> | <b>2,00</b> | 41      | 18      | 84277          |   |
| MF18       | 1,50        | 41      | 14      | 84278          |   |
| MF18       | 2,00        | 41      | 14      | 84279          |   |
| <b>M18</b> | <b>2,50</b> | 41      | 18      | 84281          |   |
| MF20       | 1,50        | 41      | 14      | 84283          |   |
| MF20       | 2,00        | 41      | 14      | 84282          |   |
| <b>M20</b> | <b>2,50</b> | 41      | 18      | 84284          |   |
| MF22       | 1,50        | 50      | 16      | 84285          |   |
| MF22       | 2,00        | 50      | 16      | 84286          |   |
| <b>M22</b> | <b>2,50</b> | 50      | 16      | 84287          |   |
| MF24       | 1,50        | 50      | 16      | 84288          |   |
| MF24       | 2,00        | 50      | 16      | 84289          |   |
| <b>M24</b> | <b>3,00</b> | 50      | 22      | 84290          |   |
| MF26       | 1,50        | 60      | 18      | 84291          |   |
| MF27       | 1,50        | 60      | 18      | 84292          |   |
| MF27       | 2,00        | 60      | 18      | 84293          |   |
| <b>M27</b> | <b>3,00</b> | 60      | 25      | 84294          |   |
| MF28       | 1,50        | 60      | 18      | 84295          |   |
| MF30       | 1,50        | 60      | 18      | 84296          |   |
| MF30       | 2,00        | 60      | 18      | 84297          |   |
| <b>M30</b> | <b>3,50</b> | 60      | 25      | 84298          |   |
| MF32       | 1,50        | 60      | 18      | 84299          |   |
| MF33       | 1,50        | 60      | 18      | 84300          |   |
| MF33       | 2,00        | 60      | 18      | 84301          |   |
| <b>M33</b> | <b>3,50</b> | 60      | 25      | 84302          |   |
| MF35       | 1,50        | 60      | 18      | 84303          |   |
| MF36       | 1,50        | 60      | 18      | 84304          |   |
| MF36       | 2,00        | 60      | 18      | 84305          |   |
| MF36       | 3,00        | 60      | 18      | 84306          |   |
| <b>M36</b> | <b>4,00</b> | 60      | 25      | 84307          |   |



- Para uso con llave fija, ajustable o de vaso
- Ideal para espacios limitados
- Recomendado para reparar roscas
- For use with a fixed, extendable, or socket wrench
- Ideal for tight spaces
- Recommended for rethreading threads
- Pour une utilisation avec une clé fixe, une clé extensible ou à douille
- Idéal pour les espaces restreints
- Recommandé pour réparer les filetages



Ref. **9444**  
IZARCUT**FRESA FRONTAL METAL DURO 4Z CREST CUT ALTO RENDIMIENTO**High Performance **Crest Cut** 4Z Carbide End MillFraise Carbure 4Z **Crest Cut** haute performance

| Material |      | Vc (m/min) | Avances fz/rev. (mm/z) - Feed - Pas |       |       |       |       |
|----------|------|------------|-------------------------------------|-------|-------|-------|-------|
| Grupo    | Sub. | CROMAX     | Ø8                                  | Ø10   | Ø12   | Ø16   | Ø20   |
| P        | P.2  | 112-150    | 0,040                               | 0,055 | 0,065 | 0,080 | 0,100 |
|          | P.3  | 60-130     | 0,035                               | 0,040 | 0,050 | 0,060 | 0,075 |
|          | P.5  | 50-80      | 0,035                               | 0,035 | 0,050 | 0,120 | 0,150 |
| M        |      | 100-130    | 0,025                               | 0,025 | 0,040 | 0,100 | 0,120 |
| K        | K.1  | 60-80      | 0,040                               | 0,055 | 0,065 | 0,080 | 0,100 |
|          | K.2  | 40-60      | 0,020                               | 0,025 | 0,030 | 0,040 | 0,050 |
| S        |      | 90-130     | 0,040                               | 0,055 | 0,065 | 0,080 | 0,100 |
| N        | N.1  | 140-350    | 0,050                               | 0,060 | 0,075 | 0,080 | 0,125 |
|          | N.2  | 140-350    | 0,050                               | 0,060 | 0,075 | 0,080 | 0,125 |

$$\text{r.p.m.} = \frac{V_c \times 1.000}{\pi \times \phi}$$

K = Coeficiente corrección  
Correction coefficient  
Coefficient correction

$$V_f (\text{mm/min.}) = \text{r.p.m.} \times Z \times f_z \times K$$

| D mm  | d mm  | L mm | l mm | Z | N° Art. CROMAX | € |
|-------|-------|------|------|---|----------------|---|
| 10,00 | 10,00 | 72   | 22   | 4 | 28759          |   |
| 12,00 | 12,00 | 83   | 26   | 4 | 28760          |   |
| 16,00 | 16,00 | 92   | 32   | 4 | 28761          |   |



**DIN 6535 HB**  
Bajo demanda / upon request / sur demande

- |                                                             |                                                        |                                                           |
|-------------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------|
| 1. Desbaste y Acabado con la misma herramienta              | 1. Roughing & Finishing with the same tool             | 1. Ebauche et finition avec le même outil                 |
| 2. Mayor profundidad de corte (hasta un 40%)                | 2. Higher cutting depth (up to 40%)                    | 2. Meilleure profondeur de coupe (jusqu'au 40%)           |
| 3. Excelente control de viruta, especialmente sobre Titanio | 3. Excellent chipping control, especially for titanium | 3. Excellent contrôle des copeaux, surtout pour le titane |
| 4. Excelente calidad superficial                            | 4. Excellent surface quality                           | 4. Excellente qualité de surface                          |





# IRIS, UN PASO MÁS EN EL MECANIZADO DE MATERIALES NO FERROSOS

IRIS

IRIS, the Next Level of Machining Non-Ferrous Materials

IRIS, le niveau suivant dans l'usinage des matériaux non ferreux

**Dureza extrema**  
Extreme Hardness  
Extrême dureté

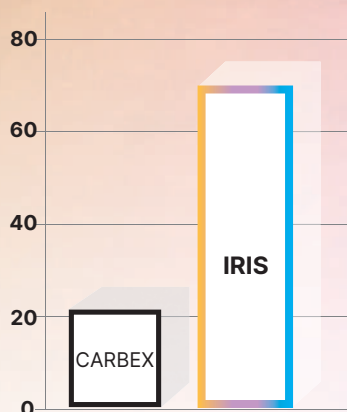
**Super suave**  
Super Smoothness  
Super lissage

**Recubrimiento super fino**  
Super Thin Coating  
Revêtement ultra-fin

## MEJORA DE PROPIEDADES Property Enhancement Amélioration des propriétés

- **Excelente adhesión**
- **Superficies más suaves**
- **Mayores durezas**
- Excellent adhesion
- Smoother surfaces
- Increased hardness
- Excellente adhérence
- Surfaces plus lisses
- Dureté accrue

H<sub>IT</sub> (GPa)



| Base Carbono ta-C<br>Carbon ta-C Base<br>Base Carbone ta-C           |           |
|----------------------------------------------------------------------|-----------|
| Dureza / Hardness / Dureté<br>HV(0,05)                               | > 6500    |
| Oxidación / Oxidation /<br>Oxidation                                 | > 500°C   |
| Coefficiente Fricción<br>Rubbing Coefficient/Coefficient<br>Friction | 0,30-1,50 |
| Color / Colour / Couleur:<br>Arco Iris / Rainbow / Arc-en-ciel       |           |

Con una dureza de 60-70 GPa, IRIS alcanza más del doble de dureza que el recubrimiento actual CARBEX

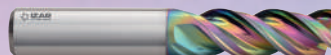
With a hardness of 60-70 GPa, IRIS achieves more than double the hardness of the current coating, CARBEX

Avec une dureté de 60-70 GPa, IRIS atteint plus du double de la dureté du revêtement actuel CARBEX



**Permite el reacondicionamiento**  
Enable Reconditioning  
Permettre le reconditionnement

Ref. 9437



Ref. 9439



Ref. 9427



Ref. 9429



Ref. 9441



Ref. 9416



Ref. 9417



Ref. 9456





# FRESAS DE ROSCAR

## Thread Mills

## Fraises à fileter

Ref. 9330

Ref. 9333

El fresado de roscas es un proceso versátil y rentable para el corte de una gran variedad de roscas, piezas y materiales a mecanizar en la misma máquina.

Se puede utilizar una sola fresa para roscar distintos agujeros con el mismo paso. Esto reduce los costes de sus herramientas y acorta el tiempo de cambio de herramienta. Nuestras fresas de roscar se pueden utilizar para crear roscas tanto internas como externas.

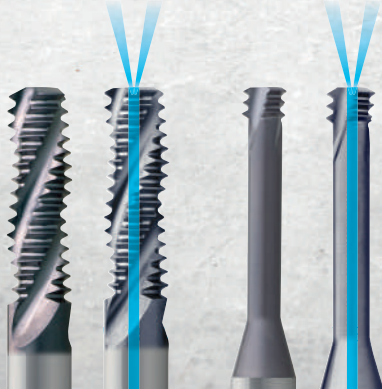
Thread milling is a versatile and cost-effective process for cutting a wide variety of threads, parts and materials to be machined on the same machine. A single threading mill can be used to make a wide range of holes with the same pitch. This lowers the cost of your tools and reduces the tool change time. Our threading mills can be used to make both internal and external threads.

Le fraisage de filets est un processus polyvalent et rentable pour la coupe d'une grande variété de filetages, de pièces et de matériaux à usiner sur la même machine.

Une seule fraise à fileter peut être utilisée pour différents trous avec le même pas. Cela réduit les coûts d'outillage et le temps de changement d'outil. Nos fraises à fileter peuvent être utilisées pour créer à la fois des filetages internes et externes.

### DISPONIBLE CON REFRIGERACIÓN INTERNA

Available with internal cooling  
Disponible avec lubrification interne



Tanto la ref. 9330 como la ref. 9333 están disponibles con refrigeración interna. El refrigerante lubrica, elimina virutas y reduce el calor. Esto da como resultado una mayor vida útil de la herramienta y una mayor productividad.

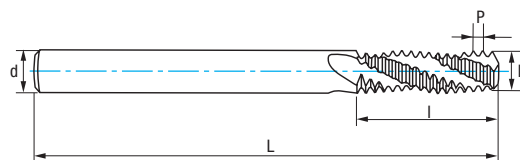
Both ref. 9330 and ref. 9333 are available with internal cooling. The coolant lubricates, removes chips and reduces heat. This results in higher tool life and more productivity.

Les références 9330 et 9333 sont toutes les deux disponibles avec un système de refroidissement interne. Le liquide de refroidissement lubrifie, évacue les copeaux et réduit la chaleur. Cela se traduit par une durée de vie plus longue de l'outil et une productivité accrue.

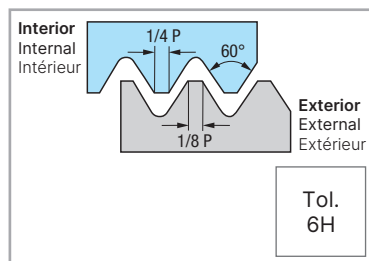
Ref. **9330****FRESA DE ROSCAR MULTIPASO**

Multi-Pitch Threading Mill

Fraise à fileter multi-pas



|                                       |              |              |       |     |                |                          |
|---------------------------------------|--------------|--------------|-------|-----|----------------|--------------------------|
| <b>MD/HM</b><br>Carbure<br>Micrograno | <b>ALTIN</b> | IZAR<br>Std. | 3-4 Z | 30° | DIN<br>6535 HA | Tol.<br>D (f7)<br>d (h7) |
|---------------------------------------|--------------|--------------|-------|-----|----------------|--------------------------|



$$r.p.m. = \frac{V_c \times 1.000}{\pi \times \phi}$$

$$V_f (mm/min.) = r.p.m. \times Z \times f_z \times K$$

K = Coeficiente corrección  
Correction coefficient  
Coefficient correction

| Material |                    | Vc (m/min) |
|----------|--------------------|------------|
| Grupo    | Sub.               | ALTIN      |
| <b>P</b> | <b>P.1</b>         | 50-75      |
|          | <b>P.2</b>         | 50-75      |
|          | <b>P.3</b>         | 40-70      |
| <b>M</b> |                    | 20-40      |
| <b>K</b> | <b>K.1</b>         | 50-100     |
| <b>S</b> | <b>Ti6Al4V</b>     | 30-60      |
|          | <b>Inconel 718</b> | 15-30      |
| <b>N</b> | <b>N.1</b>         | 50-100     |
|          | <b>N.2</b>         | 50-100     |
|          | <b>N.3</b>         | 50-100     |
|          | <b>N.4</b>         | 60-130     |
|          | <b>N.5</b>         | 60-130     |
|          | <b>N.6</b>         | 50-100     |
| <b>H</b> | <b>&lt;50HRC</b>   | 15-30      |

| Avances fz/rev. (mm/z) - Feed - Pas |    |           |    |     |     |           |     |
|-------------------------------------|----|-----------|----|-----|-----|-----------|-----|
| M4                                  | M5 | M6        | M8 | M10 | M12 | M16       | M20 |
| 0,02-0,04                           |    | 0,03-0,05 |    |     |     | 0,05-0,10 |     |

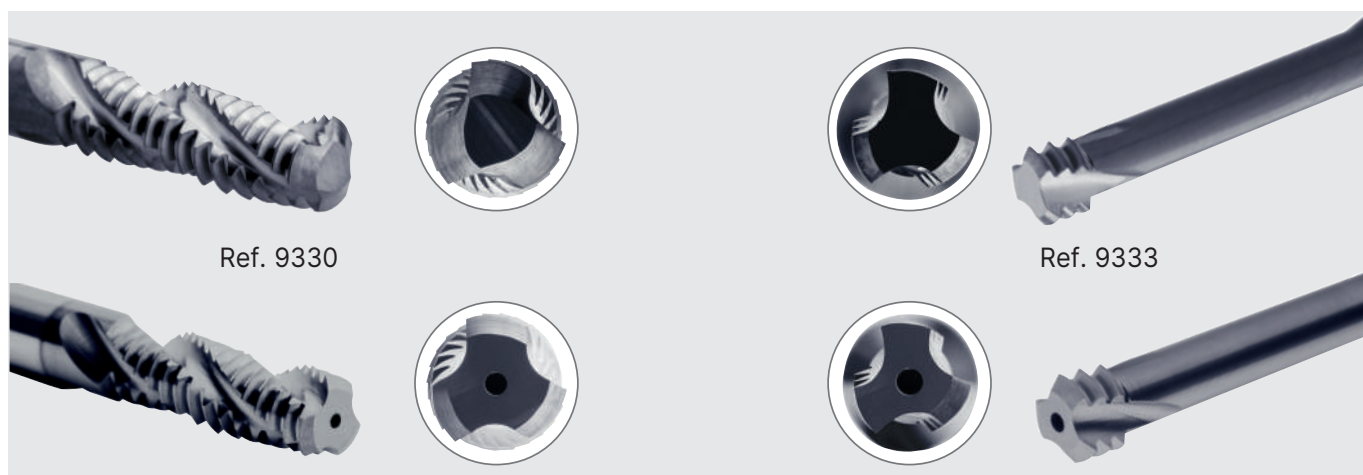


Sin refrigeración  
Without coolant  
Sans refroidissement

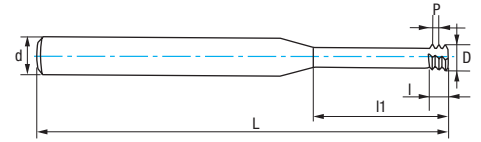


Con refrigeración  
With coolant  
Avec refroidissement

| M  | P    | D mm  | d mm | L mm | I mm  | Z |   | Nº Art. ALTIN | € | Nº Art. ALTIN | € |
|----|------|-------|------|------|-------|---|---|---------------|---|---------------|---|
| 4  | 0,70 | 3,10  | 6    | 64   | 9,00  | 3 | 1 | 84642         |   | 84643         |   |
| 5  | 0,80 | 4,00  | 6    | 64   | 11,00 | 3 | 1 | 84646         |   | 84654         |   |
| 6  | 1,00 | 4,50  | 6    | 64   | 13,50 | 3 | 1 | 84647         |   | 84655         |   |
| 8  | 1,25 | 6,00  | 6    | 64   | 18,00 | 3 | 1 | 84648         |   | 84656         |   |
| 10 | 1,50 | 7,50  | 8    | 64   | 22,00 | 3 | 1 | 84649         |   | 84657         |   |
| 12 | 1,75 | 9,50  | 10   | 70   | 26,00 | 4 | 1 | 84650         |   | 84658         |   |
| 14 | 2,00 | 10,00 | 10   | 70   | 30,00 | 4 | 1 | 84651         |   | 84659         |   |
| 16 | 2,00 | 12,00 | 12   | 83   | 34,00 | 4 | 1 | 84652         |   | 84660         |   |
| 20 | 2,50 | 16,00 | 16   | 100  | 42,00 | 4 | 1 | 84653         |   | 84661         |   |

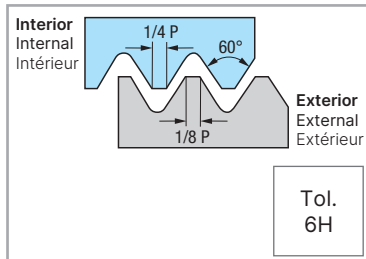




Ref. **9333****FRESA DE ROSCAR 3 PASOS**  
3-Pitch Threading Mill  
Fraise à fileter 3-pas

|                                       |              |              |
|---------------------------------------|--------------|--------------|
| <b>MD/HM</b><br>Carbure<br>Micrograno | <b>ALTIN</b> | IZAR<br>Std. |
|---------------------------------------|--------------|--------------|

|       |     |                |                          |
|-------|-----|----------------|--------------------------|
| 3-4 Z | 15° | DIN<br>6535 HA | Tol.<br>D (f7)<br>d (h7) |
|-------|-----|----------------|--------------------------|



| Material |                    | Vc (m/min) |
|----------|--------------------|------------|
| Grupo    | Sub.               | ALTIN      |
| <b>P</b> | <b>P.1</b>         | 50-75      |
|          | <b>P.2</b>         | 50-75      |
|          | <b>P.3</b>         | 40-70      |
| <b>M</b> |                    | 35-50      |
| <b>K</b> | <b>K.1</b>         | 50-100     |
| <b>S</b> | <b>Ti6Al4V</b>     | 30-60      |
|          | <b>Inconel 718</b> | 15-30      |
| <b>N</b> | <b>N.1</b>         | 50-100     |
|          | <b>N.2</b>         | 50-100     |
|          | <b>N.3</b>         | 50-100     |
|          | <b>N.4</b>         | 60-130     |
|          | <b>N.5</b>         | 60-130     |
|          | <b>N.6</b>         | 50-100     |
| <b>H</b> | <b>&lt;50HRC</b>   | 15-30      |

| Avances fz/rev. (mm/z) - Feed - Pas |           |           |           |           |
|-------------------------------------|-----------|-----------|-----------|-----------|
| M1,6-M2,5                           | M3-M5     | M6        | M8-M16    | M20-M36   |
| 0,01-0,04                           | 0,02-0,05 | 0,03-0,06 | 0,03-0,07 | 0,05-0,10 |

$$r.p.m. = \frac{Vc \times 1.000}{\pi \times \phi}$$

**K =** Coeficiente corrección  
Correction coefficient  
Coefficient correction

$$Vf (mm/min.) = r.p.m. \times Z \times fz \times K$$

**Sin refrigeración**  
Without coolant  
Sans refroidissement

**Con refrigeración**  
With coolant  
Avec refroidissement

| M   | P    | D mm  | d mm | L mm | I mm  | l1 mm | Z |   |
|-----|------|-------|------|------|-------|-------|---|---|
| 1,6 | 0,35 | 1,20  | 6    | 64   | 1,10  | 4,80  | 3 | 1 |
| 1,6 | 0,35 | 1,20  | 6    | 64   | 1,10  | 6,40  | 3 | 1 |
| 1,6 | 0,35 | 1,20  | 6    | 64   | 1,10  | 8,00  | 3 | 1 |
| 1,8 | 0,35 | 1,40  | 6    | 64   | 1,10  | 5,40  | 3 | 1 |
| 1,8 | 0,35 | 1,40  | 6    | 64   | 1,10  | 7,20  | 3 | 1 |
| 1,8 | 0,35 | 1,40  | 6    | 64   | 1,10  | 9,00  | 3 | 1 |
| 2   | 0,40 | 1,50  | 6    | 64   | 1,00  | 6,00  | 3 | 1 |
| 2   | 0,40 | 1,50  | 6    | 64   | 1,20  | 8,00  | 3 | 1 |
| 2   | 0,40 | 1,50  | 6    | 64   | 1,20  | 10,00 | 3 | 1 |
| 2,5 | 0,45 | 1,90  | 6    | 64   | 1,40  | 7,50  | 3 | 1 |
| 2,5 | 0,45 | 1,90  | 6    | 64   | 1,40  | 10,00 | 3 | 1 |
| 2,5 | 0,45 | 1,90  | 6    | 64   | 1,40  | 12,50 | 3 | 1 |
| 3   | 0,50 | 2,40  | 6    | 64   | 1,50  | 9,50  | 3 | 1 |
| 3   | 0,50 | 2,40  | 6    | 64   | 1,50  | 12,00 | 3 | 1 |
| 3   | 0,50 | 2,40  | 6    | 64   | 1,50  | 15,00 | 3 | 1 |
| 4   | 0,70 | 3,10  | 6    | 64   | 2,10  | 12,50 | 3 | 1 |
| 4   | 0,70 | 3,10  | 6    | 64   | 2,10  | 16,00 | 3 | 1 |
| 4   | 0,70 | 3,10  | 6    | 64   | 2,10  | 20,00 | 3 | 1 |
| 5   | 0,80 | 4,00  | 6    | 64   | 2,40  | 16,00 | 3 | 1 |
| 5   | 0,80 | 4,00  | 6    | 64   | 2,40  | 20,00 | 3 | 1 |
| 5   | 0,80 | 4,00  | 6    | 64   | 2,40  | 25,00 | 3 | 1 |
| 6   | 1,00 | 4,50  | 6    | 64   | 3,00  | 20,00 | 3 | 1 |
| 6   | 1,00 | 4,50  | 6    | 70   | 3,00  | 24,00 | 3 | 1 |
| 6   | 1,00 | 4,50  | 6    | 70   | 3,00  | 30,00 | 3 | 1 |
| 8   | 1,25 | 6,00  | 6    | 64   | 3,80  | 24,00 | 4 | 1 |
| 8   | 1,25 | 6,00  | 6    | 78   | 3,80  | 32,00 | 4 | 1 |
| 8   | 1,25 | 6,00  | 6    | 78   | 3,80  | 40,00 | 4 | 1 |
| 10  | 1,50 | 7,50  | 8    | 78   | 4,50  | 33,00 | 4 | 1 |
| 10  | 1,50 | 7,50  | 8    | 89   | 4,50  | 40,00 | 4 | 1 |
| 10  | 1,50 | 7,50  | 8    | 89   | 4,50  | 50,00 | 4 | 1 |
| 12  | 1,75 | 9,50  | 10   | 89   | 5,30  | 38,00 | 4 | 1 |
| 12  | 1,75 | 9,50  | 10   | 110  | 5,30  | 48,00 | 4 | 1 |
| 12  | 1,75 | 9,50  | 10   | 110  | 5,30  | 60,00 | 4 | 1 |
| 16  | 2,00 | 12,00 | 12   | 100  | 6,00  | 50,00 | 4 | 1 |
| 16  | 2,00 | 12,00 | 12   | 130  | 6,00  | 64,00 | 4 | 1 |
| 16  | 2,00 | 12,00 | 12   | 130  | 6,00  | 80,00 | 4 | 1 |
| 20  | 2,50 | 16,00 | 16   | 102  | 7,10  | 50,00 | 4 | 1 |
| 24  | 3,00 | 18,00 | 18   | 102  | 8,60  | 50,00 | 4 | 1 |
| 30  | 3,50 | 20,00 | 20   | 120  | 10,50 | 60,00 | 4 | 1 |
| 36  | 4,00 | 20,00 | 20   | 120  | 11,00 | 60,00 | 4 | 1 |

| Nº Art. ALTIN | € | Nº Art. ALTIN | € |
|---------------|---|---------------|---|
| 84644         |   |               |   |
| 84662         |   |               |   |
| 84663         |   |               |   |
| 84664         |   |               |   |
| 84665         |   |               |   |
| 84666         |   |               |   |
| 84667         |   |               |   |
| 84668         |   |               |   |
| 84669         |   |               |   |
| 84670         |   |               |   |
| 84671         |   |               |   |
| 84672         |   |               |   |
| 84673         |   | 84645         |   |
| 84674         |   | 84704         |   |
| 84675         |   | 84705         |   |
| 84676         |   | 84706         |   |
| 84677         |   | 84707         |   |
| 84678         |   | 84708         |   |
| 84679         |   | 84709         |   |
| 84680         |   | 84710         |   |
| 84681         |   | 84711         |   |
| 84683         |   | 84712         |   |
| 84684         |   | 84713         |   |
| 84685         |   | 84714         |   |
| 84686         |   | 84715         |   |
| 84687         |   | 84716         |   |
| 84688         |   | 84717         |   |
| 84689         |   | 84718         |   |
| 84690         |   | 84719         |   |
| 84691         |   | 84720         |   |
| 84692         |   | 84726         |   |
| 84693         |   | 84727         |   |
| 84694         |   | 84728         |   |
| 84695         |   | 84729         |   |
| 84696         |   | 84730         |   |
| 84697         |   | 84731         |   |
| 84699         |   | 84732         |   |
| 84700         |   | 84733         |   |
| 84701         |   | 84734         |   |
| 84702         |   | 84735         |   |



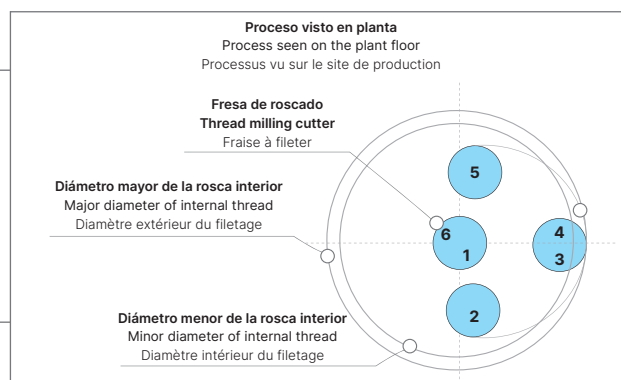
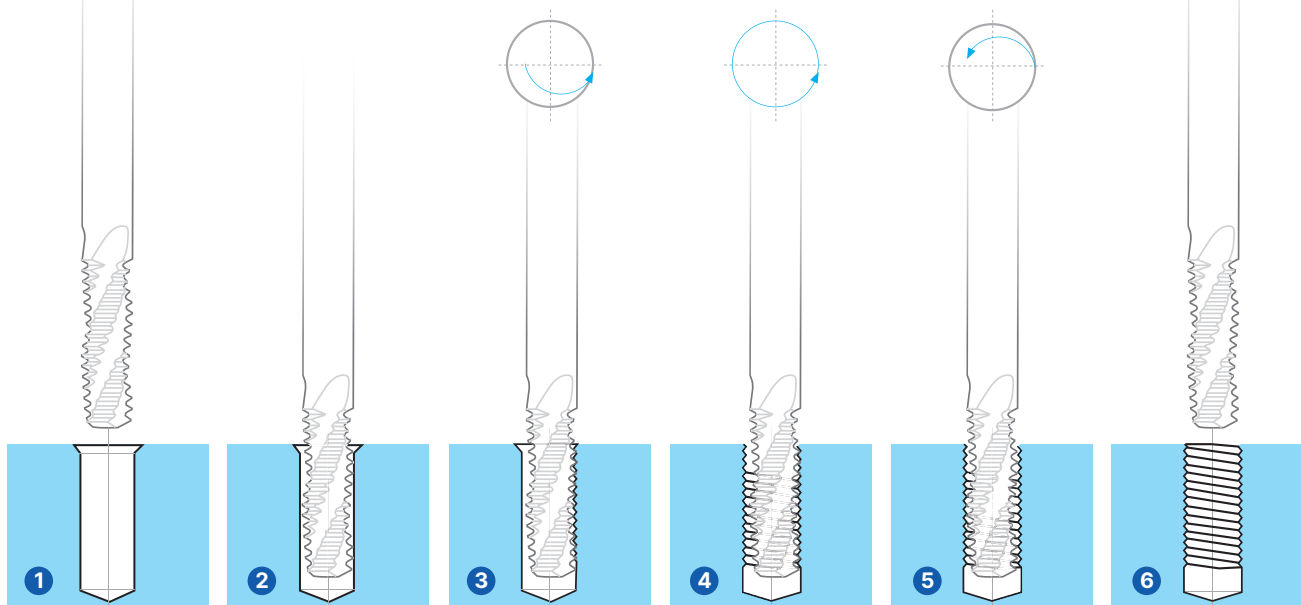
## INFORMACIÓN TÉCNICA FRESAS DE ROSCAR

Technical Information Thread Mills

Information technique fraises à fileter

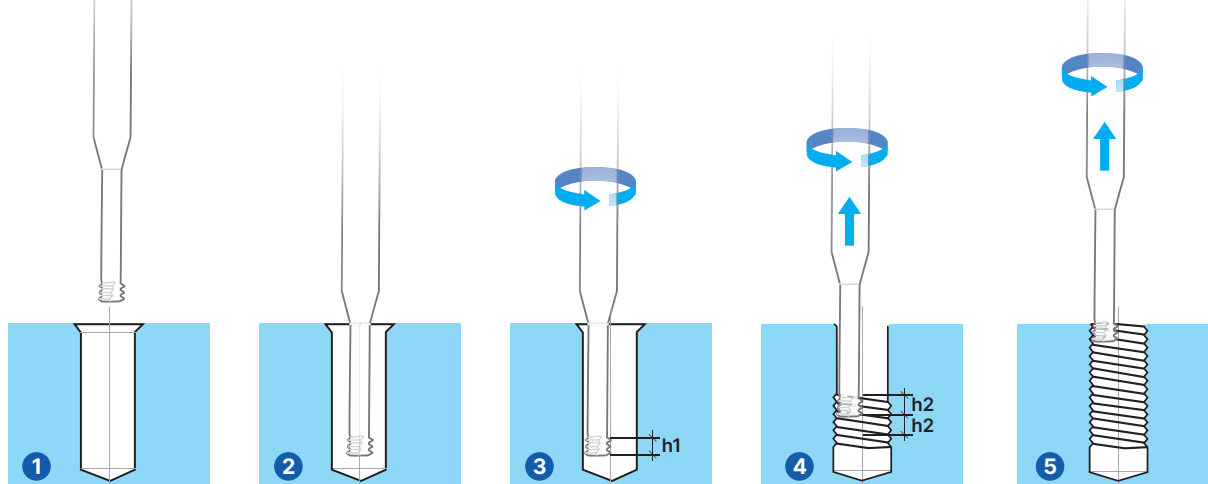
### MÉTODO DE ROSCADO CON REF. 9330

Threading Method with Ref. 9330 - Méthode de taraudage avec Réf. 9330



### MÉTODO DE ROSCADO CON REF. 9333

Threading Method with Ref. 9333 - Méthode de taraudage avec Réf. 9333



Nota:  
Valor h2:

1. Para mecanizado de uso general

$h2 = 3$  Pasos

2. Para mecanizado de materiales termostresistentes (S) o endurecidos (H)

$h2 = 1$  Paso

Nota:  
Value h2:

1. For general-purpose machining

$h2 = 3$  Pitch

2. For machining heat-resistant (S) or hardened (H) materials

$h2 = 1$  Pitch

Nota:  
Valeur h2 :

1. Pour l'usinage général

$h2 = 3$  Pas

2. Pour l'usinage de matériaux résistants à la chaleur (S) ou durcis (H)

$h2 = 1$  Pas





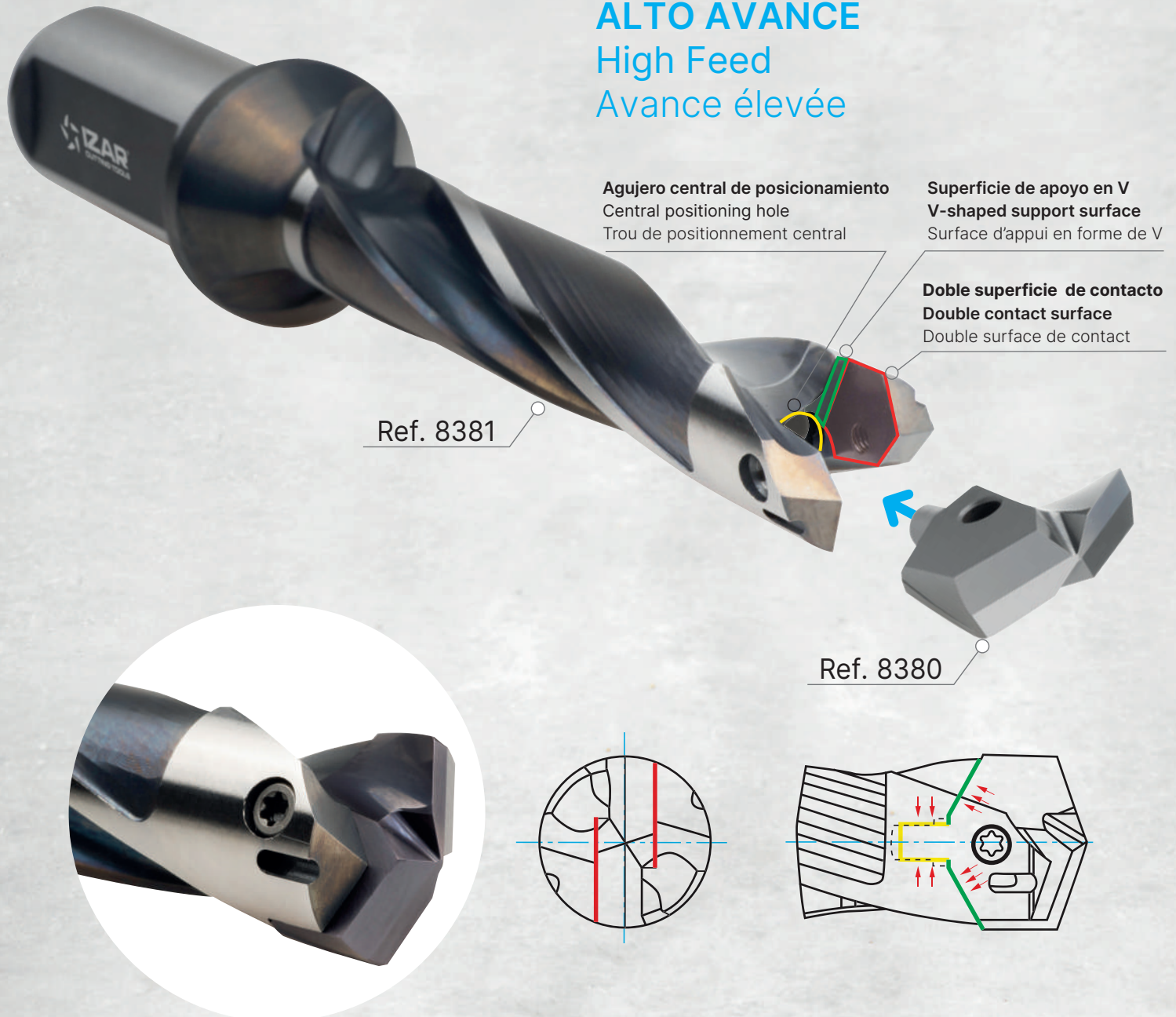
# BROCAS DE CABEZA INTERCAMBIABLE

## Drill Bits With Interchangeable Heads

### Forets à tête interchangeable

Ref. **8380** Ref. **8381**

**ALTO AVANCE**  
High Feed  
Avance élevée



La estructura de posicionamiento triple, presenta una fuerza de conexión y una precisión de posicionamiento extraordinarias, y un diseño geométrico óptimo contribuyen a su excelente velocidad de perforación y durabilidad. Debido a la cabeza intercambiable, se puede lograr una combinación flexible de insertos para varias aplicaciones y soportes de diferentes longitudes, satisfaciendo así las necesidades de diferentes materiales a mecanizar, diferentes profundidades de perforación y otras aplicaciones, minimizando la inversión en herramientas.

The triple positioning structure, featuring outstanding connection strength and positioning accuracy, and an optimal geometrical design contribute to its excellent drilling speed and durability. Due to the interchangeable head, a flexible combination of inserts for various applications and holders of different lengths can be achieved, thus meeting the needs of different materials to be machined, different drilling depths and other applications, minimising the investment in tools.

La structure de positionnement triple, caractérisée par une force de connexion et une précision de positionnement exceptionnelles, ainsi qu'un dessin géométrique optimal contribuent à l'excellente vitesse de perçage et à la durabilité. Grâce à la tête interchangeable, il est possible de combiner de manière flexible des plaquettes pour diverses applications et des supports de différentes longueurs, ce qui permet de répondre aux besoins des différents matériaux à usiner, des différentes profondeurs de perçage et d'autres applications, tout en minimisant l'investissement en termes d'outils.

Ref. **8380****CABEZA BROCA PUNTA INTERCAMBIABLE**Indexable Drill **Insert**

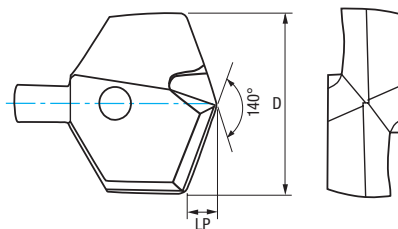
Tête foret à embout amovible

MD/ HM  
Carbure  
Micrograno

ALTIN

Tol.  
k7

IT9~IT10



| D<br>mm | LP<br>mm | N° Art.<br>P | N° Art.<br>M | N° Art.<br>K | N° Art.<br>N |   | € |
|---------|----------|--------------|--------------|--------------|--------------|---|---|
| 10,00   | 1,80     | 56443        | 56449        | 56461        | 56469        | 1 |   |
| 10,20   | 1,90     | 56472        | 56475        | 56478        | 56479        | 1 |   |
| 10,50   | 1,90     | 56525        | 56561        | 56577        | 56580        | 1 |   |
| 11,00   | 2,00     | 56586        | 56589        | 56592        | 56595        | 1 |   |
| 11,50   | 2,10     | 56598        | 56601        | 56607        | 56613        | 1 |   |
| 12,00   | 2,20     | 56616        | 56619        | 56631        | 56635        | 1 |   |
| 12,50   | 2,30     | 56641        | 56705        | 56723        | 56748        | 1 |   |
| 13,00   | 2,40     | 56273        | 56279        | 56282        | 56285        | 1 |   |
| 13,50   | 2,50     | 56751        | 56863        | 56884        | 56887        | 1 |   |
| 14,00   | 2,50     | 56890        | 56893        | 56896        | 56899        | 1 |   |
| 14,50   | 2,60     | 56905        | 56975        | 56977        | 56980        | 1 |   |
| 15,00   | 2,70     | 56984        | 56991        | 57000        | 57038        | 1 |   |
| 15,50   | 2,80     | 57041        | 57044        | 57047        | 57050        | 1 |   |
| 16,00   | 2,90     | 56295        | 56298        | 56301        | 56307        | 1 |   |
| 16,50   | 3,00     | 57053        | 57056        | 57059        | 57062        | 1 |   |
| 17,00   | 3,10     | 57065        | 57067        | 57068        | 57071        | 1 |   |
| 17,50   | 3,20     | 57074        | 57077        | 57080        | 57083        | 1 |   |
| 18,00   | 3,30     | 56358        | 56370        | 56376        | 56382        | 1 |   |
| 18,50   | 3,40     | 57089        | 57095        | 57101        | 57107        | 1 |   |
| 19,00   | 3,50     | 57113        | 57119        | 57143        | 57159        | 1 |   |
| 19,50   | 3,50     | 57160        | 57166        | 57228        | 57242        | 1 |   |
| 20,00   | 3,60     | 54998        | 55001        | 55045        | 55057        | 1 |   |
| 20,50   | 3,70     | 57248        | 57254        | 57260        | 57266        | 1 |   |
| 21,00   | 3,80     | 57269        | 57272        | 57278        | 57296        | 1 |   |
| 21,50   | 3,90     | 57302        | 57324        | 57336        | 57348        | 1 |   |
| 22,00   | 4,00     | 55060        | 55063        | 55074        | 55078        | 1 |   |
| 22,50   | 4,10     | 57360        | 57372        | 57408        | 57420        | 1 |   |
| 23,00   | 4,20     | 57444        | 57468        | 57487        | 57492        | 1 |   |
| 23,50   | 4,30     | 57493        | 57498        | 57499        | 57502        | 1 |   |
| 24,00   | 4,40     | 55090        | 55096        | 55108        | 55117        | 1 |   |
| 24,50   | 4,50     | 57508        | 57511        | 57516        | 57519        | 1 |   |

| D<br>mm | LP<br>mm | N° Art.<br>P | N° Art.<br>M | N° Art.<br>K | N° Art.<br>N |   | € |
|---------|----------|--------------|--------------|--------------|--------------|---|---|
| 25,00   | 4,50     | 57522        | 57528        | 57540        | 57543        | 1 |   |
| 25,50   | 4,60     | 57566        | 57569        | 57572        | 57575        | 1 |   |
| 26,00   | 4,70     | 55120        | 55123        | 55132        | 55138        | 1 |   |
| 26,50   | 4,80     | 57576        | 57578        | 57582        | 57588        | 1 |   |
| 27,00   | 4,90     | 57603        | 57609        | 57623        | 57626        | 1 |   |
| 27,50   | 5,00     | 57629        | 57631        | 57632        | 57634        | 1 |   |
| 28,00   | 5,10     | 57635        | 57637        | 57639        | 57641        | 1 |   |
| 28,50   | 5,20     | 57644        | 57645        | 57681        | 57684        | 1 |   |
| 29,00   | 5,30     | 57702        | 57726        | 57729        | 57732        | 1 |   |
| 29,50   | 5,40     | 57735        | 57742        | 57745        | 57748        | 1 |   |
| 30,00   | 5,50     | 55144        | 55244        | 55246        | 55254        | 1 |   |
| 30,50   | 5,60     | 57751        | 57754        | 57757        | 57760        | 1 |   |
| 31,00   | 5,60     | 57763        | 57766        | 57769        | 57772        | 1 |   |
| 31,50   | 5,70     | 57775        | 57778        | 57781        | 57798        | 1 |   |
| 32,00   | 5,80     | 57809        | 57811        | 57812        | 57814        | 1 |   |
| 32,50   | 5,90     | 57815        | 57817        | 57818        | 57820        | 1 |   |
| 33,00   | 6,00     | 55396        | 55402        | 55408        | 55417        | 1 |   |
| 33,50   | 6,10     | 57821        | 57823        | 57824        | 57826        | 1 |   |
| 34,00   | 6,20     | 57921        | 57933        | 57936        | 57945        | 1 |   |
| 34,50   | 6,30     | 57947        | 57950        | 57951        | 57953        | 1 |   |
| 35,00   | 6,40     | 57954        | 57956        | 57959        | 57960        | 1 |   |
| 35,50   | 6,50     | 57962        | 57963        | 57965        | 57966        | 1 |   |
| 36,00   | 6,60     | 55420        | 55429        | 55441        | 55447        | 1 |   |
| 36,50   | 6,60     | 57968        | 57969        | 57971        | 57972        | 1 |   |
| 37,00   | 6,70     | 57974        | 57977        | 57983        | 57989        | 1 |   |
| 37,50   | 6,80     | 57990        | 57992        | 57995        | 57999        | 1 |   |
| 38,00   | 6,90     | 58014        | 58023        | 58035        | 58052        | 1 |   |
| 38,50   | 7,00     | 58055        | 58056        | 58061        | 58064        | 1 |   |
| 39,00   | 7,10     | 58067        | 58083        | 58092        | 58107        | 1 |   |
| 39,50   | 7,20     | 58110        | 58119        | 58128        | 58131        | 1 |   |
| 39,99   | 7,30     | 58143        | 58156        | 58159        | 58165        | 1 |   |

**P M K**

En stock / In stock / En stock

**N**

Bajo demanda / Upon request / Sur demande

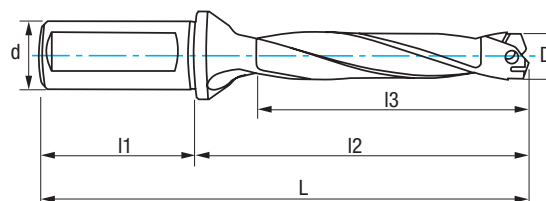
1. El inserto intercambiable fácil de manipular, facilita el reemplazo del mismo en la propia máquina.
2. La combinación de posicionamiento del tornillo de bloqueo central, la ranura en V y la guía cilíndrica mantiene una fuerza de bloqueo y una fuerza de perforación consistentes, estables y fiables.
3. Los materiales óptimos, el recubrimiento de última generación y la tecnología de rectificado de precisión maximizan su rendimiento.
4. La construcción del inserto de alta resistencia lo hace apto para taladrar con altos avances.
5. Portaherramientas con mango ISO-9766.

1. The easy-to-handle interchangeable insert makes it easy to replace the insert on the machine itself.
2. The positioning combination of central locking screw, V-groove and cylindrical guide maintains consistent, stable and reliable locking force and drilling force.
3. Optimum materials, state-of-the-art coating and precision grinding technology maximise performance.
4. The heavy duty insert construction makes it suitable for high feed drilling.
5. Tool holder with ISO-9766 shank.

1. La plaquette interchangeable, facile à manipuler, permet de la remplacer facilement sur la machine elle-même.
2. La combinaison de positionnement de la vis de blocage centrale, de la rainure en V et du guide cylindrique permet d'obtenir une force de blocage et une force de perçage cohérentes, stables et fiables.
3. Des matériaux optimaux, un revêtement de pointe et une technologie de rectification de précision maximisent les performances.
4. La construction robuste de la plaquette permet de réaliser des trous à avance élevée.
5. Porte-outils avec queue ISO-9766.



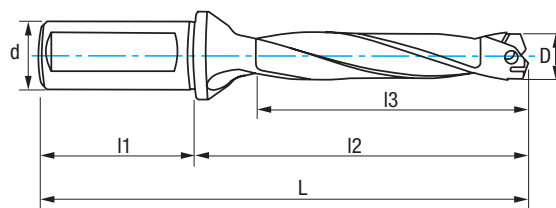


Ref. **8381****CUERPO BROCA PUNTA INTERCAMBIABLE REFRIGERACIÓN INTERIOR 3XD****3XD** Internal Cooling Indexable Drill **Body****Corps** foret à embout amovible lubrification interne **3XD**

| D<br>mm     | L<br>mm | L1<br>mm | L2<br>mm | L3<br>mm | d<br>mm |   | N° Art.<br>HSS | € |
|-------------|---------|----------|----------|----------|---------|---|----------------|---|
| 10,00-10,49 | 96      | 48       | 48       | 31,50    | 16      | 1 | 58168          |   |
| 10,50-10,99 | 98      | 48       | 50       | 33,00    | 16      | 1 | 58180          |   |
| 11,00-11,49 | 100     | 48       | 52       | 34,50    | 16      | 1 | 58195          |   |
| 11,50-11,99 | 102     | 48       | 54       | 36,00    | 16      | 1 | 58204          |   |
| 12,00-12,49 | 105     | 48       | 57       | 37,50    | 16      | 1 | 58218          |   |
| 12,50-12,99 | 107     | 48       | 59       | 39,00    | 16      | 1 | 58228          |   |
| 13,00-13,49 | 109     | 48       | 61       | 40,50    | 16      | 1 | 55486          |   |
| 13,50-13,99 | 111     | 48       | 63       | 42,00    | 16      | 1 | 58281          |   |
| 14,00-14,49 | 113     | 48       | 65       | 43,50    | 16      | 1 | 58357          |   |
| 14,50-14,99 | 115     | 48       | 67       | 45,00    | 16      | 1 | 58366          |   |
| 15,00-15,99 | 122     | 50       | 72       | 48,00    | 20      | 1 | 58374          |   |
| 16,00-16,99 | 127     | 50       | 77       | 51,00    | 20      | 1 | 55509          |   |
| 17,00-17,99 | 131     | 50       | 81       | 54,00    | 20      | 1 | 58381          |   |
| 18,00-18,99 | 141     | 56       | 85       | 57,00    | 25      | 1 | 55628          |   |
| 19,00-19,99 | 146     | 56       | 90       | 60,00    | 25      | 1 | 58388          |   |
| 20,00-20,99 | 150     | 56       | 94       | 63,00    | 25      | 1 | 55764          |   |
| 21,00-21,99 | 154     | 56       | 98       | 66,00    | 25      | 1 | 58393          |   |
| 22,00-22,99 | 158     | 56       | 102      | 69,00    | 25      | 1 | 55895          |   |
| 23,00-23,99 | 163     | 56       | 107      | 72,00    | 25      | 1 | 58402          |   |
| 24,00-24,99 | 172     | 60       | 112      | 75,00    | 32      | 1 | 55907          |   |
| 25,00-25,99 | 176     | 60       | 116      | 78,00    | 32      | 1 | 58410          |   |
| 26,00-26,99 | 181     | 60       | 121      | 81,00    | 32      | 1 | 56041          |   |
| 27,00-27,99 | 185     | 60       | 125      | 84,00    | 32      | 1 | 58414          |   |
| 28,00-28,99 | 189     | 60       | 129      | 87,00    | 32      | 1 | 58429          |   |
| 29,00-29,99 | 193     | 60       | 133      | 90,00    | 32      | 1 | 58435          |   |
| 30,00-30,99 | 198     | 60       | 138      | 93,00    | 32      | 1 | 56195          |   |
| 31,00-31,99 | 202     | 60       | 142      | 96,00    | 32      | 1 | 58444          |   |
| 32,00-32,99 | 206     | 60       | 146      | 99,00    | 32      | 1 | 58450          |   |
| 33,00-33,99 | 211     | 60       | 151      | 102,00   | 32      | 1 | 56229          |   |
| 34,00-34,99 | 226     | 70       | 156      | 105,00   | 40      | 1 | 58459          |   |
| 35,00-35,99 | 230     | 70       | 160      | 108,00   | 40      | 1 | 58468          |   |
| 36,00-36,99 | 234     | 70       | 164      | 111,00   | 40      | 1 | 56241          |   |
| 37,00-37,99 | 239     | 70       | 169      | 114,00   | 40      | 1 | 58477          |   |
| 38,00-38,99 | 243     | 70       | 173      | 117,00   | 40      | 1 | 58485          |   |
| 39,00-39,99 | 252     | 70       | 182      | 123,00   | 40      | 1 | 58492          |   |

| Ref. 8805                              | Ref. 8801                        |
|----------------------------------------|----------------------------------|
| <b>TP-06 M2×9</b><br>Art. 70331 - €    | <b>ZTP-06</b><br>Art. 70442<br>€ |
| <b>TP-06 M2×10</b><br>Art. 70346 - €   |                                  |
| <b>TP-06 M2×11,5</b><br>Art. 70356 - € |                                  |
| <b>TP-07 M2,5×13</b><br>Art. 70359 - € | <b>ZTP-07</b><br>Art. 70445<br>€ |
| <b>TP-07 M2,5×15</b><br>Art. 70362 - € |                                  |
| <b>TP-09 M3×16</b> Art. 70364 - €      |                                  |
| <b>TP-09 M3×17</b><br>Art. 70370 - €   | <b>ZTP-09</b><br>Art. 70448<br>€ |
| <b>TP-09 M3×20</b><br>Art. 70373 - €   |                                  |
| <b>TP-10 M3,5×22</b><br>Art. 70376 - € | <b>ZTP-10</b><br>Art. 70454<br>€ |
| <b>TP-10 M3,5×24</b><br>Art. 70382 - € |                                  |
| <b>TP-15 M4×26</b><br>Art. 70388 - €   | <b>ZTP-15</b><br>Art. 70457<br>€ |
| <b>TP-20 M5×29</b><br>Art. 70397 - €   |                                  |
| <b>TP-20 M5×32</b><br>Art. 70425 - €   | <b>ZTP-20</b><br>Art. 70466<br>€ |
| <b>TP-25 M6×35</b><br>Art. 70434 - €   | <b>ZTP-25</b><br>Art. 70472<br>€ |



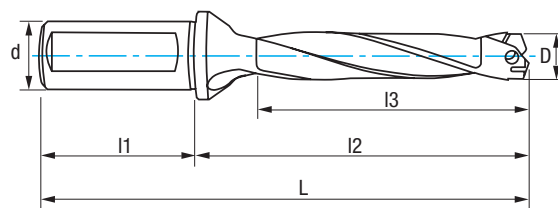
Ref. **8381****CUERPO BROCA PUNTA INTERCAMBIABLE REFRIGERACIÓN INTERIOR 5XD****5XD Internal Cooling Indexable Drill Body****Corps foret à embout amovible lubrification interne 5XD****5XD**ISO  
9766

| D<br>mm     | L<br>mm | L1<br>mm | L2<br>mm | L3<br>mm | d<br>mm |   | N° Art.<br>HSS | € |
|-------------|---------|----------|----------|----------|---------|---|----------------|---|
| 10,00-10,49 | 117     | 48       | 69       | 52,50    | 16      | 1 | 58174          |   |
| 10,50-10,99 | 120     | 48       | 72       | 55,00    | 16      | 1 | 58185          |   |
| 11,00-11,49 | 123     | 48       | 75       | 57,50    | 16      | 1 | 58197          |   |
| 11,50-11,99 | 126     | 48       | 78       | 60,00    | 16      | 1 | 58213          |   |
| 12,00-12,49 | 130     | 48       | 82       | 62,50    | 16      | 1 | 58222          |   |
| 12,50-12,99 | 133     | 48       | 85       | 65,00    | 16      | 1 | 58267          |   |
| 13,00-13,49 | 136     | 48       | 88       | 67,50    | 16      | 1 | 55501          |   |
| 13,50-13,99 | 139     | 48       | 91       | 70,00    | 16      | 1 | 58290          |   |
| 14,00-14,49 | 142     | 48       | 94       | 72,50    | 16      | 1 | 58360          |   |
| 14,50-14,99 | 145     | 48       | 97       | 75,00    | 16      | 1 | 58369          |   |
| 15,00-15,99 | 154     | 50       | 104      | 80,00    | 20      | 1 | 58378          |   |
| 16,00-16,99 | 161     | 50       | 111      | 85,00    | 20      | 1 | 55576          |   |
| 17,00-17,99 | 167     | 50       | 117      | 90,00    | 20      | 1 | 58384          |   |
| 18,00-18,99 | 179     | 56       | 123      | 95,00    | 25      | 1 | 55678          |   |
| 19,00-19,99 | 186     | 56       | 130      | 100,00   | 25      | 1 | 58390          |   |
| 20,00-20,99 | 192     | 56       | 136      | 105,00   | 25      | 1 | 55767          |   |
| 21,00-21,99 | 198     | 56       | 142      | 110,00   | 25      | 1 | 58396          |   |
| 22,00-22,99 | 204     | 56       | 148      | 115,00   | 25      | 1 | 55898          |   |
| 23,00-23,99 | 211     | 56       | 155      | 120,00   | 25      | 1 | 58405          |   |
| 24,00-24,99 | 222     | 60       | 162      | 125,00   | 32      | 1 | 55908          |   |
| 25,00-25,99 | 228     | 60       | 168      | 130,00   | 32      | 1 | 58411          |   |
| 26,00-26,99 | 235     | 60       | 175      | 135,00   | 32      | 1 | 56068          |   |
| 27,00-27,99 | 241     | 60       | 181      | 140,00   | 32      | 1 | 58417          |   |
| 28,00-28,99 | 247     | 60       | 187      | 145,00   | 32      | 1 | 58431          |   |
| 29,00-29,99 | 253     | 60       | 193      | 150,00   | 32      | 1 | 58438          |   |
| 30,00-30,99 | 260     | 60       | 200      | 155,00   | 32      | 1 | 56207          |   |
| 31,00-31,99 | 266     | 60       | 206      | 160,00   | 32      | 1 | 58446          |   |
| 32,00-32,99 | 272     | 60       | 212      | 165,00   | 32      | 1 | 58453          |   |
| 33,00-33,99 | 279     | 60       | 219      | 170,00   | 32      | 1 | 56231          |   |
| 34,00-34,99 | 296     | 70       | 226      | 175,00   | 40      | 1 | 58462          |   |
| 35,00-35,99 | 302     | 70       | 232      | 180,00   | 40      | 1 | 58471          |   |
| 36,00-36,99 | 308     | 70       | 238      | 185,00   | 40      | 1 | 56243          |   |
| 37,00-37,99 | 315     | 70       | 245      | 190,00   | 40      | 1 | 58480          |   |
| 38,00-38,99 | 321     | 70       | 251      | 195,00   | 40      | 1 | 58486          |   |
| 39,00-39,99 | 252     | 70       | 264      | 205,00   | 40      | 1 | 58495          |   |

|                                                                                    |                                                                                          |                                                                                     |                                                                                          |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
|  |                                                                                          |  |                                                                                          |
| Ref. 8805                                                                          |                                                                                          | Ref. 8801                                                                           |                                                                                          |
| <b>TP-06 M2×9</b><br>Art. 70331 - €                                                | <br>1 | <b>ZTP-06</b><br>Art. 70442<br>€                                                    | <br>1 |
| <b>TP-06 M2×10</b><br>Art. 70346 - €                                               |                                                                                          |                                                                                     |                                                                                          |
| <b>TP-06 M2×11,5</b><br>Art. 70356 - €                                             |                                                                                          |                                                                                     |                                                                                          |
| <b>TP-07 M2,5×13</b><br>Art. 70359 - €                                             |                                                                                          | <b>ZTP-07</b><br>Art. 70445<br>€                                                    |                                                                                          |
| <b>TP-07 M2,5×15</b><br>Art. 70362 - €                                             |                                                                                          |                                                                                     |                                                                                          |
| <b>TP-09 M3×16</b> Art. 70364 - €                                                  |                                                                                          | <b>ZTP-09</b><br>Art. 70448<br>€                                                    |                                                                                          |
| <b>TP-09 M3×17</b><br>Art. 70370 - €                                               |                                                                                          |                                                                                     |                                                                                          |
| <b>TP-09 M3×20</b><br>Art. 70373 - €                                               |                                                                                          | <b>ZTP-10</b><br>Art. 70454<br>€                                                    |                                                                                          |
| <b>TP-10 M3,5×22</b><br>Art. 70376 - €                                             |                                                                                          |                                                                                     |                                                                                          |
| <b>TP-10 M3,5×24</b><br>Art. 70382 - €                                             |                                                                                          | <b>ZTP-15</b><br>Art. 70457<br>€                                                    |                                                                                          |
| <b>TP-15 M4×26</b><br>Art. 70388 - €                                               |                                                                                          |                                                                                     |                                                                                          |
| <b>TP-20 M5×29</b><br>Art. 70397 - €                                               |                                                                                          | <b>ZTP-20</b><br>Art. 70466<br>€                                                    |                                                                                          |
| <b>TP-20 M5×32</b><br>Art. 70425 - €                                               |                                                                                          |                                                                                     |                                                                                          |
| <b>TP-25 M6×35</b><br>Art. 70434 - €                                               | <b>ZTP-25</b><br>Art. 70472<br>€                                                         |                                                                                     |                                                                                          |

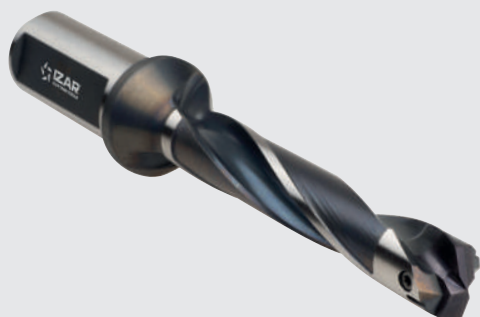


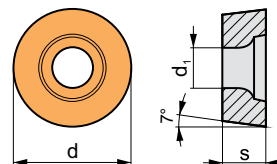


Ref. **8381****CUERPO BROCA PUNTA INTERCAMBIABLE REFRIGERACIÓN INTERIOR 8XD****8XD** Internal Cooling Indexable Drill **Body****Corps** foret à embout amovible lubrification interne **8XD**

| D<br>mm     | L<br>mm | l1<br>mm | l2<br>mm | l3<br>mm | d<br>mm |   | N° Art.<br>HSS | € |
|-------------|---------|----------|----------|----------|---------|---|----------------|---|
| 10,00-10,49 | 148     | 48       | 100      | 84,00    | 16      | 1 | 58177          |   |
| 10,50-10,99 | 153     | 48       | 105      | 88,00    | 16      | 1 | 58189          |   |
| 11,00-11,49 | 158     | 48       | 110      | 92,00    | 16      | 1 | 58203          |   |
| 11,50-11,99 | 162     | 48       | 114      | 96,00    | 16      | 1 | 58216          |   |
| 12,00-12,49 | 167     | 48       | 119      | 100,00   | 16      | 1 | 58227          |   |
| 12,50-12,99 | 172     | 48       | 124      | 104,00   | 16      | 1 | 58272          |   |
| 13,00-13,49 | 176     | 48       | 128      | 108,00   | 16      | 1 | 55507          |   |
| 13,50-13,99 | 181     | 48       | 133      | 112,00   | 16      | 1 | 58354          |   |
| 14,00-14,49 | 186     | 48       | 138      | 116,00   | 16      | 1 | 58363          |   |
| 14,50-14,99 | 190     | 48       | 142      | 120,00   | 16      | 1 | 58372          |   |
| 15,00-15,99 | 202     | 50       | 152      | 128,00   | 20      | 1 | 58375          |   |
| 16,00-16,99 | 212     | 50       | 162      | 136,00   | 20      | 1 | 55600          |   |
| 17,00-17,99 | 221     | 50       | 171      | 144,00   | 20      | 1 | 58387          |   |
| 18,00-18,99 | 236     | 56       | 180      | 152,00   | 25      | 1 | 55752          |   |
| 19,00-19,99 | 246     | 56       | 190      | 160,00   | 25      | 1 | 58392          |   |
| 20,00-20,99 | 255     | 56       | 199      | 168,00   | 25      | 1 | 55773          |   |
| 21,00-21,99 | 264     | 56       | 208      | 176,00   | 25      | 1 | 58399          |   |
| 22,00-22,99 | 273     | 56       | 217      | 184,00   | 25      | 1 | 55901          |   |
| 23,00-23,99 | 283     | 56       | 227      | 192,00   | 25      | 1 | 58408          |   |
| 24,00-24,99 | 297     | 60       | 237      | 200,00   | 32      | 1 | 56017          |   |
| 25,00-25,99 | 306     | 60       | 246      | 208,00   | 32      | 1 | 58413          |   |
| 26,00-26,99 | 316     | 60       | 256      | 216,00   | 32      | 1 | 56128          |   |
| 27,00-27,99 | 325     | 60       | 265      | 224,00   | 32      | 1 | 58420          |   |
| 28,00-28,99 | 334     | 60       | 274      | 232,00   | 32      | 1 | 58432          |   |
| 29,00-29,99 | 343     | 60       | 283      | 240,00   | 32      | 1 | 58441          |   |
| 30,00-30,99 | 353     | 60       | 293      | 248,00   | 32      | 1 | 56219          |   |
| 31,00-31,99 | 362     | 60       | 302      | 256,00   | 32      | 1 | 58447          |   |
| 32,00-32,99 | 371     | 60       | 311      | 264,00   | 32      | 1 | 58456          |   |
| 33,00-33,99 | 381     | 60       | 321      | 272,00   | 32      | 1 | 56235          |   |
| 34,00-34,99 | 401     | 70       | 331      | 280,00   | 40      | 1 | 58465          |   |
| 35,00-35,99 | 410     | 70       | 340      | 288,00   | 40      | 1 | 58474          |   |
| 36,00-36,99 | 419     | 70       | 349      | 296,00   | 40      | 1 | 56255          |   |
| 37,00-37,99 | 429     | 70       | 359      | 304,00   | 40      | 1 | 58483          |   |
| 38,00-38,99 | 438     | 70       | 368      | 312,00   | 40      | 1 | 58489          |   |
| 39,00-39,99 | 457     | 70       | 387      | 328,00   | 40      | 1 | 58498          |   |

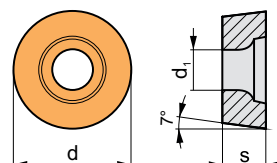
| Ref. 8805                              | Ref. 8801                        |
|----------------------------------------|----------------------------------|
| <b>TP-06 M2×9</b><br>Art. 70331 - €    | 5                                |
| <b>TP-06 M2×10</b><br>Art. 70346 - €   | <b>ZTP-06</b><br>Art. 70442<br>€ |
| <b>TP-06 M2×11,5</b><br>Art. 70356 - € |                                  |
| <b>TP-07 M2,5×13</b><br>Art. 70359 - € | <b>ZTP-07</b><br>Art. 70445<br>€ |
| <b>TP-07 M2,5×15</b><br>Art. 70362 - € |                                  |
| <b>TP-09 M3×16</b> Art. 70364 - €      | <b>ZTP-09</b><br>Art. 70448<br>€ |
| <b>TP-09 M3×17</b><br>Art. 70370 - €   |                                  |
| <b>TP-09 M3×20</b><br>Art. 70373 - €   | <b>ZTP-10</b><br>Art. 70454<br>€ |
| <b>TP-10 M3,5×22</b><br>Art. 70376 - € |                                  |
| <b>TP-10 M3,5×24</b><br>Art. 70382 - € | <b>ZTP-15</b><br>Art. 70457<br>€ |
| <b>TP-15 M4×26</b><br>Art. 70388 - €   |                                  |
| <b>TP-20 M5×29</b><br>Art. 70397 - €   | <b>ZTP-20</b><br>Art. 70466<br>€ |
| <b>TP-20 M5×32</b><br>Art. 70425 - €   |                                  |
| <b>TP-25 M6×35</b><br>Art. 70434 - €   | <b>ZTP-25</b><br>Art. 70472<br>€ |



Ref. **8536**
**PLAQUITA INTERCAMBIABLE TORNEADO RCGT**  
 RCGT Turning Indexable Insert  
 Plaquette tournage RCGT


|                                | Dimensiones<br>Dimensions |         |                      | Condiciones Corte<br>Cutting Conditions<br>Conditions coupe |                      |                                                                                    |                  |   |
|--------------------------------|---------------------------|---------|----------------------|-------------------------------------------------------------|----------------------|------------------------------------------------------------------------------------|------------------|---|
| ISO                            | d<br>mm                   | s<br>mm | d <sub>1</sub><br>mm | f<br>mm                                                     | a <sub>p</sub><br>mm |  | Nº Art.<br>P-010 | € |
| Acabado / Finishing / Finition |                           |         |                      |                                                             |                      |                                                                                    |                  |   |
| RCGT-0803M0-F-ZAL              | 8,00                      | 3,18    | 3,40                 | 0,05-0,25                                                   | 0,50-2,50            | 10                                                                                 | 70773            |   |
| RCGT-1003M0-F-ZAL              | 10,00                     | 3,18    | 4,40                 | 0,10-0,30                                                   | 1,00-3,00            | 10                                                                                 | 48761            |   |
| RCGT-1204M0-F-ZAL              | 12,00                     | 4,76    | 4,40                 | 0,10-0,35                                                   | 1,00-3,50            | 10                                                                                 | 45170            |   |


 Ejemplo Pedido / Order Example / Exemple commande:  
 Ref. 8536 RCGT-0803M0-F-ZAL P-010

 Porta Plaquetas / Tool Holder / Porte-Plaquettes:  
 Ref. 8705
Ref. **8537**
**PLAQUITA INTERCAMBIABLE TORNEADO RCMT**  
 RCMT Turning Indexable Insert  
 Plaquette tournage RCMT


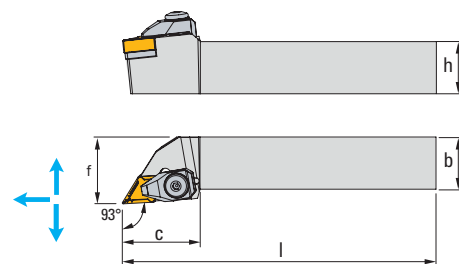
|                                                                   | Dimensiones<br>Dimensions |         |                      | Condiciones Corte<br>Cutting Conditions<br>Conditions coupe |                      |                                                                                     |                  |                  |                  |   |
|-------------------------------------------------------------------|---------------------------|---------|----------------------|-------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------|------------------|------------------|------------------|---|
| ISO                                                               | d<br>mm                   | s<br>mm | d <sub>1</sub><br>mm | f<br>mm                                                     | a <sub>p</sub><br>mm |  | N° Art.<br>C-G15 | N° Art.<br>C-G25 | N° Art.<br>P-H10 | € |
| Semi-Desbaste / Semi-Roughing / Semi-Ébauche                      |                           |         |                      |                                                             |                      |                                                                                     |                  |                  |                  |   |
| RCMT-0803M0-E-ZRR                                                 | 8,00                      | 3,18    | 3,40                 | 0,10-0,80                                                   | 0,80-3,20            | 10                                                                                  | 70749            | 77229            |                  |   |
| RCMT-1003M0-E-ZRR                                                 | 10,00                     | 3,18    | 4,40                 | 0,12-1,00                                                   | 1,00-4,00            | 10                                                                                  | 70752            | 13773            |                  |   |
| RCMT-10T3M0-E-ZRR                                                 | 10,00                     | 3,97    | 4,40                 | 0,16-1,40                                                   | 1,00-4,00            | 10                                                                                  | 80783            | 80786            |                  |   |
| RCMT-1204M0-E-ZRR                                                 | 12,00                     | 4,76    | 4,40                 | 0,20-1,80                                                   | 1,20-4,80            | 10                                                                                  | 70755            | 44214            |                  |   |
| RCMT-1606M0-E-ZRR                                                 | 16,00                     | 6,35    | 5,50                 | 0,25-2,30                                                   | 1,60-6,40            | 10                                                                                  | 70758            | 69051            |                  |   |
| INOX Semi-Acabado / Semi-Finishing Stainless / Inox Semi-Finition |                           |         |                      |                                                             |                      |                                                                                     |                  |                  |                  |   |
| RCMT-0803M0-E-ZMM                                                 | 8,00                      | 3,18    | 3,40                 | 0,15-0,40                                                   | 0,50-3,00            | 10                                                                                  |                  |                  | 24544            |   |
| RCMT-1003M0-E-ZMM                                                 | 10,00                     | 3,18    | 4,40                 | 0,15-0,45                                                   | 0,75-4,00            | 10                                                                                  |                  |                  | 53622            |   |


 Ejemplo Pedido / Order Example / Exemple commande:  
 Ref. 8537 RCMT-0803M0-E-ZRR C-G15

 Porta Plaquetas / Tool Holder / Porte-Plaquettes:  
 Ref. 8705


Ref. 8792

**PORTA-PLAQUITAS TORNEADO EXTERIOR PLAQUITAS NEGATIVAS DDJN.-93°**  
 DDJN.-93° Negative Inserts External Turning Tool-Holder  
 Porte-plaquettes tournage extérieur plaquettes negatives DDJN.-93°



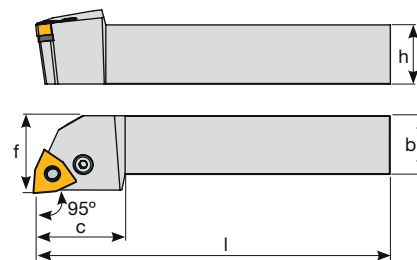
| ISO             | R<br>Dcha. | N°<br>Art. | L<br>Izda. | N°<br>Art. |               | h<br>mm | b<br>mm | l<br>mm | c<br>mm | f<br>mm | € |            |            |            |            |            |            |
|-----------------|------------|------------|------------|------------|---------------|---------|---------|---------|---------|---------|---|------------|------------|------------|------------|------------|------------|
| DDJNR-2020K11   | ●          | 31140      |            |            | DN...<br>1104 | 20      | 20      | 125     | 30      | 25      |   | Ref. 8815  | Ref. 8812  | Ref. 8816  | Ref. 8816  | Ref. 8812  | Ref. 8812  |
| DDJNL-2020K11   |            |            | ●          | 31191      |               | 20      | 20      | 125     | 30      | 25      |   | Art. 31237 | Art. 31239 | Art. 31241 | Art. 31243 | Art. 31245 | Art. 31247 |
| DDJNR-2525M11   | ●          | 31200      |            |            |               | 25      | 25      | 150     | 30      | 32      |   | €          | €          | €          | €          | €          | €          |
| DDJNL-2525M11   |            |            | ●          | 31233      |               | 25      | 25      | 150     | 30      | 32      |   |            |            |            |            |            |            |
| DDJNR-2020K15   | ●          | 31234      |            |            | DN...<br>1504 | 20      | 20      | 125     | 38      | 25      |   |            |            |            |            |            |            |
| DDJNL-2020K15   |            |            | ●          | 31235      |               | 20      | 20      | 125     | 38      | 25      |   |            |            |            |            |            |            |
| DDJNR-2525M15   | ●          | 31236      |            |            |               | 25      | 25      | 150     | 38      | 38      |   |            |            |            |            |            |            |
| DDJNL-2525M15   |            |            | ●          | 31019      |               | 25      | 25      | 150     | 38      | 38      |   | Art. 31238 | Art. 31240 | Art. 31242 | Art. 31244 | Art. 31246 | Art. 31248 |
| DDJNR-2020K15-N | ●          | 31249      |            |            | DN...<br>1506 | 20      | 20      | 125     | 35      | 25      |   | €          | €          | €          | €          | €          | €          |
| DDJNL-2020K15-N |            |            | ●          | 31250      |               | 20      | 20      | 125     | 35      | 25      |   |            |            |            |            |            |            |
| DDJNR-2525M15-N | ●          | 31251      |            |            |               | 25      | 25      | 150     | 35      | 32      |   |            |            |            |            |            |            |
| DDJNL-2525M15-N |            |            | ●          | 31261      |               | 25      | 25      | 150     | 35      | 32      |   |            |            |            |            |            |            |

**Plaquita / Insert / Plaque:**  
**Ref. 8530**

|  |                                                 |
|--|-------------------------------------------------|
|  | <b>Placa Base</b> - Base Plate - Plaque de base |
|  | <b>Brida</b> - Clamp - Bride                    |
|  | <b>Tornillo</b> - Screw - Vis                   |
|  | <b>Tornillo</b> - Screw - Vis                   |
|  | <b>Muelle</b> - Spring - Resorte                |
|  | <b>Arandela</b> - Washer - Machine à laver      |

Ref. 8711

PORTA-PLAQUITAS TORNEADO EXTERIOR PLAQUITAS NEGATIVAS PWLN.-95°  
 PWLN.-95° Negative Inserts External Turning Tool-Holder  
 Porte-plaquettes tournage extérieur plaquettes négatives PWLN.-95°



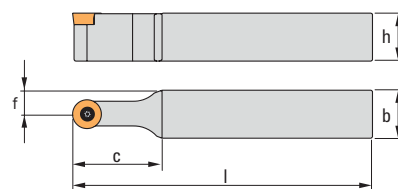
| ISO          | R<br>Dcha. | N°<br>Art. | L<br>Izda. | N°<br>Art. |             | h<br>mm | b<br>mm | l<br>mm | c<br>mm | f<br>mm | € |                            |                             |                            |
|--------------|------------|------------|------------|------------|-------------|---------|---------|---------|---------|---------|---|----------------------------|-----------------------------|----------------------------|
| PWLN-1616H06 | ●          | 72344      |            |            |             | 16      | 16      | 100     | 25      | 20      |   | Ref. 8815                  | Ref. 8813                   | Ref. 8816                  |
| PWLN-1616H06 |            |            | ●          | 25720      |             | 16      | 16      | 100     | 25      | 20      |   |                            |                             |                            |
| PWLN-2020K06 | ●          | 25723      |            |            | WNMG-0604.. | 20      | 20      | 125     | 25      | 25      |   | PWLN-06<br>Art. 59086<br>€ | 3,5x12,2<br>Art. 25953<br>€ | M6x1-17<br>Art. 25955<br>€ |
| PWLN-2020K06 |            |            | ●          | 25724      |             | 20      | 20      | 125     | 25      | 25      |   |                            |                             |                            |
| PWLN-2525M06 | ●          | 25736      |            |            |             | 25      | 25      | 150     | 25      | 32      |   |                            |                             |                            |
| PWLN-2525M06 |            |            | ●          | 80529      |             | 25      | 25      | 150     | 25      | 32      |   |                            |                             |                            |
| PWLN-2525M08 | ●          | 74976      |            |            |             | 25      | 25      | 150     | 34      | 32      |   | PWLN-08<br>Art. 25952<br>€ | 4,5x13<br>Art. 25954<br>€   | M8x1-21<br>Art. 25956<br>€ |
| PWLN-2525M08 |            |            | ●          | 25741      | WNMG-0804.. | 25      | 25      | 150     | 34      | 32      |   |                            |                             |                            |
| PWLN-3232P08 | ●          | 25748      |            |            |             | 32      | 32      | 170     | 34      | 40      |   |                            |                             |                            |
| PWLN-3232P08 |            |            | ●          | 25759      |             | 32      | 32      | 170     | 34      | 40      |   |                            |                             |                            |

Plaqueta / Insert / Plaque: Ref. 8580

|  |                                          |
|--|------------------------------------------|
|  | Placa Base - Base Plate - Plaque de base |
|  | Palanca - Lever - Levier                 |
|  | Tornillo - Screw - Vis                   |

Ref. 8705

PORTA-PLAQUITAS TORNEADO EXTERIOR PLAQUITAS POSITIVAS SRDCN  
 SRDCN Positive Inserts External Turning Tool-Holder  
 Porte-plaquettes tournage extérieur plaquettes positives SRDCN



| ISO           | N°<br>Art. |          | h<br>mm | b<br>mm | l<br>mm | c<br>mm | f<br>mm | € |                             |                          |
|---------------|------------|----------|---------|---------|---------|---------|---------|---|-----------------------------|--------------------------|
| SRDCN-2020K08 | 70728      | RC..0803 | 20      | 20      | 125     | 37      | 10,00   |   | Ref. 8816                   | Ref. 8801                |
| SRDCN-2525M08 | 70731      |          | 25      | 25      | 150     | 37      | 12,50   |   | M3x7<br>Art. 70192<br>€     | ZT-8<br>Art. 10506<br>€  |
| SRDCN-2020K10 | 24355      | RC..1003 | 20      | 20      | 125     | 35      | 10,00   |   |                             |                          |
| SRDCN-2525M10 | 67610      | RC..10T3 | 25      | 25      | 150     | 35      | 12,50   |   | M3,5x8,5<br>Art. 70740<br>€ | ZT-15<br>Art. 10512<br>€ |
| SRDCN-2020K12 | 34448      | RC..1204 | 20      | 20      | 125     | 38      | 10,00   |   |                             |                          |
| SRDCN-2525M12 | 70733      |          | 25      | 25      | 150     | 38      | 12,50   |   |                             |                          |
| SRDCN-2525M16 | 70735      | RC..1606 | 25      | 25      | 150     | 35      | 12,50   |   | M5x12<br>Art. 70746<br>€    | ZT-20<br>Art. 13845<br>€ |



|  |                                            |
|--|--------------------------------------------|
|  | Tornillo - Screw - Vis                     |
|  | Destornillador<br>Screwdriver<br>Tournevis |

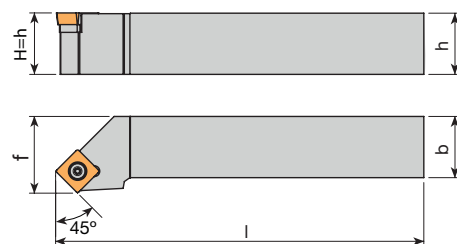
Ejemplo Pedido / Order Example / Exemple commande:  
 Ref. 8705 SRDCN-2020K08

Plaqueta / Insert / Plaque:  
 Refs. 8536-8537





Ref. 8723

**PORTA-PLAQUITAS TORNEADO EXTERIOR PLAQUITAS POSITIVAS SSSC.-45°**  
 SSSC.-45° Positive Inserts External Turning Tool-Holder  
 Porte-plaquettes tournage extérieur plaquettes positives SSSC.-45°


| ISO           | R Dcha. | Nº Art. | L Izda. | Nº Art. |           | h mm | b mm | l mm | f mm | € |                      |                                             |                           |                    |
|---------------|---------|---------|---------|---------|-----------|------|------|------|------|---|----------------------|---------------------------------------------|---------------------------|--------------------|
| SSSCR-1212F09 | ●       | 28386   |         |         | SC.. 09T3 | 12   | 12   | 80   | 16   |   | Ref. 8815            | Ref. 8816                                   | Ref. 8816                 | Ref. 8801          |
| SSSCL-1212F09 |         |         | ●       | 67800   |           | 12   | 12   | 80   | 16   |   | -                    | -                                           | T-15-M3,5x11 Art. 31558 € | ZT-15 Art. 10512 € |
| SSSCR-1616H09 | ●       | 69642   |         |         |           | 16   | 16   | 100  | 20   |   | SSSC-09 Art. 31553 € | M3,5x0,6x M5x0,5x11,3x 3,5x06 Art. 31556 €  | T-15-3,5x14 Art. 31560 €  |                    |
| SSSCL-1616H09 |         |         | ●       | 28392   |           | 16   | 16   | 100  | 20   |   |                      |                                             |                           |                    |
| SSSCR-2020K12 | ●       | 68959   |         |         | SC.. 1204 | 20   | 20   | 125  | 25   |   |                      |                                             |                           |                    |
| SSSCL-2020K12 |         |         | ●       | 28393   |           | 20   | 20   | 125  | 25   |   | SSSC-12 Art. 16147 € | M4,5x0,75x M6x0,75x13x 4,5x7,5 Art. 31557 € | T-20-M4,5x16 Art. 31559 € | ZT-20 Art. 13845 € |
| SSSCR-2525M12 | ●       | 39344   |         |         |           | 25   | 25   | 150  | 32   |   |                      |                                             |                           |                    |
| SSSCL-2525M12 |         |         | ●       | 28394   |           | 25   | 25   | 150  | 32   |   |                      |                                             |                           |                    |

Placa Base - Base Plate - Plaque de base

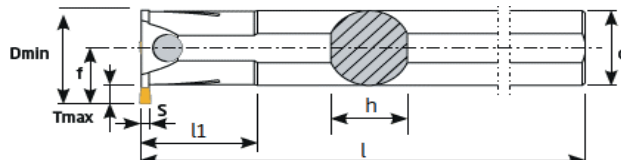
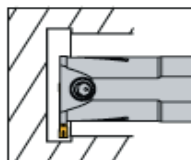
Tornillo - Screw - Vis

Plaquita / Insert / Plaque: Ref. 8540

Tornillo - Screw - Vis

Destornillador - Screwdriver - Tournevis

Ref. 8866

**PORTA-PLAQUITAS DE RANURADO INTERIOR S-GMGG**  
 S-GMGG Internal Grooving Tool-Holder  
 Porte-plaquettes rainurage intérieur S-GMGG


| ISO          | R Dcha. | Nº Art. |               | d mm | h mm | f mm  | l mm | l1 mm | Dmin mm | Tmax mm | s mm | € |                    |
|--------------|---------|---------|---------------|------|------|-------|------|-------|---------|---------|------|---|--------------------|
| S16Q-GMGGRO2 | ●       | 25493   | MGMN-2.00.... | 16   | 15   | 12,50 | 180  | 35    | 21      | 5,00    | 2    |   | Ref. 8816          |
| S20Q-GMGGRO3 | ●       | 25494   | MGMN-3.00.... | 20   | 18   | 15,50 | 180  | 35    | 26      | 6,00    | 3    |   | M5x12 Art. 25531 € |
| S25R-GMGGRO3 | ●       | 25504   |               | 25   | 23   | 19,00 | 200  | 40    | 32      | 6,70    | 3    |   | M5x16 Art. 19194 € |
| S25R-GMGGRO4 | ●       | 25506   | MGMN-4.00.... | 25   | 23   | 18,20 | 200  | 40    | 31      | 6,00    | 4    |   | M6x20 Art. 19216 € |
| S32S-GMGGRO4 | ●       | 25507   |               | 32   | 30   | 21,50 | 250  | 60    | 38      | 6,00    | 4    |   |                    |

\* Portaplaquetas a izquierdas bajo demanda

\* Left-Hand Tool-Holder upon request

\* Porte-plaquettes à gauche sur demande

Plaquita / Insert / Plaque: Ref. 8601

Tornillo - Screw - Vis



Ref. **8231**

PORTA-PLAQUITAS FRESADO **ALTO AVANCE SLO-03 REFRIGERACIÓN INTERIOR**  
**Internal Cooling SLO-03 High Feed Tool-Holder**  
 Porte-Plaquettes fraiseage **haute avance SLO-03 lubrification interne**



| ISO           | Ø D | Ø d H7 | Z | L  | Nº Art. | € |  |  |
|---------------|-----|--------|---|----|---------|---|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|               |     |        |   |    |         |   | Ref. 8804                                                                           | Ref. 8801                                                                           |
| 40E6R40-SLO03 | 40  | 16     | 6 | 40 | 48491   |   | M3x7<br>Art. 70192<br>€                                                             | ZT-8<br>Art. 10506<br>€                                                             |
| 50E7R50-SLO03 | 50  | 22     | 7 | 50 | 48500   |   |                                                                                     |                                                                                     |
| 63E9R50-SLO03 | 63  | 22     | 9 | 50 | 70191   |   |                                                                                     |                                                                                     |



Plaquita / Insert / Plaqueette:  
**Ref. 8691**

Ref. **8261**

PORTA-PLAQUITAS FRESADO **ALTO AVANCE SLO-03 REFRIGERACIÓN INTERIOR**  
**Internal Cooling SLO-03 High Feed Tool-Holder**  
 Porte-Plaquettes fraiseage **haute avance SLO-03 lubrification interne**



| ISO         | D  | dH6 | L   | I2 | Z | Nº Art. | € |  |  |
|-------------|----|-----|-----|----|---|---------|---|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|             |    |     |     |    |   |         |   | Ref. 8804                                                                            | Ref. 8801                                                                             |
| 16-SLO-03   | 16 | 16  | 150 | 30 | 2 | 87303   |   | M3x7<br>Art. 70192<br>€                                                              | ZT-8<br>Art. 10506<br>€                                                               |
| 20-SLO-03   | 20 | 20  | 150 | 60 | 3 | 44837   |   |                                                                                      |                                                                                       |
| 25-SLO-03   | 25 | 25  | 150 | 60 | 4 | 44930   |   |                                                                                      |                                                                                       |
| 32-SLO-03 * | 32 | 32  | 150 | 70 | 5 | 87304   |   |                                                                                      |                                                                                       |



\* Sin refrigeración interior  
 Without Internal Cooling  
 Senza refrigerazione interna

Plaquita / Insert / Plaqueette:  
**Ref. 8691**

Ref. **8691**

PLAQUITA INTERCAMBIABLE FRESADO LOGX  
**LOGX Milling Indexable Insert**  
 Plaqueette fraiseage LOGX



|                                               | Dimensiones<br>Dimensions |         |         |                      | Condiciones Corte<br>Cutting Conditions<br>Conditions coupe |                      |                                                                                     | Nº Art.<br>P-630 | Nº Art.<br>P-640 | € |
|-----------------------------------------------|---------------------------|---------|---------|----------------------|-------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------|------------------|------------------|---|
| ISO                                           | l<br>mm                   | d<br>mm | s<br>mm | d <sub>1</sub><br>mm | f<br>mm                                                     | a <sub>p</sub><br>mm |  |                  |                  |   |
| Semi-Acabado / Semi-Finishing / Semi-Finition |                           |         |         |                      |                                                             |                      |                                                                                     |                  |                  |   |
| LOGX-030310-ZSG                               | 11.90                     | 6.20    | 3.96    | 3.45                 | 0.30-1.60                                                   | 0.30-0.90            | 10                                                                                  | 44834            | 70190            |   |



Ejemplo Pedido / Order Example / Exemple commande:  
 Ref. 8691 LOGX-030310-ZSG P-630



Ref. **8233**

PORTA-PLAQUITAS FRESADO **ALTO AVANCE SWN-09 REFRIGERACIÓN INTERIOR**  
**Internal Cooling** SWN-09 **High Feed** Tool-Holder  
 Porte-Plaquettes fraisage **haute avance** SWN-09 **lubrification interne**



| ISO                   | D  | dH7 | L  | Z | N° Art. | € |  |  |
|-----------------------|----|-----|----|---|---------|---|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>040E4R40-SWN09</b> | 40 | 16  | 40 | 4 | 48647   |   | <b>Ref. 8816</b>                                                                   | <b>Ref. 8801</b>                                                                    |
| <b>050E5R40-SWN09</b> | 50 | 22  | 40 | 5 | 48650   |   | <b>M3x7</b><br>Art.<br>70192<br>€                                                  | <b>ZT-8</b><br>Art.<br>10506<br>€                                                   |
| <b>063E6R40-SWN09</b> | 63 | 22  | 40 | 6 | 74821   |   |                                                                                    |                                                                                     |



Plaquita / Insert / Plaquette:  
**Ref. 8692**

Ref. **8692**

**PLAQUITA INTERCAMBIABLE FRESADO WNMX**  
**WNMX Milling Indexable Insert**  
**Plaquette fraisage WNMX**



| ISO                    | Dimensiones<br>Dimensions |         |         |                      | Condiciones Corte<br>Cutting Conditions<br>Conditions coupe |                      |    |  | N° Art.<br>P-630 | N° Art.<br>P-640 | € |
|------------------------|---------------------------|---------|---------|----------------------|-------------------------------------------------------------|----------------------|----|-------------------------------------------------------------------------------------|------------------|------------------|---|
|                        | d<br>mm                   | s<br>mm | r<br>mm | d <sub>1</sub><br>mm | f<br>mm                                                     | a <sub>p</sub><br>mm |    |                                                                                     |                  |                  |   |
| <b>WNMX-09T316-ZMG</b> | 9,53                      | 3,97    | 1,60    | 3,60                 | 0,40-1,50                                                   | 0,40-1,35            | 10 | 48662                                                                               | 74819            |                  |   |



- Con las plaquitas de fresado de doble cara WNMX obtenemos 6 filos de corte.
- Plaquita económica de alto avance multifuncional.
- Profundidad máxima de corte de 1,35 mm.
- With double-sided WNMX milling inserts, we obtain 6 cutting edges.
- An economical, high-feed multi-functional insert.
- Maximum cutting depth of 1.35 mm.
- Avec les plaquettes de fraisage double face WNMX, nous obtenons 6 arêtes de coupe.
- Une plaquette économique à avance élevée multifonctionnelle.
- Profondeur de coupe maximale de 1,35 mm.

Ref. **8234**

PORTA-PLAQUITAS FRESADO **ALTO AVANCE SSD-12 REFRIGERACIÓN INTERIOR**  
**Internal Cooling SSD-12 High Feed Tool-Holder**  
 Porte-Plaquettes fraiseage **haute avance SSD-12 lubrification interne**



| ISO           | D  | dh7 | L  | Z | N° Art. | € |  |                                                                                          |                                   |
|---------------|----|-----|----|---|---------|---|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| 50E4R40-SSD12 | 50 | 22  | 40 | 4 | 77740   |   | Ref. 8804                                                                           |                                                                                          | Ref. 8801                                                                                                            |
| 63E5R40-SSD12 | 63 | 22  | 40 | 5 | 77749   |   | M4x8<br>Art. 77794<br>€                                                             | <br>5 | ZT-15<br>Art. 10512<br>€<br><br>1 |

Plaquita / Insert / Plaquette:  
Ref. 8693

Ref. **8262**

PORTA-PLAQUITAS FRESADO **ALTO AVANCE SSD-12 REFRIGERACIÓN INTERIOR**  
**Internal Cooling SSD-12 High Feed Tool-Holder**  
 Porte-Plaquettes fraiseage **haute avance SSD-12 lubrification interne**



| ISO       | D  | dh6 | L   | I2 | Z | N° Art. | € |  |                                                                                           |                                   |
|-----------|----|-----|-----|----|---|---------|---|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| 32-SSD-12 | 32 | 32  | 160 | 70 | 2 | 77795   |   | Ref. 8804                                                                           |                                                                                           | Ref. 8801                                                                                                              |
| 40-SSD-12 | 40 | 32  | 200 | 70 | 3 | 77796   |   | M4x8<br>Art. 77794<br>€                                                             | <br>5 | ZT-15<br>Art. 10512<br>€<br><br>1 |



Plaquita / Insert / Plaquette:  
Ref. 8693

Ref. **8693**

PLAQUITA INTERCAMBIABLE FRESADO SDMT  
 SDMT Milling Indexable Insert  
 Plaquette fraiseage SDMT



|                   | Dimensiones<br>Dimensions |         |         |                      | Condiciones Corte<br>Cutting Conditions<br>Conditions coupe |                      |                                                                                     |                  |                  |   |  |
|-------------------|---------------------------|---------|---------|----------------------|-------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------|------------------|------------------|---|--|
| ISO               | l<br>mm                   | r<br>mm | s<br>mm | d <sub>1</sub><br>mm | f<br>mm                                                     | a <sub>p</sub><br>mm |  | N° Art.<br>P-620 | N° Art.<br>P-630 | € |  |
| SDMT-1205ZDTN-ZMG | 12.7                      | 15      | 5.56    | 4.6                  | 0.5-1.8                                                     | 0.3-1.5              | 10                                                                                  | 54992            | 48659            |   |  |



- Plaquita económica con 4 robustos filos de corte y de alto avance para una amplia variedad de materiales y aplicaciones.
- Profundidad máxima de corte de 1,5 mm
- Economical insert with 4 strong cutting edges and high feed for a wide variety of materials and applications
- Maximum cutting depth of 1.5 mm
- Plaquette économique avec 4 arêtes de coupe robustes et avance élevée pour une large gamme de matériaux et d'applications
- Profondeur de coupe maximale de 1,5 mm





Ref. **8236**
**PORTA-PLAQUITAS FRESADO S45SN12 REFRIGERACIÓN INTERIOR**  
**Internal Cooling S45SN12 Tool-Holder**  
**Porte-Plaquettes fraiseage S45SN12 lubrification interne**


| ISO                      | D   | dH7 | L  | Z  | N° Art. | € |  |                                                                                     |  |
|--------------------------|-----|-----|----|----|---------|---|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                          |     |     |    |    |         |   | Ref. 8816                                                                          |                                                                                     | Ref. 8801                                                                           |
| <b>050E5R40-S45SN12</b>  | 50  | 22  | 40 | 5  | 70916   |   |                                                                                    |  |  |
| <b>063E6R40-S45SN12</b>  | 63  | 22  | 40 | 6  | 48653   |   | <b>M5×12</b>                                                                       | 5                                                                                   | <b>ZT-20</b>                                                                        |
| <b>080E7R50-S45SN12</b>  | 80  | 27  | 50 | 7  | 70949   |   | Art.                                                                               |                                                                                     | Art.                                                                                |
| <b>100E8R50-S45SN12</b>  | 100 | 32  | 50 | 8  | 70955   |   | 70746                                                                              |                                                                                     | 13845                                                                               |
| <b>125E10R63-S45SN12</b> | 125 | 40  | 63 | 10 | 70986   |   | €                                                                                  |                                                                                     | €                                                                                   |

**Plaquita / Insert / Plaque:**  
**Ref. 8673**
Ref. **8673**
**PLAQUITA INTERCAMBIABLE FRESADO SNMX**  
**SNMX Milling Indexable Insert**  
**Plaquette fraiseage SNMX**


| ISO                  | Dimensiones<br>Dimensions |         |         |         |                      | Condiciones Corte<br>Cutting Conditions<br>Conditions coupe |                      |    |  | N° Art.<br>P-630 | N° Art.<br>P-640 | € |
|----------------------|---------------------------|---------|---------|---------|----------------------|-------------------------------------------------------------|----------------------|----|---------------------------------------------------------------------------------------|------------------|------------------|---|
|                      | l<br>mm                   | d<br>mm | s<br>mm | b<br>mm | d <sub>1</sub><br>mm | f<br>mm                                                     | a <sub>p</sub><br>mm |    |                                                                                       |                  |                  |   |
| <b>SNMX-1205-ZMG</b> | 12,7                      | 12,7    | 6,4     | 1,5     | 6                    | 0,08-0,3                                                    | 0,3-6                | 10 | 48665                                                                                 | 70785            |                  |   |
| <b>SNMX-1205-ZRG</b> | 12,7                      | 12,7    | 6,4     | 1,5     | 6                    | 0,08-0,3                                                    | 0,3-6                | 10 | 70788                                                                                 | 70829            |                  |   |



Ref. **8296****PORTA-PLAQUITAS DE ACHAFLANADO CHS.. A 45°**

45° CHS.. Chamfering Tool-Holder

Porte-Plaquettes chanfreinage CHS.. 45°



| ISO          | D  | d  | L   | I  | Z | N° Art. | € |  |  |
|--------------|----|----|-----|----|---|---------|---|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 25M-32CHSP09 | 32 | 25 | 150 | 30 | 2 | 26647   |   | Ref. 8816                                                                         | Ref. 8801                                                                           |
| 25M-40CHSP09 | 40 | 25 | 150 | 50 | 3 | 77477   |   | M3,5X8,5<br>Art. 70740<br>€                                                       | ZT-15<br>Art. 10512<br>€                                                            |

 Plaquita / Insert / Plaquette:  
 Ref. 8665
Ref. **8665****PLAQUITA INTERCAMBIABLE FRESADO SPMG**

SPMG Milling Indexable Insert

Plaquette fraissage SPMG





| ISO             | Dimensiones<br>Dimensions |         |                      |         | Condiciones Corte<br>Cutting Conditions<br>Conditions coupe |                      |  | N° Art.<br>P-630 | N° Art.<br>P-640 | € |
|-----------------|---------------------------|---------|----------------------|---------|-------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------|------------------|------------------|---|
|                 | l<br>mm                   | s<br>mm | d <sub>1</sub><br>mm | r<br>mm | f<br>mm                                                     | a <sub>p</sub><br>mm |                                                                                     |                  |                  |   |
| SPMG-090408-ZMG | 9,8                       | 4,3     | 4,05                 | 0,8     | 0,10-0,15                                                   | 2,5                  | 10                                                                                  | 26654            |                  |   |
| SPMG-090408-ZRG | 9,8                       | 4,3     | 4,05                 | 0,8     | 0,10-0,15                                                   | 2,5                  | 10                                                                                  |                  | 77476            |   |

 Porta Plaquetas / Tool Holder / Porte-Plaquettes:  
 Ref. 8296
Ref. **8297****PORTA-PLAQUITAS ACHAFLANADO AJUSTABLE CHS REFRIGERACIÓN INTERIOR**

Internal Cooling CHS Adjustable Angle Chamfering Tool-Holder

Porte-plaquettes chanfreinage angle réglable CHS lubrification interne



| ISO               | Dmax | Dmin | d  | L   | γ°    | N° Art. | € |  |  |  |  |
|-------------------|------|------|----|-----|-------|---------|---|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| CHS25H-05-31-TC16 | 31   | 5    | 25 | 100 | 10-80 | 77499   |   | Ref. 8811                                                                           | Ref. 8816                                                                             | Ref. 8816                                                                             | Ref. 8801                                                                             |
|                   |      |      |    |     |       |         |   | Z-H21<br>Art. 77503<br>€                                                            | M6X15<br>Art. 77504<br>€                                                              | M3,5X8,5<br>Art. 70740<br>€                                                           | ZT-15<br>Art. 10512<br>€                                                              |

 Plaquita / Insert / Plaquette:  
 Refs. 8558-8560


# PINZAS DE SUJECCIÓN ER PARA PORTAHERRAMIENTAS

ER Collets for Tool-Holders

Pinces ER pour les porte-outils



Ref. 8390

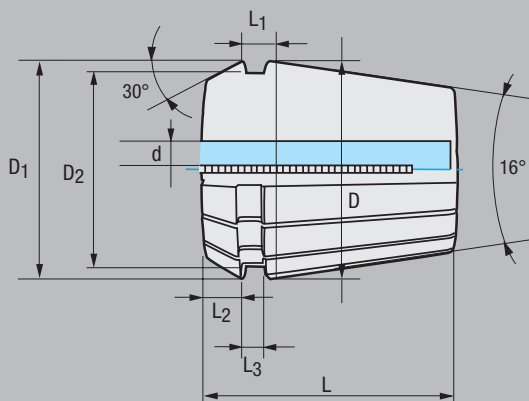
**ULTRAPRECISIÓN**

**P**  
↗ 0,005

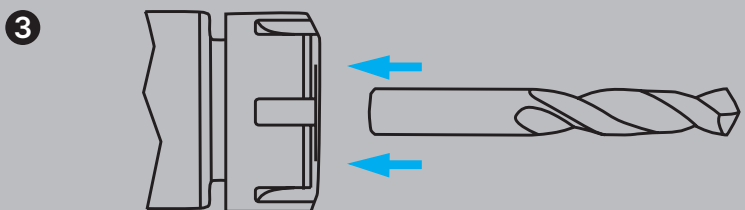
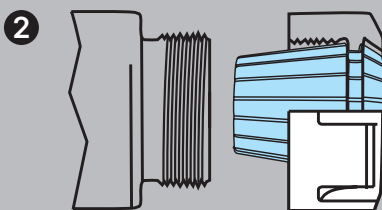
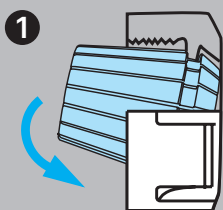
Ref. 8391

**ALTA PRECISIÓN**

**A**  
↗ 0,01



| TIPO<br>Type<br>Type | d         | D     | D1    | D2    | L     | L1   | L2   | L3   | Compresión elástica<br>Elastic compression<br>Compression élastique |
|----------------------|-----------|-------|-------|-------|-------|------|------|------|---------------------------------------------------------------------|
| ER11                 | 1,0-7,0   | 11,50 | 11,50 | 9,50  | 18,00 | 3,80 | 2,50 | 2,00 | 0,50                                                                |
| ER16                 | 1,0-2,5   | 16,00 | 17,00 | 13,80 | 27,50 | 6,26 | 4,00 | 2,70 | 0,50                                                                |
|                      | >2,5-10,0 | 16,00 | 17,00 | 13,80 | 27,50 | 6,26 | 4,00 | 2,70 | 1,00                                                                |
| ER20                 | 2,0-2,5   | 20,00 | 21,00 | 17,40 | 31,50 | 6,36 | 4,80 | 2,80 | 0,50                                                                |
|                      | >2,5-13,0 | 20,00 | 21,00 | 17,40 | 31,50 | 6,36 | 4,80 | 2,80 | 1,00                                                                |
| ER25                 | 2,0-2,5   | 25,00 | 26,00 | 22,00 | 34,00 | 6,66 | 5,00 | 3,10 | 0,50                                                                |
|                      | >2,5-16,0 | 25,00 | 26,00 | 22,00 | 34,00 | 6,66 | 5,00 | 3,10 | 1,00                                                                |
| ER32                 | >3,0-20,0 | 32,00 | 33,00 | 29,20 | 40,00 | 7,16 | 5,50 | 3,60 | 1,00                                                                |
| ER40                 | 3,0-26,0  | 40,00 | 41,00 | 36,20 | 46,00 | 7,66 | 7,00 | 4,10 | 1,00                                                                |



## COLOCACIÓN DE LA HERRAMIENTA

- Colocar la pinza ER en la tuerca ER
- Bloquear la pinza ER y la tuerca ER en el porta
- Insertar la herramienta en la pinza ER y luego apretar la tuerca

## TOOL INSTALLATION

- Put the ER collet into the ER nut
- Lock the ER collet and the ER nut into the holder
- Insert the tool into the ER collet and then tighten the nut

## MISE EN PLACE DE L'OUTIL

- Mettez la pince ER dans l'écrou ER
- Verrouillez la pince ER et l'écrou ER dans le porte-outil
- Insérez l'outil dans la pince ER puis serrez l'écrou

Ref. **8390****PINZAS DE SUJECCIÓN ER DE ULTRAPRECISIÓN**

Ultra Precision ER Collets

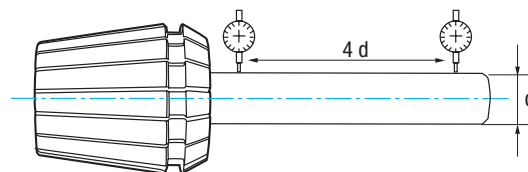
Pincettes de fixation ER ultraprécision



Clase  
Class Classe  
**P**

Tol.  
**0,005**  
mm

DIN  
6499 B



| TIPO<br>Type<br>Type | RANGO<br>Range<br>Intervalle | Nº<br>Art. | € |
|----------------------|------------------------------|------------|---|
|----------------------|------------------------------|------------|---|

| ER11     |         |       |  |
|----------|---------|-------|--|
| ER11-1   | 1,0-0,5 | 22134 |  |
| ER11-1.5 | 1,5-1,0 | 22135 |  |
| ER11-2   | 2,0-1,5 | 22136 |  |
| ER11-2.5 | 2,5-2,0 | 22137 |  |
| ER11-3   | 3,0-2,5 | 22138 |  |
| ER11-3.5 | 3,5-3,0 | 22139 |  |
| ER11-4   | 4,0-3,5 | 22141 |  |
| ER11-4.5 | 4,5-4,0 | 22147 |  |
| ER11-5   | 5,0-4,5 | 22148 |  |
| ER11-5.5 | 5,5-5,0 | 22149 |  |
| ER11-6   | 6,0-5,5 | 22152 |  |
| ER11-6.5 | 6,5-6,0 | 22153 |  |
| ER11-7   | 7,0-6,5 | 22157 |  |

| ER16    |          |       |  |
|---------|----------|-------|--|
| ER16-1  | 1,0-0,5  | 22158 |  |
| ER16-2  | 2,0-1,5  | 22159 |  |
| ER16-3  | 3,0-2,0  | 22160 |  |
| ER16-4  | 4,0-3,0  | 22161 |  |
| ER16-5  | 5,0-4,0  | 22163 |  |
| ER16-6  | 6,0-5,0  | 22164 |  |
| ER16-7  | 7,0-6,0  | 22165 |  |
| ER16-8  | 8,0-7,0  | 22166 |  |
| ER16-9  | 9,0-8,0  | 22167 |  |
| ER16-10 | 10,0-9,0 | 22168 |  |

| ER20    |           |       |  |
|---------|-----------|-------|--|
| ER20-2  | 2,0-1,5   | 22169 |  |
| ER20-3  | 3,0-2,0   | 22170 |  |
| ER20-4  | 4,0-3,0   | 22171 |  |
| ER20-5  | 5,0-4,0   | 22172 |  |
| ER20-6  | 6,0-5,0   | 22173 |  |
| ER20-7  | 7,0-6,0   | 22174 |  |
| ER20-8  | 8,0-7,0   | 22175 |  |
| ER20-9  | 9,0-8,0   | 22176 |  |
| ER20-10 | 10,0-9,0  | 22177 |  |
| ER20-11 | 11,0-10,0 | 22178 |  |
| ER20-12 | 12,0-11,0 | 22179 |  |
| ER20-13 | 13,0-12,0 | 22180 |  |

| TIPO<br>Type<br>Type | RANGO<br>Range<br>Intervalle | Nº<br>Art. | € |
|----------------------|------------------------------|------------|---|
|----------------------|------------------------------|------------|---|

| ER25    |           |       |  |
|---------|-----------|-------|--|
| ER25-2  | 2,0-1,5   | 22185 |  |
| ER25-3  | 3,0-2,0   | 22186 |  |
| ER25-4  | 4,0-3,0   | 22187 |  |
| ER25-5  | 5,0-4,0   | 22188 |  |
| ER25-6  | 6,0-5,0   | 22189 |  |
| ER25-7  | 7,0-6,0   | 22190 |  |
| ER25-8  | 8,0-7,0   | 22195 |  |
| ER25-9  | 9,0-8,0   | 22196 |  |
| ER25-10 | 10,0-9,0  | 22197 |  |
| ER25-11 | 11,0-10,0 | 22198 |  |
| ER25-12 | 12,0-11,0 | 22200 |  |
| ER25-13 | 13,0-12,0 | 22201 |  |
| ER25-14 | 14,0-13,0 | 22202 |  |
| ER25-15 | 15,0-14,0 | 22203 |  |
| ER25-16 | 16,0-15,0 | 22204 |  |

| ER32    |           |       |  |
|---------|-----------|-------|--|
| ER32-3  | 3,0-2,0   | 22206 |  |
| ER32-4  | 4,0-3,0   | 22208 |  |
| ER32-5  | 5,0-4,0   | 22209 |  |
| ER32-6  | 6,0-5,0   | 22210 |  |
| ER32-7  | 7,0-6,0   | 22219 |  |
| ER32-8  | 8,0-7,0   | 22225 |  |
| ER32-9  | 9,0-8,0   | 22230 |  |
| ER32-10 | 10,0-9,0  | 22231 |  |
| ER32-11 | 11,0-10,0 | 22253 |  |
| ER32-12 | 12,0-11,0 | 22259 |  |
| ER32-13 | 13,0-12,0 | 22276 |  |
| ER32-14 | 14,0-13,0 | 22277 |  |
| ER32-15 | 15,0-14,0 | 22279 |  |
| ER32-16 | 16,0-15,0 | 22282 |  |
| ER32-17 | 17,0-16,0 | 22285 |  |
| ER32-18 | 18,0-17,0 | 22286 |  |
| ER32-19 | 19,0-18,0 | 22287 |  |
| ER32-20 | 20,0-19,0 | 22290 |  |

| TIPO<br>Type<br>Type | RANGO<br>Range<br>Intervalle | Nº<br>Art. | € |
|----------------------|------------------------------|------------|---|
|----------------------|------------------------------|------------|---|

| ER40    |           |       |  |
|---------|-----------|-------|--|
| ER40-3  | 3,0-2,0   | 22291 |  |
| ER40-4  | 4,0-3,0   | 22292 |  |
| ER40-5  | 5,0-4,0   | 22295 |  |
| ER40-6  | 6,0-5,0   | 22305 |  |
| ER40-7  | 7,0-6,0   | 22310 |  |
| ER40-8  | 8,0-7,0   | 22313 |  |
| ER40-9  | 9,0-8,0   | 22314 |  |
| ER40-10 | 10,0-9,0  | 22316 |  |
| ER40-11 | 11,0-10,0 | 22318 |  |
| ER40-12 | 12,0-11,0 | 22319 |  |
| ER40-13 | 13,0-12,0 | 22333 |  |
| ER40-14 | 14,0-13,0 | 22335 |  |
| ER40-15 | 15,0-14,0 | 22338 |  |
| ER40-16 | 16,0-15,0 | 22339 |  |
| ER40-17 | 17,0-16,0 | 22345 |  |
| ER40-18 | 18,0-17,0 | 22355 |  |
| ER40-19 | 19,0-18,0 | 22356 |  |
| ER40-20 | 20,0-19,0 | 22357 |  |
| ER40-21 | 21,0-20,0 | 22358 |  |
| ER40-22 | 22,0-21,0 | 22359 |  |
| ER40-23 | 23,0-22,0 | 22360 |  |
| ER40-24 | 24,0-23,0 | 22361 |  |
| ER40-25 | 25,0-24,0 | 22362 |  |
| ER40-26 | 26,0-25,0 | 23033 |  |





Ref. **8391****PINZAS DE SUJECCIÓN ER DE ALTA PRECISIÓN**

High Precision ER Collets

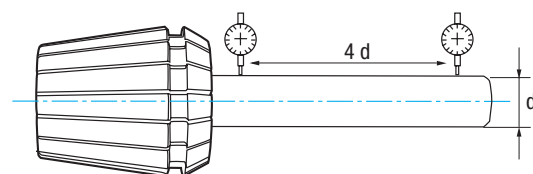
Pincos de fixation ER haute précision



Clase  
Class Classe  
**A**

Tol.  
**0,01**  
mm

DIN  
6499 B



| TIPO<br>Type<br>Type | RANGO<br>Range<br>Intervalle | Nº<br>Art. | € |
|----------------------|------------------------------|------------|---|
|----------------------|------------------------------|------------|---|

| ER11     |         |       |  |
|----------|---------|-------|--|
| ER11-1   | 1,0-0,5 | 22363 |  |
| ER11-1.5 | 1,5-1,0 | 22364 |  |
| ER11-2   | 2,0-1,5 | 22366 |  |
| ER11-2.5 | 2,5-2,0 | 22367 |  |
| ER11-3   | 3,0-2,5 | 22368 |  |
| ER11-3.5 | 3,5-3,0 | 22369 |  |
| ER11-4   | 4,0-3,5 | 22375 |  |
| ER11-4.5 | 4,5-4,0 | 22376 |  |
| ER11-5   | 5,0-4,5 | 22377 |  |
| ER11-5.5 | 5,5-5,0 | 22378 |  |
| ER11-6   | 6,0-5,5 | 22379 |  |
| ER11-6.5 | 6,5-6,0 | 22380 |  |
| ER11-7   | 7,0-6,5 | 22381 |  |

| ER16    |          |       |  |
|---------|----------|-------|--|
| ER16-1  | 1,0-0,5  | 22382 |  |
| ER16-2  | 2,0-1,5  | 22383 |  |
| ER16-3  | 3,0-2,0  | 22384 |  |
| ER16-4  | 4,0-3,0  | 22385 |  |
| ER16-5  | 5,0-4,0  | 22386 |  |
| ER16-6  | 6,0-5,0  | 22387 |  |
| ER16-7  | 7,0-6,0  | 22388 |  |
| ER16-8  | 8,0-7,0  | 22390 |  |
| ER16-9  | 9,0-8,0  | 22393 |  |
| ER16-10 | 10,0-9,0 | 22394 |  |

| ER20    |           |       |  |
|---------|-----------|-------|--|
| ER20-2  | 2,0-1,5   | 22396 |  |
| ER20-3  | 3,0-2,0   | 22397 |  |
| ER20-4  | 4,0-3,0   | 22398 |  |
| ER20-5  | 5,0-4,0   | 22399 |  |
| ER20-6  | 6,0-5,0   | 22401 |  |
| ER20-7  | 7,0-6,0   | 22402 |  |
| ER20-8  | 8,0-7,0   | 22403 |  |
| ER20-9  | 9,0-8,0   | 22404 |  |
| ER20-10 | 10,0-9,0  | 22409 |  |
| ER20-11 | 11,0-10,0 | 22411 |  |
| ER20-12 | 12,0-11,0 | 22412 |  |
| ER20-13 | 13,0-12,0 | 22414 |  |

| TIPO<br>Type<br>Type | RANGO<br>Range<br>Intervalle | Nº<br>Art. | € |
|----------------------|------------------------------|------------|---|
|----------------------|------------------------------|------------|---|

| ER25    |           |       |  |
|---------|-----------|-------|--|
| ER25-2  | 2,0-1,5   | 22415 |  |
| ER25-3  | 3,0-2,0   | 22416 |  |
| ER25-4  | 4,0-3,0   | 22422 |  |
| ER25-5  | 5,0-4,0   | 22424 |  |
| ER25-6  | 6,0-5,0   | 22426 |  |
| ER25-7  | 7,0-6,0   | 22427 |  |
| ER25-8  | 8,0-7,0   | 22428 |  |
| ER25-9  | 9,0-8,0   | 22433 |  |
| ER25-10 | 10,0-9,0  | 22434 |  |
| ER25-11 | 11,0-10,0 | 22435 |  |
| ER25-12 | 12,0-11,0 | 22437 |  |
| ER25-13 | 13,0-12,0 | 22439 |  |
| ER25-14 | 14,0-13,0 | 22440 |  |
| ER25-15 | 15,0-14,0 | 22442 |  |
| ER25-16 | 16,0-15,0 | 22443 |  |

| ER32    |           |       |  |
|---------|-----------|-------|--|
| ER32-3  | 3,0-2,0   | 22444 |  |
| ER32-4  | 4,0-3,0   | 22445 |  |
| ER32-5  | 5,0-4,0   | 22446 |  |
| ER32-6  | 6,0-5,0   | 22447 |  |
| ER32-7  | 7,0-6,0   | 22452 |  |
| ER32-8  | 8,0-7,0   | 22453 |  |
| ER32-9  | 9,0-8,0   | 22454 |  |
| ER32-10 | 10,0-9,0  | 22455 |  |
| ER32-11 | 11,0-10,0 | 22458 |  |
| ER32-12 | 12,0-11,0 | 22461 |  |
| ER32-13 | 13,0-12,0 | 22462 |  |
| ER32-14 | 14,0-13,0 | 22467 |  |
| ER32-15 | 15,0-14,0 | 22468 |  |
| ER32-16 | 16,0-15,0 | 22469 |  |
| ER32-17 | 17,0-16,0 | 22471 |  |
| ER32-18 | 18,0-17,0 | 22476 |  |
| ER32-19 | 19,0-18,0 | 22478 |  |
| ER32-20 | 20,0-19,0 | 22479 |  |

| TIPO<br>Type<br>Type | RANGO<br>Range<br>Intervalle | Nº<br>Art. | € |
|----------------------|------------------------------|------------|---|
|----------------------|------------------------------|------------|---|

| ER40    |           |       |  |
|---------|-----------|-------|--|
| ER40-3  | 3,0-2,0   | 22481 |  |
| ER40-4  | 4,0-3,0   | 22482 |  |
| ER40-5  | 5,0-4,0   | 22483 |  |
| ER40-6  | 6,0-5,0   | 22484 |  |
| ER40-7  | 7,0-6,0   | 22487 |  |
| ER40-8  | 8,0-7,0   | 22488 |  |
| ER40-9  | 9,0-8,0   | 22491 |  |
| ER40-10 | 10,0-9,0  | 22498 |  |
| ER40-11 | 11,0-10,0 | 22501 |  |
| ER40-12 | 12,0-11,0 | 22504 |  |
| ER40-13 | 13,0-12,0 | 22505 |  |
| ER40-14 | 14,0-13,0 | 22529 |  |
| ER40-15 | 15,0-14,0 | 22535 |  |
| ER40-16 | 16,0-15,0 | 22538 |  |
| ER40-17 | 17,0-16,0 | 22541 |  |
| ER40-18 | 18,0-17,0 | 22544 |  |
| ER40-19 | 19,0-18,0 | 22561 |  |
| ER40-20 | 20,0-19,0 | 22566 |  |
| ER40-21 | 21,0-20,0 | 22567 |  |
| ER40-22 | 22,0-21,0 | 22569 |  |
| ER40-23 | 23,0-22,0 | 22572 |  |
| ER40-24 | 24,0-23,0 | 22573 |  |
| ER40-25 | 25,0-24,0 | 22575 |  |
| ER40-26 | 26,0-25,0 | 22584 |  |



| Set  | Pcs | Cont.                                                            | Nº<br>Art. | Set<br>Price! |
|------|-----|------------------------------------------------------------------|------------|---------------|
| ER11 | 13  | 1 - 1,5 - 2 - 2,5 - 3 - 3,5 - 4 - 4,5 - 5 - 5,5 - 6 - 6,5 - 7    | 24563      |               |
| ER16 | 10  | 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10                           | 24571      |               |
| ER20 | 12  | 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13                | 24575      |               |
| ER25 | 15  | 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16 | 24579      |               |

| Set  | Pcs | Cont.                                                                                                          | Nº<br>Art. | Set<br>Price! |
|------|-----|----------------------------------------------------------------------------------------------------------------|------------|---------------|
| ER32 | 18  | 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20                               | 24584      |               |
| ER40 | 24  | 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 - 21 - 22 - 23 - 24 - 25 - 26 | 24590      |               |



Ref. **8392****PINZAS DE SUJECCIÓN ESTANCAS ERC DE ALTA PRECISIÓN**

High Precision ERC Sealing Collets

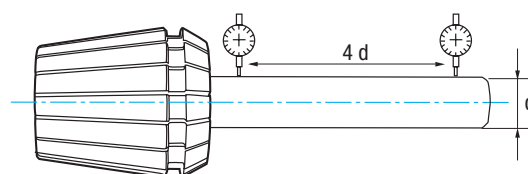
Pincos de fixation ERC haute précision



Clase  
Class Classe  
**A**

Tol.  
**0,01**  
mm

DIN  
6499 B



| TIPO<br>Type<br>Type | RANGO<br>Range<br>Intervalle | Nº<br>Art. | € |
|----------------------|------------------------------|------------|---|
| <b>ERC16</b>         |                              |            |   |
| ERC16-3              | 3                            | 83932      |   |
| ERC16-4              | 4                            | 83933      |   |
| ERC16-5              | 5                            | 83934      |   |
| ERC16-6              | 6                            | 83935      |   |
| ERC16-7              | 7                            | 83936      |   |
| ERC16-8              | 8                            | 83937      |   |
| ERC16-9              | 9                            | 83938      |   |
| ERC16-10             | 10                           | 83939      |   |

|              |    |       |  |
|--------------|----|-------|--|
| <b>ERC20</b> |    |       |  |
| ERC20-3      | 3  | 83940 |  |
| ERC20-4      | 4  | 83941 |  |
| ERC20-5      | 5  | 83942 |  |
| ERC20-6      | 6  | 83943 |  |
| ERC20-7      | 7  | 83944 |  |
| ERC20-8      | 8  | 83945 |  |
| ERC20-9      | 9  | 83946 |  |
| ERC20-10     | 10 | 83947 |  |
| ERC20-11     | 11 | 83948 |  |
| ERC20-12     | 12 | 83949 |  |
| ERC20-13     | 13 | 83950 |  |

| TIPO<br>Type<br>Type | RANGO<br>Range<br>Intervalle | Nº<br>Art. | € |
|----------------------|------------------------------|------------|---|
| <b>ERC25</b>         |                              |            |   |
| ERC25-3              | 3                            | 83951      |   |
| ERC25-4              | 4                            | 83952      |   |
| ERC25-5              | 5                            | 83953      |   |
| ERC25-6              | 6                            | 83954      |   |
| ERC25-7              | 7                            | 83955      |   |
| ERC25-8              | 8                            | 83956      |   |
| ERC25-9              | 9                            | 83957      |   |
| ERC25-10             | 10                           | 83958      |   |
| ERC25-11             | 11                           | 83959      |   |
| ERC25-12             | 12                           | 83960      |   |
| ERC25-13             | 13                           | 83961      |   |
| ERC25-14             | 14                           | 83962      |   |
| ERC25-15             | 15                           | 83963      |   |
| ERC25-16             | 16                           | 83964      |   |

|              |    |       |  |
|--------------|----|-------|--|
| <b>ERC32</b> |    |       |  |
| ERC32-3      | 3  | 83965 |  |
| ERC32-4      | 4  | 83966 |  |
| ERC32-5      | 5  | 83967 |  |
| ERC32-6      | 6  | 83925 |  |
| ERC32-7      | 7  | 83968 |  |
| ERC32-8      | 8  | 83969 |  |
| ERC32-9      | 9  | 83970 |  |
| ERC32-10     | 10 | 83971 |  |
| ERC32-11     | 11 | 83972 |  |
| ERC32-12     | 12 | 83973 |  |
| ERC32-13     | 13 | 83974 |  |
| ERC32-14     | 14 | 83975 |  |
| ERC32-15     | 15 | 83976 |  |
| ERC32-16     | 16 | 83977 |  |
| ERC32-17     | 17 | 83978 |  |
| ERC32-18     | 18 | 83979 |  |
| ERC32-19     | 19 | 83980 |  |
| ERC32-20     | 20 | 83981 |  |

| TIPO<br>Type<br>Type | RANGO<br>Range<br>Intervalle | Nº<br>Art. | € |
|----------------------|------------------------------|------------|---|
| <b>ERC40</b>         |                              |            |   |
| ERC40-3              | 3                            | 83982      |   |
| ERC40-4              | 4                            | 83983      |   |
| ERC40-5              | 5                            | 83984      |   |
| ERC40-6              | 6                            | 83985      |   |
| ERC40-7              | 7                            | 83986      |   |
| ERC40-8              | 8                            | 83987      |   |
| ERC40-9              | 9                            | 83988      |   |
| ERC40-10             | 10                           | 83989      |   |
| ERC40-11             | 11                           | 83990      |   |
| ERC40-12             | 12                           | 83991      |   |
| ERC40-13             | 13                           | 83992      |   |
| ERC40-14             | 14                           | 83993      |   |
| ERC40-15             | 15                           | 83994      |   |
| ERC40-16             | 16                           | 83995      |   |
| ERC40-17             | 17                           | 83996      |   |
| ERC40-18             | 18                           | 83997      |   |
| ERC40-19             | 19                           | 83998      |   |
| ERC40-20             | 20                           | 83999      |   |
| ERC40-21             | 21                           | 84000      |   |
| ERC40-22             | 22                           | 84001      |   |
| ERC40-23             | 23                           | 84002      |   |
| ERC40-24             | 24                           | 84003      |   |
| ERC40-25             | 25                           | 84004      |   |
| ERC40-26             | 26                           | 84005      |   |



| Set   | Pcs | Cont.                                                        | Nº<br>Art. | Set<br>Price! |
|-------|-----|--------------------------------------------------------------|------------|---------------|
| ERC16 | 8   | 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10                               | 84006      |               |
| ERC20 | 11  | 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13                | 84007      |               |
| ERC25 | 14  | 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16 | 84008      |               |

| Set   | Pcs | Cont.                                                                                                          | Nº<br>Art. | Set<br>Price! |
|-------|-----|----------------------------------------------------------------------------------------------------------------|------------|---------------|
| ERC32 | 18  | 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20                               | 84009      |               |
| ERC40 | 24  | 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 - 21 - 22 - 23 - 24 - 25 - 26 | 84010      |               |



Ref. **8395****PINZAS DE SUJECCIÓN DE GRAN APRIETE DE ALTA PRECISIÓN**

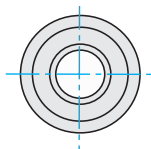
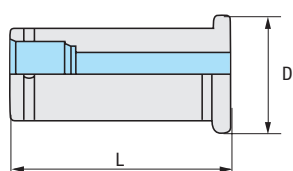
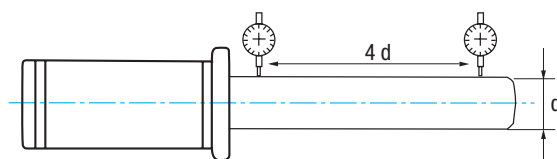
High Precision Strong Collets

Pinces de fixation de grand serrage haute précision



Clase  
Class Classe  
**A**

Tol.  
**0,01**  
mm



| TIPO<br>Type<br>Type | MEDIDA<br>Size<br>Measure                     | D     | L     |
|----------------------|-----------------------------------------------|-------|-------|
| <b>C20</b>           | <b>6, 8, 10, 12, 16</b>                       | 26,00 | 55,00 |
| <b>C25</b>           | <b>6, 8, 10, 12, 16, 20</b>                   | 30,00 | 63,00 |
| <b>C32</b>           | <b>4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 25</b> | 38,00 | 70,00 |
| <b>C42</b>           | <b>6, 8, 10, 12, 16, 20, 25, 32</b>           | 48,00 | 75,00 |

| TIPO<br>Type<br>Type | Nº<br>Art. | € |
|----------------------|------------|---|
|----------------------|------------|---|

**C20**

|               |       |  |
|---------------|-------|--|
| <b>C20-6</b>  | 25195 |  |
| <b>C20-8</b>  | 25202 |  |
| <b>C20-10</b> | 25205 |  |
| <b>C20-12</b> | 25209 |  |
| <b>C20-16</b> | 25210 |  |

| TIPO<br>Type<br>Type | Nº<br>Art. | € |
|----------------------|------------|---|
|----------------------|------------|---|

**C25**

|               |       |  |
|---------------|-------|--|
| <b>C25-6</b>  | 25212 |  |
| <b>C25-8</b>  | 25213 |  |
| <b>C25-10</b> | 25214 |  |
| <b>C25-12</b> | 25215 |  |
| <b>C25-16</b> | 25216 |  |
| <b>C25-20</b> | 25223 |  |

| TIPO<br>Type<br>Type | Nº<br>Art. | € |
|----------------------|------------|---|
|----------------------|------------|---|

**C32**

|               |       |  |
|---------------|-------|--|
| <b>C32-4</b>  | 25225 |  |
| <b>C32-5</b>  | 25232 |  |
| <b>C32-6</b>  | 25236 |  |
| <b>C32-8</b>  | 25238 |  |
| <b>C32-10</b> | 25239 |  |
| <b>C32-12</b> | 25240 |  |
| <b>C32-14</b> | 25241 |  |
| <b>C32-16</b> | 25242 |  |
| <b>C32-18</b> | 25243 |  |
| <b>C32-20</b> | 25244 |  |
| <b>C32-25</b> | 25245 |  |

| TIPO<br>Type<br>Type | Nº<br>Art. | € |
|----------------------|------------|---|
|----------------------|------------|---|

**C42**

|               |       |  |
|---------------|-------|--|
| <b>C42-6</b>  | 25246 |  |
| <b>C42-8</b>  | 25247 |  |
| <b>C42-10</b> | 25248 |  |
| <b>C42-12</b> | 25249 |  |
| <b>C42-16</b> | 25250 |  |
| <b>C42-20</b> | 25251 |  |
| <b>C42-25</b> | 25252 |  |
| <b>C42-32</b> | 25254 |  |



| Set        | Pcs       | Cont.                                                   | Nº<br>Art. | Set<br>Price! |
|------------|-----------|---------------------------------------------------------|------------|---------------|
| <b>C20</b> | <b>5</b>  | <b>6 - 8 - 10 - 12 - 16</b>                             | 25302      |               |
| <b>C32</b> | <b>11</b> | <b>4 - 5 - 6 - 8 - 10 - 12 - 14 - 16 - 18 - 20 - 25</b> | 25300      |               |



Ref. 8391



Ref. 8395



AMPLIACION DE GAMA - Range Expansion - Extension de la gamme

Ref. **3415****ACEITES DE CORTE Y REFRIGERANTES**Cutting Oils & Water Soluble Fluids  
Huiles de coupe et lubrifiants**MULTI****Multiusos**

Multiusos - Multi-purpose - Multifonction



Cont. 400ml

Nº Art. 84040

€

**Pulveriza abiertamente con la cánula hacia abajo**

Spray openly with the nozzle facing down

Vaporise ouvertement avec la canule vers le bas

**Pulveriza con precisión con la cánula hacia arriba**

Spray precisely with the nozzle facing up

Vaporise précisément avec la canule vers le haut

**APLICACIÓN:**

Mecanizado de aceros duros, inoxidable, aleaciones de cobre y toda clase de metales

Fuertemente aditivado para lubricar y proteger contra la corrosión

**APPLICATION:**

Machining of hard steels, stainless steels, copper alloys and all kinds of metals

Highly additivated for lubrication and corrosion protection

**APPLICATION:**

Usinage d'aciers durs, inoxydables, alliages de cuivre et tous types de métaux

Fortement additivé pour la lubrification et la protection contre la corrosion

**12 UNI**

Nº Art.

€

**Box Price!**

84335

AMPLIACION DE GAMA - Range Expansion - Extension de la gamme

Ref. **9200****JUEGOS FRESAS ROTATIVAS MD**

HM Rotary Burr Sets

Jeux fraises limes rotatives carbure

**Mod. 5**  
**5 Pcs****INOXIDABLES**  
Stainless Steels  
Aciers Inox

| Cont.<br>(1 x ref.) | D<br>mm | d<br>mm | Dentado<br>Teeth / Denture<br>M |   |
|---------------------|---------|---------|---------------------------------|---|
|                     |         |         | Nº Art.<br>MD/HM                | € |
| 9251                | 12,70   | 6,00    | 84379                           |   |
| 9254                |         |         |                                 |   |
| 9257                |         |         |                                 |   |
| 9258                | 9,60    | 6,00    | 84380                           |   |
| 9268                |         |         |                                 |   |







**NUEVA PUNTA**  
Máximo rendimiento

**NEW TIP**  
Maximum performance



**NOUVELLE POINTE**  
Rendement maximal



Ref. **1015**  
**ZIRKONIO**

**BROCA MANGO CILÍNDRICO ZIRKONIO**  
Zirkonio Straight Shank Drill Bit  
Foret queue cylindrique Zirkonio



Video



**Ángulo punta 118°**

- Autocentradora
- Ideal taladro portátil
- Geometría especial diseñada para reducir el esfuerzo de corte

**Nuevo recubrimiento Zirkonio de última generación por PVD**

- Basado en ZRN
- Bajo coeficiente de fricción
- Muy resistente a la corrosión
- Adecuado para materiales no férricos
- Evita la adherencia de material en el filo de corte

**118° Point Angle**

- Autocentering
- Ideal Portable Drilling Machine
- Special Geometry designed for reducing cutting effort

**Latest generation Zirkonio coating by PVD**

- Based on ZRN
- Low Friction Coefficient
- High Corrosion Resistant
- Appropriate for Non-Ferrous Materials
- Built-Up Edge avoided

**Angle Pointe 118°**

- Autocentreur
- Perceuse à main
- Géométrie pour réduire l'effort de coupe

**Nouveau revêtement Zirkonio dernière génération par PVD**

- Base ZRN
- Faible coefficient friction
- Résistant à l'usure
- Recommandé pour aciers non ferreux
- Évite l'adhérence sur les filets de coupe

Ref. **1052**



**Extra-Corta / Stub / Extra-courte**



Ref. **8400**

**BROCA METAL DURO GRAN RENDIMIENTO CNC 3XD**

3XD CNC High Performance Carbide Drill Bit  
Foret carbure haut rendement CNC 3XD



Ref. **8405**

**BROCA METAL DURO GRAN RENDIMIENTO CNC 5XD**

5XD CNC High Performance Carbide Drill Bit  
Foret carbure haut rendement CNC 5XD



Ref. **8410**

**BROCA METAL DURO REFRIGERACIÓN INTERIOR 3XD**

3XD Internal Cooling Carbide Drill Bit  
Foret carbure lubrification interne 3XD



Ref. **8415**

**BROCA METAL DURO REFRIGERACIÓN INTERIOR 5XD**

5XD Internal Cooling Carbide Drill Bit  
Foret carbure lubrification interne 5XD



Ref. **9010**

**BROCA METAL DURO SERIE CORTA**

Carbide Drill Bit. Jobber Series  
Foret carbure série courte



Ref. **1050**

**BROCA MANGO CILÍNDRICO HSS. SERIE EXTRA CORTA**

HSS Straight Shank Drill Bit. Stub Series  
Foret queue cylindrique HSS. Série extra-courte



Ref. **9060**

**ESCARIADOR MÁQUINA MANGO CILÍNDRICO METAL DURO**

Solid Carbide Straight Shank Machine Reamer  
Alésoir à machine queue cylindrique carbure



Ref. **3143** **MACHO RECTO MÁQUINA MÉTRICA MATERIALES ALEADOS M. REFORZADO**  
Reinforced Shank Alloy Materials Metric Machine Straight Tap  
Taraud droit machine métrique matériaux alliés queue renforcée



Ref. **3243** **MACHO RECTO MÁQUINA MÉTRICA MATERIALES ALEADOS**  
Alloy Materials Metric Machine Straight Tap  
Taraud droit machine métrique matériaux alliés



Ref. **3153** **MACHO HELICOIDAL MÁQUINA MÉTRICA MATERIALES ALEADOS M. REFORZADO**  
Reinforced Shank Alloy Materials Metric Machine Spiral Tap  
Taraud hélicoïdal machine métrique matériaux alliés queue renforcée



Ref. **3253** **MACHO HELICOIDAL MÁQUINA MÉTRICA MATERIALES ALEADOS**  
Alloy Materials Metric Machine Spiral Tap  
Taraud hélicoïdal machine métrique matériaux alliés



Ref. **3166** **MACHO RECTO LARGO MÁQUINA MÉTRICA**  
Metric Machine Long Straight Tap  
Taraud droit long machine métrique



Ref. **3167** **MACHO HELICOIDAL LARGO MÁQUINA MÉTRICA**  
Metric Machine Long Spiral Tap  
Taraud hélicoïdal long machine métrique



Ref. **3119** **MACHO RECTO MÁQUINA MÉTRICA NORMA ISO 529**  
ISO 529 Norm Standard Metric Machine Straight Tap  
Taraud droit machine métrique norme ISO 529



Ref. **3109**

**MACHO RECTO MÁQUINA MÉTRICA NORMA ISO 529**

ISO 529 Norm Standard Metric Machine Straight Tap

Taraud droit machine métrique norme ISO 529



Ref. **3157**

**MACHO HELICOIDAL MÁQUINA MÉTRICA NORMA ISO 529**

ISO 529 Norm Standard Metric Machine Spiral Tap

Taraud helicoidal machine métrique norme ISO 529



Ref. **3026**

**JUEGO MACHOS MANO BSP (GAS)**

BSP (Gas) Hand Tap Set

Jeu tarauds à main BSP (Gaz)



Ref. **3016**

**MACHO ÚNICO MANO BSP (GAS)**

BSP (Gas) Hand Tap

Taraud à main BSP (Gaz)



Ref. **9644**

**FRESA METAL DURO DESBASTE USO GENERAL**

General Purpose Roughing Carbide End Mill

Fraise carbure ébauche utilisation générale



Ref. **9647**

**FRESA METAL DURO 3Z DESBASTE 45° INOX**

Stainless 45° Roughing 3Z Carbide End Mill

Fraise carbure 3Z ébauche 45° Inox



Ref. **9406**

**FRESA METAL DURO HÉLICE ALTERNA ALTO RENDIMIENTO 48-70 HRC**

48-70 HRC High Performance Unequal Helix Carbide End Mill

Fraise carbure hélice alternée haut rendement 48-70 HRC



Ref. **9401**

**FRESA METAL DURO 4Z USO GENERAL**

General Purpose 4Z Carbide End Mill

Fraise carbure 4Z utilisation générale





Ref. **9410**

**FRESA METAL DURO 4Z SERIE LARGA USO GENERAL**

General Purpose 4Z Long Series Carbide End Mill  
Fraise carbure 4Z Série longue utilisation générale



Ref. **9412**

**FRESA METAL DURO 4Z CABEZA ESFÉRICA < 55 HRC**

< 55 HRC Ball Nose 4Z Carbide End Mill  
Fraise carbure 4Z hémisphérique. < 55 HRC



Ref. **9407**

**FRESA METAL DURO 4Z SERIE LARGA CABEZA ESFÉRICA < 55 HRC**

< 55 HRC Ball Nose 4Z Long Series Carbide End Mill  
Fraise carbure 4Z série longue hémisphérique < 55 HRC



Ref. **9431**

**FRESA METAL DURO SERIE CORTA 3Z USO GENERAL**

General Purpose 3Z Short Series Carbide End Mill  
Fraise carbure série courte 3Z utilisation générale



Ref. **9421**

**FRESA METAL DURO 2Z USO GENERAL**

General Purpose 2Z Carbide End Mill  
Fraise carbure 2Z utilisation générale



Ref. **9424**

**FRESA METAL DURO SERIE LARGA 2Z USO GENERAL**

General Purpose 2Z Long Series Carbide End Mill  
Fraise carbure série longue 2Z utilisation générale



Ref. **8512**

**PLAQUITA INTERCAMBIABLE TORNEADO CNMM**

CNMM Turning Indexable Insert  
Plaquette tournage CNMM



Ref. **8865**

**PORTA-PLAQUITAS TRONZADO Y RANURADO XMCG**

XMCG Parting & Grooving Tool-Holder Blade  
Porte plaquettes tronçonnage et rainurage XMCG





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