

FRAISES À CHANFREINER une dent

Plus grande capacité de chanfreinage, depuis la pointe jusqu'au diamètre extérieur
Perçage chanfreinage simultanés dans les éléments minces (jusqu'au Ø 30 mm).

Single flute CHAMFERING CUTTERS

Greater countersinking capacity from the point to the outside diameter -
Simultaneous drilling and countersinking on thin elements (up to Ø 30 mm).

AVELLANADORES De un labio

Mayor capacidad de avellanado, desde la punta al diámetro exterior - Taladrado y avellanado simultáneo en piezas de pequeño espesor (hasta Ø 30).

FRESE PER SVASARE con un dente

Maggiore capacità di svasatura, a partire dalla punta fino al diametro esterno.
Foratura e svasatura simultanee nei laminati (fino al Ø 30 mm).

Universal

30° - 45° - 60°
82° - 90° - 100° - 120°



| α - 1° | D + 0,3 | d1 | d2 h9 | L ± 1 | magafor | α - 1° | TiN |
|---|------------|-------------------|----------|--------------|---------|--|-----|
| 30° 426 ⁽¹⁾ | 10 | 5,5 | 6 | 49 | | 30° 4826 ⁽¹⁾ | |
| | 15 | 8,5 | 8 | 60 | | | |
| | 20 | 11,0 | 10 | 72 | | | |
| | 25 | 13,5 | 12 | 78 | | | |
| | 30 | 16,5 | 12 | 99 | | | |
| 45° 427 ⁽¹⁾ | 6 | 2,0 | 6 | 43 | | 45° 4827 ⁽¹⁾ | |
| | 10 | 3,0 | 6 | 49 | | | |
| | 15 | 4,5 | 8 | 61 | | | |
| | 20 | 6,0 | 10 | 72 | | | |
| | 25 | 7,5 | 12 | 87 | | | |
| 60° 422 | 6 | 1 | 6 | 43 | | 60° 4822 | |
| | 10 | 1 | 6 | 49 | | | |
| | 12 | 2 | 8 | 54 | | | |
| | 15 | 2 | 8 | 60 | | | |
| | 20 | 2 | 10 | 72 | | | |
| 82° 424 | 25 | 3 | 12 | 78 | | 82° 4824 | |
| | 30 | 3 | 12 | 99 | | | |
| | 6 | 1 | 6 | 41 | | | |
| | 10 | 1 | 6 | 46 | | | |
| | 12 | 2 | 8 | 51 | | | |
| 90° 421 | 15 | 2 | 8 | 56 | | 90° 4821 | |
| | 20 | 2 | 10 | 66 | | | |
| | 25 | 3 | 12 | 80 | | | |
| | 30 | 3 | 12 | 90 | | | |
| | 4 | 1 | 4 | 40 | | | |
| | 5 | 1 | 5 | 40 | | | |
| | 6 | 1 | 6 | 40 | | | |
| | 8 | 1 | 6 | 40 | | | |
| | 10 | 1 | 6 | 45 | | | |
| | 12 | 2 | 8 | 50 | | | |
| 15 | 2 | 8 | 55 | | | | |
| 20 | 2 | 10 | 65 | | | | |
| 25 | 3 | 12 | 78 | | | | |
| 30 | 3 | 12 | 88 | | | | |
| 35 | 4 | 16 ⁽²⁾ | 103 | | | | |
| 40 | 5 | 16 ⁽²⁾ | 118 | | | | |
| 50 | 5 | 16 ⁽²⁾ | 126 | | | | |
| 100° 425 | 10 | 1 | 6 | 44 | | 100° 4825 | |
| | 12 | 2 | 8 | 49 | | | |
| | 15 | 2 | 8 | 54 | | | |
| | 20 | 2 | 10 | 63 | | | |
| | 25 | 3 | 12 | 76 | | | |
| 120° 423 | 30 | 3 | 12 | 85 | | 120° 4823 | |
| | 10 | 1 | 6 | 43 | | | |
| | 12 | 2 | 8 | 47 | | | |
| | 15 | 2 | 8 | 52 | | | |
| | 20 | 2 | 10 | 61 | | | |
| 25 | 3 | 12 | 73 | | | | |
| 30 | 3 | 12 | 66 | | | | |

⁽¹⁾ Les fraises à 30° et 45° sont tronquées

Las fresas de 30° y 45° son truncadas.

⁽²⁾ Queue avec 3 plats = serrage efficace
Sujeción eficaz = mango con 3 planos



30° and 45° cutters are truncated

Le fresa a 30° e 45° sono troncate in punta

Effective holding = shank with 3 flats
Codolo con 3 piani = bloccaggio efficace



60° - 82° - 90°

| α - 1° | D + 0,3 mm (inch) | d1 | d2 h9 | L ± 1 | magafor | α - 1° | TiN |
|--------------------------|----------------------|-------|----------|----------|---------|---------------------------|-----|
| 60° 422 | 3,17 (1/8") | 1 | 3,17 | 32 | | 60° 4822 | |
| | 4,76 (3/16") | 1 | 4,76 | 35 | | | |
| | 6,35 (1/4") | 1 | 6,35 | 38 | | | |
| | 7,93 (5/16") | 1 | 6,35 | 42 | | | |
| | 9,52 (3/8") | 1 | 6,35 | 45 | | | |
| | 12,70 (1/2") | 2 | 6,35 | 51 | | | |
| | 15,87 (5/8") | 2 | 9,52 | 57 | | | |
| | 19,05 (3/4") | 2 | 12,70 | 67 | | | |
| | 22,22 (7/8") | 3 | 12,70 | 70 | | | |
| | 25,40 (1") | 3 | 12,70 | 70 | | | |
| 82° 424 | 3,17 (1/8") | 1 | 3,17 | 32 | | 82° 4824 | |
| | 4,76 (3/16") | 1 | 4,76 | 35 | | | |
| | 6,35 (1/4") | 1 | 6,35 | 38 | | | |
| | 7,93 (5/16") | 1 | 6,35 | 42 | | | |
| | 9,52 (3/8") | 1 | 6,35 | 45 | | | |
| | 12,70 (1/2") | 2 | 6,35 | 51 | | | |
| | 15,87 (5/8") | 2 | 9,52 | 57 | | | |
| | 19,05 (3/4") | 2 | 12,70 | 67 | | | |
| | 22,22 (7/8") | 3 | 12,70 | 70 | | | |
| | 25,40 (1") | 3 | 12,70 | 70 | | | |
| 90° 421 | 3,17 (1/8") | 1 | 3,17 | 32 | | 90° 4821 | |
| | 4,76 (3/16") | 1 | 4,76 | 35 | | | |
| | 6,35 (1/4") | 1 | 6,35 | 38 | | | |
| | 7,93 (5/16") | 1 | 6,35 | 42 | | | |
| | 9,52 (3/8") | 1 | 6,35 | 45 | | | |
| | 12,70 (1/2") | 2 | 6,35 | 51 | | | |
| | 15,87 (5/8") | 2 | 9,52 | 57 | | | |
| | 19,05 (3/4") | 2 | 12,70 | 67 | | | |
| | 22,22 (7/8") | 3 | 12,70 | 70 | | | |
| | 25,40 (1") | 3 | 12,70 | 70 | | | |
| 31,75 (1-1/4") | 3 | 12,70 | 70 | | | | |

CÔNES MORSE MORSE TAPER CONO MORSE



60° - 90° - 120°

| α - 1° | D + 0,3 | d1 | MORSE N° * | L ± 1 | magafor |
|---------------------------|--------------------------|----|---------------|----------|---------|
| 60° 422 | 15 | 2 | 1 | 96 | |
| | 20 | 2 | 1 | 105 | |
| | 25 | 3 | 1 | 106 | |
| | 30 | 3 | 2 | 125 | |
| | 35 | 5 | 2 | 146 | |
| | 40 | 8 | 3 | 172 | |
| | 50 | 10 | 3 | 183 | |
| | 63 | 10 | 3 | 201 | |
| | 80 | 10 | 4 | 253 | |
| | 90° 421 | 15 | 2 | 1 | |
| 20 | | 2 | 1 | 106 | |
| 25 | | 3 | 1 | 110 | |
| 30 | | 3 | 2 | 114 | |
| 35 | | 5 | 2 | 135 | |
| 40 | | 5 | 2 | 145 | |
| 40 | | 5 | 3 | 160 | |
| 50 | | 5 | 2 | 153 | |
| 50 | | 5 | 3 | 168 | |
| 63 | | 10 | 3 | 182 | |
| 120° 423 | 20 | 2 | 1 | 87 | |
| | 30 | 3 | 2 | 108 | |
| | 40 | 8 | 3 | 154 | |
| | 50 | 10 | 3 | 160 | |

* Préciser le n° du cône Morse sur vos commandes
Please mention the MT number when ordering
Especificar el CM en el pedido
Precisare nei vostri ordini il cono Morse desiderato

30° - 45° - 60° - 82° - 90° - 100° - 120°

| COMPOSITION COMPOSICIÓN COMPOSIZIONE | α | magafor |
|--|-----------------|-----------------|
| 5 fraises fresas freses Ø 10 - 15 - 20 25 - 30 | 30° | 426 |
| | | 4826 TiN |
| | 45° | 427 |
| | | 4827 TiN |
| | 60° | 422 |
| | | 4822 TiN |
| | 82° | 424 |
| | | 4824 TiN |
| | 90° | 421 |
| | | 4821 TiN |
| 100° | 425 | |
| | 4825 TiN | |
| 120° | 423 | |
| | 4823 TiN | |
| 6 fraises fresas freses Ø 6 - 8 - 10 - 12 - 15 - 20 | 90° | 421/2 |
| | 60° | 422/6 |
| | 82° | 424/6 |
| Ø 6,35 - 7,93 - 9,52 12,7 - 15,87 - 19,05 | 90° | 421/6 |

Performances

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Promo-kits



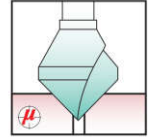
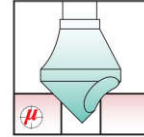
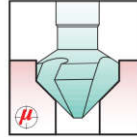
performances

Vc = vitesse speed velocidad velocidad = m/min.

Vf = avance feed avance avanzamento = mm/min.

$\frac{Vc \times 1000}{\pi \times \varnothing} =$ Tours par min. Rev. / min.
Giri / min. revoluciones por minuto.

ÉBAVURAGE - CHANFREINAGE DEBURRING - COUNTERSINKING DESBARBADO - AVELLANADO SVASATURA - SBAVATURA



Recommandation
Recomendación
Suggerimento

N° 1

N° 2

Autres
Otros
Others
Altre soluzioni

| MATIÈRE MATERIAL MATERIALE | | HSS-Co | HSS-Co + TiN | HSS 8% Co | HSS 8% Co + Red'X | Carbure Carbide Metallo Duro | Carbure Carbide + Hard'X | HSS-Co | HSS-Co + TiN | HSS-Co | HSS-Co + TiN |
|---|--------------------------|----------------------------|----------------------------|----------------------------|----------------------------|---------------------------------------|--------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Pages Páginas Pagina | | 47 ~ 57 | | 49 | | 49 ~ 56 | | 60 - 61 | | 62 - 63 | |
| Aciers Steels Aceros Acciai ≤ 500 N/mm ² | Vc Ø 10 Vf Ø 30 | 17~22 85 45 30 | 17~22 85 45 30 | 35~45 165 85 55 | 35~45 165 85 55 | 40~80 250 125 85 | 40~80 250 125 85 | 35~45 165 85 55 | 35~45 165 85 55 | 35~45 165 85 55 | 35~45 165 85 55 |
| Aciers Steels Aceros Acciai 500 ~ 800 N/mm ² | Vc Ø 10 Vf Ø 30 | 10~15 60 30 20 | 10~15 60 30 20 | 20~30 110 55 35 | 20~30 110 55 35 | 30~60 170 85 60 | 30~60 170 85 60 | 20~30 110 55 35 | 20~30 110 55 35 | 20~30 110 55 35 | 20~30 110 55 35 |
| Aciers Steels Aceros Acciai 800 ~ 1000 N/mm ² | Vc Ø 10 Vf Ø 30 | 8~12 35 25 15 | 8~12 35 25 15 | 16~20 55 35 25 | 16~20 55 35 25 | 20~40 100 60 45 | 20~40 100 60 45 | 15~20 55 35 25 | 15~20 55 35 25 | 15~20 55 35 25 | 15~20 55 35 25 |
| Inox Stainless steel Aceros Inoxidables 1000 ~ 1300 N/mm ² | Vc Ø 10 Vf Ø 30 | 6~10 30 15 10 | 6~10 30 15 10 | 12~15 45 25 20 | 12~15 45 25 20 | 20~40 100 60 40 | 20~40 100 60 40 | 12~15 45 25 20 | 12~15 45 25 20 | 12~15 45 25 20 | 12~15 45 25 20 |
| Acier anti-abrasion Abrasive tough Steel < 420 HB Acero resistente a la abrasión | Vc Ø 10 Vf Ø 30 | | | | 12~15 40 30 20 | 15~20 55 35 25 | 15~20 55 35 25 | | | | |
| Bronze dur Inconel, Nimonic Hard bronze Bronze/Bronzo duro | Vc Ø 10 Vf Ø 30 | | | 4~6 16 8 6 | 4~6 16 8 6 | 10~12 30 16 10 | 10~12 30 16 10 | | | | |
| Acier traité Treated steel ≥ 60 HRC Acero tratado Acciai trattati | Vc Ø 10 Vf Ø 30 | | | | | 8~10 20 10 8 | 10~12 30 16 10 | | | | |
| Fonte Cast iron Fundición Ghisa | Vc Ø 10 Vf Ø 30 | 15~25 70 40 30 | 15~25 70 40 30 | 20~40 125 75 50 | 20~40 125 75 50 | 40~80 250 150 100 | 40~80 250 150 100 | 20~40 125 75 50 | 20~40 125 75 50 | 20~40 125 75 50 | 20~40 125 75 50 |
| Aluminium Alluminio | Vc Ø 10 Vf Ø 30 | 35~45 200 130 110 | 35~45 200 130 110 | 50~60 255 180 150 | 50~60 255 180 150 | 40~100 350 230 200 | 40~100 350 230 200 | 50~60 255 180 150 | 50~60 255 180 150 | 50~60 255 180 150 | 50~60 255 180 150 |
| Laiton Brass Bronze Latòn - Bronce Bronzo | Vc Ø 10 Vf Ø 30 | 20~30 120 85 70 | 20~30 120 85 70 | 30~40 150 110 90 | 30~40 150 110 90 | | | 30~40 150 110 90 | 30~40 150 110 90 | 30~40 150 110 90 | 30~40 150 110 90 |
| Cuivre Copper Cobre Rame | Vc Ø 10 Vf Ø 30 | 15~25 95 60 45 | 15~25 95 60 45 | 20~30 120 80 65 | 20~30 120 80 65 | 50~80 300 200 175 | 50~80 300 200 175 | 20~30 120 80 65 | 20~30 120 80 65 | 20~30 120 80 65 | 20~30 120 80 65 |
| Stratifié Laminated Laminados Laminati | Vc Ø 10 Vf Ø 30 | 35~70 300 200 150 | 35~70 300 200 150 | 35~70 300 200 150 | 35~70 300 200 150 | | | 50~100 400 300 250 | 50~100 400 300 250 | 50~100 400 300 250 | 50~100 400 300 250 |
| Nylon PVC Plastics / Plásticos Plastiche | Vc Ø 10 Vf Ø 30 | 35~70 400 300 250 | 35~70 400 300 250 | 35~70 400 300 250 | 35~70 400 300 250 | | | 50~100 450 350 300 | 50~100 450 350 300 | 50~100 450 350 300 | 50~100 450 350 300 |