

















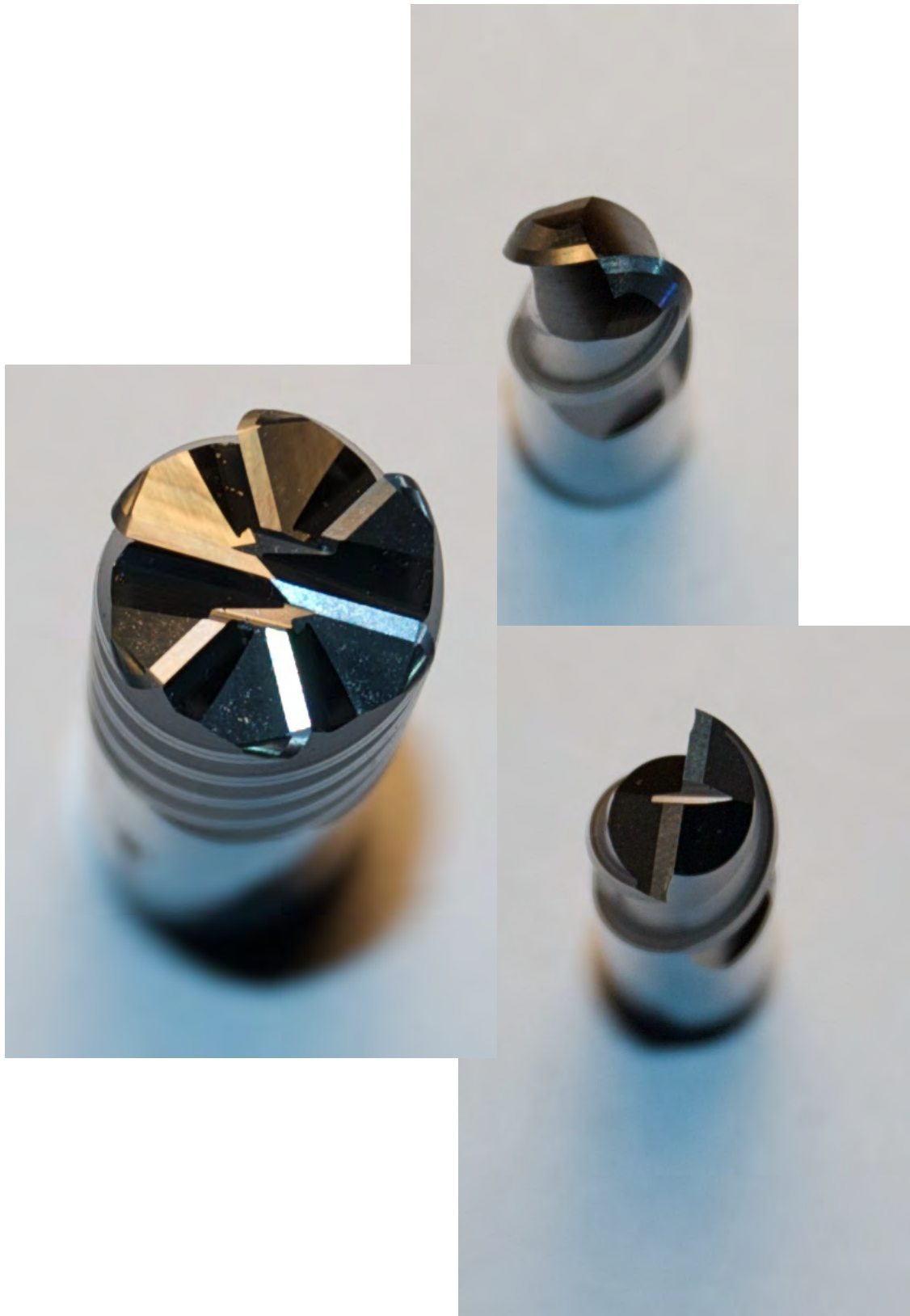


Indice - Contents

| | | | | | |
|--|---|--------|------------|---|---------|
| | Z2 90° ELIGA HELIX 35° | pag. 6 | | Z2 90° ELIGA HELIX 35° | pag. 36 |
| | Z3 90° ELIGA HELIX 35° | 8 | | Z3 90° ELIGA HELIX 45° | 38 |
| | Z4 90° ELIGA HELIX 30° | 10 | | Z4 90° ELIGA HELIX 30° | 40 |
| | Z3 90° ELIGA HELIX 45° | 12 | | Z3/4 90° ELIGA HELIX 30° | 42 |
| | Z6 90° ELIGA HELIX 45° | 14 | | | |
| | Z3/4 90° ELIGA HELIX 30° | 15 | | Z2 U ELIGA HELIX 30° | 43 |
| | | | | Z3 U ELIGA HELIX 30° | 44 |
| | Z2 U ELIGA HELIX 30° | 16 | | Z4 U ELIGA HELIX 30° | 45 |
| | Z3 U ELIGA HELIX 30° | 18 | | Z3/4 U ELIGA HELIX 30° | 46 |
| | Z4 U ELIGA HELIX 30° | 20 | | | |
| | Z3/4 U ELIGA HELIX 30° | 22 | | | |
| | | | HSC | | |
| | | | | Z2/4 r ELIGA HELIX 30° | 48 |
| | Utensile salva Safety break up tool | 23 | | Z2/4 r ELIGA HELIX 30° | 50 |
| | Frese coniche Tapered end mills | 24 | | Z2 r ELIGA HELIX 0° | 52 |
| | Frese per smussare Chamfering carbide end mills | 27 | | Z2 r ELIGA HELIX 0° | 53 |
| | | | | Z2 U ELIGA HELIX 30° | 54 |
| | Z2/3 90° r ELIGA HELIX 30° | 28 | | Z2 U ELIGA HELIX 0° | 55 |
| | Z2 U ELIGA HELIX 30° | 30 | | Z2 U ELIGA HELIX 30° | 56 |
| | Z2/4 90° ELIGA HELIX 30° | 31 | | Z2 U ELIGA HELIX 0° | 57 |
| | | | | Z2 U ELIGA HELIX 30° | 58 |
| | Lavorazione alluminio Aluminum application | 32 | | Z2 U ELIGA HELIX 0° | 59 |
| | | | | Z6 r ELIGA HELIX 45° | 60 |
| | | | | | |
| | | | | Doppia gola Tapered deep flute section | 62 |
| | Lavorazione plastiche Plastic material application | 34 | | | |
| | | | | Passo variabile Unequal helix | 63 |
| | | | | | 64 |

Indice - Contents

| | | | | | |
|---|--|---------|--|--|-----|
|  | Bulini <i>Grounded rods</i> | pag. 68 |  | Punte a centrare per CNC <i>Center drills CNC</i> | 110 |
| | | |  | Punte a lancia <i>Single end-flat drills</i> | 111 |
|  | Microfresce <i>Micro end mills</i> | 70 |  | Punte a centrare per CNC <i>Center drills CNC</i> | 111 |
| Parametri fresatura <i>Technical data for milling</i> | | 74 |  | Alesatori <i>Reamers</i> | 112 |
| PUNTE - DRILLS | | | Parametri foratura e alesatura <i>Indicative data for drilling and reaming</i> | | |
|  | Micropunte <i>Microdrills</i> | 77 | | | |
| | | |  | Cilindretti <i>Grounded rods</i> | 115 |
|  | Z2 DIN6539 | 78 |  | Barrette grezze <i>Blank square rectangular rods</i> | 117 |
| | Alluminio <i>Aluminium</i> | 80 | | | |
| | Ottone <i>Brass</i> | 82 |  | Rotative <i>Burrs</i> | 120 |
| | Doppia guida <i>Double guide</i> | 84 | | | |
| | Z3 DIN6539 | 86 | | Condizioni di vendita <i>Sales conditions</i> | 126 |
|  | Z2 DIN338 | 88 | | | |
| | Alluminio <i>Aluminium</i> | 90 | | | |
| | Ottone <i>Brass</i> | 92 | | | |
| | Doppia guida <i>Double guide</i> | 94 | | | |
|  | Gambo rinforzato 3xD <i>Reinforced shank 3xD</i> | 96 | | | |
|  | | | | | |
|  | Gambo rinforzato 5xD <i>Reinforced shank 5xD</i> | 99 | | | |
|  | | | | | |
|  | Gambo rinforzato 8xD <i>Reinforced shank 8xD</i> | 102 | | | |
|  | Elica diritta 3xD <i>Straight flutes 3xD</i> | 104 | | | |
| | Elica diritta 5xD <i>Straight flutes 5xD</i> | 106 | | | |
| | Elica diritta 8xD <i>Straight flutes 8xD</i> | 108 | | | |



Rivestimenti

| Descrizione | Composizione | Temp. max di utilizzo ° c | Durezza HV 0,05 | Coeff. di attrito | Spessore riv. in µ | Applicazioni |
|------------------------|--------------------------------|---------------------------|-----------------|-------------------|--------------------|---|
| TIALN | Nitruro di Alluminio e Titanio | 800 | 3500 | 0,4 | 1-2 | Acciai (legati, non legati e inossidabili) <50 HRC, ghisa |
| TOP TIALN | Nitruro di Alluminio e Titanio | 800 | 3700 | 0,4 | 1-2 | Acciai (legati, non legati e inossidabili) >50 HRC, ghisa |
| ALU | Nitruro di Alluminio e Titanio | 800 | 3700 | 0,1 | 1-2 | Alluminio e sue leghe (Si<12%) |
| ADVANCED | Base di Alluminio e Titanio | 850 | 4000 | 0,1 | 1-3 | Acciai temprati e superleghe >50 HRC, lavorazioni ad alta velocità e/o a secco |
| DLC a richiesta | Carbonio | 500 | 5300 | 0,1 | 0,05-3 | Leghe di alluminio (Si>12%) e rame, metalli preziosi, compositi di plastica e grafite |

Coatings

| Description | Composition | Highest temp. of use ° c | Hardness HV 0,05 | Coef. of friction | Coating thickness µ | Applications |
|-----------------------|----------------------------|--------------------------|------------------|-------------------|---------------------|---|
| TIALN | Alu and Titanium Nitriding | 800 | 3500 | 0,4 | 1-2 | Steels (alloys, plain and stainless) <50 HRC, cast iron |
| TOP TIALN | Alu and Titanium Nitriding | 800 | 3700 | 0,4 | 1-2 | Steels (alloys, plain and stainless) >50 HRC, cast iron |
| ALU | Alu and Titanium Nitriding | 800 | 3700 | 0,1 | 1-2 | Aluminium alloys Si<12% |
| ADVANCED | Alu and Titanium component | 850 | 4000 | 0,1 | 1-3 | Structural and Hardened Steels, Super Alloys >50 HRC, high speed application and/or dry |
| DLC on request | Carbon | 500 | 5300 | 0,1 | 0,05-3 | Aluminium Alloys (Si>12%) and Copper, precious metals, plastics and graphite |

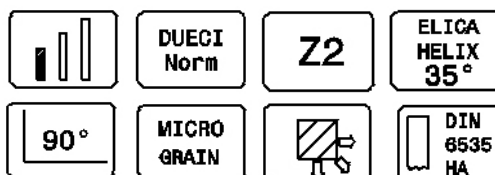
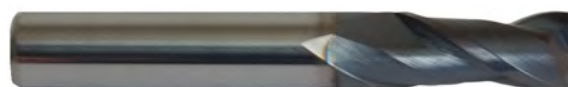
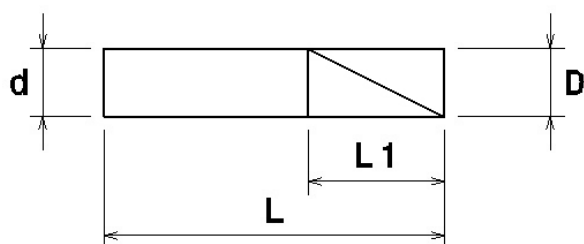
Altri rivestimenti a richiesta
Other coatings on request

N.B.: Tutti i dati tecnici inseriti nel presente catalogo sono indicativi. La Dueci Srl si riserva la facoltà di modificarli in qualsiasi momento senza preavviso alcuno. La Dueci Srl inoltre non si assume alcuna responsabilità per eventuali danni causati nell'impiego dei dati contenuti nella presente pubblicazione.

N.B.: All technical data in this catalogue is a guideline. Dueci Srl reserves the right to modify it at any time, without any notice. Furthermore, Dueci Srl assumes no liability for any damage caused in use of the data contained in this publication.

Frese Z2 denti elicoidali taglio al centro lavorazioni universali

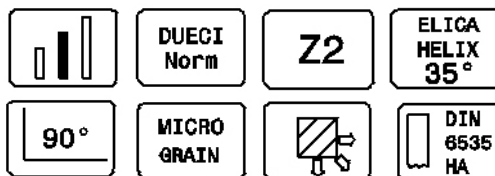
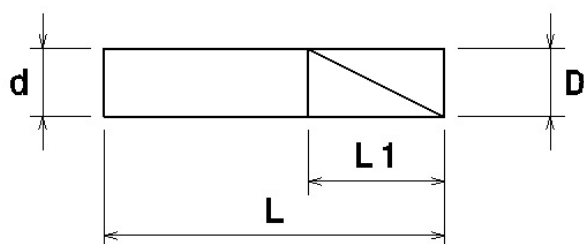
Universal end mills 2 flutes center cutting



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----------------|------------|---------|------------|
| 1 | 3 | 40 | 1 | 2 | 103501 | 20,30 | 23,00 | 24,30 |
| 1,5 | 3 | 40 | 1,5 | 2 | 1035015 | 20,30 | 23,00 | 24,30 |
| 2 | 8 | 40 | 2 | 2 | 103502 | 8,50 | 11,40 | 12,00 |
| 2,5 | 8 | 40 | 2,5 | 2 | 1035025 | 8,80 | 12,20 | 12,80 |
| 3 | 10 | 40 | 3 | 2 | 103503 | 10,30 | 13,70 | 14,40 |
| 3,5 | 10 | 40 | 3,5 | 2 | 1035035 | 10,80 | 14,20 | 14,90 |
| 4 | 12 | 40 | 4 | 2 | 103504 | 11,50 | 14,90 | 15,70 |
| 4,5 | 12 | 50 | 4,5 | 2 | 1035045 | 12,90 | 17,50 | 18,40 |
| 5 | 14 | 50 | 5 | 2 | 103505 | 13,70 | 18,30 | 19,20 |
| 5,5 | 14 | 50 | 5,5 | 2 | 1035055 | 15,60 | 20,20 | 21,20 |
| 6 | 16 | 50 | 6 | 2 | 103506 | 16,30 | 20,90 | 22,00 |
| 6,5 | 16 | 50 | 6,5 | 2 | 1035065 | 19,00 | 24,50 | 25,70 |
| 7 | 16 | 60 | 7 | 2 | 103507 | 21,20 | 26,70 | 28,00 |
| 7,5 | 16 | 60 | 7,5 | 2 | 1035075 | 22,40 | 28,00 | 29,40 |
| 8 | 18 | 60 | 8 | 2 | 103508 | 23,70 | 29,30 | 30,80 |
| 8,5 | 18 | 60 | 8,5 | 2 | 1035085 | 24,90 | 31,60 | 33,20 |
| 9 | 20 | 60 | 9 | 2 | 103509 | 26,10 | 32,80 | 34,40 |
| 9,5 | 20 | 70 | 9,5 | 2 | 1035095 | 30,50 | 37,30 | 39,20 |
| 10 | 22 | 70 | 10 | 2 | 103510 | 32,20 | 38,90 | 40,90 |
| 10,5 | 22 | 70 | 10,5 | 2 | 1035105 | 35,60 | 42,40 | 44,50 |
| 11 | 22 | 70 | 11 | 2 | 103511 | 39,70 | 46,50 | 48,90 |
| 11,5 | 22 | 70 | 11,5 | 2 | 1035115 | 41,30 | 48,00 | 50,40 |
| 12 | 25 | 70 | 12 | 2 | 103512 | 41,90 | 48,60 | 51,00 |
| 13 | 25 | 75 | 13 | 2 | 103513 | 47,80 | 55,20 | 58,00 |
| 14 | 28 | 75 | 14 | 2 | 103514 | 56,50 | 63,90 | 67,10 |
| 15 | 28 | 75 | 15 | 2 | 103515 | 66,50 | 73,80 | 77,50 |
| 16 | 32 | 80 | 16 | 2 | 103516 | 73,80 | 82,80 | 87,00 |
| 17 | 32 | 80 | 17 | 2 | 103517 | 88,90 | 99,70 | 104,70 |
| 18 | 32 | 80 | 18 | 2 | 103518 | 96,70 | 107,50 | 112,90 |
| 19 | 38 | 104 | 19 | 2 | 103519 | 121,10 | 137,90 | 144,80 |
| 20 | 38 | 104 | 20 | 2 | 103520 | 133,80 | 150,60 | 158,10 |
| 22 | 38 | 104 | 22 | 2 | 103522 | 166,70 | 183,50 | 192,70 |
| 25 | 38 | 104 | 25 | 2 | 103525 | 206,60 | 230,10 | 241,60 |
| 30 | 38 | 104 | 30 | 2 | 103530 | 289,50 | 316,20 | 332,00 |

Frese Z2 denti elicoidali taglio al centro lavorazioni universali

Universal end mills 2 flutes center cutting



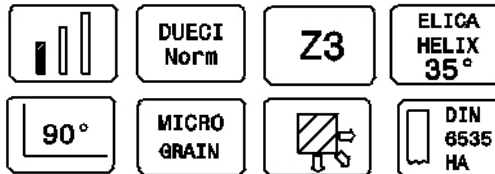
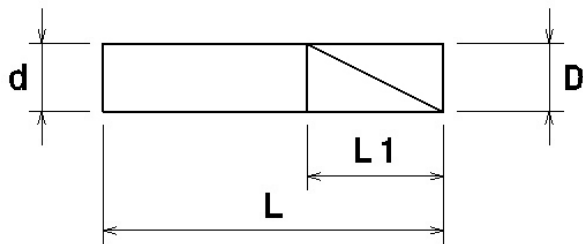
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----------------|------------|---------|------------|
| 2 | 20 | 50 | 2 | 2 | 103502L | 10,70 | 13,60 | 14,30 |
| 3 | 20 | 55 | 3 | 2 | 103503L | 11,80 | 15,20 | 16,00 |
| 4 | 20 | 60 | 4 | 2 | 103504L | 15,10 | 18,50 | 19,40 |
| 5 | 20 | 60 | 5 | 2 | 103505L | 16,50 | 21,10 | 22,20 |
| 6 | 24 | 65 | 6 | 2 | 103506L | 20,20 | 24,80 | 26,00 |
| 7 | 30 | 75 | 7 | 2 | 103507L | 25,50 | 31,00 | 32,60 |
| 8 | 32 | 80 | 8 | 2 | 103508L | 29,60 | 36,60 | 38,40 |
| 9 | 32 | 80 | 9 | 2 | 103509L | 34,80 | 43,10 | 45,30 |
| 10 | 32 | 80 | 10 | 2 | 103510L | 38,40 | 46,70 | 49,00 |
| 11 | 50 | 100 | 11 | 2 | 103511L | 53,90 | 62,30 | 65,40 |
| 12 | 50 | 100 | 12 | 2 | 103512L | 61,80 | 70,20 | 73,70 |
| 13 | 50 | 100 | 13 | 2 | 103513L | 69,10 | 78,10 | 82,00 |
| 14 | 55 | 100 | 14 | 2 | 103514L | 77,20 | 86,20 | 90,50 |
| 15 | 60 | 120 | 15 | 2 | 103515L | 97,20 | 109,00 | 114,50 |
| 16 | 60 | 120 | 16 | 2 | 103516L | 109,80 | 121,60 | 127,70 |
| 17 | 60 | 120 | 17 | 2 | 103517L | 122,30 | 135,90 | 142,70 |
| 18 | 60 | 120 | 18 | 2 | 103518L | 133,10 | 146,60 | 154,00 |
| 19 | 60 | 130 | 19 | 2 | 103519L | 155,90 | 172,70 | 181,30 |
| 20 | 60 | 130 | 20 | 2 | 103520L | 176,30 | 193,10 | 202,80 |
| 22 | 75 | 150 | 22 | 2 | 103522L | 270,00 | 295,20 | 310,00 |
| 25 | 75 | 150 | 25 | 2 | 103525L | 334,90 | 377,70 | 396,60 |
| 30 | 75 | 150 | 30 | 2 | 103530L | 436,90 | 491,40 | 516,00 |



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|-----------------|------------|---------|------------|
| 6 | 40 | 80 | 6 | 2 | 103506EL | 26,10 | 32,00 | 33,60 |
| 8 | 42 | 100 | 8 | 2 | 103508EL | 35,50 | 42,50 | 44,60 |
| 10 | 45 | 100 | 10 | 2 | 103510EL | 48,00 | 56,30 | 59,10 |
| 12 | 75 | 150 | 12 | 2 | 103512EL | 84,70 | 97,60 | 102,50 |
| 14 | 75 | 150 | 14 | 2 | 103514EL | 111,80 | 126,50 | 132,80 |
| 16 | 75 | 150 | 16 | 2 | 103516EL | 139,70 | 154,30 | 162,00 |
| 18 | 75 | 150 | 18 | 2 | 103518EL | 171,40 | 189,60 | 199,10 |
| 20 | 75 | 150 | 20 | 2 | 103520EL | 212,70 | 237,90 | 249,80 |
| 22 | 80 | 200 | 22 | 2 | 103522EL | 333,30 | 375,70 | 394,50 |
| 25 | 80 | 200 | 25 | 2 | 103525EL | 413,10 | 465,30 | 488,60 |
| 30 | 80 | 200 | 30 | 2 | 103530EL | 540,00 | 602,80 | 633,00 |

Frese Z3 denti elicoidali taglio al centro lavorazioni universali

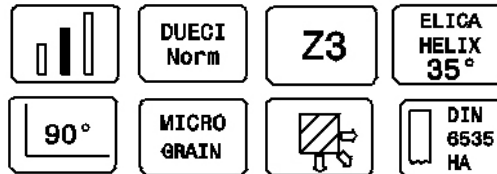
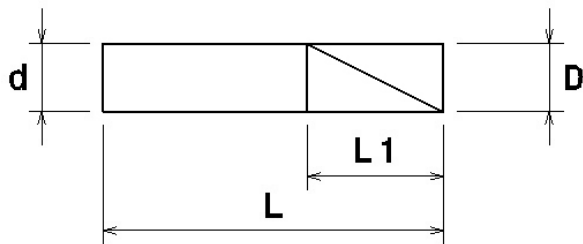
Universal end mills 3 flutes center cutting



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----------------|------------|---------|------------|
| 2 | 8 | 40 | 2 | 3 | 123502 | 8,50 | 11,40 | 12,00 |
| 2,5 | 8 | 40 | 2,5 | 3 | 1235025 | 8,80 | 12,20 | 12,80 |
| 3 | 10 | 40 | 3 | 3 | 123503 | 10,30 | 13,70 | 14,40 |
| 3,5 | 10 | 40 | 3,5 | 3 | 1235035 | 10,80 | 14,20 | 14,90 |
| 4 | 12 | 40 | 4 | 3 | 123504 | 11,50 | 14,90 | 15,70 |
| 4,5 | 12 | 50 | 4,5 | 3 | 1235045 | 12,90 | 17,50 | 18,40 |
| 5 | 14 | 50 | 5 | 3 | 123505 | 13,70 | 18,30 | 19,20 |
| 5,5 | 14 | 50 | 5,5 | 3 | 1235055 | 15,60 | 20,20 | 21,20 |
| 6 | 16 | 50 | 6 | 3 | 123506 | 16,30 | 20,90 | 22,00 |
| 6,5 | 16 | 50 | 6,5 | 3 | 1235065 | 19,00 | 24,50 | 25,70 |
| 7 | 16 | 60 | 7 | 3 | 123507 | 21,20 | 26,70 | 28,00 |
| 7,5 | 16 | 60 | 7,5 | 3 | 1235075 | 22,40 | 28,00 | 29,40 |
| 8 | 18 | 60 | 8 | 3 | 123508 | 23,70 | 29,30 | 30,80 |
| 8,5 | 18 | 60 | 8,5 | 3 | 1235085 | 24,90 | 31,60 | 33,20 |
| 9 | 20 | 60 | 9 | 3 | 123509 | 26,10 | 32,80 | 34,40 |
| 9,5 | 20 | 70 | 9,5 | 3 | 1235095 | 30,50 | 37,30 | 39,20 |
| 10 | 22 | 70 | 10 | 3 | 123510 | 32,20 | 38,90 | 40,90 |
| 10,5 | 22 | 70 | 10,5 | 3 | 1235105 | 35,60 | 42,40 | 44,50 |
| 11 | 22 | 70 | 11 | 3 | 123511 | 39,70 | 46,50 | 48,90 |
| 11,5 | 22 | 70 | 11,5 | 3 | 1235115 | 41,30 | 48,00 | 50,40 |
| 12 | 25 | 70 | 12 | 3 | 123512 | 41,90 | 48,60 | 51,00 |
| 13 | 25 | 75 | 13 | 3 | 123513 | 47,80 | 55,20 | 58,00 |
| 14 | 28 | 75 | 14 | 3 | 123514 | 56,50 | 63,90 | 67,10 |
| 15 | 28 | 75 | 15 | 3 | 123515 | 66,50 | 73,80 | 77,50 |
| 16 | 32 | 80 | 16 | 3 | 123516 | 73,80 | 82,80 | 87,00 |
| 17 | 32 | 80 | 17 | 3 | 123517 | 88,90 | 99,70 | 104,70 |
| 18 | 32 | 80 | 18 | 3 | 123518 | 96,70 | 107,50 | 112,90 |
| 19 | 38 | 104 | 19 | 3 | 123519 | 121,10 | 137,90 | 144,80 |
| 20 | 38 | 104 | 20 | 3 | 123520 | 133,80 | 150,60 | 158,10 |
| 22 | 38 | 104 | 22 | 3 | 123522 | 166,70 | 183,50 | 192,70 |
| 25 | 38 | 104 | 25 | 3 | 123525 | 206,60 | 230,10 | 241,60 |
| 30 | 38 | 104 | 30 | 3 | 123530 | 289,50 | 316,20 | 332,00 |

Frese Z3 denti elicoidali taglio al centro lavorazioni universali

Universal end mills 3 flutes center cutting



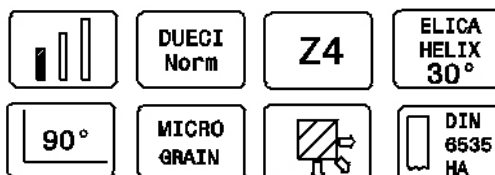
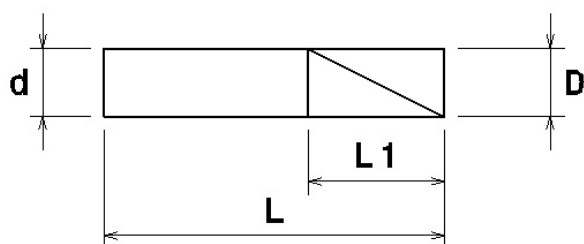
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----------------|------------|---------|------------|
| 2 | 20 | 50 | 2 | 3 | 123502L | 10,70 | 13,60 | 14,30 |
| 3 | 20 | 55 | 3 | 3 | 123503L | 11,80 | 15,20 | 16,00 |
| 4 | 20 | 60 | 4 | 3 | 123504L | 15,10 | 18,50 | 19,40 |
| 5 | 20 | 60 | 5 | 3 | 123505L | 16,50 | 21,10 | 22,20 |
| 6 | 24 | 65 | 6 | 3 | 123506L | 20,20 | 24,80 | 26,00 |
| 7 | 30 | 75 | 7 | 3 | 123507L | 25,50 | 31,00 | 32,60 |
| 8 | 32 | 80 | 8 | 3 | 123508L | 29,60 | 36,60 | 38,40 |
| 9 | 32 | 80 | 9 | 3 | 123509L | 34,80 | 43,10 | 45,30 |
| 10 | 32 | 80 | 10 | 3 | 123510L | 38,40 | 46,70 | 49,00 |
| 11 | 50 | 100 | 11 | 3 | 123511L | 53,90 | 62,30 | 65,40 |
| 12 | 50 | 100 | 12 | 3 | 123512L | 61,80 | 70,20 | 73,70 |
| 13 | 50 | 100 | 13 | 3 | 123513L | 69,10 | 78,10 | 82,00 |
| 14 | 55 | 100 | 14 | 3 | 123514L | 77,20 | 86,20 | 90,50 |
| 15 | 60 | 120 | 15 | 3 | 123515L | 97,20 | 109,00 | 114,50 |
| 16 | 60 | 120 | 16 | 3 | 123516L | 109,80 | 121,60 | 127,70 |
| 17 | 60 | 120 | 17 | 3 | 123517L | 122,30 | 135,90 | 142,70 |
| 18 | 60 | 120 | 18 | 3 | 123518L | 133,10 | 146,60 | 154,00 |
| 19 | 60 | 130 | 19 | 3 | 123519L | 155,90 | 172,70 | 181,30 |
| 20 | 60 | 130 | 20 | 3 | 123520L | 176,30 | 193,10 | 202,80 |
| 22 | 75 | 150 | 22 | 3 | 123522L | 270,00 | 295,20 | 310,00 |
| 25 | 75 | 150 | 25 | 3 | 123525L | 334,90 | 377,70 | 396,60 |
| 30 | 75 | 150 | 30 | 3 | 123530L | 436,90 | 491,40 | 516,00 |



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|-----------------|------------|---------|------------|
| 6 | 40 | 80 | 6 | 3 | 123506EL | 26,10 | 32,00 | 33,60 |
| 8 | 42 | 100 | 8 | 3 | 123508EL | 35,50 | 42,50 | 44,60 |
| 10 | 45 | 100 | 10 | 3 | 123510EL | 48,00 | 56,30 | 59,10 |
| 12 | 75 | 150 | 12 | 3 | 123512EL | 84,70 | 97,60 | 102,50 |
| 14 | 75 | 150 | 14 | 3 | 123514EL | 111,80 | 126,50 | 132,80 |
| 16 | 75 | 150 | 16 | 3 | 123516EL | 139,70 | 154,30 | 162,00 |
| 18 | 75 | 150 | 18 | 3 | 123518EL | 171,40 | 189,60 | 199,10 |
| 20 | 75 | 150 | 20 | 3 | 123520EL | 212,70 | 237,90 | 249,80 |
| 22 | 80 | 200 | 22 | 3 | 123522EL | 333,30 | 375,70 | 394,50 |
| 25 | 80 | 200 | 25 | 3 | 123525EL | 413,10 | 465,30 | 488,60 |
| 30 | 80 | 200 | 30 | 3 | 123530EL | 540,00 | 602,80 | 633,00 |

Frese Z4 denti elicoidali taglio al centro lavorazioni universali

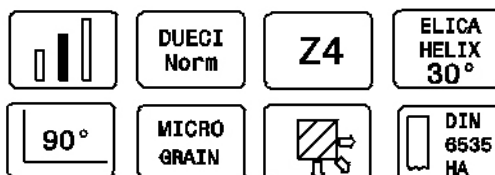
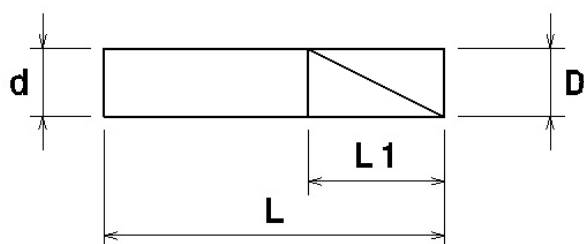
Universal end mills 4 flutes center cutting



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----------------|------------|---------|------------|
| 2 | 8 | 40 | 2 | 4 | 143002 | 8,50 | 11,40 | 12,00 |
| 2,5 | 8 | 40 | 2,5 | 4 | 1430025 | 8,80 | 12,20 | 12,80 |
| 3 | 10 | 40 | 3 | 4 | 143003 | 10,30 | 13,70 | 14,40 |
| 3,5 | 10 | 40 | 3,5 | 4 | 1430035 | 10,80 | 14,20 | 14,90 |
| 4 | 12 | 40 | 4 | 4 | 143004 | 11,50 | 14,90 | 15,70 |
| 4,5 | 12 | 50 | 4,5 | 4 | 1430045 | 12,90 | 17,50 | 18,40 |
| 5 | 14 | 50 | 5 | 4 | 143005 | 13,70 | 18,30 | 19,20 |
| 5,5 | 14 | 50 | 5,5 | 4 | 1430055 | 15,60 | 20,20 | 21,20 |
| 6 | 16 | 50 | 6 | 4 | 143006 | 16,30 | 20,90 | 22,00 |
| 6,5 | 16 | 50 | 6,5 | 4 | 1430065 | 19,00 | 24,50 | 25,70 |
| 7 | 16 | 60 | 7 | 4 | 143007 | 21,20 | 26,70 | 28,00 |
| 7,5 | 16 | 60 | 7,5 | 4 | 1430075 | 22,40 | 28,00 | 29,40 |
| 8 | 18 | 60 | 8 | 4 | 143008 | 23,70 | 29,30 | 30,80 |
| 8,5 | 18 | 60 | 8,5 | 4 | 1430085 | 24,90 | 31,60 | 33,20 |
| 9 | 20 | 60 | 9 | 4 | 143009 | 26,10 | 32,80 | 34,40 |
| 9,5 | 20 | 70 | 9,5 | 4 | 1430095 | 30,50 | 37,30 | 39,20 |
| 10 | 22 | 70 | 10 | 4 | 143010 | 32,20 | 38,90 | 40,90 |
| 10,5 | 22 | 70 | 10,5 | 4 | 1430105 | 35,60 | 42,40 | 44,50 |
| 11 | 22 | 70 | 11 | 4 | 143011 | 39,70 | 46,50 | 48,90 |
| 11,5 | 22 | 70 | 11,5 | 4 | 1430115 | 41,30 | 48,00 | 50,40 |
| 12 | 25 | 70 | 12 | 4 | 143012 | 41,90 | 48,60 | 51,00 |
| 13 | 25 | 75 | 13 | 4 | 143013 | 47,80 | 55,20 | 58,00 |
| 14 | 28 | 75 | 14 | 4 | 143014 | 56,50 | 63,90 | 67,10 |
| 15 | 28 | 75 | 15 | 4 | 143015 | 66,50 | 73,80 | 77,50 |
| 16 | 32 | 80 | 16 | 4 | 143016 | 73,80 | 82,80 | 87,00 |
| 17 | 32 | 80 | 17 | 4 | 143017 | 88,90 | 99,70 | 104,70 |
| 18 | 32 | 80 | 18 | 4 | 143018 | 96,70 | 107,50 | 112,90 |
| 19 | 38 | 104 | 19 | 4 | 143019 | 121,10 | 137,90 | 144,80 |
| 20 | 38 | 104 | 20 | 4 | 143020 | 133,80 | 150,60 | 158,10 |
| 22 | 38 | 104 | 22 | 4 | 143022 | 166,70 | 183,50 | 192,70 |
| 25 | 38 | 104 | 25 | 4 | 143025 | 206,60 | 230,10 | 241,60 |
| 30 | 38 | 104 | 30 | 4 | 143030 | 289,50 | 316,20 | 332,00 |

Frese Z4 denti elicoidali taglio al centro lavorazioni universali

Universal end mills 4 flutes center cutting



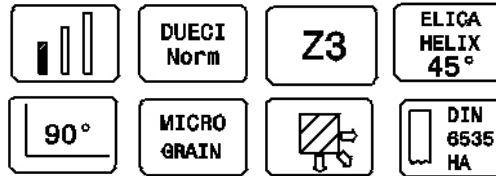
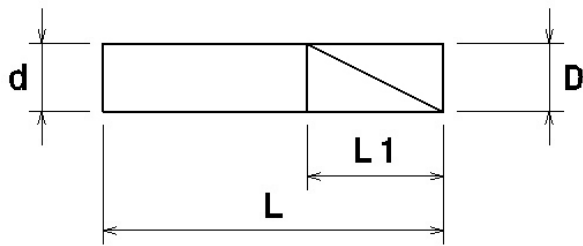
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----------------|------------|---------|------------|
| 2 | 20 | 50 | 2 | 4 | 143002L | 10,70 | 13,60 | 14,30 |
| 3 | 20 | 55 | 3 | 4 | 143003L | 11,80 | 15,20 | 16,00 |
| 4 | 20 | 60 | 4 | 4 | 143004L | 15,10 | 18,50 | 19,40 |
| 5 | 20 | 60 | 5 | 4 | 143005L | 16,50 | 21,10 | 22,20 |
| 6 | 24 | 65 | 6 | 4 | 143006L | 20,20 | 24,80 | 26,00 |
| 7 | 30 | 75 | 7 | 4 | 143007L | 25,50 | 31,00 | 32,60 |
| 8 | 32 | 80 | 8 | 4 | 143008L | 29,60 | 36,60 | 38,40 |
| 9 | 32 | 80 | 9 | 4 | 143009L | 34,80 | 43,10 | 45,30 |
| 10 | 32 | 80 | 10 | 4 | 143010L | 38,40 | 46,70 | 49,00 |
| 11 | 50 | 100 | 11 | 4 | 143011L | 53,90 | 62,30 | 65,40 |
| 12 | 50 | 100 | 12 | 4 | 143012L | 61,80 | 70,20 | 73,70 |
| 13 | 50 | 100 | 13 | 4 | 143013L | 69,10 | 78,10 | 82,00 |
| 14 | 55 | 100 | 14 | 4 | 143014L | 77,20 | 86,20 | 90,50 |
| 15 | 60 | 120 | 15 | 4 | 143015L | 97,20 | 109,00 | 114,50 |
| 16 | 60 | 120 | 16 | 4 | 143016L | 109,80 | 121,60 | 127,70 |
| 17 | 60 | 120 | 17 | 4 | 143017L | 122,30 | 135,90 | 142,70 |
| 18 | 60 | 120 | 18 | 4 | 143018L | 133,10 | 146,60 | 154,00 |
| 19 | 60 | 130 | 19 | 4 | 143019L | 155,90 | 172,70 | 181,30 |
| 20 | 60 | 130 | 20 | 4 | 143020L | 176,30 | 193,10 | 202,80 |
| 22 | 75 | 150 | 22 | 4 | 143022L | 270,00 | 295,20 | 310,00 |
| 25 | 75 | 150 | 25 | 4 | 143025L | 334,90 | 377,70 | 396,60 |
| 30 | 75 | 150 | 30 | 4 | 124530L | 436,90 | 491,40 | 516,00 |



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|-----------------|------------|---------|------------|
| 6 | 40 | 80 | 6 | 4 | 143006EL | 26,10 | 32,00 | 33,60 |
| 8 | 42 | 100 | 8 | 4 | 143008EL | 35,50 | 42,50 | 44,60 |
| 10 | 45 | 100 | 10 | 4 | 143010EL | 48,00 | 56,30 | 59,10 |
| 12 | 75 | 150 | 12 | 4 | 143012EL | 84,70 | 97,60 | 102,50 |
| 14 | 75 | 150 | 14 | 4 | 143014EL | 111,80 | 126,50 | 132,80 |
| 16 | 75 | 150 | 16 | 4 | 143016EL | 139,70 | 154,30 | 162,00 |
| 18 | 75 | 150 | 18 | 4 | 143018EL | 171,40 | 189,60 | 199,10 |
| 20 | 75 | 150 | 20 | 4 | 143020EL | 212,70 | 237,90 | 249,80 |
| 22 | 80 | 200 | 22 | 4 | 143022EL | 333,30 | 375,70 | 394,50 |
| 25 | 80 | 200 | 25 | 4 | 143025EL | 413,10 | 465,30 | 488,60 |
| 30 | 80 | 200 | 30 | 4 | 143030EL | 540,00 | 602,80 | 633,00 |

Frese Z3 denti elicoidali taglio al centro lavorazioni universali

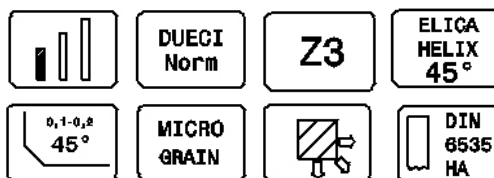
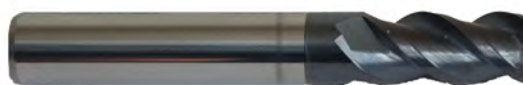
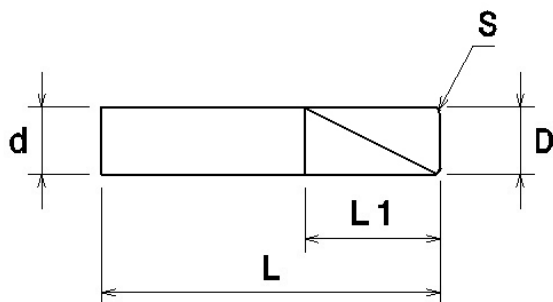
Universal end mills 3 flutes center cutting



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----------------|------------|---------|------------|
| 2 | 8 | 40 | 2 | 3 | 164502 | 8,50 | 11,40 | 12,00 |
| 2,5 | 8 | 40 | 2,5 | 3 | 1645025 | 8,80 | 12,20 | 12,80 |
| 3 | 10 | 40 | 3 | 3 | 164503 | 10,30 | 13,70 | 14,40 |
| 3,5 | 10 | 40 | 3,5 | 3 | 1645035 | 10,80 | 14,20 | 14,90 |
| 4 | 12 | 40 | 4 | 3 | 164504 | 11,50 | 14,90 | 15,70 |
| 4,5 | 12 | 50 | 4,5 | 3 | 1645045 | 12,90 | 17,50 | 18,40 |
| 5 | 14 | 50 | 5 | 3 | 164505 | 13,70 | 18,30 | 19,20 |
| 5,5 | 14 | 50 | 5,5 | 3 | 1645055 | 15,60 | 20,20 | 21,20 |
| 6 | 16 | 50 | 6 | 3 | 164506 | 16,30 | 20,90 | 22,00 |
| 6,5 | 16 | 50 | 6,5 | 3 | 1645065 | 19,00 | 24,50 | 25,70 |
| 7 | 16 | 60 | 7 | 3 | 164507 | 21,20 | 26,70 | 28,00 |
| 7,5 | 16 | 60 | 7,5 | 3 | 1645075 | 22,40 | 28,00 | 29,40 |
| 8 | 18 | 60 | 8 | 3 | 164508 | 23,70 | 29,30 | 30,80 |
| 8,5 | 18 | 60 | 8,5 | 3 | 1645085 | 24,90 | 31,60 | 33,20 |
| 9 | 20 | 60 | 9 | 3 | 164509 | 26,10 | 32,80 | 34,40 |
| 9,5 | 20 | 70 | 9,5 | 3 | 1645095 | 30,50 | 37,30 | 39,20 |
| 10 | 22 | 70 | 10 | 3 | 164510 | 32,20 | 38,90 | 40,90 |
| 10,5 | 22 | 70 | 10,5 | 3 | 1645105 | 35,60 | 42,40 | 44,50 |
| 11 | 22 | 70 | 11 | 3 | 164511 | 39,70 | 46,50 | 48,90 |
| 11,5 | 22 | 70 | 11,5 | 3 | 1645115 | 41,30 | 48,00 | 50,40 |
| 12 | 25 | 70 | 12 | 3 | 164512 | 41,90 | 48,60 | 51,00 |
| 13 | 25 | 75 | 13 | 3 | 164513 | 47,80 | 55,20 | 58,00 |
| 14 | 28 | 75 | 14 | 3 | 164514 | 56,50 | 63,90 | 67,10 |
| 15 | 28 | 75 | 15 | 3 | 164515 | 66,50 | 73,80 | 77,50 |
| 16 | 32 | 80 | 16 | 3 | 164516 | 73,80 | 82,80 | 87,00 |
| 17 | 32 | 80 | 17 | 3 | 164517 | 88,90 | 99,70 | 104,70 |
| 18 | 32 | 80 | 18 | 3 | 164518 | 96,70 | 107,50 | 112,90 |
| 19 | 38 | 104 | 19 | 3 | 164519 | 121,10 | 137,90 | 144,80 |
| 20 | 38 | 104 | 20 | 3 | 164520 | 133,80 | 150,60 | 158,10 |
| 22 | 38 | 104 | 22 | 3 | 164522 | 166,70 | 183,50 | 192,70 |
| 25 | 38 | 104 | 25 | 3 | 164525 | 206,60 | 230,10 | 241,60 |
| 30 | 38 | 104 | 30 | 3 | 164530 | 289,50 | 316,20 | 332,00 |

Frese Z3 denti elicoidali taglio al centro lavorazioni universali

Universal end mills 3 flutes center cutting

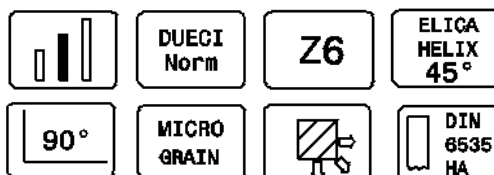
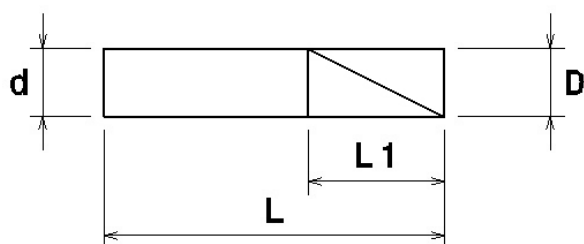


| D _{h10} | L1 | L | d _{h6} | Z | S | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|-----------------|-----------------|------------|---------|------------|
| 2 | 8 | 40 | 2 | 3 | 0,1 - 0,2 x 45° | 164502S | 10,50 | 13,40 | 14,10 |
| 2,5 | 8 | 40 | 2,5 | 3 | 0,1 - 0,2 x 45° | 1645025S | 10,80 | 14,20 | 15,00 |
| 3 | 10 | 40 | 3 | 3 | 0,1 - 0,2 x 45° | 164503S | 12,30 | 15,70 | 16,50 |
| 3,5 | 10 | 40 | 3,5 | 3 | 0,1 - 0,2 x 45° | 1645035S | 12,80 | 16,20 | 17,00 |
| 4 | 12 | 40 | 4 | 3 | 0,1 - 0,2 x 45° | 164504S | 13,50 | 16,90 | 17,80 |
| 4,5 | 12 | 50 | 4,5 | 3 | 0,1 - 0,2 x 45° | 1645045S | 14,90 | 19,50 | 20,50 |
| 5 | 14 | 50 | 5 | 3 | 0,1 - 0,2 x 45° | 164505S | 15,70 | 20,30 | 21,30 |
| 5,5 | 14 | 50 | 5,5 | 3 | 0,1 - 0,2 x 45° | 1645055S | 17,60 | 22,20 | 23,30 |
| 6 | 16 | 50 | 6 | 3 | 0,1 - 0,2 x 45° | 164506S | 18,30 | 22,90 | 24,10 |
| 6,5 | 16 | 50 | 6,5 | 3 | 0,1 - 0,2 x 45° | 1645065S | 21,00 | 26,50 | 27,90 |
| 7 | 16 | 60 | 7 | 3 | 0,1 - 0,2 x 45° | 164507S | 23,20 | 28,70 | 30,20 |
| 7,5 | 16 | 60 | 7,5 | 3 | 0,1 - 0,2 x 45° | 1645075S | 24,40 | 30,00 | 31,50 |
| 8 | 18 | 60 | 8 | 3 | 0,1 - 0,2 x 45° | 164508S | 25,70 | 31,30 | 32,90 |
| 8,5 | 18 | 60 | 8,5 | 3 | 0,1 - 0,2 x 45° | 1645085S | 26,90 | 33,60 | 35,30 |
| 9 | 20 | 60 | 9 | 3 | 0,1 - 0,2 x 45° | 164509S | 28,10 | 34,80 | 36,60 |
| 9,5 | 20 | 70 | 9,5 | 3 | 0,1 - 0,2 x 45° | 1645095S | 32,50 | 39,30 | 41,30 |
| 10 | 22 | 70 | 10 | 3 | 0,1 - 0,2 x 45° | 164510S | 34,20 | 40,90 | 43,00 |
| 10,5 | 22 | 70 | 10,5 | 3 | 0,1 - 0,2 x 45° | 1645105S | 37,60 | 44,40 | 46,70 |
| 11 | 22 | 70 | 11 | 3 | 0,1 - 0,2 x 45° | 164511S | 41,70 | 48,50 | 51,00 |
| 11,5 | 22 | 70 | 11,5 | 3 | 0,1 - 0,2 x 45° | 1645115S | 43,30 | 50,00 | 52,50 |
| 12 | 25 | 70 | 12 | 3 | 0,1 - 0,2 x 45° | 164512S | 43,90 | 50,60 | 53,20 |
| 13 | 25 | 75 | 13 | 3 | 0,1 - 0,2 x 45° | 164513S | 49,80 | 57,20 | 60,10 |
| 14 | 28 | 75 | 14 | 3 | 0,1 - 0,2 x 45° | 164514S | 58,50 | 65,90 | 69,20 |
| 15 | 28 | 75 | 15 | 3 | 0,1 - 0,2 x 45° | 164515S | 68,50 | 75,80 | 79,60 |
| 16 | 32 | 80 | 16 | 3 | 0,1 - 0,2 x 45° | 164516S | 75,80 | 84,80 | 89,10 |
| 17 | 32 | 80 | 17 | 3 | 0,1 - 0,2 x 45° | 164517S | 90,90 | 101,70 | 106,80 |
| 18 | 32 | 80 | 18 | 3 | 0,1 - 0,2 x 45° | 164518S | 98,70 | 109,50 | 115,00 |
| 19 | 35 | 100 | 19 | 3 | 0,1 - 0,2 x 45° | 164519S | 123,10 | 139,90 | 146,90 |
| 20 | 35 | 100 | 20 | 3 | 0,1 - 0,2 x 45° | 164520S | 135,80 | 152,60 | 160,30 |
| 22 | 38 | 100 | 22 | 3 | 0,1 - 0,2 x 45° | 164522S | 168,70 | 185,50 | 194,80 |
| 25 | 38 | 100 | 25 | 3 | 0,1 - 0,2 x 45° | 164525S | 208,60 | 232,10 | 243,70 |
| 30 | 38 | 100 | 30 | 3 | 0,1 - 0,2 x 45° | 164530S | 291,50 | 318,20 | 334,10 |

A richiesta possibili Smussi diversi
Different chamfer on request

Frese Z6 denti elicoidali lavorazioni universali

Universal end mills 6 flutes



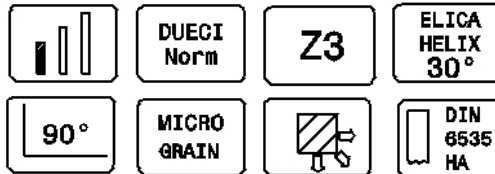
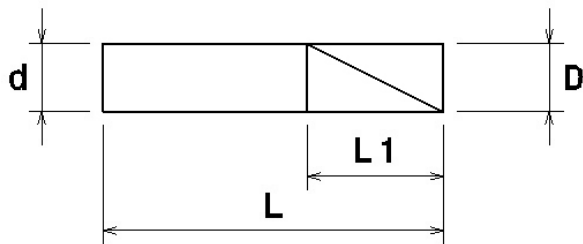
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|---------------|------------|---------|------------|
| 4 | 15 | 40 | 4 | 6 | 264504 | 14,90 | 18,30 | 19,30 |
| 6 | 20 | 50 | 6 | 6 | 264506 | 20,30 | 24,90 | 26,20 |
| 8 | 25 | 60 | 8 | 6 | 264508 | 27,70 | 33,30 | 35,00 |
| 10 | 30 | 70 | 10 | 6 | 264510 | 39,60 | 46,30 | 48,70 |
| 12 | 35 | 75 | 12 | 6 | 264512 | 51,90 | 58,60 | 61,60 |
| 14 | 35 | 75 | 14 | 6 | 264514 | 65,90 | 73,30 | 77,00 |
| 16 | 38 | 80 | 16 | 6 | 264516 | 83,20 | 92,20 | 96,90 |
| 18 | 38 | 80 | 18 | 6 | 264518 | 104,70 | 115,50 | 121,30 |
| 20 | 40 | 104 | 20 | 6 | 264520 | 143,80 | 160,60 | 168,70 |
| 22 | 40 | 104 | 22 | 6 | 264522 | 186,70 | 203,50 | 213,70 |
| 25 | 40 | 104 | 25 | 6 | 264525 | 236,60 | 260,10 | 273,20 |
| 30 | 40 | 104 | 30 | 6 | 264530 | 309,50 | 336,20 | 353,00 |



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----------------|------------|---------|------------|
| 4 | 20 | 100 | 4 | 6 | 264504L | 21,10 | 25,60 | 26,90 |
| 6 | 24 | 100 | 6 | 6 | 264506L | 28,60 | 34,60 | 36,30 |
| 8 | 32 | 100 | 8 | 6 | 264508L | 39,50 | 46,50 | 48,80 |
| 10 | 32 | 100 | 10 | 6 | 264510L | 50,00 | 58,30 | 61,20 |
| 12 | 50 | 100 | 12 | 6 | 264512L | 71,80 | 82,50 | 86,70 |
| 16 | 60 | 150 | 16 | 6 | 264516L | 137,70 | 152,30 | 160,00 |
| 18 | 60 | 150 | 18 | 6 | 264518L | 169,40 | 187,60 | 197,00 |
| 20 | 60 | 150 | 20 | 6 | 264520L | 208,70 | 233,90 | 245,60 |
| 22 | 60 | 150 | 22 | 6 | 264522L | 290,00 | 315,20 | 331,00 |
| 25 | 60 | 150 | 25 | 6 | 264525L | 354,90 | 397,70 | 417,60 |
| 30 | 60 | 150 | 30 | 6 | 264530L | 454,30 | 508,80 | 534,20 |

Frese Z3/Z4 elicoidali taglio al centro lavorazione sgrossatura

Roughing end mills 3/4 flutes center cutting



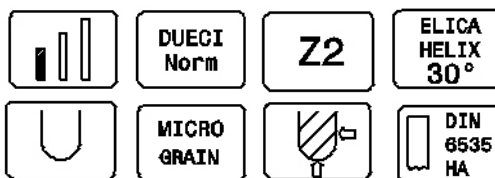
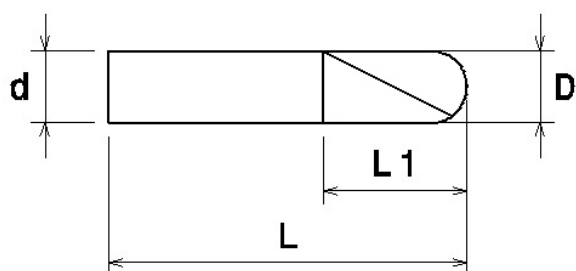
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|---------------|------------|---------|------------|
| 6 | 16 | 60 | 6 | 3 | 283006 | 23,60 | 28,20 | 29,70 |
| 8 | 19 | 70 | 8 | 3 | 283008 | 33,70 | 39,20 | 41,20 |
| 10 | 22 | 70 | 10 | 3 | 283010 | 43,60 | 50,30 | 52,90 |
| 12 | 26 | 80 | 12 | 3 | 283012 | 57,90 | 66,20 | 69,60 |
| 14 | 26 | 80 | 14 | 3 | 283014 | 72,60 | 81,60 | 85,70 |
| 16 | 32 | 100 | 16 | 3 | 283016 | 102,50 | 111,50 | 117,10 |
| 18 | 32 | 100 | 18 | 3 | 283018 | 124,90 | 135,70 | 142,50 |
| 20 | 38 | 104 | 20 | 3 | 283020 | 155,80 | 172,60 | 181,30 |



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|---------------|------------|---------|------------|
| 6 | 16 | 60 | 6 | 4 | 293006 | 23,60 | 28,20 | 29,70 |
| 8 | 19 | 70 | 8 | 4 | 293008 | 33,70 | 39,20 | 41,20 |
| 10 | 22 | 70 | 10 | 4 | 293010 | 43,60 | 50,30 | 52,90 |
| 12 | 26 | 80 | 12 | 4 | 293012 | 57,90 | 66,20 | 69,60 |
| 14 | 26 | 80 | 14 | 4 | 293014 | 72,60 | 81,60 | 85,70 |
| 16 | 32 | 100 | 16 | 4 | 293016 | 102,50 | 111,50 | 117,10 |
| 18 | 32 | 100 | 18 | 4 | 293018 | 124,90 | 135,70 | 142,50 |
| 20 | 38 | 104 | 20 | 4 | 293020 | 155,80 | 172,60 | 181,30 |

Frese Z2 raggiata denti elicoidali taglio al centro lavorazioni universali

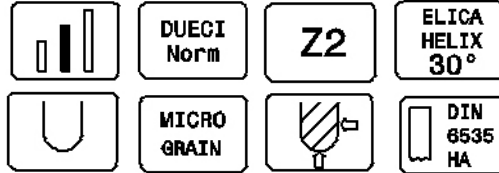
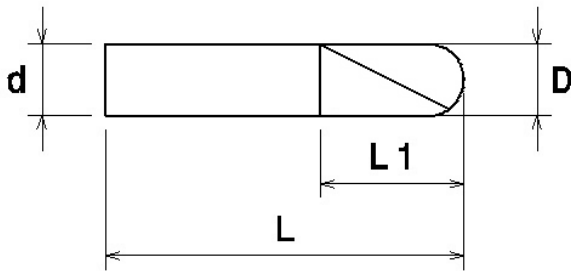
Universal ball nose end mills 2 flutes center cutting



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----------------|------------|---------|------------|
| 1 | 3 | 40 | 1 | 2 | 113001 | 27,50 | 30,30 | 32,00 |
| 1,5 | 3 | 40 | 1,5 | 2 | 1130015 | 27,50 | 30,30 | 32,00 |
| 2 | 8 | 40 | 2 | 2 | 113002 | 11,70 | 14,60 | 15,30 |
| 2,5 | 8 | 40 | 2,5 | 2 | 1130025 | 12,00 | 15,40 | 16,20 |
| 3 | 10 | 40 | 3 | 2 | 113003 | 14,30 | 17,70 | 18,60 |
| 3,5 | 10 | 40 | 3,5 | 2 | 1130035 | 14,60 | 18,00 | 18,90 |
| 4 | 12 | 40 | 4 | 2 | 113004 | 14,90 | 18,30 | 19,20 |
| 4,5 | 12 | 50 | 4,5 | 2 | 1130045 | 16,30 | 20,90 | 22,00 |
| 5 | 14 | 50 | 5 | 2 | 113005 | 18,70 | 23,30 | 24,50 |
| 5,5 | 14 | 50 | 5,5 | 2 | 1130055 | 19,60 | 24,20 | 25,40 |
| 6 | 16 | 50 | 6 | 2 | 113006 | 20,30 | 24,90 | 26,20 |
| 6,5 | 16 | 50 | 6,5 | 2 | 1130065 | 22,00 | 27,50 | 28,90 |
| 7 | 16 | 60 | 7 | 2 | 113007 | 24,20 | 29,70 | 31,20 |
| 7,5 | 16 | 60 | 7,5 | 2 | 1130075 | 25,40 | 31,00 | 32,60 |
| 8 | 18 | 60 | 8 | 2 | 113008 | 27,70 | 33,30 | 35,00 |
| 8,5 | 18 | 60 | 8,5 | 2 | 1130085 | 30,90 | 37,60 | 39,50 |
| 9 | 20 | 60 | 9 | 2 | 113009 | 32,10 | 38,80 | 40,80 |
| 9,5 | 20 | 70 | 9,5 | 2 | 1130095 | 36,80 | 43,60 | 45,80 |
| 10 | 22 | 70 | 10 | 2 | 113010 | 38,50 | 45,20 | 47,50 |
| 10,5 | 22 | 70 | 10,5 | 2 | 1130105 | 42,60 | 49,40 | 51,90 |
| 11 | 22 | 70 | 11 | 2 | 113011 | 47,70 | 54,50 | 57,20 |
| 11,5 | 22 | 70 | 11,5 | 2 | 1130115 | 49,30 | 56,00 | 58,80 |
| 12 | 25 | 70 | 12 | 2 | 113012 | 49,90 | 56,60 | 59,40 |
| 13 | 25 | 75 | 13 | 2 | 113013 | 57,80 | 65,20 | 68,50 |
| 14 | 28 | 75 | 14 | 2 | 113014 | 64,90 | 72,30 | 76,00 |
| 15 | 28 | 75 | 15 | 2 | 113015 | 77,50 | 84,80 | 89,00 |
| 16 | 32 | 80 | 16 | 2 | 113016 | 85,20 | 94,20 | 98,90 |
| 17 | 32 | 80 | 17 | 2 | 113017 | 102,90 | 113,70 | 119,40 |
| 18 | 32 | 80 | 18 | 2 | 113018 | 112,70 | 123,50 | 129,70 |
| 19 | 38 | 104 | 19 | 2 | 113019 | 137,10 | 153,90 | 161,60 |
| 20 | 38 | 104 | 20 | 2 | 113020 | 149,80 | 166,60 | 175,00 |
| 22 | 38 | 104 | 22 | 2 | 113022 | 186,70 | 203,50 | 213,70 |
| 25 | 38 | 104 | 25 | 2 | 113025 | 236,60 | 260,10 | 273,10 |
| 30 | 38 | 104 | 30 | 2 | 113030 | 329,50 | 356,20 | 374,00 |

Frese Z2 raggiata denti elicoidali taglio al centro lavorazioni universali

Universal ball nose end mills 2 flutes center cutting



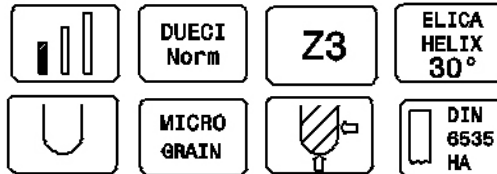
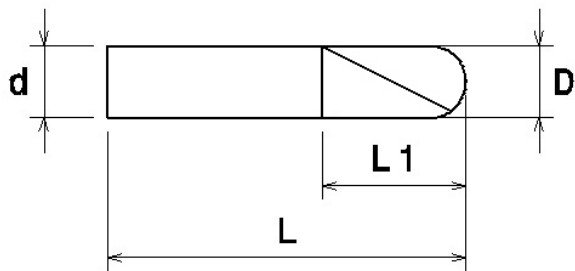
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|---------|------------|---------|------------|
| 2 | 20 | 50 | 2 | 2 | 113002L | 15,00 | 17,90 | 18,80 |
| 3 | 20 | 55 | 3 | 2 | 113003L | 16,10 | 19,50 | 20,50 |
| 4 | 20 | 60 | 4 | 2 | 113004L | 20,30 | 23,70 | 24,90 |
| 5 | 20 | 60 | 5 | 2 | 113005L | 21,70 | 26,30 | 27,60 |
| 6 | 24 | 65 | 6 | 2 | 113006L | 26,20 | 30,80 | 32,30 |
| 7 | 30 | 75 | 7 | 2 | 113007L | 32,50 | 38,00 | 39,90 |
| 8 | 32 | 80 | 8 | 2 | 113008L | 36,60 | 43,60 | 45,80 |
| 9 | 32 | 80 | 9 | 2 | 113009L | 42,80 | 51,10 | 53,70 |
| 10 | 32 | 80 | 10 | 2 | 113010L | 46,40 | 54,70 | 57,40 |
| 11 | 50 | 100 | 11 | 2 | 113011L | 63,90 | 72,30 | 75,90 |
| 12 | 50 | 100 | 12 | 2 | 113012L | 72,80 | 81,20 | 85,30 |
| 13 | 50 | 100 | 13 | 2 | 113013L | 81,10 | 90,10 | 94,60 |
| 14 | 55 | 100 | 14 | 2 | 113014L | 89,20 | 98,20 | 103,10 |
| 15 | 60 | 120 | 15 | 2 | 113015L | 110,20 | 122,00 | 128,10 |
| 16 | 60 | 120 | 16 | 2 | 113016L | 123,80 | 135,60 | 142,40 |
| 17 | 60 | 120 | 17 | 2 | 113017L | 138,30 | 151,90 | 159,50 |
| 18 | 60 | 120 | 18 | 2 | 113018L | 151,10 | 164,60 | 172,80 |
| 19 | 60 | 130 | 19 | 2 | 113019L | 175,90 | 192,70 | 202,30 |
| 20 | 60 | 130 | 20 | 2 | 113020L | 198,30 | 215,10 | 225,90 |
| 22 | 75 | 150 | 22 | 2 | 113022L | 310,00 | 335,20 | 352,00 |
| 25 | 75 | 150 | 25 | 2 | 113025L | 384,90 | 427,70 | 449,10 |
| 30 | 75 | 150 | 30 | 2 | 113030L | 496,90 | 551,40 | 579,00 |



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----------|------------|---------|------------|
| 6 | 40 | 80 | 6 | 2 | 113006EL | 34,10 | 40,00 | 42,00 |
| 8 | 42 | 100 | 8 | 2 | 113008EL | 43,50 | 50,50 | 53,00 |
| 10 | 45 | 100 | 10 | 2 | 113010EL | 58,00 | 66,30 | 69,60 |
| 12 | 75 | 150 | 12 | 2 | 113012EL | 97,70 | 110,60 | 116,10 |
| 14 | 75 | 150 | 14 | 2 | 113014EL | 127,80 | 142,50 | 149,60 |
| 16 | 75 | 150 | 16 | 2 | 113016EL | 159,70 | 174,30 | 183,00 |
| 18 | 75 | 150 | 18 | 2 | 113018EL | 196,40 | 214,60 | 225,30 |
| 20 | 75 | 150 | 20 | 2 | 113020EL | 242,70 | 267,90 | 281,30 |
| 22 | 80 | 200 | 22 | 2 | 113022EL | 373,30 | 415,70 | 436,50 |
| 25 | 80 | 200 | 25 | 2 | 113025EL | 463,10 | 515,30 | 541,10 |
| 30 | 80 | 200 | 30 | 2 | 113030EL | 600,00 | 662,80 | 696,00 |

Frese Z3 raggiata denti elicoidali taglio al centro lavorazioni universali

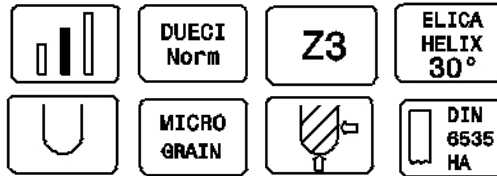
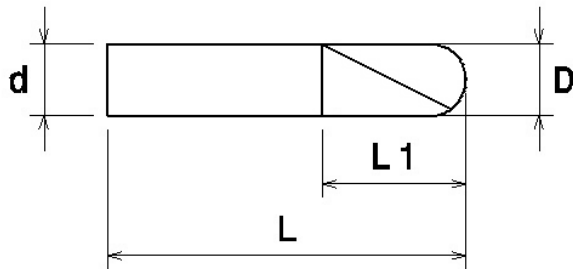
Universal ball nose end mills 3 flutes center cutting



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----------------|------------|---------|------------|
| 2 | 8 | 40 | 2 | 3 | 133002 | 11,70 | 14,60 | 15,30 |
| 2,5 | 8 | 40 | 2,5 | 3 | 1330025 | 12,00 | 15,40 | 16,20 |
| 3 | 10 | 40 | 3 | 3 | 133003 | 14,30 | 17,70 | 18,60 |
| 3,5 | 10 | 40 | 3,5 | 3 | 1330035 | 14,60 | 18,00 | 18,90 |
| 4 | 12 | 40 | 4 | 3 | 133004 | 14,90 | 18,30 | 19,20 |
| 4,5 | 12 | 50 | 4,5 | 3 | 1330045 | 16,30 | 20,90 | 22,00 |
| 5 | 14 | 50 | 5 | 3 | 133005 | 18,70 | 23,30 | 24,50 |
| 5,5 | 14 | 50 | 5,5 | 3 | 1330055 | 19,60 | 24,20 | 25,40 |
| 6 | 16 | 50 | 6 | 3 | 133006 | 20,30 | 24,90 | 26,20 |
| 6,5 | 16 | 50 | 6,5 | 3 | 1330065 | 22,00 | 27,50 | 28,90 |
| 7 | 16 | 60 | 7 | 3 | 133007 | 24,20 | 29,70 | 31,20 |
| 7,5 | 16 | 60 | 7,5 | 3 | 1330075 | 25,40 | 31,00 | 32,60 |
| 8 | 18 | 60 | 8 | 3 | 133008 | 27,70 | 33,30 | 35,00 |
| 8,5 | 18 | 60 | 8,5 | 3 | 1330085 | 30,90 | 37,60 | 39,50 |
| 9 | 20 | 60 | 9 | 3 | 133009 | 32,10 | 38,80 | 40,80 |
| 9,5 | 20 | 70 | 9,5 | 3 | 1330095 | 36,80 | 43,60 | 45,80 |
| 10 | 22 | 70 | 10 | 3 | 133010 | 38,50 | 45,20 | 47,50 |
| 10,5 | 22 | 70 | 10,5 | 3 | 1330105 | 42,60 | 49,40 | 51,90 |
| 11 | 22 | 70 | 11 | 3 | 133011 | 47,70 | 54,50 | 57,20 |
| 11,5 | 22 | 70 | 11,5 | 3 | 1330115 | 49,30 | 56,00 | 58,80 |
| 12 | 25 | 70 | 12 | 3 | 133012 | 49,90 | 56,60 | 59,40 |
| 13 | 25 | 75 | 13 | 3 | 133013 | 57,80 | 65,20 | 68,50 |
| 14 | 28 | 75 | 14 | 3 | 133014 | 64,90 | 72,30 | 76,00 |
| 15 | 28 | 75 | 15 | 3 | 133015 | 77,50 | 84,80 | 89,00 |
| 16 | 32 | 80 | 16 | 3 | 133016 | 85,20 | 94,20 | 98,90 |
| 17 | 32 | 80 | 17 | 3 | 133017 | 102,90 | 113,70 | 119,40 |
| 18 | 32 | 80 | 18 | 3 | 133018 | 112,70 | 123,50 | 129,70 |
| 19 | 38 | 104 | 19 | 3 | 133019 | 137,10 | 153,90 | 161,60 |
| 20 | 38 | 104 | 20 | 3 | 133020 | 149,80 | 166,60 | 175,00 |
| 22 | 38 | 104 | 22 | 3 | 133022 | 186,70 | 203,50 | 213,70 |
| 25 | 38 | 104 | 25 | 3 | 133025 | 236,60 | 260,10 | 273,10 |
| 30 | 38 | 104 | 30 | 3 | 133030 | 329,50 | 356,20 | 374,00 |

Frese Z3 raggiata denti elicoidali taglio al centro lavorazioni universali

Universal ball nose end mills 3 flutes center cutting



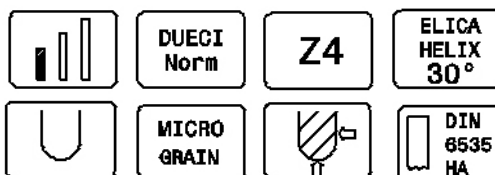
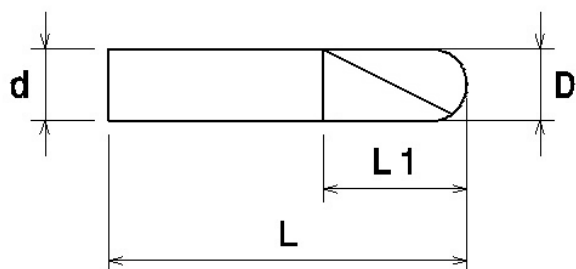
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----------------|------------|---------|------------|
| 2 | 20 | 50 | 2 | 3 | 133002L | 15,00 | 17,90 | 18,80 |
| 3 | 20 | 55 | 3 | 3 | 133003L | 16,10 | 19,50 | 20,50 |
| 4 | 20 | 60 | 4 | 3 | 133004L | 20,30 | 23,70 | 24,90 |
| 5 | 20 | 60 | 5 | 3 | 133005L | 21,70 | 26,30 | 27,60 |
| 6 | 24 | 65 | 6 | 3 | 133006L | 26,20 | 30,80 | 32,30 |
| 7 | 30 | 75 | 7 | 3 | 133007L | 32,50 | 38,00 | 39,90 |
| 8 | 32 | 80 | 8 | 3 | 133008L | 36,60 | 43,60 | 45,80 |
| 9 | 32 | 80 | 9 | 3 | 133009L | 42,80 | 51,10 | 53,70 |
| 10 | 32 | 80 | 10 | 3 | 133010L | 46,40 | 54,70 | 57,40 |
| 11 | 50 | 100 | 11 | 3 | 133011L | 63,90 | 72,30 | 75,90 |
| 12 | 50 | 100 | 12 | 3 | 133012L | 72,80 | 81,20 | 85,30 |
| 13 | 50 | 100 | 13 | 3 | 133013L | 81,10 | 90,10 | 94,60 |
| 14 | 55 | 100 | 14 | 3 | 133014L | 89,20 | 98,20 | 103,10 |
| 15 | 60 | 120 | 15 | 3 | 133015L | 110,20 | 122,00 | 128,10 |
| 16 | 60 | 120 | 16 | 3 | 133016L | 123,80 | 135,60 | 142,40 |
| 17 | 60 | 120 | 17 | 3 | 133017L | 138,30 | 151,90 | 159,50 |
| 18 | 60 | 120 | 18 | 3 | 133018L | 151,10 | 164,60 | 172,80 |
| 19 | 60 | 130 | 19 | 3 | 133019L | 175,90 | 192,70 | 202,30 |
| 20 | 60 | 130 | 20 | 3 | 133020L | 198,30 | 215,10 | 225,90 |
| 22 | 75 | 150 | 22 | 3 | 133022L | 310,00 | 335,20 | 352,00 |
| 25 | 75 | 150 | 25 | 3 | 133025L | 384,90 | 427,70 | 449,10 |
| 30 | 75 | 150 | 30 | 3 | 133030L | 496,90 | 551,40 | 579,00 |



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|-----------------|------------|---------|------------|
| 6 | 40 | 80 | 6 | 3 | 133006EL | 34,10 | 40,00 | 42,00 |
| 8 | 42 | 100 | 8 | 3 | 133008EL | 43,50 | 50,50 | 53,00 |
| 10 | 45 | 100 | 10 | 3 | 133010EL | 58,00 | 66,30 | 69,60 |
| 12 | 75 | 150 | 12 | 3 | 133012EL | 97,70 | 110,60 | 116,10 |
| 14 | 75 | 150 | 14 | 3 | 133014EL | 127,80 | 142,50 | 149,60 |
| 16 | 75 | 150 | 16 | 3 | 133016EL | 159,70 | 174,30 | 183,00 |
| 18 | 75 | 150 | 18 | 3 | 133018EL | 196,40 | 214,60 | 225,30 |
| 20 | 75 | 150 | 20 | 3 | 133020EL | 242,70 | 267,90 | 281,30 |
| 22 | 80 | 200 | 22 | 3 | 133022EL | 373,30 | 415,70 | 436,50 |
| 25 | 80 | 200 | 25 | 3 | 133025EL | 463,10 | 515,30 | 541,10 |
| 30 | 80 | 200 | 30 | 3 | 133030EL | 600,00 | 662,80 | 696,00 |

Frese Z4 raggiata denti elicoidali taglio al centro lavorazioni universali

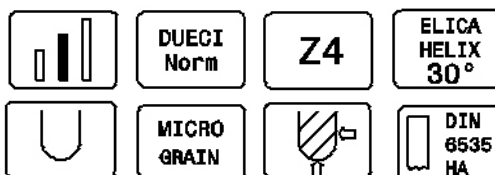
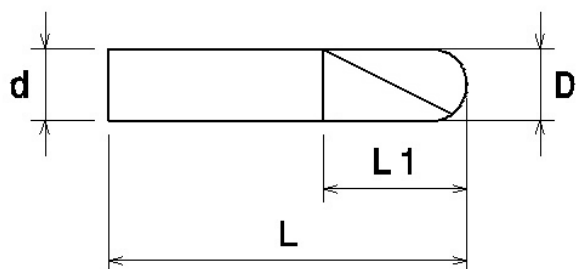
Universal ball nose end mills 4 flutes center cutting



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----------------|------------|---------|------------|
| 2 | 8 | 40 | 2 | 4 | 153002 | 11,70 | 14,60 | 15,30 |
| 2,5 | 8 | 40 | 2,5 | 4 | 1530025 | 12,00 | 15,40 | 16,20 |
| 3 | 10 | 40 | 3 | 4 | 153003 | 14,30 | 17,70 | 18,60 |
| 3,5 | 10 | 40 | 3,5 | 4 | 1530035 | 14,60 | 18,00 | 18,90 |
| 4 | 12 | 40 | 4 | 4 | 153004 | 14,90 | 18,30 | 19,20 |
| 4,5 | 12 | 50 | 4,5 | 4 | 1530045 | 16,30 | 20,90 | 22,00 |
| 5 | 14 | 50 | 5 | 4 | 153005 | 18,70 | 23,30 | 24,50 |
| 5,5 | 14 | 50 | 5,5 | 4 | 1530055 | 19,60 | 24,20 | 25,40 |
| 6 | 16 | 50 | 6 | 4 | 153006 | 20,30 | 24,90 | 26,20 |
| 6,5 | 16 | 50 | 6,5 | 4 | 1530065 | 22,00 | 27,50 | 28,90 |
| 7 | 16 | 60 | 7 | 4 | 153007 | 24,20 | 29,70 | 31,20 |
| 7,5 | 16 | 60 | 7,5 | 4 | 1530075 | 25,40 | 31,00 | 32,60 |
| 8 | 18 | 60 | 8 | 4 | 153008 | 27,70 | 33,30 | 35,00 |
| 8,5 | 18 | 60 | 8,5 | 4 | 1530085 | 30,90 | 37,60 | 39,50 |
| 9 | 20 | 60 | 9 | 4 | 153009 | 32,10 | 38,80 | 40,80 |
| 9,5 | 20 | 70 | 9,5 | 4 | 1530095 | 36,80 | 43,60 | 45,80 |
| 10 | 22 | 70 | 10 | 4 | 153010 | 38,50 | 45,20 | 47,50 |
| 10,5 | 22 | 70 | 10,5 | 4 | 1530105 | 42,60 | 49,40 | 51,90 |
| 11 | 22 | 70 | 11 | 4 | 153011 | 47,70 | 54,50 | 57,20 |
| 11,5 | 22 | 70 | 11,5 | 4 | 1530115 | 49,30 | 56,00 | 58,80 |
| 12 | 25 | 70 | 12 | 4 | 153012 | 49,90 | 56,60 | 59,40 |
| 13 | 25 | 75 | 13 | 4 | 153013 | 57,80 | 65,20 | 68,50 |
| 14 | 28 | 75 | 14 | 4 | 153014 | 64,90 | 72,30 | 76,00 |
| 15 | 28 | 75 | 15 | 4 | 153015 | 77,50 | 84,80 | 89,00 |
| 16 | 32 | 80 | 16 | 4 | 153016 | 85,20 | 94,20 | 98,90 |
| 17 | 32 | 80 | 17 | 4 | 153017 | 102,90 | 113,70 | 119,40 |
| 18 | 32 | 80 | 18 | 4 | 153018 | 112,70 | 123,50 | 129,70 |
| 19 | 38 | 104 | 19 | 4 | 153019 | 137,10 | 153,90 | 161,60 |
| 20 | 38 | 104 | 20 | 4 | 153020 | 149,80 | 166,60 | 175,00 |
| 22 | 38 | 104 | 22 | 4 | 153022 | 186,70 | 203,50 | 213,70 |
| 25 | 38 | 104 | 25 | 4 | 153025 | 236,60 | 260,10 | 273,10 |
| 30 | 38 | 104 | 30 | 4 | 153030 | 329,50 | 356,20 | 374,00 |

Frese Z4 raggiata denti elicoidali taglio al centro lavorazioni universali

Universal ball nose end mills 4 flutes center cutting



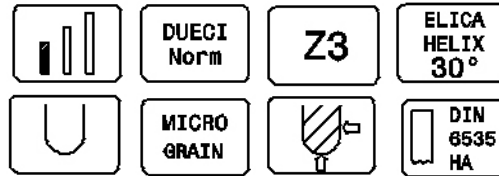
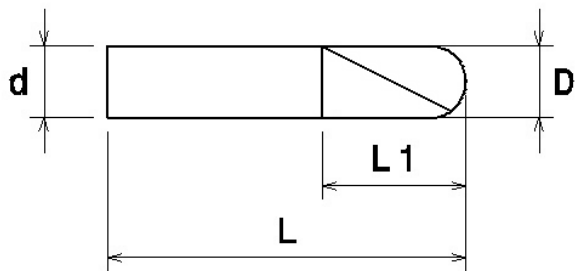
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----------------|------------|---------|------------|
| 2 | 20 | 50 | 2 | 4 | 153002L | 15,00 | 17,90 | 18,80 |
| 3 | 20 | 55 | 3 | 4 | 153003L | 16,10 | 19,50 | 20,50 |
| 4 | 20 | 60 | 4 | 4 | 153004L | 20,30 | 23,70 | 24,90 |
| 5 | 20 | 60 | 5 | 4 | 153005L | 21,70 | 26,30 | 27,60 |
| 6 | 24 | 65 | 6 | 4 | 153006L | 26,20 | 30,80 | 32,30 |
| 7 | 30 | 75 | 7 | 4 | 153007L | 32,50 | 38,00 | 39,90 |
| 8 | 32 | 80 | 8 | 4 | 153008L | 36,60 | 43,60 | 45,80 |
| 9 | 32 | 80 | 9 | 4 | 153009L | 42,80 | 51,10 | 53,70 |
| 10 | 32 | 80 | 10 | 4 | 153010L | 46,40 | 54,70 | 57,40 |
| 11 | 50 | 100 | 11 | 4 | 153011L | 63,90 | 72,30 | 75,90 |
| 12 | 50 | 100 | 12 | 4 | 153012L | 72,80 | 81,20 | 85,30 |
| 13 | 50 | 100 | 13 | 4 | 153013L | 81,10 | 90,10 | 94,60 |
| 14 | 55 | 100 | 14 | 4 | 153014L | 89,20 | 98,20 | 103,10 |
| 15 | 60 | 120 | 15 | 4 | 153015L | 110,20 | 122,00 | 128,10 |
| 16 | 60 | 120 | 16 | 4 | 153016L | 123,80 | 135,60 | 142,40 |
| 17 | 60 | 120 | 17 | 4 | 153017L | 138,30 | 151,90 | 159,50 |
| 18 | 60 | 120 | 18 | 4 | 153018L | 151,10 | 164,60 | 172,80 |
| 19 | 60 | 130 | 19 | 4 | 153019L | 175,90 | 192,70 | 202,30 |
| 20 | 60 | 130 | 20 | 4 | 153020L | 198,30 | 215,10 | 225,90 |
| 22 | 75 | 150 | 22 | 4 | 153022L | 310,00 | 335,20 | 352,00 |
| 25 | 75 | 150 | 25 | 4 | 153025L | 384,90 | 427,70 | 449,10 |
| 30 | 75 | 150 | 30 | 4 | 153030L | 496,90 | 551,40 | 579,00 |



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|-----------------|------------|---------|------------|
| 6 | 40 | 80 | 6 | 4 | 153006EL | 34,10 | 40,00 | 42,00 |
| 8 | 42 | 100 | 8 | 4 | 153008EL | 43,50 | 50,50 | 53,00 |
| 10 | 45 | 100 | 10 | 4 | 153010EL | 58,00 | 66,30 | 69,60 |
| 12 | 75 | 150 | 12 | 4 | 153012EL | 97,70 | 110,60 | 116,10 |
| 14 | 75 | 150 | 14 | 4 | 153014EL | 127,80 | 142,50 | 149,60 |
| 16 | 75 | 150 | 16 | 4 | 153016EL | 159,70 | 174,30 | 183,00 |
| 18 | 75 | 150 | 18 | 4 | 153018EL | 196,40 | 214,60 | 225,30 |
| 20 | 75 | 150 | 20 | 4 | 153020EL | 242,70 | 267,90 | 281,30 |
| 22 | 80 | 200 | 22 | 4 | 153022EL | 373,30 | 415,70 | 436,50 |
| 25 | 80 | 200 | 25 | 4 | 153025EL | 463,10 | 515,30 | 541,10 |
| 30 | 80 | 200 | 30 | 4 | 153030EL | 600,00 | 662,80 | 696,00 |

Frese Z3/Z4 raggiate taglio al centro lavorazione sgrossatura

Roughing ball nose end mills 3/4 flutes center cutting



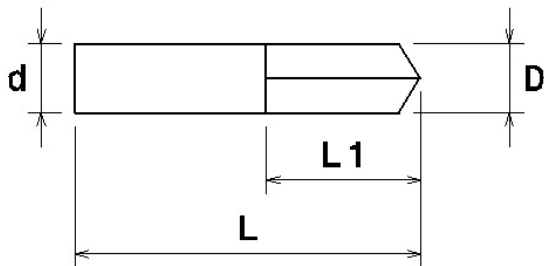
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----------------|------------|---------|------------|
| 6 | 16 | 60 | 6 | 3 | R283006 | 27,60 | 32,20 | 33,90 |
| 8 | 19 | 70 | 8 | 3 | R283008 | 37,70 | 43,20 | 45,40 |
| 10 | 22 | 70 | 10 | 3 | R283010 | 55,60 | 62,30 | 65,50 |
| 12 | 26 | 80 | 12 | 3 | R283012 | 69,90 | 78,20 | 82,20 |
| 14 | 26 | 80 | 14 | 3 | R283014 | 82,60 | 91,60 | 96,20 |
| 16 | 32 | 100 | 16 | 3 | R283016 | 114,50 | 123,50 | 129,70 |
| 18 | 32 | 100 | 18 | 3 | R283018 | 150,90 | 161,70 | 170,00 |
| 20 | 38 | 104 | 20 | 3 | R283020 | 179,80 | 196,60 | 206,50 |



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----------------|------------|---------|------------|
| 6 | 16 | 60 | 6 | 4 | R293006 | 27,60 | 32,20 | 33,90 |
| 8 | 19 | 70 | 8 | 4 | R293008 | 37,70 | 43,20 | 45,40 |
| 10 | 22 | 70 | 10 | 4 | R293010 | 55,60 | 62,30 | 65,50 |
| 12 | 26 | 80 | 12 | 4 | R293012 | 69,90 | 78,20 | 82,20 |
| 14 | 26 | 80 | 14 | 4 | R293014 | 82,60 | 91,60 | 96,20 |
| 16 | 32 | 100 | 16 | 4 | R293016 | 114,50 | 123,50 | 129,70 |
| 18 | 32 | 100 | 18 | 4 | R293018 | 150,90 | 161,70 | 170,00 |
| 20 | 38 | 104 | 20 | 4 | R293020 | 179,80 | 196,60 | 206,50 |

Utensile Salva (Rompi maschi)

Safety break up tool



| D _{h10} | L1 | L | d _{h6} | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---------------|------------|---------|------------|
| 2 | 10 | 50 | 2 | S4402 | 25,00 | | |
| 2,5 | 15 | 50 | 2,5 | S44025 | 25,00 | | |
| 3 | 15 | 50 | 3 | S4403 | 25,00 | | |
| 3,5 | 15 | 50 | 3,5 | S44035 | 25,00 | | |
| 4 | 20 | 50 | 4 | S4404 | 25,00 | | |
| 4,5 | 20 | 50 | 4,5 | S44045 | 30,00 | | |
| 5 | 25 | 50 | 5 | S4405 | 30,00 | | |
| 6 | 30 | 60 | 6 | S4406 | 30,00 | | |
| 7 | 30 | 75 | 7 | S4407 | 35,00 | | |
| 8 | 30 | 80 | 8 | S4408 | 35,00 | | |
| 9 | 35 | 100 | 9 | S4409 | 35,00 | | |
| 10 | 35 | 100 | 10 | S4410 | 50,00 | | |
| 11 | 35 | 100 | 11 | S4411 | 50,00 | | |
| 12 | 35 | 100 | 12 | S4412 | 55,00 | | |

MODO D'UTILIZZO - USING METHOD



PER ESTRAZIONE MASCHI - TO REMOVE TAPS

| | |
|---------------------------|-------------|
| ∅ maschio (taps) 3mm | Salva S4402 |
| ∅ maschio (taps) 4/5 mm | Salva S4403 |
| ∅ maschio (taps) 6mm | Salva S4404 |
| ∅ maschio (taps) 8/10 mm | Salva S4405 |
| ∅ maschio (taps) 10/12 mm | Salva S4406 |
| ∅ maschio (taps) 14/16 mm | Salva S4408 |
| ∅ maschio (taps) 18/20 mm | Salva S4410 |
| ∅ maschio (taps) 22/24 mm | Salva S4412 |

L'utensile Salva in metallo duro integrale è stato progettato per distruggere maschi spezzati dentro i fori. La lavorazione viene eseguita a secco.

1 - E' consigliabile eseguire una spianatura del maschio rotto usando l'utensile Salva di una misura più grande. Passare quindi alla scelta dell'utensile Salva per il tipo di maschio rotto consultando la tabella a fianco riportata. E' molto importante che la macchina utensile sia rigida e con una velocità di lavoro da 1000 a 3500 giri/min.

2 - Ultima operazione rimuovere i pezzi di maschio rimasti lungo le pareti usando un utensile appuntito. Nel caso risultasse conveniente il refrigerante avere cura che questo sia continuo e abbondante.

3- L'utensile Salva è pure adatto per eseguire fori precisi dal pieno in una sola operazione su acciai cementati, temperati stelliti e tipi di acciai inox.

Può forare in limiti di tolleranza molto ristrette con ottimo grado di finitura evitando in molti casi l'operazione di alesatura.

The Safety Break Up Tool made out from Solide Carbide has been designed to totally remove the taps broken inside the machined hole. Cutting operation to be made in dry execution :

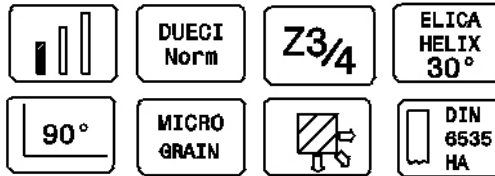
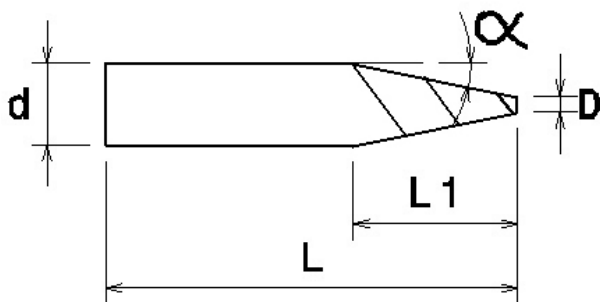
1 - It is recommended to make a first flattening of the broken tap by the Carbide Safety Break Up Tool of a bigger size. Then select the most appropriate Safety Tool for the kind of broken tap (see the table below). It is very important that machinery is rigid and the cutting speed is 1000 to 3500RPM.

2 -Last operation to remove all the smashed tap pieces along the hole by a sharp tool. Whenever coolant is convenient please make sure it flows nonstop and massively.

3 - The Safety Break Up Tool is also suitable to machine precise holes from solide carbide materials in one operation and from hardened steels, satellite and any kind of stainless steels and steel alloys. It can machine within very strict tolerances achieving good finishing and it can substitute the reaming operation.

Frese coniche per stampi taglio al centro

Tapered end mills for mould & dies center cutting



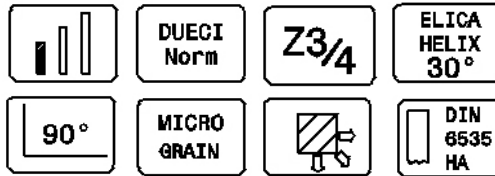
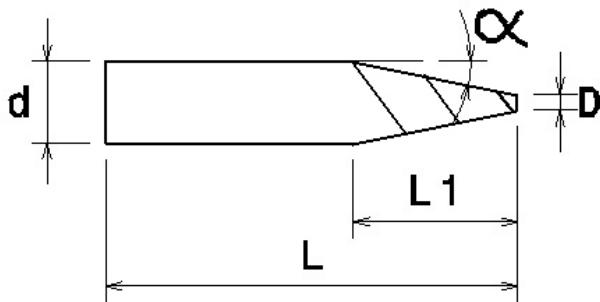
| D _{h10} | L1 | L | d _{h6} | Z | α | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|------|---------------|------------|---------|------------|
| 2,5 | 20 | 60 | 4 | 3 | 0,5° | 300525 | 20,00 | 23,70 | 24,90 |
| 3 | 20 | 60 | 4 | 3 | 0,5° | 30053 | 20,00 | 23,70 | 24,90 |
| 3,5 | 20 | 60 | 5 | 3 | 0,5° | 300535 | 20,00 | 24,90 | 26,10 |
| 4 | 20 | 60 | 5 | 3 | 0,5° | 30054 | 20,00 | 24,90 | 26,10 |
| 5 | 30 | 75 | 6 | 3 | 0,5° | 30055 | 30,00 | 35,00 | 36,80 |
| 6 | 30 | 75 | 8 | 4 | 0,5° | 30056 | 35,00 | 41,00 | 43,00 |
| 8 | 30 | 75 | 10 | 4 | 0,5° | 30058 | 45,00 | 52,30 | 55,00 |
| 10 | 30 | 75 | 12 | 4 | 0,5° | 300510 | 60,00 | 67,30 | 70,70 |
| 12 | 50 | 100 | 14 | 4 | 0,5° | 300512 | 102,00 | 111,70 | 117,30 |
| 16 | 60 | 100 | 18 | 4 | 0,5° | 300516 | 132,00 | 143,00 | 150,00 |

| D _{h10} | L1 | L | d _{h6} | Z | α | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----|--------------|------------|---------|------------|
| 2,5 | 20 | 60 | 4 | 3 | 1° | 30125 | 20,00 | 23,70 | 24,90 |
| 3 | 20 | 60 | 4 | 3 | 1° | 3013 | 20,00 | 23,70 | 24,90 |
| 3,5 | 20 | 60 | 5 | 3 | 1° | 30135 | 20,00 | 24,90 | 26,10 |
| 4 | 20 | 60 | 5 | 3 | 1° | 3014 | 20,00 | 24,90 | 26,10 |
| 5 | 30 | 75 | 6 | 3 | 1° | 3015 | 30,00 | 35,00 | 36,80 |
| 6 | 30 | 75 | 8 | 4 | 1° | 3016 | 35,00 | 41,00 | 43,00 |
| 8 | 30 | 75 | 10 | 4 | 1° | 3018 | 45,00 | 52,30 | 55,00 |
| 10 | 30 | 75 | 12 | 4 | 1° | 30110 | 60,00 | 67,30 | 70,70 |
| 12 | 50 | 100 | 14 | 4 | 1° | 30112 | 102,00 | 111,70 | 117,30 |
| 16 | 60 | 100 | 18 | 4 | 1° | 30116 | 132,00 | 143,00 | 150,00 |

| D _{h10} | L1 | L | d _{h6} | Z | α | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|------|---------------|------------|---------|------------|
| 2,5 | 20 | 60 | 4 | 3 | 1,5° | 301525 | 20,00 | 23,70 | 24,90 |
| 3 | 20 | 60 | 4 | 3 | 1,5° | 30153 | 20,00 | 23,70 | 24,90 |
| 3,5 | 20 | 60 | 5 | 3 | 1,5° | 301535 | 20,00 | 24,90 | 26,10 |
| 4 | 20 | 60 | 5 | 3 | 1,5° | 30154 | 20,00 | 24,90 | 26,10 |
| 5 | 30 | 75 | 6 | 3 | 1,5° | 30155 | 30,00 | 35,00 | 36,80 |
| 6 | 30 | 75 | 8 | 4 | 1,5° | 30156 | 35,00 | 41,00 | 43,00 |
| 8 | 30 | 75 | 10 | 4 | 1,5° | 30158 | 45,00 | 52,30 | 55,00 |
| 10 | 30 | 75 | 12 | 4 | 1,5° | 301510 | 60,00 | 67,30 | 70,70 |
| 12 | 50 | 100 | 16 | 4 | 1,5° | 301512 | 107,00 | 116,90 | 122,80 |
| 16 | 60 | 100 | 20 | 4 | 1,5° | 301516 | 154,00 | 168,00 | 176,40 |

Frese coniche per stampi taglio al centro

Tapered end mills for mould & dies center cutting



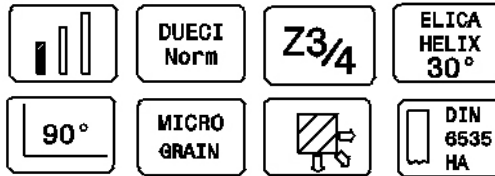
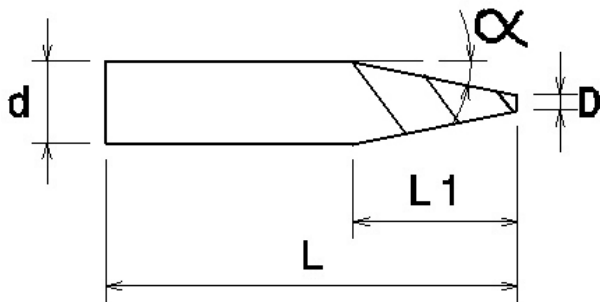
| D _{h10} | L1 | L | d _{h6} | Z | α | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----|--------------|------------|---------|------------|
| 2,5 | 20 | 60 | 4 | 3 | 2° | 30225 | 20,00 | 23,70 | 24,90 |
| 3 | 20 | 60 | 5 | 3 | 2° | 3023 | 20,00 | 24,90 | 26,10 |
| 3,5 | 20 | 60 | 5 | 3 | 2° | 30235 | 20,00 | 24,90 | 26,10 |
| 4 | 20 | 60 | 6 | 3 | 2° | 3024 | 25,00 | 30,00 | 31,50 |
| 5 | 30 | 75 | 8 | 3 | 2° | 3025 | 35,00 | 41,00 | 43,00 |
| 6 | 30 | 75 | 8 | 4 | 2° | 3026 | 35,00 | 41,00 | 43,00 |
| 8 | 30 | 75 | 10 | 4 | 2° | 3028 | 45,00 | 52,30 | 55,00 |
| 10 | 30 | 75 | 12 | 4 | 2° | 30210 | 60,00 | 67,30 | 70,70 |
| 12 | 50 | 100 | 16 | 4 | 2° | 30212 | 107,00 | 116,90 | 122,80 |

| D _{h10} | L1 | L | d _{h6} | Z | α | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----|--------------|------------|---------|------------|
| 2,5 | 20 | 60 | 6 | 3 | 3° | 30325 | 30,00 | 35,00 | 36,80 |
| 3 | 25 | 60 | 6 | 3 | 3° | 3033 | 30,00 | 35,00 | 36,80 |
| 3,5 | 30 | 75 | 8 | 3 | 3° | 30335 | 40,00 | 46,00 | 48,30 |
| 4 | 30 | 75 | 8 | 3 | 3° | 3034 | 40,00 | 46,00 | 48,30 |
| 5 | 40 | 75 | 10 | 3 | 3° | 3035 | 55,00 | 62,30 | 65,50 |
| 6 | 30 | 75 | 10 | 3 | 3° | 3036 | 55,00 | 62,30 | 65,50 |
| 8 | 30 | 75 | 12 | 4 | 3° | 3038 | 62,00 | 69,30 | 72,80 |
| 10 | 50 | 100 | 16 | 4 | 3° | 30310 | 120,00 | 129,70 | 136,20 |
| 12 | 55 | 100 | 18 | 4 | 3° | 30312 | 140,00 | 151,60 | 159,20 |

| D _{h10} | L1 | L | d _{h6} | Z | α | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----|--------------|------------|---------|------------|
| 2,5 | 20 | 60 | 6 | 3 | 4° | 30425 | 30,00 | 35,00 | 36,80 |
| 3 | 20 | 60 | 6 | 3 | 4° | 3043 | 30,00 | 35,00 | 36,80 |
| 3,5 | 25 | 60 | 8 | 3 | 4° | 30435 | 40,00 | 46,00 | 48,30 |
| 4 | 30 | 75 | 10 | 3 | 4° | 3044 | 50,00 | 57,30 | 60,20 |
| 5 | 40 | 100 | 12 | 3 | 4° | 3045 | 70,00 | 79,00 | 83,00 |
| 6 | 50 | 100 | 16 | 3 | 4° | 3046 | 110,00 | 120,00 | 126,00 |
| 8 | 50 | 100 | 18 | 4 | 4° | 3048 | 140,00 | 151,60 | 159,20 |
| 10 | 50 | 100 | 20 | 4 | 4° | 30410 | 160,00 | 174,00 | 182,70 |
| 12 | 55 | 100 | 20 | 4 | 4° | 30412 | 160,00 | 174,00 | 182,70 |

Frese coniche per stampi taglio al centro

Tapered end mills for mould & dies center cutting



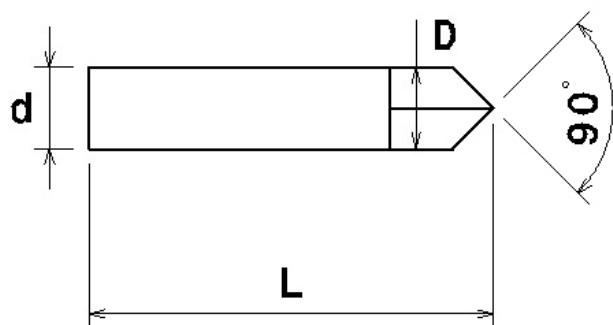
| D _{h10} | L1 | L | d _{h6} | Z | α | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----|--------------|------------|---------|------------|
| 2,5 | 20 | 60 | 6 | 3 | 5° | 30525 | 25,00 | 30,00 | 31,50 |
| 3 | 25 | 60 | 8 | 3 | 5° | 3053 | 35,00 | 41,00 | 43,10 |
| 3,5 | 30 | 75 | 10 | 3 | 5° | 30535 | 50,00 | 57,30 | 60,20 |
| 4 | 30 | 75 | 10 | 3 | 5° | 3054 | 50,00 | 57,30 | 60,20 |
| 5 | 40 | 100 | 12 | 3 | 5° | 3055 | 70,00 | 79,00 | 83,00 |
| 6 | 50 | 100 | 16 | 3 | 5° | 3056 | 110,00 | 120,00 | 126,00 |
| 8 | 50 | 100 | 18 | 4 | 5° | 3058 | 140,00 | 151,60 | 159,20 |
| 10 | 50 | 100 | 20 | 4 | 5° | 30510 | 160,00 | 174,00 | 182,70 |
| 12 | 50 | 100 | 20 | 4 | 5° | 30512 | 160,00 | 174,00 | 182,70 |

| D _{h10} | L1 | L | d _{h6} | Z | α | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|----|-----------------|---|----|--------------|------------|---------|------------|
| 2,5 | 20 | 60 | 8 | 3 | 7° | 30725 | 35,00 | 41,00 | 43,10 |
| 5 | 25 | 80 | 12 | 3 | 7° | 3075 | 65,00 | 74,00 | 77,70 |

| D _{h10} | L1 | L | d _{h6} | Z | α | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|-----|---------------|------------|---------|------------|
| 2,5 | 20 | 75 | 10 | 3 | 10° | 301025 | 55,00 | 62,30 | 65,50 |
| 3 | 30 | 80 | 14 | 3 | 10° | 30103 | 90,00 | 99,50 | 104,50 |
| 6 | 30 | 100 | 16 | 3 | 10° | 30106 | 110,00 | 120,00 | 126,00 |
| 8 | 30 | 100 | 20 | 4 | 10° | 30108 | 170,00 | 184,00 | 193,20 |

Frese per smussare

Chamfering carbide end mills



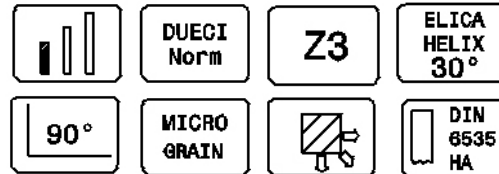
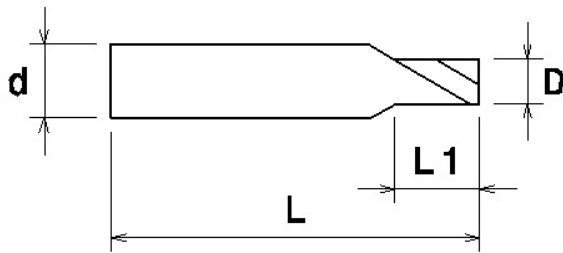
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|----|-----------------|---|---------------|------------|---------|------------|
| 6 | 8 | 38 | 6 | 4 | 534506 | 10,80 | 15,40 | 16,20 |
| 8 | 11 | 43 | 8 | 4 | 534508 | 17,00 | 22,50 | 23,70 |
| 10 | 13 | 50 | 10 | 4 | 534510 | 24,00 | 30,80 | 32,40 |
| 12 | 15 | 60 | 12 | 4 | 534512 | 34,90 | 41,70 | 43,80 |



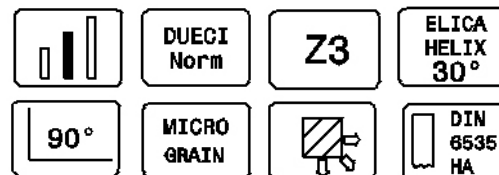
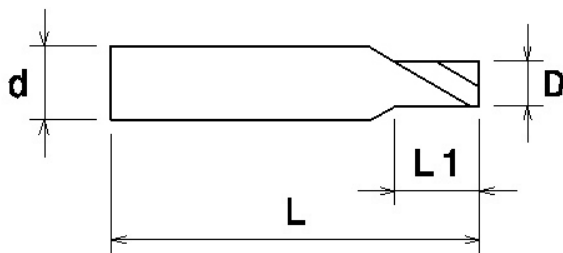
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|----|-----------------|---|----------------|------------|---------|------------|
| 6 | 8 | 60 | 6 | 4 | 534506L | 13,60 | 18,20 | 19,10 |
| 8 | 11 | 70 | 8 | 4 | 534508L | 22,30 | 27,80 | 29,20 |
| 10 | 13 | 75 | 10 | 4 | 534510L | 31,00 | 37,70 | 39,60 |
| 12 | 15 | 75 | 12 | 4 | 534512L | 40,90 | 47,60 | 50,00 |

Frese Z3 gambo rinforzato taglio al centro

Reinforced shank carbide end mills 3 flutes center cutting



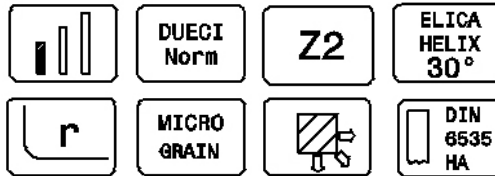
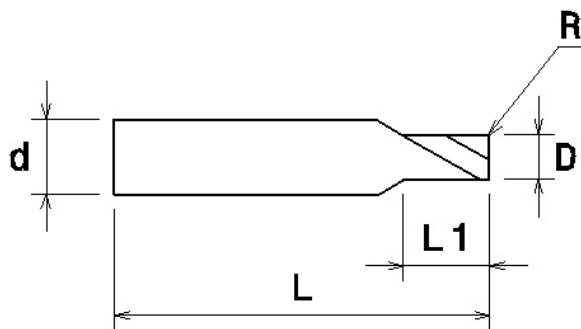
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|----|-----------------|---|--------|------------|---------|------------|
| 2 | 4 | 38 | 6 | 3 | 503002 | 12,80 | 17,40 | 18,30 |
| 3 | 5 | 38 | 6 | 3 | 503003 | 12,80 | 17,40 | 18,30 |
| 4 | 7 | 38 | 6 | 3 | 503004 | 12,80 | 17,40 | 18,30 |
| 5 | 8 | 38 | 6 | 3 | 503005 | 11,80 | 16,40 | 17,30 |
| 6 | 8 | 38 | 6 | 3 | 503006 | 11,80 | 16,40 | 17,30 |



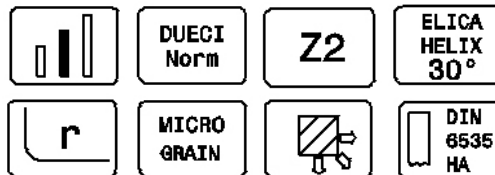
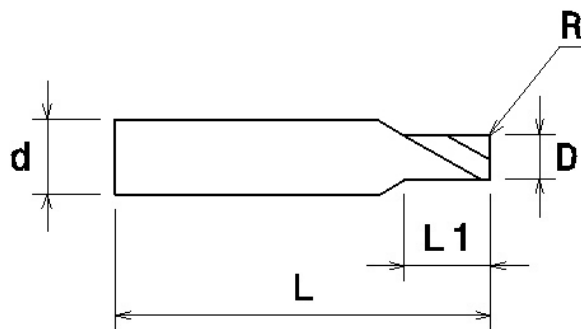
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|----|-----------------|---|---------|------------|---------|------------|
| 2 | 6 | 60 | 6 | 3 | 503002L | 15,60 | 20,20 | 21,30 |
| 3 | 8 | 60 | 6 | 3 | 503003L | 15,60 | 20,20 | 21,30 |
| 4 | 10 | 60 | 6 | 3 | 503004L | 15,60 | 20,20 | 21,30 |
| 5 | 12 | 60 | 6 | 3 | 503005L | 16,60 | 21,20 | 22,30 |
| 6 | 12 | 60 | 6 | 3 | 503006L | 16,60 | 21,20 | 22,30 |

Frese Z2 toriche gambo rinforzato taglio al centro

Reinforced shank carbide end mills 2 flutes center cutting



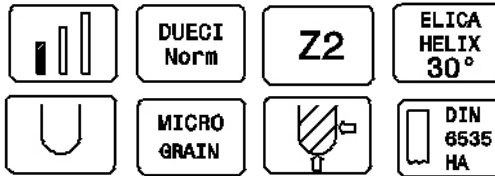
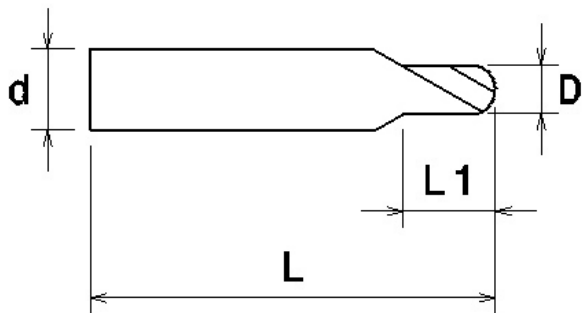
| D _{h10} | L1 | L | d _{h6} | Z | R | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|----|-----------------|---|-----|---------------|------------|---------|------------|
| 2 | 4 | 38 | 6 | 2 | 0,5 | 523002 | 15,40 | 20,00 | 21,00 |
| 3 | 5 | 38 | 6 | 2 | 0,5 | 523003 | 15,40 | 20,00 | 21,00 |
| 4 | 7 | 38 | 6 | 2 | 0,5 | 523004 | 15,40 | 20,00 | 21,00 |
| 5 | 8 | 38 | 6 | 2 | 0,5 | 523005 | 14,80 | 19,40 | 20,40 |
| 6 | 8 | 38 | 6 | 2 | 1 | 523006 | 14,80 | 19,40 | 20,40 |



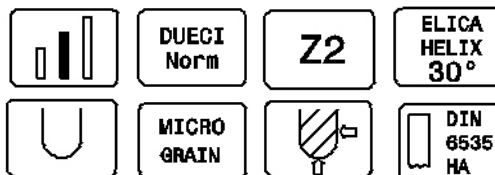
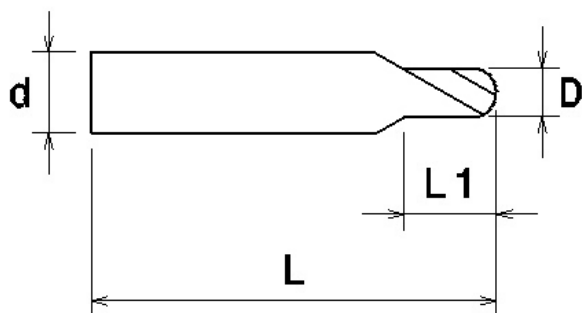
| D _{h10} | L1 | L | d _{h6} | Z | R | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|----|-----------------|---|-----|----------------|------------|---------|------------|
| 2 | 6 | 60 | 6 | 2 | 0,5 | 523002L | 18,20 | 22,80 | 24,00 |
| 3 | 8 | 60 | 6 | 2 | 0,5 | 523003L | 18,20 | 22,80 | 24,00 |
| 4 | 10 | 60 | 6 | 2 | 0,5 | 523004L | 18,20 | 22,80 | 24,00 |
| 5 | 12 | 60 | 6 | 2 | 0,5 | 523005L | 20,60 | 25,20 | 26,50 |
| 6 | 12 | 60 | 6 | 2 | 1 | 523006L | 20,60 | 25,20 | 26,50 |

Frese Z2 raggiate gambo rinforzato taglio al centro

Reinforced shank carbide ball nose end mills 2 flutes center cutting



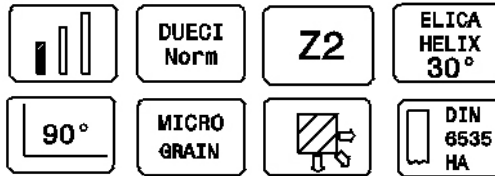
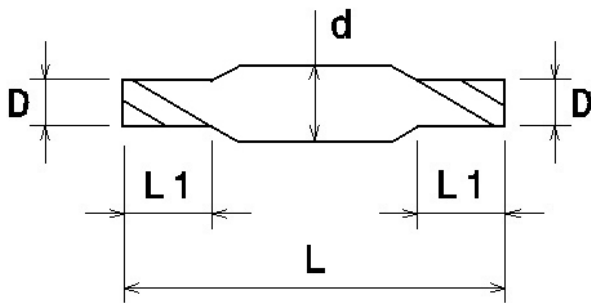
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|----|-----------------|---|---------------|------------|---------|------------|
| 2 | 4 | 38 | 6 | 2 | 513002 | 15,40 | 20,00 | 21,00 |
| 3 | 5 | 38 | 6 | 2 | 513003 | 15,40 | 20,00 | 21,00 |
| 4 | 7 | 38 | 6 | 2 | 513004 | 15,40 | 20,00 | 21,00 |
| 5 | 8 | 38 | 6 | 2 | 513005 | 14,80 | 19,40 | 20,40 |
| 6 | 8 | 38 | 6 | 2 | 513006 | 14,80 | 19,40 | 20,40 |



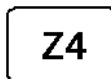
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|----|-----------------|---|----------------|------------|---------|------------|
| 2 | 6 | 60 | 6 | 2 | 513002L | 18,20 | 22,80 | 24,00 |
| 3 | 8 | 60 | 6 | 2 | 513003L | 18,20 | 22,80 | 24,00 |
| 4 | 10 | 60 | 6 | 2 | 513004L | 18,20 | 22,80 | 24,00 |
| 5 | 12 | 60 | 6 | 2 | 513005L | 20,60 | 25,20 | 26,50 |
| 6 | 12 | 60 | 6 | 2 | 513006L | 20,60 | 25,20 | 26,50 |

Frese Z2 / Z4 gambo rinforzato doppie taglio al centro

Reinforced shank double end mills 2/4 flutes center cutting



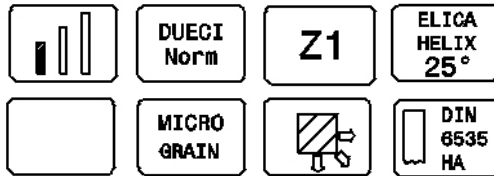
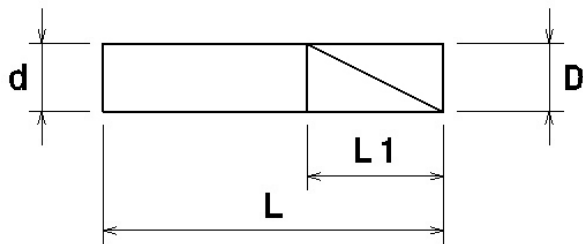
| D h10 | L1 | L | d h6 | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|----------|----|----|---------|---|-----------------|---------------|------------|---------------|
| 1 | 2 | 38 | 3 | 2 | D213001 | 13,00 | 16,00 | 16,80 |
| 1,5 | 3 | 38 | 3 | 2 | D2130015 | 13,00 | 16,00 | 16,80 |
| 2 | 4 | 38 | 3 | 2 | D213002 | 12,00 | 15,00 | 15,80 |
| 2,5 | 5 | 38 | 3 | 2 | D2130025 | 12,00 | 15,00 | 15,80 |
| 3 | 6 | 38 | 3 | 2 | D213003 | 11,00 | 14,00 | 14,70 |
| 3,5 | 7 | 50 | 4 | 2 | D2130035 | 15,00 | 18,00 | 18,90 |
| 4 | 8 | 50 | 4 | 2 | D213004 | 14,00 | 17,00 | 17,90 |
| 5 | 10 | 63 | 5 | 2 | D213005 | 17,00 | 21,50 | 22,60 |
| 6 | 12 | 63 | 6 | 2 | D213006 | 21,00 | 25,00 | 26,30 |
| 8 | 12 | 63 | 8 | 2 | D213008 | 27,00 | 32,00 | 33,60 |
| 10 | 14 | 75 | 10 | 2 | D213010 | 40,00 | 46,00 | 48,30 |
| 12 | 16 | 75 | 12 | 2 | D213012 | 51,00 | 58,00 | 60,90 |



| D h10 | L1 | L | d h6 | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|----------|----|----|---------|---|-----------------|---------------|------------|---------------|
| 1 | 2 | 38 | 3 | 4 | D253001 | 13,00 | 16,00 | 16,80 |
| 1,5 | 3 | 38 | 3 | 4 | D2530015 | 13,00 | 16,00 | 16,80 |
| 2 | 4 | 38 | 3 | 4 | D253002 | 12,00 | 15,00 | 15,80 |
| 2,5 | 5 | 38 | 3 | 4 | D2530025 | 12,00 | 15,00 | 15,80 |
| 3 | 6 | 38 | 3 | 4 | D253003 | 11,00 | 14,00 | 14,70 |
| 3,5 | 7 | 50 | 4 | 4 | D2530035 | 15,00 | 18,00 | 18,90 |
| 4 | 8 | 50 | 4 | 4 | D253004 | 14,00 | 17,00 | 17,90 |
| 5 | 10 | 63 | 5 | 4 | D253005 | 17,00 | 21,50 | 22,60 |
| 6 | 12 | 63 | 6 | 4 | D253006 | 21,00 | 25,00 | 26,30 |
| 8 | 12 | 63 | 8 | 4 | D253008 | 27,00 | 32,00 | 33,60 |
| 10 | 14 | 75 | 10 | 4 | D253010 | 40,00 | 46,00 | 48,30 |
| 12 | 16 | 75 | 12 | 4 | D253012 | 51,00 | 58,00 | 60,90 |

Frese monoelica elica dx tagliente dx lavorazione alluminio

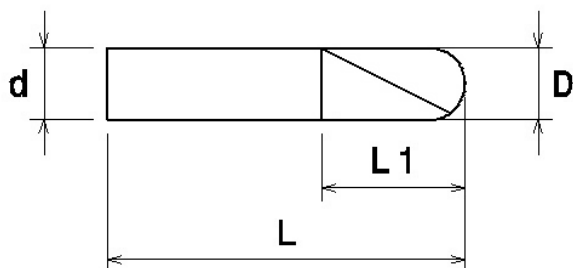
Single fluted carbide end mills right helix right out - aluminium application



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Alu |
|------------------|----|-----|-----------------|---|---------------|------------|--------|
| 2 | 10 | 40 | 2 | 1 | 18002 | 9,00 | 15,30 |
| 2,5 | 12 | 40 | 2,5 | 1 | 180025 | 9,00 | 15,30 |
| 3 | 12 | 40 | 3 | 1 | 18003 | 10,80 | 17,30 |
| 3,5 | 12 | 40 | 3,5 | 1 | 180035 | 10,80 | 17,30 |
| 4 | 12 | 40 | 4 | 1 | 18004 | 11,50 | 18,00 |
| 5 | 16 | 50 | 5 | 1 | 18005 | 14,00 | 22,50 |
| 6 | 16 | 50 | 6 | 1 | 18006 | 17,00 | 25,00 |
| 8 | 22 | 60 | 8 | 1 | 18008 | 24,00 | 33,60 |
| 10 | 25 | 70 | 10 | 1 | 18010 | 33,60 | 45,50 |
| 12 | 25 | 70 | 12 | 1 | 18012 | 43,90 | 55,80 |
| 14 | 28 | 75 | 14 | 1 | 18014 | 58,00 | 71,00 |
| 16 | 35 | 80 | 16 | 1 | 18016 | 75,20 | 90,60 |
| 18 | 35 | 80 | 18 | 1 | 18018 | 101,00 | 119,00 |
| 20 | 40 | 104 | 20 | 1 | 18020 | 138,00 | 160,00 |

Frese elicoidali Z6/Z8 per sbavatura alluminio

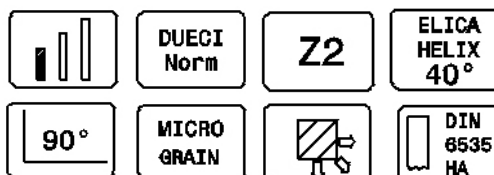
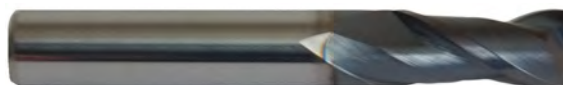
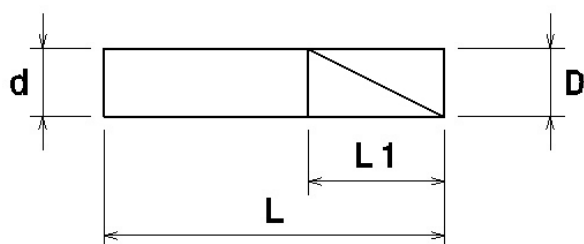
Carbide Endmills 6/8 flutes for aluminium deburring



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated |
|------------------|----|----|-----------------|---|----------------|------------|
| 3 | 40 | 80 | 6 | 6 | RA18003 | 40,00 |
| 4 | 40 | 80 | 6 | 8 | RA18004 | 40,00 |
| 5 | 40 | 80 | 6 | 8 | RA18005 | 40,00 |
| 6 | 40 | 80 | 6 | 8 | RA18006 | 36,00 |

Frese Z2 per alluminio taglio al centro

End mills 2 flutes center cutting - aluminium application



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Alu |
|------------------|----|-----|-----------------|---|----------------|------------|--------|
| 2 | 8 | 40 | 2 | 2 | A18002 | 8,50 | 15,00 |
| 2,5 | 8 | 40 | 2,5 | 2 | A180025 | 8,80 | 15,30 |
| 3 | 10 | 40 | 3 | 2 | A18003 | 10,30 | 16,80 |
| 3,5 | 10 | 40 | 3,5 | 2 | A180035 | 10,80 | 17,30 |
| 4 | 12 | 40 | 4 | 2 | A18004 | 11,50 | 18,00 |
| 5 | 14 | 50 | 5 | 2 | A18005 | 13,70 | 22,30 |
| 6 | 16 | 50 | 6 | 2 | A18006 | 16,30 | 24,90 |
| 8 | 18 | 60 | 8 | 2 | A18008 | 23,70 | 33,60 |
| 10 | 22 | 70 | 10 | 2 | A18010 | 32,20 | 44,10 |
| 12 | 25 | 70 | 12 | 2 | A18012 | 41,90 | 53,80 |
| 14 | 28 | 75 | 14 | 2 | A18014 | 56,50 | 69,40 |
| 16 | 32 | 80 | 16 | 2 | A18016 | 73,80 | 89,20 |
| 18 | 32 | 80 | 18 | 2 | A18018 | 96,70 | 114,80 |
| 20 | 35 | 100 | 20 | 2 | A18020 | 133,80 | 155,20 |

**ELICA
HELIX
45°**

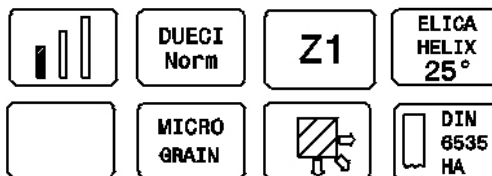
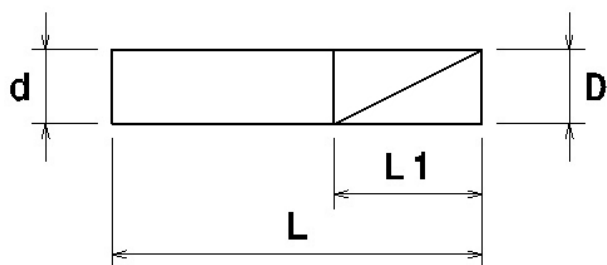
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Alu |
|------------------|----|-----|-----------------|---|----------------|------------|--------|
| 3 | 8 | 57 | 6 | 2 | A184503 | 17,80 | 26,40 |
| 4 | 11 | 57 | 6 | 2 | A184504 | 17,80 | 26,40 |
| 5 | 13 | 57 | 6 | 2 | A184505 | 17,80 | 26,40 |
| 6 | 13 | 57 | 6 | 2 | A184506 | 17,20 | 25,80 |
| 8 | 19 | 63 | 8 | 2 | A184508 | 24,30 | 34,20 |
| 10 | 22 | 72 | 10 | 2 | A184510 | 32,70 | 44,70 |
| 12 | 26 | 83 | 12 | 2 | A184512 | 47,00 | 61,40 |
| 14 | 26 | 83 | 14 | 2 | A184514 | 60,80 | 76,20 |
| 16 | 32 | 92 | 16 | 2 | A184516 | 81,80 | 97,20 |
| 20 | 38 | 104 | 20 | 2 | A184520 | 137,90 | 165,10 |

**ELICA
HELIX
55°**

| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Alu |
|------------------|----|-----|-----------------|---|----------------|------------|--------|
| 3 | 12 | 50 | 3 | 2 | A185503 | 11,50 | 18,00 |
| 4 | 14 | 50 | 4 | 2 | A185504 | 13,60 | 20,10 |
| 5 | 20 | 50 | 6 | 2 | A185505 | 16,90 | 25,50 |
| 6 | 20 | 63 | 6 | 2 | A185506 | 18,50 | 27,10 |
| 8 | 20 | 63 | 8 | 2 | A185508 | 24,90 | 34,80 |
| 10 | 25 | 70 | 10 | 2 | A185510 | 33,60 | 45,50 |
| 12 | 25 | 75 | 12 | 2 | A185512 | 44,50 | 56,40 |
| 16 | 32 | 88 | 16 | 2 | A185516 | 80,50 | 96,00 |
| 20 | 38 | 100 | 20 | 2 | A185520 | 134,40 | 161,60 |

Frese monoelica elica sx tagliente dx lavorazione plastiche e vetroresine

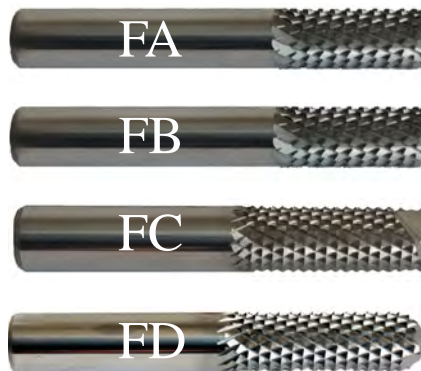
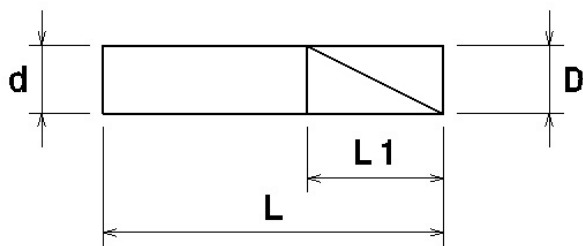
Single fluted carbide end mills left helix right out - plastic materials & fiberglass



| D _{h10} | L1 | L | d _{h6} | Z | S | Cod. | € uncoated |
|------------------|----|-----|-----------------|---|---|---------------|---------------|
| 2 | 10 | 40 | 2 | 1 | | 19002 | 9,00 |
| 2,5 | 12 | 40 | 2,5 | 1 | | 190025 | 9,00 |
| 3 | 12 | 40 | 3 | 1 | | 19003 | 10,80 |
| 3,5 | 12 | 40 | 3,5 | 1 | | 190035 | 10,80 |
| 4 | 12 | 40 | 4 | 1 | | 19004 | 11,50 |
| 5 | 16 | 50 | 5 | 1 | | 19005 | 14,00 |
| 6 | 16 | 50 | 6 | 1 | | 19006 | 17,00 |
| 8 | 22 | 60 | 8 | 1 | | 19008 | 24,00 |
| 10 | 25 | 70 | 10 | 1 | | 19010 | 33,60 |
| 12 | 25 | 70 | 12 | 1 | | 19012 | 43,90 |
| 14 | 28 | 75 | 14 | 1 | | 19014 | 58,00 |
| 16 | 35 | 80 | 16 | 1 | | 19016 | 75,20 |
| 18 | 35 | 80 | 18 | 1 | | 19018 | 101,00 |
| 20 | 40 | 104 | 20 | 1 | | 19020 | 138,00 |

Frese per lavorazione materie plastiche e vetroresine

Plastic materials and fiberglass router



Testa piana

Testa piana
denti frontali

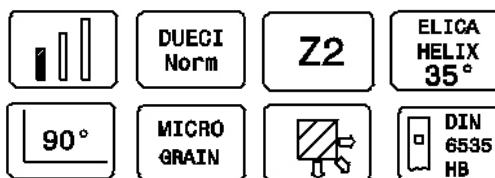
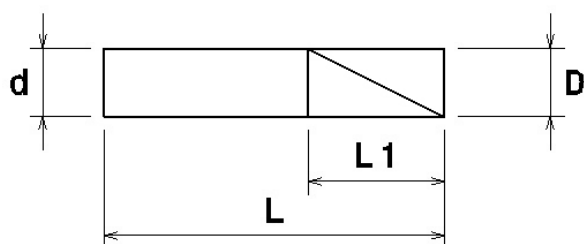
Testa piana due
taglienti

Testa
angolo 135°

| D h10 | L1 | L | d h6 | FA uncoated | € | FB uncoated | € | FC uncoated | € | FD uncoated | € |
|----------|----|-----|---------|-------------|--------|-------------|--------|-------------|--------|-------------|--------|
| 2 | 10 | 40 | 2 | FA210 | 11,70 | FB210 | 11,70 | FC210 | 11,70 | FD210 | 11,70 |
| 3 | 12 | 40 | 3 | FA312 | 12,30 | FB312 | 12,30 | FC312 | 12,30 | FD312 | 12,30 |
| 4 | 12 | 40 | 4 | FA412 | 12,90 | FB412 | 12,90 | FC412 | 12,90 | FD412 | 12,90 |
| 4 | 17 | 50 | 4 | FA417 | 14,40 | FB417 | 14,40 | FC417 | 14,40 | FD417 | 14,40 |
| 5 | 12 | 40 | 5 | FA512 | 15,80 | FB512 | 15,80 | FC512 | 15,80 | FD512 | 15,80 |
| 5 | 17 | 60 | 5 | FA517 | 17,70 | FB517 | 17,70 | FC517 | 17,70 | FD517 | 17,70 |
| 6 | 12 | 40 | 6 | FA612 | 21,00 | FB612 | 21,00 | FC612 | 21,00 | FD612 | 21,00 |
| 6 | 17 | 60 | 6 | FA617 | 23,60 | FB617 | 23,60 | FC617 | 23,60 | FD617 | 23,60 |
| 6 | 22 | 60 | 6 | FA622 | 23,60 | FB622 | 23,60 | FC622 | 23,60 | FD622 | 23,60 |
| 6 | 32 | 80 | 6 | FA632 | 30,10 | FB632 | 30,10 | FC632 | 30,10 | FD632 | 30,10 |
| 8 | 10 | 40 | 8 | FA810 | 23,80 | FB810 | 23,80 | FC810 | 23,80 | FD810 | 23,80 |
| 8 | 22 | 60 | 8 | FA822 | 31,70 | FB822 | 31,70 | FC822 | 31,70 | FD822 | 31,70 |
| 8 | 32 | 80 | 8 | FA832 | 39,60 | FB832 | 39,60 | FC832 | 39,60 | FD832 | 39,60 |
| 10 | 22 | 70 | 10 | FA1022 | 41,60 | FB1022 | 41,60 | FC1022 | 41,60 | FD1022 | 41,60 |
| 10 | 32 | 80 | 10 | FA1032 | 47,00 | FB1032 | 47,00 | FC1032 | 47,00 | FD1032 | 47,00 |
| 12 | 10 | 60 | 12 | FA1210 | 47,90 | FB1210 | 47,90 | FC1210 | 47,90 | FD1210 | 47,90 |
| 12 | 32 | 80 | 12 | FA1232 | 59,90 | FB1232 | 59,90 | FC1232 | 59,90 | FD1232 | 59,90 |
| 12 | 42 | 90 | 12 | FA1242 | 67,80 | FB1242 | 67,80 | FC1242 | 67,80 | FD1242 | 67,80 |
| 12 | 52 | 100 | 12 | FA1252 | 73,80 | FB1252 | 73,80 | FC1252 | 73,80 | FD1252 | 73,80 |
| 12 | 62 | 120 | 12 | FA1262 | 83,80 | FB1262 | 83,80 | FC1262 | 83,80 | FD1262 | 83,80 |
| 14 | 32 | 75 | 14 | FA1432 | 75,90 | FB1432 | 75,90 | FC1432 | 75,90 | FD1432 | 75,90 |
| 16 | 36 | 80 | 16 | FA1636 | 95,20 | FB1636 | 95,20 | FC1636 | 95,20 | FD1636 | 95,20 |
| 18 | 40 | 80 | 18 | FA1840 | 110,70 | FB1840 | 110,70 | FC1840 | 110,70 | FD1840 | 110,70 |
| 20 | 45 | 100 | 20 | FA2045 | 151,90 | FB2045 | 151,90 | FC2045 | 151,90 | FD2045 | 151,90 |

Frese Z2 denti elicoidali taglio al centro lavorazione universale

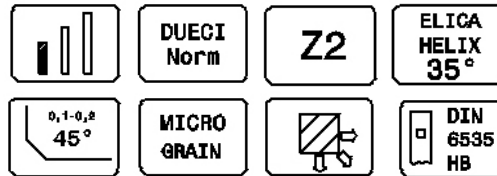
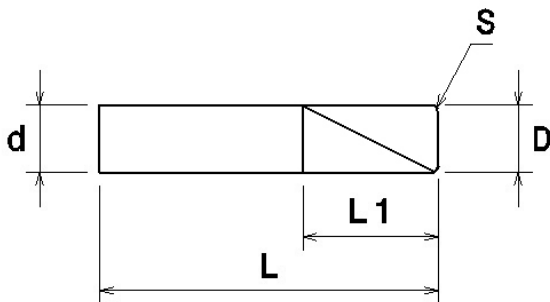
Universal end mills 2 flutes center cutting



| D h10 | L1 | L | d h6 | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|----------|----|-----|---------|---|-----------------|---------------|------------|---------------|
| 2 | 7 | 57 | 6 | 2 | W103502 | 21,20 | 25,80 | 27,10 |
| 2,5 | 7 | 57 | 6 | 2 | W1035025 | 21,20 | 25,80 | 27,10 |
| 3 | 7 | 57 | 6 | 2 | W103503 | 21,20 | 25,80 | 27,10 |
| 3,5 | 7 | 57 | 6 | 2 | W1035035 | 21,20 | 25,80 | 27,10 |
| 4 | 8 | 57 | 6 | 2 | W103504 | 21,20 | 25,80 | 27,10 |
| 4,5 | 8 | 57 | 6 | 2 | W1035045 | 21,20 | 25,80 | 27,10 |
| 5 | 10 | 57 | 6 | 2 | W103505 | 19,20 | 23,80 | 25,00 |
| 6 | 10 | 57 | 6 | 2 | W103506 | 17,80 | 22,40 | 23,50 |
| 7 | 13 | 63 | 8 | 2 | W103507 | 27,00 | 32,50 | 34,10 |
| 8 | 19 | 63 | 8 | 2 | W103508 | 26,00 | 31,50 | 33,10 |
| 9 | 19 | 72 | 10 | 2 | W103509 | 35,70 | 42,50 | 44,60 |
| 10 | 22 | 72 | 10 | 2 | W103510 | 34,70 | 41,50 | 43,60 |
| 12 | 26 | 83 | 12 | 2 | W103512 | 49,60 | 58,00 | 60,90 |
| 14 | 26 | 83 | 14 | 2 | W103514 | 64,80 | 73,80 | 77,50 |
| 16 | 30 | 92 | 16 | 2 | W103516 | 85,20 | 94,20 | 98,90 |
| 18 | 32 | 92 | 18 | 2 | W103518 | 108,40 | 119,30 | 125,30 |
| 20 | 38 | 104 | 20 | 2 | W103520 | 141,90 | 158,70 | 166,70 |

Frese Z2 denti elicoidali taglio al centro lavorazione universale

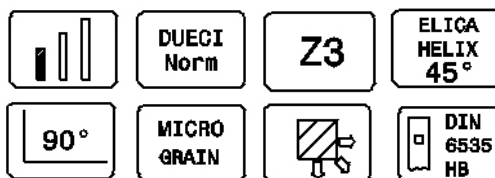
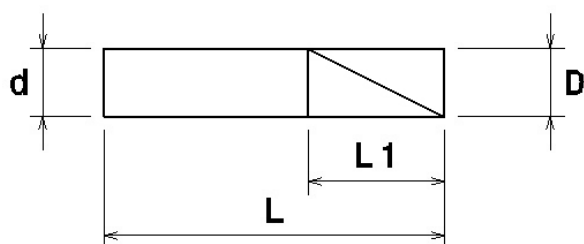
Universal end mills 2 flutes center cutting



| D _{h10} | L1 | L | d _{h6} | Z | S | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|-----------------|------------------|------------|---------|------------|
| 2 | 7 | 57 | 6 | 2 | 0,1 - 0,2 x 45° | WS103502 | 23,20 | 27,80 | 29,20 |
| 2,5 | 7 | 57 | 6 | 2 | 0,1 - 0,2 x 45° | WS1035025 | 23,20 | 27,80 | 29,20 |
| 3 | 7 | 57 | 6 | 2 | 0,1 - 0,2 x 45° | WS103503 | 23,20 | 27,80 | 29,20 |
| 3,5 | 7 | 57 | 6 | 2 | 0,1 - 0,2 x 45° | WS1035035 | 23,20 | 27,80 | 29,20 |
| 4 | 8 | 57 | 6 | 2 | 0,1 - 0,2 x 45° | WS103504 | 23,20 | 27,80 | 29,20 |
| 4,5 | 8 | 57 | 6 | 2 | 0,1 - 0,2 x 45° | WS1035045 | 23,20 | 27,80 | 29,20 |
| 5 | 10 | 57 | 6 | 2 | 0,1 - 0,2 x 45° | WS103505 | 21,20 | 25,80 | 27,10 |
| 6 | 10 | 57 | 6 | 2 | 0,1 - 0,2 x 45° | WS103506 | 19,80 | 24,40 | 25,60 |
| 7 | 13 | 63 | 8 | 2 | 0,1 - 0,2 x 45° | WS103507 | 29,30 | 34,90 | 36,60 |
| 8 | 19 | 63 | 8 | 2 | 0,1 - 0,2 x 45° | WS103508 | 28,30 | 33,90 | 35,60 |
| 9 | 19 | 72 | 10 | 2 | 0,1 - 0,2 x 45° | WS103509 | 37,70 | 44,50 | 46,70 |
| 10 | 22 | 72 | 10 | 2 | 0,1 - 0,2 x 45° | WS103510 | 36,70 | 43,50 | 45,70 |
| 12 | 26 | 83 | 12 | 2 | 0,1 - 0,2 x 45° | WS103512 | 51,60 | 60,00 | 63,00 |
| 14 | 26 | 83 | 14 | 2 | 0,1 - 0,2 x 45° | WS103514 | 66,80 | 75,80 | 79,60 |
| 16 | 30 | 92 | 16 | 2 | 0,1 - 0,2 x 45° | WS103516 | 87,20 | 96,20 | 101,00 |
| 18 | 32 | 92 | 18 | 2 | 0,1 - 0,2 x 45° | WS103518 | 110,40 | 121,30 | 127,40 |
| 20 | 38 | 104 | 20 | 2 | 0,1 - 0,2 x 45° | WS103520 | 143,90 | 160,70 | 168,80 |

Frese Z3 denti elicoidali taglio al centro lavorazione universale

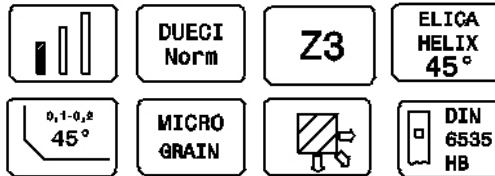
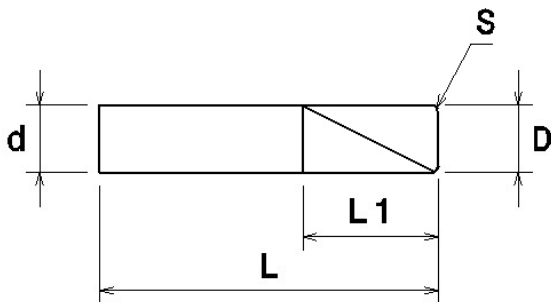
Universal end mills 3 flutes center cutting



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|-----------------|------------|---------|------------|
| 2 | 7 | 57 | 6 | 3 | W164502 | 21,20 | 25,80 | 27,10 |
| 2,5 | 7 | 57 | 6 | 3 | W1645025 | 21,20 | 25,80 | 27,10 |
| 3 | 7 | 57 | 6 | 3 | W164503 | 21,20 | 25,80 | 27,10 |
| 3,5 | 7 | 57 | 6 | 3 | W1645035 | 21,20 | 25,80 | 27,10 |
| 4 | 8 | 57 | 6 | 3 | W164504 | 21,20 | 25,80 | 27,10 |
| 4,5 | 8 | 57 | 6 | 3 | W1645045 | 21,20 | 25,80 | 27,10 |
| 5 | 10 | 57 | 6 | 3 | W164505 | 19,20 | 23,80 | 25,00 |
| 6 | 10 | 57 | 6 | 3 | W164506 | 17,80 | 22,40 | 23,50 |
| 7 | 13 | 63 | 8 | 3 | W164507 | 27,00 | 32,50 | 34,10 |
| 8 | 19 | 63 | 8 | 3 | W164508 | 26,00 | 31,50 | 33,10 |
| 9 | 19 | 72 | 10 | 3 | W164509 | 35,70 | 42,50 | 44,60 |
| 10 | 22 | 72 | 10 | 3 | W164510 | 34,70 | 41,50 | 43,60 |
| 12 | 26 | 83 | 12 | 3 | W164512 | 49,60 | 58,00 | 60,90 |
| 14 | 26 | 83 | 14 | 3 | W164514 | 64,80 | 73,80 | 77,50 |
| 16 | 30 | 92 | 16 | 3 | W164516 | 85,20 | 94,20 | 98,90 |
| 18 | 32 | 92 | 18 | 3 | W164518 | 108,40 | 119,30 | 125,30 |
| 20 | 38 | 104 | 20 | 3 | W164520 | 141,90 | 158,70 | 166,70 |

Frese Z3 denti elicoidali taglio al centro lavorazione universale

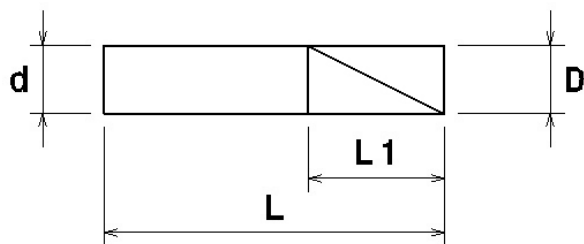
Universal end mills 3 flutes center cutting



| D h10 | L1 | L | d h6 | Z | S | Cod. | € uncoated | € TiAlN | € TopTiAlN |
|----------|----|-----|---------|---|-----------------|------------------|---------------|------------|---------------|
| 2 | 7 | 57 | 6 | 3 | 0,1 - 0,2 x 45° | WS164502 | 23,20 | 27,80 | 29,20 |
| 2,5 | 7 | 57 | 6 | 3 | 0,1 - 0,2 x 45° | WS1645025 | 23,20 | 27,80 | 29,20 |
| 3 | 7 | 57 | 6 | 3 | 0,1 - 0,2 x 45° | WS164503 | 23,20 | 27,80 | 29,20 |
| 3,5 | 7 | 57 | 6 | 3 | 0,1 - 0,2 x 45° | WS1645035 | 23,20 | 27,80 | 29,20 |
| 4 | 8 | 57 | 6 | 3 | 0,1 - 0,2 x 45° | WS164504 | 23,20 | 27,80 | 29,20 |
| 4,5 | 8 | 57 | 6 | 3 | 0,1 - 0,2 x 45° | WS1645045 | 23,20 | 27,80 | 29,20 |
| 5 | 10 | 57 | 6 | 3 | 0,1 - 0,2 x 45° | WS164505 | 21,20 | 25,80 | 27,10 |
| 6 | 10 | 57 | 6 | 3 | 0,1 - 0,2 x 45° | WS164506 | 19,80 | 24,40 | 25,60 |
| 7 | 13 | 63 | 8 | 3 | 0,1 - 0,2 x 45° | WS164507 | 29,30 | 34,90 | 36,60 |
| 8 | 19 | 63 | 8 | 3 | 0,1 - 0,2 x 45° | WS164508 | 28,30 | 33,90 | 35,60 |
| 9 | 19 | 72 | 10 | 3 | 0,1 - 0,2 x 45° | WS164509 | 37,70 | 44,50 | 46,70 |
| 10 | 22 | 72 | 10 | 3 | 0,1 - 0,2 x 45° | WS164510 | 36,70 | 43,50 | 45,70 |
| 12 | 26 | 83 | 12 | 3 | 0,1 - 0,2 x 45° | WS164512 | 51,60 | 60,00 | 63,00 |
| 14 | 26 | 83 | 14 | 3 | 0,1 - 0,2 x 45° | WS164514 | 66,80 | 75,80 | 79,60 |
| 16 | 30 | 92 | 16 | 3 | 0,1 - 0,2 x 45° | WS164516 | 87,20 | 96,20 | 101,00 |
| 18 | 32 | 92 | 18 | 3 | 0,1 - 0,2 x 45° | WS164518 | 110,40 | 121,30 | 127,40 |
| 20 | 38 | 104 | 20 | 3 | 0,1 - 0,2 x 45° | WS164520 | 143,90 | 160,70 | 168,80 |

Frese Z4 denti elicoidali taglio al centro lavorazione universale

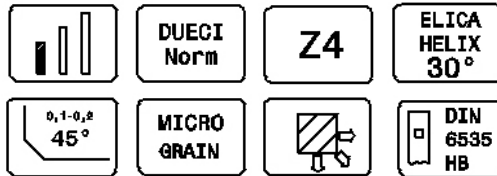
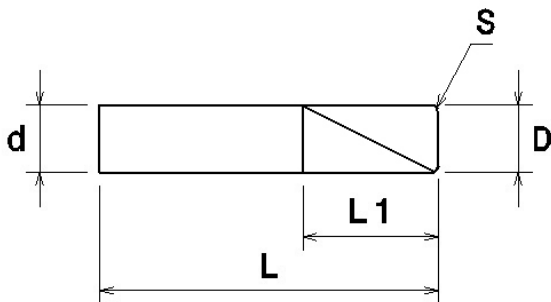
Universal end mills 4 flutes center cutting



| D h10 | L1 | L | d h6 | Z | Cod. | € uncoated | € TiAlN | € TopTiAlN |
|----------|----|-----|---------|---|-----------------|---------------|------------|---------------|
| 2 | 7 | 57 | 6 | 4 | W143002 | 21,20 | 25,80 | 27,10 |
| 2,5 | 7 | 57 | 6 | 4 | W1430025 | 21,20 | 25,80 | 27,10 |
| 3 | 7 | 57 | 6 | 4 | W143003 | 21,20 | 25,80 | 27,10 |
| 3,5 | 7 | 57 | 6 | 4 | W1430035 | 21,20 | 25,80 | 27,10 |
| 4 | 8 | 57 | 6 | 4 | W143004 | 21,20 | 25,80 | 27,10 |
| 4,5 | 8 | 57 | 6 | 4 | W1430045 | 21,20 | 25,80 | 27,10 |
| 5 | 10 | 57 | 6 | 4 | W143005 | 19,20 | 23,80 | 25,00 |
| 6 | 10 | 57 | 6 | 4 | W143006 | 17,80 | 22,40 | 23,50 |
| 7 | 13 | 63 | 8 | 4 | W143007 | 27,00 | 32,50 | 34,10 |
| 8 | 19 | 63 | 8 | 4 | W143008 | 26,00 | 31,50 | 33,10 |
| 9 | 19 | 72 | 10 | 4 | W143009 | 35,70 | 42,50 | 44,60 |
| 10 | 22 | 72 | 10 | 4 | W143010 | 34,70 | 41,50 | 43,60 |
| 12 | 26 | 83 | 12 | 4 | W143012 | 49,60 | 58,00 | 60,90 |
| 14 | 26 | 83 | 14 | 4 | W143014 | 64,80 | 73,80 | 77,50 |
| 16 | 30 | 92 | 16 | 4 | W143016 | 85,20 | 94,20 | 98,90 |
| 18 | 32 | 92 | 18 | 4 | W143018 | 108,40 | 119,30 | 125,30 |
| 20 | 38 | 104 | 20 | 4 | W143020 | 141,90 | 158,70 | 166,70 |

Frese Z4 denti elicoidali taglio al centro lavorazione universale

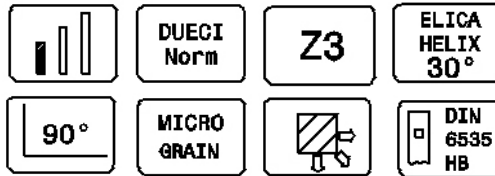
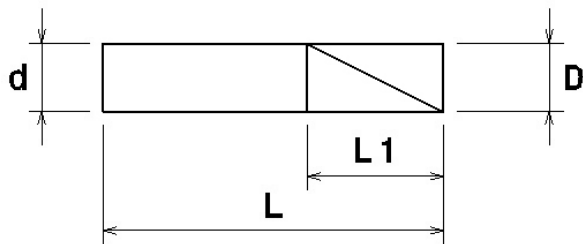
Universal end mills 4 flutes center cutting



| D _{h10} | L1 | L | d _{h6} | Z | S | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|-----------------|------------------|------------|---------|------------|
| 2 | 7 | 57 | 6 | 4 | 0,1 - 0,2 x 45° | WS143002 | 23,20 | 27,80 | 29,20 |
| 2,5 | 7 | 57 | 6 | 4 | 0,1 - 0,2 x 45° | WS1430025 | 23,20 | 27,80 | 29,20 |
| 3 | 7 | 57 | 6 | 4 | 0,1 - 0,2 x 45° | WS143003 | 23,20 | 27,80 | 29,20 |
| 3,5 | 7 | 57 | 6 | 4 | 0,1 - 0,2 x 45° | WS1430035 | 23,20 | 27,80 | 29,20 |
| 4 | 8 | 57 | 6 | 4 | 0,1 - 0,2 x 45° | WS143004 | 23,20 | 27,80 | 29,20 |
| 4,5 | 8 | 57 | 6 | 4 | 0,1 - 0,2 x 45° | WS1430045 | 23,20 | 27,80 | 29,20 |
| 5 | 10 | 57 | 6 | 4 | 0,1 - 0,2 x 45° | WS143005 | 21,20 | 25,80 | 27,10 |
| 6 | 10 | 57 | 6 | 4 | 0,1 - 0,2 x 45° | WS143006 | 19,80 | 24,40 | 25,60 |
| 7 | 13 | 63 | 8 | 4 | 0,1 - 0,2 x 45° | WS143007 | 29,30 | 34,90 | 36,60 |
| 8 | 19 | 63 | 8 | 4 | 0,1 - 0,2 x 45° | WS143008 | 28,30 | 33,90 | 35,60 |
| 9 | 19 | 72 | 10 | 4 | 0,1 - 0,2 x 45° | WS143009 | 37,70 | 44,50 | 46,70 |
| 10 | 22 | 72 | 10 | 4 | 0,1 - 0,2 x 45° | WS143010 | 36,70 | 43,50 | 45,70 |
| 12 | 26 | 83 | 12 | 4 | 0,1 - 0,2 x 45° | WS143012 | 51,60 | 60,00 | 63,00 |
| 14 | 26 | 83 | 14 | 4 | 0,1 - 0,2 x 45° | WS143014 | 66,80 | 75,80 | 79,60 |
| 16 | 30 | 92 | 16 | 4 | 0,1 - 0,2 x 45° | WS143016 | 87,20 | 96,20 | 101,00 |
| 18 | 32 | 92 | 18 | 4 | 0,1 - 0,2 x 45° | WS143018 | 110,40 | 121,30 | 127,40 |
| 20 | 38 | 104 | 20 | 4 | 0,1 - 0,2 x 45° | WS143020 | 143,90 | 160,70 | 168,80 |

Frese Z3/4 lavorazione sgrossatura

Roughing end mills 3/4 flutes center cutting



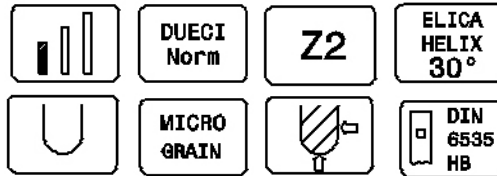
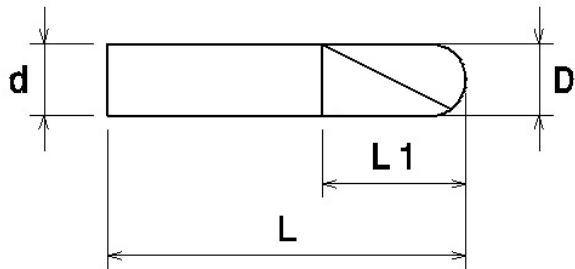
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----------------|------------|---------|------------|
| 6 | 16 | 57 | 6 | 3 | W283006 | 25,20 | 29,80 | 31,30 |
| 8 | 19 | 63 | 8 | 3 | W283008 | 34,30 | 39,90 | 41,90 |
| 10 | 22 | 72 | 10 | 3 | W283010 | 46,10 | 52,90 | 55,60 |
| 12 | 26 | 83 | 12 | 3 | W283012 | 61,00 | 69,40 | 72,90 |
| 14 | 26 | 83 | 14 | 3 | W283014 | 76,20 | 85,20 | 89,50 |
| 16 | 32 | 92 | 16 | 3 | W283016 | 99,20 | 108,20 | 113,60 |
| 18 | 32 | 92 | 18 | 3 | W283018 | 120,40 | 131,30 | 137,90 |
| 20 | 38 | 104 | 20 | 3 | W283020 | 161,90 | 178,70 | 187,70 |

Z4

| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|----------------|------------|---------|------------|
| 6 | 16 | 57 | 6 | 4 | W293006 | 25,20 | 29,80 | 31,30 |
| 8 | 19 | 63 | 8 | 4 | W293008 | 34,30 | 39,90 | 41,90 |
| 10 | 22 | 72 | 10 | 4 | W293010 | 46,10 | 52,90 | 55,60 |
| 12 | 26 | 83 | 12 | 4 | W293012 | 61,00 | 69,40 | 72,90 |
| 14 | 26 | 83 | 14 | 4 | W293014 | 76,20 | 85,20 | 89,50 |
| 16 | 32 | 92 | 16 | 4 | W293016 | 99,20 | 108,20 | 113,60 |
| 18 | 32 | 92 | 18 | 4 | W293018 | 120,40 | 131,30 | 137,90 |
| 20 | 38 | 104 | 20 | 4 | W293020 | 161,90 | 178,70 | 187,70 |

Frese Z2 raggiata denti elicoidali taglio al centro lavorazioni universali

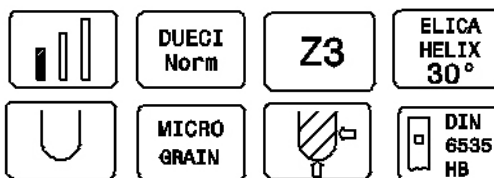
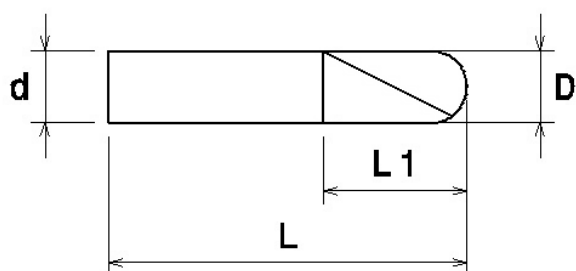
Universal ball nose end mills 2 flutes center cutting



| D h10 | L1 | L | d h6 | Z | Cod. | € uncoated | € TiAlN | € TopTiAlN |
|----------|----|-----|---------|---|-----------------|---------------|------------|---------------|
| 2 | 7 | 57 | 6 | 2 | W113002 | 25,20 | 29,80 | 31,30 |
| 2,5 | 7 | 57 | 6 | 2 | W1130025 | 25,20 | 29,80 | 31,30 |
| 3 | 7 | 57 | 6 | 2 | W113003 | 25,20 | 29,80 | 31,30 |
| 3,5 | 7 | 57 | 6 | 2 | W1130035 | 25,20 | 29,80 | 31,30 |
| 4 | 8 | 57 | 6 | 2 | W113004 | 25,20 | 29,80 | 31,30 |
| 4,5 | 8 | 57 | 6 | 2 | W1130045 | 25,20 | 29,80 | 31,30 |
| 5 | 10 | 57 | 6 | 2 | W113005 | 23,20 | 27,80 | 29,20 |
| 6 | 10 | 57 | 6 | 2 | W113006 | 21,80 | 26,40 | 27,70 |
| 7 | 13 | 63 | 8 | 2 | W113007 | 31,90 | 37,50 | 39,40 |
| 8 | 19 | 63 | 8 | 2 | W113008 | 30,90 | 36,50 | 38,40 |
| 9 | 19 | 72 | 10 | 2 | W113009 | 43,70 | 50,50 | 53,00 |
| 10 | 22 | 72 | 10 | 2 | W113010 | 42,70 | 49,50 | 52,00 |
| 12 | 26 | 83 | 12 | 2 | W113012 | 59,00 | 67,40 | 70,80 |
| 14 | 26 | 83 | 14 | 2 | W113014 | 72,80 | 81,80 | 85,90 |
| 16 | 30 | 92 | 16 | 2 | W113016 | 95,80 | 104,80 | 110,10 |
| 18 | 32 | 92 | 18 | 2 | W113018 | 124,40 | 135,30 | 142,10 |
| 20 | 38 | 104 | 20 | 2 | W113020 | 157,90 | 174,70 | 183,50 |

Frese Z3 raggiata denti elicoidali taglio al centro lavorazioni universali

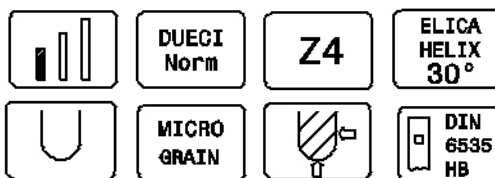
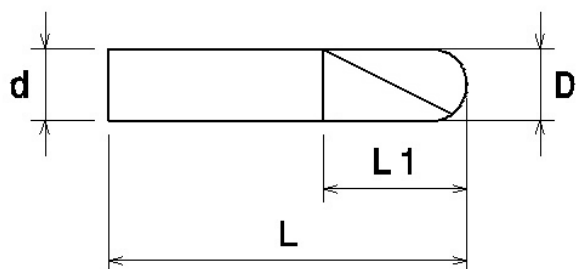
Universal ball nose end mills 3 flutes center cutting



| D h10 | L1 | L | d h6 | Z | Cod. | € uncoated | € TiAlN | € TopTiAlN |
|----------|----|-----|---------|---|-----------------|---------------|------------|---------------|
| 2 | 7 | 57 | 6 | 3 | W133002 | 25,20 | 29,80 | 31,30 |
| 2,5 | 7 | 57 | 6 | 3 | W1330025 | 25,20 | 29,80 | 31,30 |
| 3 | 7 | 57 | 6 | 3 | W133003 | 25,20 | 29,80 | 31,30 |
| 3,5 | 7 | 57 | 6 | 3 | W1330035 | 25,20 | 29,80 | 31,30 |
| 4 | 8 | 57 | 6 | 3 | W133004 | 25,20 | 29,80 | 31,30 |
| 4,5 | 8 | 57 | 6 | 3 | W1330045 | 25,20 | 29,80 | 31,30 |
| 5 | 10 | 57 | 6 | 3 | W133005 | 23,20 | 27,80 | 29,20 |
| 6 | 10 | 57 | 6 | 3 | W133006 | 21,80 | 26,40 | 27,70 |
| 7 | 13 | 63 | 8 | 3 | W133007 | 31,90 | 37,50 | 39,40 |
| 8 | 19 | 63 | 8 | 3 | W133008 | 30,90 | 36,50 | 38,40 |
| 9 | 19 | 72 | 10 | 3 | W133009 | 43,70 | 50,50 | 53,00 |
| 10 | 22 | 72 | 10 | 3 | W133010 | 42,70 | 49,50 | 52,00 |
| 12 | 26 | 83 | 12 | 3 | W133012 | 59,00 | 67,40 | 70,80 |
| 14 | 26 | 83 | 14 | 3 | W133014 | 72,80 | 81,80 | 85,90 |
| 16 | 30 | 92 | 16 | 3 | W133016 | 95,80 | 104,80 | 110,10 |
| 18 | 32 | 92 | 18 | 3 | W133018 | 124,40 | 135,30 | 142,10 |
| 20 | 38 | 104 | 20 | 3 | W133020 | 157,90 | 174,70 | 183,50 |

Frese Z4 raggiata denti elicoidali taglio al centro lavorazioni universali

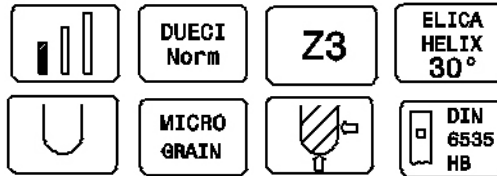
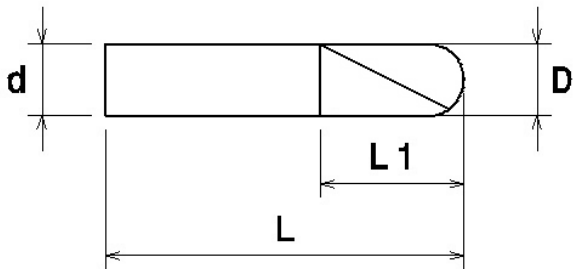
Universal ball nose end mills 4 flutes center cutting



| D h10 | L1 | L | d h6 | Z | Cod. | € uncoated | € TiAlN | € TopTiAlN |
|----------|----|-----|---------|---|-----------------|---------------|------------|---------------|
| 2 | 7 | 57 | 6 | 4 | W153002 | 25,20 | 29,80 | 31,30 |
| 2,5 | 7 | 57 | 6 | 4 | W1530025 | 25,20 | 29,80 | 31,30 |
| 3 | 7 | 57 | 6 | 4 | W153003 | 25,20 | 29,80 | 31,30 |
| 3,5 | 7 | 57 | 6 | 4 | W1530035 | 25,20 | 29,80 | 31,30 |
| 4 | 8 | 57 | 6 | 4 | W153004 | 25,20 | 29,80 | 31,30 |
| 4,5 | 8 | 57 | 6 | 4 | W1530045 | 25,20 | 29,80 | 31,30 |
| 5 | 10 | 57 | 6 | 4 | W153005 | 23,20 | 27,80 | 29,20 |
| 6 | 10 | 57 | 6 | 4 | W153006 | 21,80 | 26,40 | 27,70 |
| 7 | 13 | 63 | 8 | 4 | W153007 | 31,90 | 37,50 | 39,40 |
| 8 | 19 | 63 | 8 | 4 | W153008 | 30,90 | 36,50 | 38,40 |
| 9 | 19 | 72 | 10 | 4 | W153009 | 43,70 | 50,50 | 53,00 |
| 10 | 22 | 72 | 10 | 4 | W153010 | 42,70 | 49,50 | 52,00 |
| 12 | 26 | 83 | 12 | 4 | W153012 | 59,00 | 67,40 | 70,80 |
| 14 | 26 | 83 | 14 | 4 | W153014 | 72,80 | 81,80 | 85,90 |
| 16 | 30 | 92 | 16 | 4 | W153016 | 95,80 | 104,80 | 110,10 |
| 18 | 32 | 92 | 18 | 4 | W153018 | 124,40 | 135,30 | 142,10 |
| 20 | 38 | 104 | 20 | 4 | W153020 | 157,90 | 174,70 | 183,50 |

Frese Z3/4 lavorazione sgrossatura raggiata

Roughing ball nose end mills 3/4 flutes center cutting



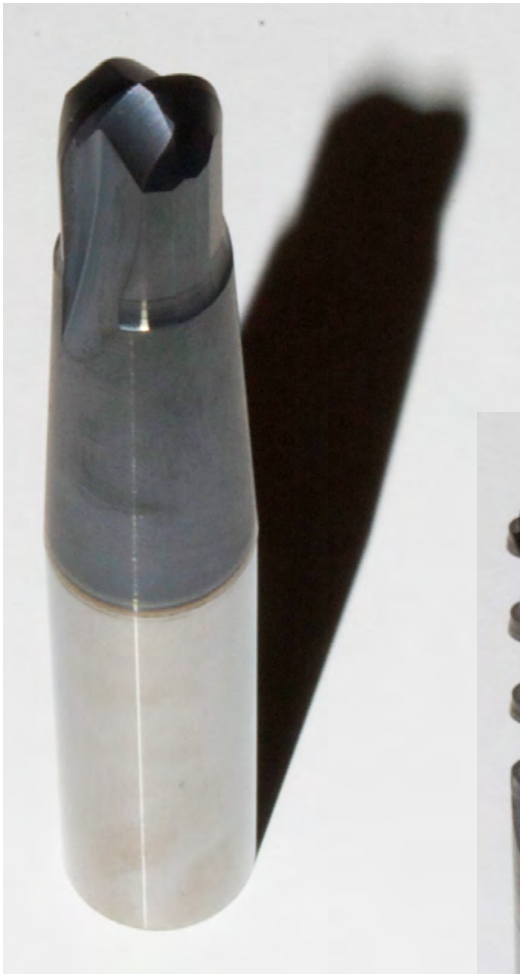
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|-----------------|------------|---------|------------|
| 6 | 16 | 57 | 6 | 3 | WR283006 | 29,60 | 34,20 | 35,90 |
| 8 | 19 | 63 | 8 | 3 | WR283008 | 39,70 | 45,20 | 47,50 |
| 10 | 22 | 72 | 10 | 3 | WR283010 | 57,60 | 64,30 | 67,50 |
| 12 | 26 | 83 | 12 | 3 | WR283012 | 71,90 | 80,20 | 84,20 |
| 14 | 26 | 83 | 14 | 3 | WR283014 | 84,60 | 93,60 | 98,30 |
| 16 | 32 | 92 | 16 | 3 | WR283016 | 116,50 | 125,50 | 131,80 |
| 18 | 32 | 92 | 18 | 3 | WR283018 | 152,90 | 163,70 | 171,90 |
| 20 | 38 | 104 | 20 | 3 | WR283020 | 181,80 | 198,60 | 208,50 |

Z4

| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|-----|-----------------|---|-----------------|------------|---------|------------|
| 6 | 16 | 57 | 6 | 4 | WR293006 | 29,60 | 34,20 | 35,90 |
| 8 | 19 | 63 | 8 | 4 | WR293008 | 39,70 | 45,20 | 47,50 |
| 10 | 22 | 72 | 10 | 4 | WR293010 | 57,60 | 64,30 | 67,50 |
| 12 | 26 | 83 | 12 | 4 | WR293012 | 71,90 | 80,20 | 84,20 |
| 14 | 26 | 83 | 14 | 4 | WR293014 | 84,60 | 93,60 | 98,30 |
| 16 | 32 | 92 | 16 | 4 | WR293016 | 116,50 | 125,50 | 131,80 |
| 18 | 32 | 92 | 18 | 4 | WR293018 | 152,90 | 163,70 | 171,90 |
| 20 | 38 | 104 | 20 | 4 | WR293020 | 181,80 | 198,60 | 208,50 |

Frese per lavorazioni ad alta velocità

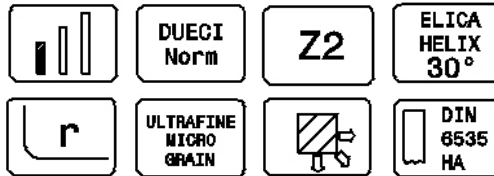
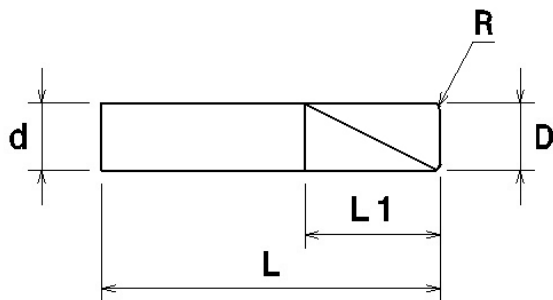
End mills high speed application



HSC

Frese toriche elicoidali Z2 taglio al centro

Toroidal end mills 2 flutes center cutting



HSC

| D _{h10} | L1 | L | d _{h6} | R | Z | Cod. | € uncoated | € Tialn | € Advanced |
|------------------|----|-----|-----------------|-----|---|----------------|------------|---------|------------|
| 2 | 6 | 60 | 2 | 0,5 | 2 | AVC1002 | 14,00 | 17,10 | 24,10 |
| 3 | 8 | 60 | 3 | 0,5 | 2 | AVC1003 | 17,20 | 20,30 | 27,30 |
| 4 | 10 | 60 | 4 | 0,5 | 2 | AVC1004 | 18,10 | 21,70 | 28,20 |
| 5 | 10 | 60 | 5 | 0,5 | 2 | AVC1005 | 19,60 | 24,50 | 31,80 |
| 6 | 10 | 60 | 6 | 1 | 2 | AVC1006 | 22,30 | 27,20 | 34,50 |
| 8 | 12 | 75 | 8 | 1 | 2 | AVC1008 | 31,50 | 37,40 | 45,60 |
| 10 | 18 | 75 | 10 | 1,5 | 2 | AVC1010 | 40,50 | 47,70 | 56,90 |
| 12 | 18 | 100 | 12 | 1,5 | 2 | AVC1012 | 62,90 | 71,90 | 82,20 |
| 16 | 24 | 100 | 16 | 2 | 2 | AVC1016 | 100,50 | 110,20 | 121,10 |
| 18 | 24 | 100 | 18 | 2 | 2 | AVC1018 | 125,00 | 136,50 | 148,70 |
| 20 | 38 | 104 | 20 | 2 | 2 | AVC1020 | 160,70 | 178,70 | 195,50 |

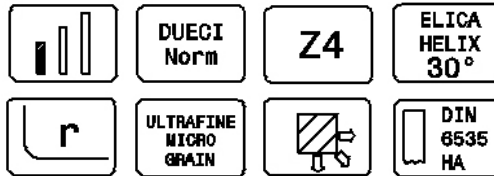
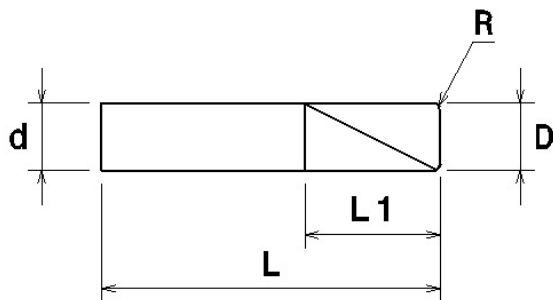


| D _{h10} | L1 | L | d _{h6} | R | Z | Cod. | € uncoated | € Tialn | € Advanced |
|------------------|----|-----|-----------------|-----|---|------------------|------------|---------|------------|
| 2 | 6 | 100 | 2 | 0,5 | 2 | AVC1002L | 15,80 | 19,80 | 27,60 |
| 3 | 8 | 100 | 3 | 0,5 | 2 | AVC1003L | 19,70 | 23,70 | 31,50 |
| 4 | 10 | 100 | 4 | 0,5 | 2 | AVC1004L | 21,20 | 25,90 | 33,00 |
| 4 | 10 | 150 | 4 | 0,5 | 2 | AVC1004EL | 25,00 | 34,00 | 43,70 |
| 5 | 10 | 100 | 5 | 0,5 | 2 | AVC1005L | 23,70 | 30,00 | 38,00 |
| 6 | 10 | 100 | 6 | 1 | 2 | AVC1006L | 27,70 | 34,10 | 42,10 |
| 6 | 10 | 150 | 6 | 1 | 2 | AVC1006EL | 34,50 | 45,70 | 56,70 |
| 8 | 12 | 100 | 8 | 1 | 2 | AVC1008L | 36,70 | 44,20 | 53,60 |
| 8 | 12 | 150 | 8 | 1 | 2 | AVC1008EL | 47,10 | 59,30 | 71,80 |
| 10 | 18 | 100 | 10 | 1,5 | 2 | AVC1010L | 48,00 | 56,90 | 67,30 |
| 10 | 18 | 150 | 10 | 1,5 | 2 | AVC1010EL | 62,90 | 76,80 | 90,50 |
| 12 | 18 | 150 | 12 | 1,5 | 2 | AVC1012L | 84,20 | 98,10 | 107,80 |
| 16 | 24 | 150 | 16 | 2 | 2 | AVC1016L | 136,10 | 151,80 | 166,80 |
| 18 | 24 | 150 | 18 | 2 | 2 | AVC1018L | 168,30 | 187,80 | 205,40 |
| 20 | 38 | 150 | 20 | 2 | 2 | AVC1020L | 210,90 | 237,80 | 260,70 |

A richiesta rivestimento **DLC** per rame, ottone e graffite
DLC coating for copper, brass and graphite on request

Frese toriche elicoidali Z4 taglio al centro

Toroidal end mills 4 flutes center cutting



HSC

| D _{h10} | L1 | L | d _{h6} | R | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|-----|-----------------|-----|---|----------------|------------|---------|------------|
| 2 | 6 | 60 | 2 | 0,5 | 4 | AVC1402 | 14,00 | 17,10 | 24,10 |
| 3 | 8 | 60 | 3 | 0,5 | 4 | AVC1403 | 17,20 | 20,30 | 27,30 |
| 4 | 10 | 60 | 4 | 0,5 | 4 | AVC1404 | 18,10 | 21,70 | 28,20 |
| 5 | 10 | 60 | 5 | 0,5 | 4 | AVC1405 | 19,60 | 24,50 | 31,80 |
| 6 | 10 | 60 | 6 | 1 | 4 | AVC1406 | 22,30 | 27,20 | 34,50 |
| 8 | 12 | 75 | 8 | 1 | 4 | AVC1408 | 31,50 | 37,40 | 45,60 |
| 10 | 18 | 75 | 10 | 1,5 | 4 | AVC1410 | 40,50 | 47,70 | 56,90 |
| 12 | 18 | 100 | 12 | 1,5 | 4 | AVC1412 | 62,90 | 71,90 | 82,20 |
| 16 | 24 | 100 | 16 | 2 | 4 | AVC1416 | 100,50 | 110,20 | 121,10 |
| 18 | 24 | 100 | 18 | 2 | 4 | AVC1418 | 125,00 | 136,50 | 148,70 |
| 20 | 38 | 104 | 20 | 2 | 4 | AVC1420 | 160,70 | 178,70 | 195,50 |

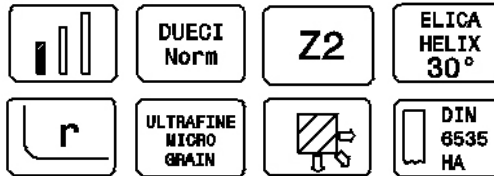
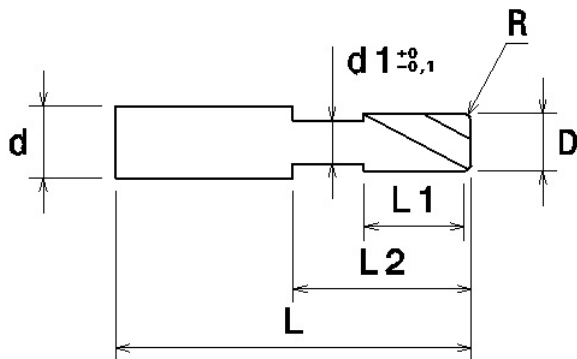


| D _{h10} | L1 | L | d _{h6} | R | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|-----|-----------------|-----|---|------------------|------------|---------|------------|
| 2 | 6 | 100 | 2 | 0,5 | 4 | AVC1402L | 15,80 | 19,80 | 27,60 |
| 3 | 8 | 100 | 3 | 0,5 | 4 | AVC1403L | 19,70 | 23,70 | 31,50 |
| 4 | 10 | 100 | 4 | 0,5 | 4 | AVC1404L | 21,20 | 25,90 | 33,00 |
| 4 | 10 | 150 | 4 | 0,5 | 4 | AVC1404EL | 25,00 | 34,00 | 43,70 |
| 5 | 10 | 100 | 5 | 0,5 | 4 | AVC1405L | 23,70 | 30,00 | 38,00 |
| 6 | 10 | 100 | 6 | 1 | 4 | AVC1406L | 27,70 | 34,10 | 42,10 |
| 6 | 10 | 150 | 6 | 1 | 4 | AVC1406EL | 34,50 | 45,70 | 56,70 |
| 8 | 12 | 100 | 8 | 1 | 4 | AVC1408L | 36,70 | 44,20 | 53,60 |
| 8 | 12 | 150 | 8 | 1 | 4 | AVC1408EL | 47,10 | 59,30 | 71,80 |
| 10 | 18 | 100 | 10 | 1,5 | 4 | AVC1410L | 48,00 | 56,90 | 67,30 |
| 10 | 18 | 150 | 10 | 1,5 | 4 | AVC1410EL | 62,90 | 76,80 | 90,50 |
| 12 | 18 | 150 | 12 | 1,5 | 4 | AVC1412L | 84,20 | 98,10 | 107,80 |
| 16 | 24 | 150 | 16 | 2 | 4 | AVC1416L | 136,10 | 151,80 | 166,80 |
| 18 | 24 | 150 | 18 | 2 | 4 | AVC1418L | 168,30 | 187,80 | 205,40 |
| 20 | 38 | 150 | 20 | 2 | 4 | AVC1420L | 210,90 | 237,80 | 260,70 |

A richiesta rivestimento **DLC** per rame, ottone e graffite
DLC coating for copper, brass and graphite on request

Frese toriche Z2 scaricate taglio al centro

Toroidal tapered end mills 2 flutes center cutting



HSC

| D _{h10} | L1 | L2 | L | d _{h6} | d1 | R | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|----|-----|-----------------|------|-----|---|----------------|------------|---------|------------|
| 2 | 6 | 12 | 60 | 6 | 1,9 | 0,5 | 2 | AVT1002 | 26,10 | 31,10 | 38,30 |
| 3 | 8 | 14 | 60 | 6 | 2,9 | 0,5 | 2 | AVT1003 | 26,10 | 31,10 | 38,30 |
| 4 | 10 | 18 | 60 | 6 | 3,9 | 0,5 | 2 | AVT1004 | 26,10 | 31,10 | 38,30 |
| 5 | 10 | 20 | 60 | 6 | 4,9 | 0,5 | 2 | AVT1005 | 26,10 | 31,10 | 38,30 |
| 6 | 10 | 24 | 60 | 6 | 5,9 | 1 | 2 | AVT1006 | 23,90 | 28,80 | 36,00 |
| 8 | 12 | 30 | 75 | 8 | 7,8 | 1 | 2 | AVT1008 | 33,70 | 39,60 | 47,90 |
| 10 | 18 | 30 | 75 | 10 | 9,6 | 1,5 | 2 | AVT1010 | 42,70 | 50,00 | 59,10 |
| 12 | 18 | 38 | 100 | 12 | 11,6 | 1,5 | 2 | AVT1012 | 65,20 | 74,10 | 84,50 |
| 16 | 24 | 44 | 100 | 16 | 15 | 2 | 2 | AVT1016 | 102,80 | 112,40 | 123,30 |
| 18 | 24 | 44 | 100 | 18 | 17 | 2 | 2 | AVT1018 | 127,20 | 138,80 | 150,90 |
| 20 | 38 | 58 | 104 | 20 | 19 | 2 | 2 | AVT1020 | 162,90 | 180,90 | 197,70 |

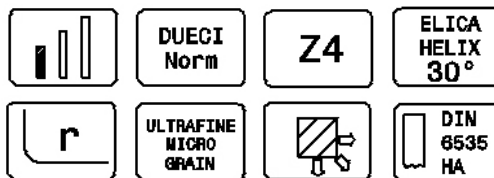
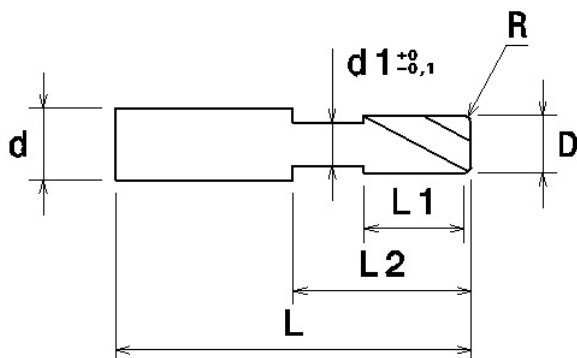


| D _{h10} | L1 | L2 | L | d _{h6} | d1 | R | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|----|-----|-----------------|------|-----|---|------------------|------------|---------|------------|
| 2 | 6 | 26 | 100 | 6 | 1,9 | 0,5 | 2 | AVT1002L | 31,50 | 37,90 | 45,90 |
| 3 | 8 | 28 | 100 | 6 | 2,9 | 0,5 | 2 | AVT1003L | 31,50 | 37,90 | 45,90 |
| 4 | 10 | 30 | 100 | 6 | 3,9 | 0,5 | 2 | AVT1004L | 31,50 | 37,90 | 45,90 |
| 4 | 10 | 30 | 150 | 6 | 3,9 | 0,5 | 2 | AVT1004EL | 38,30 | 49,50 | 60,50 |
| 5 | 10 | 30 | 100 | 6 | 4,9 | 0,5 | 2 | AVT1005L | 31,50 | 37,90 | 45,90 |
| 6 | 10 | 30 | 100 | 6 | 5,9 | 1 | 2 | AVT1006L | 29,30 | 35,60 | 43,70 |
| 6 | 10 | 30 | 150 | 6 | 5,9 | 1 | 2 | AVT1006EL | 36,00 | 47,30 | 58,20 |
| 8 | 12 | 32 | 100 | 8 | 7,8 | 1 | 2 | AVT1008L | 38,90 | 46,40 | 55,80 |
| 8 | 12 | 32 | 150 | 8 | 7,8 | 1 | 2 | AVT1008EL | 49,40 | 61,50 | 74,10 |
| 10 | 18 | 38 | 100 | 10 | 9,6 | 1,5 | 2 | AVT1010L | 50,20 | 59,20 | 69,50 |
| 10 | 18 | 38 | 150 | 10 | 9,6 | 1,5 | 2 | AVT1010EL | 65,20 | 79,00 | 92,70 |
| 12 | 18 | 38 | 150 | 12 | 11,6 | 1,5 | 2 | AVT1012L | 86,50 | 100,30 | 110,10 |
| 16 | 24 | 44 | 150 | 16 | 15 | 2 | 2 | AVT1016L | 138,40 | 154,10 | 169,00 |
| 18 | 24 | 44 | 150 | 18 | 17 | 2 | 2 | AVT1018L | 170,60 | 190,10 | 207,70 |
| 20 | 38 | 58 | 150 | 20 | 19 | 2 | 2 | AVT1020L | 213,10 | 240,10 | 262,90 |

A richiesta rivestimento **DLC** per rame, ottone e graffite
DLC coating for copper, brass and graphite on request

Frese toriche elicoidali Z4 scaricate taglio al centro

Toroidal tapered end mills 4 flutes center cutting



HSC

| D _{h10} | L1 | L2 | L | d _{h6} | d1 | R | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|----|-----|-----------------|------|-----|---|----------------|------------|---------|------------|
| 2 | 6 | 12 | 60 | 6 | 1,9 | 0,5 | 4 | AVT1402 | 26,10 | 31,10 | 38,30 |
| 3 | 8 | 14 | 60 | 6 | 2,9 | 0,5 | 4 | AVT1403 | 26,10 | 31,10 | 38,30 |
| 4 | 10 | 18 | 60 | 6 | 3,9 | 0,5 | 4 | AVT1404 | 26,10 | 31,10 | 38,30 |
| 5 | 10 | 20 | 60 | 6 | 4,9 | 0,5 | 4 | AVT1405 | 26,10 | 31,10 | 38,30 |
| 6 | 10 | 24 | 60 | 6 | 5,9 | 1 | 4 | AVT1406 | 23,90 | 28,80 | 36,00 |
| 8 | 12 | 30 | 75 | 8 | 7,8 | 1 | 4 | AVT1408 | 33,70 | 39,60 | 47,90 |
| 10 | 18 | 30 | 75 | 10 | 9,6 | 1,5 | 4 | AVT1410 | 42,70 | 50,00 | 59,10 |
| 12 | 18 | 38 | 100 | 12 | 11,6 | 1,5 | 4 | AVT1412 | 65,20 | 74,10 | 84,50 |
| 16 | 24 | 44 | 100 | 16 | 15 | 2 | 4 | AVT1416 | 102,80 | 112,40 | 123,30 |
| 18 | 24 | 44 | 100 | 18 | 17 | 2 | 4 | AVT1418 | 127,20 | 138,80 | 150,90 |
| 20 | 38 | 58 | 104 | 20 | 19 | 2 | 4 | AVT1420 | 162,90 | 180,90 | 197,70 |

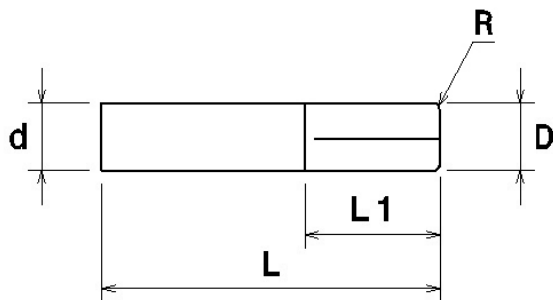


| D _{h10} | L1 | L2 | L | d _{h6} | d1 | R | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|----|-----|-----------------|------|-----|---|------------------|------------|---------|------------|
| 2 | 6 | 26 | 100 | 6 | 1,9 | 0,5 | 4 | AVT1402L | 31,50 | 37,90 | 45,90 |
| 3 | 8 | 28 | 100 | 6 | 2,9 | 0,5 | 4 | AVT1403L | 31,50 | 37,90 | 45,90 |
| 4 | 10 | 30 | 100 | 6 | 3,9 | 0,5 | 4 | AVT1404L | 31,50 | 37,90 | 45,90 |
| 4 | 10 | 30 | 150 | 6 | 3,9 | 0,5 | 4 | AVT1404EL | 38,30 | 49,50 | 60,50 |
| 5 | 10 | 30 | 100 | 6 | 4,9 | 0,5 | 4 | AVT1405L | 31,50 | 37,90 | 45,90 |
| 6 | 10 | 30 | 100 | 6 | 5,9 | 1 | 4 | AVT1406L | 29,30 | 35,60 | 43,70 |
| 6 | 10 | 30 | 150 | 6 | 5,9 | 1 | 4 | AVT1406EL | 36,00 | 47,30 | 58,20 |
| 8 | 12 | 32 | 100 | 8 | 7,8 | 1 | 4 | AVT1408L | 38,90 | 46,40 | 55,80 |
| 8 | 12 | 32 | 150 | 8 | 7,8 | 1 | 4 | AVT1408EL | 49,40 | 61,50 | 74,10 |
| 10 | 18 | 38 | 100 | 10 | 9,6 | 1,5 | 4 | AVT1410L | 50,20 | 59,20 | 69,50 |
| 10 | 18 | 38 | 150 | 10 | 9,6 | 1,5 | 4 | AVT1410EL | 65,20 | 79,00 | 92,70 |
| 12 | 18 | 38 | 150 | 12 | 11,6 | 1,5 | 4 | AVT1412L | 86,50 | 100,30 | 110,10 |
| 16 | 24 | 44 | 150 | 16 | 15 | 2 | 4 | AVT1416L | 138,40 | 154,10 | 169,00 |
| 18 | 24 | 44 | 150 | 18 | 17 | 2 | 4 | AVT1418L | 170,60 | 190,10 | 207,70 |
| 20 | 38 | 58 | 150 | 20 | 19 | 2 | 4 | AVT1420L | 213,10 | 240,10 | 262,90 |

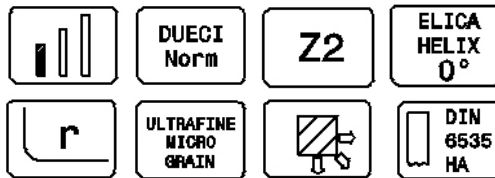
A richiesta rivestimento **DLC** per rame, ottone e graffite
DLC coating for copper, brass and graphite on request

Frese toriche Z2 elica diritta taglio al centro

Toroidal end mills 2 straight flutes center cutting



HSC



| D _{h10} | L1 | L | d _{h6} | R | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|-----|-----------------|-----|---|-----------------|------------|---------|------------|
| 2 | 6 | 60 | 2 | 0,5 | 2 | AVC1002D | 14,00 | 17,10 | 24,10 |
| 3 | 8 | 60 | 3 | 0,5 | 2 | AVC1003D | 17,20 | 20,30 | 27,30 |
| 4 | 10 | 60 | 4 | 0,5 | 2 | AVC1004D | 18,10 | 21,70 | 28,20 |
| 5 | 10 | 60 | 5 | 0,5 | 2 | AVC1005D | 19,60 | 24,50 | 31,80 |
| 6 | 10 | 60 | 6 | 1 | 2 | AVC1006D | 22,30 | 27,20 | 34,50 |
| 8 | 12 | 75 | 8 | 1 | 2 | AVC1008D | 31,50 | 37,40 | 45,60 |
| 10 | 18 | 75 | 10 | 1,5 | 2 | AVC1010D | 40,50 | 47,70 | 56,90 |
| 12 | 18 | 100 | 12 | 1,5 | 2 | AVC1012D | 62,90 | 71,90 | 82,20 |
| 16 | 24 | 100 | 16 | 2 | 2 | AVC1016D | 100,50 | 110,20 | 121,10 |
| 18 | 24 | 100 | 18 | 2 | 2 | AVC1018D | 125,00 | 136,50 | 148,70 |
| 20 | 38 | 104 | 20 | 2 | 2 | AVC1020D | 160,70 | 178,70 | 195,50 |

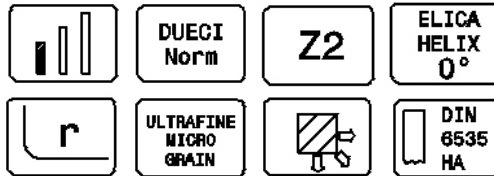
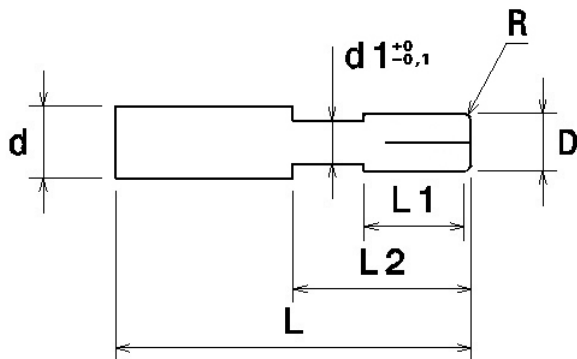


| D _{h10} | L1 | L | d _{h6} | R | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|-----|-----------------|-----|---|-------------------|------------|---------|------------|
| 2 | 6 | 100 | 2 | 0,5 | 2 | AVC1002LD | 15,80 | 19,80 | 27,60 |
| 3 | 8 | 100 | 3 | 0,5 | 2 | AVC1003LD | 19,70 | 23,70 | 31,50 |
| 4 | 10 | 100 | 4 | 0,5 | 2 | AVC1004LD | 21,20 | 25,90 | 33,00 |
| 4 | 10 | 150 | 4 | 0,5 | 2 | AVC1004ELD | 25,00 | 34,00 | 43,70 |
| 5 | 10 | 100 | 5 | 0,5 | 2 | AVC1005LD | 23,70 | 30,00 | 38,00 |
| 6 | 10 | 100 | 6 | 1 | 2 | AVC1006LD | 27,70 | 34,10 | 42,10 |
| 6 | 10 | 150 | 6 | 1 | 2 | AVC1006ELD | 34,50 | 45,70 | 56,70 |
| 8 | 12 | 100 | 8 | 1 | 2 | AVC1008LD | 36,70 | 44,20 | 53,60 |
| 8 | 12 | 150 | 8 | 1 | 2 | AVC1008ELD | 47,10 | 59,30 | 71,80 |
| 10 | 18 | 100 | 10 | 1,5 | 2 | AVC1010LD | 48,00 | 56,90 | 67,30 |
| 10 | 18 | 150 | 10 | 1,5 | 2 | AVC1010ELD | 62,90 | 76,80 | 90,50 |
| 12 | 18 | 150 | 12 | 1,5 | 2 | AVC1012LD | 84,20 | 98,10 | 107,80 |
| 16 | 24 | 150 | 16 | 2 | 2 | AVC1016LD | 136,10 | 151,80 | 166,80 |
| 18 | 24 | 150 | 18 | 2 | 2 | AVC1018LD | 168,30 | 187,80 | 205,40 |
| 20 | 38 | 150 | 20 | 2 | 2 | AVC1020LD | 210,90 | 237,80 | 260,70 |

A richiesta rivestimento **DLC** per rame, ottone e graffite
DLC coating for copper, brass and graphite on request

Frese toriche Z2 scaricate Elica diritta taglio al centro

Toroidal tapered end mills 2 straight flutes center cutting



HSC

| D _{h10} | L1 | L2 | L | d _{h6} | d1 | R | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|----|-----|-----------------|------|-----|---|-----------------|------------|---------|------------|
| 2 | 6 | 12 | 60 | 6 | 1,9 | 0,5 | 2 | AVT1002D | 26,10 | 31,10 | 38,30 |
| 3 | 8 | 14 | 60 | 6 | 2,9 | 0,5 | 2 | AVT1003D | 26,10 | 31,10 | 38,30 |
| 4 | 10 | 18 | 60 | 6 | 3,9 | 0,5 | 2 | AVT1004D | 26,10 | 31,10 | 38,30 |
| 5 | 10 | 20 | 60 | 6 | 4,9 | 0,5 | 2 | AVT1005D | 26,10 | 31,10 | 38,30 |
| 6 | 10 | 24 | 60 | 6 | 5,9 | 1 | 2 | AVT1006D | 23,90 | 28,80 | 36,00 |
| 8 | 12 | 30 | 75 | 8 | 7,8 | 1 | 2 | AVT1008D | 33,70 | 39,60 | 47,90 |
| 10 | 18 | 30 | 75 | 10 | 9,6 | 1,5 | 2 | AVT1010D | 42,70 | 50,00 | 59,10 |
| 12 | 18 | 38 | 100 | 12 | 11,6 | 1,5 | 2 | AVT1012D | 65,20 | 74,10 | 84,50 |
| 16 | 24 | 44 | 100 | 16 | 15 | 2 | 2 | AVT1016D | 102,80 | 112,40 | 123,30 |
| 18 | 24 | 44 | 100 | 18 | 17 | 2 | 2 | AVT1018D | 127,20 | 138,80 | 150,90 |
| 20 | 38 | 58 | 104 | 20 | 19 | 2 | 2 | AVT1020D | 162,90 | 180,90 | 197,70 |

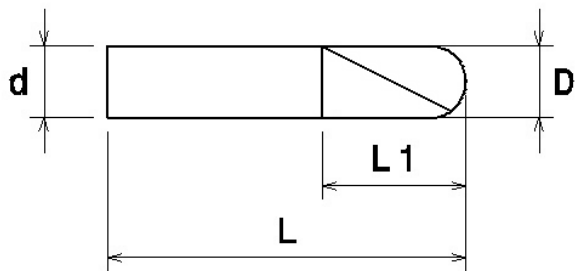


| D _{h10} | L1 | L2 | L | d _{h6} | d1 | R | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|----|-----|-----------------|------|-----|---|-------------------|------------|---------|------------|
| 2 | 6 | 26 | 100 | 6 | 1,9 | 0,5 | 2 | AVT1002LD | 31,50 | 37,90 | 45,90 |
| 3 | 8 | 28 | 100 | 6 | 2,9 | 0,5 | 2 | AVT1003LD | 31,50 | 37,90 | 45,90 |
| 4 | 10 | 30 | 100 | 6 | 3,9 | 0,5 | 2 | AVT1004LD | 31,50 | 37,90 | 45,90 |
| 4 | 10 | 30 | 150 | 6 | 3,9 | 0,5 | 2 | AVT1004ELD | 38,30 | 49,50 | 60,50 |
| 5 | 10 | 30 | 100 | 6 | 4,9 | 0,5 | 2 | AVT1005LD | 31,50 | 37,90 | 45,90 |
| 6 | 10 | 30 | 100 | 6 | 5,9 | 1 | 2 | AVT1006LD | 29,30 | 35,60 | 43,70 |
| 6 | 10 | 30 | 150 | 6 | 5,9 | 1 | 2 | AVT1006ELD | 36,00 | 47,30 | 58,20 |
| 8 | 12 | 32 | 100 | 8 | 7,8 | 1 | 2 | AVT1008LD | 38,90 | 46,40 | 55,80 |
| 8 | 12 | 32 | 150 | 8 | 7,8 | 1 | 2 | AVT1008ELD | 49,40 | 61,50 | 74,10 |
| 10 | 18 | 38 | 100 | 10 | 9,6 | 1,5 | 2 | AVT1010LD | 50,20 | 59,20 | 69,50 |
| 10 | 18 | 38 | 150 | 10 | 9,6 | 1,5 | 2 | AVT1010ELD | 65,20 | 79,00 | 92,70 |
| 12 | 18 | 38 | 150 | 12 | 11,6 | 1,5 | 2 | AVT1012LD | 86,50 | 100,30 | 110,10 |
| 16 | 24 | 44 | 150 | 16 | 15 | 2 | 2 | AVT1016LD | 138,40 | 154,10 | 169,00 |
| 18 | 24 | 44 | 150 | 18 | 17 | 2 | 2 | AVT1018LD | 170,60 | 190,10 | 207,70 |
| 20 | 38 | 58 | 150 | 20 | 19 | 2 | 2 | AVT1020LD | 213,10 | 240,10 | 262,90 |

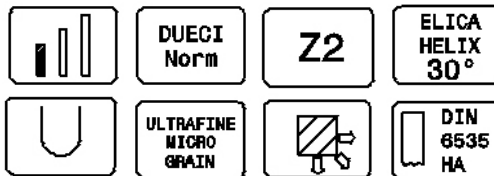
A richiesta rivestimento **DLC** per rame, ottone e graffite
DLC coating for copper, brass and graphite on request

Frese raggiate Z2 elicoidali taglio al centro

Ball nose end mills 2 flutes center cutting



HSC



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|-----|-----------------|---|-----------------|------------|---------|------------|
| 2 | 6 | 60 | 2 | 2 | AVC1002R | 14,00 | 17,10 | 24,10 |
| 3 | 8 | 60 | 3 | 2 | AVC1003R | 17,20 | 20,30 | 27,30 |
| 4 | 10 | 60 | 4 | 2 | AVC1004R | 18,10 | 21,70 | 28,20 |
| 5 | 10 | 60 | 5 | 2 | AVC1005R | 19,60 | 24,50 | 31,80 |
| 6 | 10 | 60 | 6 | 2 | AVC1006R | 22,30 | 27,20 | 34,50 |
| 8 | 12 | 75 | 8 | 2 | AVC1008R | 31,50 | 37,40 | 45,60 |
| 10 | 18 | 75 | 10 | 2 | AVC1010R | 40,50 | 47,70 | 56,90 |
| 12 | 18 | 100 | 12 | 2 | AVC1012R | 62,90 | 71,90 | 82,20 |
| 16 | 24 | 100 | 16 | 2 | AVC1016R | 100,50 | 110,20 | 121,10 |
| 18 | 24 | 100 | 18 | 2 | AVC1018R | 125,00 | 136,50 | 148,70 |
| 20 | 38 | 104 | 20 | 2 | AVC1020R | 160,70 | 178,70 | 195,50 |

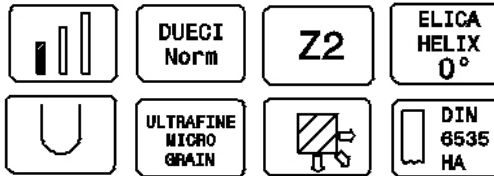
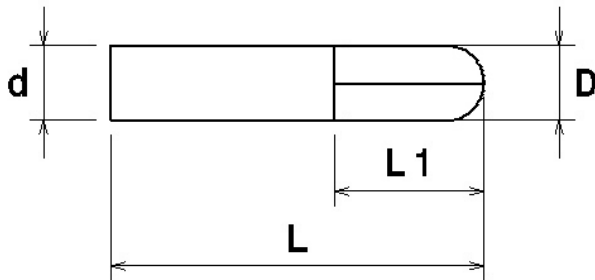


| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|-----|-----------------|---|-------------------|------------|---------|------------|
| 2 | 6 | 100 | 2 | 2 | AVC1002LR | 15,80 | 19,80 | 27,60 |
| 3 | 8 | 100 | 3 | 2 | AVC1003LR | 19,70 | 23,70 | 31,50 |
| 4 | 10 | 100 | 4 | 2 | AVC1004LR | 21,20 | 25,90 | 33,00 |
| 4 | 10 | 150 | 4 | 2 | AVC1004ELR | 25,00 | 34,00 | 43,70 |
| 5 | 10 | 100 | 5 | 2 | AVC1005LR | 23,70 | 30,00 | 38,00 |
| 6 | 10 | 100 | 6 | 2 | AVC1006LR | 27,70 | 34,10 | 42,10 |
| 6 | 10 | 150 | 6 | 2 | AVC1006ELR | 34,50 | 45,70 | 56,70 |
| 8 | 12 | 100 | 8 | 2 | AVC1008LR | 36,70 | 44,20 | 53,60 |
| 8 | 12 | 150 | 8 | 2 | AVC1008ELR | 47,10 | 59,30 | 71,80 |
| 10 | 18 | 100 | 10 | 2 | AVC1010LR | 48,00 | 56,90 | 67,30 |
| 10 | 18 | 150 | 10 | 2 | AVC1010ELR | 62,90 | 76,80 | 90,50 |
| 12 | 18 | 150 | 12 | 2 | AVC1012LR | 84,20 | 98,10 | 107,80 |
| 16 | 24 | 150 | 16 | 2 | AVC1016LR | 136,10 | 151,80 | 166,80 |
| 18 | 24 | 150 | 18 | 2 | AVC1018LR | 168,30 | 187,80 | 205,40 |
| 20 | 38 | 150 | 20 | 2 | AVC1020LR | 210,90 | 237,80 | 260,70 |

A richiesta rivestimento **DLC** per rame, ottone e grafite
DLC coating for copper, brass and graphite on request

Frese raggiate Z2 elica diritta taglio al centro

Ball nose end mills 2 straight flutes center cutting



HSC

| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|-----|-----------------|---|-----------|------------|---------|------------|
| 2 | 6 | 60 | 2 | 2 | AVC1002DR | 14,00 | 17,10 | 24,10 |
| 3 | 8 | 60 | 3 | 2 | AVC1003DR | 17,20 | 20,30 | 27,30 |
| 4 | 10 | 60 | 4 | 2 | AVC1004DR | 18,10 | 21,70 | 28,20 |
| 5 | 10 | 60 | 5 | 2 | AVC1005DR | 19,60 | 24,50 | 31,80 |
| 6 | 10 | 60 | 6 | 2 | AVC1006DR | 22,30 | 27,20 | 34,50 |
| 8 | 12 | 75 | 8 | 2 | AVC1008DR | 31,50 | 37,40 | 45,60 |
| 10 | 18 | 75 | 10 | 2 | AVC1010DR | 40,50 | 47,70 | 56,90 |
| 12 | 18 | 100 | 12 | 2 | AVC1012DR | 62,90 | 71,90 | 82,20 |
| 16 | 24 | 100 | 16 | 2 | AVC1016DR | 100,50 | 110,20 | 121,10 |
| 18 | 24 | 100 | 18 | 2 | AVC1018DR | 125,00 | 136,50 | 148,70 |
| 20 | 38 | 104 | 20 | 2 | AVC1020DR | 160,70 | 178,70 | 195,50 |

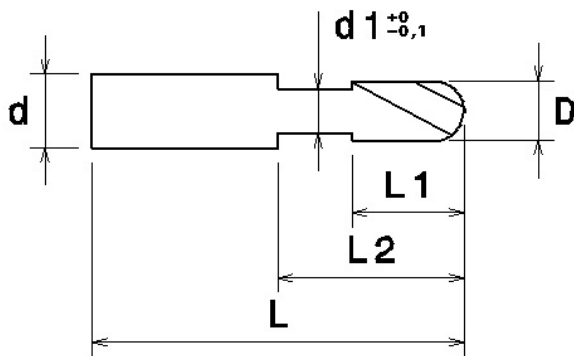


| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|-----|-----------------|---|-------------|------------|---------|------------|
| 2 | 6 | 100 | 2 | 2 | AVC1002LDR | 15,80 | 19,80 | 27,60 |
| 3 | 8 | 100 | 3 | 2 | AVC1003LDR | 19,70 | 23,70 | 31,50 |
| 4 | 10 | 100 | 4 | 2 | AVC1004LDR | 21,20 | 25,90 | 33,00 |
| 4 | 10 | 150 | 4 | 2 | AVC1004ELDR | 25,00 | 34,00 | 43,70 |
| 5 | 10 | 100 | 5 | 2 | AVC1005LDR | 23,70 | 30,00 | 38,00 |
| 6 | 10 | 100 | 6 | 2 | AVC1006LDR | 27,70 | 34,10 | 42,10 |
| 6 | 10 | 150 | 6 | 2 | AVC1006ELDR | 34,50 | 45,70 | 56,70 |
| 8 | 12 | 100 | 8 | 2 | AVC1008LDR | 36,70 | 44,20 | 53,60 |
| 8 | 12 | 150 | 8 | 2 | AVC1008ELDR | 47,10 | 59,30 | 71,80 |
| 10 | 18 | 100 | 10 | 2 | AVC1010LDR | 48,00 | 56,90 | 67,30 |
| 10 | 18 | 150 | 10 | 2 | AVC1010ELDR | 62,90 | 76,80 | 90,50 |
| 12 | 18 | 150 | 12 | 2 | AVC1012LDR | 84,20 | 98,10 | 107,80 |
| 16 | 24 | 150 | 16 | 2 | AVC1016LDR | 136,10 | 151,80 | 166,80 |
| 18 | 24 | 150 | 18 | 2 | AVC1018LDR | 168,30 | 187,80 | 205,40 |
| 20 | 38 | 150 | 20 | 2 | AVC1020LDR | 210,90 | 237,80 | 260,70 |

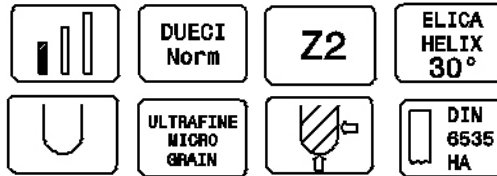
A richiesta rivestimento **DLC** per rame, ottone e graffite
DLC coating for copper, brass and graphite on request

Frese sferiche Z2 scaricate taglio al centro

Nosed tapered end mills 2 flutes center cutting



HSC



| D _{h10} | L1 | L2 | L | d _{h6} | d1 | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|----|-----|-----------------|------|---|----------------|------------|---------|------------|
| 2 | 6 | 12 | 60 | 6 | 1,9 | 2 | AVR1102 | 26,10 | 31,10 | 38,30 |
| 3 | 8 | 14 | 60 | 6 | 2,9 | 2 | AVR1103 | 26,10 | 31,10 | 38,30 |
| 4 | 10 | 18 | 60 | 6 | 3,9 | 2 | AVR1104 | 26,10 | 31,10 | 38,30 |
| 5 | 10 | 20 | 60 | 6 | 4,9 | 2 | AVR1105 | 26,10 | 31,10 | 38,30 |
| 6 | 10 | 24 | 60 | 6 | 5,9 | 2 | AVR1106 | 23,90 | 28,80 | 36,00 |
| 8 | 12 | 30 | 75 | 8 | 7,8 | 2 | AVR1108 | 33,70 | 39,60 | 47,90 |
| 10 | 18 | 30 | 75 | 10 | 9,6 | 2 | AVR1110 | 42,70 | 50,00 | 59,10 |
| 12 | 18 | 38 | 100 | 12 | 11,6 | 2 | AVR1112 | 65,20 | 74,10 | 84,50 |
| 16 | 24 | 44 | 100 | 16 | 15 | 2 | AVR1116 | 102,80 | 112,40 | 123,30 |
| 18 | 24 | 44 | 100 | 18 | 17 | 2 | AVR1118 | 127,20 | 138,80 | 150,90 |
| 20 | 38 | 58 | 104 | 20 | 19 | 2 | AVR1120 | 162,90 | 180,90 | 197,70 |

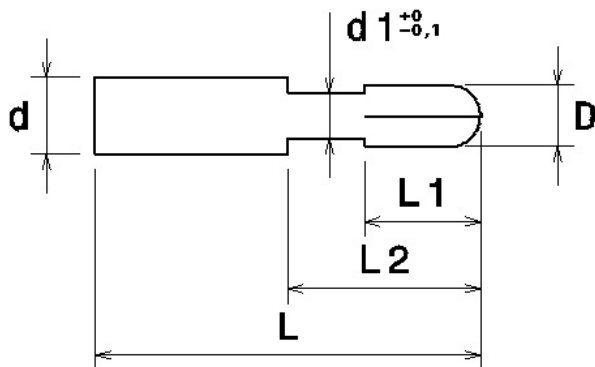


| D _{h10} | L1 | L2 | L | d _{h6} | d1 | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|----|-----|-----------------|------|---|------------------|------------|---------|------------|
| 2 | 6 | 26 | 100 | 6 | 1,9 | 2 | AVR1102L | 31,50 | 37,90 | 45,90 |
| 3 | 8 | 28 | 100 | 6 | 2,9 | 2 | AVR1103L | 31,50 | 37,90 | 45,90 |
| 4 | 10 | 30 | 100 | 6 | 3,9 | 2 | AVR1104L | 31,50 | 37,90 | 45,90 |
| 4 | 10 | 30 | 150 | 6 | 3,9 | 2 | AVR1104EL | 38,30 | 49,50 | 60,50 |
| 5 | 10 | 30 | 100 | 6 | 4,9 | 2 | AVR1105L | 31,50 | 37,90 | 45,90 |
| 6 | 10 | 30 | 100 | 6 | 5,9 | 2 | AVR1106L | 29,30 | 35,60 | 43,70 |
| 6 | 10 | 30 | 150 | 6 | 5,9 | 2 | AVR1106EL | 36,00 | 47,30 | 58,20 |
| 8 | 12 | 32 | 100 | 8 | 7,8 | 2 | AVR1108L | 38,90 | 46,40 | 55,80 |
| 8 | 12 | 32 | 150 | 8 | 7,8 | 2 | AVR1108EL | 49,40 | 61,50 | 74,10 |
| 10 | 18 | 38 | 100 | 10 | 9,6 | 2 | AVR1110L | 50,20 | 59,20 | 69,50 |
| 10 | 18 | 38 | 150 | 10 | 9,6 | 2 | AVR1110EL | 65,20 | 79,00 | 92,70 |
| 12 | 18 | 38 | 150 | 12 | 11,6 | 2 | AVR1112L | 86,50 | 100,30 | 110,10 |
| 16 | 24 | 44 | 150 | 16 | 15 | 2 | AVR1116L | 138,40 | 154,10 | 169,00 |
| 18 | 24 | 44 | 150 | 18 | 17 | 2 | AVR1118L | 170,60 | 190,10 | 207,70 |
| 20 | 38 | 58 | 150 | 20 | 19 | 2 | AVR1120L | 213,10 | 240,10 | 262,90 |

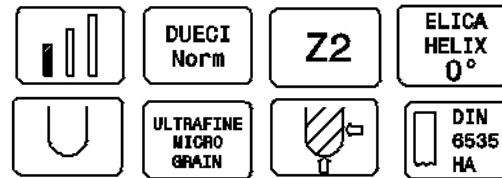
A richiesta rivestimento **DLC** per rame, ottone e graffite
DLC coating for copper, brass and graphite on request

Frese sferiche Z2 scaricate elica diritta taglio al centro

Nosed tapered end mills 2 straight flutes center cutting



HSC



| D _{h10} | L1 | L2 | L | d _{h6} | d1 | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|----|-----|-----------------|------|---|-----------------|------------|---------|------------|
| 2 | 6 | 12 | 60 | 6 | 1,9 | 2 | AVR1102D | 26,10 | 31,10 | 38,30 |
| 3 | 8 | 14 | 60 | 6 | 2,9 | 2 | AVR1103D | 26,10 | 31,10 | 38,30 |
| 4 | 10 | 18 | 60 | 6 | 3,9 | 2 | AVR1104D | 26,10 | 31,10 | 38,30 |
| 5 | 10 | 20 | 60 | 6 | 4,9 | 2 | AVR1105D | 26,10 | 31,10 | 38,30 |
| 6 | 10 | 24 | 60 | 6 | 5,9 | 2 | AVR1106D | 23,90 | 28,80 | 36,00 |
| 8 | 12 | 30 | 75 | 8 | 7,8 | 2 | AVR1108D | 33,70 | 39,60 | 47,90 |
| 10 | 18 | 30 | 75 | 10 | 9,6 | 2 | AVR1110D | 42,70 | 50,00 | 59,10 |
| 12 | 18 | 38 | 100 | 12 | 11,6 | 2 | AVR1112D | 65,20 | 74,10 | 84,50 |
| 16 | 24 | 44 | 100 | 16 | 15 | 2 | AVR1116D | 102,80 | 112,40 | 123,30 |
| 18 | 24 | 44 | 100 | 18 | 17 | 2 | AVR1118D | 127,20 | 138,80 | 150,90 |
| 20 | 38 | 58 | 104 | 20 | 19 | 2 | AVR1120D | 162,90 | 180,90 | 197,70 |

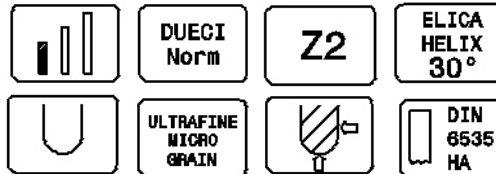
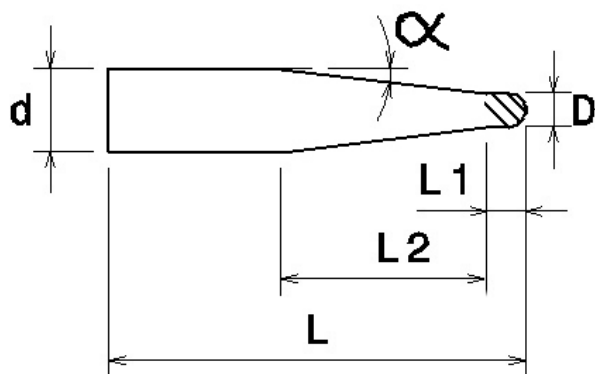


| D _{h10} | L1 | L2 | L | d _{h6} | d1 | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|----|-----|-----------------|------|---|-------------------|------------|---------|------------|
| 2 | 6 | 26 | 100 | 6 | 1,9 | 2 | AVR1102LD | 31,50 | 37,90 | 45,90 |
| 3 | 8 | 28 | 100 | 6 | 2,9 | 2 | AVR1103LD | 31,50 | 37,90 | 45,90 |
| 4 | 10 | 30 | 100 | 6 | 3,9 | 2 | AVR1104LD | 31,50 | 37,90 | 45,90 |
| 4 | 10 | 30 | 150 | 6 | 3,9 | 2 | AVR1104ELD | 38,30 | 49,50 | 60,50 |
| 5 | 10 | 30 | 100 | 6 | 4,9 | 2 | AVR1105LD | 31,50 | 37,90 | 45,90 |
| 6 | 10 | 30 | 100 | 6 | 5,9 | 2 | AVR1106LD | 29,30 | 35,60 | 43,70 |
| 6 | 10 | 30 | 150 | 6 | 5,9 | 2 | AVR1106ELD | 36,00 | 47,30 | 58,20 |
| 8 | 12 | 32 | 100 | 8 | 7,8 | 2 | AVR1108LD | 38,90 | 46,40 | 55,80 |
| 8 | 12 | 32 | 150 | 8 | 7,8 | 2 | AVR1108ELD | 49,40 | 61,50 | 74,10 |
| 10 | 18 | 38 | 100 | 10 | 9,6 | 2 | AVR1110LD | 50,20 | 59,20 | 69,50 |
| 10 | 18 | 38 | 150 | 10 | 9,6 | 2 | AVR1110ELD | 65,20 | 79,00 | 92,70 |
| 12 | 18 | 38 | 150 | 12 | 11,6 | 2 | AVR1112LD | 86,50 | 100,30 | 110,10 |
| 16 | 24 | 44 | 150 | 16 | 15 | 2 | AVR1116LD | 138,40 | 154,10 | 169,00 |
| 18 | 24 | 44 | 150 | 18 | 17 | 2 | AVR1118LD | 170,60 | 190,10 | 207,70 |
| 20 | 38 | 58 | 150 | 20 | 19 | 2 | AVR1120LD | 213,10 | 240,10 | 262,90 |

A richiesta rivestimento **DLC** per rame, ottone e graffite
DLC coating for copper, brass and graphite on request

Frese Z2 sferiche raccordo conico taglio al centro

Nosed tapered end mills 2 flutes center cutting



HSC

| D _{h10} | L1 | L2 | L | d _{h6} | α | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|----|-----|-----------------|----|---|----------|------------|---------|------------|
| 2 | 4 | 30 | 75 | 6 | 4° | 2 | AVRC1102 | 28,40 | 33,30 | 40,50 |
| 3 | 4 | 30 | 75 | 6 | 3° | 2 | AVRC1103 | 28,40 | 33,30 | 40,50 |
| 4 | 5 | 30 | 75 | 6 | 2° | 2 | AVRC1104 | 26,10 | 31,10 | 38,30 |
| 5 | 6 | 30 | 75 | 6 | 1° | 2 | AVRC1105 | 26,10 | 31,10 | 38,30 |
| 6 | 8 | 28 | 75 | 10 | 4° | 2 | AVRC1106 | 38,30 | 45,50 | 54,60 |
| 8 | 12 | 38 | 100 | 10 | 2° | 2 | AVRC1108 | 49,50 | 58,40 | 68,80 |
| 10 | 15 | 35 | 100 | 12 | 2° | 2 | AVRC1110 | 76,50 | 85,40 | 95,80 |
| 12 | 15 | 35 | 100 | 16 | 3° | 2 | AVRC1112 | 111,80 | 121,40 | 132,30 |

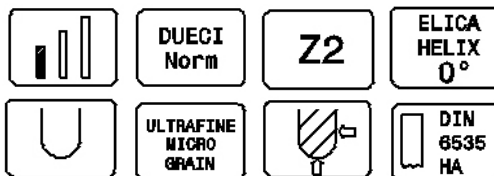
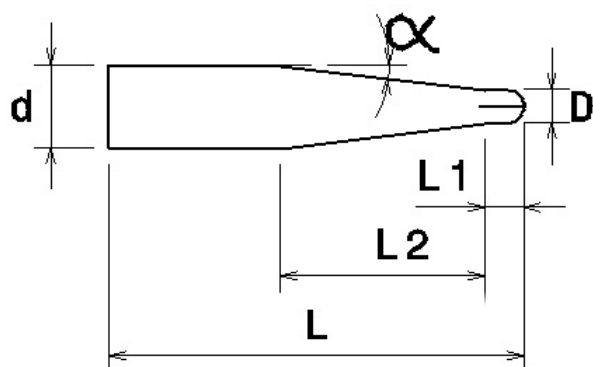


| D _{h10} | L1 | L2 | L | d _{h6} | α | Z | Cod. | € uncoated | € TiAlN | € Advanced |
|------------------|----|----|-----|-----------------|------|---|-----------|------------|---------|------------|
| 2 | 4 | 45 | 100 | 6 | 2,5° | 2 | AVRC1102L | 33,80 | 40,10 | 46,00 |
| 3 | 4 | 45 | 100 | 6 | 3° | 2 | AVRC1103L | 33,80 | 40,10 | 46,00 |
| 4 | 5 | 45 | 100 | 6 | 1,5° | 2 | AVRC1104L | 30,00 | 36,30 | 42,20 |
| 5 | 6 | 45 | 100 | 6 | 0,7° | 2 | AVRC1105L | 30,00 | 36,30 | 42,20 |
| 6 | 8 | 45 | 100 | 10 | 3° | 2 | AVRC1106L | 52,50 | 61,40 | 68,90 |
| 8 | 12 | 65 | 150 | 10 | 2° | 2 | AVRC1108L | 72,00 | 85,80 | 91,20 |
| 10 | 15 | 65 | 150 | 12 | 1° | 2 | AVRC1110L | 97,80 | 111,60 | 117,00 |
| 12 | 15 | 65 | 150 | 16 | 2° | 2 | AVRC1112L | 147,40 | 163,00 | 167,90 |

A richiesta rivestimento **DLC** per rame, ottone e grafite
DLC coating for copper, brass and graphite on request

Frese Z2 sferiche raccordo conico taglio al centro elica diritta

Nosed tapered end mills 2 straight flutes center cutting



HSC

| D h10 | L1 | L2 | L | d h6 | α | Z | Cod. | € uncoated | € Tialn | € Advanced |
|----------|----|----|-----|---------|----------|---|------------------|---------------|------------|---------------|
| 2 | 4 | 30 | 75 | 6 | 4° | 2 | AVRC1102D | 28,40 | 33,30 | 40,50 |
| 3 | 4 | 30 | 75 | 6 | 3° | 2 | AVRC1103D | 28,40 | 33,30 | 40,50 |
| 4 | 5 | 30 | 75 | 6 | 2° | 2 | AVRC1104D | 26,10 | 31,10 | 38,30 |
| 5 | 6 | 30 | 75 | 6 | 1° | 2 | AVRC1105D | 26,10 | 31,10 | 38,30 |
| 6 | 8 | 28 | 75 | 10 | 4° | 2 | AVRC1106D | 38,30 | 45,50 | 54,60 |
| 8 | 12 | 38 | 100 | 10 | 2° | 2 | AVRC1108D | 49,50 | 58,40 | 68,80 |
| 10 | 15 | 35 | 100 | 12 | 2° | 2 | AVRC1110D | 76,50 | 85,40 | 95,80 |
| 12 | 15 | 35 | 100 | 16 | 3° | 2 | AVRC1112D | 111,80 | 121,40 | 132,30 |

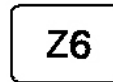
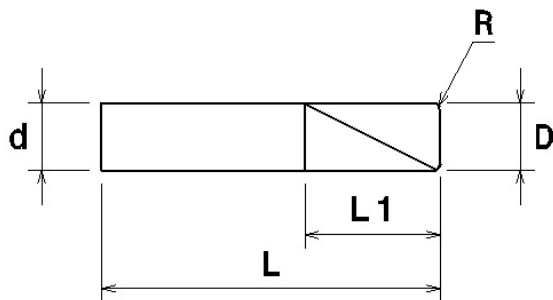


| D h10 | L1 | L2 | L | d h6 | α | Z | Cod. | € uncoated | € Tialn | € Advanced |
|----------|----|----|-----|---------|----------|---|-------------------|---------------|------------|---------------|
| 2 | 4 | 45 | 100 | 6 | 2,5° | 2 | AVRC1102LD | 33,80 | 40,10 | 46,00 |
| 3 | 4 | 45 | 100 | 6 | 3° | 2 | AVRC1103LD | 33,80 | 40,10 | 46,00 |
| 4 | 5 | 45 | 100 | 6 | 1,5° | 2 | AVRC1104LD | 30,00 | 36,30 | 42,20 |
| 5 | 6 | 45 | 100 | 6 | 0,7° | 2 | AVRC1105LD | 30,00 | 36,30 | 42,20 |
| 6 | 8 | 45 | 100 | 10 | 3° | 2 | AVRC1106LD | 52,50 | 61,40 | 68,90 |
| 8 | 12 | 65 | 150 | 10 | 2° | 2 | AVRC1108LD | 72,00 | 85,80 | 91,20 |
| 10 | 15 | 65 | 150 | 12 | 1° | 2 | AVRC1110LD | 97,80 | 111,60 | 117,00 |
| 12 | 15 | 65 | 150 | 16 | 2° | 2 | AVRC1112LD | 147,40 | 163,00 | 167,90 |

A richiesta rivestimento **DLC** per rame, ottone e grafite
DLC coating for copper, brass and graphite on request

Frese toriche multitagliante

Toroidal multi flutes end mills



HSC

| D h10 | L1 | L | d h6 | Z | R | Cod. | € uncoated | € Tialn | € TopTialn |
|----------|----|-----|---------|---|-----|---------------|---------------|------------|---------------|
| 6 | 20 | 60 | 6 | 6 | 1 | AVTM06 | 35,60 | 40,20 | 46,90 |
| 8 | 25 | 80 | 8 | 6 | 1 | AVTM08 | 45,60 | 52,60 | 61,40 |
| 10 | 30 | 80 | 10 | 6 | 1,5 | AVTM10 | 58,40 | 66,70 | 76,40 |
| 12 | 35 | 100 | 12 | 6 | 1,5 | AVTM12 | 79,80 | 88,20 | 97,90 |
| 16 | 40 | 100 | 16 | 6 | 2 | AVTM16 | 114,50 | 123,50 | 133,70 |
| 18 | 40 | 100 | 18 | 6 | 2 | AVTM18 | 136,90 | 147,70 | 159,00 |
| 20 | 40 | 104 | 20 | 6 | 2 | AVTM20 | 165,90 | 182,70 | 198,30 |



| D h10 | L1 | L | d h6 | Z | R | Cod. | € uncoated | € Tialn | € TopTialn |
|----------|----|-----|---------|---|-----|----------------|---------------|------------|---------------|
| 6 | 24 | 100 | 6 | 6 | 1 | AVTM06L | 42,60 | 48,60 | 56,00 |
| 8 | 32 | 100 | 8 | 6 | 1 | AVTM08L | 53,50 | 60,50 | 69,30 |
| 10 | 32 | 100 | 10 | 6 | 1,5 | AVTM10L | 66,00 | 74,30 | 84,00 |
| 12 | 50 | 150 | 12 | 6 | 1,5 | AVTM12L | 103,70 | 116,60 | 129,40 |
| 16 | 60 | 150 | 16 | 6 | 2 | AVTM16L | 155,70 | 170,30 | 184,30 |
| 18 | 60 | 150 | 18 | 6 | 2 | AVTM18L | 185,40 | 203,60 | 220,00 |
| 20 | 60 | 150 | 20 | 6 | 2 | AVTM20L | 222,70 | 247,90 | 269,20 |

Frese doppia gola - passo variabile

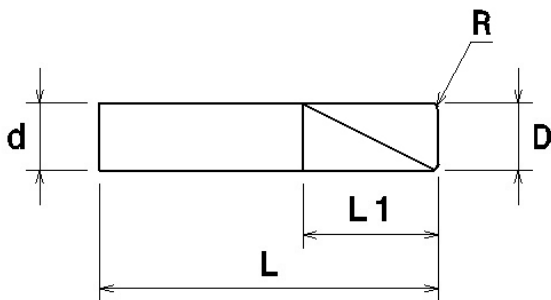
End mills tapered deep flute section - unequal helix



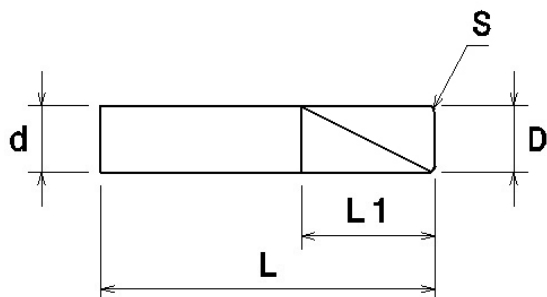
Fresa elicoidali Z4 doppia gola taglio al centro

End mills 4 flutes center cutting special tapered deep flute section

HSC



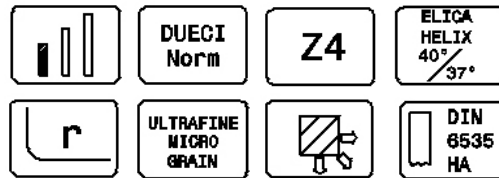
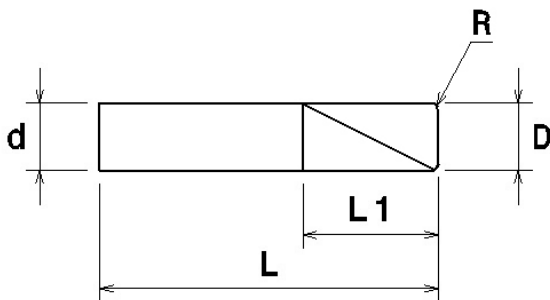
| D _{h10} | L1 | L | d _{h6} | R | Z | Cod. | € uncoated | € Tialn | € Advanced |
|------------------|----|-----|-----------------|-----|---|----------|------------|---------|------------|
| 4 | 11 | 57 | 6 | 0,5 | 4 | NOVA004R | 27,50 | 32,40 | 39,70 |
| 6 | 13 | 57 | 6 | 0,5 | 4 | NOVA006R | 27,50 | 32,40 | 39,70 |
| 8 | 19 | 63 | 8 | 0,5 | 4 | NOVA008R | 36,20 | 42,10 | 50,40 |
| 10 | 22 | 72 | 10 | 1 | 4 | NOVA010R | 50,10 | 57,30 | 66,50 |
| 12 | 26 | 83 | 12 | 1 | 4 | NOVA012R | 67,20 | 76,10 | 86,50 |
| 14 | 26 | 83 | 14 | 1 | 4 | NOVA014R | 81,30 | 91,00 | 101,90 |
| 16 | 32 | 92 | 16 | 1 | 4 | NOVA016R | 105,10 | 114,70 | 125,60 |
| 18 | 32 | 92 | 18 | 1 | 4 | NOVA018R | 128,30 | 139,90 | 152,00 |
| 20 | 38 | 104 | 20 | 1 | 4 | NOVA020R | 164,20 | 182,20 | 199,00 |



| D _{h10} | L1 | L | d _{h6} | S _{0,1-0,2 x 45°} | Z | Cod. | € uncoated | € Tialn | € Advanced |
|------------------|----|-----|-----------------|----------------------------|---|----------|------------|---------|------------|
| 4 | 11 | 57 | 6 | 0,1-0,2 x 45° | 4 | NOVA004S | 25,50 | 30,40 | 37,70 |
| 6 | 13 | 57 | 6 | 0,1-0,2 x 45° | 4 | NOVA006S | 25,50 | 30,40 | 37,70 |
| 8 | 19 | 63 | 8 | 0,1-0,2 x 45° | 4 | NOVA008S | 33,20 | 39,10 | 47,40 |
| 10 | 22 | 72 | 10 | 0,1-0,2 x 45° | 4 | NOVA010S | 46,10 | 53,30 | 62,50 |
| 12 | 26 | 83 | 12 | 0,1-0,2 x 45° | 4 | NOVA012S | 62,20 | 71,10 | 81,50 |
| 14 | 26 | 83 | 14 | 0,1-0,2 x 45° | 4 | NOVA014S | 76,30 | 86,00 | 96,90 |
| 16 | 32 | 92 | 16 | 0,1-0,2 x 45° | 4 | NOVA016S | 99,10 | 108,70 | 119,60 |
| 18 | 32 | 92 | 18 | 0,1-0,2 x 45° | 4 | NOVA018S | 122,30 | 133,90 | 146,00 |
| 20 | 38 | 104 | 20 | 0,1-0,2 x 45° | 4 | NOVA020S | 158,20 | 176,20 | 193,00 |

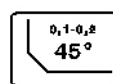
Fresa toriche Z4 elica passo variabile taglio al centro

End mills 4 flutes unequal helix center cutting



HSC

| D h10 | L1 | L | d h6 | R | Z | Cod. | € uncoated | € TopTialn | € Advanced |
|----------|----|-----|---------|-----|---|------------------|---------------|---------------|---------------|
| 3 | 7 | 57 | 6 | 0,5 | 4 | SIL0305RT | 29,00 | 33,90 | 41,50 |
| 4 | 8 | 57 | 6 | 0,5 | 4 | SIL0405RT | 29,00 | 33,90 | 41,50 |
| 6 | 13 | 57 | 6 | 1 | 4 | SIL061RT | 29,00 | 33,90 | 41,50 |
| 8 | 19 | 63 | 8 | 1,5 | 4 | SIL0815RT | 40,20 | 46,10 | 54,40 |
| 8 | 19 | 63 | 8 | 2 | 4 | SIL082RT | 40,20 | 46,10 | 54,40 |
| 10 | 22 | 72 | 10 | 1,5 | 4 | SIL1015RT | 53,10 | 60,30 | 69,50 |
| 10 | 22 | 72 | 10 | 2 | 4 | SIL102RT | 53,10 | 60,30 | 69,50 |
| 12 | 26 | 83 | 12 | 1,5 | 4 | SIL1215RT | 69,20 | 78,10 | 88,50 |
| 12 | 26 | 83 | 12 | 2 | 4 | SIL122RT | 69,20 | 78,10 | 88,50 |
| 14 | 26 | 83 | 14 | 2 | 4 | SIL142RT | 85,60 | 95,30 | 106,10 |
| 16 | 26 | 92 | 16 | 2 | 4 | SIL162RT | 110,60 | 120,20 | 131,10 |
| 18 | 26 | 92 | 18 | 2 | 4 | SIL182RT | 130,00 | 141,60 | 153,70 |
| 20 | 32 | 104 | 20 | 2 | 4 | SIL202RT | 162,90 | 181,30 | 197,70 |

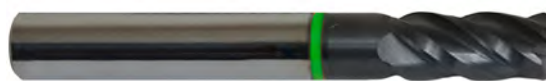
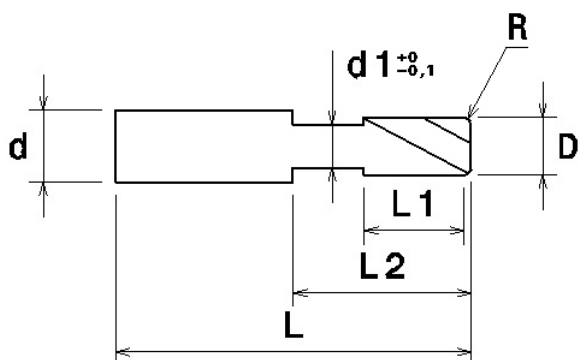


| D h10 | L1 | L | d h6 | ^S 0,1 - 0,2 x 45° | Z | Cod. | € uncoated | € TopTialn | € Advanced |
|----------|----|-----|---------|------------------------------------|---|-----------------|---------------|---------------|---------------|
| 3 | 7 | 57 | 6 | 0,1 - 0,2 x 45° | 4 | SIL0003T | 26,00 | 30,00 | 37,00 |
| 4 | 8 | 57 | 6 | 0,1 - 0,2 x 45° | 4 | SIL0004T | 26,00 | 30,00 | 37,00 |
| 6 | 13 | 57 | 6 | 0,1 - 0,2 x 45° | 4 | SIL0006T | 26,00 | 30,00 | 37,00 |
| 8 | 19 | 63 | 8 | 0,1 - 0,2 x 45° | 4 | SIL0008T | 35,70 | 41,60 | 49,90 |
| 10 | 22 | 72 | 10 | 0,1 - 0,2 x 45° | 4 | SIL0010T | 48,60 | 55,80 | 65,00 |
| 12 | 26 | 83 | 12 | 0,1 - 0,2 x 45° | 4 | SIL0012T | 65,30 | 74,30 | 84,60 |
| 14 | 26 | 83 | 14 | 0,1 - 0,2 x 45° | 4 | SIL0014T | 81,10 | 90,80 | 101,60 |
| 16 | 26 | 92 | 16 | 0,1 - 0,2 x 45° | 4 | SIL0016T | 103,80 | 113,50 | 124,40 |
| 18 | 26 | 92 | 18 | 0,1 - 0,2 x 45° | 4 | SIL0018T | 122,50 | 134,10 | 146,20 |
| 20 | 32 | 104 | 20 | 0,1 - 0,2 x 45° | 4 | SIL0020T | 158,40 | 176,80 | 193,20 |

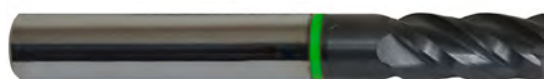
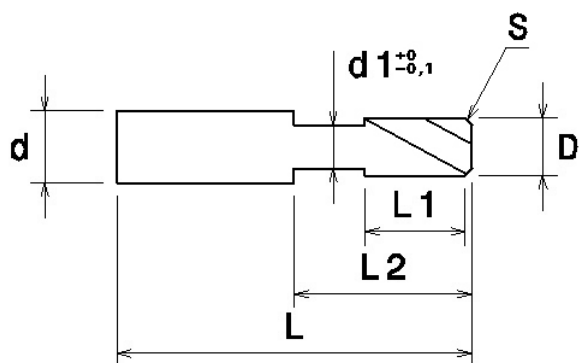
Fresa Z4 elica passo variabile taglio al centro, lavorazione duplex e acciai

End mills 4 flutes unequal helix center cutting, duplex and steel alloys application

HSC



| D h10 | L1 | L2 | L | d h6 | d1 | R | Z | Cod. | € uncoated | € TopTialn | € Advanced |
|----------|----|----|-----|---------|------|-----|---|----------------|---------------|---------------|---------------|
| 6 | 13 | 25 | 57 | 6 | 5,8 | 0,5 | 4 | DV06R05 | 34,00 | 40,00 | 46,20 |
| 8 | 19 | 31 | 63 | 8 | 7,8 | 0,5 | 4 | DV08R05 | 45,00 | 55,00 | 59,20 |
| 10 | 22 | 34 | 72 | 10 | 9,8 | 1 | 4 | DV10R1 | 62,00 | 72,00 | 78,40 |
| 12 | 26 | 38 | 83 | 12 | 11,8 | 1 | 4 | DV12R1 | 80,00 | 90,00 | 99,30 |
| 14 | 26 | 38 | 83 | 14 | 13,8 | 1 | 4 | DV14R1 | 91,00 | 102,00 | 111,50 |
| 16 | 26 | 38 | 92 | 16 | 15,8 | 1 | 4 | DV16R1 | 110,00 | 126,00 | 130,60 |
| 18 | 26 | 38 | 92 | 18 | 17,8 | 1 | 4 | DV18R1 | 130,00 | 146,00 | 153,30 |
| 20 | 32 | 44 | 104 | 20 | 19,8 | 1 | 4 | DV20R1 | 166,00 | 184,00 | 200,00 |

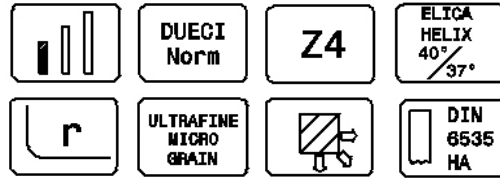
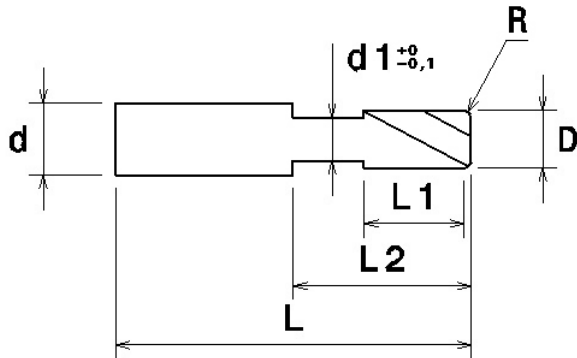


| D h10 | L1 | L2 | L | d h6 | d1 | S 0,1-0,2 x 45° | Z | Cod. | € uncoated | € TopTialn | € Advanced |
|----------|----|----|-----|---------|------|-----------------------|---|--------------|---------------|---------------|---------------|
| 6 | 13 | 25 | 57 | 6 | 5,8 | 0,1-0,2 x 45° | 4 | DV06S | 31,00 | 37,00 | 43,20 |
| 8 | 19 | 31 | 63 | 8 | 7,8 | 0,1-0,2 x 45° | 4 | DV08S | 42,00 | 52,00 | 56,20 |
| 10 | 22 | 34 | 72 | 10 | 9,8 | 0,1-0,2 x 45° | 4 | DV10S | 58,00 | 68,00 | 74,40 |
| 12 | 26 | 38 | 83 | 12 | 11,8 | 0,1-0,2 x 45° | 4 | DV12S | 75,00 | 85,00 | 94,30 |
| 14 | 26 | 38 | 83 | 14 | 13,8 | 0,1-0,2 x 45° | 4 | DV14S | 86,00 | 97,00 | 106,50 |
| 16 | 26 | 38 | 92 | 16 | 15,8 | 0,1-0,2 x 45° | 4 | DV16S | 104,00 | 120,00 | 124,60 |
| 18 | 26 | 38 | 92 | 18 | 17,8 | 0,1-0,2 x 45° | 4 | DV18S | 124,00 | 130,00 | 147,30 |
| 20 | 32 | 44 | 104 | 20 | 19,8 | 0,1-0,2 x 45° | 4 | DV20S | 161,00 | 179,00 | 196,00 |

A richiesta possibili Raggi e Smussi diversi
Different radius and chamfer on request

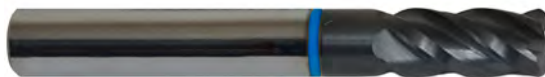
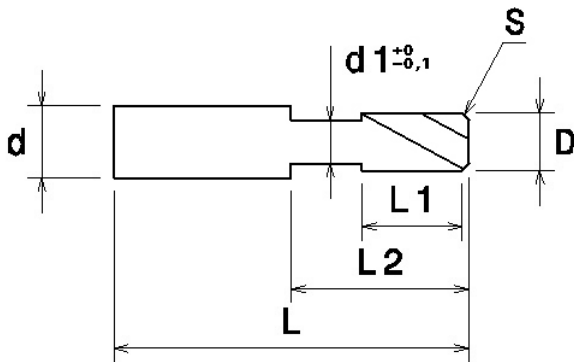
Fresa Z4 elica passo variabile taglio al centro, lavorazione Inox

End mills 4 flutes unequal helix center cutting, stainless steel application



HSC

| D h10 | L1 | L2 | L | d h6 | d1 | R | Z | Cod. | € uncoated | € TopTialn | € Advanced |
|----------|----|----|-----|---------|------|-----|---|----------------|---------------|---------------|---------------|
| 6 | 13 | 25 | 57 | 6 | 5,8 | 0,5 | 4 | IB06R05 | 34,00 | 40,00 | 46,20 |
| 8 | 19 | 31 | 63 | 8 | 7,8 | 0,5 | 4 | IB08R05 | 45,00 | 55,00 | 59,20 |
| 10 | 22 | 34 | 72 | 10 | 9,8 | 1 | 4 | IB10R1 | 62,00 | 72,00 | 78,40 |
| 12 | 26 | 38 | 83 | 12 | 11,8 | 1 | 4 | IB12R1 | 80,00 | 90,00 | 99,30 |
| 14 | 26 | 38 | 83 | 14 | 13,8 | 1 | 4 | IB14R1 | 91,00 | 102,00 | 111,50 |
| 16 | 26 | 38 | 92 | 16 | 15,8 | 1 | 4 | IB16R1 | 110,00 | 126,00 | 130,60 |
| 18 | 26 | 38 | 92 | 18 | 17,8 | 1 | 4 | IB18R1 | 130,00 | 146,00 | 153,30 |
| 20 | 32 | 44 | 104 | 20 | 19,8 | 1 | 4 | IB20R1 | 166,00 | 184,00 | 200,00 |



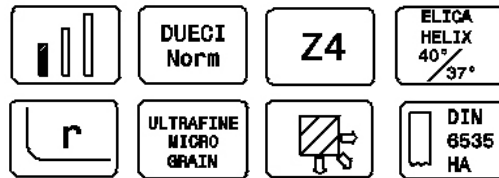
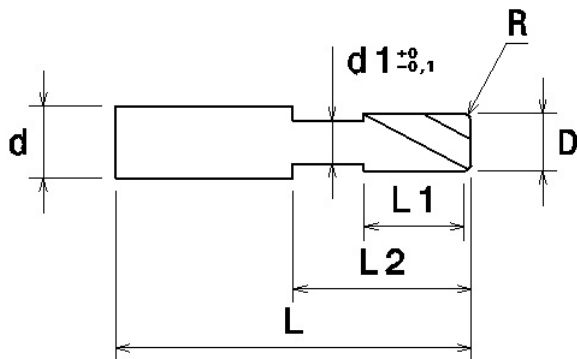
| D h10 | L1 | L2 | L | d h6 | d1 | S 0,1-0,2 x 45° | Z | Cod. | € uncoated | € TopTialn | € Advanced |
|----------|----|----|-----|---------|------|-----------------------|---|--------------|---------------|---------------|---------------|
| 6 | 13 | 25 | 57 | 6 | 5,8 | 0,1-0,2 x 45° | 4 | IB06S | 31,00 | 37,00 | 43,20 |
| 8 | 19 | 31 | 63 | 8 | 7,8 | 0,1-0,2 x 45° | 4 | IB08S | 42,00 | 52,00 | 56,20 |
| 10 | 22 | 34 | 72 | 10 | 9,8 | 0,1-0,2 x 45° | 4 | IB10S | 58,00 | 68,00 | 74,40 |
| 12 | 26 | 38 | 83 | 12 | 11,8 | 0,1-0,2 x 45° | 4 | IB12S | 75,00 | 85,00 | 94,30 |
| 14 | 26 | 38 | 83 | 14 | 13,8 | 0,1-0,2 x 45° | 4 | IB14S | 86,00 | 97,00 | 106,50 |
| 16 | 26 | 38 | 92 | 16 | 15,8 | 0,1-0,2 x 45° | 4 | IB16S | 104,00 | 120,00 | 124,60 |
| 18 | 26 | 38 | 92 | 18 | 17,8 | 0,1-0,2 x 45° | 4 | IB18S | 124,00 | 130,00 | 147,30 |
| 20 | 32 | 44 | 104 | 20 | 19,8 | 0,1-0,2 x 45° | 4 | IB20S | 161,00 | 179,00 | 196,00 |

A richiesta possibili Raggi e Smussi diversi
Different radius and chamfer on request

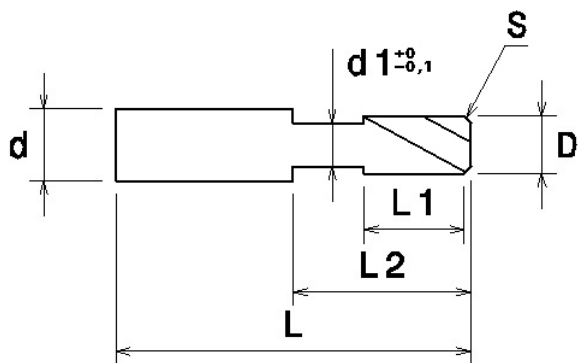
Fresa Z4 elica passo variabile taglio al centro, lavorazione inconel e acciai alta resistenza

End mills 4 flutes unequal helix center cutting, inconel application and high resistance alloys

HSC



| D h10 | L1 | L2 | L | d h6 | d1 | R | Z | Cod. | € uncoated | € TopTialn | € Advanced |
|----------|----|----|-----|---------|------|-----|---|----------------|---------------|---------------|---------------|
| 6 | 13 | 25 | 57 | 6 | 5,8 | 0,5 | 4 | IR06R05 | 34,00 | 40,00 | 46,20 |
| 8 | 19 | 31 | 63 | 8 | 7,8 | 0,5 | 4 | IR08R05 | 45,00 | 55,00 | 59,20 |
| 10 | 22 | 34 | 72 | 10 | 9,8 | 1 | 4 | IR10R1 | 62,00 | 72,00 | 78,40 |
| 12 | 26 | 38 | 83 | 12 | 11,8 | 1 | 4 | IR12R1 | 80,00 | 90,00 | 99,30 |
| 14 | 26 | 38 | 83 | 14 | 13,8 | 1 | 4 | IR14R1 | 91,00 | 102,00 | 111,50 |
| 16 | 26 | 38 | 92 | 16 | 15,8 | 1 | 4 | IR16R1 | 110,00 | 126,00 | 130,60 |
| 18 | 26 | 38 | 92 | 18 | 17,8 | 1 | 4 | IR18R1 | 130,00 | 146,00 | 153,30 |
| 20 | 32 | 44 | 104 | 20 | 19,8 | 1 | 4 | IR20R1 | 166,00 | 184,00 | 200,00 |

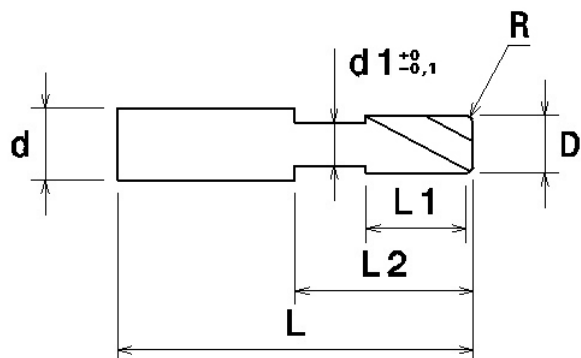


| D h10 | L1 | L2 | L | d h6 | d1 | S 0,1 - 0,2 x 45° | Z | Cod. | € uncoated | € TopTialn | € Advanced |
|----------|----|----|-----|---------|------|-------------------------|---|--------------|---------------|---------------|---------------|
| 6 | 13 | 25 | 57 | 6 | 5,8 | 0,1 - 0,2 x 45° | 4 | IR06S | 31,00 | 37,00 | 43,20 |
| 8 | 19 | 31 | 63 | 8 | 7,8 | 0,1 - 0,2 x 45° | 4 | IR08S | 42,00 | 52,00 | 56,20 |
| 10 | 22 | 34 | 72 | 10 | 9,8 | 0,1 - 0,2 x 45° | 4 | IR10S | 58,00 | 68,00 | 74,40 |
| 12 | 26 | 38 | 83 | 12 | 11,8 | 0,1 - 0,2 x 45° | 4 | IR12S | 75,00 | 85,00 | 94,30 |
| 14 | 26 | 38 | 83 | 14 | 13,8 | 0,1 - 0,2 x 45° | 4 | IR14S | 86,00 | 97,00 | 106,50 |
| 16 | 26 | 38 | 92 | 16 | 15,8 | 0,1 - 0,2 x 45° | 4 | IR16S | 104,00 | 120,00 | 124,60 |
| 18 | 26 | 38 | 92 | 18 | 17,8 | 0,1 - 0,2 x 45° | 4 | IR18S | 124,00 | 130,00 | 147,30 |
| 20 | 32 | 44 | 104 | 20 | 19,8 | 0,1 - 0,2 x 45° | 4 | IR20S | 161,00 | 179,00 | 196,00 |

A richiesta possibili Raggi e Smussi diversi
Different radius and chamfer on request

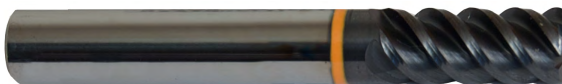
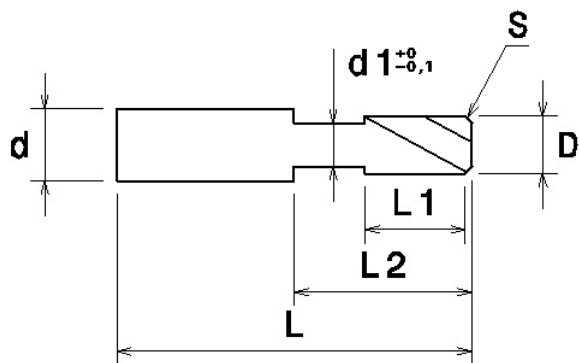
Fresa Z4 taglio al centro, lavorazione titanio

End mills 4 flutes center cutting, titanium and exotic materials application



HSC

| D h10 | L1 | L2 | L | d h6 | d1 | R | Z | Cod. | € uncoated | € TopTialn | € Advanced |
|----------|----|----|-----|---------|------|-----|---|----------------|---------------|---------------|---------------|
| 6 | 13 | 25 | 57 | 6 | 5,8 | 0,5 | 4 | TA06R05 | 34,00 | 40,00 | 46,20 |
| 8 | 19 | 31 | 63 | 8 | 7,8 | 0,5 | 4 | TA08R05 | 45,00 | 55,00 | 59,20 |
| 10 | 22 | 34 | 72 | 10 | 9,8 | 1 | 4 | TA10R1 | 62,00 | 72,00 | 78,40 |
| 12 | 26 | 38 | 83 | 12 | 11,8 | 1 | 4 | TA12R1 | 80,00 | 90,00 | 99,30 |
| 14 | 26 | 38 | 83 | 14 | 13,8 | 1 | 4 | TA14R1 | 91,00 | 102,00 | 111,50 |
| 16 | 26 | 38 | 92 | 16 | 15,8 | 1 | 4 | TA16R1 | 110,00 | 126,00 | 130,60 |
| 18 | 26 | 38 | 92 | 18 | 17,8 | 1 | 4 | TA18R1 | 130,00 | 146,00 | 153,30 |
| 20 | 32 | 44 | 104 | 20 | 19,8 | 1 | 4 | TA20R1 | 166,00 | 184,00 | 200,00 |

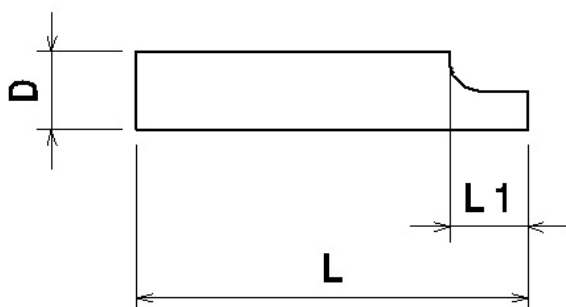


| D h10 | L1 | L2 | L | d h6 | d1 | S 0,1 - 0,2 x 45° | Z | Cod. | € uncoated | € TopTialn | € Advanced |
|----------|----|----|-----|---------|------|-------------------------|---|--------------|---------------|---------------|---------------|
| 6 | 13 | 25 | 57 | 6 | 5,8 | 0,1 - 0,2 x 45° | 4 | TA06S | 31,00 | 37,00 | 43,20 |
| 8 | 19 | 31 | 63 | 8 | 7,8 | 0,1 - 0,2 x 45° | 4 | TA08S | 42,00 | 52,00 | 56,20 |
| 10 | 22 | 34 | 72 | 10 | 9,8 | 0,1 - 0,2 x 45° | 4 | TA10S | 58,00 | 68,00 | 74,40 |
| 12 | 26 | 38 | 83 | 12 | 11,8 | 0,1 - 0,2 x 45° | 4 | TA12S | 75,00 | 85,00 | 94,30 |
| 14 | 26 | 38 | 83 | 14 | 13,8 | 0,1 - 0,2 x 45° | 4 | TA14S | 86,00 | 97,00 | 106,50 |
| 16 | 26 | 38 | 92 | 16 | 15,8 | 0,1 - 0,2 x 45° | 4 | TA16S | 104,00 | 120,00 | 124,60 |
| 18 | 26 | 38 | 92 | 18 | 17,8 | 0,1 - 0,2 x 45° | 4 | TA18S | 124,00 | 130,00 | 147,30 |
| 20 | 32 | 44 | 104 | 20 | 19,8 | 0,1 - 0,2 x 45° | 4 | TA20S | 161,00 | 179,00 | 196,00 |

A richiesta possibili Raggi e Smussi diversi
Different radius and chamfer on request

Bulini rettificati h6

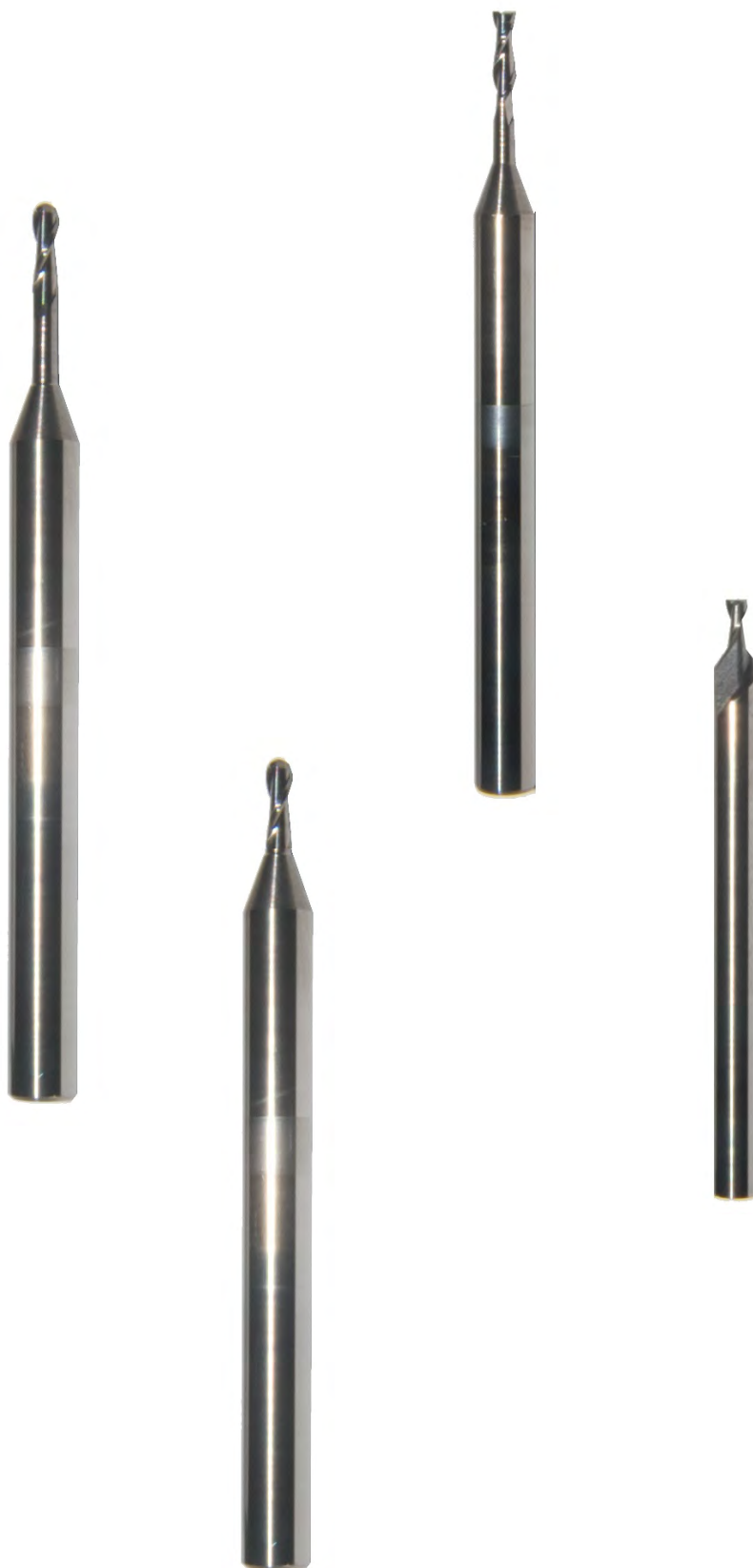
Grounded carbide rods h6



| d h6 | L1 | L | Cod. | € uncoated |
|---------|----|-----|----------------|---------------|
| 2 | 3 | 50 | 320250 | 6,00 |
| 2 | 3 | 100 | 3202100 | 9,00 |
| 3 | 4 | 50 | 320350 | 6,50 |
| 3 | 4 | 100 | 3203100 | 10,00 |
| 4 | 5 | 50 | 320450 | 7,50 |
| 4 | 5 | 100 | 3204100 | 11,00 |
| 5 | 7 | 100 | 3205100 | 15,00 |
| 6 | 8 | 50 | 320650 | 11,50 |
| 6 | 8 | 100 | 3206100 | 19,00 |
| 7 | 8 | 100 | 3207100 | 24,00 |
| 8 | 10 | 100 | 3208100 | 27,00 |
| 9 | 10 | 100 | 3209100 | 33,00 |
| 10 | 13 | 100 | 3210100 | 38,00 |
| 11 | 16 | 100 | 3211100 | 45,00 |
| 12 | 16 | 100 | 3212100 | 51,50 |
| 13 | 18 | 100 | 3213100 | 59,50 |
| 14 | 18 | 100 | 3214100 | 69,00 |
| 15 | 20 | 100 | 3215100 | 76,00 |
| 16 | 20 | 100 | 3216100 | 84,00 |
| 17 | 22 | 100 | 3217100 | 92,00 |
| 18 | 22 | 100 | 3218100 | 100,50 |
| 19 | 25 | 100 | 3219100 | 110,00 |
| 20 | 25 | 100 | 3220100 | 124,50 |

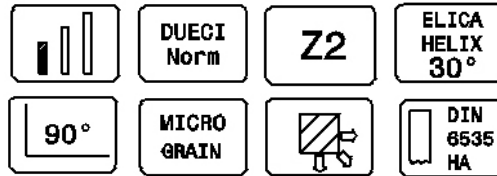
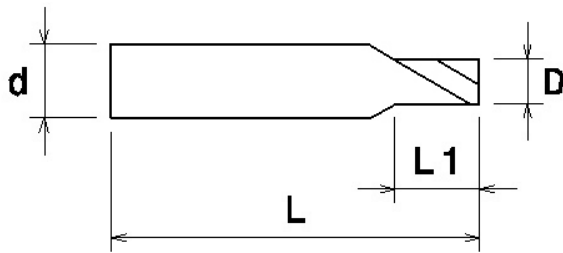
Microfrese

Micro end mills



Microfrese Z2 gambo rinforzato

Micro end mills reinforced shank 2 flutes

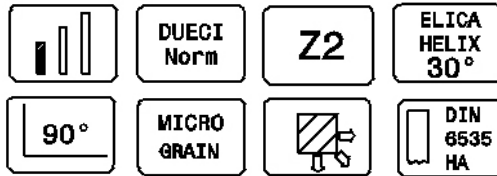
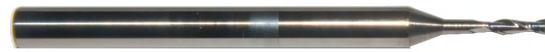
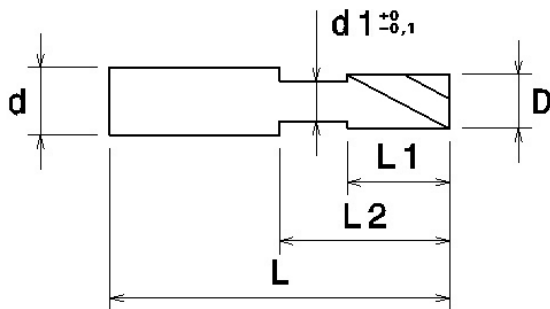


| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|-----|----|-----------------|---|------------|------------|---------|------------|
| 0,4 | 1 | 40 | 3 | 2 | M04 | 21,50 | 24,60 | 26,30 |
| 0,5 | 1 | 40 | 3 | 2 | M05 | 12,00 | 15,50 | 17,00 |
| 0,6 | 1,5 | 40 | 3 | 2 | M06 | 12,00 | 15,50 | 17,00 |
| 0,8 | 2 | 40 | 3 | 2 | M08 | 12,00 | 15,50 | 17,00 |
| 1 | 2,5 | 40 | 3 | 2 | M1 | 12,00 | 15,50 | 17,00 |
| 1,2 | 3 | 40 | 3 | 2 | M12 | 11,00 | 14,50 | 16,00 |
| 1,4 | 3,5 | 40 | 3 | 2 | M14 | 11,00 | 14,50 | 16,00 |
| 1,5 | 4 | 40 | 3 | 2 | M15 | 11,00 | 14,50 | 16,00 |
| 2 | 5 | 40 | 3 | 2 | M2 | 10,00 | 13,50 | 15,00 |
| 2,5 | 8 | 40 | 3 | 2 | M25 | 10,00 | 13,50 | 15,00 |
| 3 | 8 | 40 | 3 | 2 | M3 | 10,00 | 13,50 | 15,00 |

| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|-----|----|-----------------|---|-------------|------------|---------|------------|
| 0,4 | 1 | 50 | 4 | 2 | M404 | 24,50 | 26,80 | 28,30 |
| 0,5 | 1 | 50 | 4 | 2 | M405 | 16,00 | 19,50 | 22,00 |
| 0,6 | 1,5 | 50 | 4 | 2 | M406 | 16,00 | 19,50 | 22,00 |
| 0,8 | 2 | 50 | 4 | 2 | M408 | 16,00 | 19,50 | 22,00 |
| 1 | 2,5 | 50 | 4 | 2 | M41 | 16,00 | 19,50 | 22,00 |
| 1,2 | 3 | 50 | 4 | 2 | M412 | 15,00 | 18,50 | 20,00 |
| 1,4 | 3,5 | 50 | 4 | 2 | M414 | 15,00 | 18,50 | 20,00 |
| 1,5 | 4 | 50 | 4 | 2 | M415 | 15,00 | 18,50 | 20,00 |
| 2 | 5 | 50 | 4 | 2 | M42 | 14,00 | 17,50 | 19,00 |
| 2,5 | 8 | 50 | 4 | 2 | M425 | 14,00 | 17,50 | 19,00 |
| 3 | 8 | 50 | 4 | 2 | M43 | 14,00 | 17,50 | 19,00 |

Microfrese Z2 scaricate gambo rinforzato

Tapered micro end mills reinforced shank 2 flutes

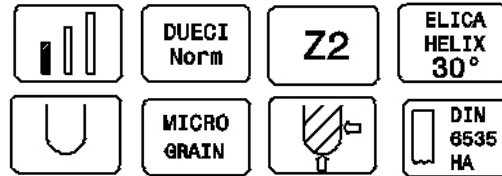
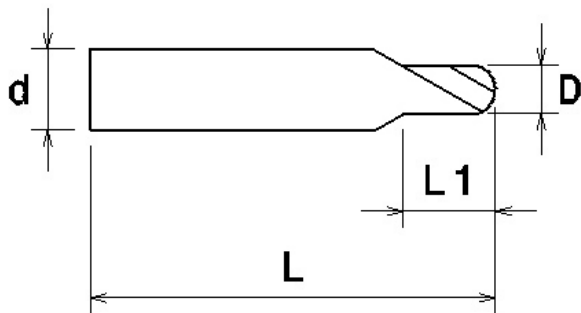


| D _{h10} | L1 | L2 | L | d _{h6} | d1 | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|-----|-----|----|-----------------|-----|---|-------------|------------|---------|------------|
| 0,4 | 1 | 2 | 40 | 3 | 0,3 | 2 | ML04 | 21,50 | 24,60 | 26,30 |
| 0,5 | 1 | 2,5 | 40 | 3 | 0,4 | 2 | ML05 | 15,00 | 18,50 | 20,00 |
| 0,6 | 1,5 | 4 | 40 | 3 | 0,5 | 2 | ML06 | 15,00 | 18,50 | 20,00 |
| 0,8 | 2 | 5 | 40 | 3 | 0,7 | 2 | ML08 | 15,00 | 18,50 | 20,00 |
| 1 | 2,5 | 6 | 40 | 3 | 0,9 | 2 | ML1 | 15,00 | 18,50 | 20,00 |
| 1,2 | 3 | 8 | 40 | 3 | 1,1 | 2 | ML12 | 14,00 | 17,50 | 19,00 |
| 1,4 | 3,5 | 8 | 40 | 3 | 1,3 | 2 | ML14 | 14,00 | 17,50 | 19,00 |
| 1,5 | 4 | 10 | 40 | 3 | 1,4 | 2 | ML15 | 14,00 | 17,50 | 19,00 |
| 2 | 5 | 12 | 40 | 3 | 1,9 | 2 | ML2 | 13,00 | 16,50 | 18,00 |
| 2,5 | 8 | 12 | 40 | 3 | 2,4 | 2 | ML25 | 13,00 | 16,50 | 18,00 |
| 3 | 8 | 15 | 40 | 3 | 2,9 | 2 | ML3 | 13,00 | 16,50 | 18,00 |

| D _{h10} | L1 | L2 | L | d _{h6} | d1 | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|-----|-----|----|-----------------|-----|---|--------------|------------|---------|------------|
| 0,4 | 1 | 2 | 50 | 4 | 0,3 | 2 | ML404 | 24,50 | 26,80 | 28,30 |
| 0,5 | 1 | 2,5 | 50 | 4 | 0,4 | 2 | ML405 | 19,00 | 22,50 | 24,00 |
| 0,6 | 1,5 | 4 | 50 | 4 | 0,5 | 2 | ML406 | 19,00 | 22,50 | 24,00 |
| 0,8 | 2 | 5 | 50 | 4 | 0,7 | 2 | ML408 | 19,00 | 22,50 | 24,00 |
| 1 | 2,5 | 6 | 50 | 4 | 0,9 | 2 | ML41 | 19,00 | 22,50 | 24,00 |
| 1,2 | 3 | 8 | 50 | 4 | 1,1 | 2 | ML412 | 18,00 | 21,50 | 23,00 |
| 1,4 | 3,5 | 8 | 50 | 4 | 1,3 | 2 | ML414 | 18,00 | 21,50 | 23,00 |
| 1,5 | 4 | 10 | 50 | 4 | 1,4 | 2 | ML415 | 18,00 | 21,50 | 23,00 |
| 2 | 5 | 12 | 50 | 4 | 1,9 | 2 | ML42 | 17,00 | 20,50 | 22,00 |
| 2,5 | 8 | 12 | 50 | 4 | 2,4 | 2 | ML425 | 17,00 | 20,50 | 22,00 |
| 3 | 8 | 15 | 50 | 4 | 2,9 | 2 | ML43 | 17,00 | 20,50 | 22,00 |

Microfrese Z2 raggiate

Ball nose micro endmills 2 flutes

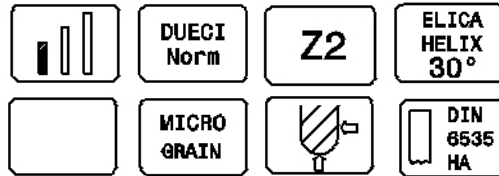
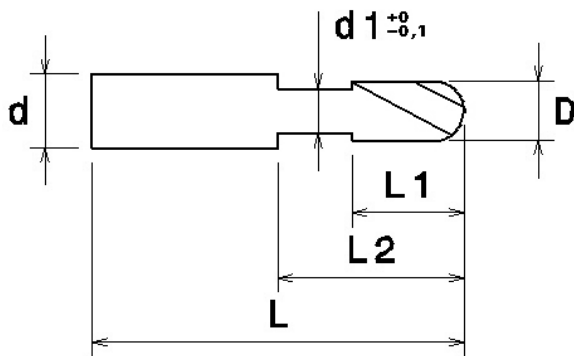


| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|-----|----|-----------------|---|-------------|------------|---------|------------|
| 0,4 | 1 | 40 | 3 | 2 | MR04 | 34,00 | 37,00 | 39,10 |
| 0,5 | 1 | 40 | 3 | 2 | MR05 | 16,00 | 19,50 | 21,00 |
| 0,6 | 1,5 | 40 | 3 | 2 | MR06 | 16,00 | 19,50 | 21,00 |
| 0,8 | 2 | 40 | 3 | 2 | MR08 | 16,00 | 19,50 | 21,00 |
| 1 | 2,5 | 40 | 3 | 2 | MR1 | 16,00 | 19,50 | 21,00 |
| 1,2 | 3 | 40 | 3 | 2 | MR12 | 15,00 | 18,50 | 20,00 |
| 1,4 | 3,5 | 40 | 3 | 2 | MR14 | 15,00 | 18,50 | 20,00 |
| 1,5 | 4 | 40 | 3 | 2 | MR15 | 15,00 | 18,50 | 20,00 |
| 2 | 5 | 40 | 3 | 2 | MR2 | 14,00 | 17,50 | 19,00 |
| 2,5 | 8 | 40 | 3 | 2 | MR25 | 14,00 | 17,50 | 19,00 |
| 3 | 8 | 40 | 3 | 2 | MR3 | 14,00 | 17,50 | 19,00 |

| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|-----|----|-----------------|---|--------------|------------|---------|------------|
| 0,4 | 1 | 50 | 4 | 2 | MR404 | 36,00 | 39,30 | 41,50 |
| 0,5 | 1 | 50 | 4 | 2 | MR405 | 20,00 | 23,50 | 25,00 |
| 0,6 | 1,5 | 50 | 4 | 2 | MR406 | 20,00 | 23,50 | 25,00 |
| 0,8 | 2 | 50 | 4 | 2 | MR408 | 20,00 | 23,50 | 25,00 |
| 1 | 2,5 | 50 | 4 | 2 | MR41 | 20,00 | 23,50 | 25,00 |
| 1,2 | 3 | 50 | 4 | 2 | MR412 | 19,00 | 22,50 | 24,00 |
| 1,4 | 3,5 | 50 | 4 | 2 | MR414 | 19,00 | 22,50 | 24,00 |
| 1,5 | 4 | 50 | 4 | 2 | MR415 | 19,00 | 22,50 | 24,00 |
| 2 | 5 | 50 | 4 | 2 | MR42 | 18,00 | 21,50 | 23,00 |
| 2,5 | 8 | 50 | 4 | 2 | MR425 | 18,00 | 21,50 | 23,00 |
| 3 | 8 | 50 | 4 | 2 | MR43 | 18,00 | 21,50 | 23,00 |

Microfrese Z2 raggiate scaricate

Nosed tapered micro endmills 2 flutes



| D _{h10} | L1 | L2 | L | d _{h6} | d1 | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|-----|-----|----|-----------------|-----|---|--------------|------------|---------|------------|
| 0,4 | 1 | 2 | 40 | 3 | 0,3 | 2 | MRL04 | 34,00 | 37,00 | 39,10 |
| 0,5 | 1 | 2,5 | 40 | 3 | 0,4 | 2 | MRL05 | 19,00 | 22,50 | 24,00 |
| 0,6 | 1,5 | 4 | 40 | 3 | 0,5 | 2 | MRL06 | 19,00 | 22,50 | 24,00 |
| 0,8 | 2 | 5 | 40 | 3 | 0,7 | 2 | MRL08 | 19,00 | 22,50 | 24,00 |
| 1 | 2,5 | 6 | 40 | 3 | 0,9 | 2 | MRL1 | 19,00 | 22,50 | 24,00 |
| 1,2 | 3 | 8 | 40 | 3 | 1,1 | 2 | MRL12 | 18,00 | 21,50 | 23,00 |
| 1,4 | 3,5 | 8 | 40 | 3 | 1,3 | 2 | MRL14 | 18,00 | 21,50 | 23,00 |
| 1,5 | 4 | 10 | 40 | 3 | 1,4 | 2 | MRL15 | 18,00 | 21,50 | 23,00 |
| 2 | 5 | 12 | 40 | 3 | 1,9 | 2 | MRL2 | 17,00 | 20,50 | 22,00 |
| 2,5 | 8 | 12 | 40 | 3 | 2,4 | 2 | MRL25 | 17,00 | 20,50 | 22,00 |
| 3 | 8 | 15 | 40 | 3 | 2,9 | 2 | MRL3 | 17,00 | 20,50 | 22,00 |

| D _{h10} | L1 | L2 | L | d _{h6} | d1 | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|-----|-----|----|-----------------|-----|---|---------------|------------|---------|------------|
| 0,4 | 1 | 2 | 50 | 4 | 0,3 | 2 | MRL404 | 36,00 | 39,30 | 41,50 |
| 0,5 | 1 | 2,5 | 50 | 4 | 0,4 | 2 | MRL405 | 23,00 | 26,50 | 28,00 |
| 0,6 | 1,5 | 4 | 50 | 4 | 0,5 | 2 | MRL406 | 23,00 | 26,50 | 28,00 |
| 0,8 | 2 | 5 | 50 | 4 | 0,7 | 2 | MRL408 | 23,00 | 26,50 | 28,00 |
| 1 | 2,5 | 6 | 50 | 4 | 0,9 | 2 | MRL41 | 23,00 | 26,50 | 28,00 |
| 1,2 | 3 | 8 | 50 | 4 | 1,1 | 2 | MRL412 | 22,00 | 25,50 | 27,00 |
| 1,4 | 3,5 | 8 | 50 | 4 | 1,3 | 2 | MRL414 | 22,00 | 25,50 | 27,00 |
| 1,5 | 4 | 10 | 50 | 4 | 1,4 | 2 | MRL415 | 22,00 | 25,50 | 27,00 |
| 2 | 5 | 12 | 50 | 4 | 1,9 | 2 | MRL42 | 21,00 | 24,50 | 26,00 |
| 2,5 | 8 | 12 | 50 | 4 | 2,4 | 2 | MRL425 | 21,00 | 24,50 | 26,00 |
| 3 | 8 | 15 | 50 | 4 | 2,9 | 2 | MRL43 | 21,00 | 24,50 | 26,00 |

Parametri indicativi per fresatura standard

Technical data for general milling

| Gruppo di materiali Group of materials | Resistenza / Durezza Resistance / Hardness | Velocità di taglio Cutting speed Vc = m/1' | fz | | | | |
|---|---|--|----------------------|-------------|-------------|-------------|-------------|
| | | | Diametro - Diameters | | | | |
| | | | 0,5 - 4 | 4 - 8 | 8 - 14 | 14 - 20 | 20 - 25 |
| Acciai - Steels | | | | | | | |
| Non legati - Plain | < 600 N/mm ² | 50-100 | | | | | |
| | > 600 N/mm ² | 50-80 | 0,01 - 0,03 | 0,03 - 0,06 | 0,06 - 0,09 | 0,09 - 0,12 | 0,12 - 0,17 |
| Debolmente legati - Low alloy | > 750 N/mm ² | 50-80 | | | | | |
| Legati - Alloy | > 900 N/mm ² | 50-70 | 0,01 - 0,02 | 0,02 - 0,04 | 0,03 - 0,05 | 0,05 - 0,09 | 0,09-0,13 |
| | | Vc = m/1' | 0,5 - 4 | 4 - 8 | 8 - 14 | 14 - 20 | 20 - 25 |
| Acciai inossidabili - Stainless steel | | | | | | | |
| Ferritici - Ferritic | < 750 N/mm ² | 40-60 | 0,01 - 0,03 | 0,03 - 0,04 | 0,03 - 0,05 | 0,05 - 0,09 | 0,09 - 0,13 |
| Martensitici - Martensitic | > 750 N/mm ² | 50-70 | 0,01 - 0,03 | 0,02 - 0,03 | 0,02 - 0,04 | 0,04 - 0,07 | 0,07 - 0,10 |
| Austenitici - Austenitic | > 750 N/mm ² | 50-70 | | | | | |
| | | Vc = m/1' | 0,5 - 4 | 4 - 8 | 8 - 14 | 14 - 20 | 20 - 25 |
| Leghe - Alloys | | | | | | | |
| Nichel - Inconell | > 900 N/mm ² | 20-40 | 0,01 - 0,03 | 0,03 - 0,04 | 0,03 - 0,05 | 0,04 - 0,06 | 0,06 - 0,08 |
| Cobalto - Cobal | > 900 N/mm ² | 20-40 | | | | | |
| | | Vc = m/1' | 0,5 - 4 | 4 - 8 | 8 - 14 | 14 - 20 | 20 - 25 |
| Ghise - Cast Iron | | | | | | | |
| Malleabile - Malleable | < 250 HB | 60 - 110 | | | | | |
| Ferritica - Ferritic | < 220 HB | 60 - 120 | 0,01 - 0,04 | 0,03 - 0,05 | 0,05 - 0,08 | 0,08 - 0,13 | 0,13 - 0,18 |
| Grigia - Grey | < 220 HB | 60 - 120 | | | | | |
| | > 220 HB | 40 - 80 | 0,01 - 0,03 | 0,03 - 0,05 | 0,05 - 0,07 | 0,07 - 0,09 | 0,09 - 0,13 |
| Perlitica - Perlitic | > 220 HB | 40 - 80 | | | | | |
| | | Vc = m/1' | 0,5 - 4 | 4 - 8 | 8 - 14 | 14 - 20 | 20 - 25 |
| Titanio - Titanium | | | | | | | |
| Titanio - Titanium | < 700 N/mm ² | 40-80 | 0,01 - 0,03 | 0,03 - 0,04 | 0,04 - 0,05 | 0,04 - 0,06 | 0,06 - 0,08 |
| Leghe al titanio - Titanium alloys | > 700 N/mm ² | 30-50 | | | | | |
| | | Vc = m/1' | 0,5 - 4 | 4 - 8 | 8 - 14 | 14 - 20 | 20 - 25 |
| Alluminio - Aluminium | | | | | | | |
| AlSi < 12% | | 180 - 300 | 0,01 - 0,03 | 0,03 - 0,07 | 0,07 - 0,12 | 0,12 - 0,18 | 0,18 - 0,25 |
| AlSi > 12% | | 140 - 180 | | | | | |
| | | Vc = m/1' | 0,5 - 4 | 4 - 8 | 8 - 14 | 14 - 20 | 20 - 25 |
| Materiali non ferrosi - Not Ironed materials | | | | | | | |
| Bronzo - Bronze | | 80 - 120 | | | | | |
| Ottone - Brass | | 80 - 120 | 0,01 - 0,02 | 0,02 - 0,05 | 0,05 - 0,08 | 0,08 - 0,15 | 0,15 - 0,20 |
| Rame non legato - Plain copper | | 60 - 220 | | | | | |
| Leghe di rame - Copper alloy | | 80 - 150 | | | | | |
| Materiali termoplastici - Thermoplastic materials | | 90 - 150 | 0,01 - 0,03 | 0,03 - 0,05 | 0,05 - 0,12 | 0,12 - 0,20 | 0,20 - 0,25 |
| | | Vc = m/1' | 0,5 - 4 | 4 - 8 | 8 - 14 | 14 - 20 | 20 - 25 |
| Graffite - Graphite | | | | | | | |
| Graffite - Graphite | | 200 - 800 | 0,02 - 0,04 | 0,04 - 0,07 | 0,07 - 0,12 | 0,12 - 0,15 | 0,15 - 0,20 |

Con rivestimento TiAlN - TopTiAlN aumentare Vc del 20/30%
With TiAlN - TopTiAlN coating Vc increase 20/30%

Formule

$$Vc = (\pi \times D \times N) / 1000$$

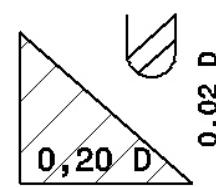
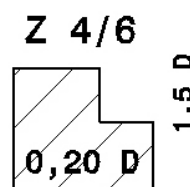
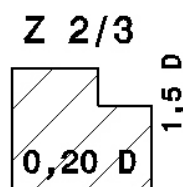
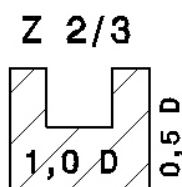
$$n = (Vc \times 1000) / (\pi \times D)$$

$$Vf = fz \times Z \times n$$

$$f = fz \times Z \times n$$

$$fz = Vf / Z \times n$$

Vc: Velocità di taglio m/1'
n: numero giri dell'utensile
Vf: Velocità di avanzamento mm/min
fz: Avanzamento per dente mm
f: Avanzamento per giro mm



Parametri indicativi per fresatura HSC con rivestimento advanced

Technical data for HSC milling advanced coating

| Gruppo di materiali <i>Group of materials</i> | Resistenza / Durezza <i>Resistance / Hardness</i> | Velocità di taglio <i>Cutting speed</i> | fz | | | |
|---|--|--|----------------------|-------------|-------------|-------------|
| | | | Diametro - Diameters | | | |
| | | Vc = m/1' | 0,5 - 4 | 4 - 8 | 8 - 14 | 14 - 20 |
| Acciai - Steels | | | | | | |
| Non legati - Plain | < 600 N/mm ² | 280 - 600 | | | | |
| | > 600 N/mm ² | 280 - 500 | 0,01 - 0,04 | 0,04 - 0,10 | 0,10 - 0,12 | 0,12 - 0,16 |
| Debolmente legati - Low alloy | > 750 N/mm ² | 180 - 400 | | | | |
| Legati - Alloy | > 900 N/mm ² | 180 - 300 | 0,01 - 0,04 | 0,04 - 0,10 | 0,10 - 0,12 | 0,12 - 0,16 |
| | | Vc = m/1' | 0,5 - 4 | 4 - 8 | 8 - 14 | 14 - 20 |
| Acciai inossidabili - Stainless steel | | | | | | |
| Ferritici - Ferritic | < 750 N/mm ² | 110 - 270 | 0,01 - 0,03 | 0,03 - 0,08 | 0,08 - 0,10 | 0,10 - 0,14 |
| Martensitici - Martensitic | > 750 N/mm ² | 120 - 150 | | | | |
| Austenitici - Austenitic | > 750 N/mm ² | 100 - 150 | 0,01 - 0,03 | 0,03 - 0,08 | 0,08 - 0,10 | 0,10 - 0,14 |
| | | Vc = m/1' | 0,5 - 4 | 4 - 8 | 8 - 14 | 14 - 20 |
| Acciai temprati - Hardened steels | | | | | | |
| Acciai temprati - hardened steels | < 50 N/mm ² | 140 - 250 | | | | |
| | < 65 N/mm ² | 80 - 150 | 0,01 - 0,03 | 0,03 - 0,08 | 0,08 - 0,12 | 0,12 - 0,14 |
| | | Vc = m/1' | 0,5 - 4 | 4 - 8 | 8 - 14 | 14 - 20 |
| Leghe - Alloys | | | | | | |
| Nichel - Inconell | > 900 N/mm ² | 40 - 50 | | | | |
| Cobalto - Cobal | > 900 N/mm ² | 60 - 80 | 0,01 - 0,03 | 0,03 - 0,08 | 0,08 - 0,12 | 0,12 - 0,14 |
| | | Vc = m/1' | 0,5 - 4 | 4 - 8 | 8 - 14 | 14 - 20 |
| Ghise - Cast Iron | | | | | | |
| Malleabile - Malleable | < 250 HB | 250 - 450 | | | | |
| Ferritica - Ferritic | < 220 HB | 350 - 550 | 0,01 - 0,04 | 0,04 - 0,10 | 0,10 - 0,14 | 0,14 - 0,18 |
| Grigia - Grey | < 220 HB | 300 - 600 | | | | |
| | > 220 HB | 200 - 350 | 0,01 - 0,04 | 0,04 - 0,10 | 0,10 - 0,14 | 0,14 - 0,18 |
| Perlitica - Perlitic | > 220 HB | 250 - 450 | | | | |
| | | Vc = m/1' | 0,5 - 4 | 4 - 8 | 8 - 14 | 14 - 20 |
| Titanio - Titanium | | | | | | |
| Titanio - Titanium | < 700 N/mm ² | 70 - 160 | | | | |
| Leghe al titanio - Titanium alloys | > 700 N/mm ² | 60 - 120 | 0,01 - 0,04 | 0,04 - 0,10 | 0,10 - 0,14 | 0,14 - 0,16 |
| | | Vc = m/1' | 0,5 - 4 | 4 - 8 | 8 - 14 | 14 - 20 |
| Alluminio - Aluminium | | | | | | |
| AISI < 12% | | 500 - 1800 | | | | |
| AISI > 12% | | 400 - 800 | 0,01 - 0,04 | 0,04 - 0,08 | 0,08 - 0,12 | 0,12 - 0,20 |
| | | Vc = m/1' | 0,5 - 4 | 4 - 8 | 8 - 14 | 14 - 20 |
| Materiali non ferrosi - Not Ironed materials | | | | | | |
| Bronzo - Bronze | | 160 - 450 | | | | |
| Ottone - Brass | | 180 - 450 | | | | |
| Rame non legato - Plain copper | | 350 - 800 | 0,01 - 0,04 | 0,04 - 0,08 | 0,08 - 0,14 | 0,14 - 0,18 |
| Leghe di rame - Copper alloy | | 350 - 600 | | | | |
| Materiali termoplastici - Termoplastic materials | | 200 - 500 | 0,01 - 0,04 | 0,04 - 0,08 | 0,08 - 0,12 | 0,12 - 0,20 |
| | | Vc = m/1' | 0,5 - 4 | 4 - 8 | 8 - 14 | 14 - 20 |
| Graffite - Graphite | | | | | | |
| Graffite - Graphite | | 200 - 1500 | 0,01 - 0,04 | 0,04 - 0,08 | 0,08 - 0,12 | 0,12 - 0,20 |

Formule

$$Vc = (\pi \times D \times n) / 1000$$

$$n = (Vc \times 1000) / (\pi \times D)$$

$$Vf = fz \times Z \times n$$

$$f = fz \times Z \times n$$

$$fz = Vf / Z \times n$$

Vc: Cutting speed m/1'
n: rotation number
Vf: Feed speed mm/min
fz: Feed per tooth mm
f: Feed per revolution mm

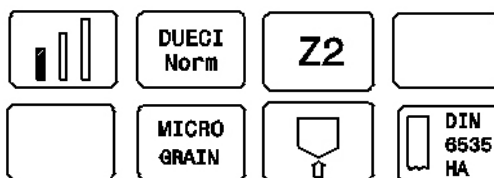
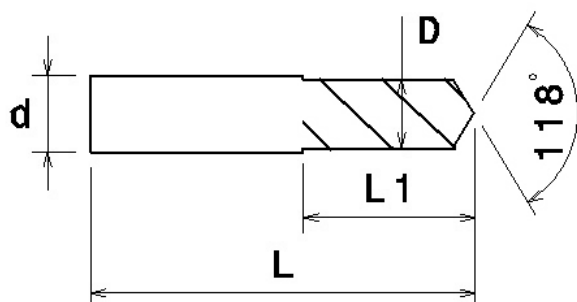
Punte - Alesatori

Drills - Reamers



Micropunte gambo rinforzato

Microdrills reinforced shank



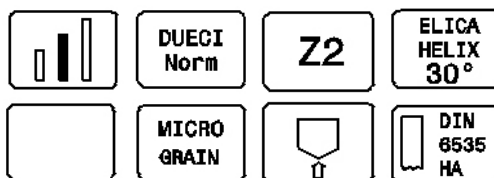
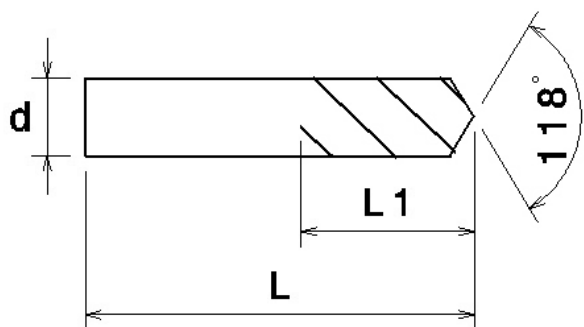
| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|----|-----------------|---|-------------|------------|---------|------------|
| 0,5 | 7 | 40 | 3 | 2 | MP05 | 16,90 | 20,30 | 21,40 |
| 0,6 | 7 | 40 | 3 | 2 | MP06 | 16,90 | 20,30 | 21,40 |
| 0,7 | 7 | 40 | 3 | 2 | MP07 | 16,90 | 20,30 | 21,40 |
| 0,8 | 7 | 40 | 3 | 2 | MP08 | 16,90 | 20,30 | 21,40 |
| 0,9 | 7 | 40 | 3 | 2 | MP09 | 16,90 | 20,30 | 21,40 |
| 1 | 7 | 40 | 3 | 2 | MP1 | 14,90 | 18,30 | 19,30 |
| 1,1 | 9 | 40 | 3 | 2 | MP11 | 14,90 | 18,30 | 19,30 |
| 1,2 | 9 | 40 | 3 | 2 | MP12 | 14,90 | 18,30 | 19,30 |
| 1,3 | 9 | 40 | 3 | 2 | MP13 | 14,90 | 18,30 | 19,30 |
| 1,4 | 9 | 40 | 3 | 2 | MP14 | 14,90 | 18,30 | 19,30 |
| 1,5 | 9 | 40 | 3 | 2 | MP15 | 14,90 | 18,30 | 19,30 |
| 1,6 | 12 | 40 | 3 | 2 | MP16 | 14,90 | 18,30 | 19,30 |
| 1,7 | 12 | 40 | 3 | 2 | MP17 | 14,90 | 18,30 | 19,30 |
| 1,8 | 12 | 40 | 3 | 2 | MP18 | 14,90 | 18,30 | 19,30 |
| 1,9 | 12 | 40 | 3 | 2 | MP19 | 14,90 | 18,30 | 19,30 |
| 2 | 12 | 40 | 3 | 2 | MP2 | 14,30 | 17,70 | 18,60 |



| D _{h10} | L1 | L | d _{h6} | Z | Cod. | € uncoated | € Tialn | € TopTialn |
|------------------|----|----|-----------------|---|--------------|------------|---------|------------|
| 0,5 | 8 | 50 | 3 | 2 | MPL05 | 19,50 | 22,90 | 24,10 |
| 0,6 | 8 | 50 | 3 | 2 | MPL06 | 19,50 | 22,90 | 24,10 |
| 0,7 | 10 | 50 | 3 | 2 | MPL07 | 19,50 | 22,90 | 24,10 |
| 0,8 | 10 | 50 | 3 | 2 | MPL08 | 19,50 | 22,90 | 24,10 |
| 0,9 | 12 | 50 | 3 | 2 | MPL09 | 19,50 | 22,90 | 24,10 |
| 1 | 12 | 50 | 3 | 2 | MPL1 | 17,50 | 20,90 | 22,00 |
| 1,1 | 16 | 50 | 3 | 2 | MPL11 | 17,50 | 20,90 | 22,00 |
| 1,2 | 16 | 50 | 3 | 2 | MPL12 | 17,50 | 20,90 | 22,00 |
| 1,3 | 16 | 50 | 3 | 2 | MPL13 | 17,50 | 20,90 | 22,00 |
| 1,4 | 20 | 50 | 3 | 2 | MPL14 | 17,50 | 20,90 | 22,00 |
| 1,5 | 20 | 50 | 3 | 2 | MPL15 | 17,50 | 20,90 | 22,00 |
| 1,6 | 20 | 50 | 3 | 2 | MPL16 | 17,50 | 20,90 | 22,00 |
| 1,7 | 20 | 50 | 3 | 2 | MPL17 | 17,50 | 20,90 | 22,00 |
| 1,8 | 22 | 50 | 3 | 2 | MPL18 | 17,50 | 20,90 | 22,00 |
| 1,9 | 22 | 50 | 3 | 2 | MPL19 | 17,50 | 20,90 | 22,00 |
| 2 | 24 | 50 | 3 | 2 | MPL2 | 16,90 | 20,30 | 21,40 |

Punte Z2 DIN 6539

Drills 2 flutes DIN 6539



| d h6 | L1 | L | Cod. | € uncoated | € tialn | d h6 | L1 | L | Cod. | € uncoated | € Tialn |
|---------|----|----|--------------|---------------|------------|---------|----|----|--------------|---------------|------------|
| 0,5 | | | pag. 88 | | | 4,3 | 24 | 58 | 40043 | 13,10 | 17,70 |
| 0,6 | | | pag. 88 | | | 4,4 | 24 | 58 | 40044 | 13,10 | 17,70 |
| 0,7 | | | pag. 88 | | | 4,5 | 24 | 58 | 40045 | 13,10 | 17,70 |
| 0,8 | | | pag. 88 | | | 4,6 | 24 | 58 | 40046 | 13,60 | 18,20 |
| 0,9 | | | pag. 88 | | | 4,7 | 24 | 58 | 40047 | 13,60 | 18,20 |
| 1 | 6 | 26 | 4001 | 7,20 | 10,40 | 4,8 | 26 | 62 | 40048 | 14,00 | 18,60 |
| 1,1 | 7 | 28 | 40011 | 7,20 | 10,40 | 4,9 | 26 | 62 | 40049 | 14,00 | 18,60 |
| 1,2 | 8 | 30 | 40012 | 7,20 | 10,40 | 5 | 26 | 62 | 4005 | 14,50 | 19,20 |
| 1,3 | 8 | 30 | 40013 | 7,20 | 10,40 | 5,1 | 26 | 62 | 40051 | 15,60 | 20,20 |
| 1,4 | 9 | 32 | 40014 | 7,20 | 10,40 | 5,2 | 26 | 62 | 40052 | 15,60 | 20,20 |
| 1,5 | 9 | 32 | 40015 | 7,20 | 10,40 | 5,3 | 26 | 62 | 40053 | 15,60 | 20,20 |
| 1,6 | 10 | 34 | 40016 | 7,90 | 11,00 | 5,4 | 28 | 66 | 40054 | 17,00 | 21,60 |
| 1,7 | 10 | 34 | 40017 | 7,90 | 11,00 | 5,5 | 28 | 66 | 40055 | 17,00 | 21,60 |
| 1,8 | 11 | 36 | 40018 | 7,90 | 11,00 | 5,6 | 28 | 66 | 40056 | 18,50 | 23,20 |
| 1,9 | 11 | 36 | 40019 | 7,90 | 11,00 | 5,7 | 28 | 66 | 40057 | 18,50 | 23,20 |
| 2 | 12 | 38 | 4002 | 7,60 | 10,50 | 5,8 | 28 | 66 | 40058 | 18,50 | 23,20 |
| 2,1 | 12 | 38 | 40021 | 7,90 | 11,30 | 5,9 | 28 | 66 | 40059 | 18,50 | 23,20 |
| 2,2 | 13 | 40 | 40022 | 8,00 | 11,40 | 6 | 28 | 66 | 4006 | 18,50 | 23,20 |
| 2,3 | 13 | 40 | 40023 | 8,00 | 11,40 | 6,1 | 31 | 70 | 40061 | 19,90 | 25,50 |
| 2,4 | 14 | 43 | 40024 | 8,20 | 11,60 | 6,2 | 31 | 70 | 40062 | 19,90 | 25,50 |
| 2,5 | 14 | 43 | 40025 | 8,20 | 11,60 | 6,3 | 31 | 70 | 40063 | 19,90 | 25,50 |
| 2,6 | 14 | 43 | 40026 | 8,50 | 11,90 | 6,4 | 31 | 70 | 40064 | 19,90 | 25,50 |
| 2,7 | 16 | 46 | 40027 | 8,70 | 12,10 | 6,5 | 31 | 70 | 40065 | 19,90 | 25,50 |
| 2,8 | 16 | 46 | 40028 | 8,70 | 12,10 | 6,6 | 31 | 70 | 40066 | 20,90 | 26,40 |
| 2,9 | 16 | 46 | 40029 | 8,70 | 12,10 | 6,7 | 31 | 70 | 40067 | 20,90 | 26,40 |
| 3 | 16 | 46 | 4003 | 8,70 | 12,10 | 6,8 | 34 | 74 | 40068 | 22,90 | 28,40 |
| 3,1 | 18 | 49 | 40031 | 9,30 | 12,70 | 6,9 | 34 | 74 | 40069 | 22,90 | 28,40 |
| 3,2 | 18 | 49 | 40032 | 9,30 | 12,70 | 7 | 34 | 74 | 4007 | 22,90 | 28,40 |
| 3,3 | 18 | 49 | 40033 | 9,30 | 12,70 | 7,1 | 34 | 74 | 40071 | 24,40 | 29,90 |
| 3,4 | 20 | 52 | 40034 | 9,70 | 13,10 | 7,2 | 34 | 74 | 40072 | 24,40 | 29,90 |
| 3,5 | 20 | 52 | 40035 | 9,70 | 13,10 | 7,3 | 34 | 74 | 40073 | 24,40 | 29,90 |
| 3,6 | 20 | 52 | 40036 | 10,10 | 13,50 | 7,4 | 34 | 74 | 40074 | 24,40 | 29,90 |
| 3,7 | 20 | 52 | 40037 | 10,10 | 13,50 | 7,5 | 34 | 74 | 40075 | 24,40 | 29,90 |
| 3,8 | 22 | 55 | 40038 | 12,00 | 15,40 | 7,6 | 37 | 79 | 40076 | 27,60 | 34,60 |
| 3,9 | 22 | 55 | 40039 | 12,00 | 15,40 | 7,7 | 37 | 79 | 40077 | 27,60 | 34,60 |
| 4 | 22 | 55 | 4004 | 12,00 | 15,40 | 7,8 | 37 | 79 | 40078 | 27,60 | 34,60 |
| 4,1 | 22 | 55 | 40041 | 12,80 | 17,40 | 7,9 | 37 | 79 | 40079 | 27,60 | 34,60 |
| 4,2 | 22 | 55 | 40042 | 12,80 | 17,40 | 8 | 37 | 79 | 4008 | 27,60 | 34,60 |

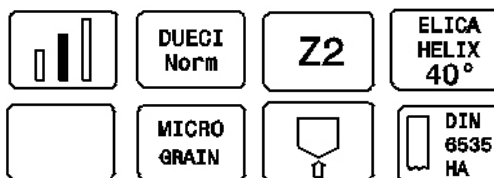
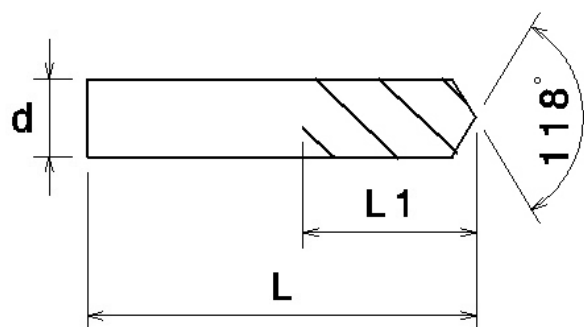
Punte Z2 DIN 6539

Drills 2 flutes DIN 6539

| d h6 | L1 | L | Cod. | € uncoated | € Tialn | d h6 | L1 | L | Cod. | € uncoated | € Tialn |
|---------|----|-----|--------------|---------------|------------|---------|----|-----|--------------|---------------|------------|
| 8,1 | 37 | 79 | 40081 | 29,10 | 37,50 | 13,1 | 54 | 107 | 40131 | 74,40 | 85,30 |
| 8,2 | 37 | 79 | 40082 | 29,10 | 37,50 | 13,2 | 54 | 107 | 40132 | 74,40 | 85,30 |
| 8,3 | 37 | 79 | 40083 | 29,10 | 37,50 | 13,3 | 54 | 107 | 40133 | 74,40 | 85,30 |
| 8,4 | 37 | 79 | 40084 | 29,10 | 37,50 | 13,4 | 54 | 107 | 40134 | 74,40 | 85,30 |
| 8,5 | 37 | 79 | 40085 | 29,10 | 37,50 | 13,5 | 54 | 107 | 40135 | 74,40 | 85,30 |
| 8,6 | 40 | 84 | 40086 | 33,10 | 41,50 | 13,6 | 54 | 107 | 40136 | 77,90 | 88,90 |
| 8,7 | 40 | 84 | 40087 | 33,10 | 41,50 | 13,7 | 54 | 107 | 40137 | 77,90 | 88,90 |
| 8,8 | 40 | 84 | 40088 | 33,10 | 41,50 | 13,8 | 54 | 107 | 40138 | 77,90 | 88,90 |
| 8,9 | 40 | 84 | 40089 | 33,10 | 41,50 | 13,9 | 54 | 107 | 40139 | 77,90 | 88,90 |
| 9 | 40 | 84 | 4009 | 33,10 | 41,50 | 14 | 54 | 107 | 4014 | 77,90 | 88,90 |
| 9,1 | 40 | 84 | 40091 | 35,00 | 43,30 | 14,1 | 56 | 111 | 40141 | 88,10 | 99,00 |
| 9,2 | 40 | 84 | 40092 | 35,00 | 43,30 | 14,2 | 56 | 111 | 40142 | 88,10 | 99,00 |
| 9,3 | 40 | 84 | 40093 | 35,00 | 43,30 | 14,3 | 56 | 111 | 40143 | 88,10 | 99,00 |
| 9,4 | 40 | 84 | 40094 | 35,00 | 43,30 | 14,4 | 56 | 111 | 40144 | 88,10 | 99,00 |
| 9,5 | 40 | 84 | 40095 | 35,00 | 43,30 | 14,5 | 56 | 111 | 40145 | 88,10 | 99,00 |
| 9,6 | 43 | 89 | 40096 | 38,90 | 47,30 | 14,6 | 56 | 111 | 40146 | 88,10 | 99,00 |
| 9,7 | 43 | 89 | 40097 | 38,90 | 47,30 | 14,7 | 56 | 111 | 40147 | 88,10 | 99,00 |
| 9,8 | 43 | 89 | 40098 | 38,90 | 47,30 | 14,8 | 56 | 111 | 40148 | 88,10 | 99,00 |
| 9,9 | 43 | 89 | 40099 | 38,90 | 47,30 | 14,9 | 56 | 111 | 40149 | 88,10 | 99,00 |
| 10 | 43 | 89 | 4010 | 38,90 | 47,30 | 15 | 56 | 111 | 4015 | 88,10 | 99,00 |
| 10,1 | 43 | 89 | 40101 | 40,90 | 48,70 | 15,1 | 58 | 115 | 40151 | 99,90 | 110,80 |
| 10,2 | 43 | 89 | 40102 | 40,90 | 48,70 | 15,2 | 58 | 115 | 40152 | 99,90 | 110,80 |
| 10,3 | 43 | 89 | 40103 | 40,90 | 48,70 | 15,3 | 58 | 115 | 40153 | 99,90 | 110,80 |
| 10,4 | 43 | 89 | 40104 | 40,90 | 48,70 | 15,4 | 58 | 115 | 40154 | 99,90 | 110,80 |
| 10,5 | 43 | 89 | 40105 | 40,90 | 48,70 | 15,5 | 58 | 115 | 40155 | 99,90 | 110,80 |
| 10,6 | 47 | 95 | 40106 | 49,20 | 57,00 | 15,6 | 58 | 115 | 40156 | 99,90 | 110,80 |
| 10,7 | 47 | 95 | 40107 | 49,20 | 57,00 | 15,7 | 58 | 115 | 40157 | 99,90 | 110,80 |
| 10,8 | 47 | 95 | 40108 | 49,20 | 57,00 | 15,8 | 58 | 115 | 40158 | 99,90 | 110,80 |
| 10,9 | 47 | 95 | 40109 | 49,20 | 57,00 | 15,9 | 58 | 115 | 40159 | 99,90 | 110,80 |
| 11 | 47 | 95 | 4011 | 49,20 | 57,00 | 16 | 58 | 115 | 4016 | 99,90 | 110,80 |
| 11,1 | 47 | 95 | 40111 | 51,10 | 58,90 | 16,5 | 60 | 119 | 40165 | 111,70 | 124,30 |
| 11,2 | 47 | 95 | 40112 | 51,10 | 58,90 | 17 | 60 | 119 | 4017 | 111,70 | 124,30 |
| 11,3 | 47 | 95 | 40113 | 51,10 | 58,90 | 17,5 | 62 | 123 | 40175 | 129,00 | 141,60 |
| 11,4 | 47 | 95 | 40114 | 51,10 | 58,90 | 18 | 62 | 123 | 4018 | 129,00 | 141,60 |
| 11,5 | 47 | 95 | 40115 | 51,10 | 58,90 | 18,5 | 64 | 127 | 40185 | 141,70 | 157,30 |
| 11,6 | 47 | 95 | 40116 | 56,30 | 64,10 | 19 | 64 | 127 | 4019 | 141,70 | 157,30 |
| 11,7 | 47 | 95 | 40117 | 56,30 | 64,10 | 19,5 | 66 | 131 | 40195 | 162,40 | 178,00 |
| 11,8 | 47 | 95 | 40118 | 56,30 | 64,10 | 20 | 66 | 131 | 4020 | 162,40 | 178,00 |
| 11,9 | 47 | 95 | 40119 | 56,30 | 64,10 | | | | | | |
| 12 | 51 | 102 | 4012 | 58,90 | 68,80 | | | | | | |
| 12,1 | 51 | 102 | 40121 | 63,40 | 74,40 | | | | | | |
| 12,2 | 51 | 102 | 40122 | 63,40 | 74,40 | | | | | | |
| 12,3 | 51 | 102 | 40123 | 63,40 | 74,40 | | | | | | |
| 12,4 | 51 | 102 | 40124 | 63,40 | 74,40 | | | | | | |
| 12,5 | 51 | 102 | 40125 | 63,40 | 74,40 | | | | | | |
| 12,6 | 51 | 102 | 40126 | 65,80 | 76,80 | | | | | | |
| 12,7 | 51 | 102 | 40127 | 65,80 | 76,80 | | | | | | |
| 12,8 | 51 | 102 | 40128 | 65,80 | 76,80 | | | | | | |
| 12,9 | 51 | 102 | 40129 | 65,80 | 76,80 | | | | | | |
| 13 | 51 | 102 | 4013 | 65,80 | 76,80 | | | | | | |

Punte Z2 DIN 6539 per alluminio

Drills 2 flutes DIN 6539 aluminium application



| d h6 | L1 | L | Cod. | € uncoated | € tialn | d h6 | L1 | L | Cod. | € uncoated | € Tialn |
|---------|----|----|---------|---------------|------------|---------|----|----|---------|---------------|------------|
| 2 | 12 | 38 | AL4002 | 7,60 | 10,50 | 5,8 | 28 | 66 | AL40058 | 18,50 | 23,20 |
| 2,1 | 12 | 38 | AL40021 | 7,90 | 11,30 | 5,9 | 28 | 66 | AL40059 | 18,50 | 23,20 |
| 2,2 | 13 | 40 | AL40022 | 8,00 | 11,40 | 6 | 28 | 66 | AL4006 | 18,50 | 23,20 |
| 2,3 | 13 | 40 | AL40023 | 8,00 | 11,40 | 6,1 | 31 | 70 | AL40061 | 19,90 | 25,50 |
| 2,4 | 14 | 43 | AL40024 | 8,20 | 11,60 | 6,2 | 31 | 70 | AL40062 | 19,90 | 25,50 |
| 2,5 | 14 | 43 | AL40025 | 8,20 | 11,60 | 6,3 | 31 | 70 | AL40063 | 19,90 | 25,50 |
| 2,6 | 14 | 43 | AL40026 | 8,50 | 11,90 | 6,4 | 31 | 70 | AL40064 | 19,90 | 25,50 |
| 2,7 | 16 | 46 | AL40027 | 8,70 | 12,10 | 6,5 | 31 | 70 | AL40065 | 19,90 | 25,50 |
| 2,8 | 16 | 46 | AL40028 | 8,70 | 12,10 | 6,6 | 31 | 70 | AL40066 | 20,90 | 26,40 |
| 2,9 | 16 | 46 | AL40029 | 8,70 | 12,10 | 6,7 | 31 | 70 | AL40067 | 20,90 | 26,40 |
| 3 | 16 | 46 | AL4003 | 8,70 | 12,10 | 6,8 | 34 | 74 | AL40068 | 22,90 | 28,40 |
| 3,1 | 18 | 49 | AL40031 | 9,30 | 12,70 | 6,9 | 34 | 74 | AL40069 | 22,90 | 28,40 |
| 3,2 | 18 | 49 | AL40032 | 9,30 | 12,70 | 7 | 34 | 74 | AL4007 | 22,90 | 28,40 |
| 3,3 | 18 | 49 | AL40033 | 9,30 | 12,70 | 7,1 | 34 | 74 | AL40071 | 24,40 | 29,90 |
| 3,4 | 20 | 52 | AL40034 | 9,70 | 13,10 | 7,2 | 34 | 74 | AL40072 | 24,40 | 29,90 |
| 3,5 | 20 | 52 | AL40035 | 9,70 | 13,10 | 7,3 | 34 | 74 | AL40073 | 24,40 | 29,90 |
| 3,6 | 20 | 52 | AL40036 | 10,10 | 13,50 | 7,4 | 34 | 74 | AL40074 | 24,40 | 29,90 |
| 3,7 | 20 | 52 | AL40037 | 10,10 | 13,50 | 7,5 | 34 | 74 | AL40075 | 24,40 | 29,90 |
| 3,8 | 22 | 55 | AL40038 | 12,00 | 15,40 | 7,6 | 37 | 79 | AL40076 | 27,60 | 34,60 |
| 3,9 | 22 | 55 | AL40039 | 12,00 | 15,40 | 7,7 | 37 | 79 | AL40077 | 27,60 | 34,60 |
| 4 | 22 | 55 | AL4004 | 12,00 | 15,40 | 7,8 | 37 | 79 | AL40078 | 27,60 | 34,60 |
| 4,1 | 22 | 55 | AL40041 | 12,80 | 17,40 | 7,9 | 37 | 79 | AL40079 | 27,60 | 34,60 |
| 4,2 | 22 | 55 | AL40042 | 12,80 | 17,40 | 8 | 37 | 79 | AL4008 | 27,60 | 34,60 |
| 4,3 | 24 | 58 | AL40043 | 13,10 | 17,70 | 8,1 | 37 | 79 | AL40081 | 29,10 | 37,50 |
| 4,4 | 24 | 58 | AL40044 | 13,10 | 17,70 | 8,2 | 37 | 79 | AL40082 | 29,10 | 37,50 |
| 4,5 | 24 | 58 | AL40045 | 13,10 | 17,70 | 8,3 | 37 | 79 | AL40083 | 29,10 | 37,50 |
| 4,6 | 24 | 58 | AL40046 | 13,60 | 18,20 | 8,4 | 37 | 79 | AL40084 | 29,10 | 37,50 |
| 4,7 | 24 | 58 | AL40047 | 13,60 | 18,20 | 8,5 | 37 | 79 | AL40085 | 29,10 | 37,50 |
| 4,8 | 26 | 62 | AL40048 | 14,00 | 18,60 | 8,6 | 40 | 84 | AL40086 | 33,10 | 41,50 |
| 4,9 | 26 | 62 | AL40049 | 14,00 | 18,60 | 8,7 | 40 | 84 | AL40087 | 33,10 | 41,50 |
| 5 | 26 | 62 | AL4005 | 14,50 | 19,20 | 8,8 | 40 | 84 | AL40088 | 33,10 | 41,50 |
| 5,1 | 26 | 62 | AL40051 | 15,60 | 20,20 | 8,9 | 40 | 84 | AL40089 | 33,10 | 41,50 |
| 5,2 | 26 | 62 | AL40052 | 15,60 | 20,20 | 9 | 40 | 84 | AL4009 | 33,10 | 41,50 |
| 5,3 | 26 | 62 | AL40053 | 15,60 | 20,20 | 9,1 | 40 | 84 | AL40091 | 35,00 | 43,30 |
| 5,4 | 28 | 66 | AL40054 | 17,00 | 21,60 | 9,2 | 40 | 84 | AL40092 | 35,00 | 43,30 |
| 5,5 | 28 | 66 | AL40055 | 17,00 | 21,60 | 9,3 | 40 | 84 | AL40093 | 35,00 | 43,30 |
| 5,6 | 28 | 66 | AL40056 | 18,50 | 23,20 | 9,4 | 40 | 84 | AL40094 | 35,00 | 43,30 |
| 5,7 | 28 | 66 | AL40057 | 18,50 | 23,20 | 9,5 | 40 | 84 | AL40095 | 35,00 | 43,30 |

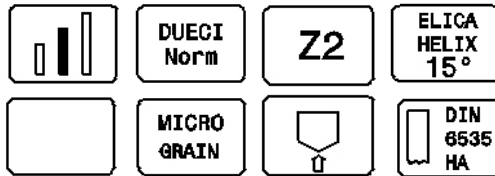
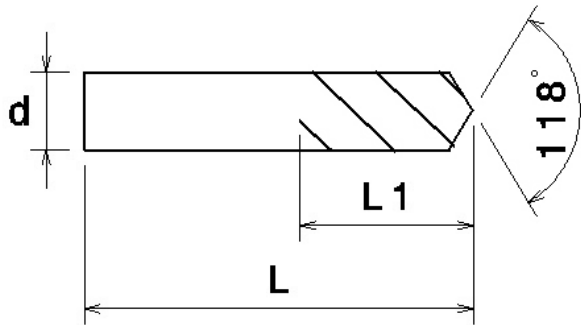
Punte Z2 DIN 6539 per alluminio

Drills 2 flutes DIN 6539 aluminium application

| d h6 | L1 | L | Cod. | € uncoated | € Tialn | d h6 | L1 | L | Cod. | € uncoated | € Tialn |
|---------|----|-----|----------------|---------------|------------|---------|----|-----|----------------|---------------|------------|
| 9,6 | 43 | 89 | AL40096 | 38,90 | 47,30 | 14,6 | 56 | 111 | AL40146 | 88,10 | 99,00 |
| 9,7 | 43 | 89 | AL40097 | 38,90 | 47,30 | 14,7 | 56 | 111 | AL40147 | 88,10 | 99,00 |
| 9,8 | 43 | 89 | AL40098 | 38,90 | 47,30 | 14,8 | 56 | 111 | AL40148 | 88,10 | 99,00 |
| 9,9 | 43 | 89 | AL40099 | 38,90 | 47,30 | 14,9 | 56 | 111 | AL40149 | 88,10 | 99,00 |
| 10 | 43 | 89 | AL4010 | 38,90 | 47,30 | 15 | 56 | 111 | AL4015 | 88,10 | 99,00 |
| 10,1 | 43 | 89 | AL40101 | 40,90 | 48,70 | 15,1 | 58 | 115 | AL40151 | 99,90 | 110,80 |
| 10,2 | 43 | 89 | AL40102 | 40,90 | 48,70 | 15,2 | 58 | 115 | AL40152 | 99,90 | 110,80 |
| 10,3 | 43 | 89 | AL40103 | 40,90 | 48,70 | 15,3 | 58 | 115 | AL40153 | 99,90 | 110,80 |
| 10,4 | 43 | 89 | AL40104 | 40,90 | 48,70 | 15,4 | 58 | 115 | AL40154 | 99,90 | 110,80 |
| 10,5 | 43 | 89 | AL40105 | 40,90 | 48,70 | 15,5 | 58 | 115 | AL40155 | 99,90 | 110,80 |
| 10,6 | 47 | 95 | AL40106 | 49,20 | 57,00 | 15,6 | 58 | 115 | AL40156 | 99,90 | 110,80 |
| 10,7 | 47 | 95 | AL40107 | 49,20 | 57,00 | 15,7 | 58 | 115 | AL40157 | 99,90 | 110,80 |
| 10,8 | 47 | 95 | AL40108 | 49,20 | 57,00 | 15,8 | 58 | 115 | AL40158 | 99,90 | 110,80 |
| 10,9 | 47 | 95 | AL40109 | 49,20 | 57,00 | 15,9 | 58 | 115 | AL40159 | 99,90 | 110,80 |
| 11 | 47 | 95 | AL4011 | 49,20 | 57,00 | 16 | 58 | 115 | AL4016 | 99,90 | 110,80 |
| 11,1 | 47 | 95 | AL40111 | 51,10 | 58,90 | 16,5 | 60 | 119 | AL40165 | 111,70 | 124,30 |
| 11,2 | 47 | 95 | AL40112 | 51,10 | 58,90 | 17 | 60 | 119 | AL4017 | 111,70 | 124,30 |
| 11,3 | 47 | 95 | AL40113 | 51,10 | 58,90 | 17,5 | 62 | 123 | AL40175 | 129,00 | 141,60 |
| 11,4 | 47 | 95 | AL40114 | 51,10 | 58,90 | 18 | 62 | 123 | AL4018 | 129,00 | 141,60 |
| 11,5 | 47 | 95 | AL40115 | 51,10 | 58,90 | 18,5 | 64 | 127 | AL40185 | 141,70 | 157,30 |
| 11,6 | 47 | 95 | AL40116 | 56,30 | 64,10 | 19 | 64 | 127 | AL4019 | 141,70 | 157,30 |
| 11,7 | 47 | 95 | AL40117 | 56,30 | 64,10 | 19,5 | 66 | 131 | AL40195 | 162,40 | 178,00 |
| 11,8 | 47 | 95 | AL40118 | 56,30 | 64,10 | 20 | 66 | 131 | AL4020 | 162,40 | 178,00 |
| 11,9 | 47 | 95 | AL40119 | 56,30 | 64,10 | | | | | | |
| 12 | 51 | 102 | AL4012 | 58,90 | 68,80 | | | | | | |
| 12,1 | 51 | 102 | AL40121 | 63,40 | 74,40 | | | | | | |
| 12,2 | 51 | 102 | AL40122 | 63,40 | 74,40 | | | | | | |
| 12,3 | 51 | 102 | AL40123 | 63,40 | 74,40 | | | | | | |
| 12,4 | 51 | 102 | AL40124 | 63,40 | 74,40 | | | | | | |
| 12,5 | 51 | 102 | AL40125 | 63,40 | 74,40 | | | | | | |
| 12,6 | 51 | 102 | AL40126 | 65,80 | 76,80 | | | | | | |
| 12,7 | 51 | 102 | AL40127 | 65,80 | 76,80 | | | | | | |
| 12,8 | 51 | 102 | AL40128 | 65,80 | 76,80 | | | | | | |
| 12,9 | 51 | 102 | AL40129 | 65,80 | 76,80 | | | | | | |
| 13 | 51 | 102 | AL4013 | 65,80 | 76,80 | | | | | | |
| 13,1 | 54 | 107 | AL40131 | 74,40 | 85,30 | | | | | | |
| 13,2 | 54 | 107 | AL40132 | 74,40 | 85,30 | | | | | | |
| 13,3 | 54 | 107 | AL40133 | 74,40 | 85,30 | | | | | | |
| 13,4 | 54 | 107 | AL40134 | 74,40 | 85,30 | | | | | | |
| 13,5 | 54 | 107 | AL40135 | 74,40 | 85,30 | | | | | | |
| 13,6 | 54 | 107 | AL40136 | 77,90 | 88,90 | | | | | | |
| 13,7 | 54 | 107 | AL40137 | 77,90 | 88,90 | | | | | | |
| 13,8 | 54 | 107 | AL40138 | 77,90 | 88,90 | | | | | | |
| 13,9 | 54 | 107 | AL40139 | 77,90 | 88,90 | | | | | | |
| 14 | 54 | 107 | AL4014 | 77,90 | 88,90 | | | | | | |
| 14,1 | 56 | 111 | AL40141 | 88,10 | 99,00 | | | | | | |
| 14,2 | 56 | 111 | AL40142 | 88,10 | 99,00 | | | | | | |
| 14,3 | 56 | 111 | AL40143 | 88,10 | 99,00 | | | | | | |
| 14,4 | 56 | 111 | AL40144 | 88,10 | 99,00 | | | | | | |
| 14,5 | 56 | 111 | AL40145 | 88,10 | 99,00 | | | | | | |

Punte Z2 DIN 6539 per ottone

Drills 2 flutes DIN 6539 brass application



| d h6 | L1 | L | Cod. | € uncoated | € tialn | d h6 | L1 | L | Cod. | € uncoated | € Tialn |
|---------|----|----|----------------|---------------|------------|---------|----|----|----------------|---------------|------------|
| 2 | 12 | 38 | OT4002 | 7,60 | 10,50 | 5,8 | 28 | 66 | OT40058 | 18,50 | 23,20 |
| 2,1 | 12 | 38 | OT40021 | 7,90 | 11,30 | 5,9 | 28 | 66 | OT40059 | 18,50 | 23,20 |
| 2,2 | 13 | 40 | OT40022 | 8,00 | 11,40 | 6 | 28 | 66 | OT4006 | 18,50 | 23,20 |
| 2,3 | 13 | 40 | OT40023 | 8,00 | 11,40 | 6,1 | 31 | 70 | OT40061 | 19,90 | 25,50 |
| 2,4 | 14 | 43 | OT40024 | 8,20 | 11,60 | 6,2 | 31 | 70 | OT40062 | 19,90 | 25,50 |
| 2,5 | 14 | 43 | OT40025 | 8,20 | 11,60 | 6,3 | 31 | 70 | OT40063 | 19,90 | 25,50 |
| 2,6 | 14 | 43 | OT40026 | 8,50 | 11,90 | 6,4 | 31 | 70 | OT40064 | 19,90 | 25,50 |
| 2,7 | 16 | 46 | OT40027 | 8,70 | 12,10 | 6,5 | 31 | 70 | OT40065 | 19,90 | 25,50 |
| 2,8 | 16 | 46 | OT40028 | 8,70 | 12,10 | 6,6 | 31 | 70 | OT40066 | 20,90 | 26,40 |
| 2,9 | 16 | 46 | OT40029 | 8,70 | 12,10 | 6,7 | 31 | 70 | OT40067 | 20,90 | 26,40 |
| 3 | 16 | 46 | OT4003 | 8,70 | 12,10 | 6,8 | 34 | 74 | OT40068 | 22,90 | 28,40 |
| 3,1 | 18 | 49 | OT40031 | 9,30 | 12,70 | 6,9 | 34 | 74 | OT40069 | 22,90 | 28,40 |
| 3,2 | 18 | 49 | OT40032 | 9,30 | 12,70 | 7 | 34 | 74 | OT4007 | 22,90 | 28,40 |
| 3,3 | 18 | 49 | OT40033 | 9,30 | 12,70 | 7,1 | 34 | 74 | OT40071 | 24,40 | 29,90 |
| 3,4 | 20 | 52 | OT40034 | 9,70 | 13,10 | 7,2 | 34 | 74 | OT40072 | 24,40 | 29,90 |
| 3,5 | 20 | 52 | OT40035 | 9,70 | 13,10 | 7,3 | 34 | 74 | OT40073 | 24,40 | 29,90 |
| 3,6 | 20 | 52 | OT40036 | 10,10 | 13,50 | 7,4 | 34 | 74 | OT40074 | 24,40 | 29,90 |
| 3,7 | 20 | 52 | OT40037 | 10,10 | 13,50 | 7,5 | 34 | 74 | OT40075 | 24,40 | 29,90 |
| 3,8 | 22 | 55 | OT40038 | 12,00 | 15,40 | 7,6 | 37 | 79 | OT40076 | 27,60 | 34,60 |
| 3,9 | 22 | 55 | OT40039 | 12,00 | 15,40 | 7,7 | 37 | 79 | OT40077 | 27,60 | 34,60 |
| 4 | 22 | 55 | OT4004 | 12,00 | 15,40 | 7,8 | 37 | 79 | OT40078 | 27,60 | 34,60 |
| 4,1 | 22 | 55 | OT40041 | 12,80 | 17,40 | 7,9 | 37 | 79 | OT40079 | 27,60 | 34,60 |
| 4,2 | 22 | 55 | OT40042 | 12,80 | 17,40 | 8 | 37 | 79 | OT4008 | 27,60 | 34,60 |
| 4,3 | 24 | 58 | OT40043 | 13,10 | 17,70 | 8,1 | 37 | 79 | OT40081 | 29,10 | 37,50 |
| 4,4 | 24 | 58 | OT40044 | 13,10 | 17,70 | 8,2 | 37 | 79 | OT40082 | 29,10 | 37,50 |
| 4,5 | 24 | 58 | OT40045 | 13,10 | 17,70 | 8,3 | 37 | 79 | OT40083 | 29,10 | 37,50 |
| 4,6 | 24 | 58 | OT40046 | 13,60 | 18,20 | 8,4 | 37 | 79 | OT40084 | 29,10 | 37,50 |
| 4,7 | 24 | 58 | OT40047 | 13,60 | 18,20 | 8,5 | 37 | 79 | OT40085 | 29,10 | 37,50 |
| 4,8 | 26 | 62 | OT40048 | 14,00 | 18,60 | 8,6 | 40 | 84 | OT40086 | 33,10 | 41,50 |
| 4,9 | 26 | 62 | OT40049 | 14,00 | 18,60 | 8,7 | 40 | 84 | OT40087 | 33,10 | 41,50 |
| 5 | 26 | 62 | OT4005 | 14,50 | 19,20 | 8,8 | 40 | 84 | OT40088 | 33,10 | 41,50 |
| 5,1 | 26 | 62 | OT40051 | 15,60 | 20,20 | 8,9 | 40 | 84 | OT40089 | 33,10 | 41,50 |
| 5,2 | 26 | 62 | OT40052 | 15,60 | 20,20 | 9 | 40 | 84 | OT4009 | 33,10 | 41,50 |
| 5,3 | 26 | 62 | OT40053 | 15,60 | 20,20 | 9,1 | 40 | 84 | OT40091 | 35,00 | 43,30 |
| 5,4 | 28 | 66 | OT40054 | 17,00 | 21,60 | 9,2 | 40 | 84 | OT40092 | 35,00 | 43,30 |
| 5,5 | 28 | 66 | OT40055 | 17,00 | 21,60 | 9,3 | 40 | 84 | OT40093 | 35,00 | 43,30 |
| 5,6 | 28 | 66 | OT40056 | 18,50 | 23,20 | 9,4 | 40 | 84 | OT40094 | 35,00 | 43,30 |
| 5,7 | 28 | 66 | OT40057 | 18,50 | 23,20 | 9,5 | 40 | 84 | OT40095 | 35,00 | 43,30 |

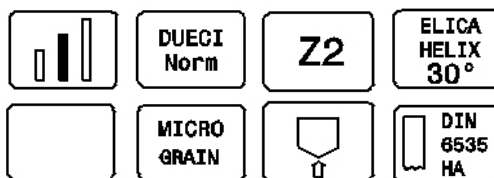
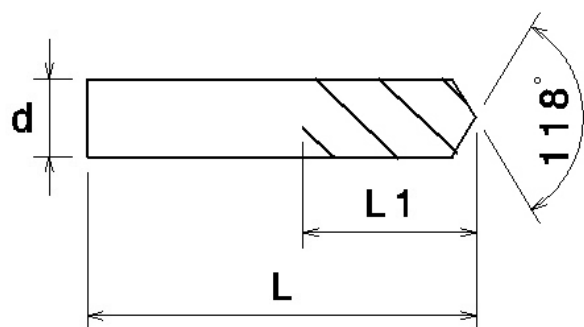
Punte Z2 DIN 6539 per ottone

Drills 2 flutes DIN 6539 brass application

| d h6 | L1 | L | Cod. | € uncoated | € Tialn | d h6 | L1 | L | Cod. | € uncoated | € Tialn |
|---------|----|-----|----------------|---------------|------------|---------|----|-----|----------------|---------------|------------|
| 9,6 | 43 | 89 | OT40096 | 38,90 | 47,30 | 14,6 | 56 | 111 | OT40146 | 88,10 | 99,00 |
| 9,7 | 43 | 89 | OT40097 | 38,90 | 47,30 | 14,7 | 56 | 111 | OT40147 | 88,10 | 99,00 |
| 9,8 | 43 | 89 | OT40098 | 38,90 | 47,30 | 14,8 | 56 | 111 | OT40148 | 88,10 | 99,00 |
| 9,9 | 43 | 89 | OT40099 | 38,90 | 47,30 | 14,9 | 56 | 111 | OT40149 | 88,10 | 99,00 |
| 10 | 43 | 89 | OT4010 | 38,90 | 47,30 | 15 | 56 | 111 | OT4015 | 88,10 | 99,00 |
| 10,1 | 43 | 89 | OT40101 | 40,90 | 48,70 | 15,1 | 58 | 115 | OT40151 | 99,90 | 110,80 |
| 10,2 | 43 | 89 | OT40102 | 40,90 | 48,70 | 15,2 | 58 | 115 | OT40152 | 99,90 | 110,80 |
| 10,3 | 43 | 89 | OT40103 | 40,90 | 48,70 | 15,3 | 58 | 115 | OT40153 | 99,90 | 110,80 |
| 10,4 | 43 | 89 | OT40104 | 40,90 | 48,70 | 15,4 | 58 | 115 | OT40154 | 99,90 | 110,80 |
| 10,5 | 43 | 89 | OT40105 | 40,90 | 48,70 | 15,5 | 58 | 115 | OT40155 | 99,90 | 110,80 |
| 10,6 | 47 | 95 | OT40106 | 49,20 | 57,00 | 15,6 | 58 | 115 | OT40156 | 99,90 | 110,80 |
| 10,7 | 47 | 95 | OT40107 | 49,20 | 57,00 | 15,7 | 58 | 115 | OT40157 | 99,90 | 110,80 |
| 10,8 | 47 | 95 | OT40108 | 49,20 | 57,00 | 15,8 | 58 | 115 | OT40158 | 99,90 | 110,80 |
| 10,9 | 47 | 95 | OT40109 | 49,20 | 57,00 | 15,9 | 58 | 115 | OT40159 | 99,90 | 110,80 |
| 11 | 47 | 95 | OT4011 | 49,20 | 57,00 | 16 | 58 | 115 | OT4016 | 99,90 | 110,80 |
| 11,1 | 47 | 95 | OT40111 | 51,10 | 58,90 | 16,5 | 60 | 119 | OT40165 | 111,70 | 124,30 |
| 11,2 | 47 | 95 | OT40112 | 51,10 | 58,90 | 17 | 60 | 119 | OT4017 | 111,70 | 124,30 |
| 11,3 | 47 | 95 | OT40113 | 51,10 | 58,90 | 17,5 | 62 | 123 | OT40175 | 129,00 | 141,60 |
| 11,4 | 47 | 95 | OT40114 | 51,10 | 58,90 | 18 | 62 | 123 | OT4018 | 129,00 | 141,60 |
| 11,5 | 47 | 95 | OT40115 | 51,10 | 58,90 | 18,5 | 64 | 127 | OT40185 | 141,70 | 157,30 |
| 11,6 | 47 | 95 | OT40116 | 56,30 | 64,10 | 19 | 64 | 127 | OT4019 | 141,70 | 157,30 |
| 11,7 | 47 | 95 | OT40117 | 56,30 | 64,10 | 19,5 | 66 | 131 | OT40195 | 162,40 | 178,00 |
| 11,8 | 47 | 95 | OT40118 | 56,30 | 64,10 | 20 | 66 | 131 | OT4020 | 162,40 | 178,00 |
| 11,9 | 47 | 95 | OT40119 | 56,30 | 64,10 | | | | | | |
| 12 | 51 | 102 | OT4012 | 58,90 | 68,80 | | | | | | |
| 12,1 | 51 | 102 | OT40121 | 63,40 | 74,40 | | | | | | |
| 12,2 | 51 | 102 | OT40122 | 63,40 | 74,40 | | | | | | |
| 12,3 | 51 | 102 | OT40123 | 63,40 | 74,40 | | | | | | |
| 12,4 | 51 | 102 | OT40124 | 63,40 | 74,40 | | | | | | |
| 12,5 | 51 | 102 | OT40125 | 63,40 | 74,40 | | | | | | |
| 12,6 | 51 | 102 | OT40126 | 65,80 | 76,80 | | | | | | |
| 12,7 | 51 | 102 | OT40127 | 65,80 | 76,80 | | | | | | |
| 12,8 | 51 | 102 | OT40128 | 65,80 | 76,80 | | | | | | |
| 12,9 | 51 | 102 | OT40129 | 65,80 | 76,80 | | | | | | |
| 13 | 51 | 102 | OT4013 | 65,80 | 76,80 | | | | | | |
| 13,1 | 54 | 107 | OT40131 | 74,40 | 85,30 | | | | | | |
| 13,2 | 54 | 107 | OT40132 | 74,40 | 85,30 | | | | | | |
| 13,3 | 54 | 107 | OT40133 | 74,40 | 85,30 | | | | | | |
| 13,4 | 54 | 107 | OT40134 | 74,40 | 85,30 | | | | | | |
| 13,5 | 54 | 107 | OT40135 | 74,40 | 85,30 | | | | | | |
| 13,6 | 54 | 107 | OT40136 | 77,90 | 88,90 | | | | | | |
| 13,7 | 54 | 107 | OT40137 | 77,90 | 88,90 | | | | | | |
| 13,8 | 54 | 107 | OT40138 | 77,90 | 88,90 | | | | | | |
| 13,9 | 54 | 107 | OT40139 | 77,90 | 88,90 | | | | | | |
| 14 | 54 | 107 | OT4014 | 77,90 | 88,90 | | | | | | |
| 14,1 | 56 | 111 | OT40141 | 88,10 | 99,00 | | | | | | |
| 14,2 | 56 | 111 | OT40142 | 88,10 | 99,00 | | | | | | |
| 14,3 | 56 | 111 | OT40143 | 88,10 | 99,00 | | | | | | |
| 14,4 | 56 | 111 | OT40144 | 88,10 | 99,00 | | | | | | |
| 14,5 | 56 | 111 | OT40145 | 88,10 | 99,00 | | | | | | |

Punte Z2 DIN 6539 doppia guida per ottone

Double guide drills 2 flutes DIN 6539 brass application



| d h6 | L1 | L | Cod. | € uncoated | € tialn | d h6 | L1 | L | Cod. | € uncoated | € Tialn |
|---------|----|----|---------|---------------|------------|---------|----|----|---------|---------------|------------|
| 2 | 12 | 38 | DG4002 | 8,40 | 11,60 | 5,8 | 28 | 66 | DG40058 | 20,40 | 25,50 |
| 2,1 | 12 | 38 | DG40021 | 8,60 | 12,40 | 5,9 | 28 | 66 | DG40059 | 20,40 | 25,50 |
| 2,2 | 13 | 40 | DG40022 | 8,80 | 12,50 | 6 | 28 | 66 | DG4006 | 20,40 | 25,50 |
| 2,3 | 13 | 40 | DG40023 | 8,80 | 12,50 | 6,1 | 31 | 70 | DG40061 | 21,90 | 28,00 |
| 2,4 | 14 | 43 | DG40024 | 9,10 | 12,80 | 6,2 | 31 | 70 | DG40062 | 21,90 | 28,00 |
| 2,5 | 14 | 43 | DG40025 | 9,10 | 12,80 | 6,3 | 31 | 70 | DG40063 | 21,90 | 28,00 |
| 2,6 | 14 | 43 | DG40026 | 9,40 | 13,10 | 6,4 | 31 | 70 | DG40064 | 21,90 | 28,00 |
| 2,7 | 16 | 46 | DG40027 | 9,60 | 13,30 | 6,5 | 31 | 70 | DG40065 | 21,90 | 28,00 |
| 2,8 | 16 | 46 | DG40028 | 9,60 | 13,30 | 6,6 | 31 | 70 | DG40066 | 23,00 | 29,10 |
| 2,9 | 16 | 46 | DG40029 | 9,60 | 13,30 | 6,7 | 31 | 70 | DG40067 | 23,00 | 29,10 |
| 3 | 16 | 46 | DG4003 | 9,60 | 13,30 | 6,8 | 34 | 74 | DG40068 | 25,10 | 31,20 |
| 3,1 | 18 | 49 | DG40031 | 10,20 | 14,00 | 6,9 | 34 | 74 | DG40069 | 25,10 | 31,20 |
| 3,2 | 18 | 49 | DG40032 | 10,20 | 14,00 | 7 | 34 | 74 | DG4007 | 25,10 | 31,20 |
| 3,3 | 18 | 49 | DG40033 | 10,20 | 14,00 | 7,1 | 34 | 74 | DG40071 | 26,80 | 32,90 |
| 3,4 | 20 | 52 | DG40034 | 10,70 | 14,40 | 7,2 | 34 | 74 | DG40072 | 26,80 | 32,90 |
| 3,5 | 20 | 52 | DG40035 | 10,70 | 14,40 | 7,3 | 34 | 74 | DG40073 | 26,80 | 32,90 |
| 3,6 | 20 | 52 | DG40036 | 11,10 | 14,80 | 7,4 | 34 | 74 | DG40074 | 26,80 | 32,90 |
| 3,7 | 20 | 52 | DG40037 | 11,10 | 14,80 | 7,5 | 34 | 74 | DG40075 | 26,80 | 32,90 |
| 3,8 | 22 | 55 | DG40038 | 13,20 | 16,90 | 7,6 | 37 | 79 | DG40076 | 30,30 | 38,00 |
| 3,9 | 22 | 55 | DG40039 | 13,20 | 16,90 | 7,7 | 37 | 79 | DG40077 | 30,30 | 38,00 |
| 4 | 22 | 55 | DG4004 | 13,20 | 16,90 | 7,8 | 37 | 79 | DG40078 | 30,30 | 38,00 |
| 4,1 | 22 | 55 | DG40041 | 14,10 | 19,10 | 7,9 | 37 | 79 | DG40079 | 30,30 | 38,00 |
| 4,2 | 22 | 55 | DG40042 | 14,10 | 19,10 | 8 | 37 | 79 | DG4008 | 30,30 | 38,00 |
| 4,3 | 24 | 58 | DG40043 | 14,40 | 19,40 | 8,1 | 37 | 79 | DG40081 | 32,00 | 41,20 |
| 4,4 | 24 | 58 | DG40044 | 14,40 | 19,40 | 8,2 | 37 | 79 | DG40082 | 32,00 | 41,20 |
| 4,5 | 24 | 58 | DG40045 | 14,40 | 19,40 | 8,3 | 37 | 79 | DG40083 | 32,00 | 41,20 |
| 4,6 | 24 | 58 | DG40046 | 14,90 | 20,00 | 8,4 | 37 | 79 | DG40084 | 32,00 | 41,20 |
| 4,7 | 24 | 58 | DG40047 | 14,90 | 20,00 | 8,5 | 37 | 79 | DG40085 | 32,00 | 41,20 |
| 4,8 | 26 | 62 | DG40048 | 15,40 | 20,40 | 8,6 | 40 | 84 | DG40086 | 36,50 | 45,70 |
| 4,9 | 26 | 62 | DG40049 | 15,40 | 20,40 | 8,7 | 40 | 84 | DG40087 | 36,50 | 45,70 |
| 5 | 26 | 62 | DG4005 | 16,00 | 21,10 | 8,8 | 40 | 84 | DG40088 | 36,50 | 45,70 |
| 5,1 | 26 | 62 | DG40051 | 17,10 | 22,20 | 8,9 | 40 | 84 | DG40089 | 36,50 | 45,70 |
| 5,2 | 26 | 62 | DG40052 | 17,10 | 22,20 | 9 | 40 | 84 | DG4009 | 36,50 | 45,70 |
| 5,3 | 26 | 62 | DG40053 | 17,10 | 22,20 | 9,1 | 40 | 84 | DG40091 | 38,50 | 47,70 |
| 5,4 | 28 | 66 | DG40054 | 18,70 | 23,80 | 9,2 | 40 | 84 | DG40092 | 38,50 | 47,70 |
| 5,5 | 28 | 66 | DG40055 | 18,70 | 23,80 | 9,3 | 40 | 84 | DG40093 | 38,50 | 47,70 |
| 5,6 | 28 | 66 | DG40056 | 20,40 | 25,50 | 9,4 | 40 | 84 | DG40094 | 38,50 | 47,70 |
| 5,7 | 28 | 66 | DG40057 | 20,40 | 25,50 | 9,5 | 40 | 84 | DG40095 | 38,50 | 47,70 |

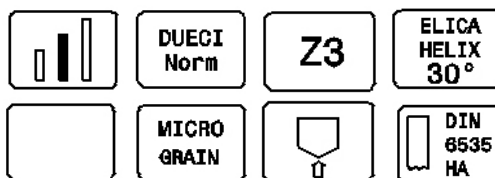
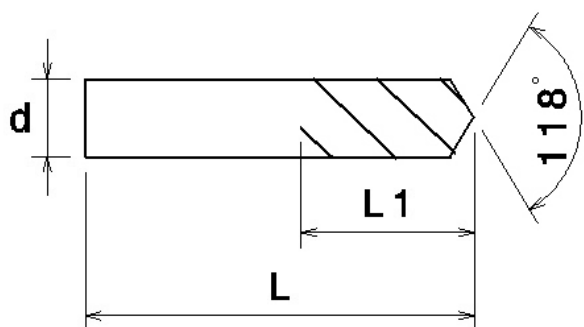
Punte Z2 DIN 6539 doppia guida per ottone

Double guide drills 2 flutes DIN 6539 brass application

| d h6 | L1 | L | Cod. | € uncoated | € Tialn | d h6 | L1 | L | Cod. | € uncoated | € Tialn |
|---------|----|-----|----------------|---------------|------------|---------|----|-----|----------------|---------------|------------|
| 9,6 | 43 | 89 | DG40096 | 42,80 | 52,00 | 14,8 | 56 | 111 | DG40148 | 96,90 | 108,90 |
| 9,7 | 43 | 89 | DG40097 | 42,80 | 52,00 | 14,9 | 56 | 111 | DG40149 | 96,90 | 108,90 |
| 9,8 | 43 | 89 | DG40098 | 42,80 | 52,00 | 15 | 56 | 111 | DG4015 | 96,90 | 108,90 |
| 9,9 | 43 | 89 | DG40099 | 42,80 | 52,00 | 15,1 | 58 | 115 | DG40151 | 109,90 | 121,90 |
| 10 | 43 | 89 | DG4010 | 42,80 | 52,00 | 15,2 | 58 | 115 | DG40152 | 109,90 | 121,90 |
| 10,1 | 43 | 89 | DG40101 | 45,00 | 53,60 | 15,3 | 58 | 115 | DG40153 | 109,90 | 121,90 |
| 10,2 | 43 | 89 | DG40102 | 45,00 | 53,60 | 15,4 | 58 | 115 | DG40154 | 109,90 | 121,90 |
| 10,3 | 43 | 89 | DG40103 | 45,00 | 53,60 | 15,5 | 58 | 115 | DG40155 | 109,90 | 121,90 |
| 10,4 | 43 | 89 | DG40104 | 45,00 | 53,60 | 15,6 | 58 | 115 | DG40156 | 109,90 | 121,90 |
| 10,5 | 43 | 89 | DG40105 | 45,00 | 53,60 | 15,7 | 58 | 115 | DG40157 | 109,90 | 121,90 |
| 10,6 | 47 | 95 | DG40106 | 54,10 | 62,60 | 15,8 | 58 | 115 | DG40158 | 109,90 | 121,90 |
| 10,7 | 47 | 95 | DG40107 | 54,10 | 62,60 | 15,9 | 58 | 115 | DG40159 | 109,90 | 121,90 |
| 10,8 | 47 | 95 | DG40108 | 54,10 | 62,60 | 16 | 58 | 115 | DG4016 | 109,90 | 121,90 |
| 10,9 | 47 | 95 | DG40109 | 54,10 | 62,60 | 16,5 | 60 | 119 | DG40165 | 122,90 | 136,70 |
| 11 | 47 | 95 | DG4011 | 54,10 | 62,60 | 17 | 60 | 119 | DG4017 | 122,90 | 136,70 |
| 11,1 | 47 | 95 | DG40111 | 56,20 | 64,80 | 17,5 | 62 | 123 | DG40175 | 141,90 | 155,80 |
| 11,2 | 47 | 95 | DG40112 | 56,20 | 64,80 | 18 | 62 | 123 | DG4018 | 141,90 | 155,80 |
| 11,3 | 47 | 95 | DG40113 | 56,20 | 64,80 | 18,5 | 64 | 127 | DG40185 | 155,80 | 173,00 |
| 11,4 | 47 | 95 | DG40114 | 56,20 | 64,80 | 19 | 64 | 127 | DG4019 | 155,80 | 173,00 |
| 11,5 | 47 | 95 | DG40115 | 56,20 | 64,80 | 19,5 | 66 | 131 | DG40195 | 178,60 | 195,80 |
| 11,6 | 47 | 95 | DG40116 | 61,90 | 70,50 | 20 | 66 | 131 | DG4020 | 178,60 | 195,80 |
| 11,7 | 47 | 95 | DG40117 | 61,90 | 70,50 | | | | | | |
| 11,8 | 47 | 95 | DG40118 | 61,90 | 70,50 | | | | | | |
| 11,9 | 47 | 95 | DG40119 | 61,90 | 70,50 | | | | | | |
| 12,2 | 51 | 102 | DG40122 | 69,80 | 81,80 | | | | | | |
| 12,3 | 51 | 102 | DG40123 | 69,80 | 81,80 | | | | | | |
| 12,4 | 51 | 102 | DG40124 | 69,80 | 81,80 | | | | | | |
| 12,5 | 51 | 102 | DG40125 | 69,80 | 81,80 | | | | | | |
| 12,6 | 51 | 102 | DG40126 | 72,40 | 84,40 | | | | | | |
| 12,7 | 51 | 102 | DG40127 | 72,40 | 84,40 | | | | | | |
| 12,8 | 51 | 102 | DG40128 | 72,40 | 84,40 | | | | | | |
| 12,9 | 51 | 102 | DG40129 | 72,40 | 84,40 | | | | | | |
| 13 | 51 | 102 | DG4013 | 72,40 | 84,40 | | | | | | |
| 13,1 | 54 | 107 | DG40131 | 81,80 | 93,90 | | | | | | |
| 13,2 | 54 | 107 | DG40132 | 81,80 | 93,90 | | | | | | |
| 13,3 | 54 | 107 | DG40133 | 81,80 | 93,90 | | | | | | |
| 13,4 | 54 | 107 | DG40134 | 81,80 | 93,90 | | | | | | |
| 13,5 | 54 | 107 | DG40135 | 81,80 | 93,90 | | | | | | |
| 13,6 | 54 | 107 | DG40136 | 85,70 | 97,70 | | | | | | |
| 13,7 | 54 | 107 | DG40137 | 85,70 | 97,70 | | | | | | |
| 13,8 | 54 | 107 | DG40138 | 85,70 | 97,70 | | | | | | |
| 13,9 | 54 | 107 | DG40139 | 85,70 | 97,70 | | | | | | |
| 14 | 54 | 107 | DG4014 | 85,70 | 97,70 | | | | | | |
| 14,1 | 56 | 111 | DG40141 | 96,90 | 108,90 | | | | | | |
| 14,2 | 56 | 111 | DG40142 | 96,90 | 108,90 | | | | | | |
| 14,3 | 56 | 111 | DG40143 | 96,90 | 108,90 | | | | | | |
| 14,4 | 56 | 111 | DG40144 | 96,90 | 108,90 | | | | | | |
| 14,5 | 56 | 111 | DG40145 | 96,90 | 108,90 | | | | | | |
| 14,6 | 56 | 111 | DG40146 | 96,90 | 108,90 | | | | | | |
| 14,7 | 56 | 111 | DG40147 | 96,90 | 108,90 | | | | | | |

Punte Z3 DIN 6539

Drills 3 flutes DIN 6539



| d h6 | L1 | L | Cod. | € uncoated | € tialn | d h6 | L1 | L | Cod. | € uncoated | € Tialn |
|---------|----|----|--------------|---------------|------------|---------|----|----|--------------|---------------|------------|
| 2 | 12 | 38 | 4102 | 9,30 | 12,30 | 5,8 | 28 | 66 | 41058 | 19,90 | 24,50 |
| 2,1 | 12 | 38 | 41021 | 9,60 | 13,00 | 5,9 | 28 | 66 | 41059 | 19,90 | 24,50 |
| 2,2 | 13 | 40 | 41022 | 9,70 | 13,10 | 6 | 28 | 66 | 4106 | 19,90 | 24,50 |
| 2,3 | 13 | 40 | 41023 | 9,70 | 13,10 | 6,1 | 31 | 70 | 41061 | 22,10 | 27,60 |
| 2,4 | 14 | 43 | 41024 | 10,30 | 13,70 | 6,2 | 31 | 70 | 41062 | 22,10 | 27,60 |
| 2,5 | 14 | 43 | 41025 | 10,30 | 13,70 | 6,3 | 31 | 70 | 41063 | 22,10 | 27,60 |
| 2,6 | 14 | 43 | 41026 | 10,60 | 14,00 | 6,4 | 31 | 70 | 41064 | 22,10 | 27,60 |
| 2,7 | 16 | 46 | 41027 | 10,70 | 14,10 | 6,5 | 31 | 70 | 41065 | 22,10 | 27,60 |
| 2,8 | 16 | 46 | 41028 | 10,70 | 14,10 | 6,6 | 31 | 70 | 41066 | 23,00 | 28,60 |
| 2,9 | 16 | 46 | 41029 | 10,70 | 14,10 | 6,7 | 31 | 70 | 41067 | 23,00 | 28,60 |
| 3 | 16 | 46 | 4103 | 10,70 | 14,10 | 6,8 | 34 | 74 | 41068 | 25,20 | 30,70 |
| 3,1 | 18 | 49 | 41031 | 11,40 | 14,80 | 6,9 | 34 | 74 | 41069 | 25,20 | 30,70 |
| 3,2 | 18 | 49 | 41032 | 11,40 | 14,80 | 7 | 34 | 74 | 4107 | 25,20 | 30,70 |
| 3,3 | 18 | 49 | 41033 | 11,40 | 14,80 | 7,1 | 34 | 74 | 41071 | 26,70 | 32,20 |
| 3,4 | 20 | 52 | 41034 | 12,00 | 15,40 | 7,2 | 34 | 74 | 41072 | 26,70 | 32,20 |
| 3,5 | 20 | 52 | 41035 | 12,00 | 15,40 | 7,3 | 34 | 74 | 41073 | 26,70 | 32,20 |
| 3,6 | 20 | 52 | 41036 | 12,40 | 15,80 | 7,4 | 34 | 74 | 41074 | 26,70 | 32,20 |
| 3,7 | 20 | 52 | 41037 | 12,40 | 15,80 | 7,5 | 34 | 74 | 41075 | 26,70 | 32,20 |
| 3,8 | 22 | 55 | 41038 | 13,50 | 16,90 | 7,6 | 37 | 79 | 41076 | 30,80 | 37,80 |
| 3,9 | 22 | 55 | 41039 | 13,50 | 16,90 | 7,7 | 37 | 79 | 41077 | 30,80 | 37,80 |
| 4 | 22 | 55 | 4104 | 13,50 | 16,90 | 7,8 | 37 | 79 | 41078 | 30,80 | 37,80 |
| 4,1 | 22 | 55 | 41041 | 14,30 | 18,90 | 7,9 | 37 | 79 | 41079 | 30,80 | 37,80 |
| 4,2 | 22 | 55 | 41042 | 14,30 | 18,90 | 8 | 37 | 79 | 4108 | 30,80 | 37,80 |
| 4,3 | 24 | 58 | 41043 | 15,20 | 19,80 | 8,1 | 37 | 79 | 41081 | 32,40 | 40,70 |
| 4,4 | 24 | 58 | 41044 | 15,20 | 19,80 | 8,2 | 37 | 79 | 41082 | 32,40 | 40,70 |
| 4,5 | 24 | 58 | 41045 | 15,20 | 19,80 | 8,3 | 37 | 79 | 41083 | 32,40 | 40,70 |
| 4,6 | 24 | 58 | 41046 | 15,70 | 20,30 | 8,4 | 37 | 79 | 41084 | 32,40 | 40,70 |
| 4,7 | 24 | 58 | 41047 | 15,70 | 20,30 | 8,5 | 37 | 79 | 41085 | 32,40 | 40,70 |
| 4,8 | 26 | 62 | 41048 | 16,10 | 20,70 | 8,6 | 40 | 84 | 41086 | 36,00 | 44,40 |
| 4,9 | 26 | 62 | 41049 | 16,10 | 20,70 | 8,7 | 40 | 84 | 41087 | 36,00 | 44,40 |
| 5 | 26 | 62 | 4105 | 16,10 | 20,70 | 8,8 | 40 | 84 | 41088 | 36,00 | 44,40 |
| 5,1 | 26 | 62 | 41051 | 17,10 | 21,70 | 8,9 | 40 | 84 | 41089 | 36,00 | 44,40 |
| 5,2 | 26 | 62 | 41052 | 17,10 | 21,70 | 9 | 40 | 84 | 4109 | 36,00 | 44,40 |
| 5,3 | 26 | 62 | 41053 | 17,10 | 21,70 | 9,1 | 40 | 84 | 41091 | 37,90 | 46,20 |
| 5,4 | 28 | 66 | 41054 | 18,90 | 23,50 | 9,2 | 40 | 84 | 41092 | 37,90 | 46,20 |
| 5,5 | 28 | 66 | 41055 | 18,90 | 23,50 | 9,3 | 40 | 84 | 41093 | 37,90 | 46,20 |
| 5,6 | 28 | 66 | 41056 | 19,90 | 24,50 | 9,4 | 40 | 84 | 41094 | 37,90 | 46,20 |
| 5,7 | 28 | 66 | 41057 | 19,90 | 24,50 | 9,5 | 40 | 84 | 41095 | 37,90 | 46,20 |

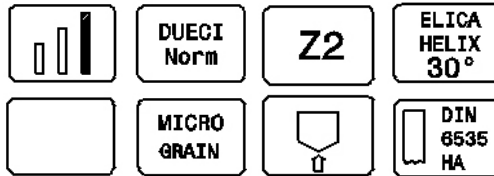
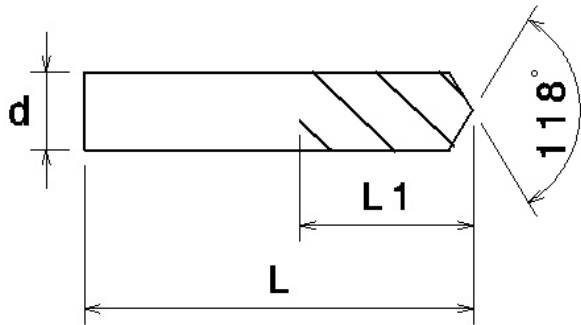
Punte Z3 DIN 6539

Drills 3 flutes DIN 6539

| d h6 | L1 | L | Cod. | € uncoated | € tialn | d h6 | L1 | L | Cod. | € uncoated | € Tialn |
|---------|----|-----|--------------|---------------|------------|---------|----|-----|--------------|---------------|------------|
| 9,6 | 43 | 89 | 41096 | 42,80 | 51,20 | 14,6 | 56 | 111 | 41146 | 98,60 | 110,40 |
| 9,7 | 43 | 89 | 41097 | 42,80 | 51,20 | 14,7 | 56 | 111 | 41147 | 98,60 | 110,40 |
| 9,8 | 43 | 89 | 41098 | 42,80 | 51,20 | 14,8 | 56 | 111 | 41148 | 98,60 | 110,40 |
| 9,9 | 43 | 89 | 41099 | 42,80 | 51,20 | 14,9 | 56 | 111 | 41149 | 98,60 | 110,40 |
| 10 | 43 | 89 | 4110 | 42,80 | 51,20 | 15 | 56 | 111 | 4115 | 98,60 | 110,40 |
| 10,1 | 43 | 89 | 41101 | 45,40 | 53,80 | 15,1 | 58 | 115 | 41151 | 111,10 | 122,90 |
| 10,2 | 43 | 89 | 41102 | 45,40 | 53,80 | 15,2 | 58 | 115 | 41152 | 111,10 | 122,90 |
| 10,3 | 43 | 89 | 41103 | 45,40 | 53,80 | 15,3 | 58 | 115 | 41153 | 111,10 | 122,90 |
| 10,4 | 43 | 89 | 41104 | 45,40 | 53,80 | 15,4 | 58 | 115 | 41154 | 111,10 | 122,90 |
| 10,5 | 43 | 89 | 41105 | 45,40 | 53,80 | 15,5 | 58 | 115 | 41155 | 111,10 | 122,90 |
| 10,6 | 47 | 95 | 41106 | 55,30 | 63,70 | 15,6 | 58 | 115 | 41156 | 111,10 | 122,90 |
| 10,7 | 47 | 95 | 41107 | 55,30 | 63,70 | 15,7 | 58 | 115 | 41157 | 111,10 | 122,90 |
| 10,8 | 47 | 95 | 41108 | 55,30 | 63,70 | 15,8 | 58 | 115 | 41158 | 111,10 | 122,90 |
| 10,9 | 47 | 95 | 41109 | 55,30 | 63,70 | 15,9 | 58 | 115 | 41159 | 111,10 | 122,90 |
| 11 | 47 | 95 | 4111 | 55,30 | 63,70 | 16 | 58 | 115 | 4116 | 111,10 | 122,90 |
| 11,1 | 47 | 95 | 41111 | 57,40 | 65,80 | 16,5 | 60 | 119 | 41165 | 125,00 | 138,50 |
| 11,2 | 47 | 95 | 41112 | 57,40 | 65,80 | 17 | 60 | 119 | 4117 | 125,00 | 138,50 |
| 11,3 | 47 | 95 | 41113 | 57,40 | 65,80 | 17,5 | 62 | 123 | 41175 | 143,90 | 157,40 |
| 11,4 | 47 | 95 | 41114 | 57,40 | 65,80 | 18 | 62 | 123 | 4118 | 143,90 | 157,40 |
| 11,5 | 47 | 95 | 41115 | 57,40 | 65,80 | 18,5 | 64 | 127 | 41185 | 161,30 | 178,10 |
| 11,6 | 47 | 95 | 41116 | 62,90 | 71,20 | 19 | 64 | 127 | 4119 | 161,30 | 178,10 |
| 11,7 | 47 | 95 | 41117 | 62,90 | 71,20 | 19,5 | 66 | 131 | 41195 | 183,40 | 200,20 |
| 11,8 | 47 | 95 | 41118 | 62,90 | 71,20 | 20 | 66 | 131 | 4120 | 183,40 | 200,20 |
| 11,9 | 47 | 95 | 41119 | 62,90 | 71,20 | | | | | | |
| 12 | 51 | 102 | 4112 | 67,60 | 78,30 | | | | | | |
| 12,1 | 51 | 102 | 41121 | 71,20 | 83,00 | | | | | | |
| 12,2 | 51 | 102 | 41122 | 71,20 | 83,00 | | | | | | |
| 12,3 | 51 | 102 | 41123 | 71,20 | 83,00 | | | | | | |
| 12,4 | 51 | 102 | 41124 | 71,20 | 83,00 | | | | | | |
| 12,5 | 51 | 102 | 41125 | 71,20 | 83,00 | | | | | | |
| 12,6 | 51 | 102 | 41126 | 73,70 | 85,50 | | | | | | |
| 12,7 | 51 | 102 | 41127 | 73,70 | 85,50 | | | | | | |
| 12,8 | 51 | 102 | 41128 | 73,70 | 85,50 | | | | | | |
| 12,9 | 51 | 102 | 41129 | 73,70 | 85,50 | | | | | | |
| 13 | 51 | 102 | 4113 | 73,70 | 85,50 | | | | | | |
| 13,1 | 54 | 107 | 41131 | 84,00 | 95,80 | | | | | | |
| 13,2 | 54 | 107 | 41132 | 84,00 | 95,80 | | | | | | |
| 13,3 | 54 | 107 | 41133 | 84,00 | 95,80 | | | | | | |
| 13,4 | 54 | 107 | 41134 | 84,00 | 95,80 | | | | | | |
| 13,5 | 54 | 107 | 41135 | 84,00 | 95,80 | | | | | | |
| 13,6 | 54 | 107 | 41136 | 87,70 | 99,50 | | | | | | |
| 13,7 | 54 | 107 | 41137 | 87,70 | 99,50 | | | | | | |
| 13,8 | 54 | 107 | 41138 | 87,70 | 99,50 | | | | | | |
| 13,9 | 54 | 107 | 41139 | 87,70 | 99,50 | | | | | | |
| 14 | 54 | 107 | 4114 | 87,70 | 99,50 | | | | | | |
| 14,1 | 56 | 111 | 41141 | 98,60 | 110,40 | | | | | | |
| 14,2 | 56 | 111 | 41142 | 98,60 | 110,40 | | | | | | |
| 14,3 | 56 | 111 | 41143 | 98,60 | 110,40 | | | | | | |
| 14,4 | 56 | 111 | 41144 | 98,60 | 110,40 | | | | | | |
| 14,5 | 56 | 111 | 41145 | 98,60 | 110,40 | | | | | | |

Punte Z2 DIN 338

Drills 2 flutes DIN338



| d h6 | L1 | L | Cod. | € uncoated | € tialn | d h6 | L1 | L | Cod. | € uncoated | € Tialn |
|---------|----|----|--------------|---------------|------------|---------|----|-----|--------------|---------------|------------|
| 0,5 | 7 | 28 | 39005 | 8,90 | 12,00 | 4,3 | 47 | 80 | 39043 | 18,90 | 24,30 |
| 0,6 | 7 | 28 | 39006 | 8,90 | 12,00 | 4,4 | 47 | 80 | 39044 | 18,90 | 24,30 |
| 0,7 | 9 | 28 | 39007 | 7,90 | 11,00 | 4,5 | 47 | 80 | 39045 | 18,90 | 24,30 |
| 0,8 | 10 | 30 | 39008 | 7,90 | 11,00 | 4,6 | 47 | 80 | 39046 | 19,50 | 25,00 |
| 0,9 | 11 | 32 | 39009 | 7,90 | 11,00 | 4,7 | 47 | 80 | 39047 | 19,50 | 25,00 |
| 1 | 12 | 34 | 3901 | 7,90 | 11,00 | 4,8 | 52 | 86 | 39048 | 21,00 | 26,50 |
| 1,1 | 14 | 36 | 39011 | 8,80 | 11,90 | 4,9 | 52 | 86 | 39049 | 21,00 | 26,50 |
| 1,2 | 16 | 38 | 39012 | 8,80 | 11,90 | 5 | 52 | 86 | 3905 | 21,00 | 26,50 |
| 1,3 | 16 | 38 | 39013 | 8,80 | 11,90 | 5,1 | 52 | 86 | 39051 | 22,30 | 27,80 |
| 1,4 | 18 | 40 | 39014 | 8,80 | 11,90 | 5,2 | 52 | 86 | 39052 | 22,30 | 27,80 |
| 1,5 | 18 | 40 | 39015 | 8,80 | 11,90 | 5,3 | 52 | 86 | 39053 | 22,30 | 27,80 |
| 1,6 | 20 | 43 | 39016 | 8,80 | 11,90 | 5,4 | 57 | 93 | 39054 | 23,10 | 28,60 |
| 1,7 | 20 | 43 | 39017 | 8,80 | 11,90 | 5,5 | 57 | 93 | 39055 | 23,10 | 28,60 |
| 1,8 | 22 | 46 | 39018 | 12,00 | 15,10 | 5,6 | 57 | 93 | 39056 | 24,40 | 29,90 |
| 1,9 | 22 | 46 | 39019 | 12,00 | 15,10 | 5,7 | 57 | 93 | 39057 | 24,40 | 29,90 |
| 2 | 24 | 49 | 3902 | 11,60 | 14,30 | 5,8 | 57 | 93 | 39058 | 24,40 | 29,90 |
| 2,1 | 24 | 49 | 39021 | 11,90 | 14,60 | 5,9 | 57 | 93 | 39059 | 24,40 | 29,90 |
| 2,2 | 27 | 53 | 39022 | 12,10 | 15,20 | 6 | 57 | 93 | 3906 | 24,40 | 29,90 |
| 2,3 | 27 | 53 | 39023 | 12,10 | 15,20 | 6,1 | 63 | 101 | 39061 | 27,10 | 35,10 |
| 2,4 | 30 | 57 | 39024 | 12,30 | 15,40 | 6,2 | 63 | 101 | 39062 | 27,10 | 35,10 |
| 2,5 | 30 | 57 | 39025 | 12,30 | 15,40 | 6,3 | 63 | 101 | 39063 | 27,10 | 35,10 |
| 2,6 | 30 | 57 | 39026 | 12,70 | 15,80 | 6,4 | 63 | 101 | 39064 | 27,10 | 35,10 |
| 2,7 | 33 | 61 | 39027 | 14,80 | 18,00 | 6,5 | 63 | 101 | 39065 | 27,10 | 35,10 |
| 2,8 | 33 | 61 | 39028 | 14,80 | 18,00 | 6,6 | 63 | 101 | 39066 | 28,40 | 36,40 |
| 2,9 | 33 | 61 | 39029 | 14,80 | 18,00 | 6,7 | 63 | 101 | 39067 | 28,40 | 36,40 |
| 3 | 33 | 61 | 3903 | 14,80 | 18,00 | 6,8 | 69 | 109 | 39068 | 30,90 | 38,90 |
| 3,1 | 35 | 65 | 39031 | 15,50 | 18,60 | 6,9 | 69 | 109 | 39069 | 30,90 | 38,90 |
| 3,2 | 35 | 65 | 39032 | 15,50 | 18,60 | 7 | 69 | 109 | 3907 | 30,90 | 38,90 |
| 3,3 | 35 | 65 | 39033 | 15,50 | 18,60 | 7,1 | 69 | 109 | 39071 | 33,00 | 41,00 |
| 3,4 | 39 | 70 | 39034 | 15,70 | 18,90 | 7,2 | 69 | 109 | 39072 | 33,00 | 41,00 |
| 3,5 | 39 | 70 | 39035 | 15,70 | 18,90 | 7,3 | 69 | 109 | 39073 | 33,00 | 41,00 |
| 3,6 | 39 | 70 | 39036 | 16,20 | 19,40 | 7,4 | 69 | 109 | 39074 | 33,00 | 41,00 |
| 3,7 | 39 | 70 | 39037 | 16,20 | 19,40 | 7,5 | 69 | 109 | 39075 | 33,00 | 41,00 |
| 3,8 | 43 | 75 | 39038 | 17,10 | 20,30 | 7,6 | 75 | 117 | 39076 | 38,90 | 47,00 |
| 3,9 | 43 | 75 | 39039 | 17,10 | 20,30 | 7,7 | 75 | 117 | 39077 | 38,90 | 47,00 |
| 4 | 43 | 75 | 3904 | 17,10 | 20,30 | 7,8 | 75 | 117 | 39078 | 38,90 | 47,00 |
| 4,1 | 43 | 75 | 39041 | 18,10 | 22,40 | 7,9 | 75 | 117 | 39079 | 38,90 | 47,00 |
| 4,2 | 43 | 75 | 39042 | 18,10 | 22,40 | 8 | 75 | 117 | 3908 | 38,90 | 47,00 |

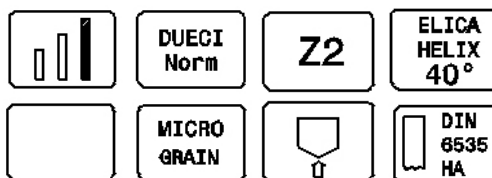
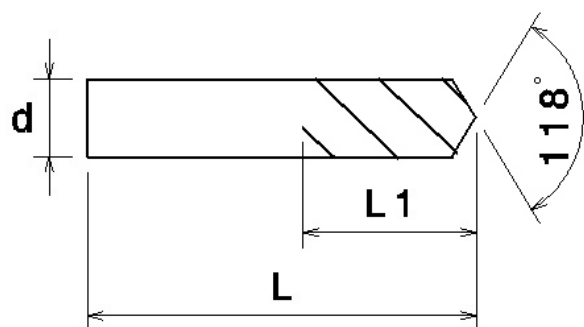
Punte Z2 DIN 338

Drills 2 flutes DIN338

| d h6 | L1 | L | Cod. | € uncoated | € Tialn | d h6 | L1 | L | Cod. | € uncoated | € Tialn |
|---------|-----|-----|--------------|---------------|------------|---------|-----|-----|--------------|---------------|------------|
| 8,1 | 75 | 117 | 39081 | 41,00 | 51,00 | 13,1 | 108 | 160 | 39131 | 116,10 | 130,70 |
| 8,2 | 75 | 117 | 39082 | 41,00 | 51,00 | 13,2 | 108 | 160 | 39132 | 116,10 | 130,70 |
| 8,3 | 75 | 117 | 39083 | 41,00 | 51,00 | 13,3 | 108 | 160 | 39133 | 116,10 | 130,70 |
| 8,4 | 75 | 117 | 39084 | 41,00 | 51,00 | 13,4 | 108 | 160 | 39134 | 116,10 | 130,70 |
| 8,5 | 75 | 117 | 39085 | 41,00 | 51,00 | 13,5 | 108 | 160 | 39135 | 116,10 | 130,70 |
| 8,6 | 81 | 125 | 39086 | 48,40 | 58,30 | 13,6 | 108 | 160 | 39136 | 123,70 | 138,30 |
| 8,7 | 81 | 125 | 39087 | 48,40 | 58,30 | 13,7 | 108 | 160 | 39137 | 123,70 | 138,30 |
| 8,8 | 81 | 125 | 39088 | 48,40 | 58,30 | 13,8 | 108 | 160 | 39138 | 123,70 | 138,30 |
| 8,9 | 81 | 125 | 39089 | 48,40 | 58,30 | 13,9 | 108 | 160 | 39139 | 123,70 | 138,30 |
| 9 | 81 | 125 | 3909 | 48,40 | 58,30 | 14 | 108 | 160 | 3914 | 123,70 | 138,30 |
| 9,1 | 81 | 125 | 39091 | 52,80 | 62,80 | 14,1 | 114 | 169 | 39141 | 142,60 | 157,30 |
| 9,2 | 81 | 125 | 39092 | 52,80 | 62,80 | 14,2 | 114 | 169 | 39142 | 142,60 | 157,30 |
| 9,3 | 81 | 125 | 39093 | 52,80 | 62,80 | 14,3 | 114 | 169 | 39143 | 142,60 | 157,30 |
| 9,4 | 81 | 125 | 39094 | 52,80 | 62,80 | 14,4 | 114 | 169 | 39144 | 142,60 | 157,30 |
| 9,5 | 81 | 125 | 39095 | 52,80 | 62,80 | 14,5 | 114 | 169 | 39145 | 142,60 | 157,30 |
| 9,6 | 87 | 133 | 39096 | 59,50 | 69,50 | 14,6 | 114 | 169 | 39146 | 142,60 | 157,30 |
| 9,7 | 87 | 133 | 39097 | 59,50 | 69,50 | 14,7 | 114 | 169 | 39147 | 142,60 | 157,30 |
| 9,8 | 87 | 133 | 39098 | 59,50 | 69,50 | 14,8 | 114 | 169 | 39148 | 142,60 | 157,30 |
| 9,9 | 87 | 133 | 39099 | 59,50 | 69,50 | 14,9 | 114 | 169 | 39149 | 142,60 | 157,30 |
| 10 | 87 | 133 | 3910 | 59,50 | 69,50 | 15 | 114 | 169 | 3915 | 142,60 | 157,30 |
| 10,1 | 87 | 133 | 39101 | 67,10 | 77,00 | 15,1 | 120 | 178 | 39151 | 166,50 | 181,10 |
| 10,2 | 87 | 133 | 39102 | 67,10 | 77,00 | 15,2 | 120 | 178 | 39152 | 166,50 | 181,10 |
| 10,3 | 87 | 133 | 39103 | 67,10 | 77,00 | 15,3 | 120 | 178 | 39153 | 166,50 | 181,10 |
| 10,4 | 87 | 133 | 39104 | 67,10 | 77,00 | 15,4 | 120 | 178 | 39154 | 166,50 | 181,10 |
| 10,5 | 87 | 133 | 39105 | 67,10 | 77,00 | 15,5 | 120 | 178 | 39155 | 166,50 | 181,10 |
| 10,6 | 87 | 133 | 39106 | 74,00 | 84,70 | 15,6 | 120 | 178 | 39156 | 166,50 | 181,10 |
| 10,7 | 87 | 133 | 39107 | 74,00 | 84,70 | 15,7 | 120 | 178 | 39157 | 166,50 | 181,10 |
| 10,8 | 94 | 142 | 39108 | 79,00 | 91,90 | 15,8 | 120 | 178 | 39158 | 166,50 | 181,10 |
| 10,9 | 94 | 142 | 39109 | 79,00 | 91,90 | 15,9 | 120 | 178 | 39159 | 166,50 | 181,10 |
| 11 | 94 | 142 | 3911 | 79,00 | 91,90 | 16 | 120 | 178 | 3916 | 166,50 | 181,10 |
| 11,1 | 94 | 142 | 39111 | 82,10 | 95,00 | 16,5 | 125 | 184 | 39165 | 193,10 | 220,40 |
| 11,2 | 94 | 142 | 39112 | 82,10 | 95,00 | 17 | 125 | 184 | 3917 | 193,10 | 220,40 |
| 11,3 | 94 | 142 | 39113 | 82,10 | 95,00 | 17,5 | 130 | 191 | 39175 | 212,30 | 239,50 |
| 11,4 | 94 | 142 | 39114 | 82,10 | 95,00 | 18 | 130 | 191 | 3918 | 212,30 | 239,50 |
| 11,5 | 94 | 142 | 39115 | 82,10 | 95,00 | 18,5 | 135 | 198 | 39185 | 234,20 | 276,60 |
| 11,6 | 94 | 142 | 39116 | 87,30 | 100,20 | 19 | 135 | 198 | 3919 | 234,20 | 276,60 |
| 11,7 | 94 | 142 | 39117 | 87,30 | 100,20 | 19,5 | 140 | 205 | 39195 | 266,50 | 308,80 |
| 11,8 | 94 | 142 | 39118 | 87,30 | 100,20 | 20 | 140 | 205 | 3920 | 266,50 | 308,80 |
| 11,9 | 101 | 151 | 39119 | 90,90 | 103,80 | | | | | | |
| 12 | 101 | 151 | 3912 | 90,90 | 103,80 | | | | | | |
| 12,1 | 101 | 151 | 39121 | 97,00 | 111,70 | | | | | | |
| 12,2 | 101 | 151 | 39122 | 97,00 | 111,70 | | | | | | |
| 12,3 | 101 | 151 | 39123 | 97,00 | 111,70 | | | | | | |
| 12,4 | 101 | 151 | 39124 | 97,00 | 111,70 | | | | | | |
| 12,5 | 101 | 151 | 39125 | 97,00 | 111,70 | | | | | | |
| 12,6 | 101 | 151 | 39126 | 100,80 | 115,40 | | | | | | |
| 12,7 | 101 | 151 | 39127 | 100,80 | 115,40 | | | | | | |
| 12,8 | 101 | 151 | 39128 | 100,80 | 115,40 | | | | | | |
| 12,9 | 101 | 151 | 39129 | 100,80 | 115,40 | | | | | | |
| 13 | 101 | 151 | 3913 | 100,80 | 115,40 | | | | | | |

Punte Z2 DIN 338 per alluminio

Drills 2 flutes DIN 338 aluminium application



| d h6 | L1 | L | Cod. | € uncoated | € tialn | d h6 | L1 | L | Cod. | € uncoated | € Tialn |
|---------|----|----|----------------|---------------|------------|---------|----|-----|----------------|---------------|------------|
| 2 | 24 | 49 | AL3902 | 11,60 | 14,30 | 5,8 | 57 | 93 | AL39058 | 24,40 | 29,90 |
| 2,1 | 24 | 49 | AL39021 | 11,90 | 14,60 | 5,9 | 57 | 93 | AL39059 | 24,40 | 29,90 |
| 2,2 | 27 | 53 | AL39022 | 12,10 | 15,20 | 6 | 57 | 93 | AL3906 | 24,40 | 29,90 |
| 2,3 | 27 | 53 | AL39023 | 12,10 | 15,20 | 6,1 | 63 | 101 | AL39061 | 27,10 | 35,10 |
| 2,4 | 30 | 57 | AL39024 | 12,30 | 15,40 | 6,2 | 63 | 101 | AL39062 | 27,10 | 35,10 |
| 2,5 | 30 | 57 | AL39025 | 12,30 | 15,40 | 6,3 | 63 | 101 | AL39063 | 27,10 | 35,10 |
| 2,6 | 30 | 57 | AL39026 | 12,70 | 15,80 | 6,4 | 63 | 101 | AL39064 | 27,10 | 35,10 |
| 2,7 | 33 | 61 | AL39027 | 14,80 | 18,00 | 6,5 | 63 | 101 | AL39065 | 27,10 | 35,10 |
| 2,8 | 33 | 61 | AL39028 | 14,80 | 18,00 | 6,6 | 63 | 101 | AL39066 | 28,40 | 36,40 |
| 2,9 | 33 | 61 | AL39029 | 14,80 | 18,00 | 6,7 | 63 | 101 | AL39067 | 28,40 | 36,40 |
| 3 | 33 | 61 | AL3903 | 14,80 | 18,00 | 6,8 | 69 | 109 | AL39068 | 30,90 | 38,90 |
| 3,1 | 35 | 65 | AL39031 | 15,50 | 18,60 | 6,9 | 69 | 109 | AL39069 | 30,90 | 38,90 |
| 3,2 | 35 | 65 | AL39032 | 15,50 | 18,60 | 7 | 69 | 109 | AL3907 | 30,90 | 38,90 |
| 3,3 | 35 | 65 | AL39033 | 15,50 | 18,60 | 7,1 | 69 | 109 | AL39071 | 33,00 | 41,00 |
| 3,4 | 39 | 70 | AL39034 | 15,70 | 18,90 | 7,2 | 69 | 109 | AL39072 | 33,00 | 41,00 |
| 3,5 | 39 | 70 | AL39035 | 15,70 | 18,90 | 7,3 | 69 | 109 | AL39073 | 33,00 | 41,00 |
| 3,6 | 39 | 70 | AL39036 | 16,20 | 19,40 | 7,4 | 69 | 109 | AL39074 | 33,00 | 41,00 |
| 3,7 | 39 | 70 | AL39037 | 16,20 | 19,40 | 7,5 | 69 | 109 | AL39075 | 33,00 | 41,00 |
| 3,8 | 43 | 75 | AL39038 | 17,10 | 20,30 | 7,6 | 75 | 117 | AL39076 | 38,90 | 47,00 |
| 3,9 | 43 | 75 | AL39039 | 17,10 | 20,30 | 7,7 | 75 | 117 | AL39077 | 38,90 | 47,00 |
| 4 | 43 | 75 | AL3904 | 17,10 | 20,30 | 7,8 | 75 | 117 | AL39078 | 38,90 | 47,00 |
| 4,1 | 43 | 75 | AL39041 | 18,10 | 22,40 | 7,9 | 75 | 117 | AL39079 | 38,90 | 47,00 |
| 4,2 | 43 | 75 | AL39042 | 18,10 | 22,40 | 8 | 75 | 117 | AL3908 | 38,90 | 47,00 |
| 4,3 | 47 | 80 | AL39043 | 18,90 | 24,30 | 8,1 | 75 | 117 | AL39081 | 41,00 | 51,00 |
| 4,4 | 47 | 80 | AL39044 | 18,90 | 24,30 | 8,2 | 75 | 117 | AL39082 | 41,00 | 51,00 |
| 4,5 | 47 | 80 | AL39045 | 18,90 | 24,30 | 8,3 | 75 | 117 | AL39083 | 41,00 | 51,00 |
| 4,6 | 47 | 80 | AL39046 | 19,50 | 25,00 | 8,4 | 75 | 117 | AL39084 | 41,00 | 51,00 |
| 4,7 | 47 | 80 | AL39047 | 19,50 | 25,00 | 8,5 | 75 | 117 | AL39085 | 41,00 | 51,00 |
| 4,8 | 52 | 86 | AL39048 | 21,00 | 26,50 | 8,6 | 81 | 125 | AL39086 | 48,40 | 58,30 |
| 4,9 | 52 | 86 | AL39049 | 21,00 | 26,50 | 8,7 | 81 | 125 | AL39087 | 48,40 | 58,30 |
| 5 | 52 | 86 | AL3905 | 21,00 | 26,50 | 8,8 | 81 | 125 | AL39088 | 48,40 | 58,30 |
| 5,1 | 52 | 86 | AL39051 | 22,30 | 27,80 | 8,9 | 81 | 125 | AL39089 | 48,40 | 58,30 |
| 5,2 | 52 | 86 | AL39052 | 22,30 | 27,80 | 9 | 81 | 125 | AL3909 | 48,40 | 58,30 |
| 5,3 | 52 | 86 | AL39053 | 22,30 | 27,80 | 9,1 | 81 | 125 | AL39091 | 52,80 | 62,80 |
| 5,4 | 57 | 93 | AL39054 | 23,10 | 28,60 | 9,2 | 81 | 125 | AL39092 | 52,80 | 62,80 |
| 5,5 | 57 | 93 | AL39055 | 23,10 | 28,60 | 9,3 | 81 | 125 | AL39093 | 52,80 | 62,80 |
| 5,6 | 57 | 93 | AL39056 | 24,40 | 29,90 | 9,4 | 81 | 125 | AL39094 | 52,80 | 62,80 |
| 5,7 | 57 | 93 | AL39057 | 24,40 | 29,90 | 9,5 | 81 | 125 | AL39095 | 52,80 | 62,80 |

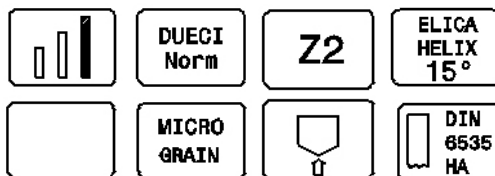
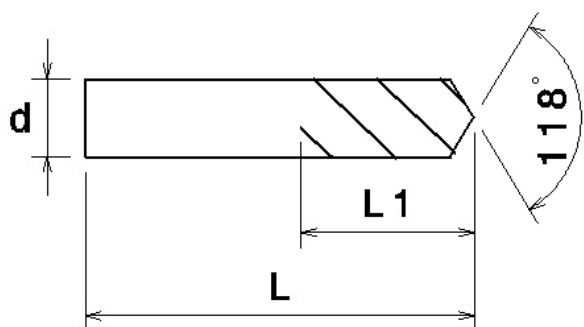
Punte Z2 DIN 338 per alluminio

Drills 2 flutes DIN 338 aluminium application

| d h6 | L1 | L | Cod. | € uncoated | € Tialn | d h6 | L1 | L | Cod. | € uncoated | € Tialn |
|---------|-----|-----|----------------|---------------|------------|---------|-----|-----|----------------|---------------|------------|
| 9,6 | 81 | 133 | AL39096 | 59,50 | 69,50 | 14,6 | 114 | 169 | AL39146 | 142,60 | 157,30 |
| 9,7 | 81 | 133 | AL39097 | 59,50 | 69,50 | 14,7 | 114 | 169 | AL39147 | 142,60 | 157,30 |
| 9,8 | 81 | 133 | AL39098 | 59,50 | 69,50 | 14,8 | 114 | 169 | AL39148 | 142,60 | 157,30 |
| 9,9 | 81 | 133 | AL39099 | 59,50 | 69,50 | 14,9 | 114 | 169 | AL39149 | 142,60 | 157,30 |
| 10 | 87 | 133 | AL3910 | 59,50 | 69,50 | 15 | 114 | 169 | AL3915 | 142,60 | 157,30 |
| 10,1 | 87 | 133 | AL39101 | 67,10 | 77,00 | 15,1 | 120 | 178 | AL39151 | 166,50 | 181,10 |
| 10,2 | 87 | 133 | AL39102 | 67,10 | 77,00 | 15,2 | 120 | 178 | AL39152 | 166,50 | 181,10 |
| 10,3 | 87 | 133 | AL39103 | 67,10 | 77,00 | 15,3 | 120 | 178 | AL39153 | 166,50 | 181,10 |
| 10,4 | 87 | 133 | AL39104 | 67,10 | 77,00 | 15,4 | 120 | 178 | AL39154 | 166,50 | 181,10 |
| 10,5 | 87 | 133 | AL39105 | 67,10 | 77,00 | 15,5 | 120 | 178 | AL39155 | 166,50 | 181,10 |
| 10,6 | 87 | 133 | AL39106 | 74,00 | 84,70 | 15,6 | 120 | 178 | AL39156 | 166,50 | 181,10 |
| 10,7 | 87 | 133 | AL39107 | 74,00 | 84,70 | 15,7 | 120 | 178 | AL39157 | 166,50 | 181,10 |
| 10,8 | 94 | 142 | AL39108 | 79,00 | 91,90 | 15,8 | 120 | 178 | AL39158 | 166,50 | 181,10 |
| 10,9 | 94 | 142 | AL39109 | 79,00 | 91,90 | 15,9 | 120 | 178 | AL39159 | 166,50 | 181,10 |
| 11 | 94 | 142 | AL3911 | 79,00 | 91,90 | 16 | 120 | 178 | AL3916 | 166,50 | 181,10 |
| 11,1 | 94 | 142 | AL39111 | 82,10 | 95,00 | 16,5 | 125 | 184 | AL39165 | 193,10 | 220,40 |
| 11,2 | 94 | 142 | AL39112 | 82,10 | 95,00 | 17 | 125 | 184 | AL3917 | 193,10 | 220,40 |
| 11,3 | 94 | 142 | AL39113 | 82,10 | 95,00 | 17,5 | 130 | 191 | AL39175 | 212,30 | 239,50 |
| 11,4 | 94 | 142 | AL39114 | 82,10 | 95,00 | 18 | 130 | 191 | AL3918 | 212,30 | 239,50 |
| 11,5 | 94 | 142 | AL39115 | 82,10 | 95,00 | 18,5 | 135 | 198 | AL39185 | 234,20 | 276,60 |
| 11,6 | 94 | 142 | AL39116 | 87,30 | 100,20 | 19 | 135 | 198 | AL3919 | 234,20 | 276,60 |
| 11,7 | 94 | 142 | AL39117 | 87,30 | 100,20 | 19,5 | 140 | 205 | AL39195 | 266,50 | 308,80 |
| 11,8 | 101 | 142 | AL39118 | 87,30 | 100,20 | 20 | 140 | 205 | AL3920 | 266,50 | 308,80 |
| 11,9 | 101 | 151 | AL39119 | 90,90 | 103,80 | | | | | | |
| 12 | 101 | 151 | AL3912 | 90,90 | 103,80 | | | | | | |
| 12,1 | 101 | 151 | AL39121 | 97,00 | 111,70 | | | | | | |
| 12,2 | 101 | 151 | AL39122 | 97,00 | 111,70 | | | | | | |
| 12,3 | 101 | 151 | AL39123 | 97,00 | 111,70 | | | | | | |
| 12,4 | 101 | 151 | AL39124 | 97,00 | 111,70 | | | | | | |
| 12,5 | 101 | 151 | AL39125 | 97,00 | 111,70 | | | | | | |
| 12,6 | 101 | 151 | AL39126 | 100,80 | 115,40 | | | | | | |
| 12,7 | 101 | 151 | AL39127 | 100,80 | 115,40 | | | | | | |
| 12,8 | 101 | 151 | AL39128 | 100,80 | 115,40 | | | | | | |
| 12,9 | 101 | 151 | AL39129 | 100,80 | 115,40 | | | | | | |
| 13 | 101 | 151 | AL3913 | 100,80 | 115,40 | | | | | | |
| 13,1 | 108 | 160 | AL39131 | 116,10 | 130,70 | | | | | | |
| 13,2 | 108 | 160 | AL39132 | 116,10 | 130,70 | | | | | | |
| 13,3 | 108 | 160 | AL39133 | 116,10 | 130,70 | | | | | | |
| 13,4 | 108 | 160 | AL39134 | 116,10 | 130,70 | | | | | | |
| 13,5 | 108 | 160 | AL39135 | 116,10 | 130,70 | | | | | | |
| 13,6 | 108 | 160 | AL39136 | 123,70 | 138,30 | | | | | | |
| 13,7 | 108 | 160 | AL39137 | 123,70 | 138,30 | | | | | | |
| 13,8 | 108 | 160 | AL39138 | 123,70 | 138,30 | | | | | | |
| 13,9 | 108 | 160 | AL39139 | 123,70 | 138,30 | | | | | | |
| 14 | 108 | 160 | AL3914 | 123,70 | 138,30 | | | | | | |
| 14,1 | 114 | 169 | AL39141 | 142,60 | 157,30 | | | | | | |
| 14,2 | 114 | 169 | AL39142 | 142,60 | 157,30 | | | | | | |
| 14,3 | 114 | 169 | AL39143 | 142,60 | 157,30 | | | | | | |
| 14,4 | 114 | 169 | AL39144 | 142,60 | 157,30 | | | | | | |
| 14,5 | 114 | 169 | AL39145 | 142,60 | 157,30 | | | | | | |

Punte Z2 DIN 338 per ottone

Drills 2 flutes DIN338 brass application



| d h6 | L1 | L | Cod. | € uncoated | € tialn | d h6 | L1 | L | Cod. | € uncoated | € Tialn |
|---------|----|----|----------------|---------------|------------|---------|----|-----|----------------|---------------|------------|
| 2 | 24 | 49 | OT3902 | 11,60 | 14,30 | 5,8 | 57 | 93 | OT39058 | 24,40 | 29,90 |
| 2,1 | 24 | 49 | OT39021 | 11,90 | 14,60 | 5,9 | 57 | 93 | OT39059 | 24,40 | 29,90 |
| 2,2 | 27 | 53 | OT39022 | 12,10 | 15,20 | 6 | 57 | 93 | OT3906 | 24,40 | 29,90 |
| 2,3 | 27 | 53 | OT39023 | 12,10 | 15,20 | 6,1 | 63 | 101 | OT39061 | 27,10 | 35,10 |
| 2,4 | 30 | 57 | OT39024 | 12,30 | 15,40 | 6,2 | 63 | 101 | OT39062 | 27,10 | 35,10 |
| 2,5 | 30 | 57 | OT39025 | 12,30 | 15,40 | 6,3 | 63 | 101 | OT39063 | 27,10 | 35,10 |
| 2,6 | 30 | 57 | OT39026 | 12,70 | 15,80 | 6,4 | 63 | 101 | OT39064 | 27,10 | 35,10 |
| 2,7 | 33 | 61 | OT39027 | 14,80 | 18,00 | 6,5 | 63 | 101 | OT39065 | 27,10 | 35,10 |
| 2,8 | 33 | 61 | OT39028 | 14,80 | 18,00 | 6,6 | 63 | 101 | OT39066 | 28,40 | 36,40 |
| 2,9 | 33 | 61 | OT39029 | 14,80 | 18,00 | 6,7 | 63 | 101 | OT39067 | 28,40 | 36,40 |
| 3 | 33 | 61 | OT3903 | 14,80 | 18,00 | 6,8 | 69 | 109 | OT39068 | 30,90 | 38,90 |
| 3,1 | 35 | 65 | OT39031 | 15,50 | 18,60 | 6,9 | 69 | 109 | OT39069 | 30,90 | 38,90 |
| 3,2 | 35 | 65 | OT39032 | 15,50 | 18,60 | 7 | 69 | 109 | OT3907 | 30,90 | 38,90 |
| 3,3 | 35 | 65 | OT39033 | 15,50 | 18,60 | 7,1 | 69 | 109 | OT39071 | 33,00 | 41,00 |
| 3,4 | 39 | 70 | OT39034 | 15,70 | 18,90 | 7,2 | 69 | 109 | OT39072 | 33,00 | 41,00 |
| 3,5 | 39 | 70 | OT39035 | 15,70 | 18,90 | 7,3 | 69 | 109 | OT39073 | 33,00 | 41,00 |
| 3,6 | 39 | 70 | OT39036 | 16,20 | 19,40 | 7,4 | 69 | 109 | OT39074 | 33,00 | 41,00 |
| 3,7 | 39 | 70 | OT39037 | 16,20 | 19,40 | 7,5 | 69 | 109 | OT39075 | 33,00 | 41,00 |
| 3,8 | 43 | 75 | OT39038 | 17,10 | 20,30 | 7,6 | 75 | 117 | OT39076 | 38,90 | 47,00 |
| 3,9 | 43 | 75 | OT39039 | 17,10 | 20,30 | 7,7 | 75 | 117 | OT39077 | 38,90 | 47,00 |
| 4 | 43 | 75 | OT3904 | 17,10 | 20,30 | 7,8 | 75 | 117 | OT39078 | 38,90 | 47,00 |
| 4,1 | 43 | 75 | OT39041 | 18,10 | 22,40 | 7,9 | 75 | 117 | OT39079 | 38,90 | 47,00 |
| 4,2 | 43 | 75 | OT39042 | 18,10 | 22,40 | 8 | 75 | 117 | OT3908 | 38,90 | 47,00 |
| 4,3 | 47 | 80 | OT39043 | 18,90 | 24,30 | 8,1 | 75 | 117 | OT39081 | 41,00 | 51,00 |
| 4,4 | 47 | 80 | OT39044 | 18,90 | 24,30 | 8,2 | 75 | 117 | OT39082 | 41,00 | 51,00 |
| 4,5 | 47 | 80 | OT39045 | 18,90 | 24,30 | 8,3 | 75 | 117 | OT39083 | 41,00 | 51,00 |
| 4,6 | 47 | 80 | OT39046 | 19,50 | 25,00 | 8,4 | 75 | 117 | OT39084 | 41,00 | 51,00 |
| 4,7 | 47 | 80 | OT39047 | 19,50 | 25,00 | 8,5 | 75 | 117 | OT39085 | 41,00 | 51,00 |
| 4,8 | 52 | 86 | OT39048 | 21,00 | 26,50 | 8,6 | 81 | 125 | OT39086 | 48,40 | 58,30 |
| 4,9 | 52 | 86 | OT39049 | 21,00 | 26,50 | 8,7 | 81 | 125 | OT39087 | 48,40 | 58,30 |
| 5 | 52 | 86 | OT3905 | 21,00 | 26,50 | 8,8 | 81 | 125 | OT39088 | 48,40 | 58,30 |
| 5,1 | 52 | 86 | OT39051 | 22,30 | 27,80 | 8,9 | 81 | 125 | OT39089 | 48,40 | 58,30 |
| 5,2 | 52 | 86 | OT39052 | 22,30 | 27,80 | 9 | 81 | 125 | OT3909 | 48,40 | 58,30 |
| 5,3 | 52 | 86 | OT39053 | 22,30 | 27,80 | 9,1 | 81 | 125 | OT39091 | 52,80 | 62,80 |
| 5,4 | 57 | 93 | OT39054 | 23,10 | 28,60 | 9,2 | 81 | 125 | OT39092 | 52,80 | 62,80 |
| 5,5 | 57 | 93 | OT39055 | 23,10 | 28,60 | 9,3 | 81 | 125 | OT39093 | 52,80 | 62,80 |
| 5,6 | 57 | 93 | OT39056 | 24,40 | 29,90 | 9,4 | 81 | 125 | OT39094 | 52,80 | 62,80 |
| 5,7 | 57 | 93 | OT39057 | 24,40 | 29,90 | 9,5 | 81 | 125 | OT39095 | 52,80 | 62,80 |

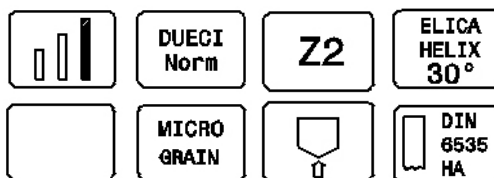
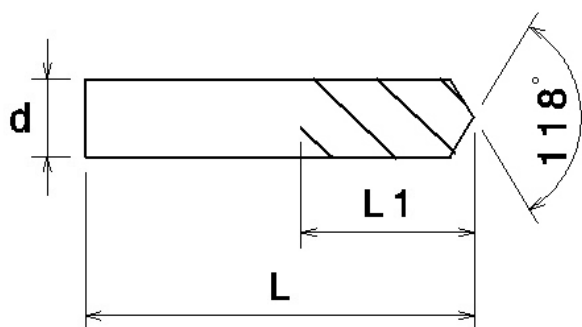
Punte Z2 DIN 338 per ottone

Drills 2 flutes DIN 338 brass application

| d h6 | L1 | L | Cod. | € uncoated | € Tialn | d h6 | L1 | L | Cod. | € uncoated | € Tialn |
|---------|-----|-----|----------------|---------------|------------|---------|-----|-----|----------------|---------------|------------|
| 9,6 | 81 | 133 | OT39096 | 59,50 | 69,50 | 14,6 | 114 | 169 | OT39146 | 142,60 | 157,30 |
| 9,7 | 81 | 133 | OT39097 | 59,50 | 69,50 | 14,7 | 114 | 169 | OT39147 | 142,60 | 157,30 |
| 9,8 | 81 | 133 | OT39098 | 59,50 | 69,50 | 14,8 | 114 | 169 | OT39148 | 142,60 | 157,30 |
| 9,9 | 81 | 133 | OT39099 | 59,50 | 69,50 | 14,9 | 114 | 169 | OT39149 | 142,60 | 157,30 |
| 10 | 87 | 133 | OT3910 | 59,50 | 69,50 | 15 | 114 | 169 | OT3915 | 142,60 | 157,30 |
| 10,1 | 87 | 133 | OT39101 | 67,10 | 77,00 | 15,1 | 120 | 178 | OT39151 | 166,50 | 181,10 |
| 10,2 | 87 | 133 | OT39102 | 67,10 | 77,00 | 15,2 | 120 | 178 | OT39152 | 166,50 | 181,10 |
| 10,3 | 87 | 133 | OT39103 | 67,10 | 77,00 | 15,3 | 120 | 178 | OT39153 | 166,50 | 181,10 |
| 10,4 | 87 | 133 | OT39104 | 67,10 | 77,00 | 15,4 | 120 | 178 | OT39154 | 166,50 | 181,10 |
| 10,5 | 87 | 133 | OT39105 | 67,10 | 77,00 | 15,5 | 120 | 178 | OT39155 | 166,50 | 181,10 |
| 10,6 | 87 | 133 | OT39106 | 74,00 | 84,70 | 15,6 | 120 | 178 | OT39156 | 166,50 | 181,10 |
| 10,7 | 87 | 133 | OT39107 | 74,00 | 84,70 | 15,7 | 120 | 178 | OT39157 | 166,50 | 181,10 |
| 10,8 | 94 | 142 | OT39108 | 79,00 | 91,90 | 15,8 | 120 | 178 | OT39158 | 166,50 | 181,10 |
| 10,9 | 94 | 142 | OT39109 | 79,00 | 91,90 | 15,9 | 120 | 178 | OT39159 | 166,50 | 181,10 |
| 11 | 94 | 142 | OT3911 | 79,00 | 91,90 | 16 | 120 | 178 | OT3916 | 166,50 | 181,10 |
| 11,1 | 94 | 142 | OT39111 | 82,10 | 95,00 | 16,5 | 125 | 184 | OT39165 | 193,10 | 220,40 |
| 11,2 | 94 | 142 | OT39112 | 82,10 | 95,00 | 17 | 125 | 184 | OT3917 | 193,10 | 220,40 |
| 11,3 | 94 | 142 | OT39113 | 82,10 | 95,00 | 17,5 | 130 | 191 | OT39175 | 212,30 | 239,50 |
| 11,4 | 94 | 142 | OT39114 | 82,10 | 95,00 | 18 | 130 | 191 | OT3918 | 212,30 | 239,50 |
| 11,5 | 94 | 142 | OT39115 | 82,10 | 95,00 | 18,5 | 135 | 198 | OT39185 | 234,20 | 276,60 |
| 11,6 | 94 | 142 | OT39116 | 87,30 | 100,20 | 19 | 135 | 198 | OT3919 | 234,20 | 276,60 |
| 11,7 | 94 | 142 | OT39117 | 87,30 | 100,20 | 19,5 | 140 | 205 | OT39195 | 266,50 | 308,80 |
| 11,8 | 101 | 142 | OT39118 | 87,30 | 100,20 | 20 | 140 | 205 | OT3920 | 266,50 | 308,80 |
| 11,9 | 101 | 151 | OT39119 | 90,90 | 103,80 | | | | | | |
| 12 | 101 | 151 | OT3912 | 90,90 | 103,80 | | | | | | |
| 12,1 | 101 | 151 | OT39121 | 97,00 | 111,70 | | | | | | |
| 12,2 | 101 | 151 | OT39122 | 97,00 | 111,70 | | | | | | |
| 12,3 | 101 | 151 | OT39123 | 97,00 | 111,70 | | | | | | |
| 12,4 | 101 | 151 | OT39124 | 97,00 | 111,70 | | | | | | |
| 12,5 | 101 | 151 | OT39125 | 97,00 | 111,70 | | | | | | |
| 12,6 | 101 | 151 | OT39126 | 100,80 | 115,40 | | | | | | |
| 12,7 | 101 | 151 | OT39127 | 100,80 | 115,40 | | | | | | |
| 12,8 | 101 | 151 | OT39128 | 100,80 | 115,40 | | | | | | |
| 12,9 | 101 | 151 | OT39129 | 100,80 | 115,40 | | | | | | |
| 13 | 101 | 151 | OT3913 | 100,80 | 115,40 | | | | | | |
| 13,1 | 108 | 160 | OT39131 | 116,10 | 130,70 | | | | | | |
| 13,2 | 108 | 160 | OT39132 | 116,10 | 130,70 | | | | | | |
| 13,3 | 108 | 160 | OT39133 | 116,10 | 130,70 | | | | | | |
| 13,4 | 108 | 160 | OT39134 | 116,10 | 130,70 | | | | | | |
| 13,5 | 108 | 160 | OT39135 | 116,10 | 130,70 | | | | | | |
| 13,6 | 108 | 160 | OT39136 | 123,70 | 138,30 | | | | | | |
| 13,7 | 108 | 160 | OT39137 | 123,70 | 138,30 | | | | | | |
| 13,8 | 108 | 160 | OT39138 | 123,70 | 138,30 | | | | | | |
| 13,9 | 108 | 160 | OT39139 | 123,70 | 138,30 | | | | | | |
| 14 | 108 | 160 | OT3914 | 123,70 | 138,30 | | | | | | |
| 14,1 | 114 | 169 | OT39141 | 142,60 | 157,30 | | | | | | |
| 14,2 | 114 | 169 | OT39142 | 142,60 | 157,30 | | | | | | |
| 14,3 | 114 | 169 | OT39143 | 142,60 | 157,30 | | | | | | |
| 14,4 | 114 | 169 | OT39144 | 142,60 | 157,30 | | | | | | |
| 14,5 | 114 | 169 | OT39145 | 142,60 | 157,30 | | | | | | |

Punte Z2 DIN 338 doppia guida per ottone

Double guide drills 2 flutes DIN 338 brass application



| d h6 | L1 | L | Cod. | € uncoated | € tialn | d h6 | L1 | L | Cod. | € uncoated | € Tialn |
|---------|----|----|---------|---------------|------------|---------|----|-----|---------|---------------|------------|
| 2 | 24 | 49 | DG3902 | 12,70 | 15,70 | 5,8 | 57 | 93 | DG39058 | 26,80 | 32,80 |
| 2,1 | 24 | 49 | DG39021 | 13,10 | 16,10 | 5,9 | 57 | 93 | DG39059 | 26,80 | 32,80 |
| 2,2 | 27 | 53 | DG39022 | 13,30 | 16,80 | 6 | 57 | 93 | DG3906 | 26,80 | 32,80 |
| 2,3 | 27 | 53 | DG39023 | 13,30 | 16,80 | 6,1 | 63 | 101 | DG39061 | 29,80 | 38,70 |
| 2,4 | 30 | 57 | DG39024 | 13,50 | 17,00 | 6,2 | 63 | 101 | DG39062 | 29,80 | 38,70 |
| 2,5 | 30 | 57 | DG39025 | 13,50 | 17,00 | 6,3 | 63 | 101 | DG39063 | 29,80 | 38,70 |
| 2,6 | 30 | 57 | DG39026 | 13,90 | 17,40 | 6,4 | 63 | 101 | DG39064 | 29,80 | 38,70 |
| 2,7 | 33 | 61 | DG39027 | 16,30 | 19,80 | 6,5 | 63 | 101 | DG39065 | 29,80 | 38,70 |
| 2,8 | 33 | 61 | DG39028 | 16,30 | 19,80 | 6,6 | 63 | 101 | DG39066 | 31,20 | 40,10 |
| 2,9 | 33 | 61 | DG39029 | 16,30 | 19,80 | 6,7 | 63 | 101 | DG39067 | 31,20 | 40,10 |
| 3 | 33 | 61 | DG3903 | 16,30 | 19,80 | 6,8 | 69 | 109 | DG39068 | 32,50 | 41,30 |
| 3,1 | 35 | 65 | DG39031 | 17,00 | 20,50 | 6,9 | 69 | 109 | DG39069 | 34,00 | 42,80 |
| 3,2 | 35 | 65 | DG39032 | 17,00 | 20,50 | 7 | 69 | 109 | DG3907 | 34,00 | 42,80 |
| 3,3 | 35 | 65 | DG39033 | 17,00 | 20,50 | 7,1 | 69 | 109 | DG39071 | 36,30 | 45,10 |
| 3,4 | 39 | 70 | DG39034 | 17,30 | 20,80 | 7,2 | 69 | 109 | DG39072 | 36,30 | 45,10 |
| 3,5 | 39 | 70 | DG39035 | 17,30 | 20,80 | 7,3 | 69 | 109 | DG39073 | 36,30 | 45,10 |
| 3,6 | 39 | 70 | DG39036 | 17,80 | 21,30 | 7,4 | 69 | 109 | DG39074 | 36,30 | 45,10 |
| 3,7 | 39 | 70 | DG39037 | 17,80 | 21,30 | 7,5 | 69 | 109 | DG39075 | 36,30 | 45,10 |
| 3,8 | 43 | 75 | DG39038 | 18,80 | 22,30 | 7,6 | 75 | 117 | DG39076 | 42,80 | 51,70 |
| 3,9 | 43 | 75 | DG39039 | 18,80 | 22,30 | 7,7 | 75 | 117 | DG39077 | 42,80 | 51,70 |
| 4 | 43 | 75 | DG3904 | 18,80 | 22,30 | 7,8 | 75 | 117 | DG39078 | 42,80 | 51,70 |
| 4,1 | 43 | 75 | DG39041 | 19,90 | 24,60 | 7,9 | 75 | 117 | DG39079 | 42,80 | 51,70 |
| 4,2 | 43 | 75 | DG39042 | 19,90 | 24,60 | 8 | 75 | 117 | DG3908 | 42,80 | 51,70 |
| 4,3 | 47 | 80 | DG39043 | 20,70 | 26,80 | 8,1 | 75 | 117 | DG39081 | 45,10 | 56,10 |
| 4,4 | 47 | 80 | DG39044 | 20,70 | 26,80 | 8,2 | 75 | 117 | DG39082 | 45,10 | 56,10 |
| 4,5 | 47 | 80 | DG39045 | 20,70 | 26,80 | 8,3 | 75 | 117 | DG39083 | 45,10 | 56,10 |
| 4,6 | 47 | 80 | DG39046 | 21,50 | 27,50 | 8,4 | 75 | 117 | DG39084 | 45,10 | 56,10 |
| 4,7 | 47 | 80 | DG39047 | 21,50 | 27,50 | 8,5 | 75 | 117 | DG39085 | 45,10 | 56,10 |
| 4,8 | 52 | 86 | DG39048 | 23,20 | 29,20 | 8,6 | 81 | 125 | DG39086 | 53,20 | 64,20 |
| 4,9 | 52 | 86 | DG39049 | 23,20 | 29,20 | 8,7 | 81 | 125 | DG39087 | 53,20 | 64,20 |
| 5 | 52 | 86 | DG3905 | 23,20 | 29,20 | 8,8 | 81 | 125 | DG39088 | 53,20 | 64,20 |
| 5,1 | 52 | 86 | DG39051 | 24,60 | 30,60 | 8,9 | 81 | 125 | DG39089 | 53,20 | 64,20 |
| 5,2 | 52 | 86 | DG39052 | 24,60 | 30,60 | 9 | 81 | 125 | DG3909 | 53,20 | 64,20 |
| 5,3 | 52 | 86 | DG39053 | 24,60 | 30,60 | 9,1 | 81 | 125 | DG39091 | 58,10 | 69,00 |
| 5,4 | 57 | 93 | DG39054 | 25,40 | 31,40 | 9,2 | 81 | 125 | DG39092 | 58,10 | 69,00 |
| 5,5 | 57 | 93 | DG39055 | 25,40 | 31,40 | 9,3 | 81 | 125 | DG39093 | 58,10 | 69,00 |
| 5,6 | 57 | 93 | DG39056 | 26,80 | 32,80 | 9,4 | 81 | 125 | DG39094 | 58,10 | 69,00 |
| 5,7 | 57 | 93 | DG39057 | 26,80 | 32,80 | 9,5 | 81 | 125 | DG39095 | 58,10 | 69,00 |

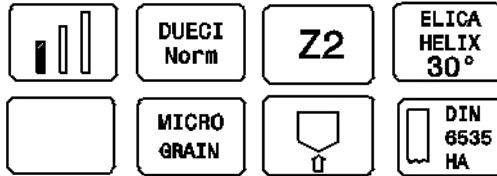
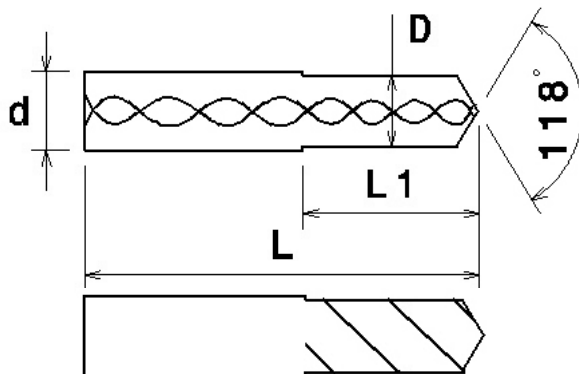
Punte Z2 DIN 338 doppia guida per ottone

Double guide drills 2 flutes DIN 338 brass application

| d h6 | L1 | L | Cod. | € uncoated | € Tialn | d h6 | L1 | L | Cod. | € uncoated | € Tialn |
|---------|-----|-----|----------------|---------------|------------|---------|-----|-----|----------------|---------------|------------|
| 9,6 | 81 | 133 | DG39096 | 65,50 | 76,40 | 14,6 | 114 | 169 | DG39146 | 156,90 | 173,00 |
| 9,7 | 81 | 133 | DG39097 | 65,50 | 76,40 | 14,7 | 114 | 169 | DG39147 | 156,90 | 173,00 |
| 9,8 | 81 | 133 | DG39098 | 65,50 | 76,40 | 14,8 | 114 | 169 | DG39148 | 156,90 | 173,00 |
| 9,9 | 81 | 133 | DG39099 | 65,50 | 76,40 | 14,9 | 114 | 169 | DG39149 | 156,90 | 173,00 |
| 10 | 87 | 133 | DG3910 | 65,50 | 76,40 | 15 | 114 | 169 | DG3915 | 156,90 | 173,00 |
| 10,1 | 87 | 133 | DG39101 | 73,80 | 84,70 | 15,1 | 120 | 178 | DG39151 | 183,10 | 199,20 |
| 10,2 | 87 | 133 | DG39102 | 73,80 | 84,70 | 15,2 | 120 | 178 | DG39152 | 183,10 | 199,20 |
| 10,3 | 87 | 133 | DG39103 | 73,80 | 84,70 | 15,3 | 120 | 178 | DG39153 | 183,10 | 199,20 |
| 10,4 | 87 | 133 | DG39104 | 73,80 | 84,70 | 15,4 | 120 | 178 | DG39154 | 183,10 | 199,20 |
| 10,5 | 87 | 133 | DG39105 | 73,80 | 84,70 | 15,5 | 120 | 178 | DG39155 | 183,10 | 199,20 |
| 10,6 | 87 | 133 | DG39106 | 81,40 | 93,20 | 15,6 | 120 | 178 | DG39156 | 183,10 | 199,20 |
| 10,7 | 87 | 133 | DG39107 | 81,40 | 93,20 | 15,7 | 120 | 178 | DG39157 | 183,10 | 199,20 |
| 10,8 | 94 | 142 | DG39108 | 86,90 | 101,10 | 15,8 | 120 | 178 | DG39158 | 183,10 | 199,20 |
| 10,9 | 94 | 142 | DG39109 | 86,90 | 101,10 | 15,9 | 120 | 178 | DG39159 | 183,10 | 199,20 |
| 11 | 94 | 142 | DG3911 | 86,90 | 101,10 | 16 | 120 | 178 | DG3916 | 183,10 | 199,20 |
| 11,1 | 94 | 142 | DG39111 | 90,30 | 104,50 | 16,5 | 125 | 184 | DG39165 | 212,40 | 242,40 |
| 11,2 | 94 | 142 | DG39112 | 90,30 | 104,50 | 17 | 125 | 184 | DG3917 | 212,40 | 242,40 |
| 11,3 | 94 | 142 | DG39113 | 90,30 | 104,50 | 17,5 | 130 | 191 | DG39175 | 233,50 | 263,50 |
| 11,4 | 94 | 142 | DG39114 | 90,30 | 104,50 | 18 | 130 | 191 | DG3918 | 233,50 | 263,50 |
| 11,5 | 94 | 142 | DG39115 | 90,30 | 104,50 | 18,5 | 135 | 198 | DG39185 | 257,60 | 304,30 |
| 11,6 | 94 | 142 | DG39116 | 96,10 | 110,30 | 19 | 135 | 198 | DG3919 | 257,60 | 304,30 |
| 11,7 | 94 | 142 | DG39117 | 96,10 | 110,30 | 19,5 | 140 | 205 | DG39195 | 293,10 | 339,70 |
| 11,8 | 94 | 142 | DG39118 | 96,10 | 110,30 | 20 | 140 | 205 | DG3920 | 293,10 | 339,70 |
| 11,9 | 101 | 151 | DG39119 | 100,00 | 114,20 | | | | | | |
| 12 | 101 | 151 | DG3912 | 100,00 | 114,20 | | | | | | |
| 12,1 | 101 | 151 | DG39121 | 104,60 | 120,70 | | | | | | |
| 12,2 | 101 | 151 | DG39122 | 104,60 | 120,70 | | | | | | |
| 12,3 | 101 | 151 | DG39123 | 104,60 | 120,70 | | | | | | |
| 12,4 | 101 | 151 | DG39124 | 104,60 | 120,70 | | | | | | |
| 12,5 | 101 | 151 | DG39125 | 104,60 | 120,70 | | | | | | |
| 12,6 | 101 | 151 | DG39126 | 110,90 | 127,00 | | | | | | |
| 12,7 | 101 | 151 | DG39127 | 110,90 | 127,00 | | | | | | |
| 12,8 | 101 | 151 | DG39128 | 110,90 | 127,00 | | | | | | |
| 12,9 | 101 | 151 | DG39129 | 110,90 | 127,00 | | | | | | |
| 13 | 101 | 151 | DG3913 | 110,90 | 127,00 | | | | | | |
| 13,1 | 108 | 160 | DG39131 | 127,70 | 143,80 | | | | | | |
| 13,2 | 108 | 160 | DG39132 | 127,70 | 143,80 | | | | | | |
| 13,3 | 108 | 160 | DG39133 | 127,70 | 143,80 | | | | | | |
| 13,4 | 108 | 160 | DG39134 | 127,70 | 143,80 | | | | | | |
| 13,5 | 108 | 160 | DG39135 | 127,70 | 143,80 | | | | | | |
| 13,6 | 108 | 160 | DG39136 | 136,00 | 152,10 | | | | | | |
| 13,7 | 108 | 160 | DG39137 | 136,00 | 152,10 | | | | | | |
| 13,8 | 108 | 160 | DG39138 | 136,00 | 152,10 | | | | | | |
| 13,9 | 108 | 160 | DG39139 | 136,00 | 152,10 | | | | | | |
| 14 | 108 | 160 | DG3914 | 136,00 | 152,10 | | | | | | |
| 14,1 | 114 | 169 | DG39141 | 156,90 | 173,00 | | | | | | |
| 14,2 | 114 | 169 | DG39142 | 156,90 | 173,00 | | | | | | |
| 14,3 | 114 | 169 | DG39143 | 156,90 | 173,00 | | | | | | |
| 14,4 | 114 | 169 | DG39144 | 156,90 | 173,00 | | | | | | |
| 14,5 | 114 | 169 | DG39145 | 156,90 | 173,00 | | | | | | |

Punte gambo rinforzato 3xD

Reinforced shank drills 3xD



| D _{h7} | L1 | L | d _{h6} | Cod. | € uncoated | € tialn | D _{h7} | L1 | L | d _{h6} | Cod. | € uncoated | € Tialn |
|-----------------|----|----|-----------------|--------------|---------------|------------|-----------------|----|----|-----------------|--------------|---------------|------------|
| 3 | 20 | 62 | 6 | 4203 | 21,80 | 26,40 | | | | | | | |
| 3,1 | 20 | 62 | 6 | 42031 | 21,80 | 26,40 | | | | | | | |
| 3,2 | 20 | 62 | 6 | 42032 | 21,80 | 26,40 | | | | | | | |
| 3,3 | 20 | 62 | 6 | 42033 | 21,80 | 26,40 | | | | | | | |
| 3,4 | 20 | 62 | 6 | 42034 | 21,80 | 26,40 | | | | | | | |
| 3,5 | 20 | 62 | 6 | 42035 | 21,80 | 26,40 | | | | | | | |
| 3,6 | 20 | 62 | 6 | 42036 | 21,80 | 26,40 | | | | | | | |
| 3,7 | 20 | 62 | 6 | 42037 | 21,80 | 26,40 | | | | | | | |
| 3,8 | 24 | 66 | 6 | 42038 | 21,80 | 26,40 | | | | | | | |
| 3,9 | 24 | 66 | 6 | 42039 | 21,80 | 26,40 | | | | | | | |
| 4 | 24 | 66 | 6 | 4204 | 21,80 | 26,40 | 4 | 24 | 66 | 6 | 4504 | 32,00 | 36,90 |
| 4,1 | 24 | 66 | 6 | 42041 | 21,80 | 26,40 | 4,1 | 24 | 66 | 6 | 45041 | 32,00 | 36,90 |
| 4,2 | 24 | 66 | 6 | 42042 | 21,80 | 26,40 | 4,2 | 24 | 66 | 6 | 45042 | 32,00 | 36,90 |
| 4,3 | 24 | 66 | 6 | 42043 | 21,80 | 26,40 | 4,3 | 24 | 66 | 6 | 45043 | 32,00 | 36,90 |
| 4,4 | 24 | 66 | 6 | 42044 | 21,80 | 26,40 | 4,4 | 24 | 66 | 6 | 45044 | 32,00 | 36,90 |
| 4,5 | 24 | 66 | 6 | 42045 | 21,80 | 26,40 | 4,5 | 24 | 66 | 6 | 45045 | 32,00 | 36,90 |
| 4,6 | 24 | 66 | 6 | 42046 | 21,80 | 26,40 | 4,6 | 24 | 66 | 6 | 45046 | 32,00 | 36,90 |
| 4,7 | 24 | 66 | 6 | 42047 | 21,80 | 26,40 | 4,7 | 24 | 66 | 6 | 45047 | 32,00 | 36,90 |
| 4,8 | 28 | 66 | 6 | 42048 | 21,80 | 26,40 | 4,8 | 28 | 66 | 6 | 45048 | 32,00 | 36,90 |
| 4,9 | 28 | 66 | 6 | 42049 | 21,80 | 26,40 | 4,9 | 28 | 66 | 6 | 45048 | 32,00 | 36,90 |
| 5 | 28 | 66 | 6 | 4205 | 21,80 | 26,40 | 5 | 28 | 66 | 6 | 4505 | 32,00 | 36,90 |
| 5,1 | 28 | 66 | 6 | 42051 | 21,80 | 26,40 | 5,1 | 28 | 66 | 6 | 45051 | 32,00 | 36,90 |
| 5,2 | 28 | 66 | 6 | 42052 | 21,80 | 26,40 | 5,2 | 28 | 66 | 6 | 45052 | 32,00 | 36,90 |
| 5,3 | 28 | 66 | 6 | 42053 | 21,80 | 26,40 | 5,3 | 28 | 66 | 6 | 45053 | 32,00 | 36,90 |
| 5,4 | 28 | 66 | 6 | 42054 | 21,80 | 26,40 | 5,4 | 28 | 66 | 6 | 45054 | 32,00 | 36,90 |
| 5,5 | 28 | 66 | 6 | 42055 | 21,80 | 26,40 | 5,5 | 28 | 66 | 6 | 45055 | 32,00 | 36,90 |
| 5,6 | 28 | 66 | 6 | 42056 | 21,80 | 26,40 | 5,6 | 28 | 66 | 6 | 45056 | 32,00 | 36,90 |
| 5,7 | 28 | 66 | 6 | 42057 | 21,80 | 26,40 | 5,7 | 28 | 66 | 6 | 45057 | 32,00 | 36,90 |
| 5,8 | 28 | 66 | 6 | 42058 | 21,80 | 26,40 | 5,8 | 28 | 66 | 6 | 45058 | 32,00 | 36,90 |
| 5,9 | 28 | 66 | 6 | 42059 | 21,80 | 26,40 | 5,9 | 28 | 66 | 6 | 45059 | 32,00 | 36,90 |
| 6 | 28 | 66 | 6 | 4206 | 18,50 | 23,20 | 6 | 28 | 66 | 6 | 4506 | 29,70 | 34,70 |
| 6,1 | 34 | 79 | 8 | 42061 | 30,80 | 37,80 | 6,1 | 34 | 79 | 8 | 45061 | 51,00 | 58,50 |
| 6,2 | 34 | 79 | 8 | 42062 | 30,80 | 37,80 | 6,2 | 34 | 79 | 8 | 45062 | 51,00 | 58,50 |
| 6,3 | 34 | 79 | 8 | 42063 | 30,80 | 37,80 | 6,3 | 34 | 79 | 8 | 45063 | 51,00 | 58,50 |
| 6,4 | 34 | 79 | 8 | 42064 | 30,80 | 37,80 | 6,4 | 34 | 79 | 8 | 45064 | 51,00 | 58,50 |
| 6,5 | 34 | 79 | 8 | 42065 | 30,80 | 37,80 | 6,5 | 34 | 79 | 8 | 45065 | 51,00 | 58,50 |
| 6,6 | 34 | 79 | 8 | 42066 | 30,80 | 37,80 | 6,6 | 34 | 79 | 8 | 45066 | 51,00 | 58,50 |
| 6,7 | 34 | 79 | 8 | 42067 | 30,80 | 37,80 | 6,7 | 34 | 79 | 8 | 45067 | 51,00 | 58,50 |

Punte gambo rinforzato 3xD

Reinforced shank drills 3xD

| D _{h7} | L1 | L | d _{h6} | Cod. | € uncoated | € tialn | D _{h7} | L1 | L | d _{h6} | Cod. | € uncoated | € tialn |
|-----------------|----|-----|-----------------|--------------|---------------|------------|-----------------|----|-----|-----------------|--------------|---------------|------------|
| 6,8 | 34 | 79 | 8 | 42068 | 30,80 | 37,80 | 6,8 | 34 | 79 | 8 | 45068 | 51,00 | 58,50 |
| 6,9 | 34 | 79 | 8 | 42069 | 30,80 | 37,80 | 6,9 | 34 | 79 | 8 | 45069 | 51,00 | 58,50 |
| 7 | 34 | 79 | 8 | 4207 | 30,80 | 37,80 | 7 | 34 | 79 | 8 | 4507 | 51,00 | 58,50 |
| 7,1 | 41 | 79 | 8 | 42071 | 30,80 | 37,80 | 7,1 | 41 | 79 | 8 | 45071 | 51,00 | 58,50 |
| 7,2 | 41 | 79 | 8 | 42072 | 30,80 | 37,80 | 7,2 | 41 | 79 | 8 | 45072 | 51,00 | 58,50 |
| 7,3 | 41 | 79 | 8 | 42073 | 30,80 | 37,80 | 7,3 | 41 | 79 | 8 | 45073 | 51,00 | 58,50 |
| 7,4 | 41 | 79 | 8 | 42074 | 30,80 | 37,80 | 7,4 | 41 | 79 | 8 | 45074 | 51,00 | 58,50 |
| 7,5 | 41 | 79 | 8 | 42075 | 30,80 | 37,80 | 7,5 | 41 | 79 | 8 | 45075 | 51,00 | 58,50 |
| 7,6 | 41 | 79 | 8 | 42076 | 30,80 | 37,80 | 7,6 | 41 | 79 | 8 | 45076 | 51,00 | 58,50 |
| 7,7 | 41 | 79 | 8 | 42077 | 30,80 | 37,80 | 7,7 | 41 | 79 | 8 | 45077 | 51,00 | 58,50 |
| 7,8 | 41 | 79 | 8 | 42078 | 30,80 | 37,80 | 7,8 | 41 | 79 | 8 | 45078 | 51,00 | 58,50 |
| 7,9 | 41 | 79 | 8 | 42079 | 30,80 | 37,80 | 7,9 | 41 | 79 | 8 | 45079 | 51,00 | 58,50 |
| 8 | 41 | 79 | 8 | 4208 | 27,60 | 34,60 | 8 | 41 | 79 | 8 | 4508 | 48,70 | 56,20 |
| 8,1 | 47 | 89 | 10 | 42081 | 44,10 | 52,50 | 8,1 | 47 | 89 | 10 | 45081 | 67,00 | 76,00 |
| 8,2 | 47 | 89 | 10 | 42082 | 44,10 | 52,50 | 8,2 | 47 | 89 | 10 | 45082 | 67,00 | 76,00 |
| 8,3 | 47 | 89 | 10 | 42083 | 44,10 | 52,50 | 8,3 | 47 | 89 | 10 | 45083 | 67,00 | 76,00 |
| 8,4 | 47 | 89 | 10 | 42084 | 44,10 | 52,50 | 8,4 | 47 | 89 | 10 | 45084 | 67,00 | 76,00 |
| 8,5 | 47 | 89 | 10 | 42085 | 44,10 | 52,50 | 8,5 | 47 | 89 | 10 | 45085 | 67,00 | 76,00 |
| 8,6 | 47 | 89 | 10 | 42086 | 44,10 | 52,50 | 8,6 | 47 | 89 | 10 | 45086 | 67,00 | 76,00 |
| 8,7 | 47 | 89 | 10 | 42087 | 44,10 | 52,50 | 8,7 | 47 | 89 | 10 | 45087 | 67,00 | 76,00 |
| 8,8 | 47 | 89 | 10 | 42088 | 44,10 | 52,50 | 8,8 | 47 | 89 | 10 | 45088 | 67,00 | 76,00 |
| 8,9 | 47 | 89 | 10 | 42089 | 44,10 | 52,50 | 8,9 | 47 | 89 | 10 | 45089 | 67,00 | 76,00 |
| 9 | 47 | 89 | 10 | 4209 | 44,10 | 52,50 | 9 | 47 | 89 | 10 | 4509 | 67,00 | 76,00 |
| 9,1 | 47 | 89 | 10 | 42091 | 44,10 | 52,50 | 9,1 | 47 | 89 | 10 | 45091 | 67,00 | 76,00 |
| 9,2 | 47 | 89 | 10 | 42092 | 44,10 | 52,50 | 9,2 | 47 | 89 | 10 | 45092 | 67,00 | 76,00 |
| 9,3 | 47 | 89 | 10 | 42093 | 44,10 | 52,50 | 9,3 | 47 | 89 | 10 | 45093 | 67,00 | 76,00 |
| 9,4 | 47 | 89 | 10 | 42094 | 44,10 | 52,50 | 9,4 | 47 | 89 | 10 | 45094 | 67,00 | 76,00 |
| 9,5 | 47 | 89 | 10 | 42095 | 44,10 | 52,50 | 9,5 | 47 | 89 | 10 | 45095 | 67,00 | 76,00 |
| 9,6 | 47 | 89 | 10 | 42096 | 44,10 | 52,50 | 9,6 | 47 | 89 | 10 | 45096 | 67,00 | 76,00 |
| 9,7 | 47 | 89 | 10 | 42097 | 44,10 | 52,50 | 9,7 | 47 | 89 | 10 | 45097 | 67,00 | 76,00 |
| 9,8 | 47 | 89 | 10 | 42098 | 44,10 | 52,50 | 9,8 | 47 | 89 | 10 | 45098 | 67,00 | 76,00 |
| 9,9 | 47 | 89 | 10 | 42099 | 44,10 | 52,50 | 9,9 | 47 | 89 | 10 | 45099 | 67,00 | 76,00 |
| 10 | 47 | 89 | 10 | 4210 | 38,90 | 47,30 | 10 | 47 | 89 | 10 | 4510 | 62,50 | 71,50 |
| 10,1 | 55 | 102 | 12 | 42101 | 67,60 | 78,30 | 10,1 | 55 | 102 | 12 | 45101 | 106,70 | 118,20 |
| 10,2 | 55 | 102 | 12 | 42102 | 67,60 | 78,30 | 10,2 | 55 | 102 | 12 | 45102 | 106,70 | 118,20 |
| 10,3 | 55 | 102 | 12 | 42103 | 67,60 | 78,30 | 10,3 | 55 | 102 | 12 | 45103 | 106,70 | 118,20 |
| 10,4 | 55 | 102 | 12 | 42104 | 67,60 | 78,30 | 10,4 | 55 | 102 | 12 | 45104 | 106,70 | 118,20 |
| 10,5 | 55 | 102 | 12 | 42105 | 67,60 | 78,30 | 10,5 | 55 | 102 | 12 | 45105 | 106,70 | 118,20 |
| 10,6 | 55 | 102 | 12 | 42106 | 67,60 | 78,30 | 10,6 | 55 | 102 | 12 | 45106 | 106,70 | 118,20 |
| 10,7 | 55 | 102 | 12 | 42107 | 67,60 | 78,30 | 10,7 | 55 | 102 | 12 | 45107 | 106,70 | 118,20 |
| 10,8 | 55 | 102 | 12 | 42108 | 67,60 | 78,30 | 10,8 | 55 | 102 | 12 | 45108 | 106,70 | 118,20 |
| 10,9 | 55 | 102 | 12 | 42109 | 67,60 | 78,30 | 10,9 | 55 | 102 | 12 | 45109 | 106,70 | 118,20 |
| 11 | 55 | 102 | 12 | 4211 | 67,60 | 78,30 | 11 | 55 | 102 | 12 | 4511 | 106,70 | 118,20 |
| 11,1 | 55 | 102 | 12 | 42111 | 67,60 | 78,30 | 11,1 | 55 | 102 | 12 | 45111 | 106,70 | 118,20 |
| 11,2 | 55 | 102 | 12 | 42112 | 67,60 | 78,30 | 11,2 | 55 | 102 | 12 | 45112 | 106,70 | 118,20 |
| 11,3 | 55 | 102 | 12 | 42113 | 67,60 | 78,30 | 11,3 | 55 | 102 | 12 | 45113 | 106,70 | 118,20 |
| 11,4 | 55 | 102 | 12 | 42114 | 67,60 | 78,30 | 11,4 | 55 | 102 | 12 | 45114 | 106,70 | 118,20 |
| 11,5 | 55 | 102 | 12 | 42115 | 67,60 | 78,30 | 11,5 | 55 | 102 | 12 | 45115 | 106,70 | 118,20 |
| 11,6 | 55 | 102 | 12 | 42116 | 67,60 | 78,30 | 11,6 | 55 | 102 | 12 | 45116 | 106,70 | 118,20 |
| 11,7 | 55 | 102 | 12 | 42117 | 67,60 | 78,30 | 11,7 | 55 | 102 | 12 | 45117 | 106,70 | 118,20 |

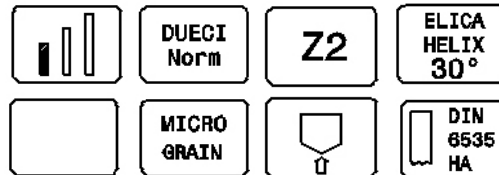
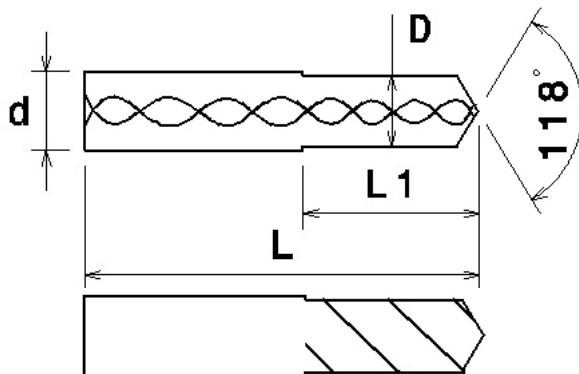
Punte gambo rinforzato 3xD

Reinforced shank drills 3xD

| D h7 | L1 | L | d h6 | Cod. | € uncoated | € tialn | D h7 | L1 | L | d h6 | Cod. | € uncoated | € tialn |
|---------|----|-----|---------|--------------|---------------|------------|---------|----|-----|---------|--------------|---------------|------------|
| 11,8 | 55 | 102 | 12 | 42118 | 67,60 | 78,30 | 11,8 | 55 | 102 | 12 | 45118 | 106,70 | 118,20 |
| 11,9 | 55 | 102 | 12 | 42119 | 67,60 | 78,30 | 11,9 | 55 | 102 | 12 | 45119 | 106,70 | 118,20 |
| 12 | 55 | 102 | 12 | 4212 | 61,80 | 72,50 | 12 | 55 | 102 | 12 | 4512 | 102,20 | 113,70 |
| 12,5 | 60 | 107 | 14 | 42125 | 89,70 | 101,50 | 12,5 | 60 | 107 | 14 | 45125 | 135,80 | 148,40 |
| 12,8 | 60 | 107 | 14 | 42128 | 89,70 | 101,50 | 12,8 | 60 | 107 | 14 | 45128 | 135,80 | 148,40 |
| 13 | 60 | 107 | 14 | 4213 | 89,70 | 101,50 | 13 | 60 | 107 | 14 | 4513 | 135,80 | 148,40 |
| 13,5 | 60 | 107 | 14 | 42135 | 89,70 | 101,50 | 13,5 | 60 | 107 | 14 | 45135 | 135,80 | 148,40 |
| 13,8 | 60 | 107 | 14 | 42138 | 89,70 | 101,50 | 13,8 | 60 | 107 | 14 | 45138 | 135,80 | 148,40 |
| 14 | 60 | 107 | 14 | 4214 | 82,00 | 93,80 | 14 | 60 | 107 | 14 | 4514 | 129,00 | 141,70 |
| 14,5 | 65 | 115 | 16 | 42145 | 115,00 | 126,80 | 14,5 | 65 | 115 | 16 | 45145 | 220,50 | 233,20 |
| 14,8 | 65 | 115 | 16 | 42148 | 115,00 | 126,80 | 14,8 | 65 | 115 | 16 | 45148 | 220,50 | 233,20 |
| 15 | 65 | 115 | 16 | 4215 | 115,00 | 126,80 | 15 | 65 | 115 | 16 | 4515 | 220,50 | 233,20 |
| 15,5 | 65 | 115 | 16 | 42155 | 115,00 | 126,80 | 15,5 | 65 | 115 | 16 | 45155 | 220,50 | 233,20 |
| 15,8 | 65 | 115 | 16 | 42158 | 115,00 | 126,80 | 15,8 | 65 | 115 | 16 | 45158 | 220,50 | 233,20 |
| 16 | 65 | 115 | 16 | 4216 | 107,30 | 119,10 | 16 | 65 | 115 | 16 | 4516 | 213,80 | 226,40 |
| 16,5 | 73 | 123 | 18 | 42165 | 145,70 | 159,30 | 16,5 | 73 | 123 | 18 | 45165 | 291,80 | 306,30 |
| 16,8 | 73 | 123 | 18 | 42168 | 145,70 | 159,30 | 16,8 | 73 | 123 | 18 | 45168 | 291,80 | 306,30 |
| 17 | 73 | 123 | 18 | 4217 | 145,70 | 159,30 | 17 | 73 | 123 | 18 | 4517 | 291,80 | 306,30 |
| 17,5 | 73 | 123 | 18 | 42175 | 145,70 | 159,30 | 17,5 | 73 | 123 | 18 | 45175 | 291,80 | 306,30 |
| 17,8 | 73 | 123 | 18 | 42178 | 145,70 | 159,30 | 17,8 | 73 | 123 | 18 | 45178 | 291,80 | 306,30 |
| 18 | 73 | 123 | 18 | 4218 | 138,00 | 151,60 | 18 | 73 | 123 | 18 | 4518 | 285,00 | 299,50 |
| 18,5 | 79 | 131 | 20 | 42185 | 181,50 | 198,30 | 18,5 | 79 | 131 | 20 | 45185 | 346,90 | 364,90 |
| 18,8 | 79 | 131 | 20 | 42188 | 181,50 | 198,30 | 18,8 | 79 | 131 | 20 | 45188 | 346,90 | 364,90 |
| 19 | 79 | 131 | 20 | 4219 | 181,50 | 198,30 | 19 | 79 | 131 | 20 | 4519 | 346,90 | 364,90 |
| 19,5 | 79 | 131 | 20 | 42195 | 181,50 | 198,30 | 19,5 | 79 | 131 | 20 | 45195 | 346,90 | 364,90 |
| 19,8 | 79 | 131 | 20 | 42198 | 181,50 | 198,30 | 19,8 | 79 | 131 | 20 | 45198 | 346,90 | 364,90 |
| 20 | 79 | 131 | 20 | 4220 | 173,80 | 190,60 | 20 | 79 | 131 | 20 | 4520 | 342,40 | 360,40 |

Punte gambo rinforzato 5xD

Reinforced shank drills 5xD



| D h7 | L1 | L | d h6 | Cod. | € uncoated | € tialn | D h7 | L1 | L | d h6 | Cod. | € uncoated | € Tialn |
|---------|----|----|---------|--------------|---------------|------------|---------|----|----|---------|--------------|---------------|------------|
| 3 | 28 | 66 | 6 | 4303 | 21,80 | 26,40 | | | | | | | |
| 3,1 | 28 | 66 | 6 | 43031 | 21,80 | 26,40 | | | | | | | |
| 3,2 | 28 | 66 | 6 | 43032 | 21,80 | 26,40 | | | | | | | |
| 3,3 | 28 | 66 | 6 | 43033 | 21,80 | 26,40 | | | | | | | |
| 3,4 | 28 | 66 | 6 | 43034 | 21,80 | 26,40 | | | | | | | |
| 3,5 | 28 | 66 | 6 | 43035 | 21,80 | 26,40 | | | | | | | |
| 3,6 | 28 | 66 | 6 | 43036 | 21,80 | 26,40 | | | | | | | |
| 3,7 | 28 | 66 | 6 | 43037 | 21,80 | 26,40 | | | | | | | |
| 3,8 | 36 | 74 | 6 | 43038 | 25,80 | 31,70 | | | | | | | |
| 3,9 | 36 | 74 | 6 | 43039 | 25,80 | 31,70 | | | | | | | |
| 4 | 36 | 74 | 6 | 4304 | 25,80 | 31,70 | 4 | 36 | 74 | 6 | 4604 | 40,40 | 46,80 |
| 4,1 | 36 | 74 | 6 | 43041 | 25,80 | 31,70 | 4,1 | 36 | 74 | 6 | 46041 | 40,40 | 46,80 |
| 4,2 | 36 | 74 | 6 | 43042 | 25,80 | 31,70 | 4,2 | 36 | 74 | 6 | 46042 | 40,40 | 46,80 |
| 4,3 | 36 | 74 | 6 | 43043 | 25,80 | 31,70 | 4,3 | 36 | 74 | 6 | 46043 | 40,40 | 46,80 |
| 4,4 | 36 | 74 | 6 | 43044 | 25,80 | 31,70 | 4,4 | 36 | 74 | 6 | 46044 | 40,40 | 46,80 |
| 4,5 | 36 | 74 | 6 | 43045 | 25,80 | 31,70 | 4,5 | 36 | 74 | 6 | 46045 | 40,40 | 46,80 |
| 4,6 | 36 | 74 | 6 | 43046 | 25,80 | 31,70 | 4,6 | 36 | 74 | 6 | 46046 | 40,40 | 46,80 |
| 4,7 | 36 | 74 | 6 | 43047 | 25,80 | 31,70 | 4,7 | 36 | 74 | 6 | 46047 | 40,40 | 46,80 |
| 4,8 | 44 | 82 | 6 | 43048 | 25,80 | 31,70 | 4,8 | 44 | 82 | 6 | 46048 | 40,40 | 46,80 |
| 4,9 | 44 | 82 | 6 | 43049 | 25,80 | 31,70 | 4,9 | 44 | 82 | 6 | 46048 | 40,40 | 46,80 |
| 5 | 44 | 82 | 6 | 4305 | 25,80 | 31,70 | 5 | 44 | 82 | 6 | 4605 | 40,40 | 46,80 |
| 5,1 | 44 | 82 | 6 | 43051 | 25,80 | 31,70 | 5,1 | 44 | 82 | 6 | 46051 | 40,40 | 46,80 |
| 5,2 | 44 | 82 | 6 | 43052 | 25,80 | 31,70 | 5,2 | 44 | 82 | 6 | 46052 | 40,40 | 46,80 |
| 5,3 | 44 | 82 | 6 | 43053 | 25,80 | 31,70 | 5,3 | 44 | 82 | 6 | 46053 | 40,40 | 46,80 |
| 5,4 | 44 | 82 | 6 | 43054 | 25,80 | 31,70 | 5,4 | 44 | 82 | 6 | 46054 | 40,40 | 46,80 |
| 5,5 | 44 | 82 | 6 | 43055 | 25,80 | 31,70 | 5,5 | 44 | 82 | 6 | 46055 | 40,40 | 46,80 |
| 5,6 | 44 | 82 | 6 | 43056 | 25,80 | 31,70 | 5,6 | 44 | 82 | 6 | 46056 | 40,40 | 46,80 |
| 5,7 | 44 | 82 | 6 | 43057 | 25,80 | 31,70 | 5,7 | 44 | 82 | 6 | 46057 | 40,40 | 46,80 |
| 5,8 | 44 | 82 | 6 | 43058 | 25,80 | 31,70 | 5,8 | 44 | 82 | 6 | 46058 | 40,40 | 46,80 |
| 5,9 | 44 | 82 | 6 | 43059 | 25,80 | 31,70 | 5,9 | 44 | 82 | 6 | 46059 | 40,40 | 46,80 |
| 6 | 44 | 82 | 6 | 4306 | 22,50 | 28,40 | 6 | 44 | 82 | 6 | 4606 | 35,90 | 42,30 |
| 6,1 | 53 | 91 | 8 | 43061 | 39,00 | 46,00 | 6,1 | 53 | 91 | 8 | 46061 | 58,50 | 66,00 |
| 6,2 | 53 | 91 | 8 | 43062 | 39,00 | 46,00 | 6,2 | 53 | 91 | 8 | 46062 | 58,50 | 66,00 |
| 6,3 | 53 | 91 | 8 | 43063 | 39,00 | 46,00 | 6,3 | 53 | 91 | 8 | 46063 | 58,50 | 66,00 |
| 6,4 | 53 | 91 | 8 | 43064 | 39,00 | 46,00 | 6,4 | 53 | 91 | 8 | 46064 | 58,50 | 66,00 |
| 6,5 | 53 | 91 | 8 | 43065 | 39,00 | 46,00 | 6,5 | 53 | 91 | 8 | 46065 | 58,50 | 66,00 |
| 6,6 | 53 | 91 | 8 | 43066 | 39,00 | 46,00 | 6,6 | 53 | 91 | 8 | 46066 | 58,50 | 66,00 |
| 6,7 | 53 | 91 | 8 | 43067 | 39,00 | 46,00 | 6,7 | 53 | 91 | 8 | 46067 | 58,50 | 66,00 |

Punte gambo rinforzato 5xD

Reinforced shank drills 5xD

| D _{h7} | L1 | L | d _{h6} | Cod. | € uncoated | € tialn | D _{h7} | L1 | L | d _{h6} | Cod. | € uncoated | € tialn |
|-----------------|----|-----|-----------------|--------------|---------------|------------|-----------------|----|-----|-----------------|--------------|---------------|------------|
| 6,8 | 53 | 91 | 8 | 43068 | 39,00 | 46,00 | 6,8 | 53 | 91 | 8 | 46068 | 58,50 | 66,00 |
| 6,9 | 53 | 91 | 8 | 43069 | 39,00 | 46,00 | 6,9 | 53 | 91 | 8 | 46069 | 58,50 | 66,00 |
| 7 | 53 | 91 | 8 | 4307 | 39,00 | 46,00 | 7 | 53 | 91 | 8 | 4607 | 58,50 | 66,00 |
| 7,1 | 53 | 91 | 8 | 43071 | 39,00 | 46,00 | 7,1 | 53 | 91 | 8 | 46071 | 58,50 | 66,00 |
| 7,2 | 53 | 91 | 8 | 43072 | 39,00 | 46,00 | 7,2 | 53 | 91 | 8 | 46072 | 58,50 | 66,00 |
| 7,3 | 53 | 91 | 8 | 43073 | 39,00 | 46,00 | 7,3 | 53 | 91 | 8 | 46073 | 58,50 | 66,00 |
| 7,4 | 53 | 91 | 8 | 43074 | 39,00 | 46,00 | 7,4 | 53 | 91 | 8 | 46074 | 58,50 | 66,00 |
| 7,5 | 53 | 91 | 8 | 43075 | 39,00 | 46,00 | 7,5 | 53 | 91 | 8 | 46075 | 58,50 | 66,00 |
| 7,6 | 53 | 91 | 8 | 43076 | 39,00 | 46,00 | 7,6 | 53 | 91 | 8 | 46076 | 58,50 | 66,00 |
| 7,7 | 53 | 91 | 8 | 43077 | 39,00 | 46,00 | 7,7 | 53 | 91 | 8 | 46077 | 58,50 | 66,00 |
| 7,8 | 53 | 91 | 8 | 43078 | 39,00 | 46,00 | 7,8 | 53 | 91 | 8 | 46078 | 58,50 | 66,00 |
| 7,9 | 53 | 91 | 8 | 43079 | 39,00 | 46,00 | 7,9 | 53 | 91 | 8 | 46079 | 58,50 | 66,00 |
| 8 | 53 | 91 | 8 | 4308 | 33,80 | 40,80 | 8 | 53 | 91 | 8 | 4608 | 54,00 | 61,50 |
| 8,1 | 61 | 103 | 10 | 43081 | 54,80 | 65,60 | 8,1 | 61 | 103 | 10 | 46081 | 80,90 | 92,30 |
| 8,2 | 61 | 103 | 10 | 43082 | 54,80 | 65,60 | 8,2 | 61 | 103 | 10 | 46082 | 80,90 | 92,30 |
| 8,3 | 61 | 103 | 10 | 43083 | 54,80 | 65,60 | 8,3 | 61 | 103 | 10 | 46083 | 80,90 | 92,30 |
| 8,4 | 61 | 103 | 10 | 43084 | 54,80 | 65,60 | 8,4 | 61 | 103 | 10 | 46084 | 80,90 | 92,30 |
| 8,5 | 61 | 103 | 10 | 43085 | 54,80 | 65,60 | 8,5 | 61 | 103 | 10 | 46085 | 80,90 | 92,30 |
| 8,6 | 61 | 103 | 10 | 43086 | 54,80 | 65,60 | 8,6 | 61 | 103 | 10 | 46086 | 80,90 | 92,30 |
| 8,7 | 61 | 103 | 10 | 43087 | 54,80 | 65,60 | 8,7 | 61 | 103 | 10 | 46087 | 80,90 | 92,30 |
| 8,8 | 61 | 103 | 10 | 43088 | 54,80 | 65,60 | 8,8 | 61 | 103 | 10 | 46088 | 80,90 | 92,30 |
| 8,9 | 61 | 103 | 10 | 43089 | 54,80 | 65,60 | 8,9 | 61 | 103 | 10 | 46089 | 80,90 | 92,30 |
| 9 | 61 | 103 | 10 | 4309 | 54,80 | 65,60 | 9 | 61 | 103 | 10 | 4609 | 80,90 | 92,30 |
| 9,1 | 61 | 103 | 10 | 43091 | 54,80 | 65,60 | 9,1 | 61 | 103 | 10 | 46091 | 80,90 | 92,30 |
| 9,2 | 61 | 103 | 10 | 43092 | 54,80 | 65,60 | 9,2 | 61 | 103 | 10 | 46092 | 80,90 | 92,30 |
| 9,3 | 61 | 103 | 10 | 43093 | 54,80 | 65,60 | 9,3 | 61 | 103 | 10 | 46093 | 80,90 | 92,30 |
| 9,4 | 61 | 103 | 10 | 43094 | 54,80 | 65,60 | 9,4 | 61 | 103 | 10 | 46094 | 80,90 | 92,30 |
| 9,5 | 61 | 103 | 10 | 43095 | 54,80 | 65,60 | 9,5 | 61 | 103 | 10 | 46095 | 80,90 | 92,30 |
| 9,6 | 61 | 103 | 10 | 43096 | 54,80 | 65,60 | 9,6 | 61 | 103 | 10 | 46096 | 80,90 | 92,30 |
| 9,7 | 61 | 103 | 10 | 43097 | 54,80 | 65,60 | 9,7 | 61 | 103 | 10 | 46097 | 80,90 | 92,30 |
| 9,8 | 61 | 103 | 10 | 43098 | 54,80 | 65,60 | 9,8 | 61 | 103 | 10 | 46098 | 80,90 | 92,30 |
| 9,9 | 61 | 103 | 10 | 43099 | 54,80 | 65,60 | 9,9 | 61 | 103 | 10 | 46099 | 80,90 | 92,30 |
| 10 | 61 | 103 | 10 | 4310 | 49,10 | 59,80 | 10 | 61 | 103 | 10 | 4610 | 74,10 | 85,60 |
| 10,1 | 71 | 118 | 12 | 43101 | 77,80 | 88,50 | 10,1 | 71 | 118 | 12 | 46101 | 144,80 | 156,20 |
| 10,2 | 71 | 118 | 12 | 43102 | 77,80 | 88,50 | 10,2 | 71 | 118 | 12 | 46102 | 144,80 | 156,20 |
| 10,3 | 71 | 118 | 12 | 43103 | 77,80 | 88,50 | 10,3 | 71 | 118 | 12 | 46103 | 144,80 | 156,20 |
| 10,4 | 71 | 118 | 12 | 43104 | 77,80 | 88,50 | 10,4 | 71 | 118 | 12 | 46104 | 144,80 | 156,20 |
| 10,5 | 71 | 118 | 12 | 43105 | 77,80 | 88,50 | 10,5 | 71 | 118 | 12 | 46105 | 144,80 | 156,20 |
| 10,6 | 71 | 118 | 12 | 43106 | 77,80 | 88,50 | 10,6 | 71 | 118 | 12 | 46106 | 144,80 | 156,20 |
| 10,7 | 71 | 118 | 12 | 43107 | 77,80 | 88,50 | 10,7 | 71 | 118 | 12 | 46107 | 144,80 | 156,20 |
| 10,8 | 71 | 118 | 12 | 43108 | 77,80 | 88,50 | 10,8 | 71 | 118 | 12 | 46108 | 144,80 | 156,20 |
| 10,9 | 71 | 118 | 12 | 43109 | 77,80 | 88,50 | 10,9 | 71 | 118 | 12 | 46109 | 144,80 | 156,20 |
| 11 | 71 | 118 | 12 | 4311 | 77,80 | 88,50 | 11 | 71 | 118 | 12 | 4611 | 144,80 | 156,20 |
| 11,1 | 71 | 118 | 12 | 43111 | 77,80 | 88,50 | 11,1 | 71 | 118 | 12 | 46111 | 144,80 | 156,20 |
| 11,2 | 71 | 118 | 12 | 43112 | 77,80 | 88,50 | 11,2 | 71 | 118 | 12 | 46112 | 144,80 | 156,20 |
| 11,3 | 71 | 118 | 12 | 43113 | 77,80 | 88,50 | 11,3 | 71 | 118 | 12 | 46113 | 144,80 | 156,20 |
| 11,4 | 71 | 118 | 12 | 43114 | 77,80 | 88,50 | 11,4 | 71 | 118 | 12 | 46114 | 144,80 | 156,20 |
| 11,5 | 71 | 118 | 12 | 43115 | 77,80 | 88,50 | 11,5 | 71 | 118 | 12 | 46115 | 144,80 | 156,20 |
| 11,6 | 71 | 118 | 12 | 43116 | 77,80 | 88,50 | 11,6 | 71 | 118 | 12 | 46116 | 144,80 | 156,20 |
| 11,7 | 71 | 118 | 12 | 43117 | 77,80 | 88,50 | 11,7 | 71 | 118 | 12 | 46117 | 144,80 | 156,20 |

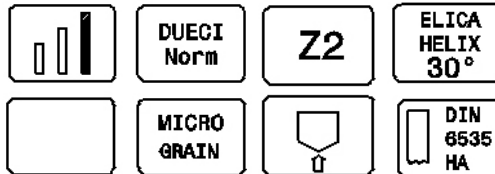
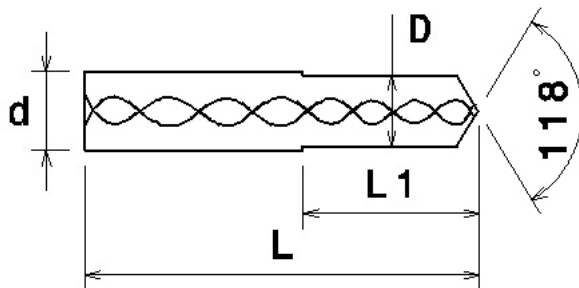
Punte gambo rinforzato 5xD

Reinforced shank drills 5xD

| D h7 | L1 | L | d h6 | Cod | € uncoated | € tialn | D h7 | L1 | L | d h6 | Cod | € uncoated | € tialn |
|---------|-----|-----|---------|--------------|---------------|------------|---------|-----|-----|---------|--------------|---------------|------------|
| 11,8 | 71 | 118 | 12 | 43118 | 77,80 | 88,50 | 11,8 | 71 | 118 | 12 | 46118 | 144,80 | 156,20 |
| 11,9 | 71 | 118 | 12 | 43119 | 77,80 | 88,50 | 11,9 | 71 | 118 | 12 | 46119 | 144,80 | 156,20 |
| 12 | 71 | 118 | 12 | 4312 | 73,90 | 84,60 | 12 | 71 | 118 | 12 | 4612 | 140,30 | 151,70 |
| 12,5 | 77 | 124 | 14 | 43125 | 104,50 | 116,30 | 12,5 | 77 | 124 | 14 | 46125 | 187,90 | 200,50 |
| 12,8 | 77 | 124 | 14 | 43128 | 104,50 | 116,30 | 12,8 | 77 | 124 | 14 | 46128 | 187,90 | 200,50 |
| 13 | 77 | 124 | 14 | 4313 | 104,50 | 116,30 | 13 | 77 | 124 | 14 | 4613 | 187,90 | 200,50 |
| 13,5 | 77 | 124 | 14 | 43135 | 104,50 | 116,30 | 13,5 | 77 | 124 | 14 | 46135 | 187,90 | 200,50 |
| 13,8 | 77 | 124 | 14 | 43138 | 104,50 | 116,30 | 13,8 | 77 | 124 | 14 | 46138 | 187,90 | 200,50 |
| 14 | 77 | 124 | 14 | 4314 | 98,70 | 110,50 | 14 | 77 | 124 | 14 | 4614 | 178,90 | 191,50 |
| 14,5 | 83 | 133 | 16 | 43145 | 130,80 | 142,60 | 14,5 | 83 | 133 | 16 | 46145 | 227,30 | 239,90 |
| 14,8 | 83 | 133 | 16 | 43148 | 130,80 | 142,60 | 14,8 | 83 | 133 | 16 | 46148 | 227,30 | 239,90 |
| 15 | 83 | 133 | 16 | 4315 | 130,80 | 142,60 | 15 | 83 | 133 | 16 | 4615 | 227,30 | 239,90 |
| 15,5 | 83 | 133 | 16 | 43155 | 130,80 | 142,60 | 15,5 | 83 | 133 | 16 | 46155 | 227,30 | 239,90 |
| 15,8 | 83 | 133 | 16 | 43158 | 130,80 | 142,60 | 15,8 | 83 | 133 | 16 | 46158 | 227,30 | 239,90 |
| 16 | 83 | 133 | 16 | 4316 | 126,90 | 138,70 | 16 | 83 | 133 | 16 | 4616 | 220,50 | 233,20 |
| 16,5 | 93 | 143 | 18 | 43165 | 165,80 | 184,00 | 16,5 | 93 | 143 | 18 | 46165 | 303,00 | 322,60 |
| 16,8 | 93 | 143 | 18 | 43168 | 165,80 | 184,00 | 16,8 | 93 | 143 | 18 | 46168 | 303,00 | 322,60 |
| 17 | 93 | 143 | 18 | 4317 | 165,80 | 184,00 | 17 | 93 | 143 | 18 | 4617 | 303,00 | 322,60 |
| 17,5 | 93 | 143 | 18 | 43175 | 165,80 | 184,00 | 17,5 | 93 | 143 | 18 | 46175 | 303,00 | 322,60 |
| 17,8 | 93 | 143 | 18 | 43178 | 165,80 | 184,00 | 17,8 | 93 | 143 | 18 | 46178 | 303,00 | 322,60 |
| 18 | 93 | 143 | 18 | 4318 | 161,90 | 180,10 | 18 | 93 | 143 | 18 | 4618 | 294,00 | 313,60 |
| 18,5 | 101 | 153 | 20 | 43185 | 220,60 | 245,80 | 18,5 | 101 | 153 | 20 | 46185 | 360,40 | 387,40 |
| 18,8 | 101 | 153 | 20 | 43188 | 220,60 | 245,80 | 18,8 | 101 | 153 | 20 | 46188 | 360,40 | 387,40 |
| 19 | 101 | 153 | 20 | 4319 | 220,60 | 245,80 | 19 | 101 | 153 | 20 | 4619 | 360,40 | 387,40 |
| 19,5 | 101 | 153 | 20 | 43195 | 220,60 | 245,80 | 19,5 | 101 | 153 | 20 | 46195 | 360,40 | 387,40 |
| 19,8 | 101 | 153 | 20 | 43198 | 220,60 | 245,80 | 19,8 | 101 | 153 | 20 | 46198 | 360,40 | 387,40 |
| 20 | 101 | 153 | 20 | 4320 | 216,80 | 242,00 | 20 | 101 | 153 | 20 | 4620 | 353,70 | 380,60 |

Punte gambo rinforzato 8xD

Reinforced shank drills 8xD



| D h7 | L1 | L | d h6 | Cod. | € uncoated | € tialn | D h7 | L1 | L | d h6 | Cod. | € uncoated | € Tialn |
|---------|----|-----|---------|--------------|---------------|------------|---------|-----|-----|---------|--------------|---------------|------------|
| 4 | 43 | 81 | 6 | 4904 | 45,80 | 52,20 | 7,8 | 76 | 114 | 8 | 49078 | 70,70 | 80,00 |
| 4,1 | 43 | 81 | 6 | 49041 | 45,80 | 52,20 | 7,9 | 76 | 114 | 8 | 49079 | 70,70 | 80,00 |
| 4,2 | 43 | 81 | 6 | 49042 | 45,80 | 52,20 | 8 | 76 | 114 | 8 | 4908 | 66,20 | 75,50 |
| 4,3 | 43 | 81 | 6 | 49043 | 45,80 | 52,20 | 8,1 | 95 | 142 | 10 | 49081 | 113,40 | 127,20 |
| 4,4 | 43 | 81 | 6 | 49044 | 45,80 | 52,20 | 8,2 | 95 | 142 | 10 | 49082 | 113,40 | 127,20 |
| 4,5 | 43 | 81 | 6 | 49045 | 45,80 | 52,20 | 8,3 | 95 | 142 | 10 | 49083 | 113,40 | 127,20 |
| 4,6 | 43 | 81 | 6 | 49046 | 45,80 | 52,20 | 8,4 | 95 | 142 | 10 | 49084 | 113,40 | 127,20 |
| 4,7 | 43 | 81 | 6 | 49047 | 45,80 | 52,20 | 8,5 | 95 | 142 | 10 | 49085 | 113,40 | 127,20 |
| 4,8 | 57 | 95 | 6 | 49048 | 45,80 | 52,20 | 8,6 | 95 | 142 | 10 | 49086 | 113,40 | 127,20 |
| 4,9 | 57 | 95 | 6 | 49048 | 45,80 | 52,20 | 8,7 | 95 | 142 | 10 | 49087 | 113,40 | 127,20 |
| 5 | 57 | 95 | 6 | 4905 | 45,80 | 52,20 | 8,8 | 95 | 142 | 10 | 49088 | 113,40 | 127,20 |
| 5,1 | 57 | 95 | 6 | 49051 | 45,80 | 52,20 | 8,9 | 95 | 142 | 10 | 49089 | 113,40 | 127,20 |
| 5,2 | 57 | 95 | 6 | 49052 | 45,80 | 52,20 | 9 | 95 | 142 | 10 | 4909 | 113,40 | 127,20 |
| 5,3 | 57 | 95 | 6 | 49053 | 45,80 | 52,20 | 9,1 | 95 | 142 | 10 | 49091 | 113,40 | 127,20 |
| 5,4 | 57 | 95 | 6 | 49054 | 45,80 | 52,20 | 9,2 | 95 | 142 | 10 | 49092 | 113,40 | 127,20 |
| 5,5 | 57 | 95 | 6 | 49055 | 45,80 | 52,20 | 9,3 | 95 | 142 | 10 | 49093 | 113,40 | 127,20 |
| 5,6 | 57 | 95 | 6 | 49056 | 45,80 | 52,20 | 9,4 | 95 | 142 | 10 | 49094 | 113,40 | 127,20 |
| 5,7 | 57 | 95 | 6 | 49057 | 45,80 | 52,20 | 9,5 | 95 | 142 | 10 | 49095 | 113,40 | 127,20 |
| 5,8 | 57 | 95 | 6 | 49058 | 45,80 | 52,20 | 9,6 | 95 | 142 | 10 | 49096 | 113,40 | 127,20 |
| 5,9 | 57 | 95 | 6 | 49059 | 45,80 | 52,20 | 9,7 | 95 | 142 | 10 | 49097 | 113,40 | 127,20 |
| 6 | 57 | 95 | 6 | 4906 | 41,30 | 47,70 | 9,8 | 95 | 142 | 10 | 49098 | 113,40 | 127,20 |
| 6,1 | 76 | 114 | 8 | 49061 | 70,70 | 80,00 | 9,9 | 95 | 142 | 10 | 49099 | 113,40 | 127,20 |
| 6,2 | 76 | 114 | 8 | 49062 | 70,70 | 80,00 | 10 | 95 | 142 | 10 | 4910 | 108,90 | 122,70 |
| 6,3 | 76 | 114 | 8 | 49063 | 70,70 | 80,00 | 10,1 | 114 | 162 | 12 | 49101 | 156,60 | 170,40 |
| 6,4 | 76 | 114 | 8 | 49064 | 70,70 | 80,00 | 10,2 | 114 | 162 | 12 | 49102 | 156,60 | 170,40 |
| 6,5 | 76 | 114 | 8 | 49065 | 70,70 | 80,00 | 10,3 | 114 | 162 | 12 | 49103 | 156,60 | 170,40 |
| 6,6 | 76 | 114 | 8 | 49066 | 70,70 | 80,00 | 10,4 | 114 | 162 | 12 | 49104 | 156,60 | 170,40 |
| 6,7 | 76 | 114 | 8 | 49067 | 70,70 | 80,00 | 10,5 | 114 | 162 | 12 | 49105 | 156,60 | 170,40 |
| 6,8 | 76 | 114 | 8 | 49068 | 70,70 | 80,00 | 10,6 | 114 | 162 | 12 | 49106 | 156,60 | 170,40 |
| 6,9 | 76 | 114 | 8 | 49069 | 70,70 | 80,00 | 10,7 | 114 | 162 | 12 | 49107 | 156,60 | 170,40 |
| 7 | 76 | 114 | 8 | 4907 | 70,70 | 80,00 | 10,8 | 114 | 162 | 12 | 49108 | 156,60 | 170,40 |
| 7,1 | 76 | 114 | 8 | 49071 | 70,70 | 80,00 | 10,9 | 114 | 162 | 12 | 49109 | 156,60 | 170,40 |
| 7,2 | 76 | 114 | 8 | 49072 | 70,70 | 80,00 | 11 | 114 | 162 | 12 | 4911 | 156,60 | 170,40 |
| 7,3 | 76 | 114 | 8 | 49073 | 70,70 | 80,00 | 11,1 | 114 | 162 | 12 | 49111 | 156,60 | 170,40 |
| 7,4 | 76 | 114 | 8 | 49074 | 70,70 | 80,00 | 11,2 | 114 | 162 | 12 | 49112 | 156,60 | 170,40 |
| 7,5 | 76 | 114 | 8 | 49075 | 70,70 | 80,00 | 11,3 | 114 | 162 | 12 | 49113 | 156,60 | 170,40 |
| 7,6 | 76 | 114 | 8 | 49076 | 70,70 | 80,00 | 11,4 | 114 | 162 | 12 | 49114 | 156,60 | 170,40 |
| 7,7 | 76 | 114 | 8 | 49077 | 70,70 | 80,00 | 11,5 | 114 | 162 | 12 | 49115 | 156,60 | 170,40 |

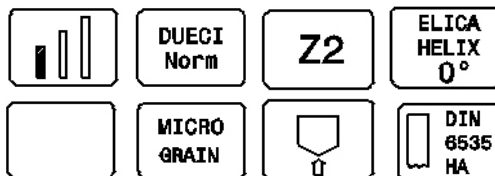
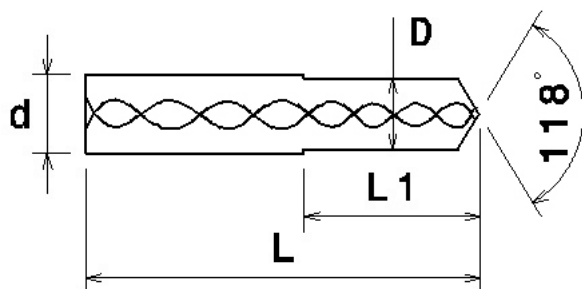
Punte gambo rinforzato 8xD

Reinforced shank drills 8xD

| D _{h7} | L1 | L | d _{h6} | Cod. | € uncoated | € tialn |
|-----------------|-----|-----|-----------------|--------------|------------|---------|
| 11,6 | 114 | 162 | 12 | 49116 | 156,60 | 170,40 |
| 11,7 | 114 | 162 | 12 | 49117 | 156,60 | 170,40 |
| 11,8 | 114 | 162 | 12 | 49118 | 156,60 | 170,40 |
| 11,9 | 114 | 162 | 12 | 49119 | 156,60 | 170,40 |
| 12 | 114 | 162 | 12 | 4912 | 152,10 | 165,90 |
| 12,5 | 133 | 178 | 14 | 49125 | 211,50 | 227,20 |
| 12,8 | 133 | 178 | 14 | 49128 | 211,50 | 227,20 |
| 13 | 133 | 178 | 14 | 4913 | 211,50 | 227,20 |
| 13,5 | 133 | 178 | 14 | 49135 | 211,50 | 227,20 |
| 13,8 | 133 | 178 | 14 | 49138 | 211,50 | 227,20 |
| 14 | 133 | 178 | 14 | 4914 | 207,00 | 222,70 |
| 14,5 | 152 | 203 | 16 | 49145 | 296,30 | 319,00 |
| 14,8 | 152 | 203 | 16 | 49148 | 296,30 | 319,00 |
| 15 | 152 | 203 | 16 | 4915 | 296,30 | 319,00 |
| 15,5 | 152 | 203 | 16 | 49155 | 296,30 | 319,00 |
| 15,8 | 152 | 203 | 16 | 49158 | 296,30 | 319,00 |
| 16 | 152 | 203 | 16 | 4916 | 289,50 | 312,30 |
| 16,5 | 171 | 222 | 18 | 49165 | 533,50 | 568,80 |
| 16,8 | 171 | 222 | 18 | 49168 | 533,50 | 568,80 |
| 17 | 171 | 222 | 18 | 4917 | 533,50 | 568,80 |
| 17,5 | 171 | 222 | 18 | 49175 | 533,50 | 568,80 |
| 17,8 | 171 | 222 | 18 | 49178 | 533,50 | 568,80 |
| 18 | 171 | 222 | 18 | 4918 | 526,80 | 562,10 |
| 18,5 | 190 | 243 | 20 | 49185 | 655,00 | 706,00 |
| 18,8 | 190 | 243 | 20 | 49188 | 655,00 | 706,00 |
| 19 | 190 | 243 | 20 | 4919 | 655,00 | 706,00 |
| 19,5 | 190 | 243 | 20 | 49195 | 655,00 | 706,00 |
| 19,8 | 190 | 243 | 20 | 49198 | 655,00 | 706,00 |
| 20 | 190 | 243 | 20 | 4920 | 632,50 | 683,50 |

Punte gambo rinforzato elica diritta per ghisa e ottone 3xD

Reinforced shank straight flutes drills 3xD, cast iron and brass application



| D _{h7} | L1 | L | d _{h6} | Cod. | € uncoated | € tialn | D _{h7} | L1 | L | d _{h6} | Cod. | € uncoated | € Tialn |
|-----------------|----|----|-----------------|--------------|------------|---------|-----------------|----|-----|-----------------|--------------|------------|---------|
| 4 | 24 | 66 | 6 | 4704 | 32,00 | 36,90 | 7,8 | 41 | 79 | 8 | 47078 | 47,80 | 55,00 |
| 4,1 | 24 | 66 | 6 | 47041 | 32,00 | 36,90 | 7,9 | 41 | 79 | 8 | 47079 | 47,80 | 55,00 |
| 4,2 | 24 | 66 | 6 | 47042 | 32,00 | 36,90 | 8 | 41 | 79 | 8 | 4708 | 43,00 | 50,80 |
| 4,3 | 24 | 66 | 6 | 47043 | 32,00 | 36,90 | 8,1 | 47 | 89 | 10 | 47081 | 65,00 | 74,00 |
| 4,4 | 24 | 66 | 6 | 47044 | 32,00 | 36,90 | 8,2 | 47 | 89 | 10 | 47082 | 65,00 | 74,00 |
| 4,5 | 24 | 66 | 6 | 47045 | 32,00 | 36,90 | 8,3 | 47 | 89 | 10 | 47083 | 65,00 | 74,00 |
| 4,6 | 24 | 66 | 6 | 47046 | 32,00 | 36,90 | 8,4 | 47 | 89 | 10 | 47084 | 65,00 | 74,00 |
| 4,7 | 24 | 66 | 6 | 47047 | 32,00 | 36,90 | 8,5 | 47 | 89 | 10 | 47085 | 65,00 | 74,00 |
| 4,8 | 28 | 66 | 6 | 47048 | 32,00 | 36,90 | 8,6 | 47 | 89 | 10 | 47086 | 65,00 | 74,00 |
| 4,9 | 28 | 66 | 6 | 47048 | 32,00 | 36,90 | 8,7 | 47 | 89 | 10 | 47087 | 65,00 | 74,00 |
| 5 | 28 | 66 | 6 | 4705 | 32,00 | 36,90 | 8,8 | 47 | 89 | 10 | 47088 | 65,00 | 74,00 |
| 5,1 | 28 | 66 | 6 | 47051 | 32,00 | 36,90 | 8,9 | 47 | 89 | 10 | 47089 | 65,00 | 74,00 |
| 5,2 | 28 | 66 | 6 | 47052 | 32,00 | 36,90 | 9 | 47 | 89 | 10 | 4709 | 65,00 | 74,00 |
| 5,3 | 28 | 66 | 6 | 47053 | 32,00 | 36,90 | 9,1 | 47 | 89 | 10 | 47091 | 65,00 | 74,00 |
| 5,4 | 28 | 66 | 6 | 47054 | 32,00 | 36,90 | 9,2 | 47 | 89 | 10 | 47092 | 65,00 | 74,00 |
| 5,5 | 28 | 66 | 6 | 47055 | 32,00 | 36,90 | 9,3 | 47 | 89 | 10 | 47093 | 65,00 | 74,00 |
| 5,6 | 28 | 66 | 6 | 47056 | 32,00 | 36,90 | 9,4 | 47 | 89 | 10 | 47094 | 65,00 | 74,00 |
| 5,7 | 28 | 66 | 6 | 47057 | 32,00 | 36,90 | 9,5 | 47 | 89 | 10 | 47095 | 65,00 | 74,00 |
| 5,8 | 28 | 66 | 6 | 47058 | 32,00 | 36,90 | 9,6 | 47 | 89 | 10 | 47096 | 65,00 | 74,00 |
| 5,9 | 28 | 66 | 6 | 47059 | 32,00 | 36,90 | 9,7 | 47 | 89 | 10 | 47097 | 65,00 | 74,00 |
| 6 | 28 | 66 | 6 | 4706 | 29,70 | 34,70 | 9,8 | 47 | 89 | 10 | 47098 | 65,00 | 74,00 |
| 6,1 | 34 | 79 | 8 | 47061 | 47,80 | 55,00 | 9,9 | 47 | 89 | 10 | 47099 | 65,00 | 74,00 |
| 6,2 | 34 | 79 | 8 | 47062 | 47,80 | 55,00 | 10 | 47 | 89 | 10 | 4710 | 60,80 | 69,70 |
| 6,3 | 34 | 79 | 8 | 47063 | 47,80 | 55,00 | 10,1 | 55 | 102 | 12 | 47101 | 93,00 | 104,00 |
| 6,4 | 34 | 79 | 8 | 47064 | 47,80 | 55,00 | 10,2 | 55 | 102 | 12 | 47102 | 93,00 | 104,00 |
| 6,5 | 34 | 79 | 8 | 47065 | 47,80 | 55,00 | 10,3 | 55 | 102 | 12 | 47103 | 93,00 | 104,00 |
| 6,6 | 34 | 79 | 8 | 47066 | 47,80 | 55,00 | 10,4 | 55 | 102 | 12 | 47104 | 93,00 | 104,00 |
| 6,7 | 34 | 79 | 8 | 47067 | 47,80 | 55,00 | 10,5 | 55 | 102 | 12 | 47105 | 93,00 | 104,00 |
| 6,8 | 34 | 79 | 8 | 47068 | 47,80 | 55,00 | 10,6 | 55 | 102 | 12 | 47106 | 93,00 | 104,00 |
| 6,9 | 34 | 79 | 8 | 47069 | 47,80 | 55,00 | 10,7 | 55 | 102 | 12 | 47107 | 93,00 | 104,00 |
| 7 | 34 | 79 | 8 | 4707 | 47,80 | 55,00 | 10,8 | 55 | 102 | 12 | 47108 | 93,00 | 104,00 |
| 7,1 | 41 | 79 | 8 | 47071 | 47,80 | 55,00 | 10,9 | 55 | 102 | 12 | 47109 | 93,00 | 104,00 |
| 7,2 | 41 | 79 | 8 | 47072 | 47,80 | 55,00 | 11 | 55 | 102 | 12 | 4711 | 93,00 | 104,00 |
| 7,3 | 41 | 79 | 8 | 47073 | 47,80 | 55,00 | 11,1 | 55 | 102 | 12 | 47111 | 93,00 | 104,00 |
| 7,4 | 41 | 79 | 8 | 47074 | 47,80 | 55,00 | 11,2 | 55 | 102 | 12 | 47112 | 93,00 | 104,00 |
| 7,5 | 41 | 79 | 8 | 47075 | 47,80 | 55,00 | 11,3 | 55 | 102 | 12 | 47113 | 93,00 | 104,00 |
| 7,6 | 41 | 79 | 8 | 47076 | 47,80 | 55,00 | 11,4 | 55 | 102 | 12 | 47114 | 93,00 | 104,00 |
| 7,7 | 41 | 79 | 8 | 47077 | 47,80 | 55,00 | 11,5 | 55 | 102 | 12 | 47115 | 93,00 | 104,00 |

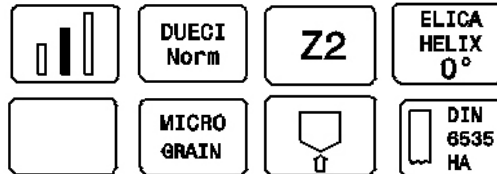
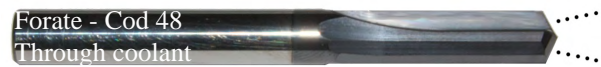
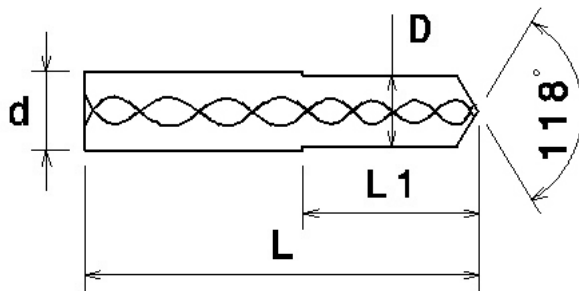
Punte gambo rinforzato elica diritta per ghisa e ottone **3xD**

Reinforced shank straight flutes drills 3xD, cast iron and brass application

| D _{h7} | L1 | L | d _{h6} | Cod. | € uncoated | € tialn |
|-----------------|----|-----|-----------------|--------------|---------------|------------|
| 11,6 | 55 | 102 | 12 | 47116 | 93,00 | 104,00 |
| 11,7 | 55 | 102 | 12 | 47117 | 93,00 | 104,00 |
| 11,8 | 55 | 102 | 12 | 47118 | 93,00 | 104,00 |
| 11,9 | 55 | 102 | 12 | 47119 | 93,00 | 104,00 |
| 12 | 55 | 102 | 12 | 4712 | 88,50 | 99,90 |
| 12,5 | 60 | 107 | 14 | 47125 | 119,00 | 132,00 |
| 12,8 | 60 | 107 | 14 | 47128 | 119,00 | 132,00 |
| 13 | 60 | 107 | 14 | 4713 | 119,00 | 132,00 |
| 13,5 | 60 | 107 | 14 | 47135 | 119,00 | 132,00 |
| 13,8 | 60 | 107 | 14 | 47138 | 119,00 | 132,00 |
| 14 | 60 | 107 | 14 | 4714 | 114,70 | 127,00 |
| 14,5 | 65 | 115 | 16 | 47145 | 185,00 | 198,00 |
| 14,8 | 65 | 115 | 16 | 47148 | 185,00 | 198,00 |
| 15 | 65 | 115 | 16 | 4715 | 185,00 | 198,00 |
| 15,5 | 65 | 115 | 16 | 47155 | 185,00 | 198,00 |
| 15,8 | 65 | 115 | 16 | 47158 | 185,00 | 198,00 |
| 16 | 65 | 115 | 16 | 4716 | 178,50 | 191,00 |
| 16,5 | 73 | 123 | 18 | 47165 | 215,00 | 230,00 |
| 16,8 | 73 | 123 | 18 | 47168 | 215,00 | 230,00 |
| 17 | 73 | 123 | 18 | 4717 | 215,00 | 230,00 |
| 17,5 | 73 | 123 | 18 | 47175 | 215,00 | 230,00 |
| 17,8 | 73 | 123 | 18 | 47178 | 215,00 | 230,00 |
| 18 | 73 | 123 | 18 | 4718 | 208,50 | 223,00 |
| 18,5 | 79 | 131 | 20 | 47185 | 254,00 | 272,00 |
| 18,8 | 79 | 131 | 20 | 47188 | 254,00 | 272,00 |
| 19 | 79 | 131 | 20 | 4719 | 254,00 | 272,00 |
| 19,5 | 79 | 131 | 20 | 47195 | 254,00 | 272,00 |
| 19,8 | 79 | 131 | 20 | 47198 | 254,00 | 272,00 |
| 20 | 79 | 131 | 20 | 4720 | 246,00 | 264,00 |

Punte gambo rinforzato elica diritta per ghisa e ottone 5xD

Reinforced shank straight flutes drills 5xD, cast iron and brass application



| D _{h7} | L1 | L | d _{h6} | Cod. | € uncoated | € tialn | D _{h7} | L1 | L | d _{h6} | Cod. | € uncoated | € Tialn |
|-----------------|----|----|-----------------|--------------|------------|---------|-----------------|----|-----|-----------------|--------------|------------|---------|
| 4 | 36 | 74 | 6 | 4804 | 40,10 | 46,50 | 7,8 | 53 | 91 | 8 | 48078 | 53,30 | 60,80 |
| 4,1 | 36 | 74 | 6 | 48041 | 40,10 | 46,50 | 7,9 | 53 | 91 | 8 | 48079 | 53,30 | 60,80 |
| 4,2 | 36 | 74 | 6 | 48042 | 40,10 | 46,50 | 8 | 53 | 91 | 8 | 4808 | 48,80 | 56,30 |
| 4,3 | 36 | 74 | 6 | 48043 | 40,10 | 46,50 | 8,1 | 61 | 103 | 10 | 48081 | 73,60 | 85,10 |
| 4,4 | 36 | 74 | 6 | 48044 | 40,10 | 46,50 | 8,2 | 61 | 103 | 10 | 48082 | 73,60 | 85,10 |
| 4,5 | 36 | 74 | 6 | 48045 | 40,10 | 46,50 | 8,3 | 61 | 103 | 10 | 48083 | 73,60 | 85,10 |
| 4,6 | 36 | 74 | 6 | 48046 | 40,10 | 46,50 | 8,4 | 61 | 103 | 10 | 48084 | 73,60 | 85,10 |
| 4,7 | 36 | 74 | 6 | 48047 | 40,10 | 46,50 | 8,5 | 61 | 103 | 10 | 48085 | 73,60 | 85,10 |
| 4,8 | 44 | 82 | 6 | 48048 | 40,10 | 46,50 | 8,6 | 61 | 103 | 10 | 48086 | 73,60 | 85,10 |
| 4,9 | 44 | 82 | 6 | 48049 | 40,10 | 46,50 | 8,7 | 61 | 103 | 10 | 48087 | 73,60 | 85,10 |
| 5 | 44 | 82 | 6 | 4805 | 40,10 | 46,50 | 8,8 | 61 | 103 | 10 | 48088 | 73,60 | 85,10 |
| 5,1 | 44 | 82 | 6 | 48051 | 40,10 | 46,50 | 8,9 | 61 | 103 | 10 | 48089 | 73,60 | 85,10 |
| 5,2 | 44 | 82 | 6 | 48052 | 40,10 | 46,50 | 9 | 61 | 103 | 10 | 4809 | 73,60 | 85,10 |
| 5,3 | 44 | 82 | 6 | 48053 | 40,10 | 46,50 | 9,1 | 61 | 103 | 10 | 48091 | 73,60 | 85,10 |
| 5,4 | 44 | 82 | 6 | 48054 | 40,10 | 46,50 | 9,2 | 61 | 103 | 10 | 48092 | 73,60 | 85,10 |
| 5,5 | 44 | 82 | 6 | 48055 | 40,10 | 46,50 | 9,3 | 61 | 103 | 10 | 48093 | 73,60 | 85,10 |
| 5,6 | 44 | 82 | 6 | 48056 | 40,10 | 46,50 | 9,4 | 61 | 103 | 10 | 48094 | 73,60 | 85,10 |
| 5,7 | 44 | 82 | 6 | 48057 | 40,10 | 46,50 | 9,5 | 61 | 103 | 10 | 48095 | 73,60 | 85,10 |
| 5,8 | 44 | 82 | 6 | 48058 | 40,10 | 46,50 | 9,6 | 61 | 103 | 10 | 48096 | 73,60 | 85,10 |
| 5,9 | 44 | 82 | 6 | 48059 | 40,10 | 46,50 | 9,7 | 61 | 103 | 10 | 48097 | 73,60 | 85,10 |
| 6 | 44 | 82 | 6 | 4806 | 35,60 | 42,00 | 9,8 | 61 | 103 | 10 | 48098 | 73,60 | 85,10 |
| 6,1 | 53 | 91 | 8 | 48061 | 53,30 | 60,80 | 9,9 | 61 | 103 | 10 | 48099 | 73,60 | 85,10 |
| 6,2 | 53 | 91 | 8 | 48062 | 53,30 | 60,80 | 10 | 61 | 103 | 10 | 4810 | 66,90 | 78,30 |
| 6,3 | 53 | 91 | 8 | 48063 | 53,30 | 60,80 | 10,1 | 71 | 118 | 12 | 48101 | 119,30 | 130,70 |
| 6,4 | 53 | 91 | 8 | 48064 | 53,30 | 60,80 | 10,2 | 71 | 118 | 12 | 48102 | 119,30 | 130,70 |
| 6,5 | 53 | 91 | 8 | 48065 | 53,30 | 60,80 | 10,3 | 71 | 118 | 12 | 48103 | 119,30 | 130,70 |
| 6,6 | 53 | 91 | 8 | 48066 | 53,30 | 60,80 | 10,4 | 71 | 118 | 12 | 48104 | 119,30 | 130,70 |
| 6,7 | 53 | 91 | 8 | 48067 | 53,30 | 60,80 | 10,5 | 71 | 118 | 12 | 48105 | 119,30 | 130,70 |
| 6,8 | 53 | 91 | 8 | 48068 | 53,30 | 60,80 | 10,6 | 71 | 118 | 12 | 48106 | 119,30 | 130,70 |
| 6,9 | 53 | 91 | 8 | 48069 | 53,30 | 60,80 | 10,7 | 71 | 118 | 12 | 48107 | 119,30 | 130,70 |
| 7 | 53 | 91 | 8 | 4807 | 53,30 | 60,80 | 10,8 | 71 | 118 | 12 | 48108 | 119,30 | 130,70 |
| 7,1 | 53 | 91 | 8 | 48071 | 53,30 | 60,80 | 10,9 | 71 | 118 | 12 | 48109 | 119,30 | 130,70 |
| 7,2 | 53 | 91 | 8 | 48072 | 53,30 | 60,80 | 11 | 71 | 118 | 12 | 4811 | 119,30 | 130,70 |
| 7,3 | 53 | 91 | 8 | 48073 | 53,30 | 60,80 | 11,1 | 71 | 118 | 12 | 48111 | 119,30 | 130,70 |
| 7,4 | 53 | 91 | 8 | 48074 | 53,30 | 60,80 | 11,2 | 71 | 118 | 12 | 48112 | 119,30 | 130,70 |
| 7,5 | 53 | 91 | 8 | 48075 | 53,30 | 60,80 | 11,3 | 71 | 118 | 12 | 48113 | 119,30 | 130,70 |
| 7,6 | 53 | 91 | 8 | 48076 | 53,30 | 60,80 | 11,4 | 71 | 118 | 12 | 48114 | 119,30 | 130,70 |
| 7,7 | 53 | 91 | 8 | 48077 | 53,30 | 60,80 | 11,5 | 71 | 118 | 12 | 48115 | 119,30 | 130,70 |

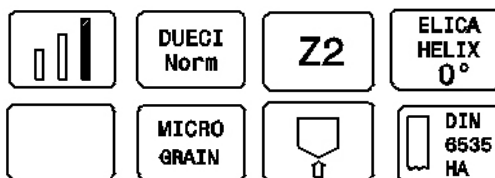
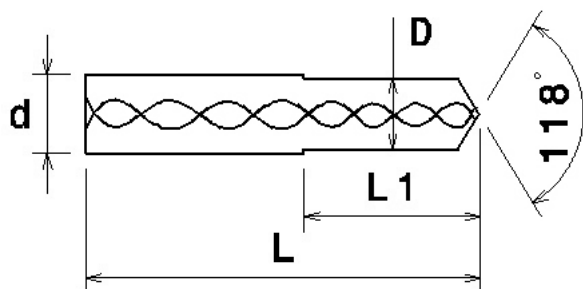
Punte gambo rinforzato elica diritta per ghisa e ottone **5xD**

Reinforced shank straight flutes drills 5xD, cast iron and brass application

| D _{h7} | L1 | L | d _{h6} | Cod. | € uncoated | € tialn |
|-----------------|-----|-----|-----------------|--------------|---------------|------------|
| 11,6 | 71 | 118 | 12 | 48116 | 119,30 | 130,70 |
| 11,7 | 71 | 118 | 12 | 48117 | 119,30 | 130,70 |
| 11,8 | 71 | 118 | 12 | 48118 | 119,30 | 130,70 |
| 11,9 | 71 | 118 | 12 | 48119 | 119,30 | 130,70 |
| 12 | 71 | 118 | 12 | 4812 | 110,30 | 121,70 |
| 12,5 | 77 | 124 | 14 | 48125 | 154,00 | 166,70 |
| 12,8 | 77 | 124 | 14 | 48128 | 154,00 | 166,70 |
| 13 | 77 | 124 | 14 | 4813 | 154,00 | 166,70 |
| 13,5 | 77 | 124 | 14 | 48135 | 154,00 | 166,70 |
| 13,8 | 77 | 124 | 14 | 48138 | 154,00 | 166,70 |
| 14 | 77 | 124 | 14 | 4814 | 145,00 | 157,70 |
| 14,5 | 83 | 133 | 16 | 48145 | 183,00 | 195,60 |
| 14,8 | 83 | 133 | 16 | 48148 | 183,00 | 195,60 |
| 15 | 83 | 133 | 16 | 4815 | 183,00 | 195,60 |
| 15,5 | 83 | 133 | 16 | 48155 | 183,00 | 195,60 |
| 15,8 | 83 | 133 | 16 | 48158 | 183,00 | 195,60 |
| 16 | 83 | 133 | 16 | 4816 | 176,30 | 188,90 |
| 16,5 | 93 | 143 | 18 | 48165 | 215,30 | 234,80 |
| 16,8 | 93 | 143 | 18 | 48168 | 215,30 | 234,80 |
| 17 | 93 | 143 | 18 | 4817 | 215,30 | 234,80 |
| 17,5 | 93 | 143 | 18 | 48175 | 215,30 | 234,80 |
| 17,8 | 93 | 143 | 18 | 48178 | 215,30 | 234,80 |
| 18 | 93 | 143 | 18 | 4818 | 208,50 | 228,00 |
| 18,5 | 101 | 153 | 20 | 48185 | 255,70 | 282,60 |
| 18,8 | 101 | 153 | 20 | 48188 | 255,70 | 282,60 |
| 19 | 101 | 153 | 20 | 4819 | 255,70 | 282,60 |
| 19,5 | 101 | 153 | 20 | 48195 | 255,70 | 282,60 |
| 19,8 | 101 | 153 | 20 | 48198 | 255,70 | 282,60 |
| 20 | 101 | 153 | 20 | 4820 | 251,20 | 278,10 |

Punte gambo rinforzato elica diritta per ghisa e ottone 8xD

Reinforced shank straight flutes drills 8xD, cast iron and brass application



| D _{h7} | L1 | L | d _{h6} | Cod. | € uncoated | € tialn | D _{h7} | L1 | L | d _{h6} | Cod. | € uncoated | € Tialn |
|-----------------|----|-----|-----------------|---------------|------------|---------|-----------------|-----|-----|-----------------|---------------|------------|---------|
| 4 | 43 | 81 | 6 | 4904D | 47,60 | 54,00 | 7,8 | 76 | 114 | 8 | 49078D | 62,10 | 71,30 |
| 4,1 | 43 | 81 | 6 | 49041D | 47,60 | 54,00 | 7,9 | 76 | 114 | 8 | 49079D | 62,10 | 71,30 |
| 4,2 | 43 | 81 | 6 | 49042D | 47,60 | 54,00 | 8 | 76 | 114 | 8 | 4908D | 57,60 | 66,80 |
| 4,3 | 43 | 81 | 6 | 49043D | 47,60 | 54,00 | 8,1 | 95 | 142 | 10 | 49081D | 100,30 | 114,20 |
| 4,4 | 43 | 81 | 6 | 49044D | 47,60 | 54,00 | 8,2 | 95 | 142 | 10 | 49082D | 100,30 | 114,20 |
| 4,5 | 43 | 81 | 6 | 49045D | 47,60 | 54,00 | 8,3 | 95 | 142 | 10 | 49083D | 100,30 | 114,20 |
| 4,6 | 43 | 81 | 6 | 49046D | 47,60 | 54,00 | 8,4 | 95 | 142 | 10 | 49084D | 100,30 | 114,20 |
| 4,7 | 43 | 81 | 6 | 49047D | 47,60 | 54,00 | 8,5 | 95 | 142 | 10 | 49085D | 100,30 | 114,20 |
| 4,8 | 57 | 95 | 6 | 49048D | 47,60 | 54,00 | 8,6 | 95 | 142 | 10 | 49086D | 100,30 | 114,20 |
| 4,9 | 57 | 95 | 6 | 49048D | 47,60 | 54,00 | 8,7 | 95 | 142 | 10 | 49087D | 100,30 | 114,20 |
| 5 | 57 | 95 | 6 | 4905D | 47,60 | 54,00 | 8,8 | 95 | 142 | 10 | 49088D | 100,30 | 114,20 |
| 5,1 | 57 | 95 | 6 | 49051D | 47,60 | 54,00 | 8,9 | 95 | 142 | 10 | 49089D | 100,30 | 114,20 |
| 5,2 | 57 | 95 | 6 | 49052D | 47,60 | 54,00 | 9 | 95 | 142 | 10 | 4909D | 100,30 | 114,20 |
| 5,3 | 57 | 95 | 6 | 49053D | 47,60 | 54,00 | 9,1 | 95 | 142 | 10 | 49091D | 100,30 | 114,20 |
| 5,4 | 57 | 95 | 6 | 49054D | 47,60 | 54,00 | 9,2 | 95 | 142 | 10 | 49092D | 100,30 | 114,20 |
| 5,5 | 57 | 95 | 6 | 49055D | 47,60 | 54,00 | 9,3 | 95 | 142 | 10 | 49093D | 100,30 | 114,20 |
| 5,6 | 57 | 95 | 6 | 49056D | 47,60 | 54,00 | 9,4 | 95 | 142 | 10 | 49094D | 100,30 | 114,20 |
| 5,7 | 57 | 95 | 6 | 49057D | 47,60 | 54,00 | 9,5 | 95 | 142 | 10 | 49095D | 100,30 | 114,20 |
| 5,8 | 57 | 95 | 6 | 49058D | 47,60 | 54,00 | 9,6 | 95 | 142 | 10 | 49096D | 100,30 | 114,20 |
| 5,9 | 57 | 95 | 6 | 49059D | 47,60 | 54,00 | 9,7 | 95 | 142 | 10 | 49097D | 100,30 | 114,20 |
| 6 | 57 | 95 | 6 | 4906D | 43,10 | 49,50 | 9,8 | 95 | 142 | 10 | 49098D | 100,30 | 114,20 |
| 6,1 | 76 | 114 | 8 | 49061D | 62,10 | 71,30 | 9,9 | 95 | 142 | 10 | 49099D | 100,30 | 114,20 |
| 6,2 | 76 | 114 | 8 | 49062D | 62,10 | 71,30 | 10 | 95 | 142 | 10 | 4910D | 93,60 | 107,40 |
| 6,3 | 76 | 114 | 8 | 49063D | 62,10 | 71,30 | 10,1 | 114 | 160 | 12 | 49101D | 132,80 | 146,60 |
| 6,4 | 76 | 114 | 8 | 49064D | 62,10 | 71,30 | 10,2 | 114 | 160 | 12 | 49102D | 132,80 | 146,60 |
| 6,5 | 76 | 114 | 8 | 49065D | 62,10 | 71,30 | 10,3 | 114 | 160 | 12 | 49103D | 132,80 | 146,60 |
| 6,6 | 76 | 114 | 8 | 49066D | 62,10 | 71,30 | 10,4 | 114 | 160 | 12 | 49104D | 132,80 | 146,60 |
| 6,7 | 76 | 114 | 8 | 49067D | 62,10 | 71,30 | 10,5 | 114 | 160 | 12 | 49105D | 132,80 | 146,60 |
| 6,8 | 76 | 114 | 8 | 49068D | 62,10 | 71,30 | 10,6 | 114 | 160 | 12 | 49106D | 132,80 | 146,60 |
| 6,9 | 76 | 114 | 8 | 49069D | 62,10 | 71,30 | 10,7 | 114 | 160 | 12 | 49107D | 132,80 | 146,60 |
| 7 | 76 | 114 | 8 | 4907D | 62,10 | 71,30 | 10,8 | 114 | 160 | 12 | 49108D | 132,80 | 146,60 |
| 7,1 | 76 | 114 | 8 | 49071D | 62,10 | 71,30 | 10,9 | 114 | 160 | 12 | 49109D | 132,80 | 146,60 |
| 7,2 | 76 | 114 | 8 | 49072D | 62,10 | 71,30 | 11 | 114 | 160 | 12 | 4911D | 132,80 | 146,60 |
| 7,3 | 76 | 114 | 8 | 49073D | 62,10 | 71,30 | 11,1 | 114 | 160 | 12 | 49111D | 132,80 | 146,60 |
| 7,4 | 76 | 114 | 8 | 49074D | 62,10 | 71,30 | 11,2 | 114 | 160 | 12 | 49112D | 132,80 | 146,60 |
| 7,5 | 76 | 114 | 8 | 49075D | 62,10 | 71,30 | 11,3 | 114 | 160 | 12 | 49113D | 132,80 | 146,60 |
| 7,6 | 76 | 114 | 8 | 49076D | 62,10 | 71,30 | 11,4 | 114 | 160 | 12 | 49114D | 132,80 | 146,60 |
| 7,7 | 76 | 114 | 8 | 49077D | 62,10 | 71,30 | 11,5 | 114 | 160 | 12 | 49115D | 132,80 | 146,60 |

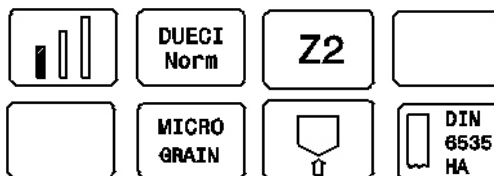
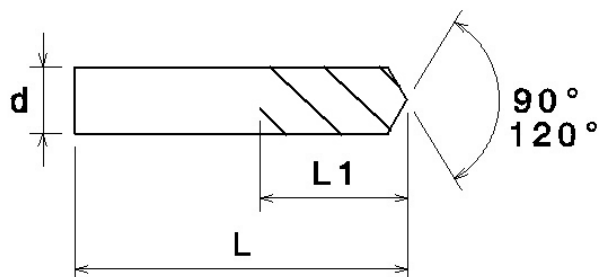
Punte gambo rinforzato elica diritta per ghisa e ottone 8xD

Reinforced shank straight flutes drills 8xD, cast iron and brass application

| D _{h7} | L1 | L | d _{h6} | Cod. | € uncoated | € tialn |
|-----------------|-----|-----|-----------------|---------------|---------------|------------|
| 11,6 | 114 | 160 | 12 | 49116D | 132,80 | 146,60 |
| 11,7 | 114 | 160 | 12 | 49117D | 132,80 | 146,60 |
| 11,8 | 114 | 160 | 12 | 49118D | 132,80 | 146,60 |
| 11,9 | 114 | 160 | 12 | 49119D | 132,80 | 146,60 |
| 12 | 114 | 160 | 12 | 4912D | 128,30 | 142,10 |
| 12,5 | 133 | 178 | 14 | 49125D | 176,10 | 191,70 |
| 12,8 | 133 | 178 | 14 | 49128D | 176,10 | 191,70 |
| 13 | 133 | 178 | 14 | 4913D | 176,10 | 191,70 |
| 13,5 | 133 | 178 | 14 | 49135D | 176,10 | 191,70 |
| 13,8 | 133 | 178 | 14 | 49138D | 176,10 | 191,70 |
| 14 | 133 | 178 | 14 | 4914D | 171,60 | 187,20 |
| 14,5 | 152 | 203 | 16 | 49145D | 242,40 | 265,10 |
| 14,8 | 152 | 203 | 16 | 49148D | 242,40 | 265,10 |
| 15 | 152 | 203 | 16 | 4915D | 242,40 | 265,10 |
| 15,5 | 152 | 203 | 16 | 49155D | 242,40 | 265,10 |
| 15,8 | 152 | 203 | 16 | 49158D | 242,40 | 265,10 |
| 16 | 152 | 203 | 16 | 4916D | 231,10 | 253,90 |
| 16,5 | 171 | 222 | 18 | 49165D | 385,50 | 420,80 |
| 16,8 | 171 | 222 | 18 | 49168D | 385,50 | 420,80 |
| 17 | 171 | 222 | 18 | 4917D | 385,50 | 420,80 |
| 17,5 | 171 | 222 | 18 | 49175D | 385,50 | 420,80 |
| 17,8 | 171 | 222 | 18 | 49178D | 385,50 | 420,80 |
| 18 | 171 | 222 | 18 | 4918D | 374,20 | 409,50 |
| 18,5 | 190 | 243 | 20 | 49185D | 482,00 | 533,00 |
| 18,8 | 190 | 243 | 20 | 49188D | 482,00 | 533,00 |
| 19 | 190 | 243 | 20 | 4919D | 482,00 | 533,00 |
| 19,5 | 190 | 243 | 20 | 49195D | 482,00 | 533,00 |
| 19,8 | 190 | 243 | 20 | 49198D | 482,00 | 533,00 |
| 20 | 190 | 243 | 20 | 4920D | 459,50 | 510,50 |

Punte a centrare per CNC

Center drills CNC

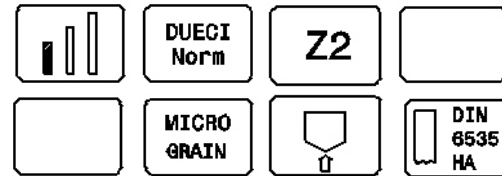
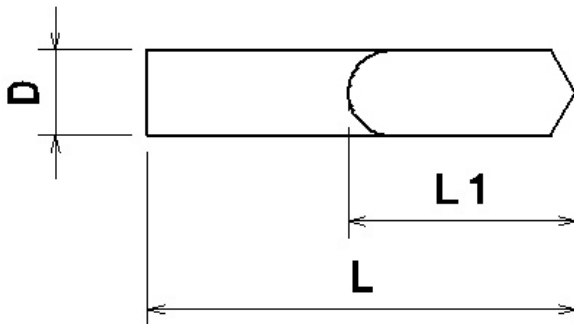


| d h6 | L1 | L | α | Cod. | € uncoated |
|---------|----|-----|-----|---------------|---------------|
| 3 | 12 | 40 | 90° | 339003 | 7,30 |
| 4 | 12 | 40 | 90° | 339004 | 8,90 |
| 5 | 16 | 50 | 90° | 339005 | 11,70 |
| 6 | 16 | 50 | 90° | 339006 | 13,30 |
| 8 | 20 | 60 | 90° | 339008 | 20,30 |
| 10 | 22 | 70 | 90° | 339010 | 28,20 |
| 12 | 22 | 70 | 90° | 339012 | 40,50 |
| 14 | 25 | 75 | 90° | 339014 | 58,50 |
| 16 | 28 | 80 | 90° | 339016 | 73,20 |
| 20 | 30 | 100 | 90° | 339020 | 127,90 |

| d h6 | L1 | L | α | Cod. | € uncoated |
|---------|----|-----|------|----------------|---------------|
| 3 | 12 | 40 | 120° | 3412003 | 7,30 |
| 4 | 12 | 40 | 120° | 3412004 | 8,90 |
| 5 | 16 | 50 | 120° | 3412005 | 11,70 |
| 6 | 16 | 50 | 120° | 3412006 | 13,30 |
| 8 | 20 | 60 | 120° | 3412008 | 20,30 |
| 10 | 22 | 70 | 120° | 3412010 | 28,20 |
| 12 | 22 | 70 | 120° | 3412012 | 40,50 |
| 14 | 25 | 75 | 120° | 3412014 | 58,50 |
| 16 | 28 | 80 | 120° | 3412016 | 73,20 |
| 20 | 30 | 100 | 120° | 3412020 | 127,90 |

Punte a lancia

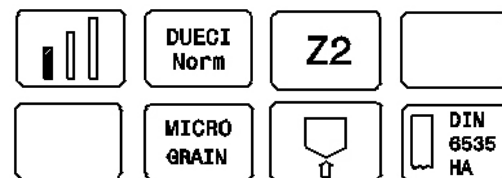
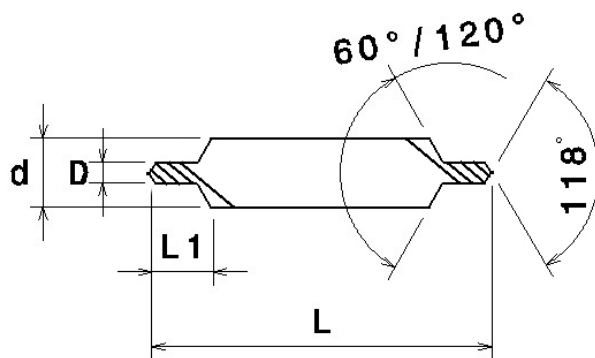
Single end-flat drill



| d h6 | L1 | L | Cod. | € uncoated |
|---------|----|----|--------------|---------------|
| 2 | 16 | 40 | 44002 | 8,00 |
| 3 | 16 | 40 | 44003 | 8,50 |
| 4 | 18 | 40 | 44004 | 10,00 |
| 5 | 20 | 50 | 44005 | 11,50 |
| 6 | 25 | 50 | 44006 | 14,00 |
| 7 | 30 | 60 | 44007 | 18,00 |
| 8 | 30 | 60 | 44008 | 22,00 |
| 9 | 30 | 60 | 44009 | 25,50 |
| 10 | 30 | 70 | 44010 | 34,00 |
| 11 | 32 | 70 | 44011 | 44,00 |
| 12 | 38 | 70 | 44012 | 45,00 |

Punte a Centrare

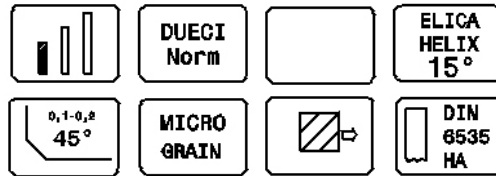
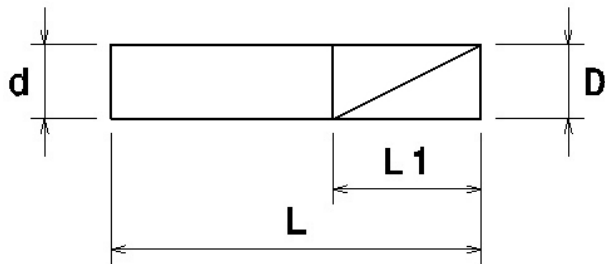
Double center drills CNC



| D h10 | L1 | L | d h6 | α | Cod. | € uncoated | D h10 | L1 | L | d h6 | α | Cod. | € uncoated |
|----------|-----|----|---------|-----|-----------------|---------------|----------|-----|----|---------|------|------------------|---------------|
| 2 | 2,9 | 40 | 5 | 60° | D34602 | 22,10 | 2 | 2,9 | 40 | 5 | 120° | D341202 | 22,10 |
| 2,5 | 3,6 | 50 | 6,3 | 60° | D346025 | 25,50 | 2,5 | 3,6 | 50 | 6,3 | 120° | D3412025 | 25,50 |
| 3,15 | 4,4 | 60 | 8 | 60° | D3460315 | 35,10 | 3,15 | 4,4 | 60 | 8 | 120° | D34120315 | 35,10 |
| 4 | 5,6 | 70 | 10 | 60° | D34604 | 50,20 | 4 | 5,6 | 70 | 10 | 120° | D341204 | 50,20 |
| 5 | 6,9 | 70 | 12,5 | 60° | D34605 | 63,50 | 5 | 6,9 | 70 | 12,5 | 120° | D341205 | 63,50 |
| 6,3 | 8,8 | 80 | 16 | 60° | D346063 | 93,00 | 6,3 | 8,8 | 80 | 16 | 120° | D3412063 | 93,00 |

Alesatori a macchina H7

Reamers H7



| D H7 | L1 | L | d H7 | Z | Cod. | € uncoated | D H7 | L1 | L | d H7 | Z | Cod. | € uncoated |
|---------|----|----|---------|---|----------------|---------------|---------|----|-----|---------|---|----------------|---------------|
| 1 | 5 | 40 | 1 | 4 | D3501L | 22,00 | 4,8 | 23 | 86 | 4,8 | 4 | D35048L | 20,00 |
| 1,1 | 7 | 40 | 1,1 | 4 | D35011L | 22,00 | 4,9 | 23 | 86 | 4,9 | 4 | D35049L | 20,00 |
| 1,2 | 7 | 40 | 1,2 | 4 | D35012L | 22,00 | 5 | 23 | 86 | 5 | 4 | D3505L | 20,00 |
| 1,3 | 7 | 40 | 1,3 | 4 | D35013L | 22,00 | 5,1 | 23 | 86 | 5,1 | 4 | D35051L | 22,20 |
| 1,4 | 8 | 40 | 1,4 | 4 | D35014L | 22,00 | 5,2 | 23 | 86 | 5,2 | 4 | D35052L | 22,20 |
| 1,5 | 8 | 43 | 1,5 | 4 | D35015L | 22,00 | 5,3 | 23 | 86 | 5,3 | 4 | D35053L | 22,20 |
| 1,6 | 9 | 43 | 1,6 | 4 | D35016L | 22,00 | 5,4 | 26 | 93 | 5,4 | 4 | D35054L | 23,00 |
| 1,7 | 10 | 43 | 1,7 | 4 | D35017L | 22,00 | 5,5 | 26 | 93 | 5,5 | 4 | D35055L | 23,00 |
| 1,8 | 10 | 43 | 1,8 | 4 | D35018L | 22,00 | 5,6 | 26 | 93 | 5,6 | 4 | D35056L | 26,00 |
| 1,9 | 10 | 43 | 1,9 | 4 | D35019L | 22,00 | 5,7 | 26 | 93 | 5,7 | 4 | D35057L | 26,00 |
| 2 | 11 | 49 | 2 | 4 | D3502L | 9,00 | 5,8 | 26 | 93 | 5,8 | 4 | D35058L | 26,00 |
| 2,1 | 11 | 49 | 2,1 | 4 | D35021L | 11,60 | 5,9 | 26 | 93 | 5,9 | 4 | D35059L | 26,00 |
| 2,2 | 12 | 53 | 2,2 | 4 | D35022L | 11,90 | 6 | 26 | 93 | 6 | 6 | D3506L | 26,00 |
| 2,3 | 12 | 53 | 2,3 | 4 | D35023L | 11,90 | 6,1 | 26 | 93 | 6,1 | 6 | D35061L | 28,00 |
| 2,4 | 14 | 57 | 2,4 | 4 | D35024L | 12,10 | 6,2 | 26 | 93 | 6,2 | 6 | D35062L | 28,00 |
| 2,5 | 14 | 57 | 2,5 | 4 | D35025L | 12,10 | 6,3 | 26 | 93 | 6,3 | 6 | D35063L | 28,00 |
| 2,6 | 14 | 57 | 2,6 | 4 | D35026L | 12,50 | 6,4 | 26 | 93 | 6,4 | 6 | D35064L | 28,00 |
| 2,7 | 15 | 61 | 2,7 | 4 | D35027L | 12,80 | 6,5 | 28 | 101 | 6,5 | 6 | D35065L | 29,00 |
| 2,8 | 15 | 61 | 2,8 | 4 | D35028L | 12,80 | 6,6 | 28 | 101 | 6,6 | 6 | D35066L | 31,00 |
| 2,9 | 15 | 61 | 2,9 | 4 | D35029L | 12,80 | 6,7 | 28 | 101 | 6,7 | 6 | D35067L | 31,00 |
| 3 | 15 | 61 | 3 | 4 | D3503L | 12,80 | 6,8 | 31 | 109 | 6,8 | 6 | D35068L | 34,00 |
| 3,1 | 16 | 65 | 3,1 | 4 | D35031L | 14,20 | 6,9 | 31 | 109 | 6,9 | 6 | D35069L | 34,00 |
| 3,2 | 16 | 65 | 3,2 | 4 | D35032L | 14,20 | 7 | 31 | 109 | 7 | 6 | D3507L | 34,00 |
| 3,3 | 16 | 65 | 3,3 | 4 | D35033L | 14,20 | 7,1 | 31 | 109 | 7,1 | 6 | D35071L | 36,70 |
| 3,4 | 18 | 70 | 3,4 | 4 | D35034L | 14,50 | 7,2 | 31 | 109 | 7,2 | 6 | D35072L | 36,70 |
| 3,5 | 18 | 70 | 3,5 | 4 | D35035L | 14,50 | 7,3 | 31 | 109 | 7,3 | 6 | D35073L | 36,70 |
| 3,6 | 18 | 70 | 3,6 | 4 | D35036L | 15,30 | 7,4 | 31 | 109 | 7,4 | 6 | D35074L | 36,70 |
| 3,7 | 18 | 70 | 3,7 | 4 | D35037L | 15,30 | 7,5 | 33 | 117 | 7,5 | 6 | D35075L | 38,20 |
| 3,8 | 19 | 75 | 3,8 | 4 | D35038L | 15,60 | 7,6 | 33 | 117 | 7,6 | 6 | D35076L | 40,90 |
| 3,9 | 19 | 75 | 3,9 | 4 | D35039L | 15,60 | 7,7 | 33 | 117 | 7,7 | 6 | D35077L | 40,90 |
| 4 | 19 | 75 | 4 | 4 | D3504L | 15,60 | 7,8 | 33 | 117 | 7,8 | 6 | D35078L | 40,90 |
| 4,1 | 19 | 75 | 4,1 | 4 | D35041L | 18,10 | 7,9 | 33 | 117 | 7,9 | 6 | D35079L | 40,90 |
| 4,2 | 19 | 75 | 4,2 | 4 | D35042L | 18,10 | 8 | 33 | 117 | 8 | 6 | D3508L | 40,90 |
| 4,3 | 21 | 80 | 4,3 | 4 | D35043L | 18,60 | 8,1 | 33 | 117 | 8,1 | 6 | D35081L | 45,60 |
| 4,4 | 21 | 80 | 4,4 | 4 | D35044L | 18,60 | 8,2 | 33 | 117 | 8,2 | 6 | D35082L | 45,60 |
| 4,5 | 21 | 80 | 4,5 | 4 | D35045L | 18,60 | 8,3 | 33 | 117 | 8,3 | 6 | D35083L | 45,60 |
| 4,6 | 21 | 80 | 4,6 | 4 | D35046L | 19,40 | 8,4 | 33 | 117 | 8,4 | 6 | D35084L | 45,60 |
| 4,7 | 21 | 80 | 4,7 | 4 | D35047L | 19,40 | 8,5 | 33 | 117 | 8,5 | 6 | D35085L | 45,60 |

Alesatori a macchina H7

Reamers H7

| D H7 | L1 | L | d H7 | Z | Cod. | € uncoated | D H7 | L1 | L | d H7 | Z | Cod. | € uncoated |
|---------|----|-----|---------|---|----------------|---------------|---------|----|-----|---------|---|----------------|---------------|
| 8,6 | 36 | 125 | 8,6 | 6 | D35086L | 53,00 | 10,9 | 41 | 142 | 10,9 | 6 | D35109L | 76,40 |
| 8,7 | 36 | 125 | 8,7 | 6 | D35087L | 53,00 | 11 | 41 | 142 | 11 | 6 | D35111L | 76,40 |
| 8,8 | 36 | 125 | 8,8 | 6 | D35088L | 53,00 | 11,1 | 41 | 142 | 11,1 | 6 | D35111L | 80,00 |
| 8,9 | 36 | 125 | 8,9 | 6 | D35089L | 53,00 | 11,2 | 41 | 142 | 11,2 | 6 | D35112L | 80,00 |
| 9 | 36 | 125 | 9 | 6 | D3509L | 53,00 | 11,3 | 41 | 142 | 11,3 | 6 | D35113L | 80,00 |
| 9,1 | 36 | 125 | 9,1 | 6 | D35091L | 57,00 | 11,4 | 41 | 142 | 11,4 | 6 | D35114L | 80,00 |
| 9,2 | 36 | 125 | 9,2 | 6 | D35092L | 57,00 | 11,5 | 41 | 142 | 11,5 | 6 | D35115L | 80,00 |
| 9,6 | 38 | 133 | 9,6 | 6 | D35096L | 62,30 | 11,6 | 41 | 142 | 11,6 | 6 | D35116L | 85,30 |
| 9,7 | 38 | 133 | 9,7 | 6 | D35097L | 62,30 | 11,7 | 41 | 142 | 11,7 | 6 | D35117L | 85,30 |
| 9,8 | 38 | 133 | 9,8 | 6 | D35098L | 62,30 | 11,8 | 41 | 142 | 11,8 | 6 | D35118L | 85,30 |
| 9,9 | 38 | 133 | 9,9 | 6 | D35099L | 62,30 | 11,9 | 44 | 151 | 11,9 | 6 | D35119L | 90,00 |
| 10 | 38 | 133 | 10 | 6 | D3510L | 62,30 | 12 | 44 | 151 | 12 | 6 | D3512L | 90,00 |
| 10,1 | 38 | 133 | 10,1 | 6 | D35101L | 66,60 | 12,5 | 44 | 151 | 12,5 | 6 | D35125L | 98,10 |
| 10,2 | 38 | 133 | 10,2 | 6 | D35102L | 66,60 | 13 | 44 | 151 | 13 | 6 | D3513L | 106,70 |
| 10,3 | 38 | 133 | 10,3 | 6 | D35103L | 66,60 | 14 | 47 | 160 | 14 | 8 | D3514L | 127,20 |
| 10,4 | 38 | 133 | 10,4 | 6 | D35104L | 66,60 | 15 | 52 | 162 | 15 | 8 | D3515L | 142,40 |
| 10,5 | 38 | 133 | 10,5 | 6 | D35105L | 66,60 | 16 | 54 | 170 | 16 | 8 | D3516L | 166,10 |
| 10,6 | 38 | 133 | 10,6 | 6 | D35106L | 70,80 | 18 | 56 | 182 | 18 | 8 | D3518L | 207,30 |
| 10,7 | 41 | 142 | 10,7 | 6 | D35107L | 76,40 | 20 | 60 | 195 | 20 | 8 | D3520L | 269,00 |
| 10,8 | 41 | 142 | 10,8 | 6 | D35108L | 76,40 | | | | | | | |

Tolleranza H7 micron = 0,001mm

Tolerance H7 micron = 0,001mm

| Diametro | >= 1 <= 3 | > 3 <= 6 | > 6 <= 10 | >10 <= 18 | >18 <= 30 |
|----------|--------------|-------------|--------------|--------------|--------------|
| H7 | +10/0 | +12/0 | +15/0 | +18/0 | +21/0 |

es ϕ 6 = 6,012 MAX

Parametri indicativi per foratura

Indicative data for drilling

| Gruppo di materiali Group of materials | Resistenza / Durezza Resistance / Hardness | Velocità di taglio Cutting speed Vt = m/1' | Av Diametro - Diameters | | | | | | |
|---|---|--|----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 0,5 - 4 | 4 - 6 | 6 - 8 | 8 - 10 | 10 - 13 | 13 - 16 | 16 - 20 |
| Acciai - Steels | | | | | | | | | |
| Acciai - Steels | 700 - 900 N/mm ² | 60 - 100 | 0,03 - 0,10 | 0,10 - 0,15 | 0,15 - 0,20 | 0,20 - 0,25 | 0,25 - 0,30 | 0,30 - 0,40 | 0,40 - 0,50 |
| | 900 - 1200 N/mm ² | 40 - 80 | 0,02 - 0,08 | 0,08 - 0,12 | 0,12 - 0,16 | 0,16 - 0,20 | 0,20 - 0,24 | 0,24 - 0,32 | 0,32 - 0,40 |
| | > 1200 N/mm ² | 20 - 60 | 0,02 - 0,05 | 0,05 - 0,08 | 0,08 - 0,11 | 0,11 - 0,14 | 0,14 - 0,17 | 0,17 - 0,23 | 0,23 - 0,30 |
| | | Vt = m/1' | 0,5 - 4 | 4 - 6 | 6 - 8 | 8 - 10 | 10 - 13 | 13 - 16 | 16 - 20 |
| Acciai inossidabili - Stainless steel | | | | | | | | | |
| Acciai inossidabili - Stainless steel | | 15 - 30 | 0,02 - 0,03 | 0,03 - 0,05 | 0,05 - 0,07 | 0,07 - 0,09 | 0,09 - 0,11 | 0,11 - 0,15 | 0,15 - 0,20 |
| | | Vt = m/1' | 0,5 - 4 | 4 - 6 | 6 - 8 | 8 - 10 | 10 - 13 | 13 - 16 | 16 - 20 |
| Ghise - Cast Iron | | | | | | | | | |
| Ghise - Cast Iron | < 200 HB | 70 - 120 | 0,02 - 0,06 | 0,06 - 0,12 | 0,12 - 0,18 | 0,18 - 0,24 | 0,24 - 0,30 | 0,30 - 0,40 | 0,40 - 0,50 |
| | > 200 HB | 40 - 80 | 0,02 - 0,04 | 0,04 - 0,08 | 0,08 - 0,12 | 0,12 - 0,16 | 0,16 - 0,20 | 0,20 - 0,30 | 0,30 - 0,40 |
| | | Vt = m/1' | 0,5 - 4 | 4 - 6 | 6 - 8 | 8 - 10 | 10 - 13 | 13 - 16 | 16 - 20 |
| Titanio - Titanium | | | | | | | | | |
| Titanio - Titanium | | 20 - 25 | 0,02 - 0,04 | 0,04 - 0,06 | 0,06 - 0,08 | 0,08 - 0,10 | 0,10 - 0,12 | 0,12 - 0,15 | 0,15 - 0,20 |
| | | Vt = m/1' | 0,5 - 4 | 4 - 6 | 6 - 8 | 8 - 10 | 10 - 13 | 13 - 16 | 16 - 20 |
| Alluminio - Aluminium | | | | | | | | | |
| AlSi < 12% | | 80 - 300 | 0,10 - 0,20 | 0,20 - 0,25 | 0,25 - 0,30 | 0,30 - 0,35 | 0,35 - 0,40 | 0,40 - 0,45 | 0,45 - 0,50 |
| AlSi > 12% | | 60 - 180 | 0,05 - 0,10 | 0,10 - 0,15 | 0,15 - 0,20 | 0,20 - 0,25 | 0,25 - 0,30 | 0,30 - 0,35 | 0,35 - 0,40 |
| | | Vt = m/1' | 0,5 - 4 | 4 - 6 | 6 - 8 | 8 - 10 | 10 - 13 | 13 - 16 | 16 - 20 |
| Materiali non ferrosi - Not Ironed materials | | | | | | | | | |
| Bronzo - Bronze | | 130 - 150 | 0,05 - 0,10 | 0,10 - 0,18 | 0,18 - 0,23 | 0,23 - 0,28 | 0,28 - 0,35 | 0,35 - 0,45 | 0,45 - 0,50 |
| Ottone - Brass | | 130 - 150 | | | | | | | |
| Rame - Copper | | 150 - 170 | 0,03 - 0,10 | 0,10 - 0,12 | 0,12 - 0,16 | 0,16 - 0,20 | 0,20 - 0,24 | 0,24 - 0,30 | 0,30 - 0,40 |
| Materiali termoplastici - Termoplastic materials | | 200 - 250 | 0,03 - 0,08 | 0,08 - 0,12 | 0,12 - 0,18 | 0,18 - 0,24 | 0,24 - 0,30 | 0,30 - 0,35 | 0,35 - 0,40 |

Vt = m/1' per punte rivestite e forate + 20/30%

Vt = m/1' for coated and through coolant drills + 20/30%

Av = avanzamento al giro. mm/g

Av = feed per revolution. mm/g

Parametri indicativi per alesatura

Indicative data for reaming

| Gruppo di materiali Group of materials | Resistenza / Durezza Resistance / Hardness | Velocità di taglio Cutting speed Vt = m/1' | Av Diametro - Diameters | | |
|---|---|--|----------------------------|-------------|-------------|
| | | | 1 - 6 | 6 - 12 | 12 - 20 |
| Acciai - Steels | | | | | |
| Acciai - Steels | 700 - 900 N/mm ² | 10 - 15 | 0,10 - 0,13 | 0,13 - 0,20 | 0,20 - 0,30 |
| | 900 - 1200 N/mm ² | 8 - 12 | 0,04 - 0,06 | 0,06 - 0,08 | 0,08 - 0,12 |
| | > 1200 N/mm ² | 6 - 12 | 0,07 - 0,10 | 0,10 - 0,13 | 0,13 - 0,25 |
| | | Vt = m/1' | 1 - 6 | 6 - 12 | 12 - 20 |
| Acciai inossidabili - Stainless steel | | | | | |
| Acciai inossidabili - Stainless steel | | 8 - 12 | 0,04 - 0,06 | 0,06 - 0,08 | 0,08 - 0,12 |
| | | Vt = m/1' | 1 - 6 | 6 - 12 | 12 - 20 |
| Ghise - Cast Iron | | | | | |
| Ghise - Cast Iron | < 200 HB | 8 - 12 | 0,10 - 0,25 | 0,25 - 0,35 | 0,35 - 0,40 |
| | > 200 HB | 8 - 12 | 0,10 - 0,25 | 0,25 - 0,35 | 0,35 - 0,40 |
| | | Vt = m/1' | 1 - 6 | 6 - 12 | 12 - 20 |
| Titanio - Titanium | | | | | |
| Titanio - Titanium | | 6 - 10 | 0,08 - 0,10 | 0,10 - 0,12 | 0,12 - 0,18 |
| | | Vt = m/1' | 1 - 6 | 6 - 12 | 12 - 20 |
| Alluminio - Aluminium | | | | | |
| AlSi < 12% | | 20 - 35 | 0,10 - 0,25 | 0,25 - 0,30 | 0,30 - 0,40 |
| AlSi > 12% | | 10 - 20 | 0,10 - 0,15 | 0,15 - 0,20 | 0,20 - 0,30 |
| | | Vt = m/1' | 1 - 6 | 6 - 12 | 12 - 20 |
| Materiali non ferrosi - Not Ironed materials | | | | | |
| Bronzo - Bronze | | 15 - 40 | 0,10 - 0,20 | 0,20 - 0,30 | 0,30 - 0,40 |
| Ottone - Brass | | 15 - 40 | | | |
| Rame - Copper | | 15 - 40 | 0,10 - 0,20 | 0,20 - 0,30 | 0,30 - 0,40 |
| Materiali termoplastici - Termoplastic materials | | 15 - 35 | 0,10 - 0,15 | 0,15 - 0,20 | 0,20 - 0,30 |