



# 05

## **FRESAS** de alto rendimiento y específicas

---

HIGH PERFORMANCE END MILLS  
HAUTE PERFORMANCE  
SHOCHLEISTUNGSBEARBEITUNG

## I Z3 HYPERLINK: FRESA HELICE VARIABLE 35°/38°

### CHAFLAN EN ESQUINA / SERIE ECONÓMICA

**EN** Z3 HYPERLINK. UNEQUAL HELIX ANGLES 35°-38° | ECONOMY

**FR** Z3 HYPERLINK. HÉLICE DIFFÉRENTE 35°-38° | ÉCONOMIQUE

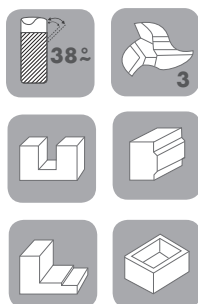
**DE** Z3 HYPERLINK. UNGLEICHER DRALLWINKEL 35°-38° | WIRTSCHAFTLICH

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 56 HRC.

**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 56 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusqu'à 56 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 56 HRC.



ALTIN TITAN



### HELICE 35°/38°

| Ref.          | Dimensiones (mm) |    |    |       |     | Precio € |
|---------------|------------------|----|----|-------|-----|----------|
| 3 Flutes (Z3) | Dc               | d  | LC | C-45° | L   |          |
| HYP-3030R     | 3                | 6  | 8  | 0,05  | 50  | 15,70 €  |
| HYP-3040R     | 4                | 6  | 11 | 0,05  | 50  | 15,70 €  |
| HYP-3050R     | 5                | 6  | 13 | 0,07  | 50  | 15,70 €  |
| HYP-3060R     | 6                | 6  | 16 | 0,10  | 50  | 15,70 €  |
| HYP-3080R     | 8                | 8  | 19 | 0,15  | 60  | 19,80 €  |
| HYP-3100R     | 10               | 10 | 22 | 0,15  | 73  | 29,25 €  |
| HYP-3120R     | 12               | 12 | 26 | 0,25  | 75  | 39,90 €  |
| HYP-3140R     | 14               | 14 | 30 | 0,30  | 85  | 54,50 €  |
| HYP-3160R     | 16               | 16 | 32 | 0,35  | 92  | 77,70 €  |
| HYP-3200R     | 20               | 20 | 38 | 0,35  | 100 | 114,60 € |

## Z4 HYPERLINK: FRESA HELICE VARIABLE 35°/38° CHAFLAN EN ESQUINA / SERIE ECONÓMICA

**EN** Z4 HYPERLINK. UNEQUAL HELIX ANGLES 35°-38° | ECONOMY

**FR** Z4 HYPERLINK. HÉLICE DIFFÉRENTE 35°-38° | ÉCONOMIQUE

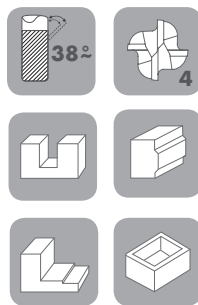
**DE** Z4 HYPERLINK. UNGLEICHER DRALLWINKEL 35°-38° | WIRTSCHAFTLICH

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 56 HRC.

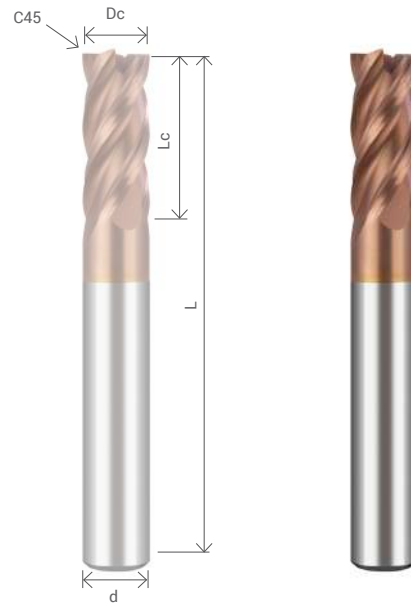
**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 56 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusqu'à 56 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 56 HRC.



**ALTIN TITAN**



### HELICE 35°/38°

| Ref.          | Dimensiones (mm) |    |    |       |     | Precio € |
|---------------|------------------|----|----|-------|-----|----------|
| 4 Flutes (Z4) | Dc               | d  | LC | C-45° | L   |          |
| HYP-4030R     | 3                | 6  | 8  | 0,05  | 50  | 15,70 €  |
| HYP-4040R     | 4                | 6  | 11 | 0,05  | 50  | 15,70 €  |
| HYP-4050R     | 5                | 6  | 13 | 0,07  | 50  | 15,70 €  |
| HYP-4060R     | 6                | 6  | 16 | 0,10  | 50  | 15,70 €  |
| HYP-4080R     | 8                | 8  | 19 | 0,15  | 60  | 19,80 €  |
| HYP-4100R     | 10               | 10 | 22 | 0,15  | 73  | 29,25 €  |
| HYP-4120R     | 12               | 12 | 26 | 0,25  | 75  | 39,90 €  |
| HYP-4140R     | 14               | 14 | 30 | 0,30  | 85  | 54,50 €  |
| HYP-4160R     | 16               | 16 | 32 | 0,35  | 92  | 77,70 €  |
| HYP-4200R     | 20               | 20 | 38 | 0,35  | 100 | 114,60 € |

## I Z4 HYPERLINK: FRESA HELICE VARIABLE 35°/38° WELDOM

### CHAFLAN EN ESQUINA / MANGO WELDOM DIN6535 / SERIE ECONÓMICA

**EN** Z4 HYPERLINK. UNEQUAL HELIX ANGLES 35°-38° | WELDOM DIN6535 | ECONOMY

**FR** Z4 HYPERLINK. HÉLICE DIFFÉRENTE 35°-38° | WELDOM DIN6535 | ÉCONOMIQUE

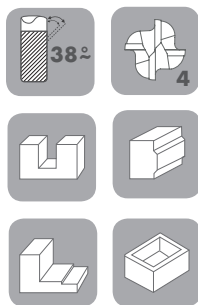
**DE** Z4 HYPERLINK. UNGLEICHER DRALLWINKEL 35°-38° | WELDOM DIN6535 | WIRTSCHAFTLICH

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 56 HRC.

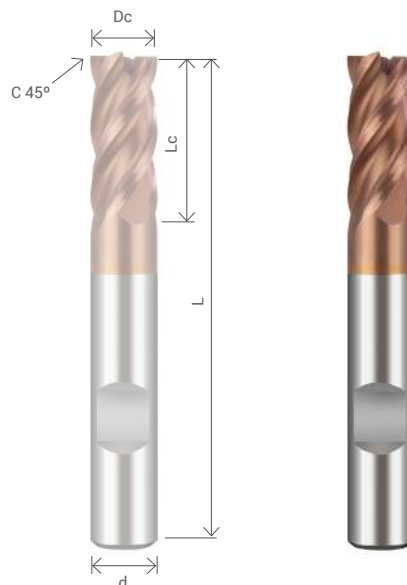
**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 56 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusqu'à 56 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 56 HRC.



ALTIN TITAN



### MANGO WELDOM HELICE 35°/38°

| Ref.          | Dimensiones (mm) |    |    |       |     | Precio € |
|---------------|------------------|----|----|-------|-----|----------|
| 4 Flutes (Z4) | Dc               | d  | Lc | C-45° | L   |          |
| HYP-4030RW    | 3                | 6  | 8  | 0,05  | 57  | 18,65 €  |
| HYP-4040RW    | 4                | 6  | 11 | 0,05  | 57  | 18,65 €  |
| HYP-4050RW    | 5                | 6  | 13 | 0,07  | 57  | 18,65 €  |
| HYP-4060RW    | 6                | 6  | 16 | 0,10  | 57  | 18,65 €  |
| HYP-4080RW    | 8                | 8  | 19 | 0,15  | 63  | 22,70 €  |
| HYP-4100RW    | 10               | 10 | 22 | 0,15  | 73  | 32,25 €  |
| HYP-4120RW    | 12               | 12 | 26 | 0,25  | 84  | 47,90 €  |
| HYP-4140RW    | 14               | 14 | 30 | 0,30  | 85  | 59,10 €  |
| HYP-4160RW    | 16               | 16 | 32 | 0,35  | 92  | 82,70 €  |
| HYP-4200RW    | 20               | 20 | 38 | 0,35  | 104 | 120,60 € |

## Z4 HYPERLINK: FRESA HELICE VARIABLE 35°/38° Medidas Especiales CHAFLAN EN ESQUINA / SERIE ECONÓMICA

**EN** Z4 HYPERLINK. UNEQUAL HELIX ANGLES 35°-38° | SPECIAL SIZES | ECONOMY

**FR** Z4 HYPERLINK. HÉLICE DIFFÉRENTE 35°-38° | SPECIAL MEASURES | ÉCONOMIQUE

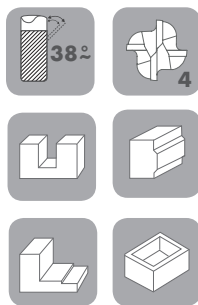
**DE** Z4 HYPERLINK. UNGLEICHER DRALLWINKEL 35°-38° | SPECIAL MEASURES | WIRTSCHAFTLICH

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 56 HRC.

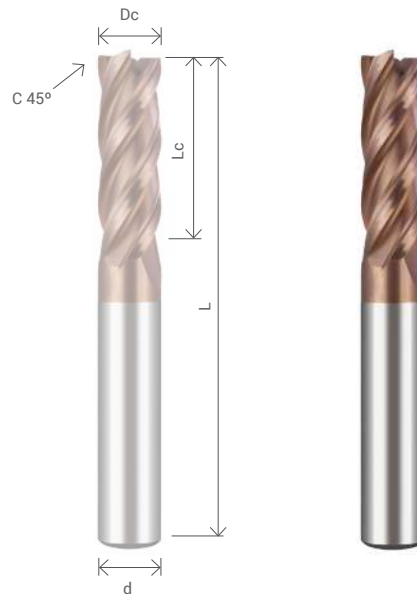
**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 56 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusqu'à 56 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 56 HRC.



**ALTIN TITAN**



### MEDIDAS ESPECIALES HELICE 35°/38°

| Ref.          | Dimensiones (mm) |    |    |       |     | Precio € |
|---------------|------------------|----|----|-------|-----|----------|
| 4 Flutes (Z4) | Dc               | d  | Lc | C-45° | L   |          |
| HYP-4100-25R  | 10               | 10 | 25 | 0,15  | 73  | 32,50 €  |
| HYP-4120L-35R | 12               | 12 | 35 | 0,25  | 83  | 47,50 €  |
| HYP-4160-45R  | 16               | 16 | 45 | 0,35  | 100 | 85,75 €  |
| HYP-4160-52R  | 16               | 16 | 52 | 0,35  | 100 | 89,90 €  |
| HYP-4160-65R  | 16               | 16 | 65 | 0,35  | 150 | 107,65 € |
| HYP-4200-55R  | 20               | 20 | 55 | 0,35  | 104 | 123,00 € |
| HYP-4200-70R  | 20               | 20 | 70 | 0,35  | 150 | 158,75 € |

## I Z4 HYPERLINK: F. H. V. 35°/38° Cuello Rebajado. Económica

### CHAFLAN EN ESQUINA

**EN** Z4 HYPERLINK. UNEQUAL HELIX ANGLES 35°-38° | REDUCED NECK | ECONOMY

**FR** Z4 HYPERLINK. HÉLICE DIFFÉRENTE 35°-38° | ÉCONOMIQUE

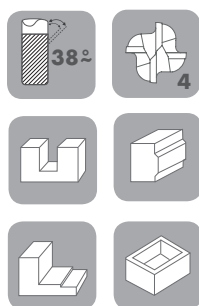
**DE** Z4 HYPERLINK. UNGLEICHER DRALLWINKEL 35°-38° | WIRTSCHAFTLICH

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio y Aceros hasta 56 HRC.

**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium and Hardened Steels up to 56 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane et Acier Jusqu'à 56 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan und Gehärteter Stahl 56 HRC.



ALTIN NANO



### CUELLO REBAJADO. HELICE 35°/38°

| Ref.          | Dimensiones (mm) |    |    |    |       |     | Precio € |
|---------------|------------------|----|----|----|-------|-----|----------|
|               | Dc               | d  | Lc | U  | C-45° | L   |          |
| 4 Flutes (Z4) |                  |    |    |    |       |     |          |
| HYP-4030U20H  | 3                | 6  | 8  | 20 | 0,05  | 57  | 16,95 €  |
| HYP-4040U20H  | 4                | 6  | 11 | 20 | 0,05  | 57  | 16,95 €  |
| HYP-4050U21H  | 5                | 6  | 13 | 21 | 0,07  | 57  | 16,95 €  |
| HYP-4060U21H  | 6                | 6  | 13 | 21 | 0,10  | 57  | 16,95 €  |
| HYP-4080U27H  | 8                | 8  | 19 | 27 | 0,15  | 63  | 20,65 €  |
| HYP-4100U32H  | 10               | 10 | 22 | 32 | 0,15  | 73  | 30,30 €  |
| HYP-4120U38H  | 12               | 12 | 26 | 38 | 0,25  | 83  | 45,50 €  |
| HYP-4140U40H  | 14               | 14 | 30 | 40 | 0,30  | 84  | 55,80 €  |
| HYP-4160U44H  | 16               | 16 | 32 | 44 | 0,35  | 92  | 79,40 €  |
| HYP-4200U55H  | 20               | 20 | 38 | 55 | 0,35  | 104 | 116,65 € |

## I Z4 HYPERLINK: F. H. V. 35°/38° Cuello Rebajado WELDOM Econ. CHAFLAN EN ESQUINA

**EN** Z4 HYPERLINK. UNEQUAL HELIX ANGLES 35°-38° | WELDOM DIN6535 | REDUCED NECK | ECONOMY

**FR** Z4 HYPERLINK. HÉLICE DIFFÉRENTE 35°-38° | WELDOM DIN6535 | ECONOMY

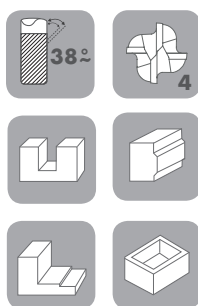
**DE** Z4 HYPERLINK. UNGLEICHER DRALLWINKEL 35°-38° | WELDOM DIN6535

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio y Aceros hasta 56 HRC.

**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium and Hardened Steels up to 56 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane et Acier Jusqu'à 56 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan und Gehärteter Stahl 56 HRC.



**ALTIN NANO**



### SHANK: DIN6535HB. HELICE 35°/38°

| Ref.          | Dimensiones (mm) |    |    |    |       |     | Precio € |
|---------------|------------------|----|----|----|-------|-----|----------|
| 4 Flutes (Z4) | Dc               | d  | Lc | U  | C-45° | L   |          |
| HYP-4030U20HW | 3                | 6  | 8  | 20 | 0,05  | 57  | 19,15 €  |
| HYP-4040U20HW | 4                | 6  | 11 | 20 | 0,05  | 57  | 19,15 €  |
| HYP-4050U21HW | 5                | 6  | 13 | 21 | 0,07  | 57  | 19,15 €  |
| HYP-4060U21HW | 6                | 6  | 13 | 21 | 0,10  | 57  | 19,15 €  |
| HYP-4080U27HW | 8                | 8  | 19 | 27 | 0,15  | 63  | 23,80 €  |
| HYP-4100U32HW | 10               | 10 | 22 | 32 | 0,15  | 73  | 33,90 €  |
| HYP-4120U38HW | 12               | 12 | 26 | 38 | 0,25  | 83  | 49,25 €  |
| HYP-4140U40HW | 14               | 14 | 30 | 40 | 0,30  | 84  | 60,97 €  |
| HYP-4160U44HW | 16               | 16 | 32 | 44 | 0,35  | 92  | 84,35 €  |
| HYP-4200U55HW | 20               | 20 | 38 | 55 | 0,35  | 104 | 122,40 € |

## Z4 HYPERLINK PLUS: FRESA HELICE VARIABLE Cuello Rebajado

### MULTIUSOS / HELICE VARIABLE 35°/38° / CALIDAD PREMIUM

**EN** Z4 HYPERLINK PLUS: UNEQUAL HELIX ANGLES 35°-38° | MULTIPURPOSE | REDUCED NECK | PREMIUM

**FR** Z4 HYPERLINK PLUS: HÉLICE DIFFÉRENTE 35°-38° | PREMIUM

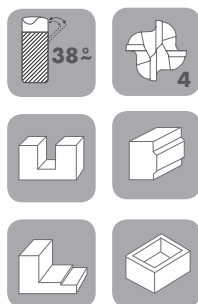
**DE** Z4 HYPERLINK PLUS: UNGLEICHER DRALLWINKEL 35°-38° | PREMIUM

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 56 HRC.

**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 56 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusqu'à 56 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 56 HRC.



ALCrN



### CUELLO REBAJADO. HELICE 35°/38°

| Ref.          | Dimensiones (mm) |    |    |    |       |     | Precio € |
|---------------|------------------|----|----|----|-------|-----|----------|
| 4 Flutes (Z4) | Dc               | d  | Lc | U  | C-45° | L   |          |
| HYP-4030U20PB | 3                | 6  | 8  | 20 | 0,05  | 57  | 21,15 €  |
| HYP-4040U20PB | 4                | 6  | 11 | 20 | 0,05  | 57  | 21,15 €  |
| HYP-4050U21PB | 5                | 6  | 13 | 21 | 0,07  | 57  | 21,15 €  |
| HYP-4060U21PB | 6                | 6  | 13 | 21 | 0,10  | 57  | 21,15 €  |
| HYP-4080U27PB | 8                | 8  | 19 | 27 | 0,15  | 63  | 25,85 €  |
| HYP-4100U32PB | 10               | 10 | 22 | 32 | 0,15  | 73  | 37,50 €  |
| HYP-4120U38PB | 12               | 12 | 26 | 38 | 0,25  | 83  | 53,22 €  |
| HYP-4140U40PB | 14               | 14 | 30 | 40 | 0,30  | 84  | 67,65 €  |
| HYP-4160U44PB | 16               | 16 | 32 | 44 | 0,35  | 92  | 94,90 €  |
| HYP-4200U55PB | 20               | 20 | 38 | 55 | 0,35  | 104 | 139,80 € |

## I Z4 HYPERLINK PLUS: FRESA H. V. WELDOM Cuello Rebajado

MULTIUSOS / HELICE VARIABLE 35°/38° / WELDOM DIN6535 / PREMIUM

**EN** Z4 HYPERLINK PLUS. UNEQUAL HELIX ANGLES 35°-38° | WELDOM DIN6535 | MULTIPURPOSE | PREMIUM

**FR** Z4 HYPERLINK PLUS. HÉLICE DIFFÉRENTE 35°-38° | WELDOM DIN6535 | PREMIUM

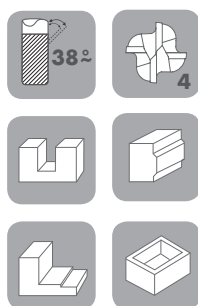
**DE** Z4 HYPERLINK PLUS. UNGLEICHER DRALLWINKEL 35°-38° | WELDOM | PREMIUM

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 56 HRC.

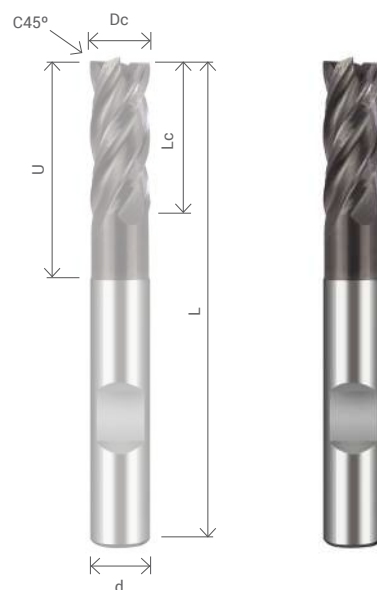
**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 56 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusq'ua 56 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 56 HRC.



**ALCrN**



### CUELLO REBAJADO. SHANK: DIN6535HB. 35°/38°

| Ref.           | Dimensiones (mm) |    |    |    |       |     | Precio € |
|----------------|------------------|----|----|----|-------|-----|----------|
| 4 Flutes (Z4)  | Dc               | d  | Lc | U  | C-45° | L   |          |
| HYP-4030U20PBW | 3                | 6  | 8  | 20 | 0,05  | 57  | 23,35 €  |
| HYP-4040U20PBW | 4                | 6  | 11 | 20 | 0,05  | 57  | 23,35 €  |
| HYP-4050U21PBW | 5                | 6  | 13 | 21 | 0,07  | 57  | 23,35 €  |
| HYP-4060U21PBW | 6                | 6  | 13 | 21 | 0,10  | 57  | 23,35 €  |
| HYP-4080U27PBW | 8                | 8  | 19 | 27 | 0,15  | 63  | 29,00 €  |
| HYP-4100U32PBW | 10               | 10 | 22 | 32 | 0,15  | 73  | 41,10 €  |
| HYP-4120U38PBW | 12               | 12 | 26 | 38 | 0,25  | 83  | 56,97 €  |
| HYP-4140U40PBW | 14               | 14 | 30 | 40 | 0,30  | 84  | 72,80 €  |
| HYP-4160U44PBW | 16               | 16 | 32 | 44 | 0,35  | 92  | 99,85 €  |
| HYP-4200U55PBW | 20               | 20 | 38 | 55 | 0,35  | 104 | 145,50 € |

## Z4 HYRUX: FRESA HELICE VARIABLE 43°/45° Alto Rendimiento

### CHAFLAN EN ESQUINA /MULTIUSOS / CALIDAD PREMIUM

**EN** Z4 HYRUX: UNEQUAL HELIX ANGLES 43-35° | MULTIPURPOSE | HIGH PERFORMANCE

**FR** Z4 HYRUX: HÉLICE DIFFÉRENTE 43-35° | HAUTE PERFORMANCE

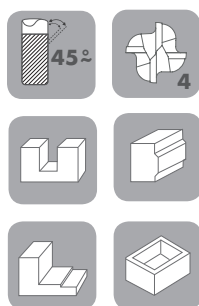
**DE** Z4 HYRUX: UNGLEICHER DRALLWINKEL 43-35° | HOCHLEISTUNGSBEARBEITUNG

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 56 HRC.

**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 56 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusq'ua 56 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 56 HRC.



ALCrN



### ALTO RENDIMIENTO

| Ref.          | Dimensiones (mm) |    |    |       |     | Precio € |
|---------------|------------------|----|----|-------|-----|----------|
|               | Dc               | d  | Lc | C-45° | L   |          |
| 4 Flutes (Z4) |                  |    |    |       |     |          |
| HYRUX-4060B   | 6                | 6  | 13 | 0,2   | 57  | 22,90 €  |
| HYRUX-4080B   | 8                | 8  | 19 | 0,25  | 63  | 28,55 €  |
| HYRUX-4100B   | 10               | 10 | 22 | 0,35  | 73  | 41,55 €  |
| HYRUX-4120B   | 12               | 12 | 26 | 0,35  | 83  | 58,35 €  |
| HYRUX-4140B   | 14               | 14 | 30 | 0,4   | 84  | 74,25 €  |
| HYRUX-4160B   | 16               | 16 | 32 | 0,5   | 92  | 105,95 € |
| HYRUX-4200B   | 20               | 20 | 38 | 0,5   | 104 | 154,90 € |

## I Z4 HYRUX: FRESA H. VARIABLE 43°/45° WELDOM Alto Rendimiento

### CHAFLAN EN ESQUINA / MULTIUSOS / WELDOM DIN6535 / PREMIUM

**EN** Z4 HYRUX. UNEQUAL HELIX ANGLES 43-35° | WELDOM | MULTIPURPOSE | HIGH PERFORMANCE

**FR** Z4 HYRUX. HÉLICE DIFFÉRENTE 43-35° | WELDOM | HAUTE PERFORMANCE

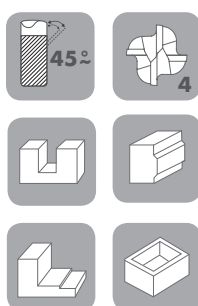
**DE** Z4 HYRUX. U. DRALLWINKEL 43-35° | WELDOM | HOCHLEISTUNGSBEARBEITUNG

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 56 HRC.

**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 56 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusqu'à 56 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 56 HRC.



**ALCrN**



### ALTO RENDIMIENTO. WELDOM DIN6535.

| Ref.          | Dimensiones (mm) |    |    |       |     | Precio € |
|---------------|------------------|----|----|-------|-----|----------|
| 4 Flutes (Z4) | Dc               | d  | Lc | C-45° | L   |          |
| HYRUX-4060BW  | 6                | 6  | 13 | 0,2   | 57  | 25,10 €  |
| HYRUX-4080BW  | 8                | 8  | 19 | 0,25  | 63  | 31,70 €  |
| HYRUX-4100BW  | 10               | 10 | 22 | 0,35  | 73  | 45,35 €  |
| HYRUX-4120BW  | 12               | 12 | 26 | 0,35  | 83  | 62,80 €  |
| HYRUX-4140BW  | 14               | 14 | 30 | 0,4   | 84  | 79,63 €  |
| HYRUX-4160BW  | 16               | 16 | 32 | 0,5   | 92  | 110,90 € |
| HYRUX-4200BW  | 20               | 20 | 38 | 0,5   | 104 | 159,95 € |

## I Z4 HYRUX: FRESA H. V. 43°/45° Cuello Rebajado. Alto Rendimiento CHAFLAN EN ESQUINA /MULTIUSOS

EN Z4 HYRUX: UNEQUAL HELIX ANGLES 43-35° | MULTIPURPOSE | R. NECK | HIGH PERFORMANCE

FR Z4 HYRUX: HÉLICE DIFFÉRENTE 43-35° | HAUTE PERFORMANCE

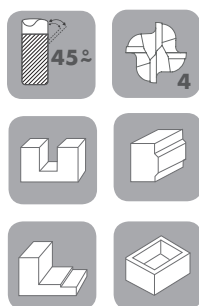
DE Z4 HYRUX: UNGLEICHER DRALLWINKEL 43-35° | HOCHLEISTUNGSBEARBEITUNG

ES Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 56 HRC.

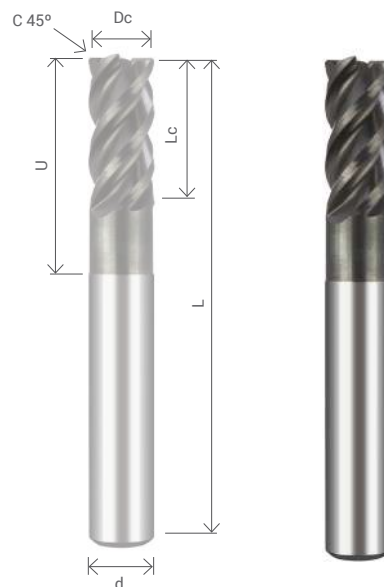
EN Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 56 HRC.

FR Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusqu'à 56 HRC.

DE Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 56 HRC.



ALCrN



### ALTO RENDIMIENTO

| Ref.           | Dimensiones (mm) |    |    |    |       |     | Precio € |
|----------------|------------------|----|----|----|-------|-----|----------|
| 4 Flutes (Z4)  | Dc               | d  | Lc | U  | C-45° | L   |          |
| HYRUX-4030U11B | 3                | 6  | 8  | 11 | 0,07  | 57  | 23,95 €  |
| HYRUX-4030U20B | 3                | 6  | 8  | 20 | 0,07  | 57  | 23,95 €  |
| HYRUX-4040U14B | 4                | 6  | 11 | 14 | 0,09  | 57  | 23,95 €  |
| HYRUX-4040U20B | 4                | 6  | 11 | 20 | 0,09  | 57  | 23,95 €  |
| HYRUX-4050U16B | 5                | 6  | 13 | 16 | 0,12  | 57  | 23,95 €  |
| HYRUX-4050U21B | 5                | 6  | 13 | 21 | 0,12  | 57  | 23,95 €  |
| HYRUX-4060U21B | 6                | 6  | 13 | 21 | 0,2   | 57  | 23,95 €  |
| HYRUX-4080U27B | 8                | 8  | 19 | 27 | 0,25  | 63  | 29,65 €  |
| HYRUX-4100U32B | 10               | 10 | 22 | 32 | 0,35  | 73  | 42,70 €  |
| HYRUX-4120U38B | 12               | 12 | 26 | 38 | 0,35  | 83  | 59,97 €  |
| HYRUX-4140U40B | 14               | 14 | 30 | 40 | 0,4   | 84  | 75,70 €  |
| HYRUX-4160U44B | 16               | 16 | 32 | 44 | 0,5   | 92  | 107,83 € |
| HYRUX-4200U55B | 20               | 20 | 38 | 55 | 0,5   | 104 | 156,23 € |

## I Z4 HYRUX: F.H.V. 43°/45° Cuello Rebajado WELDOM Alto Rendimien. CHAFLAN EN ESQUINA / MULTIUSOS / WELDOM DIN6535

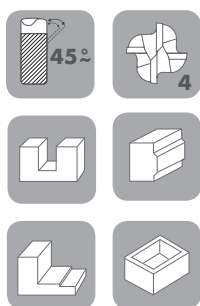
**EN** Z4 HYRUX. UNEQUAL HELIX ANGLES 43-35° | WELDOM | MULTIPURPOSE | R. NECK | HIGH PERFORMANCE  
**FR** Z4 HYRUX. HÉLICE DIFFÉRENTE 43-35° | WELDOM | HAUTE PERFORMANCE  
**DE** Z4 HYRUX. UNGLEICHER DRALLWINKEL 43-35° | WELDOM | SHOCHLEISTUNGSBEARBEITUNG

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 56 HRC.

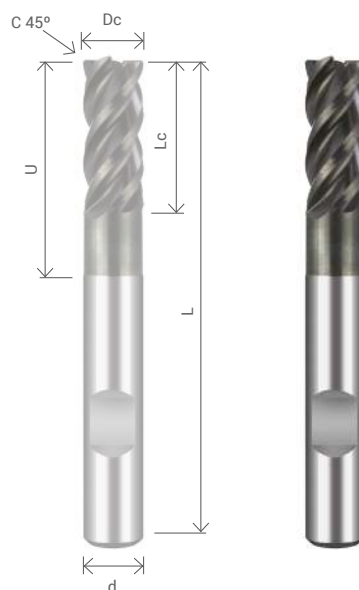
**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 56 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusqu'à 56 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 56 HRC.



**ALCrN**



### ALTO RENDIMIENTO. WELDOM DIN6535.

| Ref.            | Dimensiones (mm) |    |    |    |       |     | Precio € |
|-----------------|------------------|----|----|----|-------|-----|----------|
| 4 Flutes (Z4)   | Dc               | d  | Lc | U  | C-45° | L   |          |
| HYRUX-4030U11BW | 3                | 6  | 8  | 11 | 0,07  | 57  | 26,15 €  |
| HYRUX-4030U20BW | 3                | 6  | 8  | 20 | 0,07  | 57  | 26,15 €  |
| HYRUX-4040U14BW | 4                | 6  | 11 | 14 | 0,09  | 57  | 26,15 €  |
| HYRUX-4040U20BW | 4                | 6  | 11 | 20 | 0,09  | 57  | 26,15 €  |
| HYRUX-4050U16BW | 5                | 6  | 13 | 16 | 0,12  | 57  | 26,15 €  |
| HYRUX-4050U21BW | 5                | 6  | 13 | 21 | 0,12  | 57  | 26,15 €  |
| HYRUX-4060U21BW | 6                | 6  | 13 | 21 | 0,2   | 57  | 26,15 €  |
| HYRUX-4080U27BW | 8                | 8  | 19 | 27 | 0,25  | 63  | 32,80 €  |
| HYRUX-4100U32BW | 10               | 10 | 22 | 32 | 0,35  | 73  | 46,60 €  |
| HYRUX-4120U38BW | 12               | 12 | 26 | 38 | 0,35  | 83  | 63,72 €  |
| HYRUX-4140U40BW | 14               | 14 | 30 | 40 | 0,4   | 84  | 80,85 €  |
| HYRUX-4160U44BW | 16               | 16 | 32 | 44 | 0,5   | 92  | 112,78 € |
| HYRUX-4200U55BW | 20               | 20 | 38 | 55 | 0,5   | 104 | 161,93 € |

## I Z4 HYRUX TITANIO: FRESA HELICE VARIABLE 43°/45°

### CHAFLAN EN ESQUINA / ALTO RENDIMIENTO

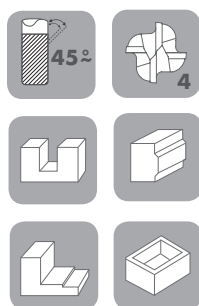
- EN** Z4 HYRUX TITANIUM: UNEQUAL HELIX ANGLES 43-35° | HIGH PERFORMANCE  
**FR** Z4 HYRUX TITANIUM: HÉLICE DIFFÉRENTE 43-35° | DE HAUTE PERFORMANCE  
**DE** Z4 HYRUX TITANIUM: UNGLEICHER DRALLWINKEL 43-35° | HOCHLEISTUNGSBEARBEITUNG

**ES** Acero Inoxidable, Titanio, Aleaciones Titanio y Aleaciones Resistentes al Calor.

**EN** Stainless Steel, Titanium, Titanium Alloys and Heat Resistance Alloys.

**FR** Acier Inoxydable, Alliages de Titane, Titane, Alliages de et Résistance à la Chaleur.

**DE** Rostfreier Stahl, Titan, Warmfeste und Legierungen.



ALTIN TITAN



### ESPECIAL TITANIO Y ALEACIONES NICKEL

| Ref.          | Dimensiones (mm) |    |    |       |     | Precio € |
|---------------|------------------|----|----|-------|-----|----------|
|               | Dc               | d  | Lc | C-45° | L   |          |
| 4 Flutes (Z4) |                  |    |    |       |     |          |
| HYRUX-4060R   | 6                | 6  | 13 | 0,2   | 57  | 22,90 €  |
| HYRUX-4080R   | 8                | 8  | 19 | 0,25  | 63  | 28,55 €  |
| HYRUX-4100R   | 10               | 10 | 22 | 0,35  | 73  | 41,55 €  |
| HYRUX-4120R   | 12               | 12 | 26 | 0,35  | 83  | 58,35 €  |
| HYRUX-4140R   | 14               | 14 | 30 | 0,4   | 84  | 74,25 €  |
| HYRUX-4160R   | 16               | 16 | 32 | 0,5   | 92  | 105,95 € |
| HYRUX-4200R   | 20               | 20 | 38 | 0,5   | 104 | 154,90 € |

## Z4 HYRUX TITANIO: FRESA HELICE VARIABLE 43°/45° WELDOM CHAFLAN EN ESQUINA / WELDOM DIN6535 / ALTO RENDIMIENTO

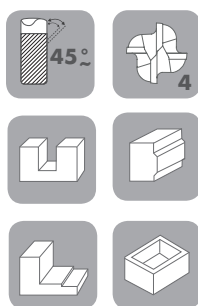
**EN** Z4 HYRUX TITANIUM. UNEQUAL HELIX ANGLES 43-35° | WELDOM DIN6535 | HIGH PERFORMANCE  
**FR** Z4 HYRUX TITANIUM. HÉLICE DIFFÉRENTE 43-35° | WELDOM DIN6535 | DE HAUTE PERFORMANCE  
**DE** Z4 HYRUX TITANIUM. UNGLEICHER DRALLWINKEL 43-35° | W. DIN6535 | HOCHLEISTUNGSBEARBEITUNG

**ES** Acero Inoxidable, Titanio, Aleaciones Titanio y Aleaciones Resistentes al Calor.

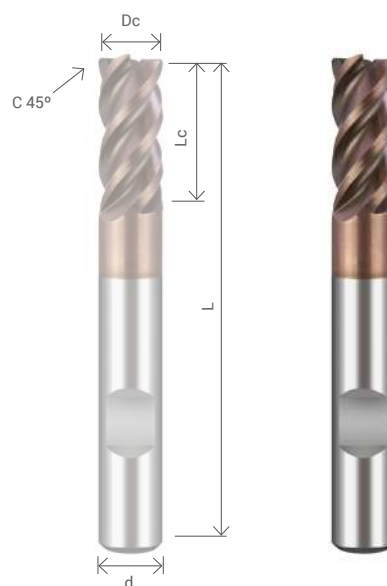
**EN** Stainless Steel, Titanium, Titanium Alloys and Heat Resistance Alloys.

**FR** Acier Inoxydable, Alliages de Titanie, Titane, Alliages de et Résistance à la Chaleur.

**DE** Rostfreier Stahl, Titan, Warmfeste und Legierungen.



**ALTIN TITAN**



### ESPECIAL TITANIO Y ALEACIONES NICKEL. WELDOM DIN6535

| Ref.          | Dimensiones (mm) |    |    |       |     | Precio € |
|---------------|------------------|----|----|-------|-----|----------|
| 4 Flutes (Z4) | Dc               | d  | Lc | C-45° | L   |          |
| HYRUX-4060RW  | 6                | 6  | 13 | 0,2   | 57  | 25,10 €  |
| HYRUX-4080RW  | 8                | 8  | 19 | 0,25  | 63  | 31,70 €  |
| HYRUX-4100RW  | 10               | 10 | 22 | 0,35  | 73  | 45,35 €  |
| HYRUX-4120RW  | 12               | 12 | 26 | 0,35  | 83  | 62,80 €  |
| HYRUX-4140RW  | 14               | 14 | 30 | 0,4   | 84  | 79,63 €  |
| HYRUX-4160RW  | 16               | 16 | 32 | 0,5   | 92  | 110,90 € |
| HYRUX-4200RW  | 20               | 20 | 38 | 0,5   | 104 | 159,95 € |

## I Z4 HYRUX TITANIO: FRESA H. V. 43°/45° Cuello Rebajado

### CHAFLAN EN ESQUINA / PREMIUM / ALTO RENDIMIENTO

EN Z4 HYRUX TITANIUM: UNEQUAL HELIX ANGLES 43-35° | REDUCED NECK | HIGH PERFORMANCE

FR Z4 HYRUX TITANIUM: HÉLICE DIFFÉRENTE 43-35° | DE HAUTE PERFORMANCE

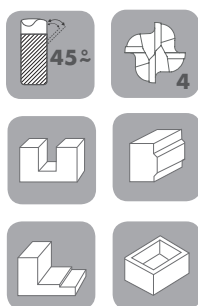
DE Z4 HYRUX TITANIUM: UNGLEICHER DRALLWINKEL 43-35° | HOCHLEISTUNGSBEARBEITUNG

ES Acero Inoxidable, Titanio, Aleaciones Titanio y Aleaciones Resistentes al Calor.

EN Stainless Steel, Titanium, Titanium Alloys and Heat Resistance Alloys.

FR Acier Inoxydable, Alliages de Titane, Titane, Alliages de et Résistance à la Chaleur.

DE Rostfreier Stahl, Titan, Warmfeste und Legierungen.



ALTIN TITAN



### ESPECIAL TITANIO Y ALEACIONES NICKEL

| Ref.           | Dimensiones (mm) |    |    |    |       |     | Precio € |
|----------------|------------------|----|----|----|-------|-----|----------|
| 4 Flutes (Z4)  | Dc               | d  | Lc | U  | C-45° | L   |          |
| HYRUX-4030U11R | 3                | 6  | 8  | 11 | 0,07  | 57  | 23,95 €  |
| HYRUX-4030U20R | 3                | 6  | 8  | 20 | 0,07  | 57  | 23,95 €  |
| HYRUX-4040U14R | 4                | 6  | 11 | 14 | 0,09  | 57  | 23,95 €  |
| HYRUX-4040U20R | 4                | 6  | 11 | 20 | 0,09  | 57  | 23,95 €  |
| HYRUX-4050U16R | 5                | 6  | 13 | 16 | 0,12  | 57  | 23,95 €  |
| HYRUX-4050U21R | 5                | 6  | 13 | 21 | 0,12  | 57  | 23,95 €  |
| HYRUX-4060U21R | 6                | 6  | 13 | 21 | 0,2   | 57  | 23,95 €  |
| HYRUX-4080U27R | 8                | 8  | 19 | 27 | 0,25  | 63  | 29,65 €  |
| HYRUX-4100U32R | 10               | 10 | 22 | 32 | 0,35  | 73  | 42,70 €  |
| HYRUX-4120U38R | 12               | 12 | 26 | 38 | 0,35  | 83  | 59,97 €  |
| HYRUX-4140U40R | 14               | 14 | 30 | 40 | 0,4   | 84  | 75,70 €  |
| HYRUX-4160U44R | 16               | 16 | 32 | 44 | 0,5   | 92  | 107,83 € |
| HYRUX-4200U55R | 20               | 20 | 38 | 55 | 0,5   | 104 | 156,23 € |

## Z4 HYRUX TITANIO: FRESA H. V. 43°/45° Cuello Rebajado WELDOM CHAFLAN EN ESQUINA / WELDOM DIN6535 / ALTO RENDIMIENTO

**EN** Z4 HYRUX TITANIUM: UNEQUAL HELIX ANGLES 43-35° | W. DIN6535 | R. NECK | HIGH PERFORMANCE

**FR** Z4 HYRUX TITANIUM: HÉLICE DIFFÉRENTE 43-35° | W. DIN6535 | DE HAUTE PERFORMANCE

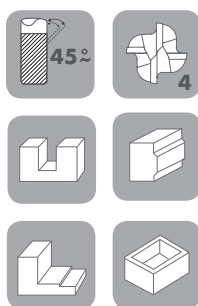
**DE** Z4 HYRUX TITANIUM: UNGLEICHER DRALLWINKEL 43-35° | HOCHLEISTUNGSBEARBEITUNG

**ES** Acero Inoxidable, Titanio, Aleaciones Titanio y Aleaciones Resistentes al Calor.

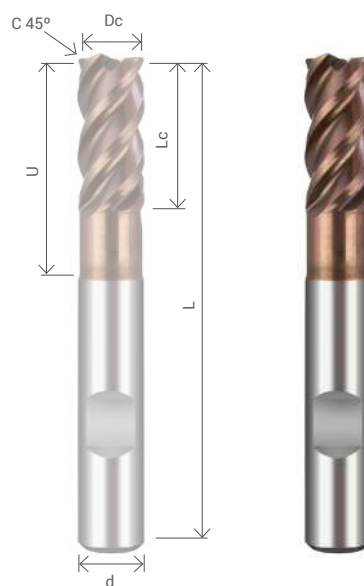
**EN** Stainless Steel, Titanium, Titanium Alloys and Heat Resistance Alloys.

**FR** Acier Inoxydable, Alliages de Titanie, Titane, Alliages de et Résistance à la Chaleur.

**DE** Rostfreier Stahl, Titan, Warmfeste und Legierungen.



**ALTIN TITAN**



### ESPECIAL TITANIO Y ALEACIONES NICKEL. WELDOM DIN6535

| Ref.            | Dimensiones (mm) |    |    |    |       |     | Precio € |
|-----------------|------------------|----|----|----|-------|-----|----------|
| 4 Flutes (Z4)   | Dc               | d  | Lc | U  | C-45° | L   |          |
| HYRUX-4030U11RW | 3                | 6  | 8  | 11 | 0,07  | 57  | 26,15 €  |
| HYRUX-4030U20RW | 3                | 6  | 8  | 20 | 0,07  | 57  | 26,15 €  |
| HYRUX-4040U14RW | 4                | 6  | 11 | 14 | 0,09  | 57  | 26,15 €  |
| HYRUX-4040U20RW | 4                | 6  | 11 | 20 | 0,09  | 57  | 26,15 €  |
| HYRUX-4050U16RW | 5                | 6  | 13 | 16 | 0,12  | 57  | 26,15 €  |
| HYRUX-4050U21RW | 5                | 6  | 13 | 21 | 0,12  | 57  | 26,15 €  |
| HYRUX-4060U21RW | 6                | 6  | 13 | 21 | 0,2   | 57  | 26,15 €  |
| HYRUX-4080U27RW | 8                | 8  | 19 | 27 | 0,25  | 63  | 32,80 €  |
| HYRUX-4100U32RW | 10               | 10 | 22 | 32 | 0,35  | 73  | 46,60 €  |
| HYRUX-4120U38RW | 12               | 12 | 26 | 38 | 0,35  | 83  | 63,72 €  |
| HYRUX-4140U40RW | 14               | 14 | 30 | 40 | 0,4   | 84  | 80,85 €  |
| HYRUX-4160U44RW | 16               | 16 | 32 | 44 | 0,5   | 92  | 112,78 € |
| HYRUX-4200U55RW | 20               | 20 | 38 | 55 | 0,5   | 104 | 161,93 € |

## Z5 HELIX: FRESA H.V. 43°/45° Cuello Rebajado 1°. Chaflán <55HRC

### CHAFLAN EN ESQUINA / ALTO RENDIMIENTO / MULTIUSO

EN Z5 HELIX: UNEQUAL HELIX ANGLES 43-35° | REDUCED NECK | MULTIURPOSE | HIGH PERFORMANCE

FR Z5 HELIX: HÉLICE DIFFÉRENTE 43-35° | DE HAUTE PERFORMANCE

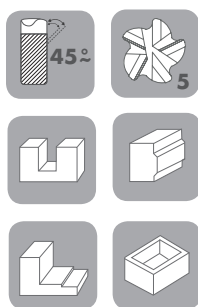
DE Z5 HELIX: U. DRALLWINKEL 43-35° | HOCHLEISTUNGSBEARBEITUNG

ES Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 56 HRC.

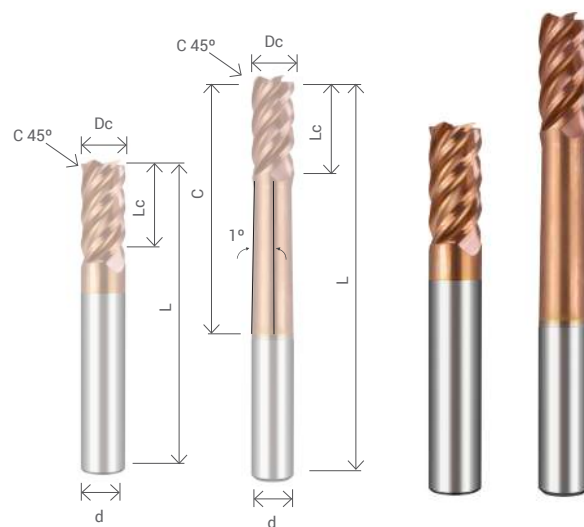
EN Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 56 HRC.

FR Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusqu'à 56 HRC.

DE Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 56 HRC.



ALTIN TITAN



### CUELLO REBAJADO A 1°

| Ref.            | Dimensiones (mm) |    |    |    |       |     | Precio € |
|-----------------|------------------|----|----|----|-------|-----|----------|
| 5 Flutes (Z5)   | Dc               | d  | Lc | C  | C-45° | L   |          |
| HELIX-06K01-C   | 6                | 6  | 14 | —  | 0,1   | 53  | 28,60 €  |
| HELIX-06K01-M   | 6                | 6  | 14 | 32 | 0,1   | 65  | 33,10 €  |
| HELIX-06K01-L   | 6                | 6  | 14 | 42 | 0,1   | 75  | 34,80 €  |
| HELIX-06K01-LL  | 6                | 6  | 14 | 51 | 0,1   | 81  | 39,50 €  |
| HELIX-08K01-C   | 8                | 8  | 18 | —  | 0,1   | 60  | 37,15 €  |
| HELIX-08K01-M   | 8                | 8  | 18 | 42 | 0,1   | 75  | 40,00 €  |
| HELIX-08K01-L   | 8                | 8  | 18 | 58 | 0,1   | 90  | 45,60 €  |
| HELIX-08K01-LL  | 8                | 8  | 18 | 71 | 0,1   | 109 | 52,40 €  |
| HELIX-10K015-C  | 10               | 10 | 22 | —  | 0,15  | 65  | 48,50 €  |
| HELIX-10K015-M  | 10               | 10 | 22 | 51 | 0,15  | 81  | 54,70 €  |
| HELIX-10K015-L  | 10               | 10 | 22 | 71 | 0,15  | 109 | 64,60 €  |
| HELIX-10K015-LL | 10               | 10 | 22 | 82 | 0,15  | 109 | 65,70 €  |
| HELIX-12K02-C   | 12               | 12 | 26 | —  | 0,2   | 81  | 79,60 €  |
| HELIX-12K02-M   | 12               | 12 | 26 | 51 | 0,2   | 81  | 85,90 €  |
| HELIX-12K02-L   | 12               | 12 | 26 | 71 | 0,2   | 109 | 99,95 €  |
| HELIX-12K02-LL  | 12               | 12 | 26 | 86 | 0,2   | 117 | 100,50 € |

## I Z5 HELIX: FRESA H.V. 43°/45° Cuello Rebajado 1°. Chaflán <55HRC CHAFLAN EN ESQUINA / ALTO RENDIMIENTO / MULTIUSO

EN Z5 HELIX: UNEQUAL HELIX ANGLES 43-35° | REDUCED NECK | MULTIURPOSE | HIGH PERFORMANCE

FR Z5 HELIX: HÉLICE DIFFÉRENTE 43-35° | DE HAUTE PERFORMANCE

DE Z5 HELIX: U. DRALLWINKEL 43-35° | HOCHLEISTUNGSBEARBEITUNG



| Ref.           | Dimensiones (mm) |    |    |     |       |     | Precio € |
|----------------|------------------|----|----|-----|-------|-----|----------|
| 5 Flutes (Z5)  | Dc               | d  | Lc | C   | C-45° | L   |          |
| HELIX-16K02-C  | 16               | 16 | 38 | –   | 0,2   | 81  | 109,65 € |
| HELIX-16K02-M  | 16               | 16 | 38 | 61  | 0,2   | 109 | 121,80 € |
| HELIX-16K02-L  | 16               | 16 | 38 | 76  | 0,2   | 109 | 123,60 € |
| HELIX-16K02-LL | 16               | 16 | 38 | 101 | 0,2   | 150 | 171,30 € |
| HELIX-20K02-C  | 20               | 20 | 45 | –   | 0,2   | 100 | 166,20 € |
| HELIX-20K02-M  | 20               | 20 | 45 | 71  | 0,2   | 109 | 183,90 € |
| HELIX-20K02-L  | 20               | 20 | 45 | 86  | 0,2   | 130 | 196,90 € |
| HELIX-20K02-LL | 20               | 20 | 45 | 101 | 0,2   | 150 | 255,80 € |

## Z5 HELIX: FRESA H.V. 43°/45° Cuello Rebajado 1°. Chaflán <65HRC

### CHAFLAN EN ESQUINA / ALTO RENDIMIENTO / MULTIUSOS

EN Z5 HELIX: U.H.A. 43-35° | REDUCED NECK 1° | MULTIURPOSE | HIGH PERFORMANCE

FR Z5 HELIX: H.D. 43-35° | DE HAUTE PERFORMANCE

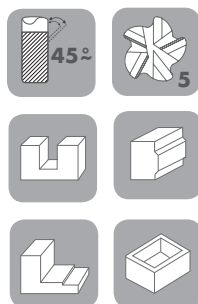
DE Z5 HELIX: U.D. 43-35° | HOCHLEISTUNGSBEARBEITUNG

ES Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 65 HRC.

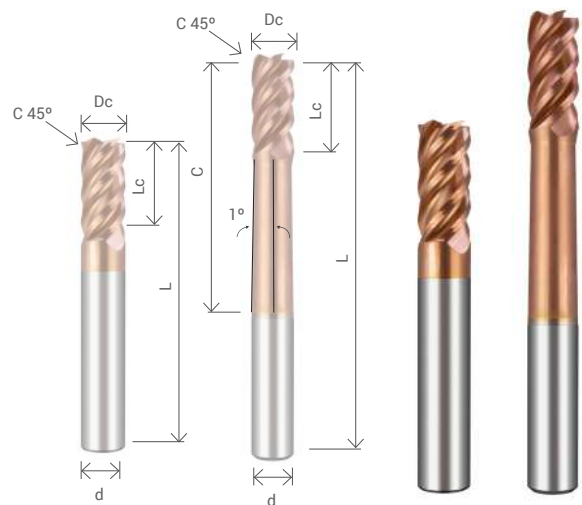
EN Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 65 HRC.

FR Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusq'ua 65 HRC.

DE Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 65 HRC.



ALTISIN



### CUELLO REBAJADO A 1°

| Ref.              | Dimensiones (mm) |    |    |    |       |     | Precio € |
|-------------------|------------------|----|----|----|-------|-----|----------|
| 5 Flutes (Z5)     | Dc               | d  | Lc | C  | C-45° | L   |          |
| S-HELIX-06K01-C   | 6                | 6  | 14 | —  | 0,1   | 53  | 31,45 €  |
| S-HELIX-06K01-M   | 6                | 6  | 14 | 32 | 0,1   | 65  | 36,40 €  |
| S-HELIX-06K01-L   | 6                | 6  | 14 | 42 | 0,1   | 75  | 38,30 €  |
| S-HELIX-06K01-LL  | 6                | 6  | 14 | 51 | 0,1   | 81  | 43,50 €  |
| S-HELIX-08K01-C   | 8                | 8  | 18 | —  | 0,1   | 60  | 40,90 €  |
| S-HELIX-08K01-M   | 8                | 8  | 18 | 42 | 0,1   | 75  | 44,00 €  |
| S-HELIX-08K01-L   | 8                | 8  | 18 | 58 | 0,1   | 90  | 50,20 €  |
| S-HELIX-08K01-LL  | 8                | 8  | 18 | 71 | 0,1   | 109 | 57,70 €  |
| S-HELIX-10K015-C  | 10               | 10 | 22 | —  | 0,15  | 65  | 53,50 €  |
| S-HELIX-10K015-M  | 10               | 10 | 22 | 51 | 0,15  | 81  | 60,20 €  |
| S-HELIX-10K015-L  | 10               | 10 | 22 | 71 | 0,15  | 109 | 71,00 €  |
| S-HELIX-10K015-LL | 10               | 10 | 22 | 82 | 0,15  | 109 | 72,30 €  |
| S-HELIX-12K02-C   | 12               | 12 | 26 | —  | 0,2   | 81  | 87,60 €  |
| S-HELIX-12K02-M   | 12               | 12 | 26 | 51 | 0,2   | 81  | 94,50 €  |
| S-HELIX-12K02-L   | 12               | 12 | 26 | 71 | 0,2   | 109 | 109,70 € |
| S-HELIX-12K02-LL  | 12               | 12 | 26 | 86 | 0,2   | 117 | 111,80 € |

## I Z5 HELIX: FRESA H.V. 43°/45° Cuello Rebajado 1°. Chaflán <65HRC CHAFLAN EN ESQUINA / ALTO RENDIMIENTO / MULTIUSOS

**EN** Z5 HELIX: U.H.A. 43-35° | REDUCED NECK 1° | MULTIURPOSE | HIGH PERFORMANCE

**FR** Z5 HELIX: H.D. 43-35° | DE HAUTE PERFORMANCE

**DE** Z5 HELIX: U.D. 43-35° | HOCHLEISTUNGSBEARBEITUNG



| Ref.             | Dimensiones (mm) |    |    |     |       |     | Precio € |
|------------------|------------------|----|----|-----|-------|-----|----------|
| 5 Flutes (Z5)    | Dc               | d  | Lc | C   | C-45° | L   |          |
| S-HELIX-16K02-C  | 16               | 16 | 38 | –   | 0,2   | 81  | 117,50 € |
| S-HELIX-16K02-M  | 16               | 16 | 38 | 61  | 0,2   | 109 | 130,30 € |
| S-HELIX-16K02-L  | 16               | 16 | 38 | 76  | 0,2   | 109 | 132,20 € |
| S-HELIX-16K02-LL | 16               | 16 | 38 | 101 | 0,2   | 150 | 183,30 € |
| S-HELIX-20K02-C  | 20               | 20 | 45 | –   | 0,2   | 100 | 177,85 € |
| S-HELIX-20K02-M  | 20               | 20 | 45 | 71  | 0,2   | 109 | 196,80 € |
| S-HELIX-20K02-L  | 20               | 20 | 45 | 86  | 0,2   | 130 | 210,70 € |
| S-HELIX-20K02-LL | 20               | 20 | 45 | 101 | 0,2   | 150 | 273,70 € |

## Z5 HELIX: FRESA H.V. 43°/45° Chaflán <56HRC. Refrigeración central CHAFLAN EN ESQUINA / CUELLO REBAJADO 1° / ALTO RENDIMIENTO

EN Z5 HELIX: UNEQUAL HELIX ANGLES 43-35° | R. NECK 1° | CENTRAL COOLANT | HIGH PERFORMANCE

FR Z5 HELIX: HÉLICE DIFFÉRENTE 43-35°

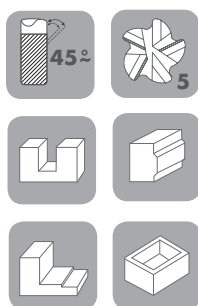
DE Z5 HELIX: UNGLEICHER DRALLWINKEL 43-35°

ES Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 56 HRC.

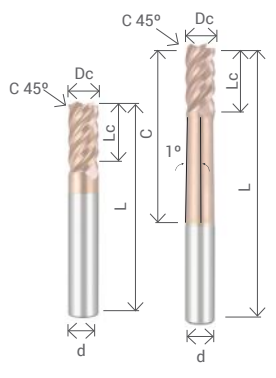
EN Steel, Stainless Steel, Cast Iron, Copper, Titanium, Heat Resistance Alloys and Hardened Steels up to 56 HRC.

FR Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusqu'à 56 HRC.

DE Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 56 HRC.



ALTIN TITAN



### CUELLO REBAJADO A 1°

| Ref.              | Dimensiones (mm) |    |    |    |       |     | Precio € |
|-------------------|------------------|----|----|----|-------|-----|----------|
| 5 Flutes (Z5)     | Dc               | d  | Lc | C  | C-45° | L   |          |
| HELIX-06K01-C-O   | 6                | 6  | 14 | —  | 0,1   | 53  | 34,50 €  |
| HELIX-06K01-M-O   | 6                | 6  | 14 | 32 | 0,1   | 65  | 40,70 €  |
| HELIX-06K01-L-O   | 6                | 6  | 14 | 42 | 0,1   | 75  | 42,40 €  |
| HELIX-06K01-LL-O  | 6                | 6  | 14 | 51 | 0,1   | 81  | 47,20 €  |
| HELIX-08K01-C-O   | 8                | 8  | 18 | —  | 0,1   | 60  | 44,80 €  |
| HELIX-08K01-M-O   | 8                | 8  | 18 | 42 | 0,1   | 75  | 50,10 €  |
| HELIX-08K01-L-O   | 8                | 8  | 18 | 58 | 0,1   | 90  | 55,70 €  |
| HELIX-08K01-LL-O  | 8                | 8  | 18 | 71 | 0,1   | 109 | 62,50 €  |
| HELIX-10K015-C-O  | 10               | 10 | 22 | —  | 0,15  | 65  | 60,50 €  |
| HELIX-10K015-M-O  | 10               | 10 | 22 | 51 | 0,15  | 81  | 66,70 €  |
| HELIX-10K015-L-O  | 10               | 10 | 22 | 71 | 0,15  | 109 | 80,75 €  |
| HELIX-10K015-LL-O | 10               | 10 | 22 | 82 | 0,15  | 109 | 82,00 €  |
| HELIX-12K02-C-O   | 12               | 12 | 26 | —  | 0,2   | 81  | 95,80 €  |
| HELIX-12K02-M-O   | 12               | 12 | 26 | 51 | 0,2   | 81  | 102,00 € |
| HELIX-12K02-L-O   | 12               | 12 | 26 | 71 | 0,2   | 109 | 120,30 € |
| HELIX-12K02-LL-O  | 12               | 12 | 26 | 86 | 0,2   | 117 | 121,90 € |

## I Z5 HELIX: FRESA H.V. 43°/45° Chaflán <56HRC. Refrigeración central CHAFLAN EN ESQUINA / CUELLO REBAJADO 1° / ALTO RENDIMIENTO

**EN** Z5 HELIX: UNEQUAL HELIX ANGLES 43-35° | R. NECK 1° | CENTRAL COOLANT | HIGH PERFORMANCE

**FR** Z5 HELIX: HÉLICE DIFFÉRENTE 43-35°

**DE** Z5 HELIX: UNGLEICHER DRALLWINKEL 43-35°



| Ref.             | Dimensiones (mm) |    |    |     |       |     | Precio € |
|------------------|------------------|----|----|-----|-------|-----|----------|
| 5 Flutes (Z5)    | Dc               | d  | Lc | C   | C-45° | L   |          |
| HELIX-16K02-C-O  | 16               | 16 | 38 | –   | 0,2   | 81  | 130,90 € |
| HELIX-16K02-M-O  | 16               | 16 | 38 | 61  | 0,2   | 109 | 149,80 € |
| HELIX-16K02-L-O  | 16               | 16 | 38 | 76  | 0,2   | 109 | 151,70 € |
| HELIX-16K02-LL-O | 16               | 16 | 38 | 101 | 0,2   | 150 | 199,40 € |
| HELIX-20K02-C-O  | 20               | 20 | 45 | –   | 0,2   | 100 | 197,70 € |
| HELIX-20K02-M-O  | 20               | 20 | 45 | 71  | 0,2   | 109 | 226,24 € |
| HELIX-20K02-L-O  | 20               | 20 | 45 | 86  | 0,2   | 130 | 242,20 € |
| HELIX-20K02-LL-O | 20               | 20 | 45 | 101 | 0,2   | 150 | 296,70 € |

## I Z5 HELIX: FRESA HELICE VARIABLE 43°/45° Radio <56HRC

### MULTIUSOS / CUELLO REBAJADO 1°

EN Z5 HELIX: U.H.A. 43-35° | R. NECK 1° | HIGH PERFORMANCE | MULTI PURPOSE | CORNER RADIUS

FR Z5 HELIX: H.D. 43-35° | R. NECK 1° | HAUTE PERFORMANCE

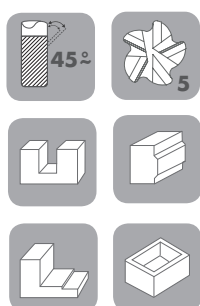
DE Z5 HELIX: U. D. 43-35° | R. NECK 1° | HOCHLEISTUNGSBEARBEITUNG

ES Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 56 HRC.

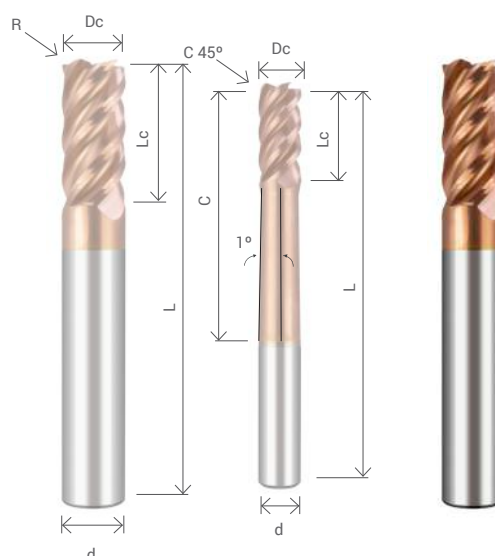
EN Steel, Stainless Steel, Cast Iron, Copper, Titanium, Heat Resistance Alloys and Hardened Steels up to 56 HRC.

FR Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusqu'à 56 HRC.

DE Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 56 HRC.



ALTIN TITAN



### CUELLO REBAJADO A 1°

| Ref.                | Dimensiones (mm) |    |    |    |     |     | Precio € |
|---------------------|------------------|----|----|----|-----|-----|----------|
| 5 Flutes (Z5)       | Dc               | d  | Lc | C  | R   | L   |          |
| HELIX-06R05-C       | 6                | 6  | 14 | —  | 0,5 | 53  | 33,60 €  |
| HELIX-06R05-M       | 6                | 6  | 14 | 32 | 0,5 | 65  | 38,90 €  |
| HELIX-06R05-L       | 6                | 6  | 14 | 42 | 0,5 | 75  | 40,90 €  |
| HELIX-06R05-LL      | 6                | 6  | 14 | 51 | 0,5 | 81  | 46,50 €  |
| HELIX-08R05-C       | 8                | 8  | 18 | —  | 0,5 | 60  | 43,70 €  |
| HELIX-08R05-M       | 8                | 8  | 18 | 42 | 0,5 | 75  | 47,00 €  |
| HELIX-08R05-L       | 8                | 8  | 18 | 58 | 0,5 | 90  | 53,60 €  |
| HELIX-08R05-LL      | 8                | 8  | 18 | 71 | 0,5 | 109 | 61,50 €  |
| HELIX-10R05-C       | 10               | 10 | 22 | —  | 0,5 | 65  | 57,00 €  |
| HELIX-10R05-M       | 10               | 10 | 22 | 51 | 0,5 | 81  | 64,30 €  |
| HELIX-10R05-L       | 10               | 10 | 22 | 71 | 0,5 | 109 | 76,00 €  |
| HELIX-10R05-LL      | 10               | 10 | 22 | 82 | 0,5 | 109 | 77,20 €  |
| <b>HELIX-12R1-C</b> | 12               | 12 | 26 | —  | 1   | 81  | 93,60 €  |
| HELIX-12R1-M        | 12               | 12 | 26 | 51 | 1   | 81  | 101,00 € |
| HELIX-12R1-L        | 12               | 12 | 26 | 71 | 1   | 109 | 117,50 € |
| HELIX-12R1-LL       | 12               | 12 | 26 | 86 | 1   | 117 | 119,30 € |

## I Z5 HELIX: FRESA HELICE VARIABLE 43°/45° Radio <56HRC

MULTIUSOS / CUELLO REBAJADO 1°

**EN** Z5 HELIX: U.H.A. 43-35° | R. NECK 1° | HIGH PERFORMANCE | MULTI PURPOSE | CORNER RADIUS

**FR** Z5 HELIX: H.D. 43-35° | R. NECK 1° | HAUTE PERFORMANCE

**DE** Z5 HELIX: U. D. 43-35° 1° | R. NECK 1° | HOCHLEISTUNGSBEARBEITUNG



| Ref.          | Dimensiones (mm) |    |    |     |   |     | Precio € |
|---------------|------------------|----|----|-----|---|-----|----------|
| 5 Flutes (Z5) | Dc               | d  | Lc | C   | R | L   |          |
| HELIX-16R2-C  | 16               | 16 | 38 | —   | 2 | 81  | 129,00 € |
| HELIX-16R2-M  | 16               | 16 | 38 | 61  | 2 | 109 | 143,20 € |
| HELIX-16R2-L  | 16               | 16 | 38 | 76  | 2 | 109 | 145,40 € |
| HELIX-16R2-LL | 16               | 16 | 38 | 101 | 2 | 150 | 201,50 € |
| HELIX-20R2-C  | 20               | 20 | 45 | —   | 2 | 100 | 194,50 € |
| HELIX-20R2-M  | 20               | 20 | 45 | 71  | 2 | 109 | 215,20 € |
| HELIX-20R2-L  | 20               | 20 | 45 | 86  | 2 | 130 | 230,40 € |
| HELIX-20R2-LL | 20               | 20 | 45 | 101 | 2 | 150 | 299,30 € |

## Z5 HELIX: FRESA HELICE VARIABLE 43°/45° Radio <65HRC

### MULTIUSOS / ALTO RENDIMIENTO / CUELLO REBAJADO 1°

**EN** Z5 HELIX: U.H. A. 43-35° | REDUCED NECK 1° | HIGH PERFORMANCE | MULTI PURPOSE | CORNER RADIUS

**FR** Z5 HELIX: H.D. 43-35° | DE HAUTE PERFORMANCE

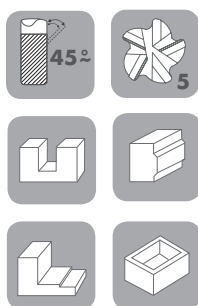
**DE** Z5 HELIX: U. D. 43-35° | HOCHLEISTUNGSBEARBEITUNG

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 65 HRC.

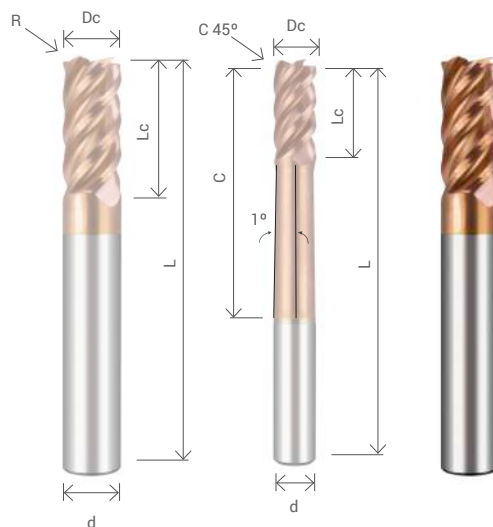
**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 65 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusqu'à 65 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 65 HRC.



ALTISIN



### CUELLO REBAJADO A 1°

| Ref.             | Dimensiones (mm) |    |    |    |     |     | Precio € |
|------------------|------------------|----|----|----|-----|-----|----------|
| 5 Flutes (Z5)    | Dc               | d  | Lc | C  | R   | L   |          |
| S-HELIX-06R05-C  | 6                | 6  | 14 | —  | 0,5 | 53  | 36,96 €  |
| S-HELIX-06R05-M  | 6                | 6  | 14 | 32 | 0,5 | 65  | 42,79 €  |
| S-HELIX-06R05-L  | 6                | 6  | 14 | 42 | 0,5 | 75  | 44,99 €  |
| S-HELIX-06R05-LL | 6                | 6  | 14 | 51 | 0,5 | 81  | 51,15 €  |
| S-HELIX-08R05-C  | 8                | 8  | 18 | —  | 0,5 | 60  | 48,07 €  |
| S-HELIX-08R05-M  | 8                | 8  | 18 | 42 | 0,5 | 75  | 51,70 €  |
| S-HELIX-08R05-L  | 8                | 8  | 18 | 58 | 0,5 | 90  | 58,96 €  |
| S-HELIX-08R05-LL | 8                | 8  | 18 | 71 | 0,5 | 109 | 67,65 €  |
| S-HELIX-10R05-C  | 10               | 10 | 22 | —  | 0,5 | 65  | 62,70 €  |
| S-HELIX-10R05-M  | 10               | 10 | 22 | 51 | 0,5 | 81  | 70,73 €  |
| S-HELIX-10R05-L  | 10               | 10 | 22 | 71 | 0,5 | 109 | 83,60 €  |
| S-HELIX-10R05-LL | 10               | 10 | 22 | 82 | 0,5 | 109 | 84,92 €  |
| S-HELIX-12R1-C   | 12               | 12 | 26 | —  | 1   | 81  | 102,96 € |
| S-HELIX-12R1-M   | 12               | 12 | 26 | 51 | 1   | 81  | 111,10 € |
| S-HELIX-12R1-L   | 12               | 12 | 26 | 71 | 1   | 109 | 129,25 € |
| S-HELIX-12R1-LL  | 12               | 12 | 26 | 86 | 1   | 117 | 131,23 € |

## I Z5 HELIX: FRESA HELICE VARIABLE 43°/45° Radio <65HRC

MULTIUSOS / ALTO RENDIMIENTO / CUELLO REBAJADO 1°

**EN** Z5 HELIX: U.H. A. 43-35° | REDUCED NECK 1° | HIGH PERFORMANCE | MULTI PURPOSE | CORNER RADIUS

**FR** Z5 HELIX: H.D. 43-35° | DE HAUTE PERFORMANCE

**DE** Z5 HELIX: U. D. 43-35° | HOCHLEISTUNGSBEARBEITUNG



| Ref.            | Dimensiones (mm) |    |    |     |   |     | Precio € |
|-----------------|------------------|----|----|-----|---|-----|----------|
| 5 Flutes (Z5)   | Dc               | d  | Lc | C   | R | L   |          |
| S-HELIX-16R2-C  | 16               | 16 | 38 | –   | 2 | 81  | 138,03 € |
| S-HELIX-16R2-M  | 16               | 16 | 38 | 61  | 2 | 109 | 153,22 € |
| S-HELIX-16R2-L  | 16               | 16 | 38 | 76  | 2 | 109 | 155,58 € |
| S-HELIX-16R2-LL | 16               | 16 | 38 | 101 | 2 | 150 | 215,61 € |
| S-HELIX-20R2-C  | 20               | 20 | 45 | –   | 2 | 100 | 208,12 € |
| S-HELIX-20R2-M  | 20               | 20 | 45 | 71  | 2 | 109 | 230,26 € |
| S-HELIX-20R2-L  | 20               | 20 | 45 | 86  | 2 | 130 | 246,53 € |
| S-HELIX-20R2-LL | 20               | 20 | 45 | 101 | 2 | 150 | 320,25 € |

## Z5 HELIX: FRESA H.V. 43°/45° Radio <55HRC Refrigeración central MULTIUSOS / ALTO RENDIMIENTO / CUELLO REBAJADO 1°

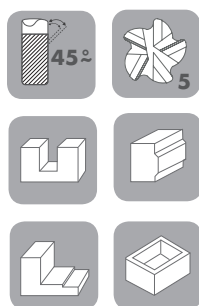
**EN** Z5 HELIX: U.H.A. 43-35° | R. NECK 1° | H. PERFORMANCE | MULTI PURPOSE | CORNER RADIUS | COOLANT  
**FR** Z5 HELIX: H. D. 43-35° | HAUTE PERFORMANCE  
**DE** Z5 HELIX: U.D. 43-35° | HOCHLEISTUNGSBEARBEITUNG

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 56 HRC.

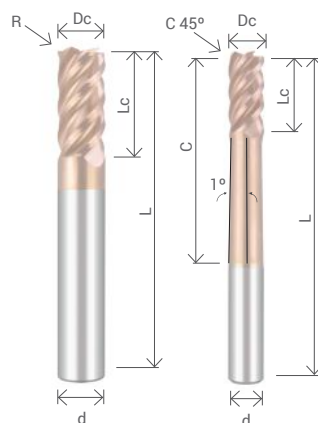
**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 56 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusqu'à 56 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 56 HRC.



**ALTIN TITAN**



### CUELLO REBAJADO A 1°

| Ref.             | Dimensiones (mm) |    |    |    |     |     | Precio € |
|------------------|------------------|----|----|----|-----|-----|----------|
| 5 Flutes (Z5)    | Dc               | d  | Lc | C  | R   | L   |          |
| HELIX-06R05-C-O  | 6                | 6  | 14 | —  | 0,5 | 53  | 40,60 €  |
| HELIX-06R05-M-O  | 6                | 6  | 14 | 32 | 0,5 | 65  | 47,90 €  |
| HELIX-06R05-L-O  | 6                | 6  | 14 | 42 | 0,5 | 75  | 49,90 €  |
| HELIX-06R05-LL-O | 6                | 6  | 14 | 51 | 0,5 | 81  | 55,50 €  |
| HELIX-08R05-C-O  | 8                | 8  | 18 | —  | 0,5 | 60  | 52,70 €  |
| HELIX-08R05-M-O  | 8                | 8  | 18 | 42 | 0,5 | 75  | 59,00 €  |
| HELIX-08R05-L-O  | 8                | 8  | 18 | 58 | 0,5 | 90  | 65,60 €  |
| HELIX-08R05-LL-O | 8                | 8  | 18 | 71 | 0,5 | 109 | 73,50 €  |
| HELIX-10R05-C-O  | 10               | 10 | 22 | —  | 0,5 | 65  | 71,00 €  |
| HELIX-10R05-M-O  | 10               | 10 | 22 | 51 | 0,5 | 81  | 78,30 €  |
| HELIX-10R05-L-O  | 10               | 10 | 22 | 71 | 0,5 | 109 | 95,00 €  |
| HELIX-10R05-LL-O | 10               | 10 | 22 | 82 | 0,5 | 109 | 96,20 €  |
| HELIX-12R1-C-O   | 12               | 12 | 26 | —  | 1   | 81  | 112,60 € |

## **Z5 HELIX: FRESA H.V. 43°/45° Radio <55HRC Refrigeración central** MULTIUSOS / ALTO RENDIMIENTO / CUELLO REBAJADO 1°

**EN** Z5 HELIX: U.H.A. 43-35° | R. NECK 1° | H. PERFORMANCE | MULTI PURPOSE | CORNER RADIUS | COOLANT

**FR** Z5 HELIX: H. D. 43-35° | HAUTE PERFORMANCE

**DE** Z5 HELIX: U.D. 43-35° | HOCHLEISTUNGSBEARBEITUNG



| Ref.            | Dimensiones (mm) |    |    |     |   |     | Precio € |
|-----------------|------------------|----|----|-----|---|-----|----------|
| 5 Flutes (Z5)   | Dc               | d  | Lc | C   | R | L   |          |
| HELIX-12R1-M-O  | 12               | 12 | 26 | 51  | 1 | 81  | 120,00 € |
| HELIX-12R1-L-O  | 12               | 12 | 26 | 71  | 1 | 109 | 141,50 € |
| HELIX-12R1-LL-O | 12               | 12 | 26 | 86  | 1 | 117 | 143,30 € |
| HELIX-16R2-C-O  | 16               | 16 | 38 | —   | 2 | 81  | 154,00 € |
| HELIX-16R2-M-O  | 16               | 16 | 38 | 61  | 2 | 109 | 176,20 € |
| HELIX-16R2-L-O  | 16               | 16 | 38 | 76  | 2 | 109 | 178,40 € |
| HELIX-16R2-LL-O | 16               | 16 | 38 | 101 | 2 | 150 | 234,50 € |
| HELIX-20R2-C-O  | 20               | 20 | 45 | —   | 2 | 100 | 231,40 € |
| HELIX-20R2-M-O  | 20               | 20 | 45 | 71  | 2 | 109 | 264,70 € |
| HELIX-20R2-L-O  | 20               | 20 | 45 | 86  | 2 | 130 | 283,40 € |
| HELIX-20R2-LL-O | 20               | 20 | 45 | 101 | 2 | 150 | 347,20 € |

## I Z4 HYPERBALL: FRESA HÉLICE VARIABLE ESFÉRICA

**EN** Z4 HYPERBALL: BALL NOSE END MILL | UNEQUAL HELIX ANGLES

**FR** Z4 HYPERBALL: FRAISE CYLINDRIQUE HÉMISPHERIQUE | HÉLICE DIFFÉRENTE

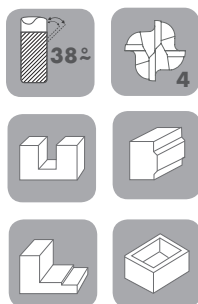
**DE** Z4 HYPERBALL: UNGLEICHER DRALLWINKEL | KUGELFRÄSER

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 65 HRC.

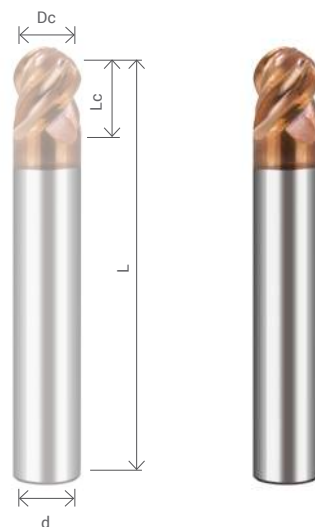
**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 65 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusq'ua 65 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 65 HRC.



ALTISIN



| Ref.          | Dimensiones (mm) |    |    |     | Precio € |
|---------------|------------------|----|----|-----|----------|
| 4 Flutes (Z4) | Dc               | d  | Lc | L   |          |
| HPB-4060      | 6                | 6  | 8  | 50  | 19,20 €  |
| HPB-4060L     | 6                | 6  | 8  | 80  | 25,18 €  |
| HPB-4060XL    | 6                | 6  | 8  | 100 | 27,73 €  |
| HPB-4060XXL   | 6                | 6  | 8  | 150 | 36,54 €  |
| HPB-4080      | 8                | 8  | 10 | 60  | 24,58 €  |
| HPB-4080L     | 8                | 8  | 10 | 100 | 34,84 €  |
| HPB-4080XL    | 8                | 8  | 10 | 150 | 47,03 €  |
| HPB-4100      | 10               | 10 | 13 | 72  | 36,34 €  |
| HPB-4100L     | 10               | 10 | 13 | 100 | 50,07 €  |
| HPB-4100XL    | 10               | 10 | 13 | 150 | 66,76 €  |
| HPB-4100XXL   | 10               | 10 | 13 | 200 | 93,76 €  |
| HPB-4120      | 12               | 12 | 15 | 75  | 49,77 €  |
| HPB-4120L     | 12               | 12 | 15 | 100 | 70,13 €  |
| HPB-4120XL    | 12               | 12 | 15 | 150 | 97,65 €  |
| HPB-4120XXL   | 12               | 12 | 15 | 200 | 114,47 € |

## I Z4 HYPERBALL: FRESA HÉLICE VARIABLE ESFÉRICA. CÓNICA 1,5°

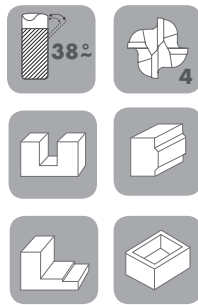
- EN** Z4 HYPERBALL: BALL NOSE END MILL | UNEQUAL HELIX ANGLES | CONICAL 1,5°  
**FR** Z4 HYPERBALL: FRAISE CYLINDRIQUE HÉMISPHERIQUE | HÉLICE DIFFÉRENTE  
**DE** Z4 HYPERBALL: UNGLEICHER DRALLWINKEL | KUGELFRÄSER

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 65 HRC.

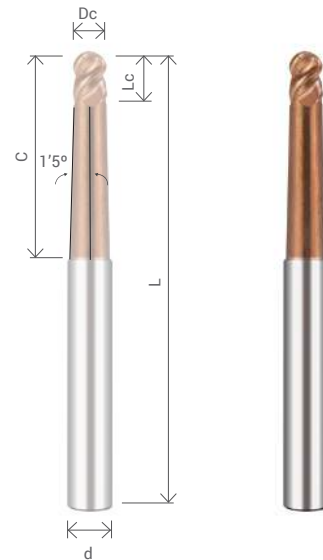
**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 65 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusqu'à 65 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 65 HRC.



**ALTISIN**



### CONICAS CON 1,5°

| Ref.          | Dimensiones (mm) |    |    |    |     | Precio € |
|---------------|------------------|----|----|----|-----|----------|
| 4 Flutes (Z4) | Dc               | d  | Lc | C  | L   |          |
| HPB-CON4060   | 6                | 8  | 8  | 32 | 80  | 35,82 €  |
| HPB-CON4060L  | 6                | 8  | 8  | 45 | 108 | 48,09 €  |
| HPB-CON4080   | 8                | 10 | 10 | 32 | 80  | 51,64 €  |
| HPB-CON4080L  | 8                | 10 | 10 | 48 | 108 | 63,12 €  |

## FRESA TURBO ALTO AVANCE Serie Normal

- EN** TURBO HIGH FEED END MILL | Normal series  
**FR** TURBO FRAISE CYLINDRIQUE DE HAUTE AVANCE | Normale  
**DE** TURBO HOCHVORSCHUBFRÄSER | Normale

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 65 HRC.

**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 65 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusqu'à 65 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 65 HRC.



ALTISIN



### SERIE NORMAL

| Ref.            | Dimensiones (mm) |    |     |     |    |    | Precio € |
|-----------------|------------------|----|-----|-----|----|----|----------|
| 4 Flutes (Z4)   | Dc               | d  | R   | Lc  | U  | L  |          |
| T-SEM4030X-R0,5 | 3                | 6  | 0,5 | 1,5 | 12 | 60 | 29,55 €  |
| T-SEM4040X-R0,5 | 4                | 6  | 0,5 | 2   | 12 | 60 | 29,55 €  |
| T-SEM4060X-R1.0 | 6                | 6  | 1   | 3   | 14 | 60 | 29,55 €  |
| T-SEM4080X-R2.0 | 8                | 8  | 2   | 4   | 18 | 60 | 37,75 €  |
| T-SEM4100X-R2.0 | 10               | 10 | 2   | 5   | 20 | 72 | 45,50 €  |
| T-SEM4120X-R2.0 | 12               | 12 | 2   | 6   | 22 | 83 | 63,15 €  |

L1.= Long rebajada del cuello  
d.= diametro mango

## I FRESA TURBO ALTO AVANCE Serie Larga

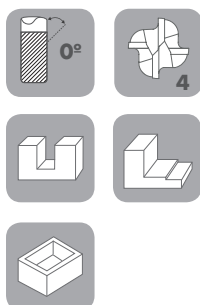
- EN** TURBO HIGH FEED END MILL | Long series  
**FR** TURBO FRAISE CYLINDRIQUE DE HAUTE AVANCE | Longue  
**DE** TURBO HOCHVORSCHUBFRÄSER | Lange

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 65 HRC.

**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 65 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusqu'à 65 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 65 HRC.



**ALTISIN**



### SERIE LARGA

| Ref.             | Dimensiones (mm) |    |     |     |    |     | Precio € |
|------------------|------------------|----|-----|-----|----|-----|----------|
| 4 Flutes (Z4)    | Dc               | d  | R   | Lc  | U  | L   |          |
| T-SEM4030XL-R0,5 | 3                | 6  | 0,5 | 1,5 | 20 | 80  | 36,84 €  |
| T-SEM4040XL-R0,5 | 4                | 6  | 0,5 | 2   | 20 | 80  | 36,84 €  |
| T-SEM4060XL-R1.0 | 6                | 6  | 1   | 3   | 30 | 80  | 36,84 €  |
| T-SEM4080XL-R2.0 | 8                | 8  | 2   | 4   | 40 | 80  | 46,43 €  |
| T-SEM4100XL-R2.0 | 10               | 10 | 2   | 5   | 50 | 100 | 55,97 €  |
| T-SEM4120XL-R2.0 | 12               | 12 | 2   | 6   | 50 | 110 | 77,67 €  |

L1.= Long rebajada del cuello  
d.= diametro mango

## I FRESA PARA ACHAFLANAR 60°

EN COUNTERSINKER, 60°

FR CHAMFREIN, 60°

DE KEGELSENKER, 60°

ES Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 56 HRC.

EN Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 56 HRC.

FR Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusqu'à 56 HRC.

DE Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 56 HRC.



**ALTIN**



| Ref.          | Dimensiones (mm) |    |   |    | Precio € |
|---------------|------------------|----|---|----|----------|
|               | Dc               | d  | Z | L  |          |
| ACH60-SEM4040 | 4                | 4  | 4 | 50 | 10,75 €  |
| ACH60-SEM4060 | 6                | 6  | 4 | 50 | 15,25 €  |
| ACH60-SEM4080 | 8                | 8  | 4 | 60 | 19,50 €  |
| ACH60-SEM4100 | 10               | 10 | 4 | 72 | 28,90 €  |
| ACH60-SEM6100 | 10               | 10 | 6 | 72 | 28,90 €  |
| ACH60-SEM4120 | 12               | 12 | 4 | 75 | 39,50 €  |
| ACH60-SEM6120 | 12               | 12 | 6 | 75 | 39,50 €  |

## I FRESA PARA ACHAFLANAR 90°

**EN** COUNTERSINKER, 90°

**FR** CHAMFREIN, 90°

**DE** KEGELSENKER, 90°

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 56 HRC.

**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 56 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusq'ua 56 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 56 HRC.



**ALTIN**



| Ref.          | Dimensiones (mm) |    |   |    | Precio € |
|---------------|------------------|----|---|----|----------|
| REF.          | Dc               | d  | Z | L  |          |
| ACH90-SEM4040 | 4                | 4  | 4 | 50 | 10,75 €  |
| ACH90-SEM4060 | 6                | 6  | 4 | 50 | 15,25 €  |
| ACH90-SEM4080 | 8                | 8  | 4 | 60 | 19,50 €  |
| ACH90-SEM6080 | 8                | 8  | 6 | 60 | 19,50 €  |
| ACH90-SEM4100 | 10               | 10 | 4 | 72 | 28,90 €  |
| ACH90-SEM6100 | 10               | 10 | 6 | 72 | 28,90 €  |
| ACH90-SEM4120 | 12               | 12 | 4 | 75 | 39,50 €  |
| ACH90-SEM6120 | 12               | 12 | 6 | 75 | 39,50 €  |
| ACH90-SEM4160 | 16               | 16 | 4 | 92 | 78,50 €  |
| ACH90-SEM6160 | 16               | 16 | 6 | 92 | 78,50 €  |

## I Z5 TROCOIDAL: FRESA DE ALTO RENDIMIENTO CUELLO REBAJADO

**EN** Z5 TROCHOIDAL. HIGH PERFORMANCE END MILL | REDUCED NECK

**FR** Z5 TROCOIDALE. FRAISE DE HAUTE PERFORMANCE

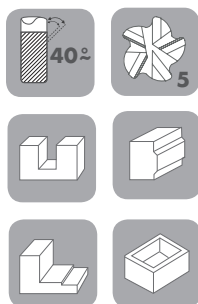
**DE** Z5 TROCHOIDALFRÄSER. UNGLEICHER DRALLWINKEL HOCHLEISTUNGSBEARBEITUNG

**ES** Acero, Acero Inoxidable, Fundición Gris, Cobre, Titanio, Aleaciones Resistentes al Calor y Aceros hasta 56 HRC.

**EN** Steel, Stainless Steel, Cast Iron, Cooper, Titanium, Heat Resistance Alloys and Hardened Steels up to 56 HRC.

**FR** Acier, Acier Inoxydable, Fonte Grise, Cuivre, Titane, Alliages de Résistance à la Chaleur et Acier Jusq'ua 56 HRC.

**DE** Stahl, Rostfreier Stahl, Gubeisen, Kupfer, Titan, Warmfeste Legierungen und Gehärteter Stahl 56 HRC.



**ALTIN NANO**



### ALTO RENDIMIENTO

| Ref.          | Dimensiones (mm) |    |    |    |       |     | Precio € |
|---------------|------------------|----|----|----|-------|-----|----------|
| 5 Flutes (Z5) | Dc               | d  | Lc | U  | C-45° | L   |          |
| TR-5060U25H   | 6                | 6  | 18 | 25 | 0,1   | 62  | 23,95 €  |
| TR-5080U30H   | 8                | 8  | 24 | 30 | 0,15  | 70  | 29,65 €  |
| TR-5100U35H   | 10               | 10 | 30 | 35 | 0,2   | 80  | 42,70 €  |
| TR-5120U45H   | 12               | 12 | 36 | 45 | 0,2   | 94  | 59,97 €  |
| TR-5160U55H   | 16               | 16 | 48 | 55 | 0,4   | 110 | 107,83 € |
| TR-5200U70H   | 20               | 20 | 60 | 70 | 0,4   | 126 | 156,23 € |