# ATD TOOLS

## CARBIDE END MILLS
## CORTADORES DE CARBURO



*General Purpose Line*
*Linea de Uso General*

2023

# END MILL

*Introduccion*

Un "end mill" es una herramienta de corte utilizada en el mecanizado industrial para dar forma, cortar y ranurar materiales, especialmente metales. También se conoce como "fresa de extremo" o simplemente "fresa".
Este tipo de herramienta se utiliza en fresadoras o maquinas CNC que son máquinas que realizan operaciones de corte en piezas de trabajo.

Los "end mill" se caracterizan por tener una estructura cilíndrica o cónica, con filos cortantes en la parte superior y en los lados.
Estos filos permiten que la fresa pueda cortar tanto en la parte superior de la pieza como en los laterales, lo que le brinda versatilidad en diversas aplicaciones

Los "end mills" pueden tener diferentes formas y geometrías, dependiendo del tipo de trabajo que se vaya a realizar.

El material del que está fabricada la "end mill" también es importante, ya que influye en su durabilidad y rendimiento.
Las fresas de alta calidad suelen estar hechas de carburo de tungsteno, que es un material resistente y duradero.
También existen fresas recubiertas con materiales como nitruro de titanio (TiN) o nitruro de titanio y aluminio (TiAlN) para mejorar su capacidad de corte y aumentar su vida útil.



# ATD TOOLS

## Material Selection



**HSS**



**CARBIDE**

| CATEGORY (Categoria) | HSS (High Speed Steel) Acero Rapido | CARBIDE (Carburo de Tungsteno) |
|---|---|---|
| Mild Steel (Acero Dulce) | ✓ | ✓ |
| Structural Steel (Acero Estructural) | ✓ | ✓ |
| Construction Steel (Acero de Construccion) | ✓ | ✓ |
| High Strength Steel (Acero de Alta Resistencia) | | ✓ |
| Fine Grain Steel (Acero de Grano Fino) | | ✓ |
| Stainless Steel (Acero Inoxidable) | | ✓ |
| Aluminium (Aluminio) | ✓ | ✓ |
| Copper/Brass (Cobre/Laton) | ✓ | ✓ |
| Cast Iron (Hierro Fundido) | | ✓ |
| Plastics (Plasticos) | ✓ | |

# COATING

El “Coating” o recubrimiento de un “End Mill” se refiere a una capa delgada de material que se aplica a la superficie del cortador.
El revestimiento está diseñado para mejorar el rendimiento, la durabilidad y la eficiencia de la herramienta al cortar varios materiales.
Se han desarrollado diferentes tipos de recubrimiento para adaptarse a aplicaciones específicas y materiales de piezas de trabajo.

| COATING (RECUBRIMIENTO) | TiN | TiCN | TiCN-MP | TiAlCN | TiAlN | AlTiN | CRN | NACO | NACRO |
|---|---|---|---|---|---|---|---|---|---|
| STRUCTURE | Monolayer | Gradient | Gradient | Gradient | Multilayer | Gradient | Monolayer | Gradient | Gradient |
| NANO HARDNESS (GPA) | 24 | 37 | 32 | 28 | 28 | 38 | 18 | 45 | 40 |
| FRICTION COEFICIENT | 0.55 | 0.2 | 0.2 | 0.3 | 0.6 | 0.7 | 0.3 | 0.45 | 0.35 |
| THICKNESS (µm)* | 1 - 5 | 1 - 4 | 1 - 4 | 1 - 4 | 1 - 4 | 1 - 3 | 1 - 4 | 1 - 4 | 1 - 7 |
| THERMAL THRESHOLD | 600°C (100°F) | 400°C (750°F) | 400°C (750°F) | 500°C (930°F) | 750°C (1382°F) | 900°C (1650°F) | 700°C (1290°F) | 1200°C (2192°F) | 1100°C (2012°F) |
| COLOR | Golden - Yellow | Blue - Gray | Light Red | Red Copper | Violet | Blue - Black | Silver | Viloet - Blue | Blue -Gray |



# COATING

| MATERIAL | HARDNESS | SUGGESTED COATING | PREMIUM COATING |
|---|---|---|---|
| **ALUMINUM** | | TiCN | TiCN |
| **ALLOY STEEL** | 160-240 HBn | TiN | AlTiN |
| | 23-38 | AlTiN | NACO |
| | Less than 38 | AlTiN | NACO |
| **CARBON STEEL** | 160-240 HBn | TiN | AlTiN |
| | 23-38 | TiN | AlTiN |
| | Less than 38 | AlTiN | NACRO |
| **LOW CARBON STEEL** | 130-240 HBn | TiCN | TiCN |
| | 23-38 | TiN | AlTiN |
| | Less than 38 | AlTiN | NACRO |
| **GRAY CAST IRON** | 180-220 HBn | AlTiN | NACRO |
| **NODULAR CAST IRON** | 220-320 HBn | AlTiN | NACRO |
| **AUSTENETIC STAINLESS STEEL** | 180-220 HBn | TiCN | TiCN |
| | Less than 35 | AlTiN | NACRO |
| **MARTINSITIC STAINLESS STEEL** | Less than or 35 | AlTiN | NACRO |
| **PH STAINLESS STEEL** | Greater than 35 | AlTiN | NACRO |
| | Less than or 35 | AlTiN | NACRO |
| **NI, CO, FE, BASED SUPERALLOYS** | | AlTiN | NACRO |
| **TITANIUM** | | AlTiN | NACRO |
| **COPPER** | | TiCN | TiCN |
| **BRASS** | 65-135 HBn | TiCN | TiCN |

ATD TOOLS

# TUNGSTEN CARBIDE END MILLS

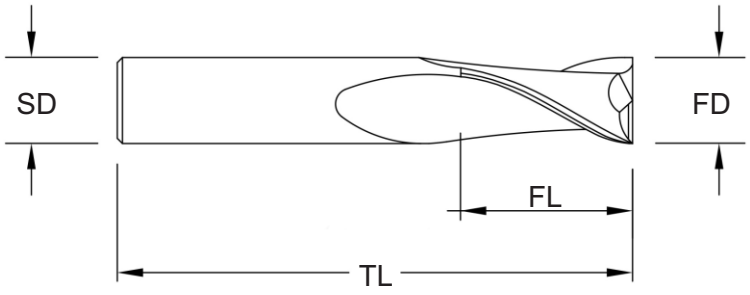
*Cortadores de Carburo de Tungsteno*

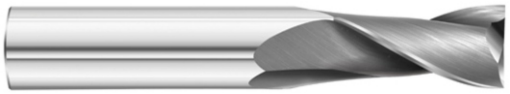


# ATD TOOLS

## Carbide End Mill 2 Flute Flat Bright Regular Length

*Cortadores de carburo de 2 filos planos sin recubrimiento de longitud regular*



*Recommended for processing non ferrous materials such as aluminum, copper and bronze.*

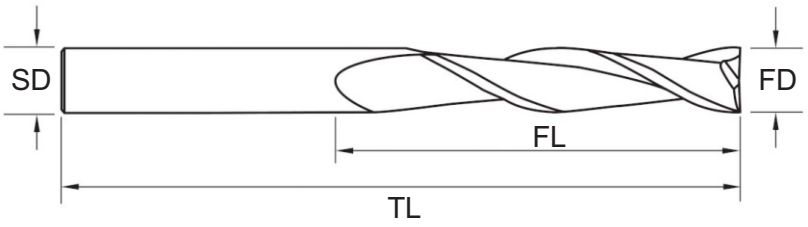
*Recomendado para el procesamiento de materiales no ferrosos como el aluminio, cobre y bronce.*

| Flute Diameter (FD) Diametro de Corte | Flute Length (FL) Longitud de Corte | Shank Diameter (SD) Diametro del Zanco | Total Length (TL) Longitud Total | Flutes Filos | ATD PART # Numero de Parte |
|---|---|---|---|---|---|
| 1/32 | 1/8 | 1/8 | 1 1/2 | 2 | ATD-EM2F0312 |
| 3/64 | 9/64 | 1/8 | 1 1/2 | 2 | ATD-EM2F0468 |
| 1/16 | 3/16 | 1/8 | 1 1/2 | 2 | ATD-EM2F0625 |
| 5/64 | 1/4 | 1/8 | 1 1/2 | 2 | ATD-EM2F0781 |
| 3/32 | 5/16 | 1/8 | 1 1/2 | 2 | ATD-EM2F0937 |
| 7/64 | 3/8 | 1/8 | 1 1/2 | 2 | ATD-EM2F1093 |
| 1/8 | 1/2 | 1/8 | 1 1/2 | 2 | ATD-EM2F1250 |
| 9/64 | 1/2 | 3/16 | 2 | 2 | ATD-EM2F1406 |
| 5/32 | 9/16 | 3/16 | 2 | 2 | ATD-EM2F1562 |
| 11/64 | 9/16 | 3/16 | 2 | 2 | ATD-EM2F1718 |
| 3/16 | 5/8 | 3/16 | 2 | 2 | ATD-EM2F1875 |
| 13/64 | 5/8 | 1/4 | 2 1/2 | 2 | ATD-EM2F2031 |
| 7/32 | 5/8 | 1/4 | 2 1/2 | 2 | ATD-EM2F2187 |
| 1/4 | 3/4 | 1/4 | 2 1/2 | 2 | ATD-EM2F2500 |
| 9/32 | 3/4 | 5/16 | 2 1/2 | 2 | ATD-EM2F2812 |
| 5/16 | 13/16 | 5/16 | 2 1/2 | 2 | ATD-EM2F3125 |
| 11/32 | 7/8 | 3/8 | 2 1/2 | 2 | ATD-EM2F3437 |
| 3/8 | 1 | 3/8 | 2 1/2 | 2 | ATD-EM2F3750 |
| 13/32 | 1 | 7/16 | 2 3/4 | 2 | ATD-EM2F4062 |
| 7/16 | 1 | 7/16 | 2 3/4 | 2 | ATD-EM2F4375 |
| 1/2 | 1 | 1/2 | 3 | 2 | ATD-EM2F5000 |
| 9/16 | 1 1/8 | 9/16 | 3 1/2 | 2 | ATD-EM2F5625 |
| 5/8 | 1 1/4 | 5/8 | 3 1/2 | 2 | ATD-EM2F6250 |
| 11/16 | 1 3/8 | 3/4 | 4 | 2 | ATD-EM2F6875 |
| 3/4 | 1 1/2 | 3/4 | 4 | 2 | ATD-EM2F7500 |
| 7/8 | 1 1/2 | 7/8 | 4 | 2 | ATD-EM2F8750 |
| 1 | 1 1/2 | 1 | 4 | 2 | ATD-EM2F1000 |

# ATD TOOLS

## Carbide End Mill 2 Flute Flat Bright Extra Length

*Cortadores de carburo de 2 filos planos sin recubrimiento de longitud extra larga*






*Recommended for processing non ferrous materials such as aluminum, copper and bronze.*

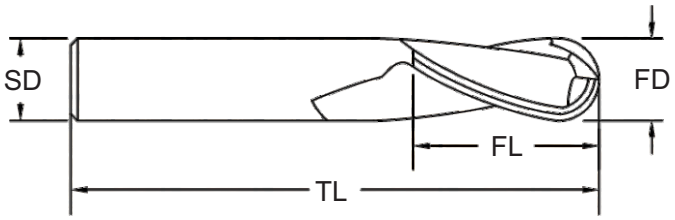
*Recomendado para el procesamiento de materiales no ferrosos como el aluminio, cobre y bronce.*

| Flute Diameter (FD)<br>Diametro de Corte | Flute Length (FL)<br>Longitud de Corte | Shank Diameter (SD)<br>Diametro del Zanco | Total Length (TL)<br>Longitud Total | Flutes<br>Filos | ATD PART #<br>Numero de Parte |
|---|---|---|---|---|---|
| 1/32 | 1/4 | 1/8 | 3 | 2 | ATD-EM2F0312XL |
| 3/64 | 9/32 | 1/8 | 3 | 2 | ATD-EM2F0468XL |
| 1/16 | 3/8 | 1/8 | 3 | 2 | ATD-EM2F0625XL |
| 5/64 | 1/2 | 1/8 | 3 | 2 | ATD-EM2F0781XL |
| 3/32 | 5/8 | 1/8 | 3 | 2 | ATD-EM2F0937XL |
| 7/64 | 3/4 | 1/8 | 3 | 2 | ATD-EM2F1093XL |
| 1/8 | 1 | 1/8 | 3 | 2 | ATD-EM2F1250XL |
| 9/64 | 1 | 3/16 | 4 | 2 | ATD-EM2F1406XL |
| 5/32 | 1 1/8 | 3/16 | 4 | 2 | ATD-EM2F1562XL |
| 11/64 | 1 1/8 | 3/16 | 4 | 2 | ATD-EM2F1718XL |
| 3/16 | 1 1/4 | 3/16 | 4 | 2 | ATD-EM2F1875XL |
| 13/64 | 1 1/4 | 1/4 | 5 | 2 | ATD-EM2F2031XL |
| 7/32 | 1 1/4 | 1/4 | 5 | 2 | ATD-EM2F2187XL |
| 1/4 | 1 1/2 | 1/4 | 5 | 2 | ATD-EM2F2500XL |
| 9/32 | 1 1/2 | 5/16 | 5 | 2 | ATD-EM2F2812XL |
| 5/16 | 1 5/8 | 5/16 | 5 | 2 | ATD-EM2F3125XL |
| 11/32 | 1 3/4 | 3/8 | 5 | 2 | ATD-EM2F3437XL |
| 3/8 | 2 | 3/8 | 5 | 2 | ATD-EM2F3750XL |
| 13/32 | 2 | 7/16 | 5 1/2 | 2 | ATD-EM2F4062XL |
| 7/16 | 2 | 7/16 | 5 1/2 | 2 | ATD-EM2F4375XL |
| 1/2 | 2 | 1/2 | 6 | 2 | ATD-EM2F5000XL |
| 9/16 | 2 1/4 | 9/16 | 7 | 2 | ATD-EM2F5625XL |
| 5/8 | 2 1/2 | 5/8 | 7 | 2 | ATD-EM2F6250XL |
| 11/16 | 2 3/4 | 3/4 | 8 | 2 | ATD-EM2F6875XL |
| 3/4 | 3 | 3/4 | 8 | 2 | ATD-EM2F7500XL |
| 7/8 | 3 | 7/8 | 8 | 2 | ATD-EM2F8750XL |
| 1 | 3 | 1 | 8 | 2 | ATD-EM2F1000XL |

# ATD TOOLS

## Carbide End Mill 2 Flute Ball Bright Regular Length

*Cortadores de carburo de 2 filos de bola sin recubrimiento de longitud regular*






*Recommended for processing non ferrous materials such as aluminum, copper and bronze.*

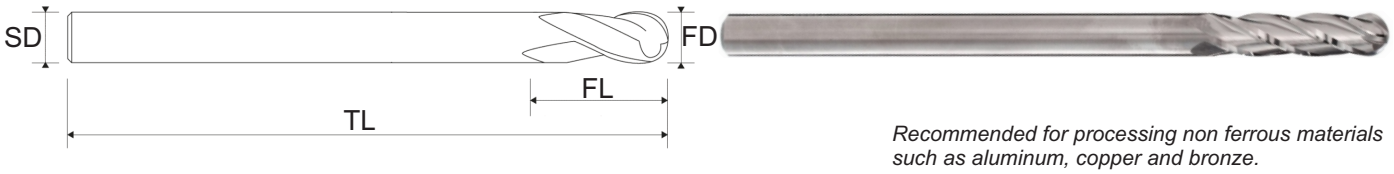
*Recomendado para el procesamiento de materiales no ferrosos como el aluminio, cobre y bronce.*

| Flute Diameter (FD)<br>Diametro de Corte | Flute Length (FL)<br>Longitud de Corte | Shank Diameter (SD)<br>Diametro del Zanco | Total Length (TL)<br>Longitud Total | Flutes<br>Filos | ATD PART #<br>Numero de Parte |
|---|---|---|---|---|---|
| 1/32 | 1/8 | 1/8 | 1 1/2 | 2 | ATD-EM2F0312FR |
| 3/64 | 9/64 | 1/8 | 1 1/2 | 2 | ATD-EM2F0468FR |
| 1/16 | 3/16 | 1/8 | 1 1/2 | 2 | ATD-EM2F0625FR |
| 5/64 | 1/4 | 1/8 | 1 1/2 | 2 | ATD-EM2F0781FR |
| 3/32 | 5/16 | 1/8 | 1 1/2 | 2 | ATD-EM2F0937FR |
| 7/64 | 3/8 | 1/8 | 1 1/2 | 2 | ATD-EM2F1093FR |
| 1/8 | 1/2 | 1/8 | 1 1/2 | 2 | ATD-EM2F1250FR |
| 9/64 | 1/2 | 3/16 | 2 | 2 | ATD-EM2F1406FR |
| 5/32 | 9/16 | 3/16 | 2 | 2 | ATD-EM2F1562FR |
| 11/64 | 9/16 | 3/16 | 2 | 2 | ATD-EM2F1718FR |
| 3/16 | 5/8 | 3/16 | 2 | 2 | ATD-EM2F1875FR |
| 13/64 | 5/8 | 1/4 | 2 1/2 | 2 | ATD-EM2F2031FR |
| 7/32 | 5/8 | 1/4 | 2 1/2 | 2 | ATD-EM2F2187FR |
| 1/4 | 3/4 | 1/4 | 2 1/2 | 2 | ATD-EM2F2500FR |
| 9/32 | 3/4 | 5/16 | 2 1/2 | 2 | ATD-EM2F2812FR |
| 5/16 | 13/16 | 5/16 | 2 1/2 | 2 | ATD-EM2F3125FR |
| 11/32 | 7/8 | 3/8 | 2 1/2 | 2 | ATD-EM2F3437FR |
| 3/8 | 1 | 3/8 | 2 1/2 | 2 | ATD-EM2F3750FR |
| 13/32 | 1 | 7/16 | 2 3/4 | 2 | ATD-EM2F4062FR |
| 7/16 | 1 | 7/16 | 2 3/4 | 2 | ATD-EM2F4375FR |
| 1/2 | 1 | 1/2 | 3 | 2 | ATD-EM2F5000FR |
| 9/16 | 1 1/8 | 9/16 | 3 1/2 | 2 | ATD-EM2F5625FR |
| 5/8 | 1 1/4 | 5/8 | 3 1/2 | 2 | ATD-EM2F6250FR |
| 11/16 | 1 3/8 | 3/4 | 4 | 2 | ATD-EM2F6875FR |
| 3/4 | 1 1/2 | 3/4 | 4 | 2 | ATD-EM2F7500FR |
| 7/8 | 1 1/2 | 7/8 | 4 | 2 | ATD-EM2F8750FR |
| 1 | 1 1/2 | 1 | 4 | 2 | ATD-EM2F1000FR |

# ATD TOOLS

## Carbide End Mill 2 Flute Ball Bright Extra Length

*Cortadores de carburo de 2 filos de bola sin recubrimiento de longitud extra larga*




*Recommended for processing non ferrous materials such as aluminum, copper and bronze.*

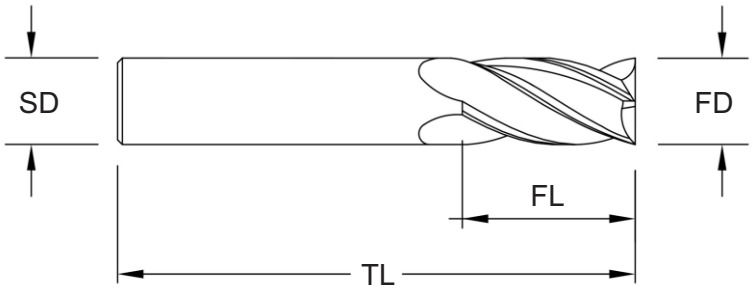
*Recomendado para el procesamiento de materiales no ferrosos como el aluminio, cobre y bronce.*

| Flute Diameter (FD) Diametro de Corte | Flute Length (FL) Longitud de Corte | Shank Diameter (SD) Diametro del Zanco | Total Length (TL) Longitud Total | Flutes Filos | ATD PART # Numero de Parte |
|---|---|---|---|---|---|
| 1/32 | 1/4 | 1/8 | 3 | 2 | ATD-EM2F0312FX |
| 3/64 | 9/32 | 1/8 | 3 | 2 | ATD-EM2F0468FX |
| 1/16 | 3/8 | 1/8 | 3 | 2 | ATD-EM2F0625FX |
| 5/64 | 1/2 | 1/8 | 3 | 2 | ATD-EM2F0781FX |
| 3/32 | 5/8 | 1/8 | 3 | 2 | ATD-EM2F0937FX |
| 7/64 | 3/4 | 1/8 | 3 | 2 | ATD-EM2F1093FX |
| 1/8 | 1 | 1/8 | 3 | 2 | ATD-EM2F1250FX |
| 9/64 | 1 | 3/16 | 4 | 2 | ATD-EM2F1406FX |
| 5/32 | 1 1/8 | 3/16 | 4 | 2 | ATD-EM2F1562FX |
| 11/64 | 1 1/8 | 3/16 | 4 | 2 | ATD-EM2F1718FX |
| 3/16 | 1 1/4 | 3/16 | 4 | 2 | ATD-EM2F1875FX |
| 13/64 | 1 1/4 | 1/4 | 5 | 2 | ATD-EM2F2031FX |
| 7/32 | 1 1/4 | 1/4 | 5 | 2 | ATD-EM2F2187FX |
| 1/4 | 1 1/2 | 1/4 | 5 | 2 | ATD-EM2F2500FX |
| 9/32 | 1 1/2 | 5/16 | 5 | 2 | ATD-EM2F2812FX |
| 5/16 | 1 5/8 | 5/16 | 5 | 2 | ATD-EM2F3125FX |
| 11/32 | 1 3/4 | 3/8 | 5 | 2 | ATD-EM2F3437FX |
| 3/8 | 2 | 3/8 | 5 | 2 | ATD-EM2F3750FX |
| 13/32 | 2 | 7/16 | 5 1/2 | 2 | ATD-EM2F4062FX |
| 7/16 | 2 | 7/16 | 5 1/2 | 2 | ATD-EM2F4375FX |
| 1/2 | 2 | 1/2 | 6 | 2 | ATD-EM2F5000FX |
| 9/16 | 2 1/4 | 9/16 | 7 | 2 | ATD-EM2F5625FX |
| 5/8 | 2 1/2 | 5/8 | 7 | 2 | ATD-EM2F6250FX |
| 11/16 | 2 3/4 | 3/4 | 8 | 2 | ATD-EM2F6875FX |
| 3/4 | 3 | 3/4 | 8 | 2 | ATD-EM2F7500FX |
| 7/8 | 3 | 7/8 | 8 | 2 | ATD-EM2F8750FX |
| 1 | 3 | 1 | 8 | 2 | ATD-EM2F1000FX |

# ATD TOOLS

## Carbide End Mill 4 Flute Flat Regular Length

*Cortadores de carburo de 4 filos planos sin recubrimiento de longitud regular*






*Recommended for processing ferrous materials such as steel, carbon steel, stainless steel, etc.*

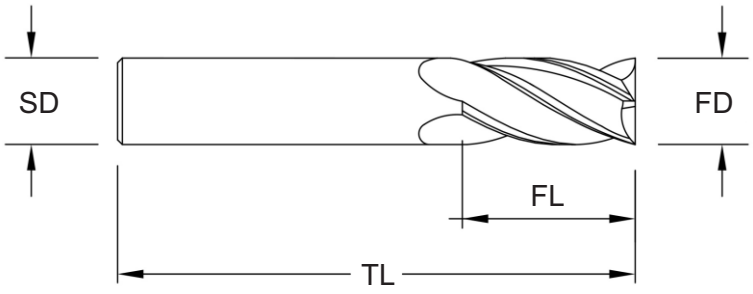
*Recomendado para el procesamiento de materiales ferrosos como acero, acero al carbon, acero inoxidable, etc.*

| Flute Diameter (FD) Diametro de Corte | Flute Length (FL) Longitud de Corte | Shank Diameter (SD) Diametro del Zanco | Total Length (TL) Longitud Total | Flutes Filos | ATD PART # Numero de Parte |
|---|---|---|---|---|---|
| 1/32 | 1/8 | 1/8 | 1 1/2 | 4 | ATD-EM4F0312 |
| 3/64 | 9/64 | 1/8 | 1 1/2 | 4 | ATD-EM4F0468 |
| 1/16 | 3/16 | 1/8 | 1 1/2 | 4 | ATD-EM4F0625 |
| 5/64 | 1/4 | 1/8 | 1 1/2 | 4 | ATD-EM4F0781 |
| 3/32 | 5/16 | 1/8 | 1 1/2 | 4 | ATD-EM4F0937 |
| 7/64 | 3/8 | 1/8 | 1 1/2 | 4 | ATD-EM4F1093 |
| 1/8 | 1/2 | 1/8 | 1 1/2 | 4 | ATD-EM4F1250 |
| 9/64 | 1/2 | 3/16 | 2 | 4 | ATD-EM4F1406 |
| 5/32 | 9/16 | 3/16 | 2 | 4 | ATD-EM4F1562 |
| 11/64 | 9/16 | 3/16 | 2 | 4 | ATD-EM4F1718 |
| 3/16 | 5/8 | 3/16 | 2 | 4 | ATD-EM4F1875 |
| 13/64 | 5/8 | 1/4 | 2 1/2 | 4 | ATD-EM4F2031 |
| 7/32 | 5/8 | 1/4 | 2 1/2 | 4 | ATD-EM4F2187 |
| 1/4 | 3/4 | 1/4 | 2 1/2 | 4 | ATD-EM4F2500 |
| 9/32 | 3/4 | 5/16 | 2 1/2 | 4 | ATD-EM4F2812 |
| 5/16 | 13/16 | 5/16 | 2 1/2 | 4 | ATD-EM4F3125 |
| 11/32 | 7/8 | 3/8 | 2 1/2 | 4 | ATD-EM4F3437 |
| 3/8 | 1 | 3/8 | 2 1/2 | 4 | ATD-EM4F3750 |
| 13/32 | 1 | 7/16 | 2 3/4 | 4 | ATD-EM4F4062 |
| 7/16 | 1 | 7/16 | 2 3/4 | 4 | ATD-EM4F4375 |
| 1/2 | 1 | 1/2 | 3 | 4 | ATD-EM4F5000 |
| 9/16 | 1 1/8 | 9/16 | 3 1/2 | 4 | ATD-EM4F5625 |
| 5/8 | 1 1/4 | 5/8 | 3 1/2 | 4 | ATD-EM4F6250 |
| 11/16 | 1 3/8 | 3/4 | 4 | 4 | ATD-EM4F6875 |
| 3/4 | 1 1/2 | 3/4 | 4 | 4 | ATD-EM4F7500 |
| 7/8 | 1 1/2 | 7/8 | 4 | 4 | ATD-EM4F8750 |
| 1 | 1 1/2 | 1 | 4 | 4 | ATD-EM4F1000 |

# ATD TOOLS

## Carbide End Mill 4 Flute Flat TiAlN Coating Regular Length

*Cortadores de carburo de 4 filos planos con recubrimiento TiAlN de longitud regular*






*Recommended for processing ferrous materials such as steel, carbon steel, stainless steel, etc.*

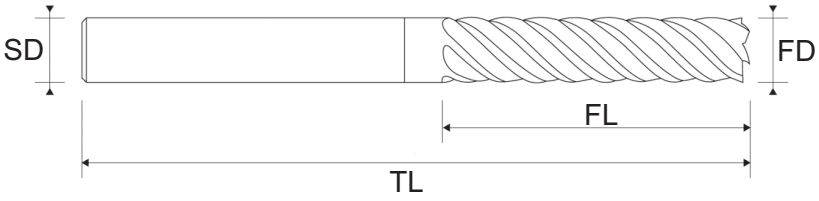
*Recomendado para el procesamiento de materiales ferrosos como acero, acero al carbon, acero inoxidable, etc.*

| Flute Diameter (FD)<br>Diametro de Corte | Flute Length (FL)<br>Longitud de Corte | Shank Diameter (SD)<br>Diametro del Zanco | Total Length (TL)<br>Longitud Total | Flutes<br>Filos | ATD PART #<br>Numero de Parte |
|---|---|---|---|---|---|
| 1/32 | 1/8 | 1/8 | 1 1/2 | 4 | ATD-EM4F0312TA |
| 3/64 | 9/64 | 1/8 | 1 1/2 | 4 | ATD-EM4F0468TA |
| 1/16 | 3/16 | 1/8 | 1 1/2 | 4 | ATD-EM4F0625TA |
| 5/64 | 1/4 | 1/8 | 1 1/2 | 4 | ATD-EM4F078TA |
| 3/32 | 5/16 | 1/8 | 1 1/2 | 4 | ATD-EM4F0937TA |
| 7/64 | 3/8 | 1/8 | 1 1/2 | 4 | ATD-EM4F1093TA |
| 1/8 | 1/2 | 1/8 | 1 1/2 | 4 | ATD-EM4F1250TA |
| 9/64 | 1/2 | 3/16 | 2 | 4 | ATD-EM4F1406TA |
| 5/32 | 9/16 | 3/16 | 2 | 4 | ATD-EM4F1562TA |
| 11/64 | 9/16 | 3/16 | 2 | 4 | ATD-EM4F1718TA |
| 3/16 | 5/8 | 3/16 | 2 | 4 | ATD-EM4F1875TA |
| 13/64 | 5/8 | 1/4 | 2 1/2 | 4 | ATD-EM4F2031TA |
| 7/32 | 5/8 | 1/4 | 2 1/2 | 4 | ATD-EM4F2187TA |
| 1/4 | 3/4 | 1/4 | 2 1/2 | 4 | ATD-EM4F2500TA |
| 9/32 | 3/4 | 5/16 | 2 1/2 | 4 | ATD-EM4F2812TA |
| 5/16 | 13/16 | 5/16 | 2 1/2 | 4 | ATD-EM4F3125TA |
| 11/32 | 7/8 | 3/8 | 2 1/2 | 4 | ATD-EM4F3437TA |
| 3/8 | 1 | 3/8 | 2 1/2 | 4 | ATD-EM4F3750TA |
| 13/32 | 1 | 7/16 | 2 3/4 | 4 | ATD-EM4F4062TA |
| 7/16 | 1 | 7/16 | 2 3/4 | 4 | ATD-EM4F4375TA |
| 1/2 | 1 | 1/2 | 3 | 4 | ATD-EM4F5000TA |
| 9/16 | 1 1/8 | 9/16 | 3 1/2 | 4 | ATD-EM4F5625TA |
| 5/8 | 1 1/4 | 5/8 | 3 1/2 | 4 | ATD-EM4F6250TA |
| 11/16 | 1 3/8 | 3/4 | 4 | 4 | ATD-EM4F6875TA |
| 3/4 | 1 1/2 | 3/4 | 4 | 4 | ATD-EM4F7500TA |
| 7/8 | 1 1/2 | 7/8 | 4 | 4 | ATD-EM4F8750TA |
| 1 | 1 1/2 | 1 | 4 | 4 | ATD-EM4F1000TA |

# ATD TOOLS

## Carbide End Mill 4 Flute Flat TiAlN Coating Extra Length

*Cortadores de carburo de 4 filos planos con recubrimiento TiAlN de longitud extra larga*






*Recommended for processing ferrous materials such as steel, carbon steel, stainless steel, etc.*

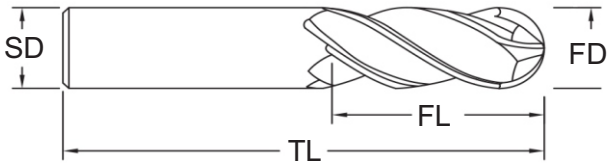
*Recomendado para el procesamiento de materiales ferrosos como acero, acero al carbon, acero inoxidable, etc.*

| Flute Diameter (FD)<br>Diametro de Corte | Flute Length (FL)<br>Longitud de Corte | Shank Diameter (SD)<br>Diametro del Zanco | Total Length (TL)<br>Longitud Total | Flutes<br>Filos | ATD PART #<br>Numero de Parte |
|---|---|---|---|---|---|
| 1/32 | 1/4 | 1/8 | 3 | 4 | ATD-EM4F0312TXL |
| 3/64 | 9/32 | 1/8 | 3 | 4 | ATD-EM4F0468TXL |
| 1/16 | 3/8 | 1/8 | 3 | 4 | ATD-EM4F0625TXL |
| 5/64 | 1/2 | 1/8 | 3 | 4 | ATD-EM4F078TXL |
| 3/32 | 5/8 | 1/8 | 3 | 4 | ATD-EM4F0937TXL |
| 7/64 | 3/4 | 1/8 | 3 | 4 | ATD-EM4F1093TXL |
| 1/8 | 1 | 1/8 | 3 | 4 | ATD-EM4F1250TXL |
| 9/64 | 1 | 3/16 | 4 | 4 | ATD-EM4F1406TXL |
| 5/32 | 1 1/8 | 3/16 | 4 | 4 | ATD-EM4F1562TXL |
| 11/64 | 1 1/8 | 3/16 | 4 | 4 | ATD-EM4F1718TXL |
| 3/16 | 1 1/4 | 3/16 | 4 | 4 | ATD-EM4F1875TXL |
| 13/64 | 1 1/4 | 1/4 | 5 | 4 | ATD-EM4F2031TXL |
| 7/32 | 1 1/4 | 1/4 | 5 | 4 | ATD-EM4F2187TXL |
| 1/4 | 1 1/2 | 1/4 | 5 | 4 | ATD-EM4F2500TXL |
| 9/32 | 1 1/2 | 5/16 | 5 | 4 | ATD-EM4F2812TXL |
| 5/16 | 1 5/8 | 5/16 | 5 | 4 | ATD-EM4F3125TXL |
| 11/32 | 1 3/4 | 3/8 | 5 | 4 | ATD-EM4F3437TXL |
| 3/8 | 2 | 3/8 | 5 | 4 | ATD-EM4F3750TXL |
| 13/32 | 2 | 7/16 | 5 1/2 | 4 | ATD-EM4F4062TXL |
| 7/16 | 2 | 7/16 | 5 1/2 | 4 | ATD-EM4F4375TXL |
| 1/2 | 2 | 1/2 | 6 | 4 | ATD-EM4F5000TXL |
| 9/16 | 2 1/4 | 9/16 | 7 | 4 | ATD-EM4F5625TXL |
| 5/8 | 2 1/2 | 5/8 | 7 | 4 | ATD-EM4F6250TXL |
| 11/16 | 2 3/4 | 3/4 | 8 | 4 | ATD-EM4F6875TXL |
| 3/4 | 3 | 3/4 | 8 | 4 | ATD-EM4F7500TXL |
| 7/8 | 3 | 7/8 | 8 | 4 | ATD-EM4F8750TXL |
| 1 | 3 | 1 | 8 | 4 | ATD-EM4F1000TXL |

# ATD TOOLS

## Carbide End Mill 4 Flute Ball TiAlN Coating Regular Length

*Cortadores de carburo de 4 filos de bola con recubrimiento TiAlN de longitud regular*






*Recommended for processing ferrous materials such as steel, carbon steel, stainless steel, etc.*

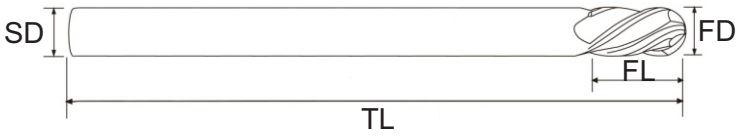
*Recomendado para el procesamiento de materiales ferrosos como acero, acero al carbon, acero inoxidable, etc.*

| Flute Diameter (FD)<br>Diametro de Corte | Flute Length (FL)<br>Longitud de Corte | Shank Diameter (SD)<br>Diametro del Zanco | Total Length (TL)<br>Longitud Total | Flutes<br>Filos | ATD PART #<br>Numero de Parte |
|---|---|---|---|---|---|
| 1/32 | 1/8 | 1/8 | 1 1/2 | 4 | ATD-EM4F0312FTA |
| 3/64 | 9/64 | 1/8 | 1 1/2 | 4 | ATD-EM4F0468FTA |
| 1/16 | 3/16 | 1/8 | 1 1/2 | 4 | ATD-EM4F0625FTA |
| 5/64 | 1/4 | 1/8 | 1 1/2 | 4 | ATD-EM4F0781FTA |
| 3/32 | 5/16 | 1/8 | 1 1/2 | 4 | ATD-EM4F0937FTA |
| 7/64 | 3/8 | 1/8 | 1 1/2 | 4 | ATD-EM4F1093FTA |
| 1/8 | 1/2 | 1/8 | 1 1/2 | 4 | ATD-EM4F1250FTA |
| 9/64 | 1/2 | 3/16 | 2 | 4 | ATD-EM4F1406FTA |
| 5/32 | 9/16 | 3/16 | 2 | 4 | ATD-EM4F1562FTA |
| 11/64 | 9/16 | 3/16 | 2 | 4 | ATD-EM4F1718FTA |
| 3/16 | 5/8 | 3/16 | 2 | 4 | ATD-EM4F1875FTA |
| 13/64 | 5/8 | 1/4 | 2 1/2 | 4 | ATD-EM4F2031FTA |
| 7/32 | 5/8 | 1/4 | 2 1/2 | 4 | ATD-EM4F2187FTA |
| 1/4 | 3/4 | 1/4 | 2 1/2 | 4 | ATD-EM4F2500FTA |
| 9/32 | 3/4 | 5/16 | 2 1/2 | 4 | ATD-EM4F2812FTA |
| 5/16 | 13/16 | 5/16 | 2 1/2 | 4 | ATD-EM4F3125FTA |
| 11/32 | 7/8 | 3/8 | 2 1/2 | 4 | ATD-EM4F3437FTA |
| 3/8 | 1 | 3/8 | 2 1/2 | 4 | ATD-EM4F3750FTA |
| 13/32 | 1 | 7/16 | 2 3/4 | 4 | ATD-EM4F4062FTA |
| 7/16 | 1 | 7/16 | 2 3/4 | 4 | ATD-EM4F4375FTA |
| 1/2 | 1 | 1/2 | 3 | 4 | ATD-EM4F5000FTA |
| 9/16 | 1 1/8 | 9/16 | 3 1/2 | 4 | ATD-EM4F5625FTA |
| 5/8 | 1 1/4 | 5/8 | 3 1/2 | 4 | ATD-EM4F6250FTA |
| 11/16 | 1 3/8 | 3/4 | 4 | 4 | ATD-EM4F6875FTA |
| 3/4 | 1 1/2 | 3/4 | 4 | 4 | ATD-EM4F7500FTA |
| 7/8 | 1 1/2 | 7/8 | 4 | 4 | ATD-EM4F8750FTA |
| 1 | 1 1/2 | 1 | 4 | 4 | ATD-EM4F1000FTA |

# ATD TOOLS

## Carbide End Mill 4 Flute Ball TiAlN Coating Extra Length

*Cortadores de carburo de 4 filos de bola con recubrimiento TiAlN de longitud extra larga*






*Recommended for processing ferrous materials such as steel, carbon steel, stainless steel, etc.*

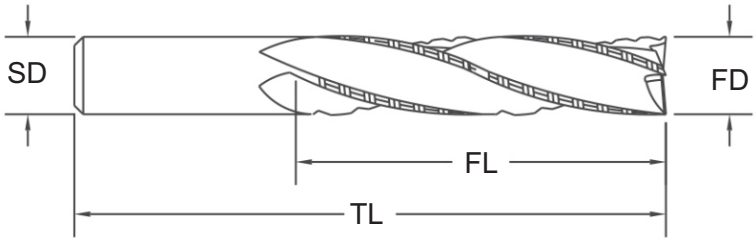
*Recomendado para el procesamiento de materiales ferrosos como acero, acero al carbon, acero inoxidable, etc.*

| Flute Diameter (FD)<br>Diametro de Corte | Flute Length (FL)<br>Longitud de Corte | Shank Diameter (SD)<br>Diametro del Zanco | Total Length (TL)<br>Longitud Total | Flutes<br>Filos | ATD PART #<br>Numero de Parte |
|---|---|---|---|---|---|
| 1/32 | 1/4 | 1/8 | 3 | 4 | ATD-EM4F0312FTX |
| 3/64 | 9/32 | 1/8 | 3 | 4 | ATD-EM4F0468FTX |
| 1/16 | 3/8 | 1/8 | 3 | 4 | ATD-EM4F0625FTX |
| 5/64 | 1/2 | 1/8 | 3 | 4 | ATD-EM4F078FTX |
| 3/32 | 5/8 | 1/8 | 3 | 4 | ATD-EM4F0937FTX |
| 7/64 | 3/4 | 1/8 | 3 | 4 | ATD-EM4F1093FTX |
| 1/8 | 1 | 1/8 | 3 | 4 | ATD-EM4F1250FTX |
| 9/64 | 1 | 3/16 | 4 | 4 | ATD-EM4F1406FTX |
| 5/32 | 1 1/8 | 3/16 | 4 | 4 | ATD-EM4F1562FTX |
| 11/64 | 1 1/8 | 3/16 | 4 | 4 | ATD-EM4F1718FTX |
| 3/16 | 1 1/4 | 3/16 | 4 | 4 | ATD-EM4F1875FTX |
| 13/64 | 1 1/4 | 1/4 | 5 | 4 | ATD-EM4F2031FTX |
| 7/32 | 1 1/4 | 1/4 | 5 | 4 | ATD-EM4F2187FTX |
| 1/4 | 1 1/2 | 1/4 | 5 | 4 | ATD-EM4F2500FTX |
| 9/32 | 1 1/2 | 5/16 | 5 | 4 | ATD-EM4F2812FTX |
| 5/16 | 1 5/8 | 5/16 | 5 | 4 | ATD-EM4F3125FTX |
| 11/32 | 1 3/4 | 3/8 | 5 | 4 | ATD-EM4F3437FTX |
| 3/8 | 2 | 3/8 | 5 | 4 | ATD-EM4F3750FTX |
| 13/32 | 2 | 7/16 | 5 1/2 | 4 | ATD-EM4F4062FTX |
| 7/16 | 2 | 7/16 | 5 1/2 | 4 | ATD-EM4F4375FTX |
| 1/2 | 2 | 1/2 | 6 | 4 | ATD-EM4F5000FTX |
| 9/16 | 2 1/4 | 9/16 | 7 | 4 | ATD-EM4F5625FTX |
| 5/8 | 2 1/2 | 5/8 | 7 | 4 | ATD-EM4F6250FTX |
| 11/16 | 2 3/4 | 3/4 | 8 | 4 | ATD-EM4F6875FTX |
| 3/4 | 3 | 3/4 | 8 | 4 | ATD-EM4F7500FTX |
| 7/8 | 3 | 7/8 | 8 | 4 | ATD-EM4F8750FTX |
| 1 | 3 | 1 | 8 | 4 | ATD-EM4F1000FTX |

# ATD TOOLS

## Carbide End Mill 4 Flute Roughin TiAlN Coating Regular Length

*Cortadores de carburo de 4 filos de desbaste con recubrimiento TiAlN de longitud regular*






*Recommended for processing ferrous materials such as steel, carbon steel, stainless steel, etc.*

*Recomendado para el procesamiento de materiales ferrosos como acero, acero al carbon, acero inoxidable, etc.*

| Flute Diameter (FD)<br>Diametro de Corte | Flute Length (FL)<br>Longitud de Corte | Shank Diameter (SD)<br>Diametro de Zanco | Total Length (TL)<br>Longitud Total | Flutes<br>Filos | ATD PART #<br>Numero de Parte |
|---|---|---|---|---|---|
| 1/4 | 3/4 | 1/4 | 2 1/2 | 4 | ATD-EM4F2500RTA |
| 5/16 | 13/16 | 5/16 | 2 1/2 | 4 | ATD-EM4F3125RTA |
| 3/8 | 1 | 3/8 | 2 1/2 | 4 | ATD-EM4F3750RTA |
| 1/2 | 1 | 1/2 | 3 | 4 | ATD-EM4F5000RTA |
| 5/8 | 1 1/4 | 5/8 | 3 1/2 | 4 | ATD-EM4F6250RTA |
| 3/4 | 1 1/2 | 3/4 | 4 | 4 | ATD-EM4F7500RTA |
| 1 | 1 1/2 | 1 | 4 | 4 | ATD-EM4F1000RTA |



*With our sincerity, we will win your trust*

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