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1/6

# NPA

New Product Announcement No. 2021-09

expansion

STARMILL

## SED 7 Solid Carbide End Mill Line Expanded to 4xD Long Type and Chip Splitter Type

ADVANCEMACHINING
TaeguTec Industry 4.0

INDUSTRY 4.0 TaeguTec
Member IMC Group

# KEY POINT

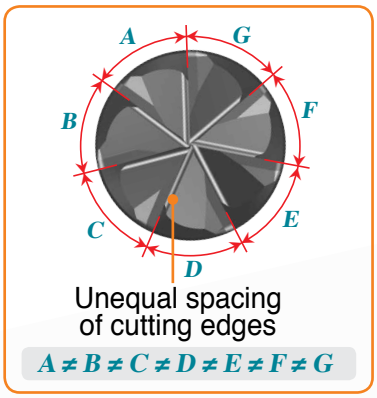
**TaeguTec has expanded long type (-4D) and chip splitter type (-N) to the SED 7 solid carbide end mill line for machining difficult-to-cut materials.**

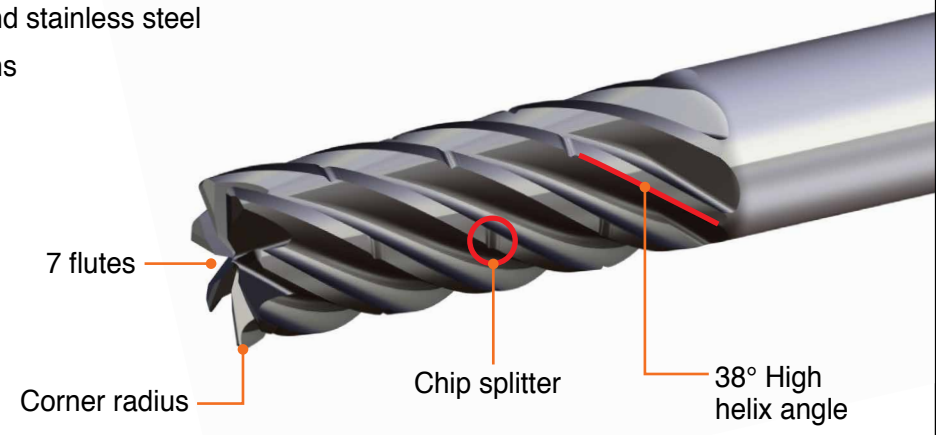
TaeguTec's SED 7 solid carbide end mill has provided customers with high productivity and excellent performance when machining titanium alloy and stainless steel.

The line has been expanded with two new products: 4xD depth of cut type as well as chip splitter type, both ideal for trochoidal machining.

## Features

- **4xD long type end mill (SED 7…-4D)**
  - Applicable to higher depth of cut
- **Chip splitter type end mill (SED 7…-N)**
  - Low cutting force and excellent chip evacuation
  - Minimized chip volume
  - Ideal for rough machining
- 7 flutes design
- Unequal spacing of cutting edges for vibration reduction
- Optimized helix angle for titanium alloy and stainless steel
- High productivity with trochoidal operations




## Availability
In stock

## Price
Available in the GAL system

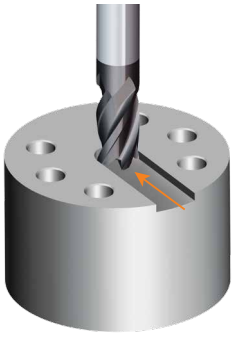
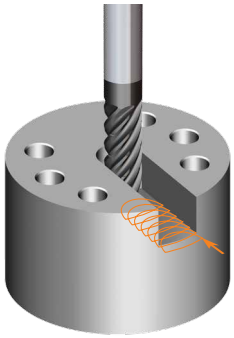
Sincerely,
TaeguTec

**Sung-chang-ho**
Hole-Making General PM

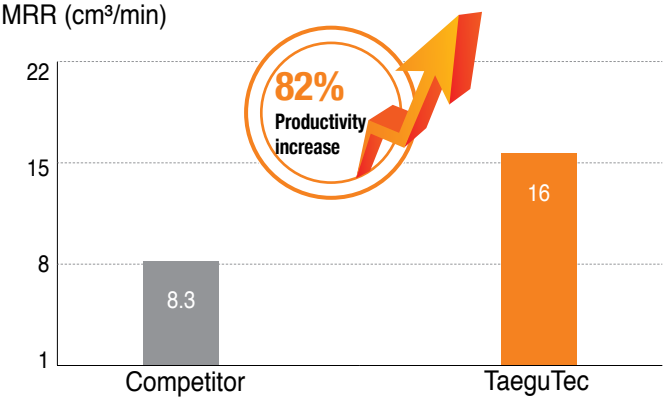
TaeguTec

**Cheon-dae-jun**
Round Tool & Tooling PM

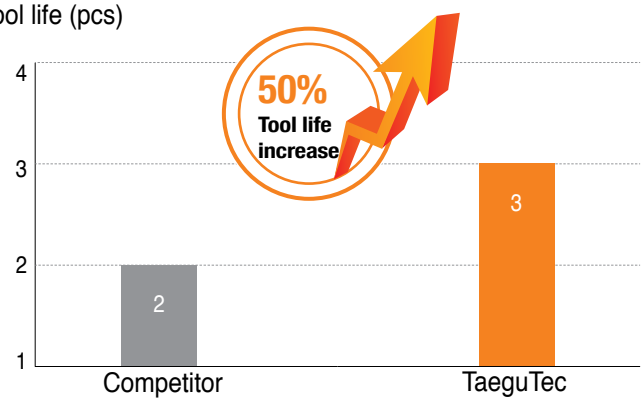
# Case study

| | | Competitor | TaeguTec |
|---|---|---|---|
| Material | | Titanium alloy (Ti-6Al-4V) | |
| End mill | | Ø16 mm Solid end mill | SED 7120-4D-N TT5515 (Long type, Chip splitters) |
| No. of teeth | | 4 | 7 |
| Speed | V (m/min) | 40 | 50 |
| | S (RPM) | 796 | 1,326 |
| Feed | f (mm/tooth) | 0.02 | 0.05 |
| | F (mm/min) | 64 | 464 |
| Depth of cut | ap (mm) | 4 | 32 |
| Width of cut | ae (mm) | 16 | 1 |
| MRR | (cm³/min) | 8.2 | 14.9 |
| Tool life | (pcs) | 2 | 3 |
| Result | | • Noise caused by vibration<br>• Bad surface finish | • Low noise<br>• Good surface finish |
| Operation | |  Slotting |  Trochoidal |
| Shape of Products | | Ø16 mm<br>4z  | Ø12 mm<br>7z  |
| Chip formation | |  |  |

MRR (cm³/min)




Tool life (pcs)



# SED 7...

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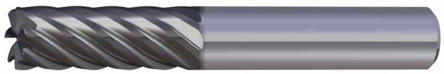
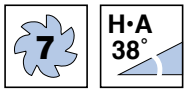
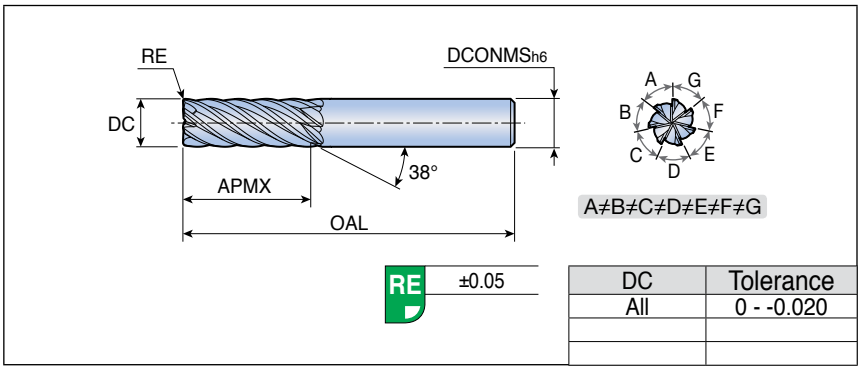
## 7 flute medium corner radius (Unequal spacing of cutting edges)



- Excellent chatter damping credit to unequal spacing of cutting edges
- For trochoidal operation




| RE | ±0.05 |
|---|---|

| DC | Tolerance |
|---|---|
| All | 0 - -0.020 |
| | |
| | |

| Designation | | Feed (mm/tooth) | Dimension (mm) | | | | | Grade |
|---|---|---|---|---|---|---|---|---|
| | | | DC | RE | OAL | APMX | DCONMS | TT5515 |
| SED | 7060 | 0.02-0.04 | 6 | 0.5 | 57 | 15 | 6 | ● |
| | 7060-4D new | 0.02-0.04 | 6 | 0.5 | 70 | 24 | 6 | ● |
| | 7080 | 0.02-0.05 | 8 | 0.5 | 70 | 25 | 8 | ● |
| | 7080-4D new | 0.02-0.05 | 8 | 0.5 | 90 | 32 | 8 | ● |
| | 7100 | 0.03-0.07 | 10 | 0.5 | 72 | 25 | 10 | ● |
| | 7100-4D new | 0.03-0.07 | 10 | 0.5 | 100 | 40 | 10 | ● |
| | 7120 | 0.03-0.09 | 12 | 0.5 | 83 | 30 | 12 | ● |
| | 7120-4D new | 0.03-0.09 | 12 | 0.5 | 110 | 48 | 12 | ● |
| | 7140 | 0.04-0.10 | 14 | 0.5 | 90 | 35 | 14 | ● |
| | 7160 | 0.04-0.11 | 16 | 0.5 | 100 | 42 | 16 | ● |
| | 7160-4D new | 0.04-0.11 | 16 | 0.5 | 125 | 64 | 16 | ● |
| | 7200 | 0.05-0.12 | 20 | 0.5 | 104 | 48 | 20 | ● |
| | 7200-4D new | 0.05-0.12 | 20 | 0.5 | 150 | 80 | 20 | ● |

· 4D: 4xD depth of cut

●: Standard items

# SED 7...N new

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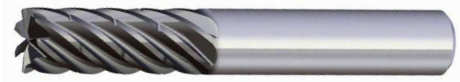
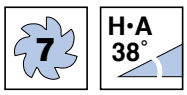
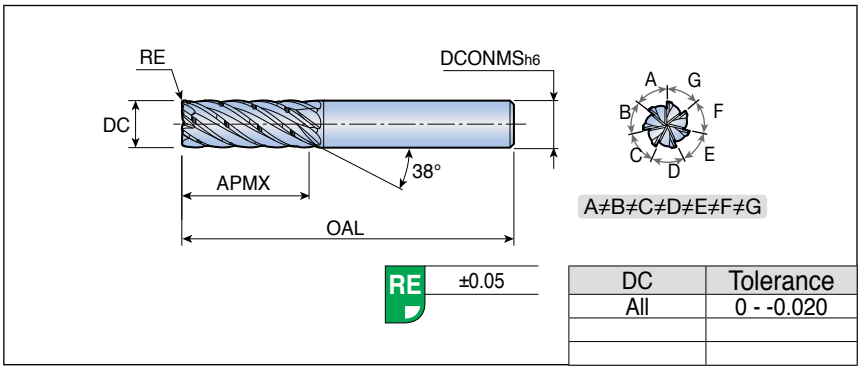
## 7 flute medium corner radius (Unequal spacing of cutting edges, with chip splitters)



- Excellent chatter damping credit to unequal spacing of cutting edges
- For trochoidal operation




| DC | Tolerance |
|---|---|
| All | 0 - -0.020 |
| | |
| | |

| Designation | | Feed (mm/tooth) | Dimension (mm) | | | | | Grade |
|---|---|---|---|---|---|---|---|---|
| | | | DC | RE | OAL | APMX | DCONMS | TT5515 |
| SED | 7060-N | 0.02-0.04 | 6 | 0.5 | 57 | 15 | 6 | ● |
| | 7060-4D-N | 0.02-0.04 | 6 | 0.5 | 70 | 24 | 6 | ● |
| | 7080-N | 0.02-0.05 | 8 | 0.5 | 70 | 25 | 8 | ● |
| | 7080-4D-N | 0.02-0.05 | 8 | 0.5 | 90 | 32 | 8 | ● |
| | 7100-N | 0.03-0.07 | 10 | 0.5 | 72 | 25 | 10 | ● |
| | 7100-4D-N | 0.03-0.07 | 10 | 0.5 | 100 | 40 | 10 | ● |
| | 7120-N | 0.03-0.09 | 12 | 0.5 | 83 | 30 | 12 | ● |
| | 7120-4D-N | 0.03-0.09 | 12 | 0.5 | 110 | 48 | 12 | ● |
| | 7160-N | 0.04-0.11 | 16 | 0.5 | 100 | 42 | 16 | ● |
| | 7160-4D-N | 0.04-0.11 | 16 | 0.5 | 125 | 64 | 16 | ● |
| | 7200-N | 0.05-0.12 | 20 | 0.5 | 104 | 48 | 20 | ● |
| | 7200-4D-N | 0.05-0.12 | 20 | 0.5 | 150 | 80 | 20 | ● |
| | | | | | | | | |

· N: chip splitter type

●: Standard items

# Recommended Cutting Conditions

## ■ Medium · Finishing

| Material | Side milling | | | f (mm/tooth) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | ap | ae | Speed V(m/min) | Ø6 | Ø8 | Ø10 | Ø12 | Ø16 | Ø20 |
| Alloy steel (<=HRC45) | 2D Max | 0.3D Max | 80-130 | 0.02-0.035 | 0.03-0.045 | 0.04-0.06 | 0.05-0.08 | 0.06-0.1 | 0.06-0.11 |
| | 4D Max | 0.15D Max | | | | | | | |
| Stainless steel | 2D Max | 0.3D Max | 50-100 | 0.025-0.04 | 0.03-0.05 | 0.04-0.07 | 0.05-0.09 | 0.06-0.11 | 0.06-0.12 |
| | 4D Max | 0.15D Max | | | | | | | |
| Titanium | 2D Max | 0.3D Max | 50-120 | 0.02-0.035 | 0.025-0.04 | 0.03-0.05 | 0.03-0.06 | 0.04-0.07 | 0.05-0.08 |
| | 4D Max | 0.15D Max | | | | | | | |
| Inconel 718 | 2D Max | 0.3D Max | 30-60 | 0.015-0.025 | 0.02-0.03 | 0.025-0.04 | 0.03-0.045 | 0.04-0.055 | 0.05-0.06 |
| | 4D Max | 0.15D Max | | | | | | | |

• When trochoidal machining under the above conditions, the recommended ae value is 0.05-0.1D

## ■ Finishing

| Material | Side milling | | | f (mm/tooth) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | ap | ae | Speed V(m/min) | Ø6 | Ø8 | Ø10 | Ø12 | Ø16 | Ø20 |
| Alloy steel (<=HRC45) | 2D Max | 0.05D Max | 120-200 | 0.02-0.035 | 0.03-0.045 | 0.04-0.06 | 0.05-0.08 | 0.06-0.1 | 0.06-0.11 |
| | 4D Max | 0.03D Max | | | | | | | |
| Stainless steel | 2D Max | 0.05D Max | 75-150 | 0.025-0.04 | 0.03-0.05 | 0.04-0.07 | 0.05-0.09 | 0.06-0.11 | 0.06-0.12 |
| | 4D Max | 0.03D Max | | | | | | | |
| Titanium | 2D Max | 0.05D Max | 75-180 | 0.02-0.035 | 0.025-0.04 | 0.03-0.05 | 0.03-0.06 | 0.04-0.07 | 0.05-0.08 |
| | 4D Max | 0.03D Max | | | | | | | |
| Inconel 718 | 2D Max | 0.05D Max | 45-90 | 0.015-0.025 | 0.02-0.03 | 0.025-0.04 | 0.03-0.045 | 0.04-0.055 | 0.05-0.06 |
| | 4D Max | 0.03D Max | | | | | | | |