



High speed end mills for aluminium alloys

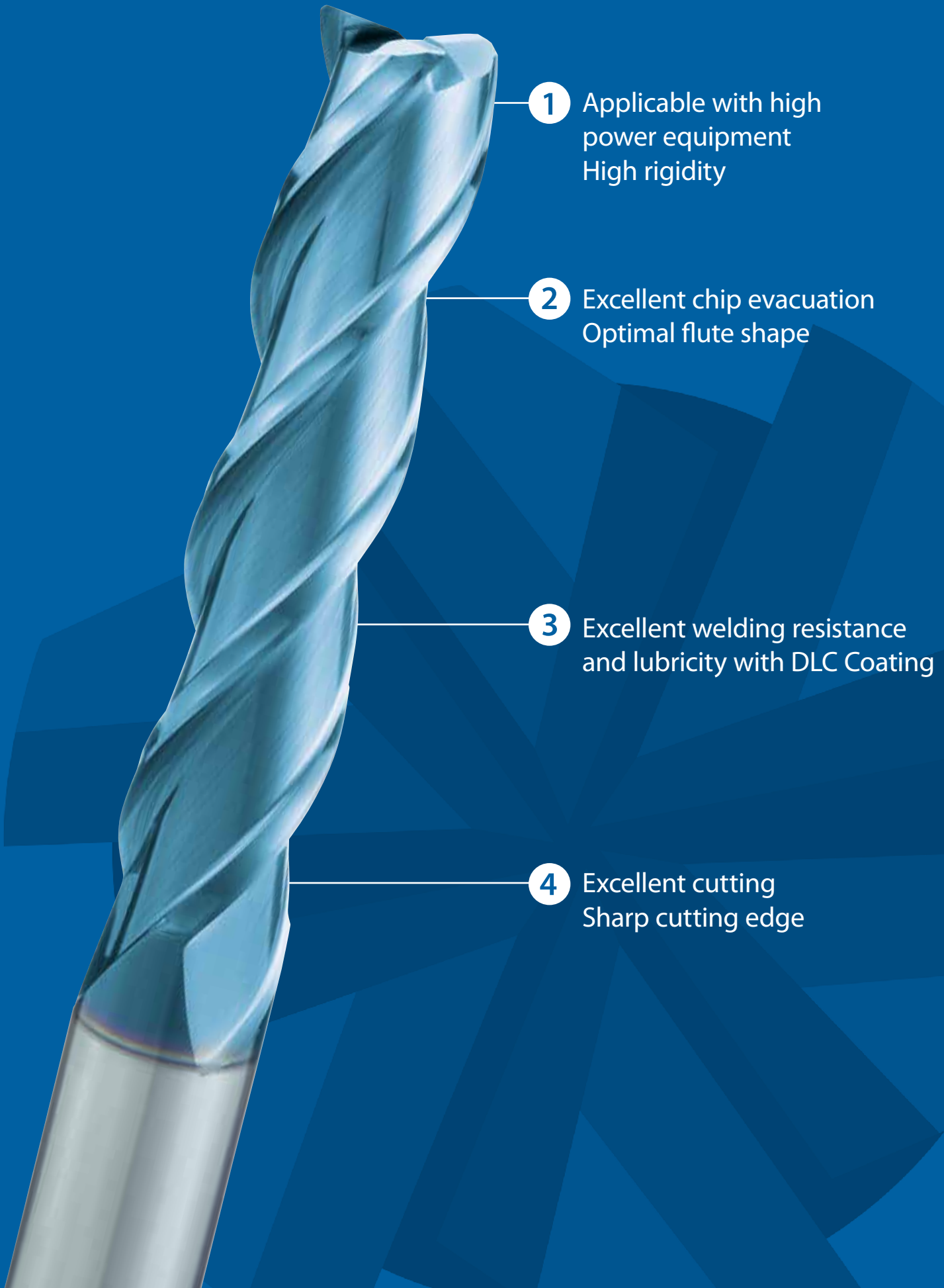
# AERO SERIES

Volume 4



# KEY FEATURES: AERO SERIES

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**1** Applicable with high power equipment  
High rigidity

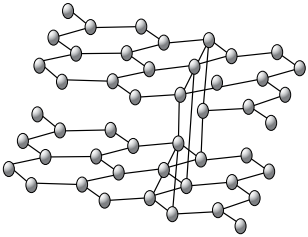
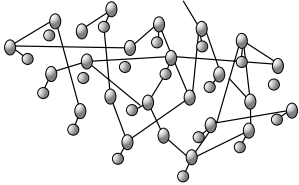
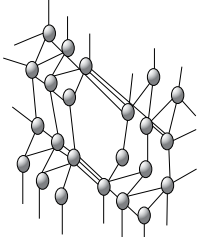
**2** Excellent chip evacuation  
Optimal flute shape

**3** Excellent welding resistance and lubricity with DLC Coating

**4** Excellent cutting  
Sharp cutting edge

# FOR AL ALLOYS DIAMOND LIKE CARBON COATING

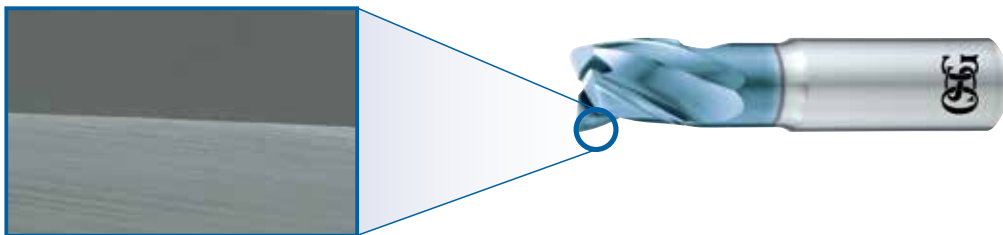
OSG's DLC coating gives shiny surface! This shiny & smooth surface optimises end mill performance particularly in aluminum alloys that require welding resistance and lubricity.

| Graphite  | DLC   | Diamond   |
|---|---|---|
|  |  |  |
| Crystal construction  | Amorphous   | Crystal construction  |

\* Amorphous : no polycrystalline structure with free-grain boundaries.

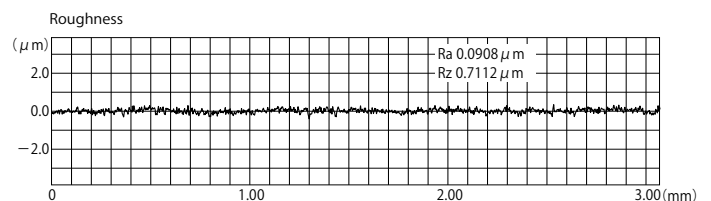
## Thin coating layer (approx. 1µm)! Sharp cutting edge!

Smooth and superb surface finish!



High quality surface even in high speed feeding!

|               |                                     |
|---------------|-------------------------------------|
| Tool          | AERO-ETL Ø12XR1                     |
| Work Material | A7075                               |
| Cutting Speed | 528m/min (14.000min <sup>-1</sup> ) |
| Feed          | 4.000mm/min (0,095mm/t)             |
| Depth of Cut  | ap=45mm ae=0,15mm                   |
| M.R.R.        | 27 cm <sup>3</sup> /min             |



## AERO Series

- DLC-AIR-EDS
- AERO-ETS
- AERO-O-ETS
- AERO-ETL
- AERO-EXTL
- AERO-LN-EDS
- AERO-LN-ETS

# FOR AL ALLOYS DIAMOND LIKE CARBON COATING

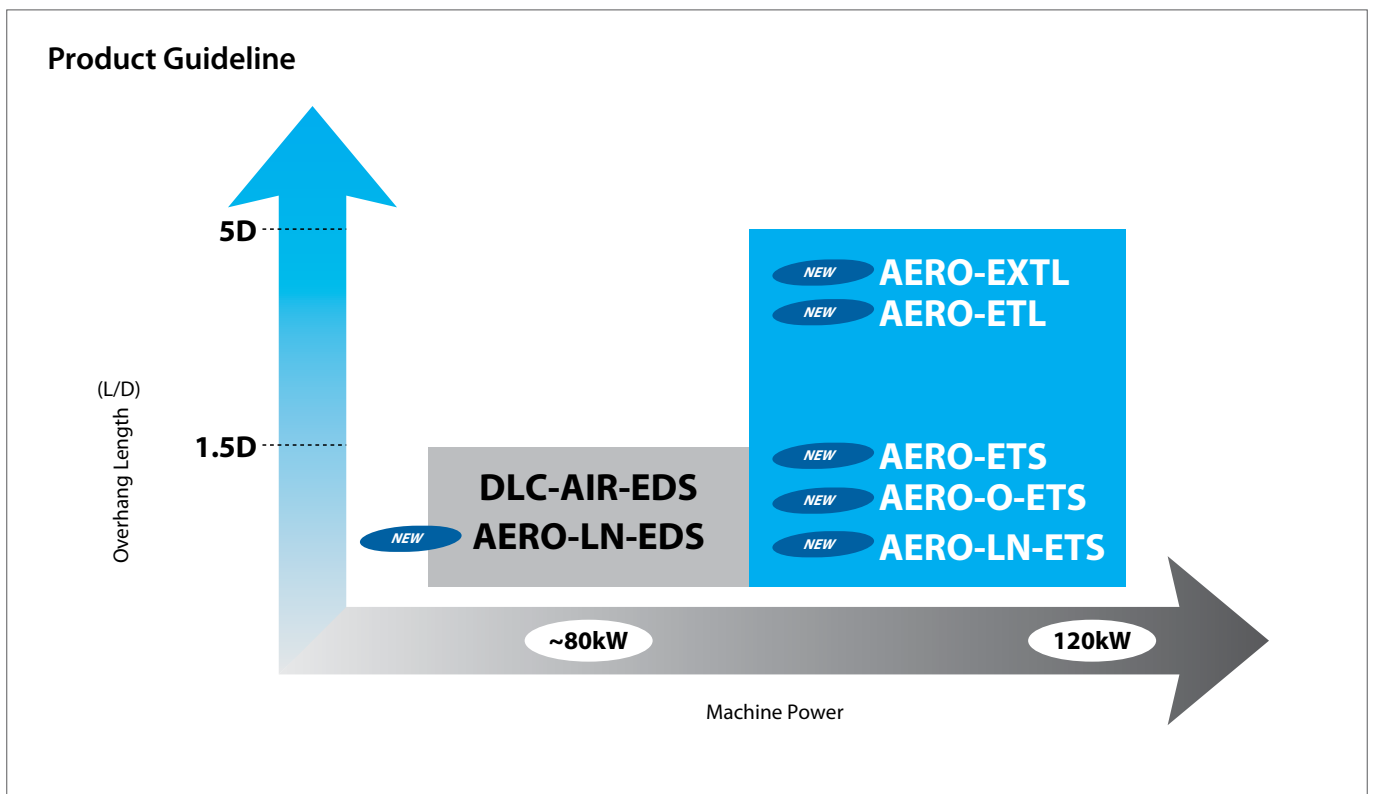
## Astonishing chip evacuation with Ø25 diameter!

9.000 cm<sup>3</sup>/min chip evacuation



|               |                                       |
|---------------|---------------------------------------|
| Tool          | AERO-ETS Ø25xR3                       |
| Work Material | A7075                                 |
| Cutting Speed | 2.355m/min (30.000min <sup>-1</sup> ) |
| Feed          | 36.000mm/min (0,4mm/t)                |
| Depth of Cut  | ap=10mm ae=25mm                       |
| Coolant       | Water Soluble (External)              |
| Machine       | 5-axis Machining Centers              |
| Machine Power | 120Kw                                 |

## The Aero Series is perfect for high powered equipment over 80 kw



## Enables high efficiency milling for both roughing and finishing

|                |   |   |
|----------------|---|---|
| Tool           | AERO-O-ETS Ø25xR3                         |   |
| Work Material  | A7075                                     |   |
| Milling Method | Roughing                                  | Finishing                                 |
| Cutting Speed  | 1.413m/min<br>(18.000 min <sup>-1</sup> ) | 1.884m/min<br>(24.000 min <sup>-1</sup> ) |
| Feed           | 18.000mm/min<br>(0,33mm/t)                | 7.200mm/min<br>(0,1mm/t)                  |
| Coolant        | Mist (Through spindle mist)               |   |
| Machine        | 5-axis Machining Centers                  |   |



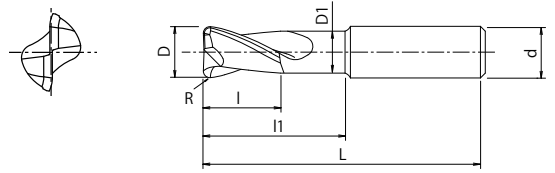
## Finishing side milling by extra long flute length

|               |                                     |
|---------------|-------------------------------------|
| Tool          | AERO-EXTL Ø20xR3                    |
| Work Material | A7075                               |
| Cutting Speed | 898m/min (14.300min <sup>-1</sup> ) |
| Feed          | 6,435mm/min                         |
| Coolant       | Water Soluble                       |
| Machine       | 5-axis Machining Centers            |



# DLC-AIR-EDS

Milling | Solid carbide



- Carbide end mill with DLC coating
- For high volume milling of aluminium alloys
- 2 flutes, short length of cut, corner radius



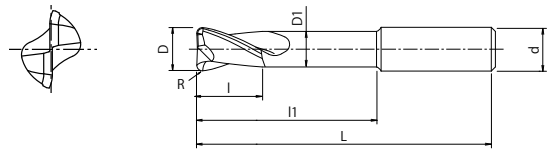
Milling | Solid carbide



| EDP     | Z | D  | R   | L   | l  | l1 | d  | d1   | Price |
|---------|---|----|-----|-----|----|----|----|------|-------|
| 8528822 | 2 | 12 | 1   | 90  | 14 | 40 | 12 | 11   |       |
| 8528823 | 2 | 12 | 1,6 | 90  | 14 | 40 | 12 | 11   |       |
| 8528826 | 2 | 12 | 3   | 90  | 14 | 40 | 12 | 11   |       |
| 8528862 | 2 | 16 | 1   | 100 | 18 | 45 | 16 | 14,4 |       |
| 8528863 | 2 | 16 | 1,6 | 100 | 18 | 45 | 16 | 14,4 |       |
| 8528866 | 2 | 16 | 3   | 100 | 18 | 45 | 16 | 14,4 |       |
| 8528902 | 2 | 20 | 1   | 110 | 22 | 56 | 20 | 18   |       |
| 8528903 | 2 | 20 | 1,6 | 110 | 22 | 56 | 20 | 18   |       |
| 8528906 | 2 | 20 | 3   | 110 | 22 | 56 | 20 | 18   |       |
| 8528952 | 2 | 25 | 1   | 110 | 27 | 56 | 25 | 23   |       |
| 8528953 | 2 | 25 | 1,6 | 110 | 27 | 56 | 25 | 23   |       |
| 8528956 | 2 | 25 | 3   | 110 | 27 | 56 | 25 | 23   |       |
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|         |   |    |     |     |    |    |    |      |       |

# AERO-LN-EDS

Milling | Solid carbide



- Carbide end mill with DLC coating
- For ultra high volume milling of aluminium alloys
- 2 flutes, long neck, corner radius



CARBIDE
DLC
25°
0~0.02



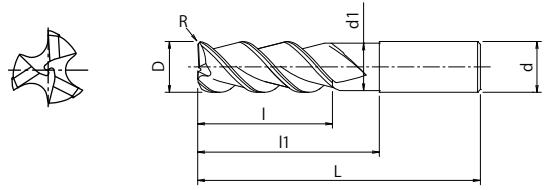
| EDP      | Z | D  | R | L   | I  | l1 | d  | d1   | Price |
|----------|---|----|---|-----|----|----|----|------|-------|
| 48239166 | 2 | 16 | 3 | 130 | 18 | 80 | 16 | 14,4 |       |
| 48239167 | 2 | 16 | 4 | 130 | 18 | 80 | 16 | 14,4 |       |
| 48239206 | 2 | 20 | 3 | 130 | 22 | 80 | 20 | 18   |       |
| 48239207 | 2 | 20 | 4 | 130 | 22 | 80 | 20 | 18   |       |
| 48239256 | 2 | 25 | 3 | 130 | 27 | 80 | 25 | 23   |       |
| 48239257 | 2 | 25 | 4 | 130 | 27 | 80 | 25 | 23   |       |

Milling | Solid carbide



# AERO-ETS

Milling | Solid carbide



- Carbide end mill with DLC coating
- For ultra high volume milling of aluminium alloys
- 3 flutes, short length of cut, also with corner radius



CARBIDE    DLC    30°    0~0.02



Milling | Solid carbide

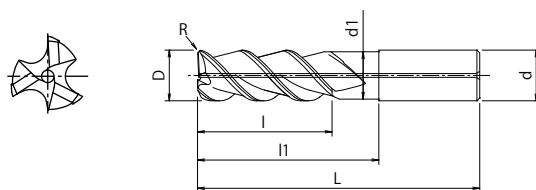
| EDP      | Z | D  | R | L   | l    | l1 | d  | d1   | Price |
|----------|---|----|---|-----|------|----|----|------|-------|
| 8533249  | 3 | 12 | - | 100 | 18   | 55 | 12 | 11   |       |
| 8533250  | 3 | 12 | 1 | 100 | 18   | 55 | 12 | 11   |       |
| 8533252  | 3 | 12 | 3 | 100 | 18   | 55 | 12 | 11   |       |
| 48238126 | 3 | 12 | 3 | 80  | 18   | 35 | 12 | 11   |       |
| 48238999 | 3 | 12 | 3 | 90  | 18   | 45 | 12 | 11   |       |
| 8533253  | 3 | 16 | - | 100 | 24   | 55 | 16 | 14,4 |       |
| 8533254  | 3 | 16 | 1 | 100 | 24   | 55 | 16 | 14,4 |       |
| 8533256  | 3 | 16 | 3 | 100 | 24   | 55 | 16 | 14,4 |       |
| 8533257  | 3 | 16 | 4 | 100 | 24   | 55 | 16 | 14,4 |       |
| 8533258  | 3 | 16 | 5 | 100 | 24   | 55 | 16 | 14,4 |       |
| 8533259  | 3 | 20 | - | 100 | 30   | 55 | 20 | 18   |       |
| 8533260  | 3 | 20 | 1 | 100 | 30   | 55 | 20 | 18   |       |
| 8533262  | 3 | 20 | 3 | 100 | 30   | 55 | 20 | 18   |       |
| 8533263  | 3 | 20 | 4 | 100 | 30   | 55 | 20 | 18   |       |
| 8533264  | 3 | 20 | 5 | 100 | 30   | 55 | 20 | 18   |       |
| 8533265  | 3 | 25 | - | 100 | 37,5 | 55 | 25 | 23   |       |
| 8533266  | 3 | 25 | 1 | 100 | 37,5 | 55 | 25 | 23   |       |
| 8533268  | 3 | 25 | 3 | 100 | 37,5 | 55 | 25 | 23   |       |
| 8533269  | 3 | 25 | 4 | 100 | 37,5 | 55 | 25 | 23   |       |
| 8533270  | 3 | 25 | 5 | 100 | 37,5 | 55 | 25 | 23   |       |





# AERO-O-ETS

Milling | Solid carbide



- Carbide end mill with oil hole, DLC coating
- For ultra high volume milling of aluminium alloys
- 3 flutes, short length of cut, corner radius



| EDP     | Z | D  | R | L   | l    | l1 | d  | d1 | Price |
|---------|---|----|---|-----|------|----|----|----|-------|
| 8533301 | 3 | 20 | 1 | 100 | 30   | 55 | 20 | 18 |       |
| 8533303 | 3 | 20 | 3 | 100 | 30   | 55 | 20 | 18 |       |
| 8533304 | 3 | 20 | 4 | 100 | 30   | 55 | 20 | 18 |       |
| 8533305 | 3 | 20 | 5 | 100 | 30   | 55 | 20 | 18 |       |
| 8533307 | 3 | 25 | 1 | 100 | 37,5 | 55 | 25 | 23 |       |
| 8533309 | 3 | 25 | 3 | 100 | 37,5 | 55 | 25 | 23 |       |
| 8533310 | 3 | 25 | 4 | 100 | 37,5 | 55 | 25 | 23 |       |
| 8533311 | 3 | 25 | 5 | 100 | 37,5 | 55 | 25 | 23 |       |

Milling | Solid carbide



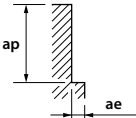




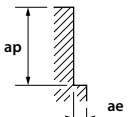
# CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

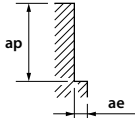
## AERO-ETS

| Aluminium alloy   |   |                                 |   |    |    |               |      |
|-------------------|---|---------------------------------|---|----|----|---------------|------|
| $\emptyset$       | S<br>( $\text{min}^{-1}$ )  | F<br>( $\text{mm}/\text{min}$ ) |   |    |    |               |      |
| 12                | $\leq 33.000$   | $\leq 15.000$                   |   |    |    |               |      |
| 16                | $\leq 33.000$   | $\leq 20.000$                   |   |    |    |               |      |
| 20                | $\leq 33.000$   | $\leq 25.700$                   |   |    |    |               |      |
| 25                | $\leq 33.000$   | $\leq 32.600$                   |   |    |    |               |      |
| Max cutting depth |  |                                 | <table border="1"> <tr> <td>ap</td> <td>ae</td> </tr> <tr> <td><math>\leq 0,4 Dc</math></td> <td>1 Dc</td> </tr> </table> | ap | ae | $\leq 0,4 Dc$ | 1 Dc |
| ap                | ae  |                                 |   |    |    |               |      |
| $\leq 0,4 Dc$     | 1 Dc  |                                 |   |    |    |               |      |

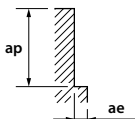
## AERO-O-ETS

| Aluminium alloy   |  |                                 |   |    |    |               |      |
|-------------------|--|---------------------------------|---|----|----|---------------|------|
| Vc                | 1000 ~ 3000<br>m/min   |                                 |   |    |    |               |      |
| $\emptyset$       | S<br>( $\text{min}^{-1}$ )   | F<br>( $\text{mm}/\text{min}$ ) |   |    |    |               |      |
| 12                | $\leq 33.000$  | $\leq 25.700$                   |   |    |    |               |      |
| 25                | $\leq 33.000$  | $\leq 32.600$                   |   |    |    |               |      |
| Max cutting depth |  |                                 | <table border="1"> <tr> <td>ap</td> <td>ae</td> </tr> <tr> <td><math>\leq 0,4 Dc</math></td> <td>1 Dc</td> </tr> </table> | ap | ae | $\leq 0,4 Dc$ | 1 Dc |
| ap                | ae   |                                 |   |    |    |               |      |
| $\leq 0,4 Dc$     | 1 Dc   |                                 |   |    |    |               |      |

## AERO-ETL

| Aluminium alloy   |   |                                 |            |             |
|-------------------|---|---------------------------------|------------|-------------|
| $\emptyset$       | S<br>( $\text{min}^{-1}$ )  | F<br>( $\text{mm}/\text{min}$ ) | ap<br>(mm) | ae<br>(mm)  |
| 12                | $\leq 14.000$   | $\leq 4.000$                    | $\leq 45$  | $\leq 0,15$ |
| 16                | $\leq 14.000$   | $\leq 5.000$                    | $\leq 45$  | $\leq 0,2$  |
| 20                | $\leq 14.000$   | $\leq 6.000$                    | $\leq 45$  | $\leq 0,3$  |
| Max cutting depth |  |                                 |            |             |

## AERO-EXTL

| Aluminium alloy   |   |                                 |            |            |
|-------------------|---|---------------------------------|------------|------------|
| $\emptyset$       | S<br>( $\text{min}^{-1}$ )  | F<br>( $\text{mm}/\text{min}$ ) | ap<br>(mm) | ae<br>(mm) |
| 20                | $\leq 14.000$   | $\leq 6.000$                    | $\leq 95$  | $\leq 0,2$ |
| Max cutting depth |  |                                 |            |            |

# CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

## AERO-LN-ETS

| Aluminium alloy   |                           |               |   |    |    |         |     |
|-------------------|---------------------------|---------------|---|----|----|---------|-----|
| $\emptyset$       | S<br>(min <sup>-1</sup> ) | F<br>(mm/min) |   |    |    |         |     |
| 16                | ≤ 33.000                  | ≤ 20.000      |   |    |    |         |     |
| 20                | ≤ 33.000                  | ≤ 25.700      |   |    |    |         |     |
| 25                | ≤ 33.000                  | ≤ 32.600      |   |    |    |         |     |
| Max cutting depth |                           |               | <table border="1"> <tr> <td>ap</td> <td>ae</td> </tr> <tr> <td>≤ 0,2 D</td> <td>1 D</td> </tr> </table> | ap | ae | ≤ 0,2 D | 1 D |
| ap                | ae                        |               |   |    |    |         |     |
| ≤ 0,2 D           | 1 D                       |               |   |    |    |         |     |

## AERO-LN-EDS

| Aluminium alloy   |                           |               |   |    |    |         |       |
|-------------------|---------------------------|---------------|---|----|----|---------|-------|
| $\emptyset$       | S<br>(min <sup>-1</sup> ) | F<br>(mm/min) |   |    |    |         |       |
| 16                | ≤ 33.000                  | ≤ 12.000      |   |    |    |         |       |
| 20                | ≤ 33.000                  | ≤ 15.000      |   |    |    |         |       |
| 25                | ≤ 33.000                  | ≤ 15.000      |   |    |    |         |       |
| Max cutting depth |                           |               | <table border="1"> <tr> <td>ap</td> <td>ae</td> </tr> <tr> <td>≤ 0,4 D</td> <td>0,6 D</td> </tr> </table> | ap | ae | ≤ 0,4 D | 0,6 D |
| ap                | ae                        |               |   |    |    |         |       |
| ≤ 0,4 D           | 0,6 D                     |               |   |    |    |         |       |

## DLC-AIR-EDS

| Aluminium alloy   |                           |               |   |    |    |          |        |
|-------------------|---------------------------|---------------|---|----|----|----------|--------|
| Vc                | 1000 ~ 3000<br>m/min      |               |   |    |    |          |        |
| $\emptyset$       | S<br>(min <sup>-1</sup> ) | F<br>(mm/min) |   |    |    |          |        |
| 12                | 33.000                    | ≤ 9.100       |   |    |    |          |        |
| 16                | 33.000                    | ≤ 12.000      |   |    |    |          |        |
| 20                | 33.000                    | ≤ 15.000      |   |    |    |          |        |
| 25                | 33.000                    | ≤ 15.000      |   |    |    |          |        |
| Max cutting depth |                           |               | <table border="1"> <tr> <td>ap</td> <td>ae</td> </tr> <tr> <td>≤ 0,6 Dc</td> <td>1,0 Dc</td> </tr> </table> | ap | ae | ≤ 0,6 Dc | 1,0 Dc |
| ap                | ae                        |               |   |    |    |          |        |
| ≤ 0,6 Dc          | 1,0 Dc                    |               |   |    |    |          |        |



[www.osgeurope.com](http://www.osgeurope.com)





shaping your dreams

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