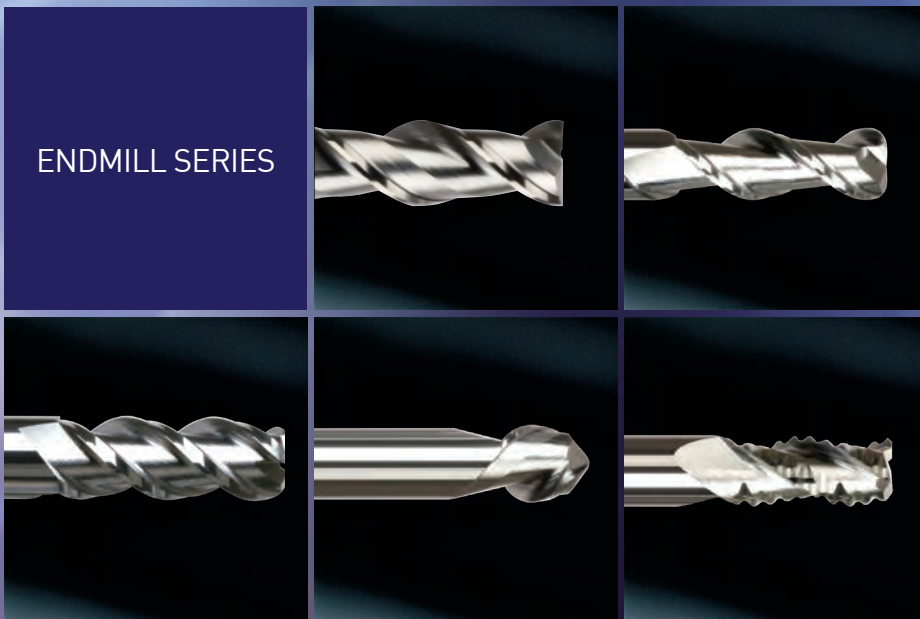







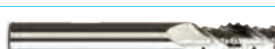


Zamus Al-Mate Series



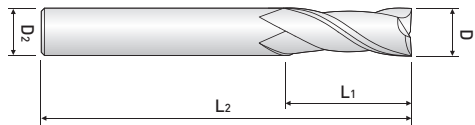
Zamus Al-Mate Series



| EDP. No. | APPEARANCE | FEATURE | STOCK | PAGE |
|--------------------|---|---|-------|------|
| AE302 ...series |  | 2 FLUTE, LONG LENGTH - for Aluminum | • | 224 |
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2 FLUTE, LONG LENGTH - for Aluminum



AE302 ...series



| EDP. No. | Dia. | L ₁ | L ₂ | D ₂ | STOCK |
|------------|------|----------------|----------------|----------------|-------|
| AE302010 | 1 | 3 | 40 | 4 | • |
| AE302015 | 1.5 | 6 | 57 | 6 | • |
| AE302020S4 | 2 | 6 | 40 | 4 | • |
| AE302020 | 2 | 6 | 57 | 6 | • |
| AE302025 | 2.5 | 10 | 57 | 6 | • |
| AE302030 | 3 | 12 | 57 | 6 | • |
| AE302035 | 3.5 | 12 | 57 | 6 | • |
| AE302040 | 4 | 14 | 57 | 6 | • |
| AE302050 | 5 | 16 | 57 | 6 | • |
| AE302060 | 6 | 16 | 57 | 6 | • |
| AE302070 | 7 | 20 | 63 | 8 | • |
| AE302080 | 8 | 22 | 63 | 8 | • |
| AE302090 | 9 | 25 | 72 | 10 | • |
| AE302100 | 10 | 28 | 72 | 10 | • |
| AE302110 | 11 | 30 | 80 | 12 | • |
| AE302120 | 12 | 32 | 80 | 12 | • |
| AE302130 | 13 | 35 | 85 | 14 | • |
| AE302140 | 14 | 35 | 85 | 14 | • |
| AE302150 | 15 | 40 | 90 | 16 | • |
| AE302160 | 16 | 45 | 90 | 16 | • |
| AE302180 | 18 | 45 | 100 | 18 | • |
| AE302200 | 20 | 50 | 100 | 20 | • |
| AE302250 | 25 | 50 | 120 | 25 | • |

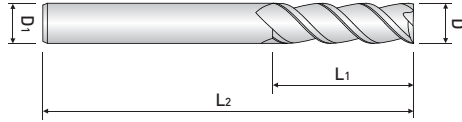
■ Tolerance

| Mill Dia. (mm) | Shank Dia. |
|----------------|------------|
| 0 ~ -0,02 | h6 |

※Items can be changed for quality improvement without notice.



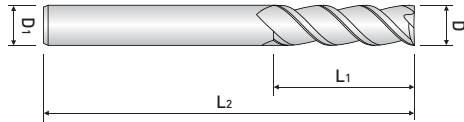
**3 FLUTE, LONG & EXTRA LONG LENGTH
- for Aluminum**



AE30(2)3 ...series



| EDP. No. | Dia. | L ₁ | L ₂ | D ₂ | STOCK | |
|----------|------|----------------|----------------|----------------|-------|---|
| AE303010 | 1 | 3 | 40 | 6 | • | |
| AE303015 | 1.5 | 4 | 40 | 6 | • | |
| AE303020 | 2 | 6 | 50 | 6 | • | |
| AE303025 | 2.5 | 8 | 50 | 6 | • | |
| AE303030 | 3 | 12 | 57 | 6 | • | |
| AE303031 | | 15 | | | • | |
| AE323030 | | 20 | 62 | | • | |
| AE323031 | | 25 | | | • | |
| AE303040 | 4 | 14 | 57 | 6 | • | |
| AE303041 | | 20 | | | • | |
| AE323040 | | 25 | 62 | | • | |
| AE323041 | | 30 | | | 70 | • |
| AE303050 | 5 | 16 | 57 | 6 | • | |
| AE303051 | | 20 | | | • | |
| AE303052 | | 25 | 62 | | • | |
| AE323050 | | 30 | | | 70 | • |
| AE323051 | | 35 | | | | • |
| AE303060 | 6 | 16 | 57 | 6 | • | |
| AE303061 | | 20 | | | • | |
| AE303062 | | 25 | 62 | | • | |
| AE303063 | | 30 | | | 70 | • |
| AE323060 | | 35 | 80 | | | • |
| AE323061 | | 42 | 90 | | | • |
| AE303070 | 7 | 20 | 63 | 8 | • | |
| AE303080 | 8 | 22 | 63 | 8 | • | |
| AE303081 | | 30 | 70 | | • | |
| AE303082 | | 35 | 80 | | • | |
| AE323080 | | 40 | 100 | | • | |
| AE323081 | | 45 | | | • | |
| AE303090 | 9 | 25 | 72 | 10 | • | |



**3 FLUTE, LONG & EXTRA LONG LENGTH
- for Aluminum**

AE30(2)3 ...series

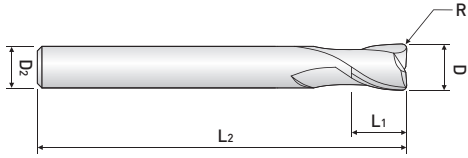


| EDP. No. | Dia. | L ₁ | L ₂ | D ₂ | STOCK |
|----------|------|----------------|----------------|----------------|-------|
| AE303100 | 10 | 28 | 72 | 10 | • |
| AE303101 | | 35 | 80 | | • |
| AE303102 | | 45 | 100 | | • |
| AE323100 | | 55 | 110 | | • |
| AE323101 | | 65 | 120 | | • |
| AE303110 | 11 | 30 | 80 | 12 | • |
| AE303120 | 12 | 32 | 80 | 12 | • |
| AE303121 | | 40 | 90 | | • |
| AE303122 | | 45 | 100 | | • |
| AE303123 | | 55 | 110 | | • |
| AE323120 | | 65 | 120 | | • |
| AE323121 | | 75 | 125 | | • |
| AE303130 | 13 | 35 | 85 | 14 | • |
| AE303140 | 14 | 35 | 85 | 14 | • |
| AE303150 | 15 | 40 | 90 | 16 | • |
| AE303160 | 16 | 45 | 90 | 16 | • |
| AE303161 | | 55 | 110 | | • |
| AE303162 | | 65 | 125 | | • |
| AE303163 | | 75 | 130 | | • |
| AE323160 | | 85 | 150 | | • |
| AE303180 | 18 | 45 | 100 | 18 | • |
| AE303200 | 20 | 50 | 100 | 20 | • |
| AE303201 | | 60 | 110 | | • |
| AE303202 | | 70 | 130 | | • |
| AE323200 | | 80 | 150 | | • |
| AE323201 | | 90 | 160 | | • |
| AE323202 | | 100 | 160 | | • |
| AE303250 | 25 | 50 | 120 | 25 | • |

■ Tolerance

| Mill Dia. (mm) | Shank Dia. |
|----------------|------------|
| 0 ~ -0.02 | h6 |

※Items can be changed for quality improvement without notice.



**2FLUTE, REGULAR LENGTH,
CORNER RADIUS - for Aluminum**

AR302 ...series

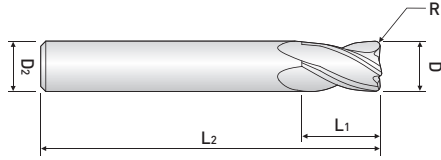


| EDP. No. | Dia. | R | L ₁ | L ₂ | D ₂ | STOCK |
|-----------|------|-----|----------------|----------------|----------------|-------|
| AR3020605 | 6 | 0.5 | 15 | 50 | 6 | • |
| AR3020610 | | 1 | | | | • |
| AR3020615 | | 1.5 | | | | • |
| AR3020805 | 8 | 0.5 | 20 | 60 | 8 | • |
| AR3020810 | | 1 | | | | • |
| AR3020815 | | 1.5 | | | | • |
| AR3020820 | | 2 | | | | • |
| AR3021005 | 10 | 0.5 | 25 | 70 | 10 | • |
| AR3021010 | | 1 | | | | • |
| AR3021015 | | 1.5 | | | | • |
| AR3021020 | | 2 | | | | • |
| AR3021030 | | 3 | | | | • |
| AR3021040 | | 4 | | | | • |
| AR3021210 | 12 | 1 | 30 | 75 | 12 | • |
| AR3021220 | | 2 | | | | • |
| AR3021230 | | 3 | | | | • |
| AR3021240 | | 4 | | | | • |
| AR3021410 | 14 | 1 | 35 | 80 | 14 | • |
| AR3021420 | | 2 | | | | • |
| AR3021430 | | 3 | | | | • |
| AR3021440 | | 4 | | | | • |
| AR3021450 | | 5 | | | | • |
| AR3021610 | 16 | 1 | 40 | 90 | 16 | • |
| AR3021620 | | 2 | | | | • |
| AR3021630 | | 3 | | | | • |
| AR3021640 | | 4 | | | | • |
| AR3021650 | | 5 | | | | • |
| AR3022010 | 20 | 1 | 45 | 100 | 20 | • |
| AR3022020 | | 2 | | | | • |
| AR3022030 | | 3 | | | | • |
| AR3022040 | | 4 | | | | • |
| AR3022050 | | 5 | | | | • |

■ Tolerance

| | |
|----------------|------------|
| Mill Dia. (mm) | Shank Dia. |
| 0 ~ -0,02 | h6 |

※ Items can be changed for quality improvement without notice.



**3FLUTE, REGULAR LENGTH,
CORNER RADIUS - for Aluminum**

AR303 ...series

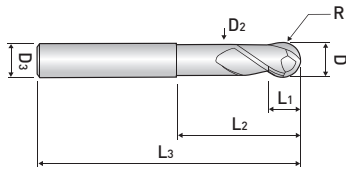


| EDP. No. | R | L ₁ | L ₂ | D ₂ | STOCK |
|-----------|-----|----------------|----------------|----------------|-------|
| AR3030605 | 0.5 | 15 | 50 | 6 | • |
| AR3030610 | 1 | | | | • |
| AR3030615 | 1.5 | | | | • |
| AR3030805 | 0.5 | 20 | 60 | | • |
| AR3030810 | 1 | | | | • |
| AR3030815 | 1.5 | | | | • |
| AR3030820 | 2 | | | | • |
| AR3031005 | 0.5 | 25 | 70 | 10 | • |
| AR3031010 | 1 | | | | • |
| AR3031015 | 1.5 | | | | • |
| AR3031020 | 2 | | | | • |
| AR3031030 | 3 | | | | • |
| AR3031040 | 4 | | | | • |
| AR3031210 | 1 | 30 | 75 | 12 | • |
| AR3031220 | 2 | | | | • |
| AR3031230 | 3 | | | | • |
| AR3031240 | 4 | | | | • |
| AR3031410 | 1 | 35 | 80 | 14 | • |
| AR3031420 | 2 | | | | • |
| AR3031430 | 3 | | | | • |
| AR3031440 | 4 | | | | • |
| AR3031450 | 5 | | | | • |
| AR3031610 | 1 | 40 | 90 | 16 | • |
| AR3031620 | 2 | | | | • |
| AR3031630 | 3 | | | | • |
| AR3031640 | 4 | | | | • |
| AR3031650 | 5 | | | | • |
| AR3032010 | 1 | 45 | 100 | 20 | • |
| AR3032020 | 2 | | | | • |
| AR3032030 | 3 | | | | • |
| AR3032040 | 4 | | | | • |
| AR3032050 | 5 | | | | • |

■ Tolerance

| Mill Dia. (mm) | Shank Dia. |
|----------------|------------|
| 0 ~ -0,02 | h6 |

※Items can be changed for quality improvement without notice.



**2 FLUTE, STUB CUT BALL NOSE
- for Aluminum**

- Excellent cutting quality on **aluminum** & copper.

AB312 ...series

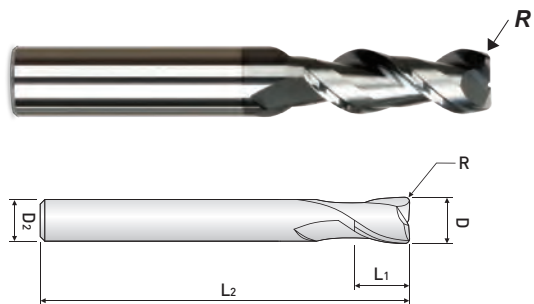


| EDP. No. | D | R | L ₁ | L ₂ | L ₃ | D ₂ | D ₃ | STOCK |
|----------|----|----|----------------|----------------|----------------|----------------|----------------|-------|
| AB312060 | 6 | 3 | 5.5 | 25 | 55 | 5.4 | 6 | • |
| AB312061 | | | | 40 | 90 | | | • |
| AB312080 | 8 | 4 | 7 | 30 | 65 | 7.2 | 8 | • |
| AB312081 | | | | 50 | 100 | | | • |
| AB312100 | 10 | 5 | 8.5 | 35 | 75 | 9 | 10 | • |
| AB312101 | | | | 50 | 100 | | | • |
| AB312102 | | | 10 | 60 | 150 | | | • |
| AB312120 | 12 | 6 | 10.5 | 40 | 75 | 11 | 12 | • |
| AB312121 | | | | 50 | 110 | | | • |
| AB312122 | | | 12 | 60 | 150 | | | • |
| AB312160 | 16 | 8 | 14 | 50 | 90 | 14.5 | 16 | • |
| AB312161 | | | | 70 | 150 | | | • |
| AB312162 | | | 16 | 90 | 200 | | | • |
| AB312200 | 20 | 10 | 17 | 50 | 100 | 18 | 20 | • |

■ Tolerance

| | |
|----------------|------------|
| Mill Dia, (mm) | Shank Dia, |
| ± 0,02 | h6 |

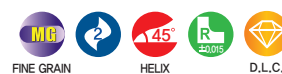
※ Items can be changed for quality improvement without notice.



**2 FLUTE, CORNER RADIUS,
LONG LENGTH, D.L.C. COATING**

- Suitable for aluminium, aluminium alloy, copper & non-ferrous material.
- Corner radius against chipping in high speed machining.

AR502 ...series

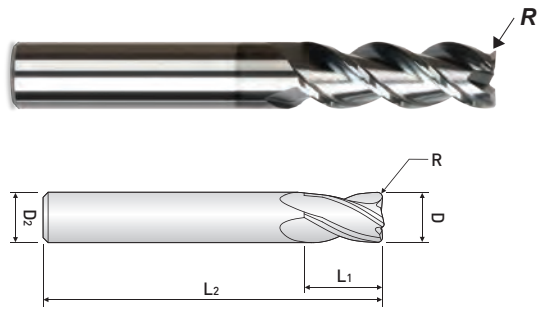


| EDP. No. | Dia. | R | L ₁ | L ₂ | D ₂ | STOCK |
|----------|------|------|----------------|----------------|----------------|-------|
| AR502010 | 1 | 0.05 | 3 | 40 | 6 | • |
| AR502015 | 1.5 | 0.05 | 5 | 40 | 6 | • |
| AR502020 | 2 | 0.1 | 6 | 40 | 6 | • |
| AR502021 | | | 12 | 50 | | • |
| AR502030 | 3 | 0.1 | 10 | 50 | 6 | • |
| AR502031 | | | 20 | 60 | | • |
| AR502040 | 4 | 0.1 | 12 | 50 | 6 | • |
| AR502041 | | | 20 | 60 | | • |
| AR502050 | 5 | 0.1 | 15 | 57 | 6 | • |
| AR502060 | 6 | 0.1 | 15 | 57 | 6 | • |
| AR502061 | | | 22 | 65 | | • |
| AR502070 | 7 | 0.1 | 20 | 63 | 8 | • |
| AR502080 | 8 | 0.1 | 20 | 63 | 8 | • |
| AR502081 | | | 28 | 70 | | • |
| AR502090 | 9 | 0.1 | 25 | 72 | 10 | • |
| AR502100 | 10 | 0.2 | 28 | 72 | 10 | • |
| AR502101 | | | 32 | 80 | | • |
| AR502110 | 11 | 0.2 | 30 | 80 | 12 | • |
| AR502120 | 12 | 0.2 | 32 | 80 | 12 | • |
| AR502121 | | | 40 | 100 | | • |

■ Tolerance

| Mill Dia. (mm) | Shank Dia. |
|----------------|------------|
| 0 ~ -0.02 | h6 |

※Items can be changed for quality improvement without notice.



**3 FLUTE, CORNER RADIUS,
LONG LENGTH, D.L.C. COATING**

- Suitable for aluminium, aluminium alloy, copper & non-ferrous material.
- Corner radius against chipping in high speed machining.

AR503 ...series

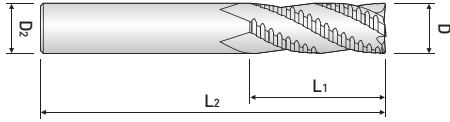


| EDP. No. | Dia. | R | L ₁ | L ₂ | D ₂ | STOCK |
|----------|------|-----|----------------|----------------|----------------|-------|
| AR503040 | 4 | 0.5 | 14 | 57 | 6 | • |
| AR503041 | | 1 | 25 | 62 | | • |
| AR503060 | 6 | 0.5 | 16 | 57 | 6 | • |
| AR503061 | | 1 | 25 | 62 | | • |
| AR503080 | 8 | 0.5 | 22 | 63 | 8 | • |
| AR503081 | | 1 | 35 | 80 | | • |
| AR503100 | 10 | 0.5 | 28 | 72 | 10 | • |
| AR503101 | | 1 | 45 | 100 | | • |
| AR503120 | 12 | 0.5 | 32 | 80 | 12 | • |
| AR503121 | | 1 | 45 | 100 | | • |
| AR503160 | 16 | 0.5 | 45 | 90 | 16 | • |
| AR503161 | | 1 | 65 | 125 | | • |
| AR503200 | 20 | 0.5 | 50 | 100 | 20 | • |
| AR503201 | | 1 | 70 | 130 | | • |

■ Tolerance

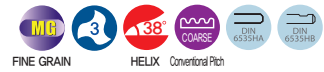
| | |
|----------------|------------|
| Mill Dia. (mm) | Shank Dia. |
| 0 ~ -0,02 | h6 |

※Items can be changed for quality improvement without notice.



**ROUGHING END MILL - for Aluminum
DIN6527L / DIN6535-HA, DIN6535-HB**

AF303 ...series



| EDP. No. | | Dia. | L ₁ | L ₂ | D ₂ | STOCK |
|-------------|------------|------|----------------|----------------|----------------|-------|
| PLAIN SHANK | FLAT SHANK | | | | | |
| AF303060 | AF303060F | 6 | 16 | 57 | 6 | • |
| AF303070 | AF303070F | 7 | 16 | 63 | 8 | • |
| AF303080 | AF303080F | 8 | 16 | 63 | 8 | • |
| AF303090 | AF303090F | 9 | 19 | 72 | 10 | • |
| AF303100 | AF303100F | 10 | 22 | 72 | 10 | • |
| AF303120 | AF303120F | 12 | 26 | 83 | 12 | • |
| AF303140 | AF303140F | 14 | 26 | 83 | 14 | • |
| AF303160 | AF303160F | 16 | 32 | 92 | 16 | • |
| AF303180 | AF303180F | 18 | 32 | 92 | 18 | • |
| AF303200 | AF303200F | 20 | 38 | 104 | 20 | • |

■ Tolerance μm = 1/1000mm

| Tolerance \ Dia. | from 1 to 3 | over 3 to 6 | over 6 to 10 | over 10 to 18 | over 18 to 30 |
|-------------------|-------------|-------------|--------------|---------------|---------------|
| Cutting Edge(h10) | 0 -40 | 0 -48 | 0 -58 | 0 -70 | 0 -84 |
| Shank(h6) | 0 -6 | 0 -8 | 0 -9 | 0 -11 | 0 -13 |