List 78PXAL - PHOENIX® PXAL: 3 Flute, Short Length

Side Milling L/D≤3

| North Aluminum Alloy Expanding Material (5052, 7075) | | | | |
|--|---------------|------|--------------------|----------|
| Speed (SFM) 1650 SFM | | | Expanding Material | |
| of Cut aa ar 0.7D 0.2D Speed (Inch) (Imm) - 10 16,000 189 - 12 13,300 154 - 14 11,400 135 5/8 - 10,100 142 16 10,000 142 18 8,900 126 3/4 - 8,400 151 - 20 8,000 151 - 22 7,300 138 - 25 6,400 151 | Speed | | 1650 SFM | |
| (Inch) (mm) (RPM) reed (in/min) - 10 16,000 189 - 12 13,300 154 - 14 11,400 135 5/8 - 10,100 142 16 10,000 142 18 8,900 126 3/4 - 8,400 151 - 20 8,000 151 - 22 7,300 138 - 25 6,400 151 | of Cut aa∏ | | | |
| Charles Char | Mill | Dia. | Speed | Feed |
| - 12 13,300 154 - 14 11,400 135 5/8 - 10,100 142 - 16 10,000 142 - 18 8,900 126 - 20 8,000 151 - 20 8,000 151 - 22 7,300 138 - 25 6,400 151 | (Inch) | (mm) | (RPM) | (in/min) |
| - 14 11,400 135 5/8 - 10,100 142 16 10,000 142 18 8,900 126 3/4 - 8,400 151 - 20 8,000 151 - 22 7,300 138 - 25 6,400 151 | - | 10 | 16,000 | 189 |
| 5/8 - 10,100 142 16 10,000 142 18 8,900 126 3/4 - 8,400 151 - 20 8,000 151 - 22 7,300 138 - 25 6,400 151 | - | 12 | 13,300 | 154 |
| 16 10,000 142 18 8,900 126 3/4 - 8,400 151 - 20 8,000 151 - 22 7,300 138 - 25 6,400 151 | - | 14 | 11,400 | 135 |
| 18 8,900 126 3/4 - 8,400 151 - 20 8,000 151 - 22 7,300 138 - 25 6,400 151 | 5/8 | - | 10,100 | 142 |
| 3/4 - 8,400 151 - 20 8,000 151 - 22 7,300 138 - 25 6,400 151 | | 16 | 10,000 | 142 |
| - 20 8,000 151 - 22 7,300 138 - 25 6,400 151 | | 18 | 8,900 | 126 |
| - 22 7,300 138 - 25 6,400 151 | 3/4 | - | 8,400 | 151 |
| - 25 6,400 151 | - | 20 | 8,000 | 151 |
| 1, 11 | - | 22 | 7,300 | 138 |
| 1 . 1 | - | 25 | 6,400 | 151 |
| 1 - 6,300 151 | 1 4 | | | |

Side Milling 3<L/D≤5

| Work Material | | Aluminum Alloy Expanding Material (5052, 7075) | |
|---------------------------|------|--|----------|
| Cutting Speed (SFM) | | 980 SFM | |
| Depth of Cut aa | | | |
| Mill | Dia. | Speed | Feed |
| (Inch) | (mm) | (RPM) | (in/min) |
| - | 10 | 9,600 | 91 |
| - | 12 | 8,000 | 76 |
| - | 14 | 6,900 | 65 |
| 5/8 | - | 6,000 | 68 |
| | 16 | 6,000 | 68 |
| | 18 | 5,400 | 61 |
| 3/4 | - | 5,000 | 72 |
| - | 20 | 4,800 | 73 |
| - | 22 | 4,400 | 67 |
| - | 25 | 3,900 | 74 |
| 1 | - | 3,700 | 71 |

Side Milling 5<L/D≤7

| Work Material | | Aluminum Alloy Expanding Material (5052, 7075) | |
|---------------------------|--|--|--|
| Cutting Speed (SFM) | | 660 SFM | |
| Depth of Cut aa | | aa ar 0.7D 0.04D | |
| Mill Dia. | | Speed | Feed |
| (Inch) | (mm) | (RPM) | (in/min) |
| | | | |
| - | 10 | 6,400 | 55 |
| - | 10 12 | 6,400 5,400 | 55 46 |
| - | | , | |
| - - - 5/8 | 12 | 5,400 | 46 |
| - - - 5/8 | 12 | 5,400 4,600 | 46 39 |
| | 12 14 - | 5,400 4,600 4,000 4,000 3,600 | 46 39 41 41 37 |
| 5/8 | 12 14 - 16 18 | 5,400 4,600 4,000 4,000 | 46 39 41 41 37 44 |
| | 12 14 - 16 18 - 20 | 5,400 4,600 4,000 4,000 3,600 3,400 3,200 | 46 39 41 41 37 44 |
| | 12 14 - 16 18 - 20 22 | 5,400 4,600 4,000 4,000 3,600 3,400 3,200 2,900 | 46 39 41 41 37 44 44 |
| | 12 14 - 16 18 - 20 | 5,400 4,600 4,000 4,000 3,600 3,400 3,200 | 46 39 41 41 37 44 |

Side Milling L/D≤3

| Work Material | | Aluminum Alloy Expanding Material (5052, 7075) | |
|------------------|--------------------------------|--|----------|
| Spe | ting eed : _{M)} | 1650 SFM | |
| Depth of Cut | | a a 0.5D | |
| Mill | Dia. | Speed | Feed |
| (Inch) | (mm) | (RPM) | (in/min) |
| - | 10 | 16,000 | 189 |
| - | 12 | 13,300 | 154 |
| - | 14 | 11,400 | 135 |
| 5/8 | - | 10,100 | 118 |
| | 16 | 10,000 | 118 |
| | 18 | 8,900 | 105 |
| 3/4 | - | 8,400 | 95 |
| - | 20 | 8,000 | 94 |
| - | 22 | 7,300 | 86 |
| - | 25 | 6,400 | 76 |
| 1 | - | 6,300 | 76 |

Side Milling 3<L/D≤5

| Work Material Cutting Speed (SFM) Depth of Cut | | Aluminum Alloy Expanding Material (5052, 7075) 980 SFM | | | | | |
|--|----------|---|----|-----------|------|-------|----------|
| | | | | Mill Dia. | | Speed | Feed |
| | | | | (Inch) | (mm) | (RPM) | (in/min) |
| - | 10 | 9,600 | 85 | | | | |
| - | 12 | 8,000 | 71 | | | | |
| - | 14 | 6,900 | 61 | | | | |
| 5/8 | - | 6,000 | 53 | | | | |
| | 16 | 6,000 | 53 | | | | |
| | 18 | 5,400 | 48 | | | | |
| | | 5,000 | 42 | | | | |
| 3/4 | _ | 3,000 | 12 | | | | |
| 3/4 - | 20 | 4,800 | 43 | | | | |
| 3/4 - - | 20 22 | , | ·- | | | | |
| 3/4 - - - | | 4,800 | 43 | | | | |

Side Milling 5<L/D≤7

| Work Material | | Aluminum Alloy Expanding Material (5052, 7075) | |
|------------------|--------------------------------|--|----------|
| Spe | ting eed : _{M)} | 660 SFM | |
| Depth of Cut | | a a 0.2D | |
| Mill | Dia. | Speed | Feed |
| (Inch) | (mm) | (RPM) | (in/min) |
| - | 10 | 6,400 | 38 |
| - | 12 | 5,400 | 32 |
| - | 14 | 4,600 | 27 |
| 5/8 | - | 4,000 | 23 |
| | 16 | 4,000 | 24 |
| | 18 | 3,600 | 21 |
| 3/4 | - | 3,400 | 19 |
| - | 20 | 3,200 | 19 |
| - | 22 | 2,900 | 17 |
| _ | 25 | 2,600 | 15 |
| - | | | |

- 1. Use a rigid and precise machine and holder.
- 2. Please adjust the speed and feed when the depth of cut is large or when machines with low rigidity are used.
- 3. Please adjust the cutting condition when the overhang length is longer.
- $4.\ Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.$
- 5. When milling copper and copper alloys, lower the rotational speed by 20 to 40%, feed rate by 50 to 80%, and cutting depth by ap 50 to 80% in accordance with the table
- 6. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.