

Beryllium Machining Guidelines

ALBEMET® MACHINING GUIDELINES:

These guidelines are based on actual experience and controlled tests. Some results were influenced by spindle speed limits and rigidity of fixtures and work pieces. These guidelines should be considered conservative starting points for roughing operations. Unless specified otherwise they are based on un-coated carbide tools and a coolant flush.

GENERAL EXPERIENCE

- Cutter Life compared to 6061 T6 aluminum: AMI 62H=75%, Other AMI 62=60%
- Aggressive chip loads will maximize material removed per cutter life cycle.
- C-2 or micro-grain tungsten carbide cutting tools will outlast H.S.S. at least 3:1
- Coolants extend cutter life. Coolants for aluminum have been successfully used.
- Peck cycles when drilling help to clear chips and extend tool life.

| Specific Data | | |
|---|------------------------|-----------------|
| Drilling | | |
| Drill Dia. (in) | Speed (surface ft/min) | Feed (in/rev) |
| Less than .150 | 100 | .002 |
| .150 and over | 150 | .003 |
| Reaming | | |
| Reamer dia (in) | Speed Surface (ft/min) | Feed (in/rev) |
| Under .100 | 50 | .004 |
| .100 to .375 | 50 | .008 |
| Over .375 | 50 | .012 |
| End Milling – Slotting/Facing | | |
| Cutter dia (in) | Speed (surface ft/min) | Feed (in/tooth) |
| Under .100 | 150 | .0004 |
| .100 to .200 | 200 | .0010 |
| Over .200 | 400 | .0040 |
| Over .200* | 800* | .0015* |
| *Poly crystalline diamond cutter. Cutter life 20 times carbide. | | |
| End Milling - Peripheral | | |
| Cutter Dia (in) | Speed (surface ft/min) | Feed (in/tooth) |
| Under .100 | 200 | .0002 |
| .100 to .200 | 250 | .0008 |
| Over .200 | 300 | .0020 |
| Turning | | |
| Cut depth (in) | Speed (surface ft/min) | Feed (in/rev) |
| .040 | 350 | .006 |
| .150 | 250 | .010 |

Note: Handling Aluminum-Beryllium Alloys in solid form poses no special health risk. Like many industrial materials, beryllium-containing materials may pose a health risk if recommended safe handling practices are not followed. Inhalation of airborne beryllium may cause a serious lung disorder in susceptible individuals. The Occupational Safety and Health Administration (OSHA) has set mandatory limits on occupational respiratory exposures. Read and follow the guidance in the Material Safety Data Sheet (MSDS) before working with this material. For additional information on safe handling practices or technical data on Aluminum Beryllium, contact Materion Brush Beryllium & Composites.

MM-006

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