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## THERMKON® Machining Guidelines

Excellent surface finish on the THERMKON® materials can be produced by milling, shaping, turning, boring, drilling, tapping and grinding techniques. In general, machining THERMKON® materials produces short chips and the materials can be machined without use of a lubricant or coolant. If a lubricant or coolant is needed, a water soluble lubricant or coolant is advisable. Notches and sharp corners should be avoided where possible. The information contained here should be used as a guide only as each machine shop develops its own practice for machining and grinding.

### TOOLS

Tool steel tools can be used, but it is recommended for good machining practice that non-ferrous grade carbide tool material such as C-2 or C-5 be used. For grinding, use crystolon wheels. When grinding tools use a 0 deg to 5 deg positive rake angle, 5 deg to 7 deg clearance and a nose radius as generous as possible. Tools need to be sharpened frequently to prevent pulling of material during machining operations.

### Turning and Boring:

- Roughing: Up to 0.100" deep with 0.008" feed per revolution for THERMKON® 83 and THERMKON® 76. Up to 0.050" deep with 0.008" feed per revolution for THERMKON® 68, THERMKON® 62, THERMKON® 65M and THERMKON® 70M.
- Finishing: Use 0.005" to 0.015" depth of cut with a 0.002" to 0.005" feed per revolution for all materials. Use turning speed of 200 sfm for all turning and boring operations.

### Milling:

For milling up to 0.100" depth of cut use a feed of 0.005" to 0.006" per tooth with a speed of 80 to 100 sfm for all materials.

### Drilling and Tapping:

Use carbide micro-grain drills for best results. Use spiral point taps. Use of coated taps for deep holes will increase tap life. Rigidity is very important.

### Grinding:

Use 0.0005" to 0.0015" removal per pass on surface grinding for all THERMKON® materials. Grinding wheels need to be dressed frequently to prevent loading.