

MACHINABLE CERAMICS INSTRUCTIONS

310 - 914 - 960 - 915 - 56L

MACHINING TOOLS

Use with sharp cutting tools, carbide cutting tools are preferred.
Check tools for sharpness frequently. Ceramics are hard and abrasive and can cause rapid wear of cutting edges.
Clamp work firmly to avoid vibration and chatter.

LUBRICATION

Water provides excellent cooling and lubrication. Keep a continuous stream of water on the work and tool.
Insufficient lubrication will cause dulling of cutting tools and chipping of the ceramic.
Lubrication is a must for precision work. Lubricants recommended include Supercut S67 and Quaker 103.

CUTTING

Cut down into work.
Use bonded silicon carbide or diamond cut off wheel with speeds of 6000 - 8000 S.F.M. (2000-2500 rpm).

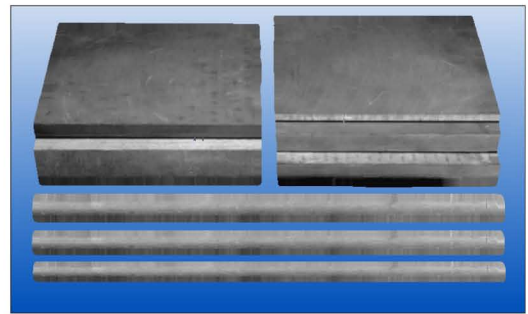
BANDSAW

Blade type: carbide grit (continuous coat) use a band speed of 100 feet per minute.

DRILLING

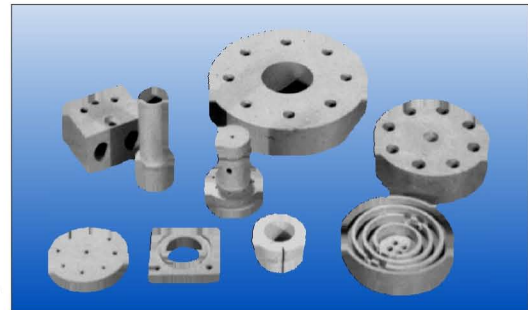
Use Carbide drills. (Carboloy 883 or equivalent).
For high speed drills, drill slower.
Never drill all the way through. Use a drill jig and drill from both sides.
Re-sharpen bits every 3 - 4 holes.

Drill Size	RPM	Feed - RPI
1/4 inch	300	0.005
1/2 inch	250	0.007
3/4 inch	200	0.010
1 inch	100	0.012



MILLING

Cutting Speed (surface ft. per min.)	20 - 35
Chip Load (inches per tooth)	0.002
Depth of Cut (inches)	0.150 -0.200



THREADING

Use a diamond wheel with a tool post grinder or tungsten carbide tools.

TAPPING

Use high speed steel or carbide. Drill size should allow for 70% thread form. Use lubricant.

TURNING

Use carbide tool bits or silicon carbide wheels on post grinder.

Tool Type	Carboloy 883
Cutting Speed (surface ft. per min.)	30- 50
Feed Rate (inches per revolution)	0.002- 0.005
Depth of Cut (inches)	0.150- 0.250

GRINDING

Use a silicon carbide, resinoid bonded wheel at the recommended speeds.
Use a soft, coarse grained wheel for heavy grinding.
Use a hard, fine grained wheel for finishing.
Use a 1% solution of soluble oil in the lubricant for best results.
For polishing use cerium oxide on a pitch or felt cloth.
No Heat Treating is required, however, shrinkage may occur in use. A test piece should be exposed to the service temp., for the usage time, to check for shrinkage before committing to actual parts.

NOTE: Cotronics ceramics particles are abrasive clean machines thoroughly after machining.



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