902 PRECISION MACHINABLE CERAMIC

MACHINING TOOLS

Use standard tools for Turning, Drilling, Tapping, Threading, Milling, Grinding, etc.

Keep tools sharp. Dull tools can cause chipping.

Use carbide tipped tools when available.

Use the same cutting speeds and feed rates as for machining metal.

DO NOT USE any lubricants or coolants.

Clean machine thoroughly after machining. Cotronics 902 particles are abrasive.

PART DESIGN

Machine parts 1.8% to 2% undersized to allow for expansion during firing.

A machined dimension of 0.980" will be 1.000" after firing.

NOTE: Diameters will expand from 1.8% to 2%.

The cross sectional thickness of the ceramic should be kept below ½ " to prevent cracking during firing.

Use a smooth, gentle transition from thick to thin sections and if necessary drill holes to keep the cross sectional thickness below ½".

FIRING

Place the machined 902 ceramic part into a cold, air atmosphere furnace. Protect from any direct flame impingement or direct contact with heating elements.

Heat at 200°F (90°C) per hour (maximum) until a temperature of 1900°F - 2000°F is reached.

Hold ¼" parts at temperature for ½ hour and ½" parts for 1 hour.

Furnace must be cooled to below 200°F (90°C) prior to removing the parts.

HEATING SCHEDULE for parts 1/2" in thickness

Set Point	Hold for a Minimum of:
925°F (500°C)	4 Hours
1050°F (565°C)	4 Hours
1550°F (850°C)	4 Hours
1700°F (930°C)	4 Hours
1950°F (1050°C)	2 Hours
Hold for 2 Hours at	1950°F (1050°C)
Furnace Cool	**Minimum of 4 Hours**

NOTE: Fired 902 Ceramic can be ground wet with Silicon carbide wheels if ultra precision is required.

TROUBLE SHOOTING GUIDE

Before calling Cotronics Technical Service

1) Check the furnace temperature and the curing schedule.
2) Check for full expansion.
3) Re-design part with smooth, well rounded corners.

SPECIAL SIZES, QUANTITY PRICES, CUSTOM MACHINED PARTS UPON REQUEST

COTRONICS CORPORATION

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