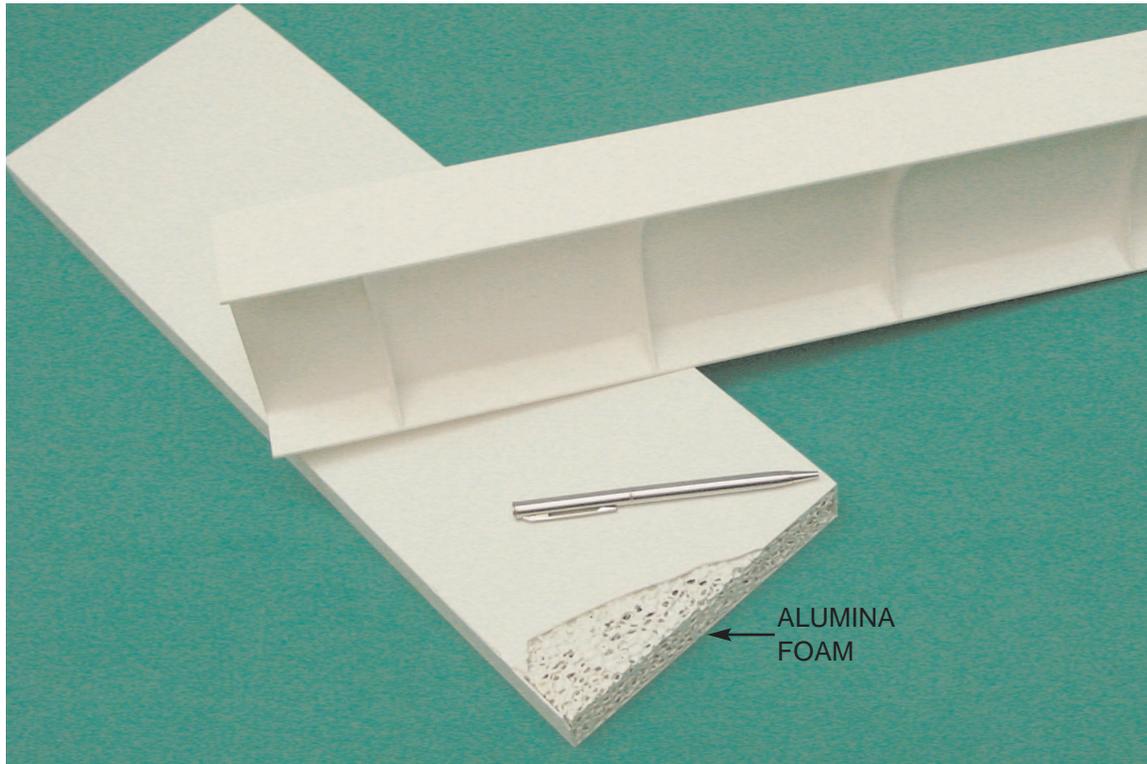


CERAMIC STRUCTURES



STRUCTURAL CERAMICS TECHNOLOGY PRODUCTS

FEATURES:

- Rigid — Extremely low deflection
- Very low thermal expansion
- Light weight construction
- Vibration dampening
- High temperature operation (500°C) min.
- High strength to weight ratio
- Multiple Mounting methods

APPLICATIONS:

- Beams to 10 ft. long and of numerous shapes
- Stage Plates, rigid and light weight
- Chucks, solid, hollow or porous; single and multi-material construction 96.0% or 99.5% Al_2O_3

The high-tech industries of the world are demanding accuracy over ever larger temperature ranges. The thermal expansion, weight and harmonic oscillations of metals have continued to challenge designers. CSI has developed the discipline of “structural ceramics” which permits the fabrication of components which are rigid, light weight, and dimensionally stable. In essence any part which can be fabricated in metals can also be produced in ceramics using structural ceramics techniques. This methodology does not require expensive tooling and can provide single or multiple parts at reasonable cost with short lead times.

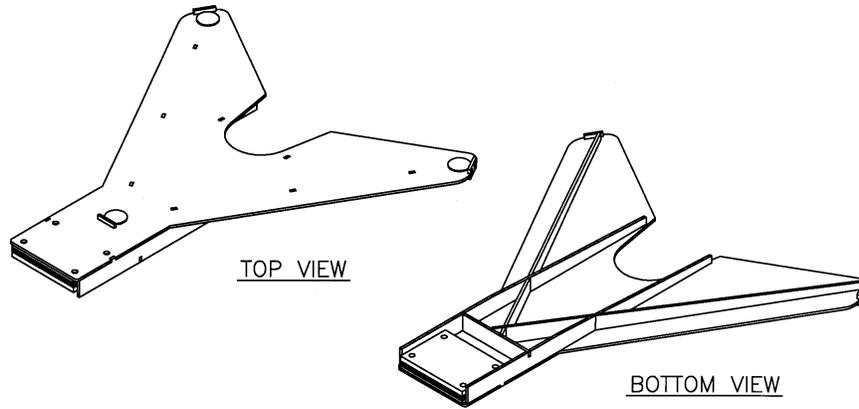


CERAMIC SUPPLY INTERNATIONAL, INC.

1230 COLEMAN AVE., SANTA CLARA, CA 95050

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STRUCTURAL CERAMICS PARTS



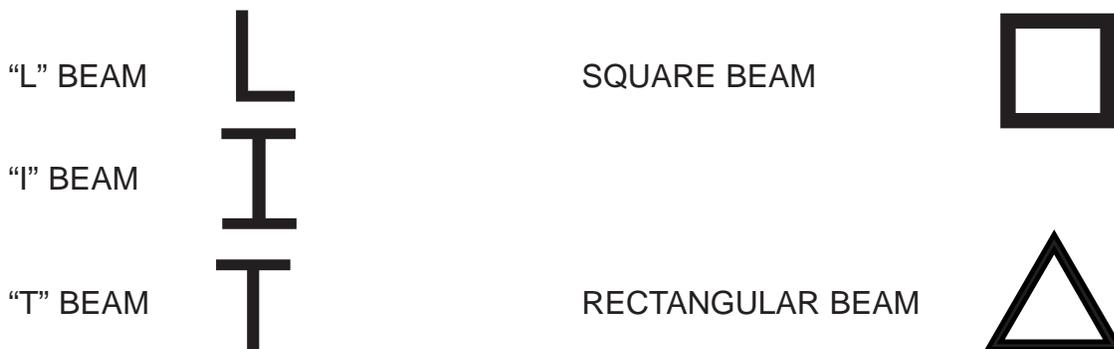
The above item is an end-effector manufactured for the transport of a large and heavy circular glass plate. The end-effector is both strong and rigid while being light in weight as compared to a solid ceramic part. Structural ceramic parts also cost less than a solid ceramic part.

PERFORMANCE DATA FOR 96% ALUMINA

CTE	_____	$7.6 \times 10^{-6}/^{\circ}\text{C}$
SPECIFIC HEAT	_____	880 J/kg ^o K
DENSITY	_____	3.72 gms/cm ³
OPERATING TEMPERATURE	_____	1200 ^o C
THERMAL CONDUCTIVITY	_____	@ 20 ^o C = 35 W/M ^o K
		@ 300 ^o C = 17 W/M ^o K

BEAM SHAPES AVAILABLE

Beams of any cross section and lengths to 10 feet can be produced at very reasonable cost. Lengths to 30 feet are possible.



PLATES AND DISKS AVAILABLE

Support plates of light weight and high rigidity can be fabricated with partial or complete internal support. These plates can be used for high accuracy stages and system bases. Circular support plates are both rigid and light weight and can be used for wafer chucks of large size which use vacuum or electro-static clamping. All shapes can be supplied with or without internal supports of foamed ceramic or individual beams.

