

## Electro-Ceramic Products Division

### Facilities

Reynolds Industries ceramic-to-metal facility is a separate operating division co-located with the Connector Products Division in our Marina Del Rey facility.

The Ceramic Division has available to it the model shop, tooling, environmental testing, and Quality Assurance departments at the Marina Del Rey facilities. The division has two computer controlled batch furnaces which provide highly repeatable brazing cycles.

High current vacuum trigger switches are brazed in a vacuum furnace with on-line mass spectrometer, cryogenic filter and a turbo molecular pump.

### Technology

High alumina ceramics, when properly metallized, plated, and brazed, exhibit excellent hermetic sealing and dielectric strength. These attributes make ceramic-to-metal assemblies ideal high voltage receptacles for containment of dielectric gases or fluids when subjected to the rigors of aerospace environments. Other severe environmental applications include high voltage connector feed-thrus for cryogenic physics research and space-borne electric propulsion.

Reynolds ceramic-to-metal receptacles and header assemblies use only the best quality, 94% (minimum) alumina ceramic metallized with moly-manganese and nickel plated. Only military standard metals are used for contacts, shells, bellows and braze material.



Ceramic fixtures are used to assure precision alignment of metal details during the furnace brazing process.



Precision computer controlled temperature/time profiles within the hydrogen brazing furnace, are necessary to the manufacture of repeatable high strength and leak tight ceramic-to-metal connectors and assemblies.



Vacuum furnace with on line mass spectrometer, cryogenic filter and turbo-molecular pump for production brazing of high voltage, high current vacuum trigger switches and other high vacuum devices requiring a ceramic to metal seal.



High voltage trigger switches require extensive non-destructive testing on a 100% basis. Shown is a test being conducted to record the trigger voltage level after exposure to cold temperature. The tester is computer controlled and the test data is recorded as a printout and electronic data base.



A selection of ceramic-to-metal sealed high voltage, high current vacuum trigger switches with various termination schemes. These switches are widely used in Electronic Safe & Arm Systems.



A variety of ceramic-to-metal sealed high voltage connectors. Silicone rubber dielectric seals are added for operation at altitudes up to 70,000 feet. Engineers choose these connectors for long term hermeticity, higher operating temperatures and resistance to radiation.

## Products

### Connectors

Ceramic-to-metal connectors are finding more and more applications within high voltage power supplies and high vacuum assemblies because of the need for long term hermetic reliability.

The Electro-Ceramic Products Division has produced ceramic-to-metal brazed connectors for over 15 years. Only the best available ceramics and metallizing processes are used in manufacturing both high and low voltage connectors and feed-thrus.

### Electronic Safe and Arm Products (ES&A)

Reynolds is a leading supplier of high voltage, high current vacuum trigger switches designed expressly for Electronic Safe and Arm Systems. These switches, capable of switching 10,000 amps at many thousands of volts, are key components in electronic fuzes for initiating the explosive train.

