FRALOCK®
Leading the Way in Advanced Materials Solutions®

CERAMIC SOLUTIONS FOR MEDICAL APPLICATIONS

Engineered ceramic components play an important role in a variety of medical devices and equipment. Superior heat and chemical resistance and extreme durability allows these components to function where metal and polymers are unsuitable. The biologically inert properties of the material make ceramics ideal for implantable applications.

The composition of a ceramic can be tailored for both active circuit and passive parts, using AlN, alumina, zirconia, sapphire, and glass. Our advanced in-house manufacturing technology enables us to manufacture a multitude of shapes and sizes (1mm to 380mm) with green machining, lapping, drilling, sintering, laser machining, and polishing. Our ceramics can be metalized and brazed to your specifications. With our combined capabilities and technologies, Fralock is strategically positioned to provide turnkey solutions.

ENGINEERED STRUCTURAL CERAMICS

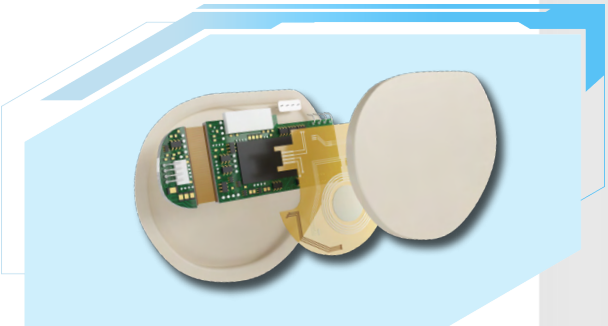
Structural ceramics are an ideal choice for medical applications that require electrical isolation, thermal management, hermetic solutions, and biocompatibility. Our precision machining can achieve tight tolerances, and we can provide a wide range of surface finishes.

Applications and Features

Implantable Ceramic Housings

Features and Benefits

- Can be metalized
- Hermetically sealable



Ceramic Feedthroughs

Features and Benefits

- Custom designs
- Can be integrated into the assembly

Fluid Dispensing Valves

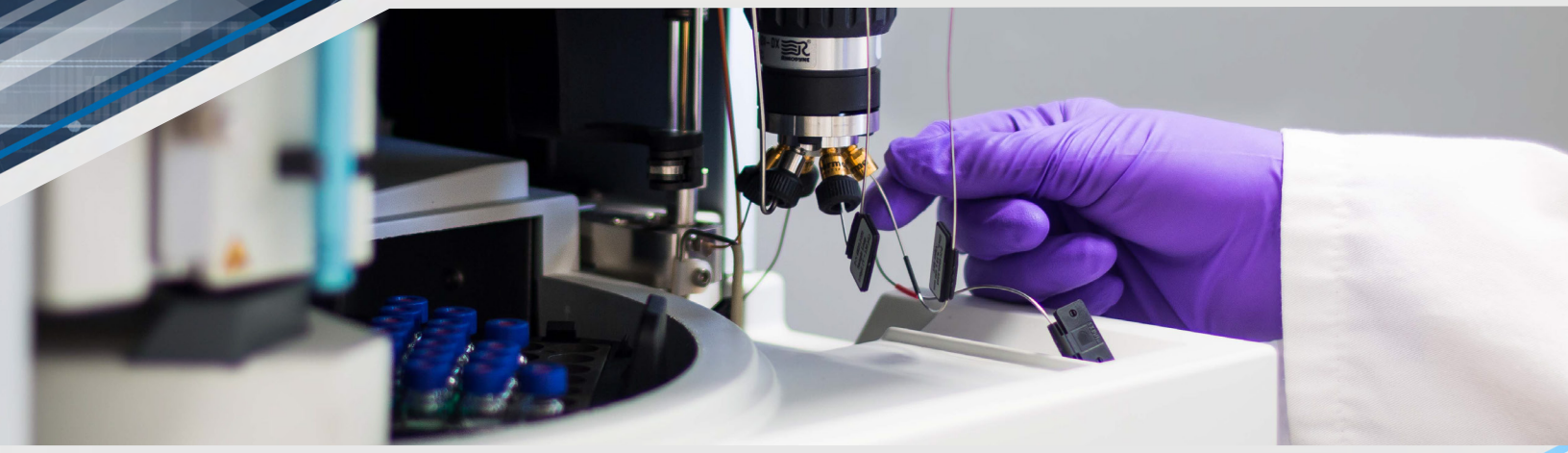
Features and Benefits

- Autoclavable, harsh environment compatible
- Durable, up to 10 times the life span of plastic components
- Corrosion resistant

X-Ray Tube Components

Features and Benefits

- Printable MoMn and Ni
- Header and Ilet assemblies
- Customizable



CERAMIC HEATERS

Fralock Ceramic heaters are made using high thermal conductivity Aluminum Nitride (AlN) ceramic with embedded Tungsten heating traces, providing tailored power input to achieve your temperature transition and thermal uniformity goals. Integrated channel structure and low density AlN ceramic provides quick cooling rates, from 300°C to room temperature in a just few seconds.

Applications and Features

Analytics Equipment (PCR machines)

Features and Benefits

- High degree of surface polish for uniform thermal transfer
- Chemically resistant
- Low UV emissivity coatings
- Thermal uniformity of +/- 0.1 C

Fluid Heating and Vaporizing

Features and Benefits

- Low power requirements for portable devices
- Unique geometries for optimizing fluid heating or vaporization
- Low thermal mass

Gas Chromatography - Mass Spectrometry

Features and Benefits

- Extremely reliable, can perform millions of cycles
- Reduced test times, increased efficiency
- Turnkey assemblies

Cauterizing/Tissue Cutting

Features and Benefits

- Rapid heating and cooling for optimal patient safety
- Biocompatible
- Encapsulated heating elements for high reliability and durability

Get in touch with us to discuss your project

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