

Hermetic Endoscope Windows

Overview

The Hermetic Solutions Group has pioneered the use of ceramic-to-metal sealing technology to manufacture hermetically sealed windows for endoscope applications. The unique bonding properties and polycrystalline structure of the Hermetic Solutions Group's Kryoflex® material now allow the company to produce sight windows that maintain the highest levels of hermetic integrity under the extreme environmental conditions.



Technical Advantages

Flexible

The Hermetic Solutions Group's ceramic-sealed hermetic windows offer engineers additional advantages beyond high hermetic performance. Because Kryoflex seals at relatively low temperatures, they can now choose from a variety of optical glasses such as sapphire, quartz and BK10.

High Reliability

Windows produced with this new process are extremely robust and reliable because a key point of failure – solder joint fatigue – is eliminated. They provide a leak rate equal to or less than 1×10^{-9} cc/sec helium at 1 atmospheric differential pressure, even after repeated (1,000+) autoclave sterilization cycles.

Field Proven

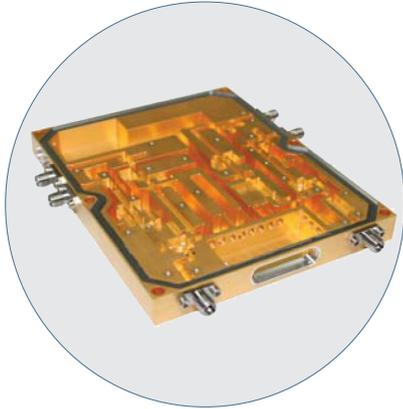
The Hermetic Solutions Group's ceramic-sealed windows have also passed cytotoxicity testing so all window materials are proven safe for use within the human body.

Simplified Processing

Unlike solder- or braze-sealed windows, our ceramic-sealed hermetic windows do not require metalization. Eliminating this step can, reduce costs and processing time and allows anti-reflective coatings to be applied after the sealing process, ensuring that the critical A/R coating is not impacted by subsequent processing.

Laser Welding: Robust Reliability

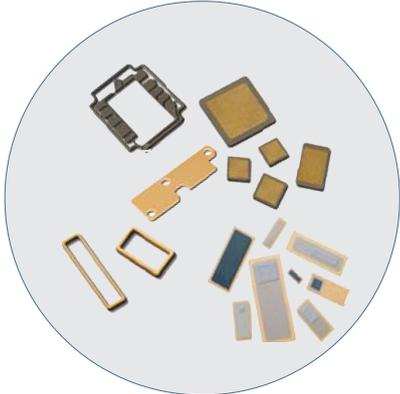
The Hermetic Solutions Group utilizes the latest state-of-the-art laser welding systems to integrate windows using the radiation from a focused, energy-dense, beam of infrared light. This non-contact welding process minimizes thermal and mechanical stresses, and provides an extremely small heat-affected zone, ensuring components are exposed to the least-hostile welding environment possible.



OTHER PRODUCTS & SERVICES:

Hermetic Electronic Packaging

We bring customers' hermetic electronic package designs to life and use unique materials and manufacturing processes to help optimize for weight savings, footprint reduction, thermal transfer and more. Our precision machining capabilities allow us to meet very tight tolerances for Kovar, aluminum and titanium housings. We deliver the standard and custom packaging solutions that ensure the electronics within those devices are unaffected by whatever extreme environmental condition they operate in.



Enabling Components

There's more to a reliable hermetic package solution than a box and connectors and we manufacture components to ensure a module's long term viability. We produce: getters to prevent build-up of contaminants; solder preforms that aid in attaching electronic circuitry; ring frames that become integral side walls of a hermetic package; and custom thermal spreaders that ensure heat from a chip or substrate is efficiently dissipated. To top things off, we also manufacture package lids.



Laser and Integration Services

We provide high-speed laser welding, sealing and marking with consistent accuracy. Our laser welding expertise also extends to the manufacture of custom designed/build laser welding, cutting & sealing systems for customers who wish to bring those capabilities in house.

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