Implantable Medical Packaging

Overview

The Hermetic Solutions Group makes it possible for medical device developers to create new, life-saving devices that are smaller, stronger, and more reliable. Our medical components are used in applications such as cochlear implants, neurostimulators, cardiac-function devices and more.

Technical Advantages

Turn-Key Solutions

The Hermetic Solutions Group is a one-stop-shop that can help bring your implantable medical device to life. We offer a range of services for every stage in the process including: precision package machining; feed-thru manufacture and integration, electronics installation (via an ISO Class 7 clean room); final lidding/sealing and wash & pack services.

Field Proven

The Hermetic Solutions Group has a 40+ year track record of supplying packaging and interconnect components to both early-stage, and well established implantable medical device manufactures.

Unique Technologies

Our unique Kryoflex ceramic-to-metal sealing technology is especially well suited for applications that require very tight pin pitches. It is an excellent insulator and a great alternative to traditional gold-braze pin sealing solutions. We’ve also developed specialized brazing materials and process that allow the Hermetic Solutions Group to hermetically join titanium and zirconia for implantable medical device packages that require RF transparency.
Vacuum Brazing/Diffusion Bonding

Hermetic Solutions Group offers processes to join dissimilar materials such as titanium, alumina, zirconia, and more. We’ve been making these medical feedthrus and assemblies for more than 25 years.

Advanced Implantable Viability

Hermetic Solutions Group’s packaging address potential rejection issues by using materials with a proven track record of implantable viability. For example, we utilize advanced ceramic materials in a housing that enable a cochlear implant to reside safely within the human body.

Smaller, More Durable Components

Hermetic Solutions Group has developed a ceramic-to-metal joining technology to make components smaller without compromising performance. Our RF transplant ceramic enables device manufacturers to communicate with devices from outside the body. Using smaller components and strengthening advancements, we have increased the durability of implantable medical devices.

Kryoflex

Kryoflex is a family of polycrystalline ceramics developed by Hermetic Solutions Group for hermetically sealing together materials used in electrical feedthrus and is very effective at prohibiting the influx of any fluids or gases into the internal electronic circuitry. Kryoflex is used to manufacture ultra-reliable feedthrus for a wide variety of implantable devices.
Devices implanted in the human body are at the leading edge of medical science. Advancing that technology, and making more implantable devices possible, requires overcoming several complex challenges. For example, medical implants must be as small as possible. However, the performance of new devices is often constrained by material selection and thickness. External communication with the implant is critical. Current communication technology relies on case material characteristics and size. Reliability and implantable viability are always issues because it is imperative that the body does not reject a newly-implanted device.

Examples of implantable packages and feedthrus from Hermetic Solutions Group

The Hermetic Solutions Group is at the forefront in overcoming challenges faced by medical implant designers. We developed a ceramic-to-metal joining technology to make components smaller without compromising performance. The Hermetic Solutions Group’s RF transparent ceramic enables device manufacturers to communicate to devices from outside the body. With smaller components and strengthening advancements, we increase the durability of implantable devices. We’ve also helped to overcome rejection issues by designing devices using materials with a proven track record of implantable viability.
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.