



DATASHEET

Hermetic Encapsulation

Based on our technological competences we are providing solutions for the most innovative therapies of tomorrow already today – starting from single components up to full active systems.

Our service comprises the full range from designing and encapsulating implantable electronics over to interconnections to electrodes up to developing firmware and software.

KEY WINNING FEATURES

High Channel Count

Thick film technology enables hundreds of electrical feedthroughs – unlike conventional titanium packages with metal pin feedthroughs.

Customized to your needs

Our ceramic encapsulation technology is the first complete packaging solution for implants with a very high channel count with additional options for electronics and software available on the market. Designed according to your requirements it ensures a protection of the implant electronics for decades.

Electromagnetic Transparency

The ceramic encapsulation is transparent to electromagnetic waves facilitating communication via radio frequency or infrared as well as inductive powering.

Mechanical Robustness

CorTec's ceramic packages can be designed to survive mechanical impact as for example required for cochlear implants according to EN 45502-2-3:2010 and ISO 14708-7:2013.

Superior Hermeticity

Protection of electronics against moisture with tested helium leak-rates down to the detection limit of state-of-the-art leakage detections – even for small implant volumes below 1 cm³.

DESIGN OPTIONS

Feedthrough Dimensions and Spacing

- Feedthroughs realized as metal tracks on ceramic base substrate
- Minimum track width: 0.08 mm
- Minimum pitch: 0.2 mm

Hermetic Sealing in Controlled Helium Environment

- Elaborated cleaning & drying procedure minimizes trapping of water molecules inside the package before sealing
- Packages are sealed in 100% helium atmosphere permitting lifetime prediction based on helium leakage measurements
- Extremely low leak rates qualify our packages for rejection thresholds down to 10⁻¹⁰ mbar l s⁻¹.

Customized Telemetric Coils

- Hand-crafted high precision coils adapted to the needs of customer-specific inductive power and data interfaces
- Materials: Gold or copper (for feasibility studies)

Connects to Other Products

- AirRay® electrodes
- Commercially available neural electrode arrays (Utah array) and implantable connectors

MATERIALS

IN CONTACT WITH THE BODY

Smooth implant shell and cables made of medical grade silicone rubber.

All other materials such as the ceramic encapsulation, the feedthroughs, and the metal seal for the package are covered by this silicone shell.