FUSION FOR ENERGY

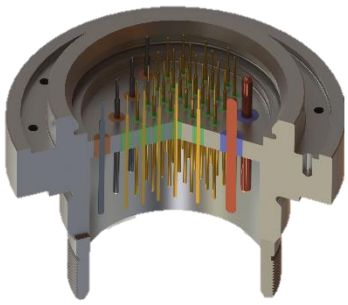
TECHNOLOGY OFFER

Glass-to-Metal Seals for hermetic interconnexions

VAC-TRON and F4E have developed innovative Glass-to-Metal-Seals for the In-Vessel electrical feedthroughs of ITER in order to pass the signals produced by the sensors. Providing high resistance to temperature and pressure with the possibility to offer safe and compact designs, this hermetic interconnexion technology can find many applications in aerospace, energy and Big Science facilities.

The technology

VAC-TRON develops hermetic interconnections to pass electrical signals between hostile atmospheres. The core technology is to fuse glass to have a hermetic seal between the electrical conductor pin and the external shell or bulkhead. VAC-TRON has been involved in the development of the In-vessel electrical feedthroughs of ITER (the connectors that carry the signals of sensors, which measure the temperature, irradiation, composition of the plasma).



A compact, safe and cost effective design

This technology offers safety with compact design and high performance

- Safe: A glass barrier on a bulkhead reduces the risk of hermetic failure on critical applications and provides additional safety while reducing weight.
- Cost-effective: Sealing different types of conductors on a single wall; thermocouples, RF and DC signals, power conductors reduces weight & cost
- High performance: thanks to Glass-to-Metal Sealing (GTMS) technology, it is possible to produce a hermetic seal which sustain a temperature from -195°C to 300°C and a pressure up to 2500 bar.
- Quality according many standards: MIL-STD-883, ITER quality standard (PICs & PIAs associated to Nuclear Safety Requirements) and soon ATEX, IECEx

Design flexibility and multiple signals compatibility to meet requirements of different sectors

Having safe and performant hermetic interconnexions to pass electrical signals between two hostile atmosphere is a requirement that can be found in many applications outside the ITER project such as space (security feedthroughs with a reduced weight), Big Sciences facilities (compact designs for Ultra High Vacuum applications), Oil and Gas (safety power and signal feedthroughs) or hydrogen.

Collaboration opportunities

VAC-TRON can offer bespoke solutions (feedthroughs and connectors) according to client needs, from nano connectors (0,1g) to big connectors (+20kg). VAC-TRON S.A. has an R&D department to serve the market and our clients requirements

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