



HERMETIC FEEDTHROUGHS FOR LIQUID-COOLED SERVERS

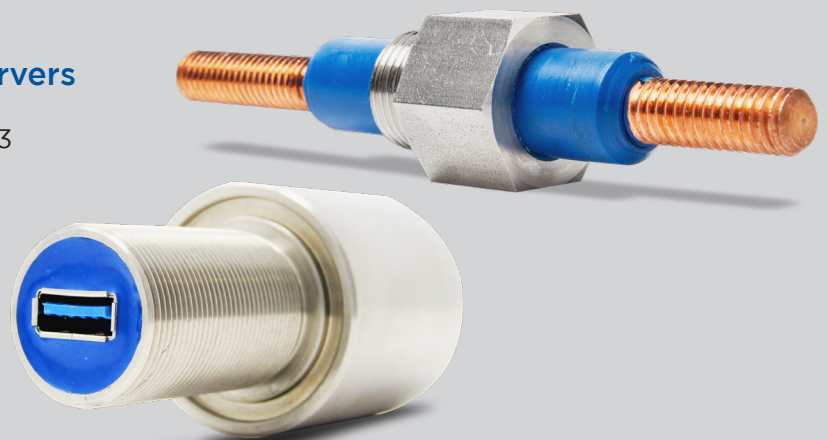
With the expansion of data utilization from factories to consumers, immersion cooling in data centers has increased in demand; to increase energy efficiency and density of components, server operators are employing fluorinated liquids such as Fluorinert™, Novec™, and Galden™ that are thermally conductive, chemically stable, non-flammable, and dielectric to cool the electronics in a compact space.

*A hermetic connection will ensure that the electrical connection is **permanently sealed** to a vacuum and/or positive pressure rating.*

Depending on the IP (Ingress Protection) rating, an electrical connection might only protect from liquids under less permanent conditions as well as less harsh environments. Additionally, IP ratings are based on water. Variations in viscosity and compatibility are not involved in the IP-rating scale.

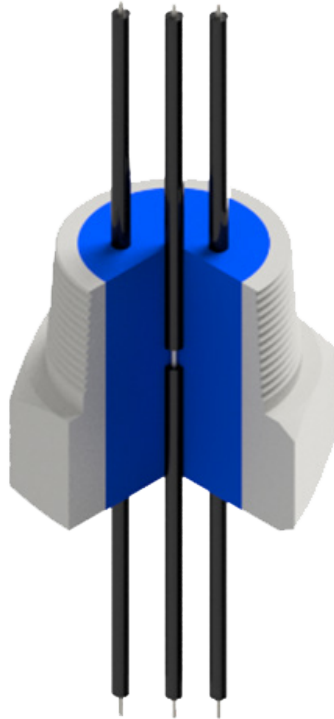
Common Connections in Immersed Servers

- RJ45 (CAT6), USB (3.0), HDMI, VGA, and C13
- QSFP (fiber or copper) / QSA
- SFP (Small Formfactor Pluggable)
- DAC (Direct Attach Copper) assemblies
- AOC (Active Optical Cable) assemblies
Optical transceivers and patch cords
- MTP / MPO (Multi-fiber connectors)
- Power studs and cords



What electrical connection do you want to hermetically seal?

Several types of electrical connections are available. Douglas will source virtually any electrical connection type, such as RJ45, QSFP, USB 3.0, C13, or fiber, and hermetically seal it within the housing assembly. Hermetic electrical connections include connectors, wires, cables, power studs, busbars, printed circuit boards, fibers, or some combination thereof. Our team will partner with you to source any components or connectors that are necessary to meet the application requirements. Hermetic epoxy seals allow for the bonding of the epoxy between the housing and electrical connection with minimal set up and tooling and as a direct interface. Minimize



signal loss and design constraints to create a hermetic feedthrough that meets fit, form, and function.

How do you want to mechanically seal it?

From a mechanical perspective, Douglas' in-house machining capability allows for fast, easy integration of the housing assembly into customer designs. From multi-connection plates to specialized housings, the materials and sealing methods can be customized to customer specifications. Our standard hermetic feedthroughs utilize stainless steel, aluminum, or brass but are also available in almost any metal and many plastics.

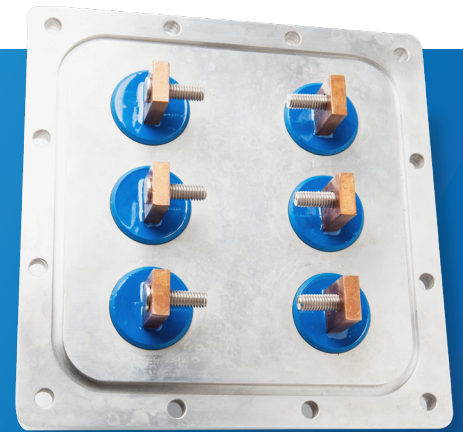
All assemblies are factory leak-tested and HiPot tested to customer specifications.

Fluorinert and Novec are trademarks of 3M; Galden is a trademark of Solvay.

Solving Your Wire and Connector Sealing Challenges

For 75 years, Douglas Electrical has provided custom solutions to meet the demands of glove boxes, medical equipment, semiconductor manufacturing, space simulation, military, vacuum systems, energy—and more. From pin headers and pogo-pin solutions, to cooling feedthroughs and electronic encapsulation, we look for new opportunities to push our boundaries even further to meet your unique application needs.

Visit www.dougaselectrical.com to learn more.



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