



## Real Dual Seal for Double Safety

**Double-sealed SCHOTT Eternaloc<sup>®</sup> terminal headers offer two truly independent pressure barriers in a compact design.**

*Singapore & Landshut (Germany), October 27, 2015* – In the LNG industry, submerged cryogenic appliances with high safety requirements call for cable feedthroughs with a second pressure barrier. At Gastech EXPO in Singapore, SCHOTT will be presenting the advantages of its double-sealed Eternaloc<sup>®</sup> terminal headers (October 27-30, 2015; Booth D238). Equipped with two hermetically and electrically connected, yet mechanically decoupled glass-to-metal seals, they truly provide the additional pressure barrier to meet the highest safety requirements. In addition, SCHOTT Eternaloc<sup>®</sup> dual seals come in designs that are much more compact and reduced in weight compared to other market solutions.

Reliable terminal headers are needed to safely transmit electrical power and signals for the LNG pumps, compressors and turbine expanders, which operate in the cryogenic pressure vessel. The headers have to be resilient enough to withstand extreme temperature shifts while remaining reliably gas- and pressure-tight.

Because terminal headers are so critical to safety, most cryo-applications – especially those that operate under high pressure – require a redundant electrical and mechanical sealing to maintain the pressure integrity even if one of the seals would fail. This means that the two pressure barriers need to be hermetically and electrically connected, yet mechanically decoupled from the other.

In other set-ups, two single barrier feedthroughs that are integrated into a pipe are internally connected to achieve a so-called double seal. However, this is a rather space-consuming solution. In contrast, SCHOTT has developed far more compact designs that are equipped with two hermetically connected, but completely separate glass-to-metal sealed pressure barriers.

### **A more compact double seal design**

“Our double-sealed Eternaloc<sup>®</sup> terminal headers are designed to combine superior safety with compactness”, says Thomas Goettlinger, Sales Director LNG at SCHOTT Electronic Packaging. The glass is melted to the conductor and the flange over the entire length of the pressure-proof seal. Yet, the glass does not protrude the flange, which enables such a compact design. Eternaloc<sup>®</sup> feedthroughs have fewer parts, less joints to be sealed and a



dramatically reduced weight and size. This is an especially relevant aspect once space and weight are restricted, for example in off-shore applications.

### **Maintenance-free safety**

Besides being a great dielectric isolator, glass is a very reliable sealing material. In contrast to ceramics, glass melts directly to metal. No brazing or welding is required that often tends to corrode in harsh environments and may show fissures over time. As opposed to epoxy, glass is inorganic and therefore non-aging, which means maintenance-free performance over a virtually unlimited service-time.

In double-sealed Eternaloc® feedthroughs, the hermetic space in between the two seals furthermore offers the possibility of nitrogen purging for periodic or permanent leakage monitoring as well as inertisation of both pressure barriers. If not required, the inner chamber can also be closed and certified as a flameproof enclosure.

More information can be found here: [www.schott.com/lng](http://www.schott.com/lng)

*Eternaloc® is a registered trademark of SCHOTT AG.*

**Photo download link:** <http://www.schott.com/english/news/press.html?NID=com4809>



In order to unload liquefied gas, the storage tanks on board an LNG tanker contain powerful electric pumps. The pumps and their motors are mostly integrated into a chassis and work completely immersed in liquefied gas. SCHOTT's terminal header assemblies serve as the hermetic feedthroughs for the three-phase electrical power, as well as the control and instrumentation signals. Source: SCHOTT



Double-sealed Eternaloc<sup>®</sup> terminal header assembly from SCHOTT: The conductors are insulated with two separate glass-to-metal sealed flange modules that are hermetically connected and form a compact double barrier that offers superior safety features on par with electrical penetrations designed for nuclear power applications. Source: SCHOTT



SCHOTT delivers customized single and double-sealed power and C&I terminal headers. All Eternaloc<sup>®</sup> products can be certified according to explosion-proof standards (IECEX and local standards such as ATEX, CU TR or KOSHA). Source: SCHOTT



Terminal headers for LNG applications are engineered and produced at the SCHOTT location in Landshut, Germany. Source: SCHOTT



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