



## **Safety for Small-Scale LNG Applications**

### **Hermetic Glass-to-Metal Sealed Electrical Penetrations from SCHOTT add to safety levels**

**Landshut (Germany), September 15, 2011 – SCHOTT Electronic Packaging is a leading developer and manufacturer of hermetic electricity feedthroughs. Its unique glass-to-metal compression sealing technology has proven to provide highest safety in extremely harsh environments such as LNG vessels and terminals. As Liquefied Natural Gas (LNG) is being used in more and more large-, mid- and small-scale facilities, the demand for the safety-critical component is on the rise.**

**SCHOTT AG  
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Over the past decades, natural gas has become an important energy carrier throughout the world. Liquefied at -162° Celsius and transported in highly insulated tanks, LNG has proven to be no less safe than other fuels. The demand remains on the rise, especially since Germany and Japan will increase their orders to compensate for the reduced use of nuclear power. In addition, tighter international regulation of pollution is driving the development of new LNG-fueled applications.

The shipping industry, largely unregulated in the past, might now become a forerunner in using natural gas as a clean and still rather cheap fuel alternative to heavy bunker oils. LNG is used in Norwegian coastal shipping since 2000 with significant reductions of pollution and an excellent operating and safety record. Since the Baltic and North Sea have become the Emission Control Areas (ECAs) with tight limits, small-scale LNG infrastructure is being extended throughout the region.

“By 2015, the allowable sulphur limit for bunker fuel in ECAs will be reduced to 0.1 percent”, says Jürgen Harperscheidt, Sales Manager at TGE Marine Gas Engineering GmbH, a leading engineering company for LNG facilities. “Natural gas is the cleanest of all available fossil fuels. But in order to support its use, logistics chains, gas handling and storage systems need to be installed that ensure the safe delivery of LNG from

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the principal supply source to the ship's bunker. Thereby great importance is attached to safety."

Besides the technical aspects, crews off- and onshore have to be educated in handling cryogenic fuel safely. In many cases, LNG guidelines in harbors also need to be overhauled. The next ECA will be implemented in 2012 along most of the US and Canadian coastlines. The Mediterranean Sea, the Caribbean Islands as well as several regions in Southeast Asia might be the next to adapt the ECA regulations.

"LNG is increasingly being used in smaller scale facilities and maritime propulsion," says Thomas Göttliger, Project Engineer LNG at SCHOTT Electronic Packaging. "Most LNG storage tanks require at least one feedthrough to supply the internal pumps, control and instrumentation instruments with electricity. Certified in accordance with ATEX and IEC standard our hermetic glass-to-metal seal is the safest solution available."

Thanks to their unique design, feedthroughs from SCHOTT offer an extremely high level of security. They consist of metal conductors, a non-aging, inorganic glass sealant and a metal housing. The preassembled component is heated up to a temperature at which the glass melts to the metal. During the cooling process, the metal housing contracts to a much greater extent than the glass does. This compression creates a highly pressure-resistant and hermetically sealed unit.

By using the compression glass-to-metal sealing technology and by optimizing material combinations and manufacturing processes for extreme applications, SCHOTT has captured the technology leader position this market. The international technology group started manufacturing the first glass-to-metal feedthroughs for liquefied gas applications in the early 1980ies. These products are still doing their jobs today without requiring any maintenance or causing any problems.

*SCHOTT Electronic Packaging is a worldwide leading manufacturer of electrical penetrations for harsh environment applications like LNG vessels, terminals and nuclear power plants. With worldwide 1,500 employees at 5 production locations and several competence*

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*centers, local customer support and co-developments are the heart of the business. Drawing upon 125 years of experience, SCHOTT's feedthroughs for submerged pumps are installed in storage tanks, LNG vessels and in power generators for CNG. SCHOTT's feedthroughs are ATEX certified and remain maintenance free over decades. They are based on the proprietary glass-to-metal sealing technology, which is deemed to be the safest technology available today.*

*SCHOTT is an international technology group with more than 125 years of experience in the areas of specialty glasses and materials and advanced technologies. SCHOTT ranks number one in the world with many of its products. Its core markets are the household appliance, solar power, pharmaceuticals, electronics, optics, transportation and architecture industries. The company is strongly committed to contributing to its customers' success and making SCHOTT an important part of people's lives with high-quality products and intelligent solutions. SCHOTT is committed to managing its business in a sustainable manner and supporting its employees, society and the environment. The SCHOTT Group maintains close proximity to its customers with manufacturing and sales units in all major markets. Its workforce of around 17,500 employees generated worldwide sales of approximately 2.9 billion euros for the 2009/2010 fiscal year. SCHOTT AG, with its headquarters in Mainz (Germany) is owned by the Carl Zeiss Foundation.*

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Download link to a ZIP file that contains the photograph in printable quality: <https://www.schott-pictures.net/presskit/99922.liquefied-gas-solidly-glassed>



Photo caption no. 15905: Large-scale feedthroughs from SCHOTT can weigh as much as 170 kilograms.



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Photo caption no. 12927: Sealing Gas with Glass: Each electrical penetration for liquefied natural gas application will be tested for electrical strength and insulation resistance before it is shipped to the customer. Ulrich Dirr, Oliver Fritz

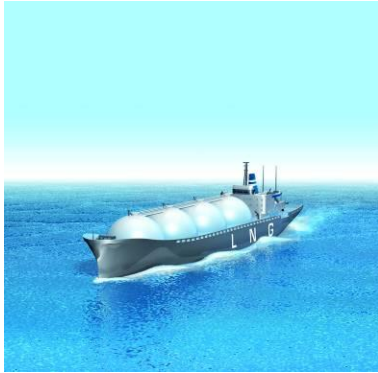


Photo caption no. 13247: SCHOTT's glass-to-metal feedthroughs seal off the electricity supply of pumps on liquefied gas tankers.

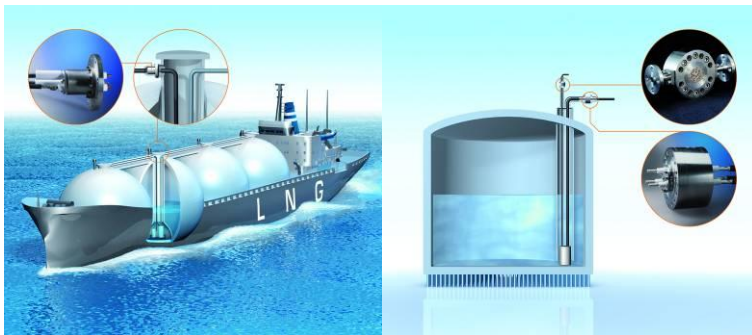


Photo caption no. 99287, 99288: In order to unload the liquefied gas, the storage tanks on board a LNG tanker or on shore contain powerful electric pumps. Since they are completely immersed in liquefied gas, the pumps are protected against this harsh environment by a chassis. SCHOTT's terminal header assemblies serve as the hermetic feedthroughs for the three-phase electrical power, as well as the control and instrumentation conductors.

More press photographs can be downloaded from  
<http://www.schott-pictures.net>

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