



The connection pipeline of the FSRU (Floating Storage and Re-gasification Unit) in Wilhelmshaven plays a special role in Germany's LNG imports. "By establishing its own pipeline-independent gas infrastructure, Germany is opening up new supply sources and safeguarding its high level of gas security," explains Zukunft Gas, an association representing companies in the German gas industry. / Source: Jost Listemann/Future Gas

Valves for an LNG-hungry world

The valve industry is geared up for extreme conditions – and it must be, if it wants to reliably supply the LNG market. There will be no shortage of work: Shell's "LNG Outlook 2025" forecasts that global demand for liquefied natural gas (LNG) will rise by around 60% by 2040. And with that, the demand for valves will also increase. It's a development that the industry welcomes – and one that is essential for global energy security.

The world needs more gas for power generation, heating and cooling, industry and transport in order to meet development and decarbonisation targets, Shell explains in its 2025 LNG Outlook. China and India are among the key drivers of LNG demand. China is significantly expanding its LNG import capacity, and "plans to connect 150 million people to the natural gas grid by 2030 to meet



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growing demand,” the report notes. India is likewise pushing ahead with the expansion of its gas infrastructure and aims to connect 30 million people to the natural gas network.

Substantial growth in LNG supply will come from Qatar and the United States. According to Shell, the U.S. will strengthen its position as the world's largest LNG exporter, potentially reaching 180 million tonnes per year by 2030 – roughly one-third of the global supply.



Shell's LNG regasification terminal in Gibraltar, which is switching from diesel-fired power generators to cleaner natural gas. A newly commissioned 80-megawatt gas-fired power plant will be used, Shell explains. An inspector checks the evaporator's gas pressure gauge. / Source: Stuart Conway / Shell

Expansion of import, distribution and bunkering infrastructure

To achieve the ambitious LNG targets, the infrastructure for import, distribution and bunkering must be expanded and further developed: Valves are needed at every stage – and the industry is delivering. For example, numerous Herose valves are used on trailers and tank wagons, as well as in pipeline and maritime transport, to ensure reliable transport and the safety and integrity of the tanks. The company has developed an extensive portfolio of valves



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specifically for trailer and marine applications, designed to withstand extreme operating conditions.

To meet increasing technical requirements, operators need valve packages that also ensure smooth processes in liquefaction and regasification plants. And the LNG sector is highly demanding: valves must be suitable for extremely low temperatures down to -196°C (natural gas turns to liquid at -162°C), Herose explains.

Valves for LNG applications are being constantly refined. Current trends include advances in cryogenic technology. Sustainability is also moving into focus. According to Noreva, digitalisation plays a key role here by facilitating process optimisation. Overall, digitalisation and AI are increasing efficiency, safety and sustainability in LNG facilities. Noreva also reports a clear rise in demand driven by LNG – along with growing interest in its nozzle check valves for LNG applications.



The LNG vessel "Schneeweißchen" (Snow White) was chartered by Uniper. LNG has become one of Uniper's strategic growth areas and has expanded significantly in recent years. / Source: Uniper SE



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Different requirements for each application

Because there are many different applications along the LNG value chain, the requirements for valves also vary widely. As a result, different valve and body configurations may be used. These include standard flanged ends, double-flanged bodies and welded-in Real Top Entry designs. "Due to the extremely low temperatures down to -196 °C, all designs require a so-called 'bonnet extension', an insulating section that raises the stem packing out of the cryogenic zone and allows for proper insulation," explains müller quadax. The company's QUADAX® Top Entry was developed specifically for LNG applications and ensures that inspection and maintenance work "can be carried out safely and easily, without creating additional risks for service personnel".

In general, pressure ratings from PN 10 to PN 40 are used, although this market segment is also dominated globally by ANSI standards. The main focus is on Class 150 and Class 300, although higher pressure classes above 600 are also available. In typical installations, nominal sizes range from DN 100 up to around DN 1200. According to müller quadax, "the trend here is also moving towards higher utilisation and efficiency, reflected both in nominal size and in pressure class."

Global orders in the booming LNG sector

The booming LNG sector is generating numerous orders for the valves industry. For example, Ampo Poyam Valves has supplied more than 1,400 valves for the Qatar North Field East (NFE) LNG expansion project. With a total investment of USD 28.75 billion, the NFE project will increase Qatar's LNG production capacity by 33 million tonnes per year. Ampo has also received an order for the LNG import terminal being built in Stade, Germany; from late 2025 and throughout 2026, the company will supply over 1,300 cryogenic valves for the Hanseatic Energy Hub.

OHL Gutermuth also has its sights firmly set on the LNG market. The company has already supplied a wide range of major industry projects with valves. At OHL Gutermuth, products are inspected and tested at every

production step by experienced specialists and approved in accordance with national and international standards. This commitment to quality is already paying off in the rapidly growing global segment of LNG technologies. With its broad portfolio of valves for cryogenic service, OHL Gutermuth supports international projects with its shut-off valves, butterfly valves and control valves.

H2-ready for a hydrogen ramp-up

The booming LNG market is not only driving investments in robust, high-performance components, but also the global expansion of company locations: Emerson, for example, has opened a new Global LNG Solutions Centre in Qatar “to drive innovation, sustainability, and workforce development in the growing LNG industry,” the company explains. The state-of-the-art centre underscores Emerson's commitment to the Qatar National Vision 2030 and the country's path towards a cleaner economy.

LNG is also in the spotlight for environmental reasons. Liquefied natural gas can be supplied as fossil LNG, synthetic LNG or bio-LNG. According to the German Maritime Association, even fossil LNG can significantly reduce greenhouse gas emissions in shipping – by up to 23%, depending on the propulsion technology and engine used. In addition, emissions of nitrogen oxides can be reduced by up to 80%, while sulphur oxides (SOx) and particulate-matter emissions are almost completely eliminated. “Choosing LNG is future-proof: by blending in bio-LNG or synthetic LNG (as a drop-in fuel), greenhouse gas intensity can be reduced even further.”

Investments in LNG terminals are also investments in the energy transition: they are only approved if they are built “H2-ready”. This ensures that, beyond securing short-term gas supply, they will in future serve as import hubs for hydrogen.



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