



Robust guided radar sensors ensure clear signals for LNG

Compared to pipeline gas, liquefied gases such as LNG or LPG can be transported much more flexibly and often have a higher commercial value. A good example of this can be found in the Russian Portovaya Bay, the starting point of the Nord Stream Pipeline, where natural gas will be processed and loaded directly onto ships in cryogenic liquid form. Once the new natural gas liquefaction plant is completed, [guided radar sensors from VEGA](#) will make a significant contribution to safe and efficient production there.

LNG is the big trend: Linde is building a medium-sized natural gas liquefaction plant with a capacity of 1.5 million tonnes of LNG near the Russian Baltic Sea town of Portovaya.



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VEGAFLEX 81 and VEGASWING 66 in a tailor-made measuring concept

A complete measuring system consisting of bypass tube and sensor offers much more than just the sum of its parts. It includes an instrumentation concept tailored to the process and rounded off by comprehensive engineering and support services. The ready-to-install sensors, which come with customized features, documentation and the required test certificates – all from a single source – are a building block Linde can rely on. Using [VEGAFLEX 86](#) guided radar sensors, most of which come already fitted in bypass tubes, and [VEGASWING 66](#) for point level detection, means considerable savings. These result from simplified planning, fast "Plug & Play" installation and reduced maintenance requirements, among other things. Having no mechanical moving parts, VEGAFLEX bypass measuring systems operate wear free and require almost no servicing. Besides pre-assembly and adaptation to existing plant conditions, the scope of delivery even includes detailed parameterization, such as false signal suppression. Only SIL functionalities, as required by law, have to be calibrated live on site with the original medium that will later be measured.

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When designing LNG facilities, the top priority is to make sure all system components have sufficient robustness and performance reserves. Only in this way are the sensors able to reliably monitor the complex processes the media are put through.



Well packed and ready to travel: guided radar sensors of type VEGAFLEX 86 and vibrating level switches of type VEGASWING 66 awaiting transport to the LNG construction site in the Russian Baltic Sea bay of Portovaya.

The Portovaya project is a so-called "short-track" project. "The entire plant is being built in an unusually short time," explains Business Development Manager [Sebastian Harbig](#), who is responsible for Global Projects at VEGA. "Delivery time was therefore a major criterion in awarding the contract." This is not the first time that VEGA has supported the EPC specialist (Engineering, Procurement & Construction) in medium-sized or large projects. VEGA is responsible for the complete, ready-to-install measuring point, the customer-specific documentation as well as all necessary certificates.

Extreme process conditions in all phases of LNG production

Machines in an LNG plant, especially those used in the liquefaction process, are exposed to extreme operating conditions. Between start-up and full operation of the cryogenic processes, the temperature expansion of the equipment is immense. The components are subject to extreme loads and even small changes in the composition of the processed natural gas can significantly reduce the overall service life of a machine.

The mid-scale plant now being built in the Russian Baltic bay liquefies gas from the compressor station that has been operating there since 2010. The process for converting natural gas into LNG is based on three steps: pre-treatment, compression and cooling including liquefaction. Because natural gas contains impurities such as water, mercury or corrosive components that can freeze during the compression phase, it has to be pre-treated. The methane is allowed to enter the liquefaction trains of the LNG plant only in a highly concentrated form. In the various storage and process vessels, only two sensor types monitor the widely different media during the entire production process. These range from dry natural gas, condensed hydrocarbons and cold flare gas to ethane, LNG, hydrocarbons, fuel gas and wastewater.

Consistently high quality is essential for LNG processes which means – no compromises. Efficiency and plant availability, which are significantly improved through standardization in all areas of the plant, including instrumentation, guarantee high quality and a real cost advantage. Guided radar sensors are especially suitable here, as they can reliably withstand extreme pressure and temperature conditions. And vibrating level switches, with their compact design and millimetre accuracy, are also just the thing for many applications in the LNG plant.



Guided radar sensors of type VEGAFLEX 86 measure robustly and independently of the medium. This makes them suitable for almost all substances and measuring tasks in the LNG process and increases the degree of standardization.

Radar vs. Guided Radar (TDR) – What are the differences between the two measuring methods?

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