

# A hot topic of discussion

It is not every company that can confidently state that it helped revolutionise an industry sector. That however is exactly what LOGSTOR can lay claim to, having developed district heating systems, a technology that has been transforming indoor heating in the global energy sector for decades. After more than 50 years in operation, LOGSTOR is today headquartered in Løgstør, Denmark, and employs almost 1200 people in 12 countries.

“Backed by incomparable sector experience and constant innovation, LOGSTOR is the world’s leading manufacturer of pre-insulated pipe systems,” states Thierry Jahant, LOGSTOR’s SVP Commercial. “We have long been active in the oil and gas industry, focusing on the onshore, offshore and LNG markets, where we have successfully produced insulated pipelines for various type of applications and a whole host of companies including Total, Shell, DONG or Chevron amongst other.

“Since being acquired by the private equity fund group Triton in 2013, our focus on the oil and gas industry has increased further. A combination of the strengthening of LOGSTOR’s management team with international experience, a greater visible presence in key markets and open communication of our aim to become the leading player in the thermal insulation



## PROFIT FROM POLYURETHANE

### INNOVATIVE AND SUSTAINABLE FOAM TECHNOLOGY FROM COVESTRO FACILITATES OIL AND GAS OPERATIONS

Pipelines play a critical role in every E&P project and must meet the industry's demands for operational efficiency and durability. But where does polyurethane enter the equation? LOGSTOR, the world's leading manufacturer of pre-insulated pipe systems, has long been operating in the onshore, offshore and LNG markets of the oil and gas industry. The Danish company's success is based on delivering cost-effective technology and products tailored to a customer's specific project requirements. The raw materials LOGSTOR employs in its pre-insulated pipe solutions come from Covestro, a world-leading manufacturer of high-tech polymer materials for key industries, and in this case the innovative and sustainable polyurethane foam technology that makes operationally efficient and durable pipelines possible. Covestro is providing strong support to LOGSTOR across a variety of oil and gas projects around the world.

Covestro's strength is its product and processing expertise. Not only does Covestro manufacture raw materials for high-tech insulation, its specialists facilitate a customer's business by advising on application-specific processing technology to deliver innovative solutions. The support Covestro provides to companies such as LOGSTOR, and ultimately to the oil and gas industry, is based on its threefold technological expertise in delivering the benefits of improved insulation, long-term temperature stability and optimised production efficiency.

Covestro's highly efficient polyurethane foam technology delivers a better insulation performance for all processing technologies. Minimising heat loss enables pipelines to operate efficiently, especially in cold climates, which reduces running costs. Covestro's technological expertise is also evident in the development of polyurethane foam technology with excellent long-term temperature stability, a key factor in giving pipelines a long and reliable service life. Last but not least, Covestro develops polyurethane foam technology with market-leading production efficiency, i.e. optimised curing times and material consumption for producing pipes with a specific property profile.

As the heat conductivity (a.k.a. lambda value) of insulation material is critical for pipeline performance, Covestro is continually investing in the optimisation (i.e. reduction) of the lambda values its foam technology achieves. The industry-leading lambda values of the current portfolio have been certified by various independent bodies. Effectively insulating pipelines to prevent heat loss is not only beneficial for the bottom line of oil and gas companies, it is also good for our planet.

Sustainable thinking and actions are vital in preserving our planet and improving people's lives. For Covestro, sustainability means developing and delivering products and technologies that reduce the impact on the environment and benefit society. When used as insulation material, polyurethanes have an excellent sustainability record. Rigid polyurethane foams deliver the best insulating performance of all conventional insulating materials thanks to their low thermal conductivity values and also offer an outstanding energy balance. The polyurethane used in building insulation material, for example, saves approximately 70 times more energy over its entire lifecycle than is needed to manufacture it.

Another innovative contribution to a more sustainable future comes through Covestro's cardyon™ technology, which enables carbon capture and utilisation. This means that CO<sub>2</sub>, a waste greenhouse gas, can be converted into a useful raw material that serves as a building block for plastics. Based on this technology, Covestro now offers a range of cardyon™ branded polyols for use in all kinds of flexible foam applications.

Innovative projects such as these underline Covestro's ability to deliver sustainable solutions, and not just for the polyurethane foam technology that enables oil and gas pipelines to perform better.



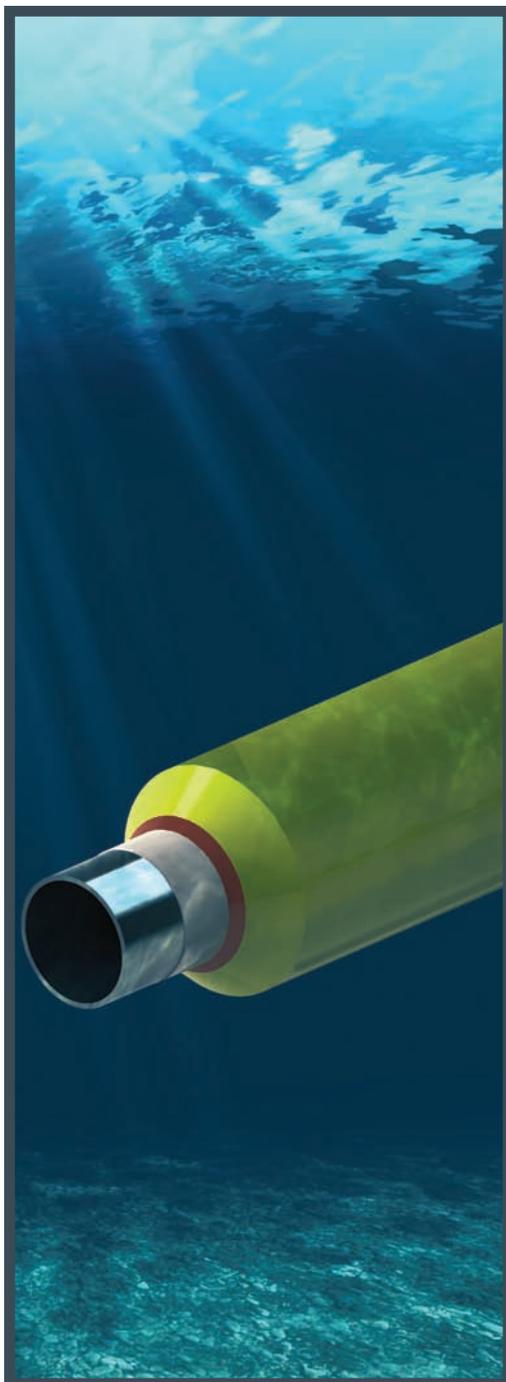
**BASF – ELASTOSHORE GS**

Superb solution for subsea conditions: Elastoshore GS

The extreme conditions for pipeline construction call for safe and flexible materials, and BASF developed a portfolio of solutions for this exact challenge. Among them is Elastoshore GS, a versatile thermal insulation system for subsea pipeline construction. The functional, easy to process, high-performance material offers a versatile flow assurance system for subsea pipeline construction. Developed by BASF with its deep understanding of the oil and gas industry, the high-performance polyurethane elastomer allows for safe thermal insulation of pipelines, even in water depths of over 3000 metres. The new product is perfectly suitable for application areas such as field joints, line coat and static structures like manifolds, jumpers or tiebacks, and can be used with various line pipe coatings, including polyurethane, polypropylene and concrete. Elastoshore GS is available globally and offers several advantages that long-term customers, like Logstor, will benefit from.

**VEXVE**

Vexve is the leading global provider of valve solutions for the heating and cooling needs of cities and industry. Developed for demanding applications, Vexve valve and control products and hydraulic control solutions are used in district energy networks, power plants, and the internal heating and cooling systems of buildings. Together with Logstor, we can provide you with the most comprehensive and reliable underground solutions, perfected from our more than 50 years of experience.



pipeline sector has reaped considerable results in the form of important contracts. These have included supplying flowline insulation to both TechnipFMC, for its EnQuest Kraken project, and Maersk’s Rolf project in the North Sea, as well as the execution of the Fort Hills Northern Courier project with TransCanada Pipelines. The latter required the mobilisation of a complete mobile factory in order for the work to be carried out. Our efforts have also contributed to key projects in locations such as Vietnam, Chile and Peru, and has also helped position LOGSTOR as the leading supplier to major crude oil projects under development in East Africa.”

LOGSTOR’s primary focus is on delivering

cost-effective technology and products that are tailored to a customers’ specific project requirements. To achieve this the company ensures that it is fully engaged with the client, and where appropriate the end user, from the outset of their relationship. In partnership, the respective stakeholders engage with one another to develop the most optimal route for the project to take, with LOGSTOR providing its expertise in reducing logistical costs, while improving local content. “One of the things we make sure to do as a company is retain a balanced portfolio of work, split between our core businesses of district energy and oil and gas,” Thierry continues. “Working closely with our clients, we reward their willingness to invest in our own future by providing them with the confidence that we will do our part in delivering long-term success through the projects we undertake.”

A key product offered by LOGSTOR to the offshore sector is its SinglePipe. These are thermal insulated pipe systems for submersion in shallow water areas, which help facilitate the cost-effective installation of offshore oil and gas pipes at depths of up to 250 metres. SinglePipe utilises a special combination of polyurethane foam, high density polyethylene outer casing and other patented technologies to ensure stable insulation values throughout the entire service life. Each pipe length is also individually sealed at the extremities to avoid any water ingress to affect the given pipe length, dramatically increasing the durability of the pipe system. “Being limited to a water depth of 250 metres has created a somewhat niche market for SinglePipe, but a lucrative one nonetheless,” Thierry explains. “As a result, we are developing and preparing new versions of the system that will operate at depths of up to 500 metres, or potentially deeper. This will allow us to service projects in strategically important regions such as the North Sea, the Mediterranean and the Asia Pacific area.”

In addition to its work on its SinglePipe line of products, LOGSTOR continues to develop various insulation systems for deep water use at unlimited water depths. These particular systems are polymer alloys that the company mold onto pipes and that can also be used on field joints, bends and other applications. One of the more recent product launches has been LOGSTOR’s fire-proof LNG cryogenic insulation system, which is currently being utilised at the Klaipeda LNG terminal in Lithuania.

“The oil and gas market has changed fairly drastically in the last two years or so,”

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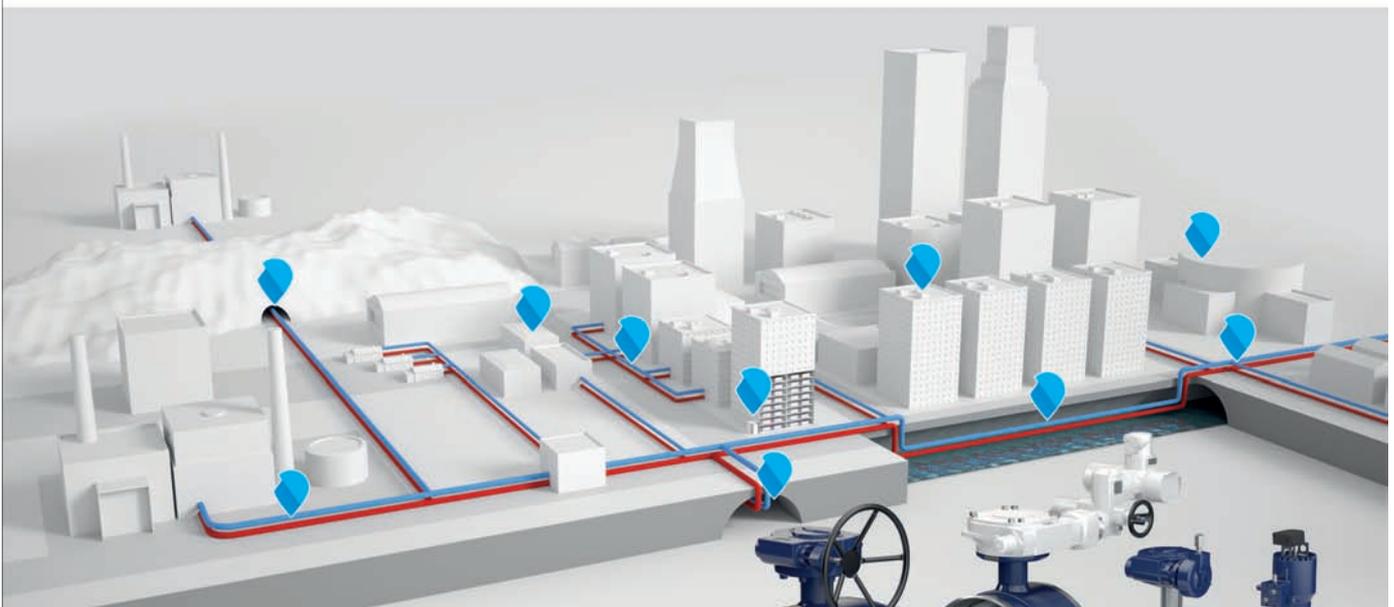
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Thierry reveals. “What has traditionally been a conservative industry is now witnessing a trend where an increasing number of our clients are opening up their minds to more innovative solutions as they push harder to optimise their operations, while retaining the best quality standards. Our own experience of working with the high performance district energy market, where we are market leader with an impressive track record of over 200,000 km pipes supplied to date, has only added to our ability to service the needs of our oil and gas clients.”

as Uganda, Tanzania and Kenya, we remain determined to retain our status as a key player in the field of offshore insulation, in both shallow and deep water, by reaching further into places like the Asia Pacific region, the Middle East and North America,” Thierry concludes. “As you can probably tell, we are an ambitious company and one that never has any reason to get bored.”

LOGSTOR  
logstor.com

Products:  
Pre-insulated and thermal pipes



LOGSTOR's targets for the coming 12 months are three-fold. Firstly, it will focus on achieving its key business targets and securing a backlog of projects. Secondly, it will continue to launch key products that will help to extend its market reach, and lastly it will apply special focus on major crude oil pipeline projects in East Africa. These projects have been shown to require foam insulation with heat tracing, which is produced locally, something that LOGSTOR stands ready to supply.

“In addition to successfully establishing ourselves in key East African countries, such



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