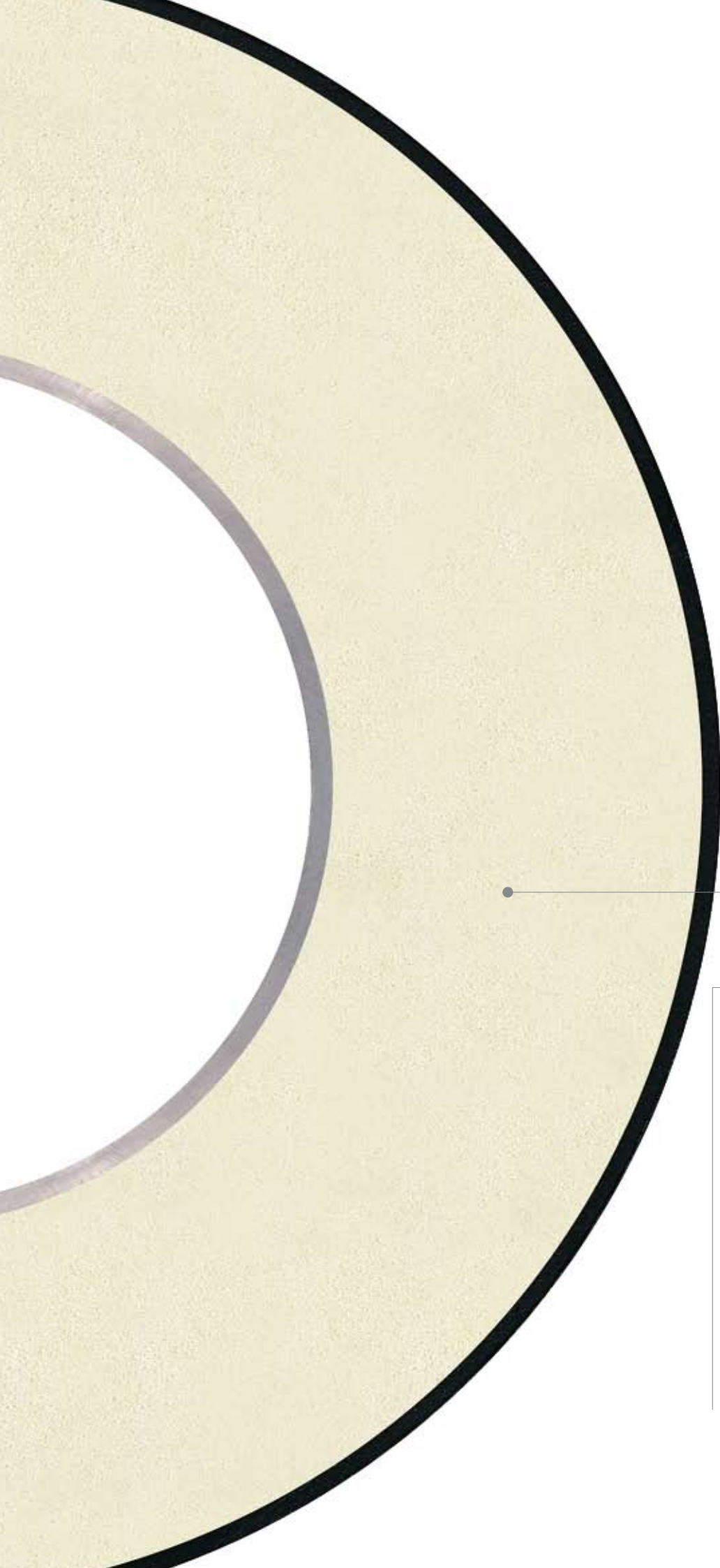




We've got a point



The heart of all LOGSTOR pre-insulated pipe systems is the unique cyclopentane-blown, CFC-free polyurethane cellular foam.

This features an exceptionally fine cell structure that provides a consistently dense layer of thermal protection around the service pipe and keeps any heat loss to the absolute minimum.

We can vary the exact specification and type of the insulation between the service pipe and the outer casing to suit your particular requirements. A special diffusion barrier is also available to boost heat retention still further.

Current EN standards require minimum lambda values of 33. However, we can supply solutions with average lambda values as low as 23. In practice, LOGSTOR pipe systems consistently achieve figures that are significantly lower than this.

LOGSTOR

Act on the energy agenda

The Kyoto Protocol, aimed at reining in greenhouse gas emissions, has realigned the entire energy agenda – worldwide.

With energy prices rising, consumption booming and supplies sometimes under threat, there are both environmental and financial reasons for any commercial undertaking to act to ensure its future position. Avoiding needless waste of energy already produced is by far the most cost-effective way to boost overall energy efficiency and reduce energy losses.

If your company needs to move liquids from one point to another by pipe with the absolute minimum of energy loss, LOGSTOR pre-insulated pipe systems are the world's most energy-efficient way to do it.



160,000 km – and counting



The LOGSTOR dividend

LOGSTOR is the world's pre-eminent supplier of energy-efficient pre-insulated pipe systems. Our uniquely effective insulation specifications enable you to tackle energy issues at the same time as slicing your installation, operating and maintenance costs.

We ensure you the lowest possible total cost of ownership, and your LOGSTOR dividend will only get bigger as energy prices rise and more stringent environmental legislation is passed.

Our systems feature exceptional reliability and are designed to lie untouched beneath the surface for a minimum of thirty years. LOGSTOR pre-insulated pipe systems ensure minimal heat loss and are virtually maintenance-free. This means your operating costs are both rock bottom and completely budgetable – no unwelcome surprises ahead.

Focused experience

LOGSTOR is the culmination of rapid consolidation among the world's leading pre-insulated pipe technology companies. We invented the whole concept behind pre-insulated pipe systems, and the LOGSTOR of today represents more than forty years of accumulated specialist experience.

For information about LOGSTOR's history of technical innovation, go to www.logstor.com

Accumulated advantage

LOGSTOR pre-insulated pipe systems enable you to optimise every single aspect of the design, implementation and maintenance of your infrastructure for moving liquids from A to B by pipe.

Our focus extends right from the overall energy and environmental agendas to every single detail of on-site installation.

Easy installation

You make major savings on installation costs, because the entire laying process is streamlined, and the jointing systems are easy, rapid and foolproof to use. This means you can tackle any unforeseen on-site problems quickly.

No weak points

We supply pipe systems that give you documented durability as well as maintaining complete thermal integrity throughout their minimum 30-year service life.

Every single component is designed and tested to ensure corresponding durability, with comprehensive quality documentation from factory to site.

On-site efficiency

We produce all LOGSTOR components in stringently monitored, controllable factory environments, ready for easy installation.

By comparison, having the pipes insulated traditionally on site is expensive, time-consuming and often results in poor quality, with higher energy and maintenance costs to follow.

Effective planning

You have full access to our unique capabilities in managing the entire process of planning, design, training, installation, maintenance and all aspects of systems integration. And your end-user customers benefit all down the line.

Minimal maintenance

LOGSTOR solutions require hardly any maintenance. A range of monitoring technologies is available to let you check the exact state of your pipe system at any time. This also enables you to detect any faults in time to avoid serious damage or major downtime. Any maintenance is easy, rapid and effective.



Energy-efficient

The unique LOGSTOR insulation technology means you can be sure that what goes in at A is what comes out at B, with virtually no energy loss. This results in big savings on your energy costs.

Full documentation

LOGSTOR is unique in being able to provide you with end-to-end documentation of the unparalleled efficiency and high quality of our systems.

When we use the motto “We document the difference”, we mean it.

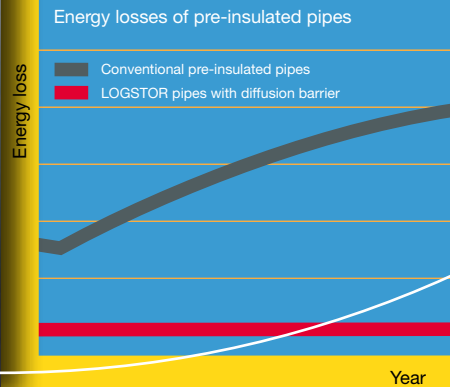


Low TCO

Total Cost of Ownership = initial investment + installation costs + operating costs. The initial purchase price of LOGSTOR systems may be higher, but the financial benefits begin with planning and installation, and accelerate throughout their extended service life. Your financial advantage only increases as energy costs escalate.

Environmentally responsible

The exceptional thermal efficiency of LOGSTOR systems enables you to comply with both national and international environmental legislation – current and future. Using LOGSTOR pre-insulated pipes helps you achieve a positive profile regardless of the agendas you may be confronted with.



Energy losses have a major impact on the operating costs of a pre-insulated pipe system. The built-in diffusion barrier available with LOGSTOR pre-insulated pipe systems ensures that any energy losses are consistently low, avoiding unforeseen surprises in your operating costs.

By comparison, the operating costs of both traditionally insulated pipe systems and conventional pre-insulated pipe systems will consistently increase as energy costs rise and the lambda value of conventional foam decreases during the service life of the system.



The comfort agenda



If you feel comfortable at home, at work and while you are commuting or travelling, you experience a better quality of life and you're more relaxed and efficient in whatever you do.

This is why both district heating and district cooling are rapidly increasing in popularity as the most energy-efficient ways to achieve greater personal convenience and comfort.

Pre-insulated pipe systems from LOGSTOR, conceived around uniquely effective insulation that keeps energy loss to a minimum, are quite simply the world's most cost-effective way to do this.

Two sides of the same coin



Centrally heated

District heating provides entire communities with energy-efficient heating from one central source, such as CHP excess heat, via a network of branching pipes. These pipes are critical for how reliably and efficiently you, as a district heating provider, can deliver heat to the end-user, the overall quality of the service you are able to provide and the operating costs this service involves.

Renewable energy

LOGSTOR pipe systems are also suited for smaller-scale district heating installations based on renewable energy sources such as biomass and the sun.



District cooling

Pre-insulated pipe systems were originally developed specifically for district heating. However, the basic idea gave such clear-cut advantages that they are also becoming increasingly popular for district cooling. District cooling systems can be based on centralised production of cold water, decentralised installations that use hot water from existing district heating installations (combined with absorption chillers in individual buildings) or natural cold water from lakes or strata deep below the ground.

Vastly more energy-efficient than traditional air conditioning, district cooling is the most modern, environmentally responsible way to ensure pleasant temperatures in all kinds of residential, commercial and industrial buildings.





Tougher than the rest



Built for the tough stuff

When you know that anything you send through a pipe reaches its intended destination at virtually the same temperature, that the ultra-efficient insulation does not deteriorate over time, that there are no “weak points” and that the entire system is designed for a minimum 30-year service life, new, cost-effective opportunities for transporting liquids by pipe suddenly open up.

The PE outer casing is resistant to salt, chemicals and other sources of corrosion, as well as being waterproof, impact-resistant and relatively impervious. This also makes it ideal for use wherever hygiene standards are crucial.

LOGSTOR pre-insulated pipe systems can be installed both above and below ground, indoors and out, and in onshore, offshore and marine facilities.

Liquids or gases

Many substances transported through pre-insulated pipes exist in both liquid and gaseous form, depending on temperature.

This makes the special temperature-retaining properties of LOGSTOR polyurethane foam invaluable, preventing phase change, viscosity issues and the formation of condensation.

You can use LOGSTOR pre-insulated pipe systems to transport liquids with temperatures throughout the range -200°C to 315°C .

When the tough gets going



Oil & Gas

Oil and gas from marginal fields require special treatment to keep them in a fluid, free-flowing state and maintain the necessary specifications. However, because LOGSTOR solutions keep heat loss to a minimum, oil can be transported over very long distances with no need for heating stations. Similarly, they prevent any hydrate formation caused by temperature inconsistencies.

The exceptional advantages of LOGSTOR cryogenic insulation now also make it possible to use pre-insulated pipes in LNG terminals and pipelines.

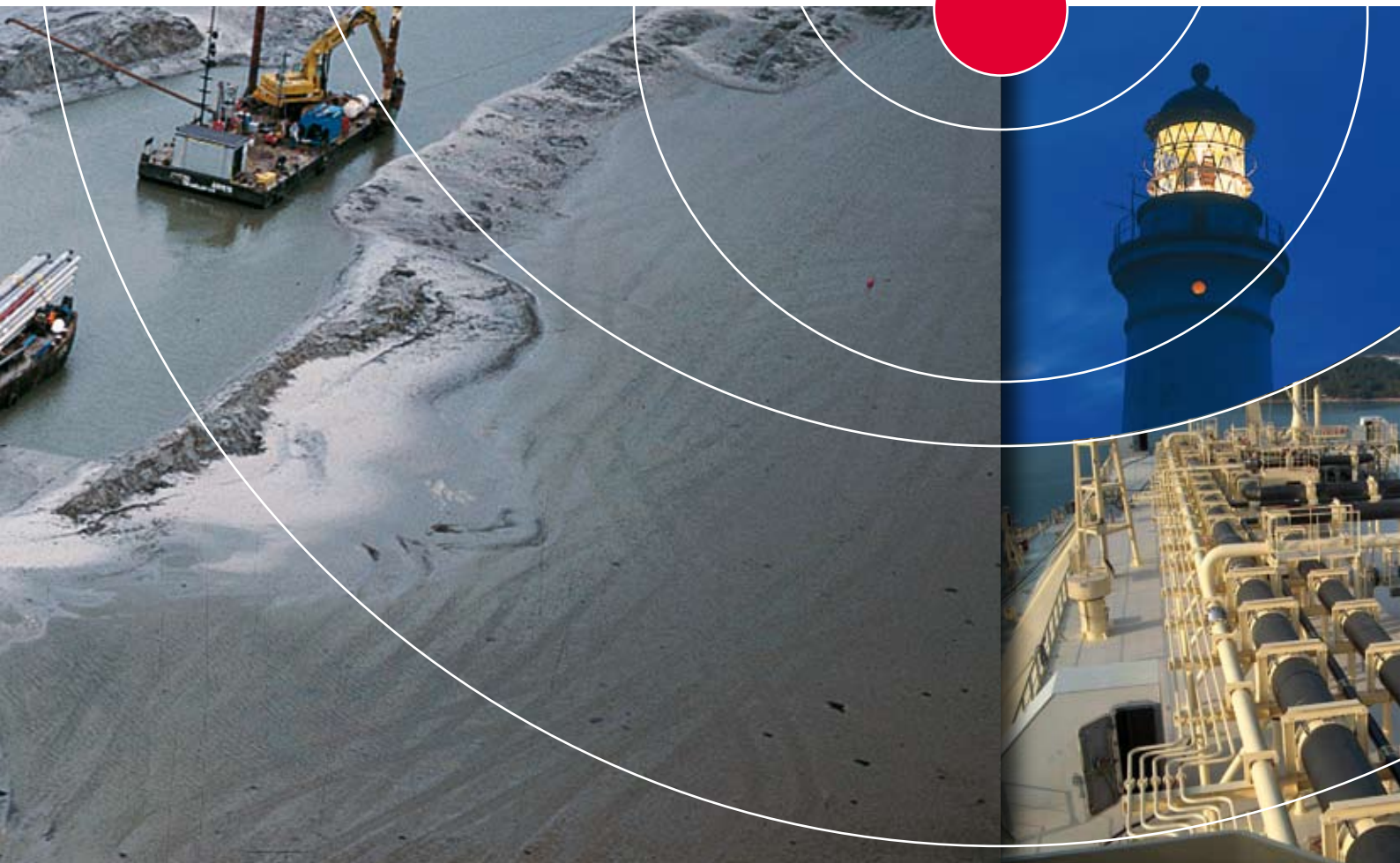
LOGSTOR pipe systems comply with the stringent safety and environmental standards that apply to oil and gas installations.

Marine

LOGSTOR supplies watertight, corrosion-resistant pre-insulated pipes that are specially designed to withstand the rigours of service at sea.

Exceptional reliability and minimal maintenance requirements make these pipe systems ideal for use in cargo holds and open-deck installations. LOGSTOR pre-insulated pipes are widely specified for chemical and product tankers, reefers, juice carriers and FPSOs.

We also supply special cryogenic insulation for use in LNG, LEG and LPG carriers.

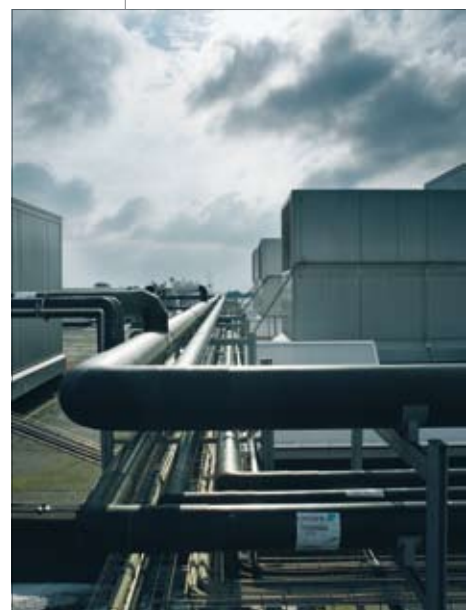


Industry

The unique properties of LOGSTOR pre-insulated pipes mean that they are now widely used throughout virtually all kinds of industry to transport a wide range of liquids, from chemicals to foodstuffs.

The PE pipe casings comply with stringent hygiene standards and are unaffected by high-pressure cleaning and the kinds of strong detergents sometimes needed in industry.

LOGSTOR installations are particularly suitable for low-temperature applications where traditional pipe insulation would result in condensation forming.





The facts behind LOGSTOR



Company facts

- Headquarters in Denmark
- 9 factories, located in Denmark, Poland, Sweden and Finland
- 11 sales companies worldwide
- Joint ventures in the United Arab Emirates, the Republic of Korea and the People's Republic of China
- Distributors in 28 countries on all continents
- 1,400 employees
- Annual turnover (2007) EUR 307 million

We invented the pre-insulated pipe technology, and have supplied more than 160,000 km of pre-insulated pipe to date, with more than 40 years of experience in fine-tuning every detail.

For information about LOGSTOR's distinguished history of technical innovation, go to www.logstor.com.

Current production volume (per year)

- Straight pipes (DN20 to DN1200)
– more than 10,000 km
- Flexible pipes (ø15 mm to ø110 mm)
– more than 4,000 km
- Joints (weldable, shrinkable and mechanical) – more than 1,000,000 units
- Pre-insulated fittings – more than 250,000 units

The LOGSTOR pre-insulated pipe system



Complete system

LOGSTOR pre-insulated pipe systems include all the joints, bends, branches and valves necessary to construct an end-to-end pipe system for moving liquids, to meet all local needs and specific requirements.

Every single component is designed to ensure that there are no weak points anywhere in the system. The energy-saving properties are as consistent as possible, and the design ensures easy, rapid installation at minimum cost.

Types of pipe systems currently available

- the Single Pipe system
- the TwinPipe system
- the DoublePipe system
- the FlexPipe system

Curved pipes with diameters up to DN800 are available for all systems.

LOGSTOR pre-insulated pipe systems are designed specifically to keep energy loss to the absolute minimum. The systems include pipes with three variable insulation thicknesses as standard, to meet different heat retention requirements.

Any energy loss from a pipe system will have a relatively high cost impact. A special diffusion barrier is therefore available as standard for flexible pipes and as an option for straight single pipes. This keeps the insulation properties of the pipes constant throughout their entire service life.



The service pipes currently available

- steel
- copper
- PEX
- multilayer aluminium/PEX

Standard pipe diameters

- Straight pipes from DN20 to DN1200
- Flexible pipes from $\varnothing 16$ mm to $\varnothing 110$ mm

ISO 9001 and ISO 14001 standards are the basis for the manufacture of all LOGSTOR pipes and components. These are also accompanied by full documentation of compliance with the appropriate quality norms, which include the European EN253, EN448, EN488 and EN489 standards.





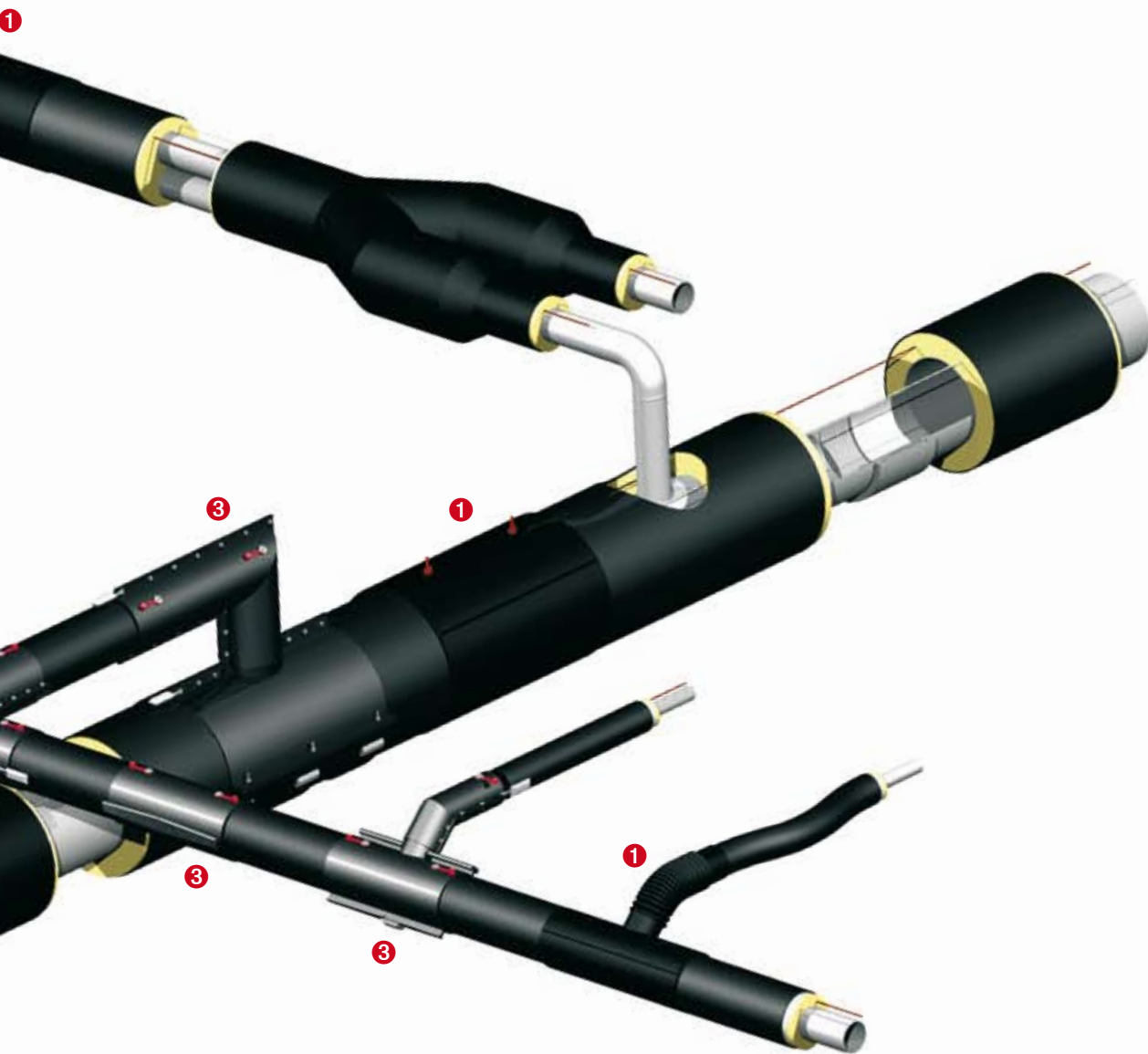
Temperature range
 From -200°C to 65°C
 From -60°C to 140°C
 From 5°C to 315°C

Insulation system (using cyclopentane propellant)
 Low-temperature, high-density polyurethane
 Standard high-density polyurethane
 High-temperature, combination of mineral wool and high-density polyurethane



Monitoring systems

LOGSTOR pre-insulated pipes have copper wires running through the insulation. These sensors can be linked to electronic monitoring systems that identify the exact location if the service pipe, insulation or the casing suffers any form of damage.



Jointing systems

LOGSTOR jointing systems are designed to deal effectively with all the challenges traditionally associated with joining pipe sections together.

These systems reduce the number of pre-insulated components and joints required, and ensure rapid, safe installation at the lowest possible cost.

A complete range is available to ensure that there is a cost-effective, safe LOGSTOR solution to every practical requirement.

- 1** The weldable system – a computer-controlled welding process melts the joint and casing together into one unbreakable, sealed unit.
- 2** The shrinkable system – the joint (installed before the pipe is welded) is heat-shrunk onto the casing. This involves only one single joint and one foaming procedure for each joint, bend and branch.
- 3** The mechanical system – this is installed on site and involves only one single joint and one foaming procedure for each joint, bend and branch.

[We document the difference]

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