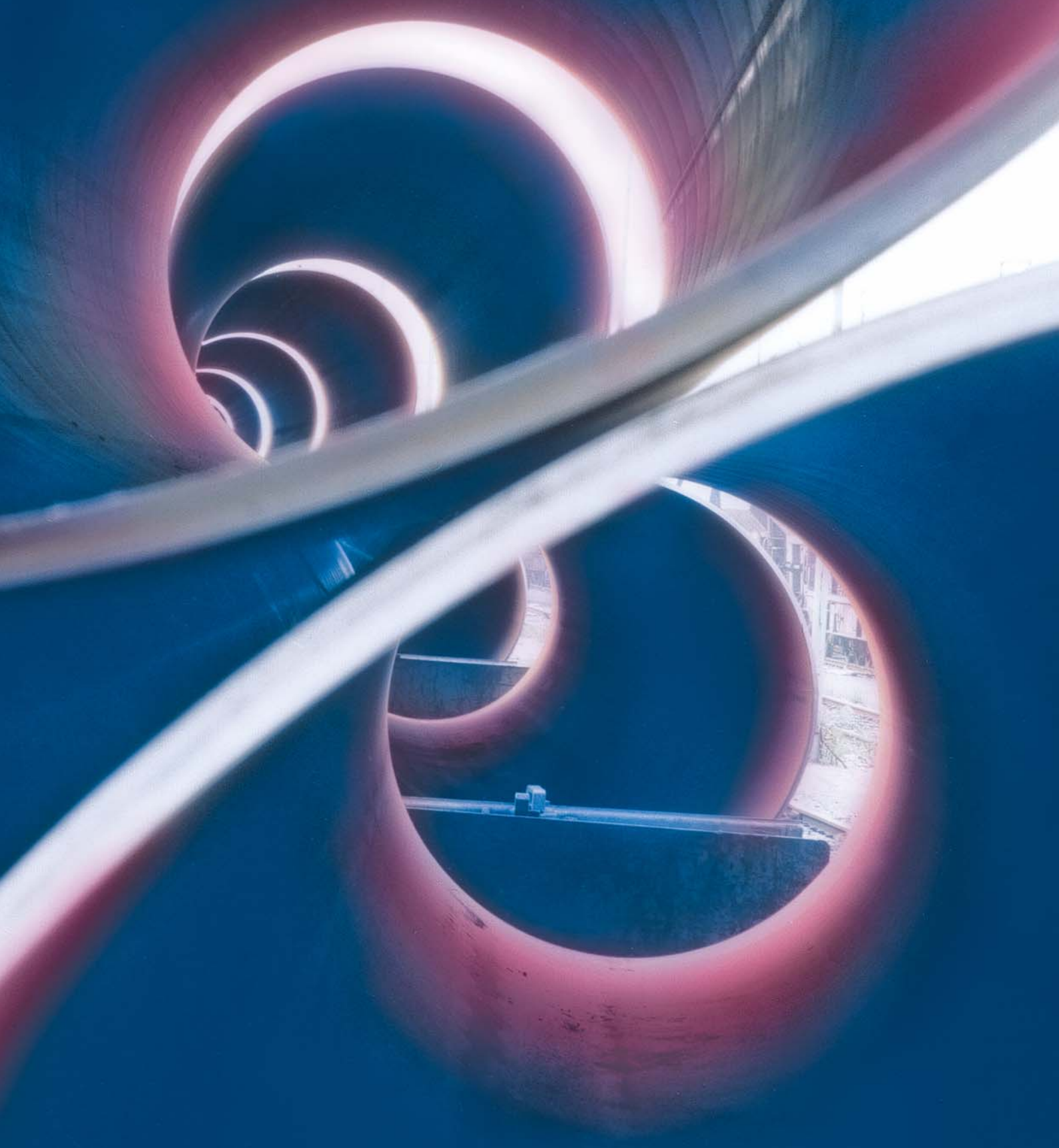




**EUROPIPE**

# Coating

**EUROPIPE. Full of energy.**



# EUROPIPE: Thinking ahead.

Protection is no pipe dream.



In 1804, the Dillinger Hütte steel mill rolls its first steel plate. In 1845, a company later to become part of Mannesmannröhren-Werke produces Europe's first welded steel pipe. In 1991, these two steel industry pioneers pool their expertise and join forces to create EUROPIPE, soon to emerge as a global leader in the pipeline industry.

Supplying products and services for pipeline construction, EUROPIPE today

leads an industry that takes thinking big literally. A 1.5 million kilometre network of pipelines spans the globe, conveying gases and liquids with maximum safety and the utmost respect for the environment. For this market, we produce worldwide over a million tonnes (around 3,000 kilometres) of large-diameter steel pipe every year – for use throughout the world: over land and under water, in the Arctic ice and in the desert heat.

Our success is based on a simple principle: thinking ahead. Each and every one of our employees is committed to the philosophy of anticipating customer needs to make our products, processes and services even better.

The ability to think ahead – this is the pledge of top performance with which we approach every challenge. And that includes coating steel pipes to make them last half an eternity.

# All-round protection.

## The long and short of our large-diameter pipes.

Producing gas and oil calls for specialised know-how, and transporting them safely over endless distances no less so. Steel pipelines are regarded as cost-efficient and safe. Making sure they stay that way permanently under extreme conditions is the job of special coatings.

Corrosion protection, safety, saving energy and durability

are the goals EUROPIPE pursues in coating and lining its large-diameter pipes. Our coating factories are situated in the direct vicinity of our pipe mills.

Our coating partners are MÜLHEIM PIPECOATINGS GmbH (MPC), Germany and eb Pipe Coating, Inc., USA. EUROPIPE is in a position to ensure optimum quality, fast

delivery and favourable terms. Our coating experts can draw on decades of experience. Coating is a specialised task calling for specialist skills: For optimum protection against corrosion and mechanical damages we apply polyolefins such as polyethylene (PE) in classic 3-layer coatings, as well as fusion-bonded epoxy (FBE) for external coatings.



To reduce friction during the transportation of natural gas, we can apply epoxy flow-coat linings. Pipes used to carry water and certain grades of oil need an anti-corrosion lining based on multi-component liquid epoxy systems.



# Built-in peace of mind.

## Enduring more to last longer.

EUROPIPE offers a whole range of technically optimised, cost-effective coating solutions. In the case of multi-layer PE/PP systems, robust polyolefin coatings are applied to an FBE primer. The coatings produced in this way display high electrical resistance. Used in conjunction with cathodic protection, pipes achieve service life well in excess of standard specifications.

Multi-layer PE and PP coatings develop their full anti-corrosion effect at thicknesses as low as 1 mm. However, the coating thicknesses specified in

standards are higher, usually in line with pipe diameter so as to provide additional protection against mechanical damage due to compressive and shear forces during transit and installation. Where stresses and strains are particularly severe, even thicker coatings are used. PP allows higher service temperatures and provides better mechanical properties in terms of indentation and impact resistance.

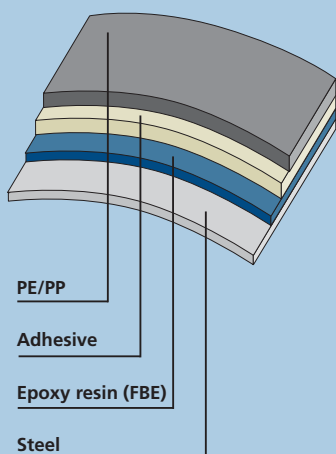
Coatings can be designed to deal with service temperatures of up to 120°C. The materials used and the various layer

thicknesses within the coating system are important factors.

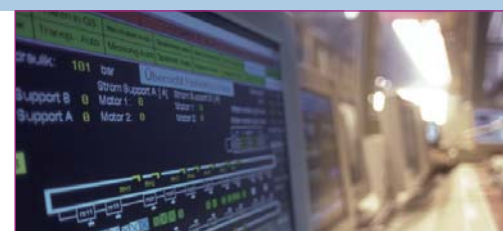
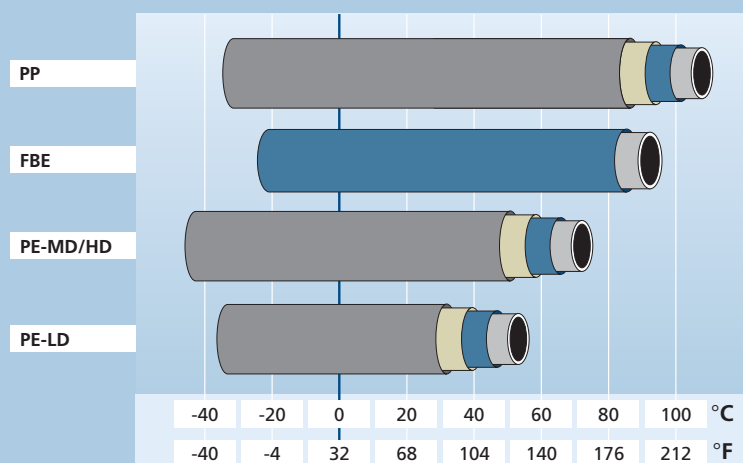
Fusion-bonded epoxy (FBE) offers excellent adhesion on steel and is used in thicknesses of approx. 400 µm for single-layer coatings. For increased resistance to mechanical loads, additional layers of special epoxy can be applied. This is known as a dual FBE coating or abrasion-resistant overlay (ARO). Total coating thicknesses of over 1 mm may be required.

Pipes for offshore installation are given a non-slip coating

3-layer coating



Coating systems and their individual service temperatures



regardless of whether or not they are subsequently coated with concrete.

This is done by means of polyolefin and FBE coatings with textured surfaces, or by including fine particles in the coating (sandpaper effect). Besides coatings for oil and gas pipes, EUROPIPE naturally supplies solutions for long-distance water transportation, mainly drinking water but also waste water.

The internal linings used for such requirements are based on epoxy and are available for

pipes and fittings. The external coatings are identical to those for EUROPIPE oil and gas pipelines.

Coating is precision work. Not only does the coating have to be tailored to the climatic conditions in the field and the properties of the product to be conveyed, it also has to protect the pipe during transit, storage and subsequent installation.



# Care every inch of the way.

A vast pool of ideas.

Whatever properties are required – we have the coating resources you need. That goes for know-how, equipment and materials.

After thorough cleaning and preheating, the pipes are machine-blasted to produce a bright surface with the necessary depth of roughness.

## A coating is born

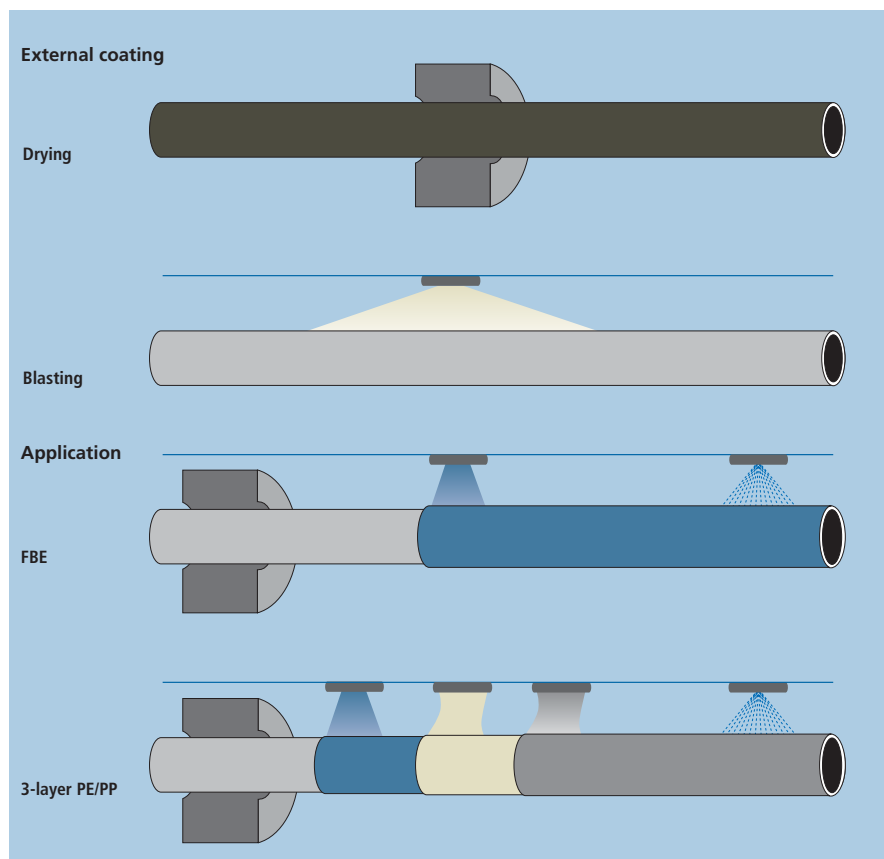
Depending on the type of coating to be applied, the pipes are heated to between

180 and 240°C. This is followed by electrostatic spraying of the epoxy powders. For multi-layer coatings, the adhesive and the PE or PP top coat are applied in the same operation, during which the individual layers fuse into a homogeneous coating. After cooling and removal of the coating from the pipe ends, the pipes are sent for quality testing.

## Lining

Depending on requirements, a variety of different materials

are used for the lining: Flow-coat linings reduce friction between pipe wall and gas. A flow-coat lining in a natural gas pipeline ensures that the energy required at the compressor stations is minimised. The liquid components of the reaction-curing system are applied to the surface of the rotating pipe and are subsequently cured in a hot air furnace. Or epoxy systems if the pipe is to be protected against corrosion.





# Certified quality and patent solutions.

For us, meeting the unusual is business as usual.

We believe that to guarantee quality you have to document it. That is why at EUROPIPE and MÚLHEIM PIPECOATINGS (MPC) all quality data are recorded, archived and evaluated using the latest IT systems. Thanks to our integrated data network (PRODIS - Production Control and Information System), we can supply information at any time about the manufacturing and inspection status, and the whereabouts of every single pipe.

In addition, our quality management systems are based on internationally recognised standards. EUROPIPE, MPC and eb Pipe Coating are ISO 9001-certified.

## One-stop shop

A company that supplies top-quality products and services is naturally also expected to deliver complete solutions. Our customers have long valued our expert, one-stop approach servicing their

needs. Using our ready-to-lay coated pipes and fittings, they not only save on coordination and control costs but can also rest assured that all responsibilities are clearly defined. Additional service: to meet special customer needs, we also conduct research and development on all phases of production for steel, plate and pipe, including coatings.

EUROPIPE has virtually unrivalled expertise in handling every aspect of such tasks the fast, flexible way. That includes meeting special delivery requirements, from shipping direct to the project location to stacking for intermediate storage. After all, for EUROPIPE and its coating partners, going the extra mile is all part of our job.

## Bonded by success

They say success has many fathers. Our success, too, rests on many shoulders – among them the special relationships and even friendship, we have with our customers: From the

outset, EUROPIPE clients have been involved in many of our development projects, from goal definition all the way to practical testing. Another key factor in our success is the partnership and sharing of experience between EUROPIPE, MPC and eb Pipe Coating.

A host of publications and above all numerous patents are testimony to the long-standing commitment of EUROPIPE and its coating companies. At this very moment, interdisciplinary teams are hard at work improving our existing processes and systems and developing new ones. And who benefits from all this? You do, we do, and the environment does. Because as well as lowering costs and raising performance, conserving natural resources and protecting the environment are high on our agenda: EUROPIPE. Full of energy.





[www.europipe.com](http://www.europipe.com)

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