BKP BEROLINA

GRP Pipe Coating

Styrene-Free Surface Protection for Steel Pipes

GRP pipe coating: a success story

In the mid-1990s, BKP Berolina worked together with a renowned gas network operator to develop a pipe coating made of glass-reinforced plastic (GRP). Since then, thanks to intelligent technology and high-strength GRP coating, it has been possible to reliably and successfully safeguard the corrosion protection applied on the steel pipe from mechanical damage.
BKP Berolina has over 25 years of experience in pipe protection. Having participated in numerous major projects, it has proven itself to be a competent and reliable partner.

Pipe rehabilitation and pipe protection with the most innovative systems

BKP Berolina Polyester GmbH & Co. KG is one of the most innovative international system suppliers in the field of trenchless pipe rehabilitation and pipe protection. The GRP pipe coating – a protective, wearproof coat for the trenchless laying of steel pipes – completes the offer. It also includes the globally unique Berolina liner system, successfully in use for more than 20 years, as well as products for lateral pipe rehabilitation.

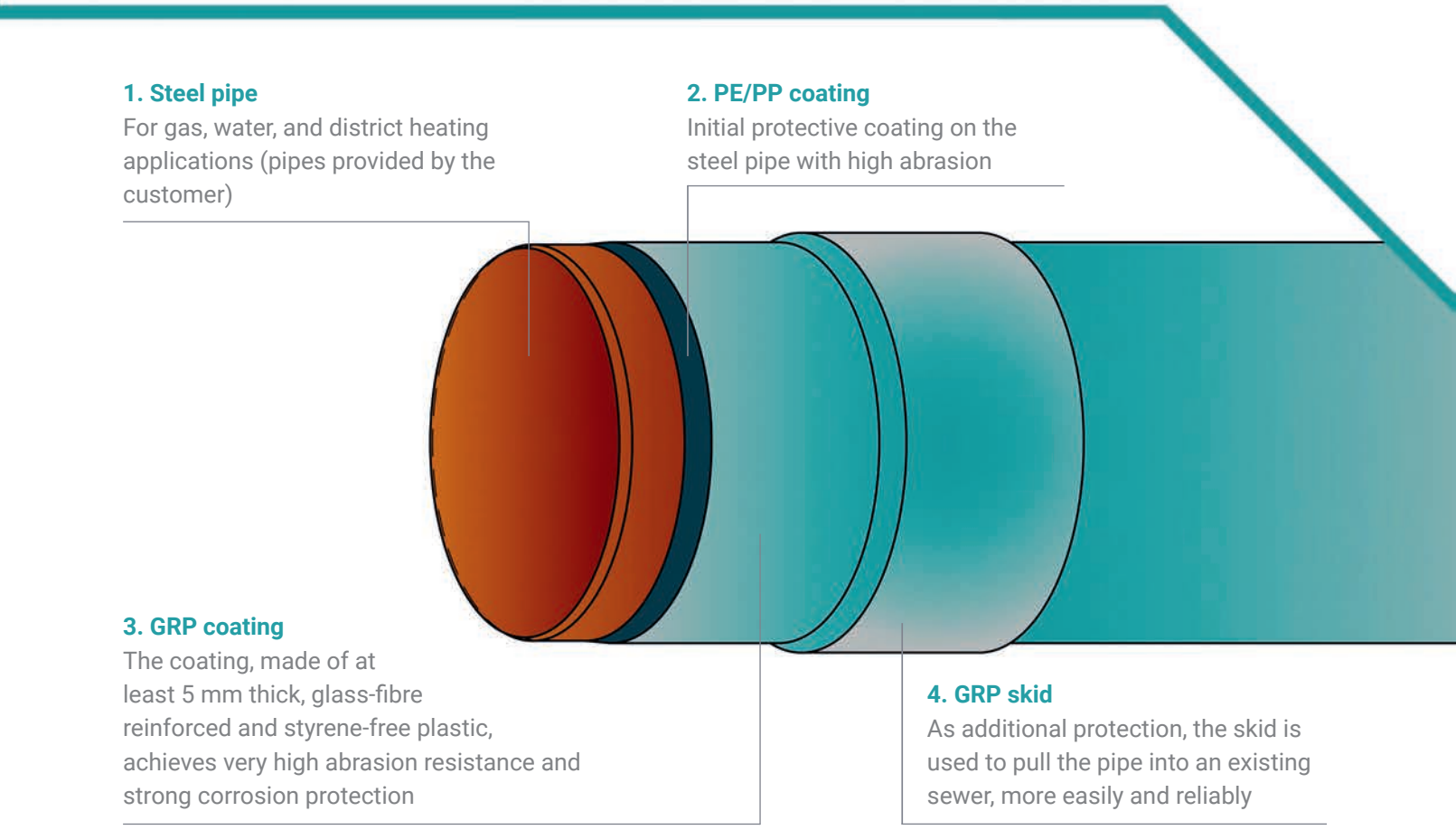
Mechanical abrasion protection for steel pipes

The extremely resilient coating is made of glass-reinforced plastic based on **environmentally friendly, styrene-free vinyl ester or polyester resin**. It ensures maximum mechanical wear resistance for trenchless pipe installation, something that cannot be achieved with conventional polyethylene/polypropylene (PE/PP) coating methods. Applied in the factory, the GRP coating wraps around the insulation layer made of PE or PP like an additional protective coat.

State-of-the-art methods, for example, UV radiation, ensure controlled curing of the material – quickly, cost-effectively and **without using dangerous and toxic hardeners and accelerators**. A coat thickness of approx. 5 mm is already sufficient to enable safe and reliable installation of long pipe sections by means of horizontal pipe jacking. This eliminates follow-up costs, such as those for the repair or replacement of damaged pipes.

The advantages of GRP pipe coating

- Maximum protection from mechanical damage to the insulation layer
- High impact and abrasion resistance
- Available in sizes DN 100 to DN 1,400 (larger sizes also available on request)
- Chemical and light-resistant
- Also available with GRP skids
- **Lower emissions due to use of modern styrene-free resins**



Mechanical characteristics

Based on a coating of PE coated steel pipe with 5 mm GRP:

Thickness of the Berolina protection system: > = 5 mm
Dielectric strength: > = 25 000 V

Laminate weight per unit area: > 9400 g/m²
Laminate density: > 1700 kg/m³

Total glass proportion: > 60 %
Total glass weight per unit area: > 5600 g/m²

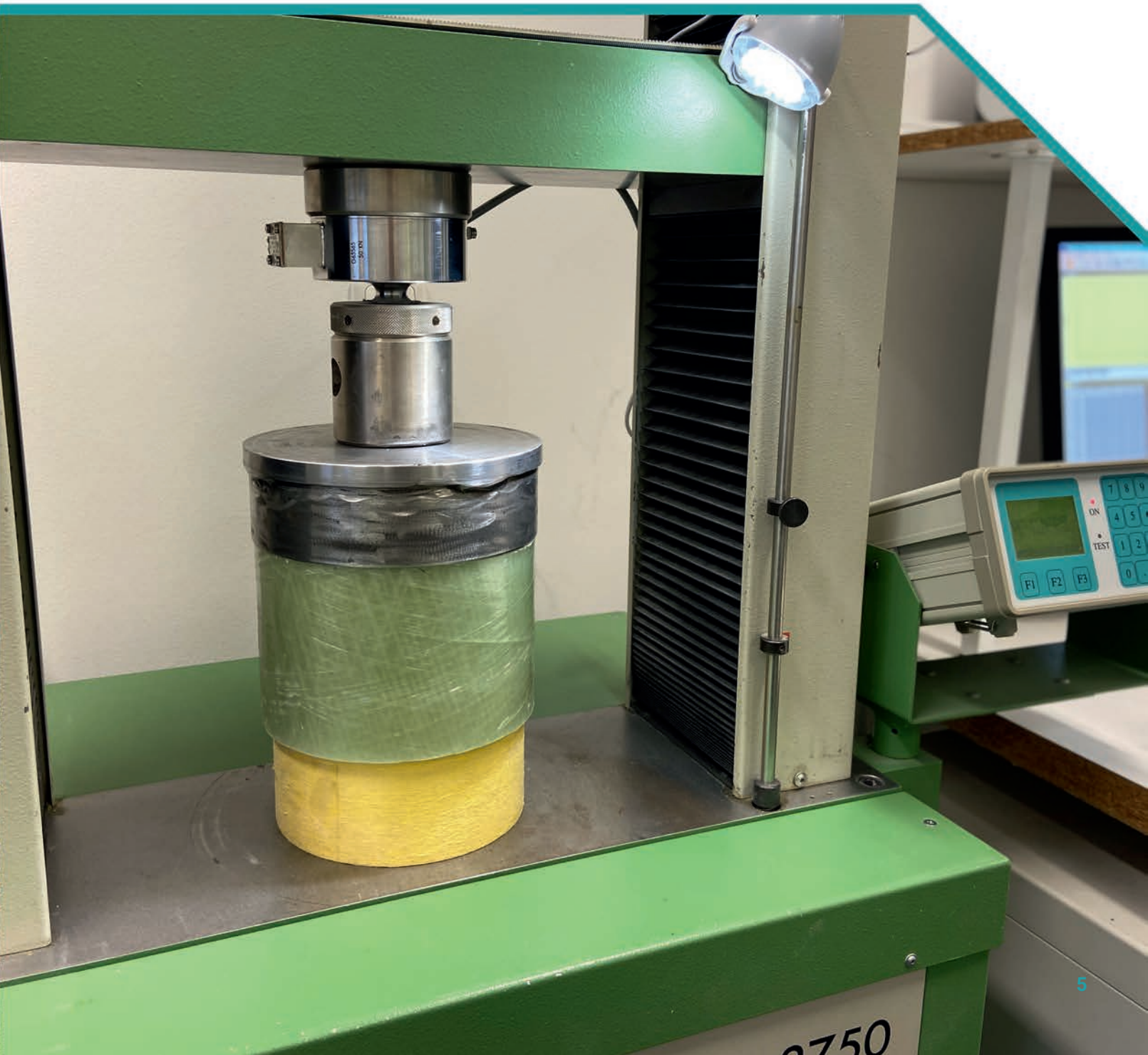
Härtegrad (Barcol): > 45
Styrene emission: 0 ppm
Volumetric shrinkage (laminate): < 1 %

GRP pipe coating quality requirements

The GRP coating applied mechanically in the factory is subject to strict quality standards:

- Certified raw materials
- Effective incoming inspections
- Monitored production process
- Monitored test equipment
- 100 % test coverage
- Issue of inspection certificate according to EN 10204

BKP Berolina Polyester GmbH & Co. KG is certified according to EN ISO 9001 and is a specialist company under the German Water Management Act (“Wasserhaushaltsgesetz” WHG).

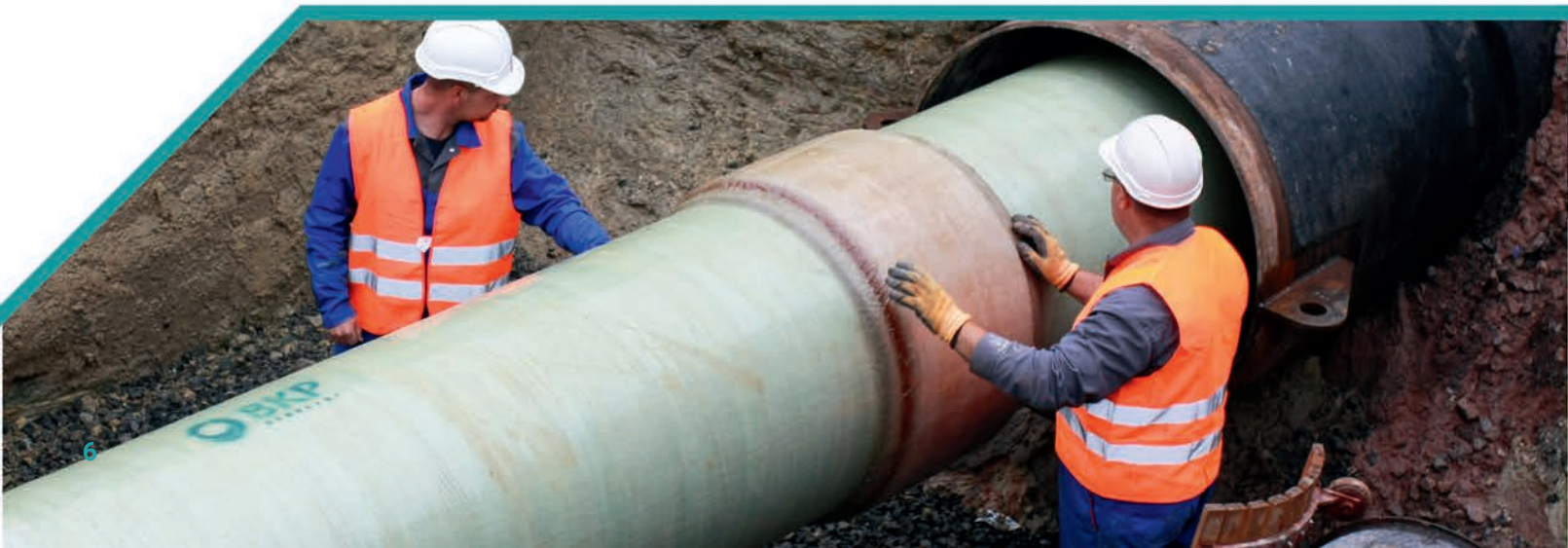


Faster, safer, and more reliable pulling in with GRP skids

In interaction with the coating, the GRP skids provide additional protection from mechanical damage when pulling a pipe into an existing pipe length. The approx. 50 mm BKP Berolina thick skids are placed on the GRP coating and are extremely resilient. These spacers attached in the factory remove the need for additional costly work on the construction site.

The advantages of the GRP skids at a glance

- High mechanical abrasion resistance
- Tight fit on the GRP coating
- Available for pipes DN 100 to DN 1,400 (larger skids also available on request)
- Variable widths and heights (standard: 400 mm wide, 50 mm high)
- Freely selectable spacing on the GRP coating
- Sspecial applications possible



Protection of the field joints (welds) by coating

Field joints are particularly susceptible to damage by environmental influences, as they can only be coated post hoc and only directly on the construction site. By using glass-fibre reinforced plastic, it is possible to undertake this work process within a very short time and to avoid subsequent damage to the welded joints. Working in the lightproof tent as well as the targeted use of UV lamps mean that the material is cured in a controlled way. A curing process “from the outside inwards” additionally avoids the occurrence of fumes.

The welded joints are protected by applying a one-component, light-curing resin in conjunction with individual layers of glass fabric and/or glass nonwoven on the seamed joint. The system is particularly suitable for pipe jacking and horizontal directional drilling (HDD). In the HDD method, an additional corrosion protection system (two-tape system) is applied on the seam.

The weld coating can also be used as protection at soil-air interfaces, such as those in station construction or pig traps. The individual fabric or nonwoven layers are applied in conjunction with the high-quality resin using a wrapping method. The areas are then optimally protected against mechanical damage and impacts.

Particular advantages of GRP weld coating

- Optimum protection from mechanical damage
- Short application period
- Mechanical loading possible immediately after curing

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BKP Berolina – We Protect Pipes