

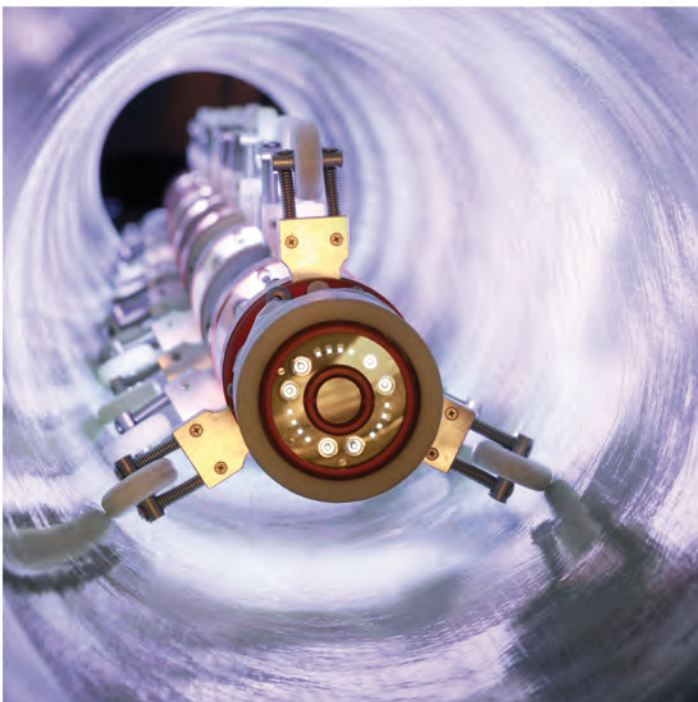
Berolina-Liner



Area of application

Gravity sewers

- Circular profiles: ID 150 (16") - ID 950 (37")
- Ovoid cross-sections: 200/300 mm (8"/12") - 700/1,050 mm (28"/41")



Advantages

- Seamless design, particular expandability
- Length up to 500 / 1,000 meters ($\leq$ DN 300)
- Can be stored up to 6 months (VE liners) or 12 months (UP liners)
- Fast curing and smooth surface
- Suitable for all standard pipe profiles
- Quality management in accordance with EN ISO 9001:2015
- Bridging small profile and cross-section changes
- Resin types depending on requirement (polyester, vinyl ester, polystyrene-free)
- Abrasion protection layer

Additional advantage: IES

Integrated Enhanced Security

- Can be a substitute for smooth slip film, reducing installation time
- Available up to DN 600

BKP Berolina – We Protect Pipes



Approvals

- **DIBt Z-42.3-336** (UP and VE resins)
- **WRc PT405/0417** (UP and VE resin)
- **CSTB 17.2/15-303_V1** (UP resins)
- **City of Los Angeles, USA** (UP and VE resins)

Reinforcement material

Woven glass complex E-CR according to

- EN 14020-1
- EN 14020-2
- EN 14020-3

Resins

Unsaturated polyester resins (UP resins)

- Type 1140 according to DIN 16946-2
- Group 3 according to DIN 18820-1
- Group 4 according to EN 13121-1

Vinyl ester resins (VE resins)

- Type 1310 according to DIN 16946-2
- Group 5 according to DIN 18820-1
- Group 7 B according to EN 13121-1

Polystyrene-free resins

Technical data

Approved for UP and VE resins

Density after curing (EN ISO 1183-2):	1.5g/cm ³ (± 0.5 g/cm ³)
Glass fibre content (EN ISO 1172 / by mass):	46% (± 8%)
Glass weight per unit area (per mm load-bearing wall thickness)*:	650 g/m ² (+150/-100g/m ²)
Short-term circumferential modulus of elasticity (EN 1228)*:	≥ 10,000 N/mm ²
Short-term modulus of elasticity in flexure (EN ISO 178)*:	≥ 8,700 N/mm ²
Short-term flexural strength (EN ISO 178)*:	≥ 150 N/mm ²
Reduction factor for long-term values (EN 761):	A = 1.45
Long-term circumferential modulus of elasticity (EN 1228)*:	≥ 6,800 N/mm ²
Long-term flexural strength (EN ISO 178)*:	≥ 105 N/mm ²
Laminate design:	Multi-layer, seamless and overlapping in longitudinal direction; overlaps are offset
Linear expansion during calibration:	~ 0.0%
Allowable diameter tolerances of the host pipes:	DN ≤ 800: ± 5%; DN > 800: ± 2%

* Carrier laminate thickness to EN ISO 11296-4 (07/2011)