

Berolina-HF-Liner



Advantages:

- Higher strength
- Lower wall thickness required
- Seamless construction
- Ready-to-install
- Suitable for storage
- Fast curing
- Smooth surface, suitable for all profiles
- Bridging of profile- and cross-section changes
- Chemical and abrasion resistant inner layer
- Selection of material according to requirements (UP / VE)

Field of application:

Gravity pipes

Round: ID 400 (16") – ID 1600 (63")

Ovoid: 350 (14") / 525 (21") –
1200 (48") / 1800 (71")

Berolina-HF-Liner with IES



Additional Advantages:

- Integrated Enhanced Security
(gliding film not needed)



Field of application:

Gravity pipes

ID 400 (16") - ID 600 (24")

Regulated according to:

DIBt-Approval Z-42.3-336

WRc PT405/0417

CSTB 17/15-303

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Technical data

Reinforcement material:	Glass fabric E-CR according to DIN EN 14020-1, DIN EN 14020-2 und DIN EN 14020-3.
Resins:	
Unsaturated Polyester resins (UP-resins)	acc. to DIN 18820-1, table 1, group 3, ISO-NPG acc. to DIN 16946-2, table 3, type 1140.
Vinylester resins (VE-resins)	acc. to DIN 16946-2, table 4, type 1310.
Density after curing (DIN EN ISO 1183-2):	1.59 g/cm ³ (± 0.5 g/cm ³)
Glass fibre content (DIN EN ISO 1172) (mass related):	53% (±8%)
Glass weight per unit area (each mm structural wall thickness/laminate):	900 g/m ² (+150/-100 g/m ²)
Short term flexural modulus (E-modulus) (DIN EN 1228)*:	≥ 17,000 N/mm ² (≥ 2,465,640 psi)
Short term flexural E-modulus (DIN EN ISO 178)*:	≥ 17,000 N/mm ² (≥ 2,465,640 psi)
Short term flexural strength (DIN EN ISO 178)*:	≥ 280 N/mm ² (≥ 40,610 psi)
Reduction factor for long term values (DIN EN 761):	A = 1.19
Long term flexural modulus (E-modulus) (DIN EN 1228)*:	≥ 14,200 N/mm ² (≥ 2,059,530 psi)
Long term flexural strength (DIN EN ISO 178)*:	≥ 235 N/mm ² (≥ 34,080 psi)
Laminate design:	Multilayer, seamless and axially overlapping. Overlaps being arranged with offset.
Linear expansion during calibration:	~ 0.0%
Allowable variation of host pipes diameter:	DN ≤ 800: ± 5% DN > 800: ± 2%

* Structural laminate thickness DIN EN ISO 11296-4 (06/2010)