TECHNICAL DATA SHEET

Berolina-HF Liner

TECHNICAL DATA

Approved for UP and VE resins

- **Density after curing (ASTM D1505)**
  99.3 lb/ft³ (±31.2 lb/ft³)
- **Glass fibre content (EN ISO 1172 / by mass)**
  53% (± 8%)
- **Glass weight per unit area (per mm wall thickness)**
  26.5 oz/yd² (+4.4 / -2.9 oz/yd²)
- **Short-term circumferential modulus of elasticity (ASTM D2412)**
  ≥ 2,465,000 psi
- **Short-term modulus of elasticity in flexure (ASTM D790)**
  ≥ 2,465,000 psi
- **Short-term flexural strength (ASTM D790)**
  ≥ 40,600 psi
- **Long-term circumferential modulus of elasticity (ASTM 2412)**
  ≥ 2,060,000 psi
- **Long-term flexural strength (ASTM D790)**
  ≥ 34,100 psi
- **Laminate Design**
  Multi-layer, seemless and overlapping in longitudinal direction; overlaps are offset
- **Linear expansion during calibration**
  ~ 0.0%
- **Allowable diameter tolerances of the host pipes**
  DIA ≤ 32" ± 5%; DIA > 32". ± 2%



UV GRP, High Strength Liner for Gravity Sewer Pipe

DESCRIPTION

Due to the special construction of the glass sheets and higher glass content, Berolina-HF-Liner achieves higher mechanical characteristics resulting in a reduction of the structurally required wall thickness compared to the BKP's standard UV GRP liner. Berolina-HF-Liner is also available with Integrated Enhanced Security (IES), which can be reduce installation time by up to 60 minutes.

AREAS OF APPLICATION

- Circular profiles: ID 6 - 63"
- Ovoid cross-sections: sections: 14 / 21" - 48 / 71"

FEATURES & BENEFITS

- Higher mechanical characteristics compared to the Berolina-Liner
- Reduction of the structurally required wall thickness compared to the Berolina-Liner
- Seamless design, particular extensibility
- Up to 1,640 / 3,280 ft. (≤ 12 in.)
- 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 mgmt. acc. to EN ISO 9001:2015
- Bridging small profile and cross-section changes
- Resin types: PE, VE, styrene-free
- Abrasion protection layer

ADDITIONAL INTEGRATED ENHANCED SECURITY ADVANTAGES

- Can be a substitute for gliding foil, reducing installation time
- Available up to 24"

APPROVALS

- DIBt Z-42.3-336 (UP and VE resins)
- WRc PT/496/0422 (UP and VE resin)
- CSTB 17.2/15-303_V4 (UP resins)
- City of Los Angeles, USA (UP resins)

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REINFORCEMENT MATERIAL

- Woven glass complex E-CR according to ASTM D578

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
- **Styrene-free resin**