

As of: May 5, 2021

| GENERAL INFORMATION | |
|------------------------|--|
| Product group | GRP LINER sewage |
| Product range | SAERTEX-LINER® MULTI |
| Design | Type M |
| Utilization | Municipal wastewater, rainwater, combined sewage |
| Reinforcing material | Multiaxial fabric made of glass fiber |
| Resin type | Unsaturated polyester resins (UP) |
| Impregnation | Pre-impregnated at the factory |
| Curing procedure | Light-cured pipe lining (UV-CIPP) |
| Installation procedure | Pull in place |
| Inflation procedure | Compressed air |
| Shelf life | Up to 6 months at temperatures from 7°C-18°C/45°F-65°F |
| EC Safety Data Sheet | Available |

| DESIGN CHARACTERISTICS | |
|---|---|
| Maximum operating pressure (MDP) | Gravity pipes |
| Host pipe profile | Circular |
| Material characteristics group according to DWA M 144-3 | 8 |
| Diameter range | DN 150-400/6" - 16", special profiles up to 1257 mm/48 in |
| Permissible elongation | ≤DN 400: DN + 2% >DN 400: DN + 4% |
| Structural wall thickness | 3 mm and 4 mm |
| Liner construction as outlined in: | DIBt approval Z-42.3-350, Annex 1 and 2, abZ/AB |

| COMPOSITE REINFORCEMENT | |
|---|---|
| Glass fiber type according to DIN 61850 | Permanently corrosion and chemical resistant, ECR |
| Number of layers multiaxial fabric | 2 |
| Glass area weight per mm wall thickness | 520g/m ² ± 150 g/m ² |
| Specific density according to DIN EN ISO 1183-2 | 1.5 g/cm ³ ± 0.5 g/cm ³ |
| Glass content according to DIN EN ISO 1172 | ≥ 41% (mass-based) |
| Barcol hardness according to DIN EN 59 | ≥ 40 IRHD |
| Longitudinal seam | Yes |
| Winding | No |

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| FOILS | | |
|--|----------------------------------|------------------------|
| Inner foils with barrier function | Standard | FastPlus* |
| - Remains in the liner | Temporary | Semi-permanent |
| - Materials | PE/PA | PE/PA and nonwoven PET |
| - Thickness | Up to 200 µm | Up to 400 µm |
| Protective outer gliding foil, UV light protection**, integrated as standard | | |
| - Material | PVC, fabric reinforced in places | |
| - Thickness | Up to 500 µm | |
| Permanent outer foil with barrier function | | |
| - Material | PE/PA/PE and nonwoven PP | |
| - Thickness | Up to 200 µm | |

* FastPlus available for DN 200 to DN 400/8" – 16"

**Up to DN 600/24 inch and max. 2.5 t liner weight and corresponding condition of host pipe installation possible without additional gliding foil.

Notes (terms ISO 11296- 4):

- Temporary: Foil is removed after curing.
- Semi-permanent: Facilitates liner installation and curing without post-installation functions. Remains in the liner.
- Permanent: Facilitates liner installation and curing with post-installation functions. Remains in the liner.

| MECHANICAL CHARACTERISTICS | |
|--|---|
| Short-term circumferential E modulus according to DIN EN 1228 | ≥ 7.000 N/mm ² : 1,015,260 psi |
| Short-term bending E modulus according to DIN EN ISO 11296-4 // DIN EN ISO 178 | ≥ 7.000 N/mm ² : 1,015,260 psi |
| Short-term bending stress according to DIN EN ISO 11296-4 // DIN EN ISO 178 | ≥ 200 N/mm ² : 29,005 psi |
| Long-term circumferential E modulus* _{ex 50 years} according to DIN EN 761 | 3.888 N/mm ² : 563,905 psi |
| Long-term bending stress E modulus* _{ex 50 years} according to DIN EN 761 | 111 N/mm ² : 16,095 psi |
| Long-term circumferential E modulus* _{ex 100 years} according to DIN EN 761 | 3.825 N/mm ² : 554,765 psi |
| Long-term bending stress E modulus* _{ex 100 years} according to DIN EN 761 | 109 N/mm ² : 15,805 psi |
| Retention factor A after 10,000 hours according to DIN EN 761 | 1.80/55% |
| Retention factor A after 20,000 hours according to DIN EN 761 | 1.83/54% |
| Creep tendency after 24 hours according to DIN EN ISO 899-2 | ≤ 10 % |

* These values are used for the static calculation of the liner's stability according to DWA-A 143-2.