

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.