

As of: May 20, 2022

GENERAL INFORMATION			
Product group	GFRP LINER sewage		
Product range	SAERTEX-LINER® ENVIRONMENT		
Design	Type S+ XR		
Utilization	Pressure lines for municipal wastewater, rainwater, combined sewage		
Reinforcing material	Multiaxial fabric made of glass fiber		
Resin type	Styrene-free vinyl ester resin (SFVE)		
Impregnation	Pre-impregnated at the factory		
Installation procedure	Light-cured pipe lining (UV-CIPP)		
Curing procedure	Pull in place		
Installation procedure	Compressed air		
Shelf life	Composite wall thickness	Transport conditions	Storage stability
	4,3-8,3mm	Temperature control required	6 months at 7-18°C
	9,3-12,3mm	Temperature control required	3 months at 7-14°C
Pressure table	Available		
EC Safety Data Sheet	Available		

DESIGN CHARACTERISTICS	
Operating pressure	up to 33 bar/up to 478 psi
Host pipe profile	Circular
Structural classification according to DIN EN ISO 11295 / AWWA M28	Class A / Class IV: independent - fully statically loadable
Diameter range	DN 250-1200/10" – 48"
Structural wall thickness	4.3 mm -12.3 mm, in 1 mm increments
Liner construction as outlined in:	Analog 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	at least 3
Glass area weight per mm wall thickness	1100 g/m ² ± 150 g/m ²
Specific density according to DIN EN ISO 1183-2	1.6 g/cm ³ ± 0.5 g/cm ³
Glass content according to DIN EN ISO 1172	≥ 49% (mass-based)
Barcol hardness according to DIN EN 59	≥ 50 IRHD
Longitudinal seam	Yes
Winding	No

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

*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	≥ 20.500 N/mm ²
Short-term bending E modulus according to DIN EN ISO 11296-4 // DIN EN ISO 178	≥ 16.800 N/mm ²
Short-term bending stress according to DIN EN ISO 11296-4 // DIN EN ISO 178	≥ 270 N/mm ²
Long-term circumferential E modulus* _{ex 50 years} according to DIN EN 761	16.000 N/mm ²
Long-term bending stress E modulus* _{ex 50 years} according to DIN EN 761	210 N/mm ²
Retention factor A after 2,000 hours* according to DIN EN 761	1,28
Creep tendency after 24 hours according to DIN EN ISO 899-2	≤ 6 %

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

** Preliminary values after 2,000 h proof