Product data sheet
SAERTEX-LINER® ENVIRONMENT, TYPE S+XR

As of: February 2023

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	Structural wall thickness	Transport conditions	Storage stability
	4,3 – 8,3 mm	Temperature control required	6 months at 7 – 18° C
	9,3 – 12,3 mm	Temperature control required	3 months at 7 – 14° C
Pressure table	available		
EC Safety Data Sheet	available		

DESIGN CHARACTERISTICS	
maximum operating pressure (MDP)	33 bar
Host pipe profile	circular
structural classification according to DIN EN ISO 11295 / AWWA M28	Class A / Class IV: independent - fully structural
Diameter range	DN 250 - 1200
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

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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 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 // DIN EN ISO 11296-4:2011	≥ 20.500 N/mm²
Short-term bending E modulus according to DIN EN ISO 11296-4:2011 // DIN EN ISO 178	≥ 16.800 N/mm²
Short-term bending stress according to DIN EN ISO 11296-4:2011 // DIN EN ISO 178	≥ 270 N/mm²
Long-term circumferential E modulus**$_{ex\ 50\ years}$ according to DIN EN 761	16.000 N/mm²
Long-term bending stress E modulus**$_{ex\ 50\ years}$ according to DIN EN 761	210 N/mm²
Retention factor A after 10,000 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.

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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	1210 g/m² ± 150 g/m²
Specific density according to DIN EN ISO 1183-2	1.6 g/cm³ ± 0.5 g/cm³
Glass content according to DIN EN ISO 1172	≥ 46% (mass-based)
Barcol hardness according to DIN EN 59	≥ 40 IRHD
longitudinal seam	Yes
Winding	No