

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

As of: February 2023

GENERAL INFORMATION				
Product group	GRP LINER sewage			
Product range	SAERTEX-LINER® ENVIRONMENT			
Design	Type S+			
Utilization	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			
Curing procedure	light-cured pipe lining (UV-CIPP)			
Installation procedure	pull in place			
Inflation procedure	compressed air			
Shelf life	DN	Structural wall thickness	Transport conditions	Storage stability
	150 - 1200	3 – 9 mm	Temperature control required	6 months 7 to 18 °C
	1201 – 1500	10 – 12 mm	Temperature control required	3 months 7 to 14 °C
Pressure table	available			
EC Safety Data Sheet	available			
DESIGN CHARACTERISTICS				
maximum operating pressure (MDP)	Gravity pipeline		1 bar	
Host pipe profile	all types		circular	
Diameter range	DN 150 - 1500		DN 250 - 1200	
structural wall thickness	3 mm-12mm, in 1 mm increments		4 mm-12mm, in 1 mm increments	
permissible elongation	≤400: DN + 2% >400: DN + 4%		on request	
inner foils with barrier function**	Standard	FastPlus*	Pressure	
outer foils**	integrated gliding foil with UV light protection and permanent foil with barrier function			
Material characteristics group according to DWA M 144-3	19			
Liner construction as outlined in:	DIBt approval Z-42.3-350, Annex 1 and 2, abZ/AB			

* FastPlus available for DN 200 to DN 1500 diameter, max wall thickness 12 mm

** Details see section "FOILS"

As of: November 2022

FOILS			
inner foils with barrier function	Standard	FastPlus	Pressure
- Remains in the liner	temporary	semi-permanent	permanent
- Materials	PE/PA	PE/PA, Fleece PET	PE/PA, Fleece PET
- Thickness	up to 200 µm	up to 400 µm	up to 400 µm
protective outer gliding foil, UV light protection***, integrated			
- 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		

***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 // ISO 11296-4:2011	≥ 12.950 N/mm ²
Short-term bending E modulus according to DIN EN ISO 11296-4:2011 // DIN EN ISO 178	≥ 15.000 N/mm ²
Short-term bending stress according to DIN EN ISO 11296-4:2011 // DIN EN ISO 178	≥ 230 N/mm ²
Long-term circumferential E modulus**** _{ex 50 years} according to DIN EN 761	9.300 N/mm ²
Long-term bending stress E modulus**** _{ex 50 years} according to DIN EN 761	165 N/mm ²
Retention factor A according to DIN EN 761	1.39
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	
Glass fiber type according to DIN 61850	permanently corrosion and chemical resistant, ECR
Number of layers multiaxial fabric	at least 2
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	≥ 40 IRHD
Longitudinal seam	Yes
Winding	No