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

As of: February 2023

GENERAL INFORMATION	
Product group	GFRP LINER sewage
Product range	SAERTEX-LINER® INDUSTRY
Design	Type S+
Utilization	corrosive sewage after resistance test
Reinforcing material	multiaxial fabric made of glass fiber
Resin type	vinyl ester resin (VE)
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	6 months at 7 °C – 25 °C
EC Safety Data Sheet	available

DESIGN CHARACTERISTICS		
maximum operating pressure (MDP)	Gravity pipeline	
Host pipe profile	all types	
Diameter range	DN 150 - 1000	
structural wall thickness	3 mm - 10 mm, in 1 mm increments; system limits: DN 1000 max. WD 8 mm, WD 10 mm max. DN 800	
permissible elongation	≤ DN 400: DN + 2% > DN 400: DN + 4%	
inner foils with barrier function**	Standard	FastPlus*
outer foils**	integrated sliding and light protection foil and permanent foil with barrier function	
Material characteristics group according to DWA M 144-3	25	
Liner construction as outlined in:	DIBt approval Z-42.3-350, Annex 1 and 2, abZ/AB	

* FastPlus available for DN 200 to DN 1000 max WD 10 mm
** Details see section "FOILS"

As of: February 2023

FOILS		
Inner foils with barrier function	Standard	FastPlus
- Remains in the liner	temporary	semi-permanent
- Materials	PE/PA	PE/PA, PET
- Thickness	up to 200 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 600/24 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 // 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
Long-term circumferential E modulus****$_{ex\ 100\ years}$ according to DIN EN 761	15.600 N/mm²
Long-term bending stress E modulus****$_{ex\ 100\ years}$ according to DIN EN 761	205 N/mm²
Retention factor A after 10,000 hours according to DIN EN 761	1.28
Reduction factor A after 20,000 hours according to DIN EN 761	1.31
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.

As of: February 2023

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/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