

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

As of: February 1, 2023

GENERAL INFORMATION	
Product group	GRP LINER - Gravity
Product range	SAERTEX-LINER® ENVIRONMENT
Design	Type S+
Application	Municipal wastewater, rainwater, sewage
Reinforcing material	Multiaxial fabric made of ECR glass
Resin type	Styrene-free vinyl ester resin (SFVE)
Wet out (Saturation)	Fully wet out at the factory
Curing procedure	UV light - cured in place pipe (UV-CIPP)
Installation procedure	Pull in place
Inflation procedure	Compressed air
Shelf-life storage parameters	6 months at temperatures from 45°F - 65°F
	3 months at 44°F- 57°F if WT* ≥ 9 mm and / or DIA** ≥ 48"
EC Safety Data Sheet	Available upon request

\*WT- Wall Thickness

\*\*DIA- Diameter

DESIGN CHARACTERISTICS	
Host pipe profile	All types
Diameter range	6" – 60"
Structural wall thickness	3 mm-12 mm, in 1 mm increments
Permissible Stretch	≤16" + 2%
	>16" + 4%
Outer foils	Integrated gliding and light protection foil and permanent foil with barrier function
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	1100 g/m <sup>2</sup> ± 150 g/m <sup>2</sup>
Specific density according to DIN EN ISO 1183-2	1.6 g/cm <sup>3</sup> ± 0.5 g/cm <sup>3</sup>
Glass content according to DIN EN ISO 1172	≥ 49% (mass-based)
Barcol hardness according to DIN EN 59	≥ 40 IRHD
Longitudinal seam	Yes

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FOILS	
Inner foils with barrier function	FastPlus
- Foil Type	Semi-permanent*
- Materials	PE/PA nonwoven PET
- Thickness	Up to 400 µm
Protective outer gliding foil, UV light protection** integrated	
- Material	PVC reinforced fabric
- Thickness	Up to 500 µm
Permanent outer foil with barrier function	
- Material	PE/PA/PE and nonwoven PP
- Thickness	Up to 200 µm

\*(terms ISO 11296- 4): Semi-permanent: Facilitates liner installation and curing without post-installation functions. Remains in the liner.

\*\*Up to 24" and max. 5.500lbs liner weight and corresponding condition of host pipe, liner may be installed without additional gliding foil.

MECHANICAL CHARACTERISTICS	
Short-term circumferential E modulus according to DIN EN 1228 // DIN EN ISO 11296-4:2011	1,870,000psi
Short-term bending E modulus according to DIN EN ISO 11296-4:2011 // DIN EN ISO 178 // ASTM D790	2,170,000 psi
Short-term bending stress according to DIN EN ISO 11296-4: 2011 // DIN EN ISO 178 // ASTM D790	33,000 psi
Retention factor A after 10,000 hours according to DIN EN 761	1.39/72%
Creep tendency after 24 hours according to DIN EN ISO 899-2	≤ 6 %