

INPIPE FREELINER®

PRODUCT INFORMATION



PRODUCTS FOR TRENCHLESS RENOVATION

Inpipe Sweden AB

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What is Inpipe Freelineer®?



Inpipe Freelineer® is a product line from Inpipe Sweden AB which is based on a new type of polyester, developed to meet the requirements of installers and management owners for the best possible health and safety with the least possible environmental impact.

Free from styrene and Bisphenol

Inpipe Freelineer® is the world's first liner free of styrene and any type of Bisphenol to renovate pipes, drums and sewers for waste-, storm- and drainage water .

Inpipe's products with this type of new polyester are BASTA-registered and, consequently, receive the highest environmental/work environment rating.

The product is free of the solvents styrene and any type of Bisphenol.

Area of use

Inpipe's fiberglass-reinforced and UV-cured liner can be used to renovate pipes, drums and drains. The main use is for waste-, storm- and drainage water.

The product is also used to renovate different types of pipes in the process industry. When using the product in pipes with elevated chemical contents and/or elevated temperatures, this must be taken into account when choosing a product in order to achieve maximum service life.

If you have specific environmental conditions or media that you would like to discuss, contact Inpipe Sweden AB.

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Product description

The products are made of a fiberglass composite with glass content of at least 43%. They consist of several layers of corrosion-resistant fiberglass, so-called ECR glass, which are impregnated with polyester. The construction of the liner creates a pure wear layer of resin on the inside which protects the glass-fiber reinforced core of the liner. There are foils on the outside and inside. The inner foil is removed after curing. See Figure 1 below.

The product is manufactured in the dimension range: $\varnothing 150 - \varnothing 500$ mm.

Typical wall thicknesses: 3-8 mm

Typical ring stiffness: SN1 - SN7

Each liner is provided with a unique identification number, which means that all components, process steps and final control have full traceability.

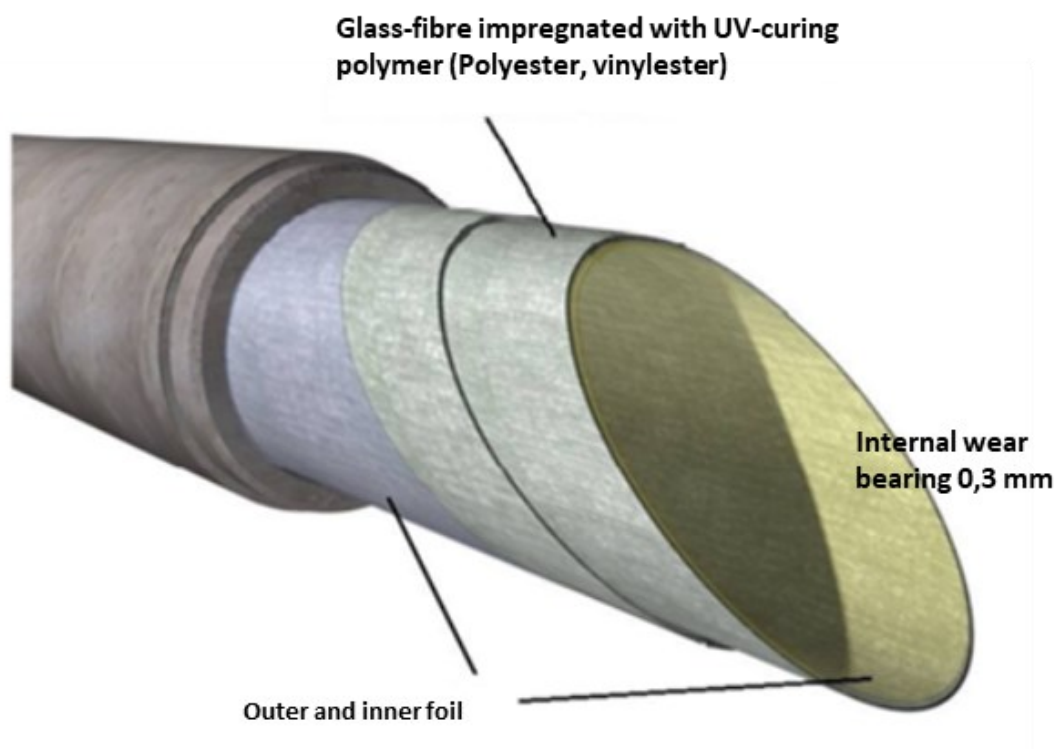


Figure 1, Product design

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Installation description

The pipe must be cleaned by flushing and any roots, inserted parts of laterals and other objects must be removed before installation.

The liner can be installed in two different ways:
Inversion or Winched in place.

- Using Inversion installation compressed air is used to insert the liner into the host pipe.
- Using Winched in place installation a rope or a wire is used to pull the liner into the host pipe.

Expansion and calibration are accomplished with compressed air, whereby the liner is pressed tightly against the host pipe.

The liner is cured using UV light. During curing, parameters such as the pressure and temperature in the liner are logged continuously and automatically. The inner foil is removed after installation.

All necessary parameters, such as inversion- and calibration pressure, as well as parameters for UV light curing are provided by Inpipe Sweden AB.

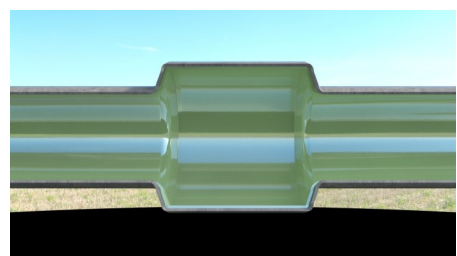
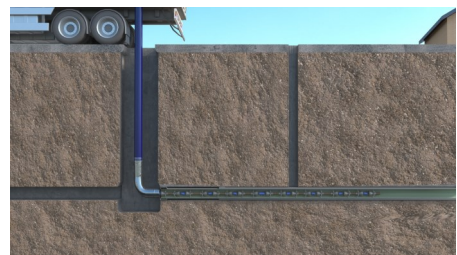
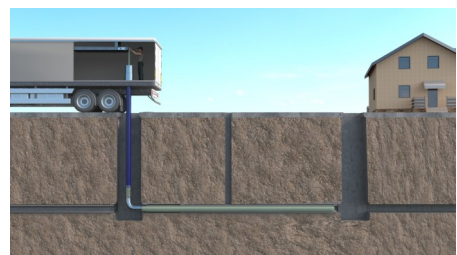
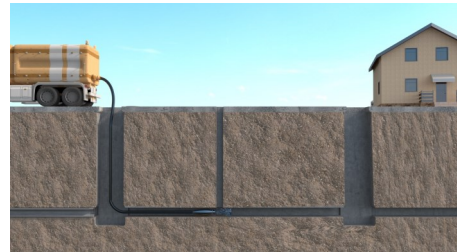
Dimensional changes — Flexliner

If the pipe to be renovated for any reason has different dimensions, Inpipe Flexliner® should be used.

Inpipe Flexliner® is built in a way that allows it to adapt to the dimension of the pipe. Depending on the original diameter, the liner can withstand dimension increases of 25% up to 50%.

The Inpipe Flexliner® is available both for Inversion and Winched in place installations.

The Inpipe Flexliner® is installed and hardened in the same way as other Inpipe liners.



Slope and displacements

Inpipe Liner can be installed over slope and displacements in wells or damaged pipes while maintaining the wall thickness and strength. The result is a rounded and smooth transition between the levels and displacements.

Bends and angles

All Inpipe fiberglass-reinforced liners can withstand class C changes in direction, according to Svenskt Vatten publication P91. This applies to all dimensions.

Inpipe liner is able to pass bends and angles of up to about 30 degrees.

Pipe bend: 0 - 15°, undetectable to minimal creasing

Material properties

Polymer	BPA and styrene-free polyester
Curing method during installation	Ultraviolet light
Fiberglass (reinforcement and material carrier)	ECR glass
Foil, inner and outer	Co-extruded thermoplastic such as PE/PA/PE
Wall thickness e (typically standard products)	3-8 mm
Internal wear bearing	0,3 mm
Glass content minimum	43%

Property	Typical value	Test method
Short-term E-module	12000 MPa	ISO 1228 / ISO 53769-3 / ISO 7685 /
50-year E-module	7800 MPa	ISO 761 / ISO 53769-3 / ISO 7684 /
Bending strenght	320 N/mm ²	ISO 178 / ISO 11296-4
Elongation at the first bend break	4,6%	ISO 178 / ISO 11296-4
Creep factor 50 years	0,65	ISO 899-2 / ISO 11296-4
Water resistance	Impervious	ISO 1610

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Care and Maintenance

An Inpipe liner is smooth and joint-free on the inside, which often significantly improves properties of flow capacity and self-cleaning.

Your liner requires no extra maintenance beyond normal maintenance for sewer and pipe systems.

Operating conditions of the piping/liner

Max temperature: 40 degrees Celsius

Liner maintenance

Rinsing/cleaning: High pressure flushing with water. Mechanical cleaning can damage the liner.

Lateral connections on previously lined piping

The old pipe must be carefully removed so that your Inpipe liner is exposed.

Use a suitable form of saddle connection, lip ring connector or PVC bend that is connected with rubber cuffs

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