



inliner[™]
REINFORCED UV-CURED LINER ***STX***

UV Light-Cured CIPP

INLINER DIFFERENCE

Inliner has long been recognized as an industry leader in Cured-in-Place Pipe (CIPP) renewal using resin-impregnated, felt-based liners cured with either hot water or steam. In a move consistent with our ongoing efforts to bring cutting-edge technology to the domestic pipeline rehabilitation market, Inliner Technologies is proud to offer **Inliner STX™**: a fiberglass, ultraviolet light-cured liner offered in diameters of 6 to 48 inches.

UV TECHNOLOGY

Although relatively new to the U.S. market, UV-cured fiberglass liners have been successfully installed in Europe for decades. Whereas more traditional felt-based liners continue to offer reliable solutions and considerable flexibility in today's marketplace, fiberglass-based, UV-cured liners can now offer additional benefits that provide a complementary, valued alternative for certain applications.

Inliner STX is a viable solution for a variety of rehabilitation applications including sanitary, stormwater, industrial and pressure pipelines.

UV-cured liners provide particular advantages for pressure pipes, non-circular pipes, and outfalls or culverts that discharge into waterways or combined sewer systems.

Features of UV

- Higher-strength fiberglass properties result in thinner wall design, maximized hydraulic capacity and reduced resin consumption. Benefits can be significant as the diameter increases.
- UV light requires minimal energy and water consumption during the curing process. In addition, refrigeration of the uncured liners is not required.
- The STX liner utilizes engineered, polymeric films to serve as a styrene barrier. This helps to encapsulate the resin for greater control in environmentally sensitive areas, stormwater and combined sewer systems.
- The instrumentation of the UV light train allows for an internal pre-cure QA inspection of the liner prior to activating the UV lamps. The light train also acquires and records data on temperature, travel rate and pressure during the cure cycle.
- The STX liners use a pull-in-place process and a unique resin-thickening technology. This combination ensures a uniform dispersion of resin and a more consistent finished wall thickness, even after the liner is stored for extended periods of time.

TYPICAL INLINER® PROPERTIES

*Time Corrected	Inliner STX Type M	Inliner STX Type S	Inliner CIPP All Sizes
Diameter	6-16 inches	18-48 inches	6-120 inches
Wall Thickness	3-4 mm	5-12 mm	4-60 mm
Flexural Modulus (E_s)	1,015,000 psi	1,740,000 psi	400,000 psi
Long-Term Modulus (E_L)*	550,000 psi (55%)	1,300,000 psi (75%)	200,000 psi (50%)
Flexural Strength (σ)	29,000 psi	36,000 psi	4,500 psi
Design Life	70 years	70 years	50 years



UV INSTALLATION PROCESS

The STX liner is pulled into place after a thorough cleaning of the existing pipeline. A protective sliding film or glide foil can be used in significantly deteriorated lines to aid in the pull-in process and to further protect the liner. Both ends of the liner are then sealed with protective end caps and air pressure is introduced, allowing the liner to expand into place. The UV light train is then inserted into the line, and cameras on the train allow for viewing of the alignment and fit—both before and during the cure process.

Once proper placement is confirmed, the UV light train is activated and drawn through the pipe at a controlled, preconfigured speed of up to 6 feet per minute. This computer-monitored process collects and stores data relevant to temperature, pressure and rate of conveyance to ensure proper curing of the installed liner. When complete, the laterals can be reinstated using a remote-controlled cutting unit or via man entry in larger diameter pipelines.

EXPERIENCE COUNTS

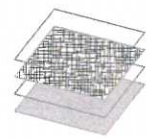
Inliner® installers have lined more than **20 million feet** of wastewater pipe.

TUBE CONSTRUCTION

Inliner STX liners are constructed in the United States using high-quality, durable, chemical- and corrosion-resistant glass.



The glass layers are combined with a series of foils and barriers that when assembled, produce a dual-sided, fully encapsulated liner.

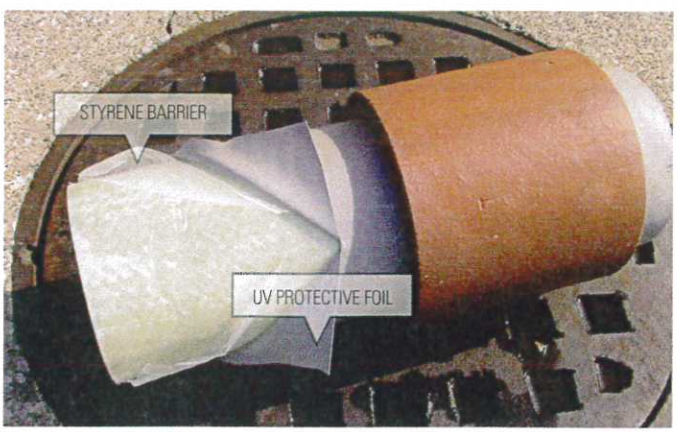


MANUFACTURING & IMPREGNATION

- ISO 9001 Quality Certified: Design, Saturation & Rehabilitation using UV
- Manufactured and wet out in the USA
- Centrally located facility to minimize shipping times and costs
- Custom-made containers for protection of the liners during both transportation and storage



PROCESS STEP	STX		CIPP	
	UV		CIPP	
Clean and TV	✓		✓	
Insert Glide Foil	✓		X	
Pull in/Invert Liner	✓		✓	
Liner Expansion	✓		✓	
Pre-cure Inspection	✓		X	
Apply Curing Medium	✓		✓	
Cool Down Liner	X		✓	
Remove Light Train From Line	✓		X	
Cut and Trim Ends	✓		✓	
Reinstate Services	✓		✓	
Final CCTV Inspection	✓		✓	





*Inliner® is an industry leader in innovation and customer service.
Call us today to learn about our full line of infrastructure solutions.*



ADVANTAGE

THE INLINER STX ADVANTAGE

Environmental Benefits

- Styrene barriers
- Reduced water use
- No water byproduct from installation process
- Eco-friendly/small carbon footprint

Physical Properties

- High-strength reinforced materials
- Reduced wall thickness design
- Uniform finished wall thickness
- Increased hydraulic capacity

Project Planning

- STX liner has minimum shelf life of six months
- Flexibility in adapting to traffic, bypass, weather or other delays
- Easily integrated with other construction projects
- Use in irregular-shaped pipes

Installation Considerations

- Pre-cure visual inspection
- Computerized system allows extensive data collection
- No cool-down phase required
- Installed in accordance with Standard Practice ASTM F2019