

# THE TITE LINER® SYSTEM

*Pressure pipe rehabilitation systems for municipal water and wastewater applications*



Much of the world's pressure pipe infrastructure is long past its design life or is in need of repair. Complete replacement of these pipes using conventional dig and replace solutions can be time consuming, costly (up to 3 times the cost of insitu rehabilitation) and very disruptive to traffic, the general public and the environment. These problems can easily be avoided by choosing the Tite Liner® system—a close-fit, high-density polyethylene (HDPE) solution for pipe renewal.

The Tite Liner® system is ideal for the renewal of distribution and pressure mains. The Tite Liner® system installation cuts down on digging and disruption while helping water companies and municipalities extend the life of their existing infrastructure. The continuous HDPE liner is installed with a close fit against the inner wall of the host pipe after temporarily reducing the liner diameter using our proprietary roller reduction processes.

The HDPE liner isolates the flow stream from the host pipe wall, eliminating internal corrosion and improves flow capacity by up to 50 percent by maximizing flow characteristics and reducing annular space and friction.

## The Tite Liner® system provides solutions for your pressurized pipe system

- Nominal diameter ranges from 2 to 52 inches and higher
- Produces a continuous, close-fitting structural and/or interactive solution
- Drinking water approved NSF 61
- Can navigate minor bends or miters
- Utilizes high-performance HDPE 4710
- Fast and cost-effective installation
- Extends the life of existing assets
- The Tite Liner® system allows for the longest possible installation methods with lowest possible installation forces. Pull lengths of 8,000 feet have been achieved.



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## The Tite Liner® system utilizes PE 4710 and offers a cost-effective and dynamic solution compared with historical materials

- Engineered liner provides a custom fit and performance while minimizing material cost
- Improves performance properties including long-term pressure rating, tensile strength and toughness
- Increased resistance to slow crack growth propagation
- Allows for the use of standard IPS or DIPS connections
- Can be repaired or modified for future needs
- Close-fit eliminates the need for grouting

## Testing and Certification

The following third-party tests have been performed on the Tite Liner® pipeline renewal system:

Industry Standard	Application
ASTM D 3035	Pressure and non-pressure fluids, municipal and industrial water, sewer and culvert, rehabilitation, geothermal, heat transfer
ASTM F 714	
AWWA C901	Water service and distribution
AWWA C906	Water distribution and transmission
FM1613	Underground fire main
NSF 61 and 14	Potable water
AASHTO M-326	Sewer and culvert sliplining
CSA B137.1	Potable water

## Sample Municipal Installations

### Village of Valley Forge, PA Sanitary sewer

- 18,000 LF of 30 in
- DR 32.5 and DR 26

### Newport News, VA Potable water

- 1,100 LF of 30 in Tite Liner®
- DR 32.5

### City of Richardson, TX Sanitary sewer

- 4,000 LF of 12 in
- DR 26

### City of Manhattan, NY Potable water

- 10,000 LF of 48 in
- DR 40

### City of Victoria, BC, Canada Potable water

- 11,000 LF of 24 in
- DR 32.5

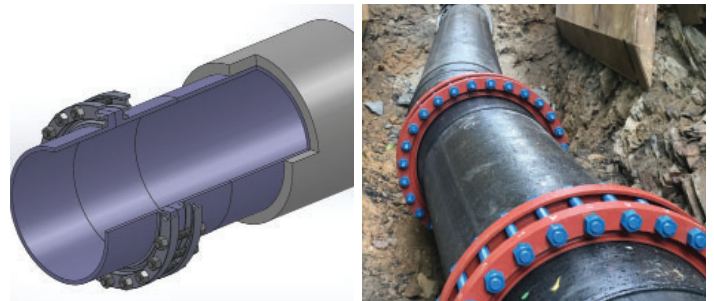
### City of Colorado Springs, CO Raw water

- 2,000 LF of 22 in and 20 in
- DR 26

## The Tite Liner® System Technical Envelope

- The Tite Liner® system can be successfully installed in Class 3 and Class 4 applications.
- In Class 3 applications, the Tite Liner® system has no pressure limitations since the pressure is contained by the host pipe. The Tite Liner® system flange fittings have been successfully used in projects with pressures up to 340 bar (5,000 psi). The connection has been tested and independently verified up to 500 bar (7,500 psi).
- In Class 4 applications, the Tite Liner® system has a pressure limitation of 140 psi.
- The polyethylene used in the Tite Liner® system exhibits superior mechanical properties in temperatures up to 90°C (194°F) for water service.
- Thermoplastic is very resistant to chemicals and other media such as acids, alkalis and salts which makes it suitable in almost every process application.
- A Tite Liner® protected pipeline often experiences increased operating efficiencies because the smooth thermoplastic liner improves hydraulic properties over and above a slight reduction of the inside diameter.
- The Tite Liner® system can easily negotiate field bends of up to 11.25°.

## End Connections and Fittings



The Tite Liner® system is suitable to connect to all types of piping systems (DIP, CS, PCCP, AC, HDD, etc). Fittings, valves and miters can be accommodated with HDPE, DI, CI or other materials and bolt directly to the Tite Liner® system.



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