



# Cured In Place Pipe Lining – CIPP

## Resin Impregnated Felt Inversion Technology

### Features:

- Restoring Structural Pipeline Integrity
- Increased Flow Capacity
- Trenchless Technology-No Excavation
- Cost-Effective Technology for Smaller Diameter
- Proven Application for Over 20 Years

### Applications:

- Storm Water Pipelines
- Sewerage Pipelines
- Industrial Effluent Pipelines



## Pipeline Rehabilitation

Within the APS Pipeline Rehabilitation Division we are able to provide turnkey service to our customers in the utility, power, oil and gas industries. The choice of the most suitable pipeline rehabilitation system depends upon which performance parameters the pipe fails to meet and why the failures occur. Criteria like; condition of the existing pipeline, requirements for the desired performance, hydraulic capacity and structural design data, as well as financial considerations have to be taken into account. Since there is no single solution that covers each and every pipeline rehabilitation project, APS prides itself in providing a very broad range of pipeline rehabilitation methods from which we can offer a tailor-made solution fitting the specific circumstances of the project. Cured In Place Pipe Lining is one of these solutions.

Water entering wastewater systems through holes, breaks and joint failures can significantly impact treatment facilities. CIPP can significantly reduce this infiltration and eliminate leakage. In dry climates, tree and plant roots find the sewer system an attractive source of water and nutrients. Entering through pipe defects, roots create blockages and overflows. CIPP restores the flow within the pipe while keeping external water and roots out.

The APS CIPP installation technology can be used to rehabilitate wastewater pipelines & repair circular sanitary sewers, storm sewers and force mains. CIPP is a jointless pipe-within-a-pipe, with the capability to rehabilitate pipelines ranging in diameter from 150mm to 2500mm. CIPP can also negotiate most bends.

## CIPP Technology

CIPP restores structural integrity to damaged sewer pipes. The design models used, independent test results and over 40 years of service all confirm that CIPP is a structural product with a 100-year design life.

CIPP provides the least cross-sectional reduction of all methods used to rehabilitate smaller and medium diameter pipes. Despite the cross-sectional reduction, the smooth, jointless interior of our product typically improves flow capacity. There are no joints that can separate over time. The smooth interior also provides excellent abrasion resistance.

CIPP process is typically less expensive than conventional methods of sewer repair, even for everyday problems. When you consider the lost business revenues, traffic congestion and social costs associated with other methods, your savings are immeasurable.



## Installation Guidance CIPP

Prior to lining, the pipe must be cleaned by jetting to remove corrosion debris and detritus. Protruding lateral connections also must be removed. Local repairs may be required where the existing pipe is substantially deformed or damaged. After lining, the service connections or laterals are reinstated and the pipe is returned to service, usually within the same day. Lined water mains must be disinfected before returning to service.

CIPP liners of polyester felt or fibre reinforced fabric are manufactured to fit the host pipe. The liners are impregnated with a polymer resin, which when cured will form a close fitting liner pipe within the host pipe. The liner may be designed with sufficient thickness when cured to sustain the loads imposed by external groundwater and internal service pressure, and by soil and traffic acting on the pipe.

The liner is thoroughly saturated with polyester, vinyl ester, epoxy or silicate resin using vacuum, gravity or other applied pressure. The resin includes a chemical catalyst or hardener to facilitate curing. The outermost layer of the liner tube is coated with a polymer film to protect the liner during handling and installation. The impregnated liner may be chilled for transportation to maintain stability until installed.

APS uses the inversion method, which employs a pressure vessel to apply air or water pressure to turn the liner inside out and push it along the host pipe. CIPP liners may be inflated or inverted with air or water pressure. Lengths installed may vary from short sections over a joint or defect, to full length linings typically 30-150m.

The resin impregnated liner curing method is accelerated by application of heat by circulation of inversion water through a boiler. After the pipe has been cured, the liner is cooled and the ends removed flush with the pipe ends, and sealed where necessary.



APS introduced trenchless pipeline rehabilitation in the Middle-East and has since build-up a very long track-record of successfully executing projects in this region and beyond. Companies like DEWA, FEWA, ADDC, AADC, ADSSC, TRANSCO and many more top utility companies have become regular customers of our trenchless pipeline rehabilitation installation technologies. For a complete and detailed project reference list, please contact APS.

APS brings unrivalled levels of innovation, experience and expertise in corrosion engineering and contracting.

We have in-depth knowledge of the industry, our customers' day-to-day challenges and the environmental, health and safety standards in the marketplace. By working in close partnership with our customers, our company is able to provide timely, efficient, cost-effective and above all quality products and services.

APS is certified to and operates in compliance with ISO 9001:2008/BS EN, ISO 14001:2004 and OHSAS 18001:2007.

### **APS Group Headquarters**

Anticorrosion Protective Systems L.L.C.  
P.O. Box 8091, Dubai, United Arab Emirates  
Tel: +971 48848383  
Fax: +971 48848384  
E-mail: [sales@apsdubai.com](mailto:sales@apsdubai.com)  
Website: [www.aps-corporate.com](http://www.aps-corporate.com)

### **APS Regional Headquarters South-East Asia**

Anticorrosion Protective Systems (M) SDN BHD  
Suite 21- 01, Level 21, Menara Binjai  
No. 2, Jalan Binjai, 50450 Kuala Lumpur, Malaysia  
Tel: +603 2181 0955  
Fax: +603 2181 6955  
E-mail: [sales@apsmsia.com.my](mailto:sales@apsmsia.com.my)  
Website: [www.aps-corporate.com](http://www.aps-corporate.com)

No rights can be derived from the contents of this publication. Unless otherwise agreed upon in writing, APS products, services and technical advice given are subject to general terms and conditions of Anticorrosion Protective Systems L.L.C. All rights reserved. All trademarks are the property of the respective owners.