



# RS CityLiner®

## Cured-in-Place Pipe System for the Rehabilitation of Gravity Sewer Pipe

### Key Features:

- ◇ Trenchless pipe repair
  - 6" - 42" diameter
- ◇ Reliable, long-term strength
  - Excellent chemical and abrasion resistance
- ◇ Highly flexible, mobile application
  - 15+ years proven quality
  - On-site automated wet-out
  - Computer controlled and monitored
- ◇ Environment and user friendly
  - Dow epoxy resins
  - Styrene-free

RS CityLiner® is a cured-in-place pipe (CIPP) system for the trenchless rehabilitation of municipal and industrial sewer and storm water pipe. Uniquely designed, RS CityLiner offers mobile wet-out with its computer-controlled system enabling full system visibility from start to finish. Immediately prior to installation, a flexible liner is impregnated with specially formulated epoxy resins from The Dow Chemical Company (Dow) with automated resin ratioing, mixing and calibration RS CityLiner components. The wet-out liner is then inverted into the host pipe through existing manholes or access points. A new pipe is formed as the liner is cured providing a rehabilitated pipe with a 50+ year service life.

RS CityLiner's pipe-in-pipe solution may be designed to bear all external loads without the support of the host pipe. An improvement in the hydraulic efficiency of the pipe is very often realized once the liner is installed.



### Technical Envelope

Pipe Condition	Partially and fully deteriorated
Diameter	6 to 42 inches
Pipe Materials	All types
pH	0.5 - 10.5
Operating Temperature	Up to 140°F. Higher temperature options available.
Bends	Yes
Joint Deflection	Up to 10%
Diameter Variations	Up to 5%
Design Life	50+ years
Industry Standards	ASTM F1216, ASTM D5813

## Installation

The host pipe must be cleaned prior to the installation of the liner, generally using high pressure water. The cleaning is important to remove loose particles and obstructions. Protruding obstructions, such as improperly installed taps or root penetrations, are removed flush with the pipe surface prior to liner installation.

The RS PU-Liner is impregnated on-site using a Dow formulated MaxPox® two-component epoxy resin system. This involves the use of an automated mixing unit in order to achieve a homogeneous and air-free result. Prior to impregnation, the liner is set under a vacuum to remove any air contained in the felt. The homogeneous distribution of the resin system in the liner is controlled by calibration (Figure 1).

The impregnated liner is inverted into the host pipe by means of water column (Figure 2), or air inversion (Figure 3). The liner is then cured using hot water or controlled steam.



Figure 1: Liner calibration



Figure 2: Water inversion process



Figure 3: Air inversion of liner

## Materials

- ◇ RS PU- and PUXR-Liner – single or multi-layered polyester needled felt liner with specialized polyurethane coating
- ◇ MaxPox® epoxy resin and hardener

## Connection Techniques

After completing cure and cool down, the service connections are opened using robotic cutters.

## Standards and Certifications

- ◇ ASTM F1216 - Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube
- ◇ ASTM D5813 - Cured-In-Place Thermosetting Resin Sewer Piping Systems
- ◇ DIN EN 761 – Long-term Crown Compression Test
- ◇ RAL quality mark S27.16, DIBt approval no. Z-42.3-377