

IPLUS[®] GLASS

A glass fiber-reinforced structural CIPP solution that utilizes UV cure processes



Insituform[®]
an AEGION[®] company

IPLUS® GLASS

iPlus® Glass

Insituform has been a pioneer in the trenchless pipeline rehabilitation industry for over 40 years and continues to be a leader in pipeline protection. As part of the iPlus® family, iPlus® Glass is reinforced with glass fiber and can be cured using ultraviolet (UV) method. Insituform has more experience than any other company in the world installing CIPP product.

This trenchless CIPP solution is a jointless, seamless, pipe-within-a-pipe. It can be used to rehabilitate pipes ranging in diameter from 6 inches to 48 inches. This product is available for delivery and installation worldwide.

iPlus® Glass provides the following benefits:

Structural integrity. iPlus® Glass is a glass-fiber reinforced tube that rehabilitates damaged pipes. When compared to standard CIPP, iPlus® Glass requires less resin, provides higher mechanical properties and is a thinner tube which increases flow capacity.

Environmentally safe. iPlus® Glass is a pull-in process. As a result, there is less material waste and the jobsite footprint is typically smaller than a traditional CIPP installation. iPlus® Glass can be cured using a UV cure process which reduces energy and emits less carbon dioxide during installation.



Convenient installation. When using the UV cure process, the iPlus® Glass installation is typically quieter, faster and less disruptive. In addition, the cure installation requires less equipment than a standard CIPP installation, which results in a smaller jobsite footprint.

Other benefits:

- Corrosion resistant
- Minimal traffic disruption
- Manufactured at Insituform ISO 9001:2008 standard certified facility
- Wet out at Insituform facilities
- Higher mechanical properties
- Thinner laminate

Manufacturing

iPlus® Glass tubes are manufactured at Insituform's facilities in Batesville, Mississippi and in the United Kingdom. Insituform is able to custom manufacture tubes for each project based on the relevant shape and size as well as tailor the strength of the tube to project specifications.

Insituform builds quality into every step of the development, manufacturing and installation process. At the foundation of our integrated system is our ISO 9001:2008 standard certification. This certification means we have documented management systems in place to consistently deliver quality results, regulatory compliance and continuous improvement.

iPlus® Glass Installation Process

Every Insituform installation is completed using our own crews who follow strict safety procedures and documented work practices in accordance with the company's ISO 9001:2008 standard certified quality program. Each crew is equipped with highly specialized equipment, backup resources and engineering support. Insituform's advanced installation methods include ultraviolet (UV) cure, which reduce job site energy usage by approximately 95 percent.



Step 1: A resin-saturated, coated glass-fiber reinforced tube is pulled into a damaged pipe. If UV cure is being used, the tube will include an inner and outer liner that protects the tube from damage during installation to facilitate the UV cure process.

Step 2: UV light is used to cure the tube. Throughout the curing process, sensors continuously monitor the temperature of the tube. Once the cure is complete, the inner protective liner of the tube is removed.

Step 3: A leak test is performed if necessary.

Step 4: Service laterals are restored internally with robotically controlled cutting devices and the rehabilitated pipe is inspected by closed-circuit TV.

iPlus® Glass Technical Envelope

Diameter range	6in to 48in
pH range	4-10 depending on water temperature and use of resin
Effluent temperature	160°F
Pipe Condition — fully or partially deteriorated	Yes (liner thickness TBD)
Bends	Soft bends up to 30°, best in larger diameter (no sharp bends)
Offset joints	Yes
Diameter changes	No
Thickness changes	Yes
Typical shot length	Up to 650ft
Host pipe shape and materials	Any and all kinds

This table refers to general purpose public sewer CIPP projects. Insituform can provide products that extend beyond these parameters through our engineering group.



Insituform®

an AEGION® company

Insituform Technologies, LLC
17988 Edison Avenue
St. Louis, MO 63005
800.234.2992
www.insituform.com

Insituform Linings Ltd
4 - 7 Brunel Close
Park Farm Industrial Estate
Wellingborough
NN8 6QX Northants, UK
+44.1933.670.500