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Choosing the Best Pipe Lining Systems

BY CORY DELLENBACH

Lanzo Trenchless Technologies, a CIPP and infrastructure repair technologies contractor, provides cost-effective, minimally invasive alternatives to replacing failing infrastructure. The company has plenty of experience working with lining systems – and many varieties of them.

“It has been fun not being locked into a specific method because either we manufactured it or we were exclusively tied to it by license,” says Fred Tingberg, business development manager at Lanzo. “This has given us the latitude to serve the owner with the best fit for what would lend itself to a successful project. Having access to an array of methodologies gives us an excellent chance to provide for all performance and site specific criteria while meeting the client’s need for project completion and economy.”

Lanzo Trenchless Technologies, with headquarters in Detroit, Mich., and Deerfield Beach, Fla., was profiled in the October 2012 issue of *Cleaner*.

Lanzo has done trenchless repair on more than 10 million linear feet of pipelines in diameters as large as 120 inches throughout North America. Some of their most notable projects include lining an 18- to 15-inch transition sewer 20 feet below the Greektown Casino and restaurant in Detroit, and



CIPP from Inliner Technologies

12-inch water transmission mains rated at 100 psi that served the Renaissance Center fountain in Detroit.

CIPP preferred

With several jobs under their belt, Tingberg says the system Lanzo Trenchless Technologies prefers to use is CIPP. “CIPP by far has demonstrated its ability to apply to the broadest range of repairs,” he says.

There are several CIPP technologies available, including CIPP from **Inliner Technologies**, which combines a non-woven engineered tube or liner with a wide array of thermosetting resins determined by the pipeline problem and surrounding environment. The technology can span 4- to 120-inch-diameter pipe; renew pipes with bends, diameter changes or non-circular geometries; and be used in gravity and pressure applications.



CIPP sectional lining bladders from Logiball

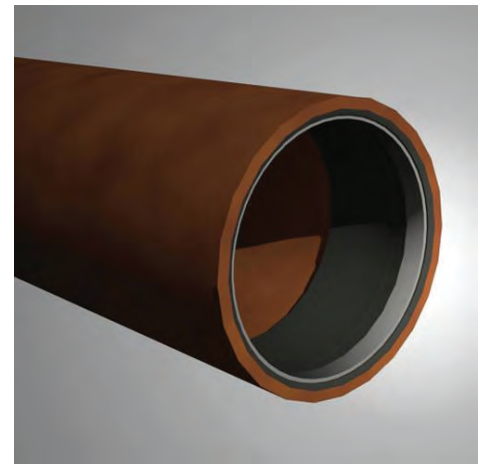
Logiball has its CIPP sectional lining bladders, which cover 3- to 36-inch pipes in lengths as long as 25 feet. They’re available in different configurations and are resistant and reliable. If a sleeve is damaged, all sleeve installers can be factory re-sleeved.

One issue, however, with CIPP is that weather has to be taken into consideration, according to Tingberg. “Sun and heat exposure must be totally anticipated with thermosetting solutions offered in any of the CIPP solutions.”

Cold weather will also affect a contractor’s ability to source water needed in just about any method of pipe lining as well, Tingberg says.

Many methods

Inversion and pull-in-place lining are two installation methods with CIPP. Lining and curing times vary with each method and should be chosen based on the specific jobs.



Insignia Sealing System from LMK Technologies

The **Insignia Sealing System** from **LMK Technologies** works well for both methods. The system offers O-rings, connection hats and end-seal sleeves as solutions to groundwater infiltration at lateral/mainline connections and manholes. The seals swell three to five times their original size on contact with water, forming a watertight seal. The seamless molding provides a uniform 360-degree compression seal. The end-seal works for pull-in-place and inversion lining.

There are many other installation methods as well. Sliplining methods include jacked pipe, pulled pipe or segmentally installed methods using fusion weld HDPE, fused PVC, fiberglass, reinforced plastic mortar, vitrified clay or polymer concrete.

“Catastrophic line breaks within our nation’s potable water transmission infrastructure as well

as the inconvenience associated with open cut replacement of distribution water mains have caused prioritization of NSF 61 certified rehabilitation methods including sequential carbon fiber/epoxy matrix installation, as well as potable water CIPP,” Tingberg says.



Nu Drain system from Nu Flow Technologies

One lining solution that is NSF 61 certified is the **Nu Drain system** from **Nu Flow Technologies**. It creates a protective, structural pipe inside an existing host pipe without digging. The system can line inside infrastructure and underground pipe. The restoration uses a line saturated with epoxy to create a barrier that can span missing sections of pipe, which commonly lead to low flow and root intrusion. The technology is suited for 3/4- to 12-inch pipe and for larger custom sizes, while accommodating multiple 45- and 90-degree elbows and can be installed through one or two access points.

Changing technology

Tingberg notes that there have been many recent imports of European technology that is bringing advances to the lining systems, including UV cure, remote epoxy installation and the growing capacity to perform larger and larger rehabilitations with manufactured “shooter” devices.

“Operators in Japan and Australia have contributed to downhole strip manufacturing methods, which are being implemented in greater scale in remote, large-diameter and difficult access applications,” Tingberg says.

He says one thing he sees in common with all the new technologies is the world’s growing emphasis on green technology.

“Reduced or simply no implementation of solvents such as Styrene is being considered by municipalities at a growing rate,” Tingberg says. “The typical European installation of CIPP today is either UV cured or remote epoxy, either of which would be considered green CIPP by my thinking.”



Stinger mini steam unit from Perma-Liner Industries

One system using epoxy is the **Stinger mini steam unit** from **Perma-Liner Industries**, which is a compact steam cure system for 2- to 6-inch-diameter pipes. The unit uses bladder inversion heads so users never lose pressure. Features include rapid cure times, infinite working time while still using 100 percent solids epoxy, no rush or downtime, and an average 45-minute cure time on a 60-foot lateral.



Quik-Shot from PrimeLine Products

Quik-Shot from **PrimeLine Products** combines mainline technology and lateral lining technology for CIPP projects. The product will process any manufacturer’s tube and resin combinations through the gun, and allows for installation through a cleanout.

Going green

“The nation will place a large emphasis on green technologies as was done in Europe,” Tingberg predicts. “While this comes at a cost, it will be justified by higher quality products and lower social impact within the communities served. From a market standpoint there will be a larger participation by many within the construction and plumbing communities. Manufacturers will continue to advance their materials and methods to meet the demands of the marketplace.”

Tingberg sees many things coming up for the future of the industry, including the changing chemical characteristics of the sanitary systems. “They’ll become more demanding as the chemicals become more concentrated, requiring better resins and more corrosion-resistant materials.”



Raven 405FS (fast set) from Raven Lining Systems

The **Raven 405FS (fast set)** from **Raven Lining Systems** is a solvent-free 100 percent solids, ultra-high-build epoxy coating formulated for fast cure and little downtime while maintaining high-quality chemical resistance. The high-build ability allows the epoxy to be applied on vertical and overhead surfaces up to 150 mm thick in one application. The coating will be tack-free in 90 minutes at 72 degrees F and hard-dry in about two hours.

Tingberg also predicts water main rehabilitation will continue to thrive with better understanding of specific location of system defects in large-diameter PCCP, as well as greater acceptance of trenchless technologies in small-diameter water distribution systems.

“Technologically, I see greater advances in robotics, installation equipment, instrumentation and CCTV,” Tingberg says.

(All equipment listings from Cleaner Product Focus, October 2012.)