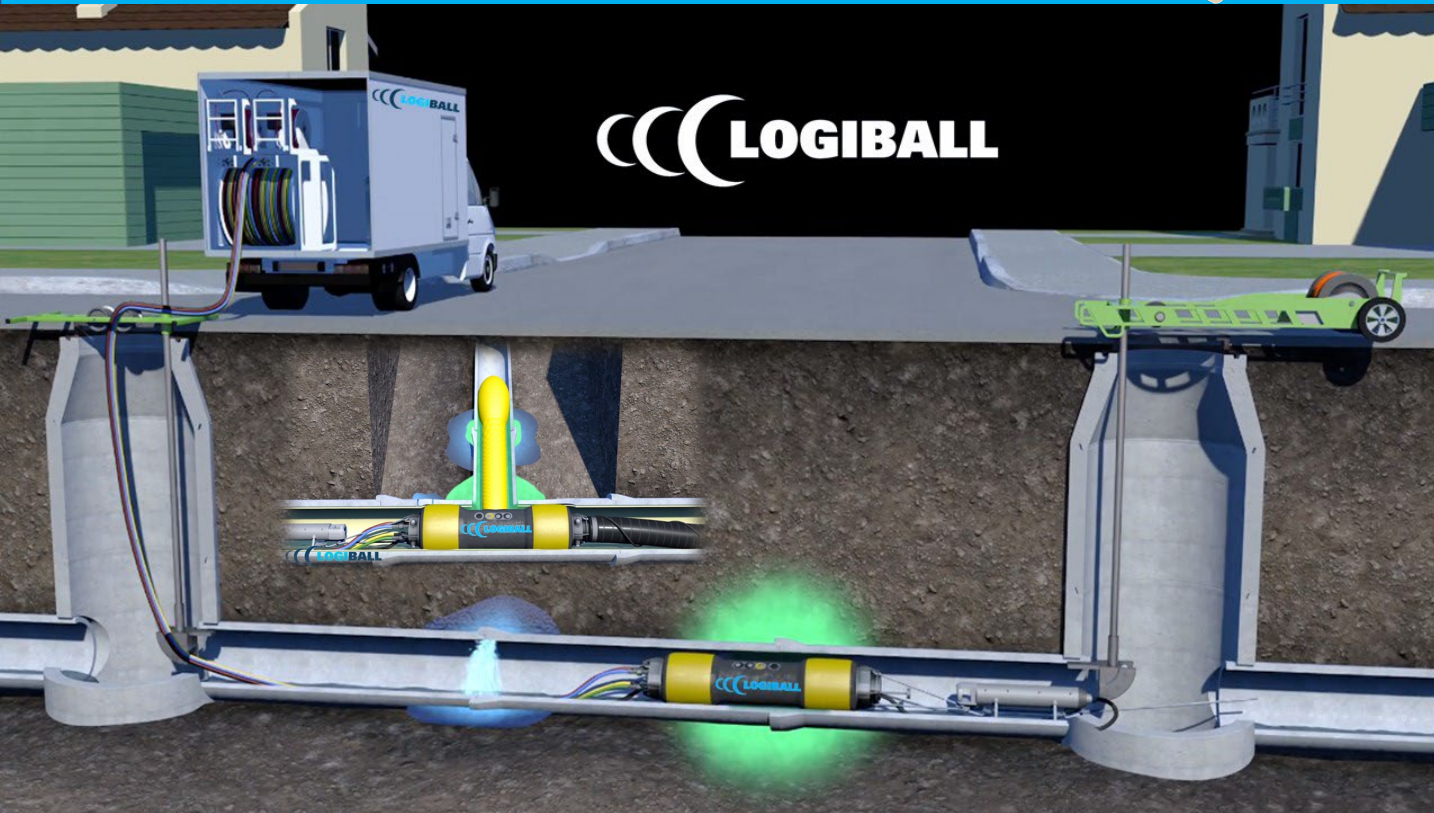


Municipal Sewer Grouting Introduction



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Chemical grouting was originally developed in 1955 as a technique for soil stabilization. Since then, it has been used to stop groundwater infiltration in sewers, manholes, chambers, subways, mines, tunnels and many more underground structures all over the world. Recent studies, combined with over 60 years of experience, show that the original trenchless technology remains the first line of defense and the best long term ROI against groundwater infiltration in structurally sound sewers.

Chemical grout does not stop groundwater infiltration by simply filling up the joint, fissures or cracks. On the contrary, the materials are pumped under controlled pressures through these existing defects into the adjacent voids in the soils surrounding these structures where they react to form an impermeable gel/soil matrix that cannot be pushed back into the sewers.

Most infiltration points in structurally sound sewer systems occur at the mainline sewer joints, manholes and pipe penetrations, lateral connections and residential laterals that lie beneath the groundwater table. Chemical grouting with solution grouts remains the most economical solution to stop these leaks, while stabilizing the backfill and the structures themselves, that lie in the sewer trenches.

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Injection products , such as urethanes, must have a low viscosity in order to be pumped through 600-800 feet of hose, go through existing small pipes defects and mix with the surrounding soils in order to seal off the infiltration and stabilize the structures. Confirm with chemical grout supplier.



The most common chemical grout used to remotely seal pipe joints, lateral connections and laterals is acrylamide. Having a very low viscosity (1-2 cps), PR 10 acrylamide grout can easily be pumped through 600-800 feet of hose & small defects that allow groundwater infiltration.

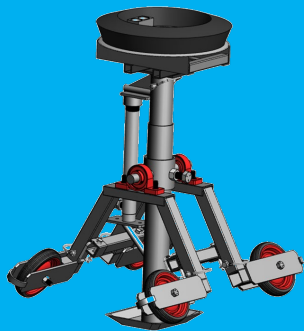
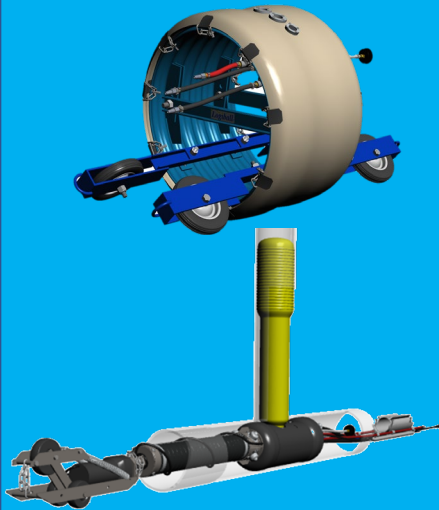
With controllable set times from seconds to hours, once injected through the defects, saturating the soil voids, it transforms from a liquid to a gel to create a long term watertight barrier. The proper injection of acrylamide grout seals off infiltration pathways and stabilizes the soils adjacent to these defects, which in turn stabilizes the structures thereby reducing pipe movement that contributes to their degradation.

An important feature of acrylamide grout is that it needs relative humidity to prevent dehydration. Recent studies prove that the levels of relative humidity found in the soils are more than enough to sustain these conditions.

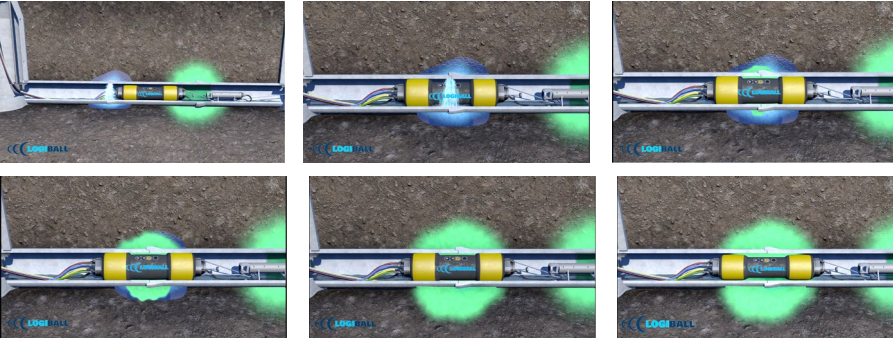
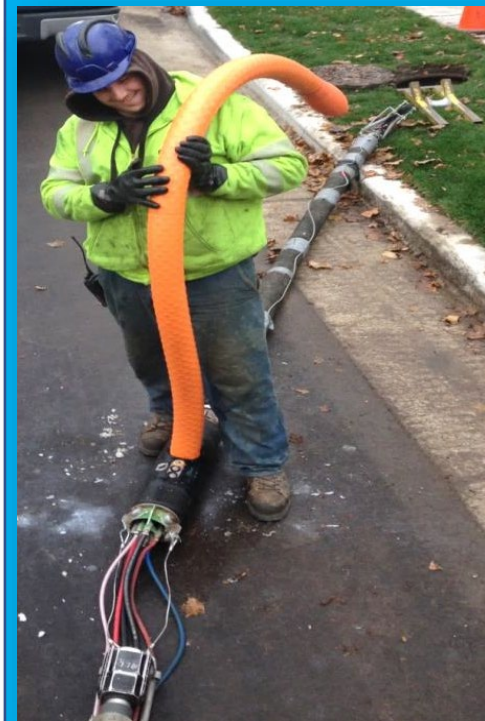
The remote process of testing & sealing is achieved with the help of a cctv/grout truck equipped with cctv, generator, compressor, chemical grout, grout tanks, hose reel, packers, controls etc.



With the help of the cctv, the packer is positioned over the joint and bladders inflated on each side of the joint isolating the joint from the rest of the system. A low pressure air test is then performed on that joint. If the joint fails the air test, the grouting process starts. The injection pressures are monitored at the packer. Once the injection process is completed, a post air test is performed to validate that the joint has been sealed. The packer is then deflated and moved to the next joint where the process is repeated.



Pipe Joint Testing & Sealing



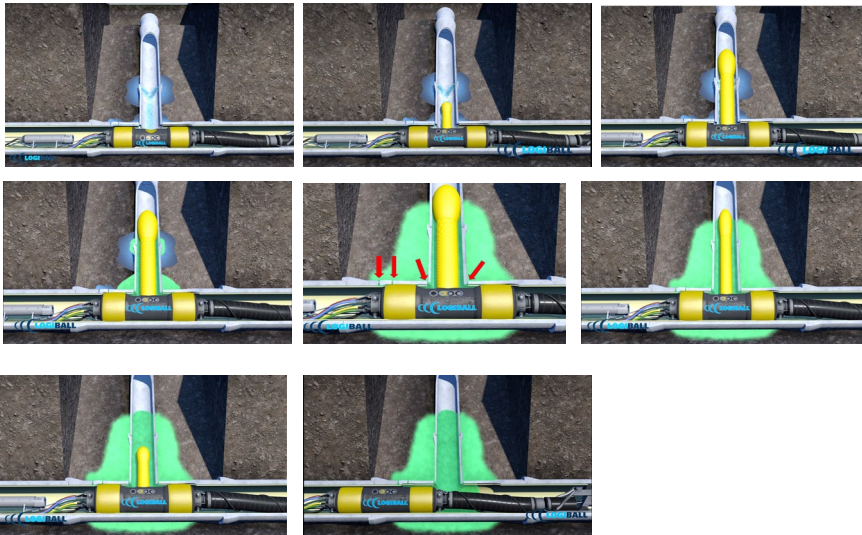
From the cctv/grout truck, the technician controls the equipments used to position, test & seal the joints & lateral connections that fail the air test. The two component low viscosity liquid grout is pumped through the inflated packers and mix in the packer /pipe void where they are forced out through the pipe defects into the surrounding soils to fill voids and form a gel/soil watertight matrix.

<https://www.youtube.com/watch?v=9CfbczE5JXQ>

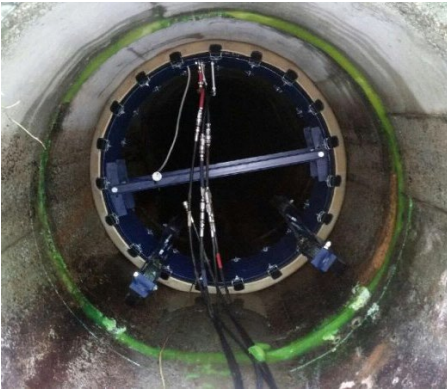
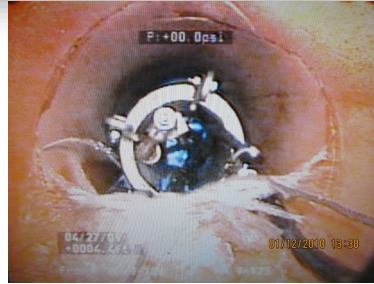
Injection grouting is commonly used prior to cipp and other relining technologies, in order to stop unwanted groundwater infiltration that endangers the proper installation or quality of the finished product. Injection grouting is also used post relining at lateral reinstatements to seal off the infiltration through the annulus between the outside of the new liner and the host pipe and up the lateral joints.

[WEF Sanitary Sewer Rehabilitation Fact Sheet](#)

Lateral Connections and predetermined distance up the laterals



More than sealing joints, cracks & connections !



Logiball Inc. has grown and developed expertise for designing and manufacturing equipment for rehabilitation contractors and utility owners. Equipment such as multi-size inflatable pipe plugs, line acceptance test plugs, flow-through sleeve installers and grouting packers complete our line of high-quality products. Logiball also builds and carries an extensive line of auxiliary equipment to complete its product offer.



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