



SLEEVE RELINING

Sleeve relining is a trenchless technique for fitting a high-quality lining in a damaged or outdated sewer or pipe.



Execution



The existing sewer is first inspected using a camera in order to precisely determine the condition of the sewer. After the sewer has been thoroughly cleaned with a high-pressure cleaner or root auger and any house connections protruding into the pipe have been milled away by a milling robot, the sleeve can start to be pulled into the sewer. Before the sleeve is inserted, a sliding film is laid on the bottom of the sewer. This prevents damage to the sleeve while it is being pulled in.

Once the sleeve has been inserted, the ends of the sleeve are closed and the entire length is inflated with compressed air. This brings the sleeve in close contact with the wall of the original pipe. A UV lamp train is then inserted and pulled through the sleeve at a previously determined speed. The UV light initiates the curing process. After curing is complete, the milling robot is again placed in the sewer to mill out the openings for the house connections. At the end of the job, a final inspection is performed using the camera.



Applications

This method is highly suitable for the trenchless renovation of old or damaged pipes and sewers made from concrete, ceramic, PVC, asbestos cement, GRP or steel in locations where digging a trench is not possible due to the presence of surface structures.

The sleeve is made from glass-fibre reinforced plastic (GRP). The sleeve is delivered tailor-made, with the wall thickness calculated in advance based on the condition of the existing sewer (sewer grade). The calculation program used by Smet-Tunnelling is based on the German ATV-M127 guideline.



Advantages

Sleeve renovation with an GRP sleeve and UV curing is used for diameters from 150mm to 1,200mm. This fully remote-controlled method is extremely fast and reliable. The sleeve quality is sufficient to allow a lifetime of at least 50 years to be guaranteed.

PIPE BURSTING

Pipe bursting is a trenchless process that allows a new pipe to be pulled through an existing pipe in need of replacement. The diameter of the new pipe can also be larger than that of the existing pipe.



Execution

To start with, a compact push/pull system is used to insert a string of pulling rods into the existing pipe. After this a bursting cone, followed by a cone expander and the new pipe, is coupled to the pulling rod string and pulled into the pipe. The bursting cone fractures the existing pipe into small pieces, and the cone expander displaces the broken pipe fragments and forces them into the surrounding soil.

Applications

This method is highly suitable for the trenchless renovation of old or damaged pipes, sewers or drains made from concrete, ceramic, PVC, asbestos cement, GRP or steel (with the use of a special cutting head) in locations where digging a trench is not possible due to the presence of surface structures. The materials that can be used for the new pipe are HDPE, PVC, ceramic, GRP and concrete.



Advantages

Simple, compact installation on the job site; can be used in shafts with a diameter of 1 m or larger; vibration-free trenchless method; diameter range 60 to 300mm; remotely controlled; pulling force up to 60 t, compressive force up to 45 t; pulling force can be recorded; rapid, efficient and safe.

