

2.2.12 Flexiliner P (partial relining)

Procedure

Type of Procedure

renewal, cleaning, pipe relining

Notice

general information on the relining procedures are contained in Section 4.3.2 of the IP Construction, maintenance of non walk-in sewage systems

License

KRT Engineering + Handel GmbH, Sempach

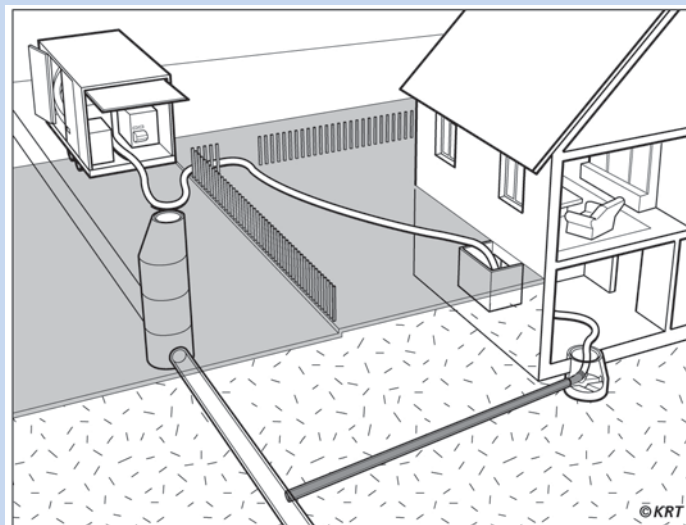
Bidder

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Brief Description

A hose impregnated with epoxy resin or glass fibre matting is put onto a rubber packer and inserted into the pipe section to be renovated with the help of a winch. By adding hot water to the packer circulation system, the hose is pressed against the pipe wall. After ending the hardening (30'-180'), depending on the type of resin, the pressure is reduced and withdrawn from the pipe.

Schematic Diagram



Materials

Base material: fibre glass matting 1100 – 3600 gr/m² or synthetic fleece 4.5 - 9.0 mm
Resin: epoxy resin system
Layer thickness: 4.5 - 9 mm

Standards

Not standardized in Switzerland

D: ATV Instruction Sheet M 143 Part 3: Relining (draft)
ATV Worksheet A 127 (statics)

First Application

Worldwide / Switzerland 1992

KRT Sewer Rehabilitation Technology

Damage Aspects *Locally restricted damage areas such as:*
- Open or damaged sleeves
- Root intrusion
- Cracks, flaking and fragmentation in the pipe wall
- Corroded pipe wall
- Lack of pipe static

Restrictions - Pipe collapse
- Deviation in position
- Excessive deformation in flexible pipe

Pipe Material *All materials*
Cross-Section Forms *Circular profiles*

Dimensions *Circular profiles NW 100 mm to NW 1000 mm*

Maximum Range *up to about 100 m*

Curves / U Bends *applicable*

Preparatory Work

Excavations *not usually required; access via inspection shafts*

Pipe Cross-Section *high pressure cleaning, creation of the original cross-section by boring or cutting*

Lateral Connections *cut back protruding connections*

Groundwater *no measures necessary, strong infiltration to be sealed by injections*

Draining of Water *pumping out of wastewater usually not necessary*

Final Tasks

Inspection Shafts *no measures necessary*

Lateral Connections *no measures necessary*

Treatment *no measures necessary*

Acceptance *inspection with pipe remote camera. Tightness test as per SIA V 190*

Remarks

- *minimum cross-section reduction*
- *length of sleeves:* *standard = 0.4 m*
 special = any lengths (about 50 m)
- *hardening in operational state: 0.5 to 3 hours*

- *examples with NW100 mm to 800 mm in Switzerland and Germany from 1994 as Shortliner, in France from 1994 as Flexojoint.*

Status *January 2000*