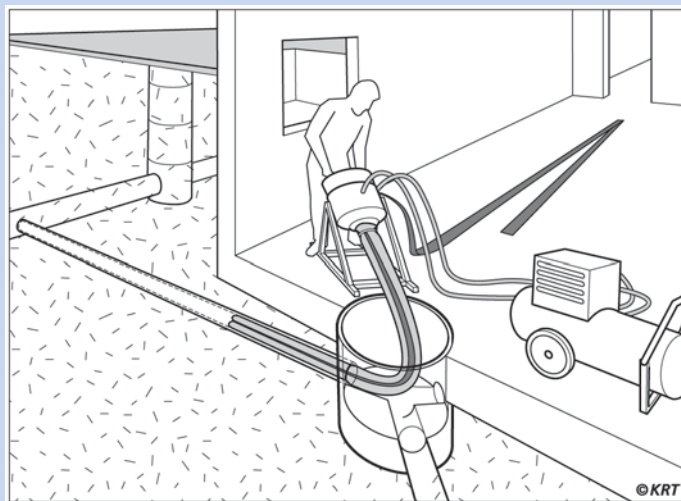


Procedure 2.2.52 Flexiliner H (hose relining)

Type of Procedure	<i>maintenance and repair / renewal and relining procedures</i>
Notice	<i>general information on the relining procedures are contained in Section 4.3.2 of the IP Construction, maintenance of non walk-in sewage systems</i>
License	<i>KRT Engineering + Handel GmbH, Sempach</i>
Bidder	<i>KRT Kanalsanierungs-Technik AG</i>
Brief Description	<i>A hose impregnated with epoxy resin is blown into a pipe section to be renovated using an inversion unit. By adding hot water to the circulation system, the hose is pressed against the pipe wall. After the hardening phase has ended (30' – 180'), depending on the type of resin, the pressure is drained out.</i>

Schematic Diagram



Materials	<i>Base material: synthetic polyester 3 – 6 mm or polyester textile hose Resin: epoxy resin system Layer thickness: 3 - 6 mm</i>
Standards	<i>Not standardised in Switzerland</i> <i>D: ATV Instruction Sheet M143 Part 3: Relining (draft) ATV Worksheet A 127 (statics)</i>
First Application	<i>Worldwide / Switzerland 1992</i>

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Area of Application

<i>Damage Aspects</i>	<i>Locally restricted damage areas such as:</i> <ul style="list-style-type: none">- Open or damaged sleeves- Root intrusion- Cracks, flaking and fragmentation in the pipe wall- Corroded pipe wall- Lack of pipe static
<i>Restrictions</i>	<ul style="list-style-type: none">- Pipe collapse- Deviation in position

Excessive deformation in flexible pipe

<i>Pipe Material</i>	<i>All materials</i>
<i>Cross-Section Forms</i>	<i>Circular profiles</i>
<i>Dimensions</i>	<i>Circular profiles NW 100 mm to NW 300 mm</i>
<i>Maximum Range</i>	<i>up to about 50 m</i>
<i>Curves / U Bends</i>	<i>applicable</i>

Preparatory Work

<i>Excavations</i>	<i>not usually required; access via inspection shafts</i>
<i>Pipe Cross-Section</i>	<i>high pressure cleaning, creation of the original cross-section by boring or cutting</i>
<i>Lateral Connections</i>	<i>cut back protruding connections</i>
<i>Groundwater</i>	<i>no measures necessary, strong infiltration to be sealed by injections</i>
<i>Draining of Water</i>	<i>pumping out of wastewater usually not necessary</i>

Final Tasks

<i>Inspection Shafts</i>	<i>no measures necessary</i>
<i>Lateral Connections</i>	<i>no measures necessary</i>
<i>Treatment</i>	<i>no measures necessary</i>
<i>Acceptance</i>	<i>inspection with pipe remote camera. Tightness test as per SIA V 190</i>

Remarks	<ul style="list-style-type: none">- minimum cross-section reduction- good curve response
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Status	<i>January 2000</i>
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