

**Systematic Pipe Rehabilitation**



**House and Industry Liner**

# House and Industry Liner



The professional rehabilitation of underground pipes is gaining more and more in importance - last but not least because of the regulatory framework. This does in equal measure apply to house service connections in the private sector as well as to pipelines under industrial plants. D&S ROHRSANIERUNG disposes of the professional know-how and an efficient technology to economically and durably rehabilitate defective pipelines at the premises in the ground or under the structure in areas difficult to access: with individual, custom-made and technically mature solutions.



## connection



*Mobile impregnation plant*

### The field of application

Rehabilitation work in the private and the industrial sector with little space. Leaky pipelines difficult to access with small nominal diameters from DN 100 to DN 300 in sewers, private connections, roof water drains and underground pipes.



*Inspection opening for the main connection*

### Industry Liner® - The product

The D&S-IndustrieLiner® is a needle-felt polyester hose with an internal lining.

### The installation

The hose provided for the rehabilitation of the pipeline is made to the required length. Then the hose is filled with resin in the mobile impregnation plant (DS CityLiner) and impregnated under vacuum. The hose is led into a collecting vessel via a continuously adjustable conveyor belt. Then it is prepared to be inserted by inversion into the



*Truck-sized cleaning vehicle*

# in good condition? efficient rehabilitation methods



reach to be rehabilitated. The insertion of the hose liner takes place by means of air pressure and/or water pressure. The hose is reversed from the outside to the inside such that the resin-impregnated side of the hose applies to the inner side of the original pipe. For the curing the resin is supplied with a certain temperature in order to accelerate the curing process. In case of an inversion by means of compressed air, the in-liner is entered with an "open end" into the reach. This option does practically allow any desired length.

## The advantages

The DS Industry Liner allows the rehabilitation of underground pipelines in very narrow spaces and in places difficult to access. The results are stable and leak-proof pipelines with excellent hydraulic properties and a long durability. The resistance against aggressive liquids, excellent flow characteristics, a high ring stability as well as a high resistance against root penetration must be particularly pointed out. The high quality components, which are used, allow the rehabilitation of leaky pipelines within a very short time, in an environment-friendly way, with little work and low costs. The procedure holds the "Allgemeine bauaufsichtliche Zulassung vom Deutschen Institut für Bautechnik (DIBt)" (General approval for building inspection of the German Institute of Structural Engineering).

## House Liner - The product

The House Liner is a flexible fabric or needle felt hose with a high ductility, which is entered into the pipeline to be rehabilitated by means of different devices as e.g. the pressure drum or the Liner Gun.

## The field of application

The field of application is the rehabilitation of pipelines with small nominal diameters from DN 100 to DN 250, small bending radii and bows up to 90°. The rehabilitation of pipelines with changes of diameter is also feasible.



*Mobile water heater  
for rehabilitation lines  
difficult to access*



*D&S Pressure drum*



*Inversion procedure*

### The installation

The hose provided for the rehabilitation of the pipeline is made to the required length. Then the resin is incorporated into the hose under vacuum in the mobile impregnation unit by means of a pressure cylinder. Via inspection shafts or openings the flexible epoxy resin impregnated tube resp. needle felt hose is inserted by inversion into the pipeline to be rehabilitated. The installation can take place either from shaft to shaft or with an open end with the aid of a supporting hose. With the addition of compressed air – produced either by the pressure drum or the Liner Gun – the hose

closely fits to the pipeline, thereby overlapping and stabilising fractures, shards, leaky sleeves and roots. The curing can take place at ambient temperature or with the use of hot water – depending on the requirement and/or the technical feasibility. This curing process of the material takes only a few hours and results in a close-fit connection with the old pipe. Finally a milling robot opens the existing inlets and branches.

### The advantages

The House Liner allows the rehabilitation of underground pipelines in very narrow spaces and in places difficult to access. The results are stable and leak-proof pipelines with their own static stability, excellent hydraulic properties and an extremely long durability. The resistance against aggressive liquids, excellent flow characteristics, a high ring stability as well as a high resistance against root penetration are particularly worth mentioning. The procedure only requires little time and effort. And space needed on site for the installation of the pressure drum and the Liner Gun is just as little. Hence the impairment of the living and working space as well as of the road traffic and the pedestrians is kept within limits. The used high quality components allow the rehabilitation of leaky pipelines within a very short time, in an environment-friendly way, with little work and low costs. The procedure holds the "Allgemeine bauaufsichtliche Zulassung vom Deutschen Institut für Bautechnik (DIBt)" (General approval for building inspection of the German Institute of Structural Engineering).

## DS LinerGun

### The product

The DS Liner Gun is an inversion device by means of which the pressure required for the installation of a hose liner can be built-up.

### The field of application

Rehabilitation work with hose liners takes place where the erection of an inversion tower is not possible due to the limited disposable space, especially in case of leaky pipelines difficult to access because of small nominal diameters from DN 100 to DN 250 in sewers, private connections, roof drains and underground pipelines.

### The installation

After the installation of the pressure vessel, the liner is cut to length and impregnated with the appropriate portion of epoxy resin under a cylinder, the start of piece of the liner is reversed and mounted on the inversion device. With the addition of compressed air the liner is entered into the pipeline to be rehabilitated. There the compressed air is supplied as long as the epoxy resin needs to cure. Then the existing lateral connections are opened again.

### The advantages

The required space of 2 m<sup>2</sup> for the pressure vessel is extremely little. Pipelines rehabilitated with the DS Liner Gun will be stable and tight for a very long time. The high quality components used in the rehabilitation procedure - from the liner over the inversion equipment up to the calibration cylinder – allow the rehabilitation of leaky pipelines within a very short time, in an environment-friendly way, with little work and low costs.





- BlueLine Procedure
- Burst Lining
- Cement Mortar Lining
- Compact Pipe
- CP-ZA 2012-Top-Hat Profile
- DS-CityLiner
- DS - Hose Relining
- DynTec (close-fit-lining)
- Flexoren Relining
- House and Industry Liner
- Installation Procedures/ Large Profile Rehabilitation
- KA-TE Robotics
- Manual Rehabilitation
- Partial In-Liner
- Pipe Relining (long pipe, short pipe and pipe run)
- Polyester Liner
- Superheated Steam Liner
- UV Liner
- and other procedures

[www.dus-rohr.de](http://www.dus-rohr.de)

**DIRINGER & SCHEIDEL**  
**ROHRSANIERUNG** GmbH & Co. KG  
Wilhelm-Wundt-Straße 19-21  
D - 68199 Mannheim

