NO DIG TECHNOLOGIES

Origin of Rehabilitation

- During the 1980’s Japanese gas companies decided, in view of the frequent earthquakes in their country, to use the CIPP (*)concept to secure their pipeline networks.
- Over 35 years of experience and more than 46000 kilometers installed confirm the long term durability of lining with this product.

KANALTEK
Kazısız Teknolojiler

WHY REHABILITATION?

- To **secure** the whole lenght of the pipe;
- Sealing of **leaking** joints, corrosion pits, cracks, intervals between pipes, etc..
- **Flow** performances are improved;
- Internal **corrosion** definitely stopped;
- **Incrustations** are elimininated;
- **Lifetime** of pipes is increased;
- Vibrations and **some soil movements** are acceptable.
- NO to **dig and replace** No excavation.
- Reduction of execution **time** is significant – so the costs.
- No or **less traffic disruption**.
- **Low noise** process.

KANALTEK
Kazısız Teknolojiler

Environment Protection & Safety

- Avoid infiltration in existing Pipes.

  Decrease the volume of the Water treatment plants

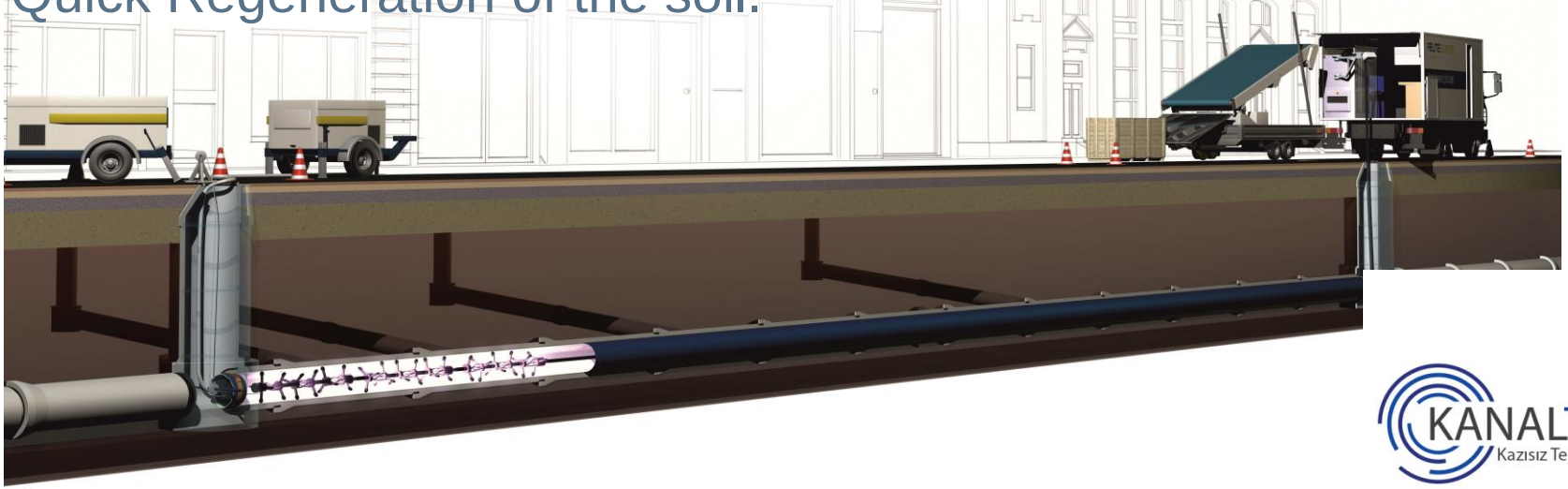
  Avoid risk of road collapsing

- Avoid exfiltration in the ground.

  Stop the pollution of the soil by chemicals & waste

  Avoid risk of road collapsing

- Quick Regeneration of the soil.



KANALTEK
Kazısız Teknolojiler

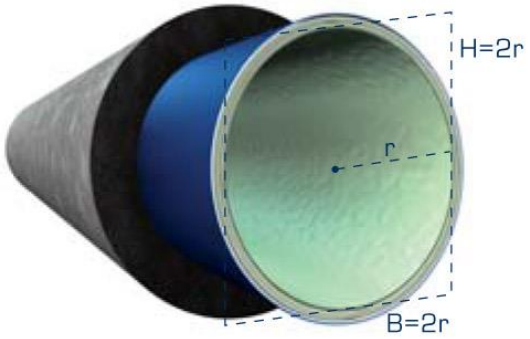
Fields of Application

- Gravity Pipes (Sewer and Drain)
- Pressure Pipes (drinking water,etc…)
- Gas Pipes
- Industrial Pipes (Petrochemica, etc…)

Application Diametres

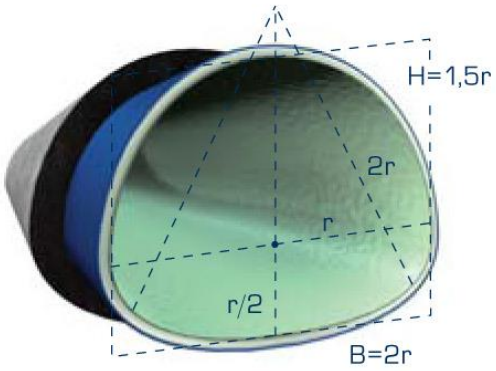
DN50 – DN3000

Kreisprofil



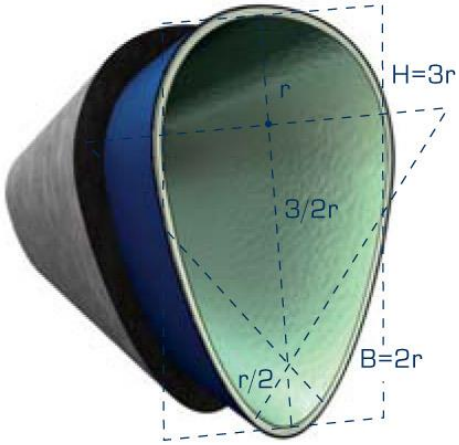
Cicular Profile

Maulprofil



Arch Profile

Eiprofil



Oval Profile

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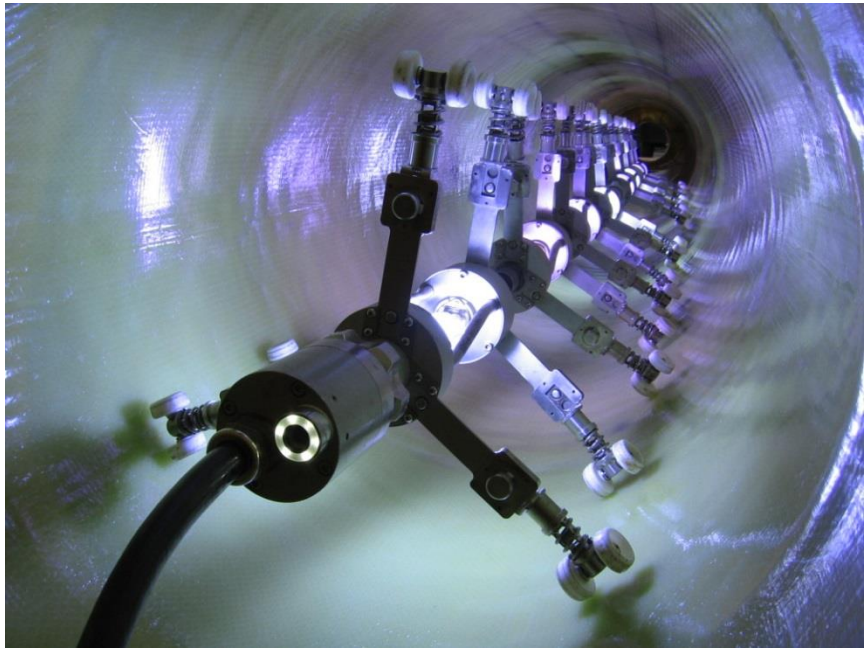
Kazısız Teknolojiler

NO DIG - PIPE REHABILITATION TECHNOLOGIES

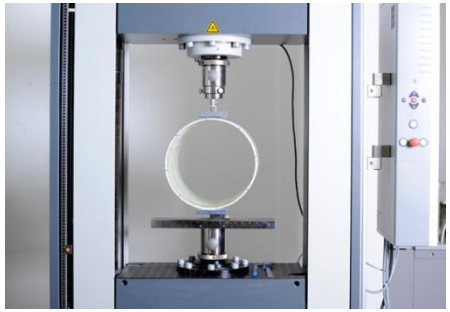


- High Pressure Cleaning
- CCTV Monitoring
- Cutter Robot
- CIPP Rehabilitation- Water Curing
- CIPP Rehabilitationn – Ultraviolet (UV)
- CIPP House Connections Rehabilitation
- Close Fit (Fold and Form) Technology
- PrimusLine–PressurePipe Rehabilitation
- Profile Rehabilitation
- Consultancy / Project Management

KANALTEK
Kazısız Teknolojiler

Experience with Liner Technologies in Pipe Rehabilitation

- Turkey’s leading company in No Dig Technologies
- Trenchless solutions for infrastructure
- Rehabilitation since 2004
- Experienced team and technical support
- Latest technologies and machinery
- More than 200000 metres of pipe rehabilitation



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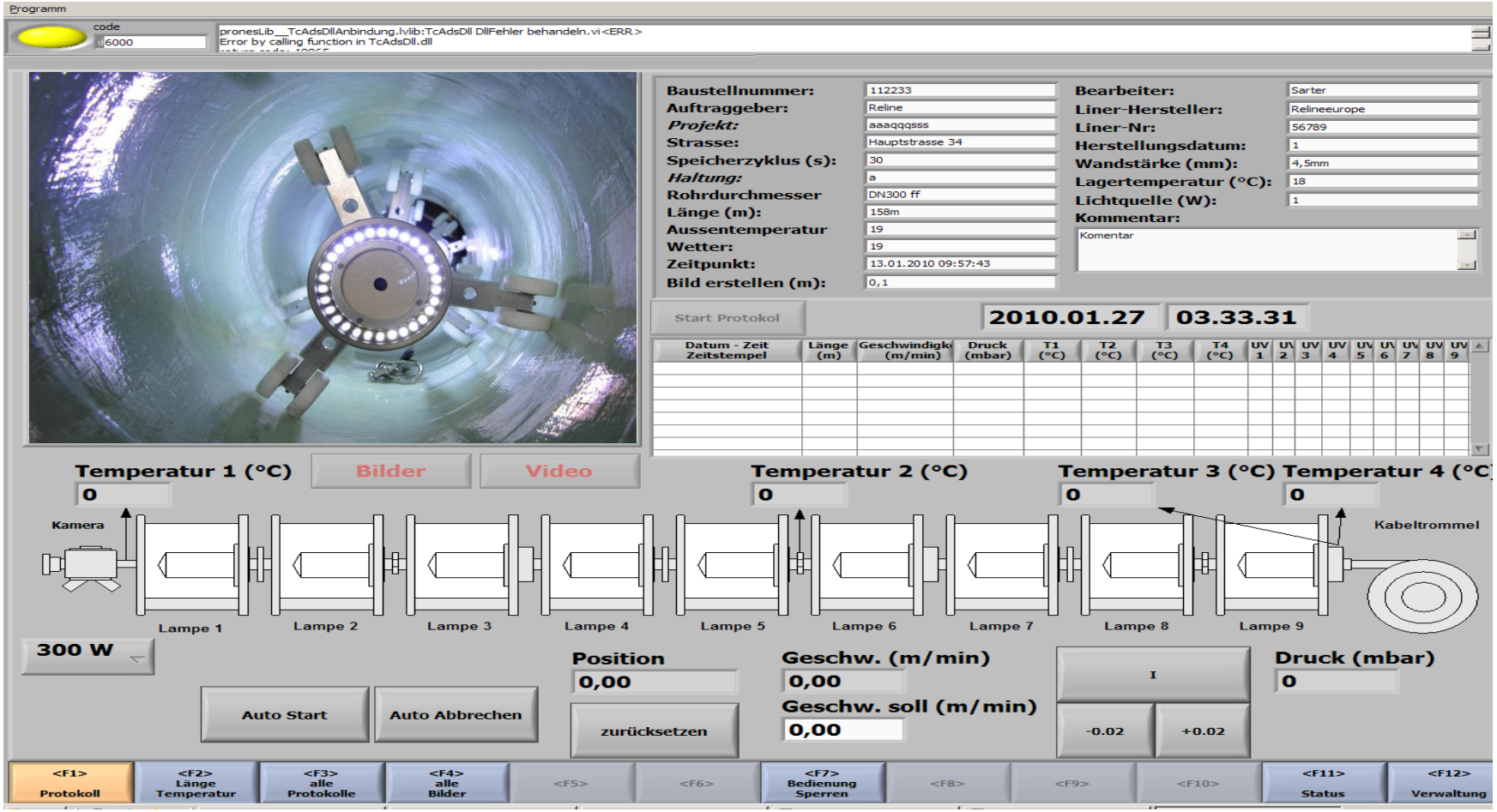
ULTRAVIOLET (UV)TECHNOLOGY

DN150-DN1400

Controlled curing with innovative UV equipment



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CIPP - UV Rehabilitasyon

Pure resin Layer with GFRP Fiberglass Reinforcement Liner cured

Ultraviyolet (UV) light

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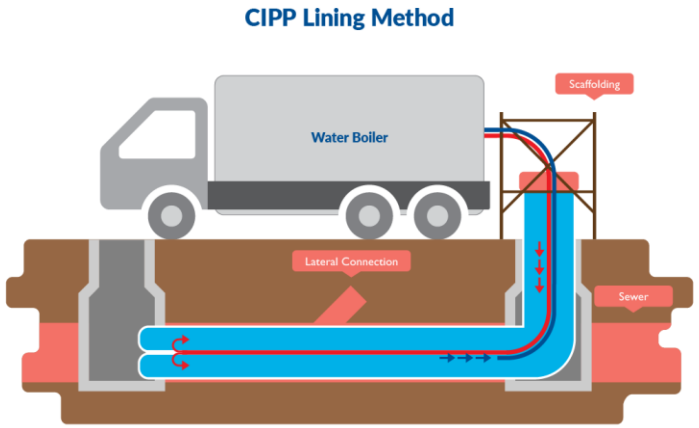
CIPP – WATER CURING



Pipe rehabilitation system in which:

A flexible Liner coated

is inverted in to the host pipe on the whole lenght

by water tower

and cured by hot water.
(*Polymerization)*

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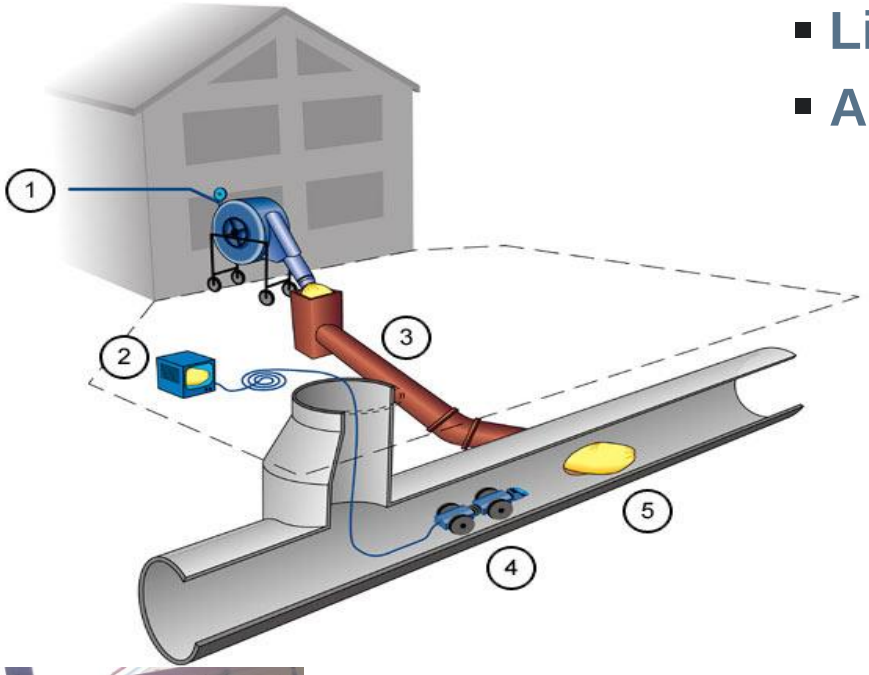
HOUSE CONNECTION LINING



- **Lining with a flexiable liner**
- **Able to turn 90 degree bends**

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Kazısız Teknolojiler

CIPP – Impregnation

The amount of resin is calculated exactly based on specific weight, porous volume of the woven jacket characteristics and Liner dimensions. Vacuum is applied to absorb moisture and avoid entrapped air, which could influence the final physical properties.

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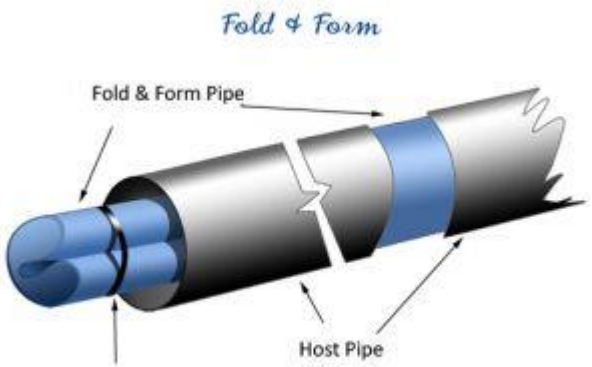
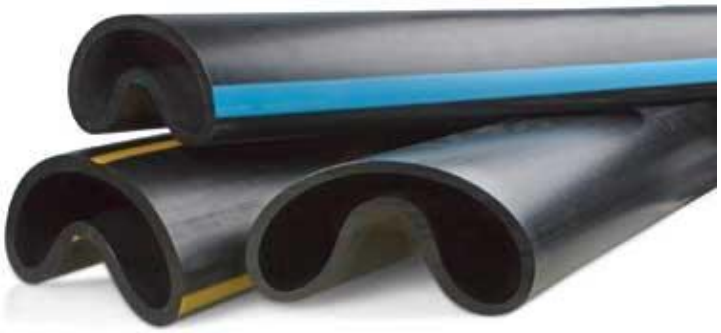
Kazısız Teknolojiler

CLOSE FIT - (Fold&Form) Technology

HDPE Close Fit liner is pulled into the existing pipe over the total length.
Heating of Close Fit Liner takes place with Water Steam





Uygulama aralığı
DN100 – DN400

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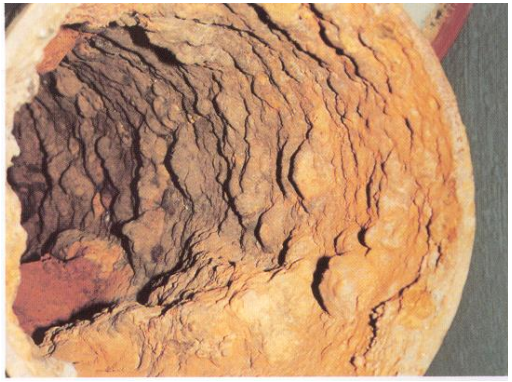
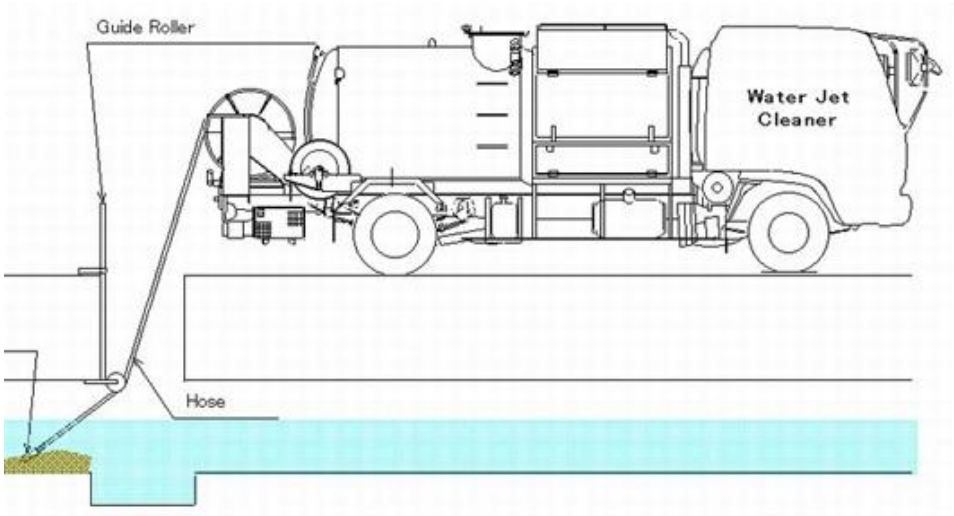
High Pressure Jet Cleaning…

- Various solid wastes, deposits and obstacles in pipes are cleaned with high pressure water jet systems
- High pressure jet cleaning has been proven to be the most efficient method.





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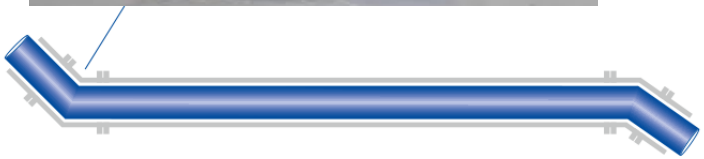
Kazısız Teknolojiler

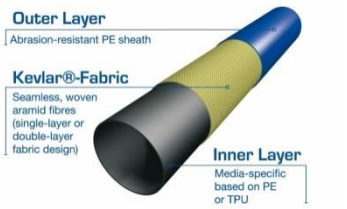
PRESSURE PIPE REHABILITATION

PRIMUS LINE

Primus Line is a trenchless technology for the rehabilitation of medium and high-pressure pipelines for media including water, gas and oil. The technology is based on a semi-structural, flexible, ultra-high strength hose consisting of three layers:
Inner layer: media specific; based on polyethylene (PE) or thermoplastic polyurethane (TPU)
Middle layer: Seamless, woven Kevlar fabric (single or double layer design)
Outer layer: protective, abrasion-resistant PE sheath to protect inner layers of the liner
Once the pipeline is properly prepared, the liner is folded and inserted into the host pipe. After connection fittings are attached at each end, the liner is then reverted using compressed air. The liner is reconnected to the existing pipeline utilizing specialty flanged or welded fitting. This liner can withstand pressures ranging from 145 psi up to 900 psi.

DN50-DN500





Benefits:

Installation lengths up to 500 metre
Able to negotiate bends up to 30 degrees
Ultra-high strength liner design
No corrosion of Primus Line
Fast return-to-service
Increases flow capacity
Designed for transmission-pressure pipelines
Trenchless technology - cost effective & environmentally friendly
Sustainability due to use of existing infrastructure
50-year design life

Primus Line has short rehabilitation times and rapid recommissioning and, therefore, represents not only an inexpensive alternative to open rehabilitation, but also a high quality method of the renewal of pressure pipelines.

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Kazısız Teknolojiler

Preparation of pipe for Rehabilitation by Cutter Robot after cleaning

- Surface cleanliness of the pipe wall
- Residues: e.g. sharp edges
- Corrosion
- Obstacles, Residues, sharp edges are cut by Cutter Robot
- Before lining, the location of the house connections are measured by Cutter Robot
- Re-opening of house connections after lining

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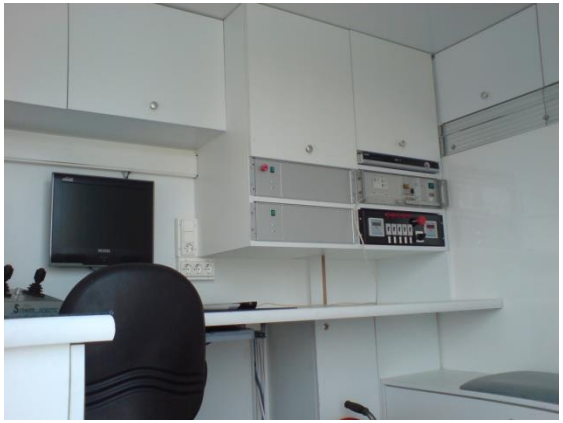
CCTV INSPECTION

- **Pipeline Monitoring**
- **Is important to define rehabilitation technology**
- **Reporting**



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CIPP – LINING

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CIPP – LINING

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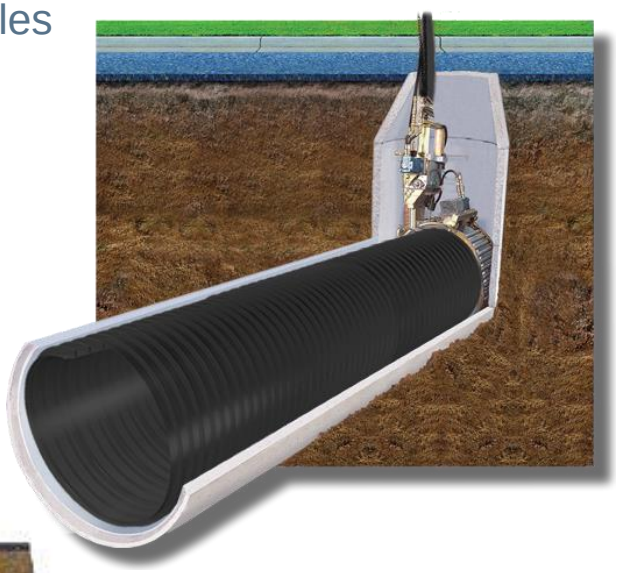
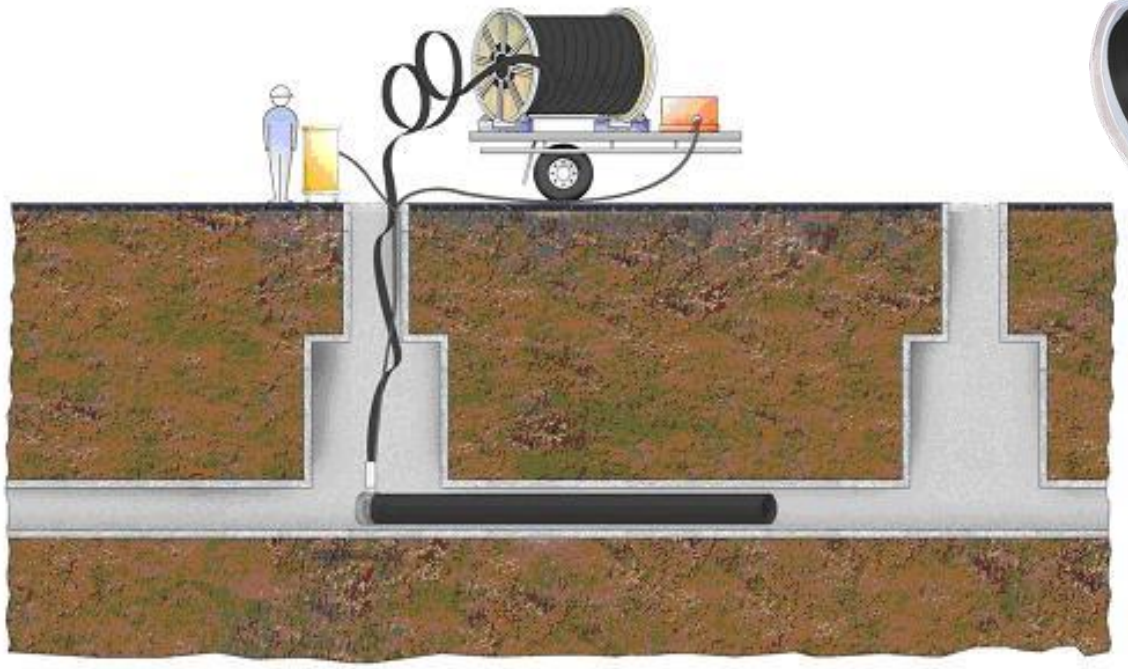
Kazısız Teknolojiler

PROFILE SOLUTIONS FOR SEWER PIPES

- Large diameter pipelines : 800 to 5000 mm
- Circular and non-circular shapes (including culverts, tunnels)
- Installation possible in live flow conditions
- Structural design requirements requiring different grout thickness around liner
- Small installation footprint : truly trenchless, existing manholes can be utilized
- Curved pipelines : sections of curved weser pipe can be rehabilitated
- Vertical applications
- Restoration of positive slope





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Profiles For Pipe rehabilitation

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