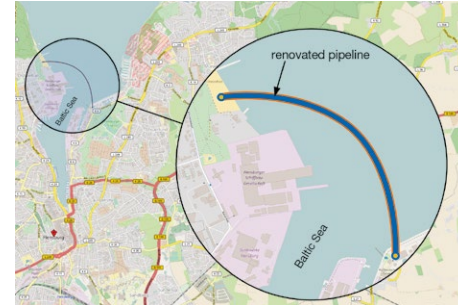


REFERENCES

FJORD CROSSING WITH A LENGTH OF 1,240 M

Flensburg, Germany
Rehabilitation of inverted siphon
DN 300 PE 80 PN 10
Operating pressure: 10 bar
Total length: 1,240 m
Installed in one section

Primus Line® system: DN 250 PN 15



PRESSURE UPGRADE ON AN EXISTING PVC PIPE CLASS 9 TO 16 BAR

Lismore, Australia
DN 225 potable water main
Total length: 460 m
Multiple bends of up to 15°
Installed in two sections with 170 m and 290 m

Primus Line® system: DN 203 PN 35



ASBESTOS CEMENT WATER MAIN REHABILITATION, 10 KM

Reocin, Spain
Operating pressure: 7 bar
Total length: 10,345 m
Installed in 20 sections

Primus Line® system:
DN 250 PN 15 and DN 200 PN 18



REHABILITATION OF A PVC WATER MAIN THROUGH EXISTING MANHOLES

Sorum, Norway
Potable water pipe DN 150
Operating pressure: 10 bar
Total length: 165 m
One horizontal bend of 22°

Primus Line® system: DN 150 PN 25



ASBESTOS CEMENT WATER MAIN, 1.5 KM IN 53 HOURS

Izmir, Turkey
DN 500 potable water main
Operating pressure: 10 bar
Total length: 1,500 m
Installed in two sections with 600 m and 900 m

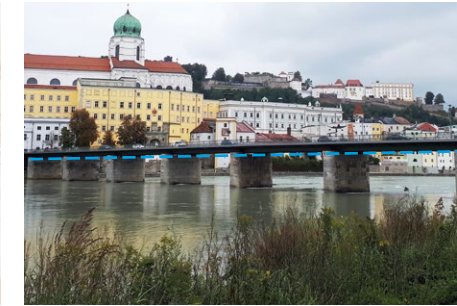
Primus Line® system: DN 500 PN 16



RENEWAL OF A STEEL WATER MAIN ACCOMMODATING DILATATION

Passau, Germany
Preventive maintenance of a DN 400 PN 16 steel water main installed in a bridge
Operating pressure: 6 bar
Total length: 210 m

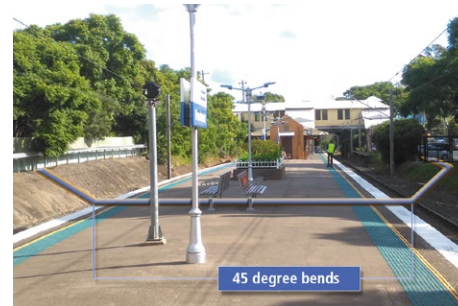
Primus Line® system: DN 400 PN 18



CRITICAL RAILWAY CROSSING WITH FOUR 45° BENDS

Penshurst, Australia
Rehabilitation of a cement lined cast iron pipe DN 225 and DN 300
Operating pressure: 10 bar
Total length: DN 200: 47 m, DN 300: 77 m

Primus Line® system:
DN 200 PN 40, DN 300 PN 25



HIGH PRESSURE WATER MAIN WITH 43.5 BAR OPERATING PRESSURE

Piemont, Italy
Renovation of a DN 250 potable water steel pipeline
Total length: 750 m

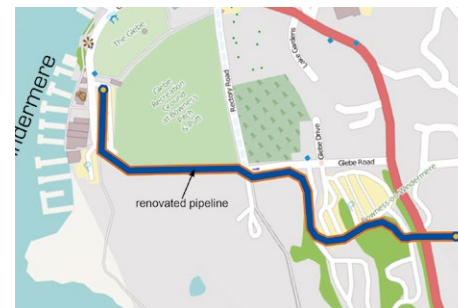
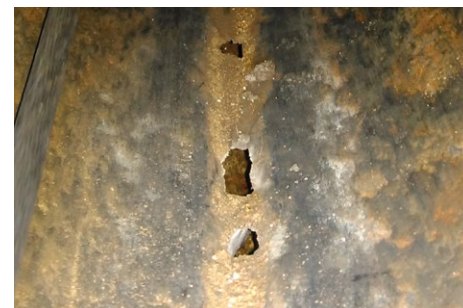
Primus Line® system: DN 250 PN 56



CORRODED SEWER RISING MAIN WITH MULTIPLE 45° BENDS

Lake Windermere, United Kingdom
Ductile iron DN 300 sewer rising main
Operating pressure: 2 bar
Total length: 771 m
Installed in one section

Primus Line® system: DN 300 PN 12



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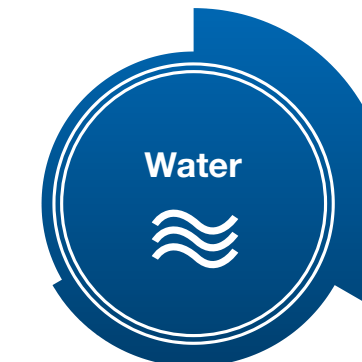
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PRIMUS LINE

The prime solution for pipes.



Primus Line® – Flexible technology for the trenchless rehabilitation of pressure pipes

- ✓ Potable water
- ✓ Firefighting water
- ✓ Industrial water
- ✓ Sea water
- ✓ Waste water



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Designed
developed and
made in Germany

PRIMUS LINE® WATER

APPLICATION

Pipeline rehabilitation made easy

Primus Line® is an innovative technology for the trenchless rehabilitation of pressure pipelines for different media such as water, gas and oil. The process is based on a flexible high-pressure pipe and a connection technology developed specifically for this system.

Primus Line® is suitable for the transportation of various liquids in the field of water and holds drinking water approvals in numerous countries.

The ideal flow characteristics caused by an extremely smooth inner coating and the optimised systems for high-, medium- and low-pressure requirements make Primus Line® an economical solution for the rehabilitation of ageing pipelines. Thus, water authorities and network operators benefit from reliable operation and a sustainable investment in their fixed assets.

FEATURES

Outer layer: Abrasion-resistant PE sheath

Reinforcement: Seamless aramid fibre (one- or two-layer) fabric

Inner layer: Based on PE

Primus Line connector with flange or welded end

Factory-produced product

MOST SUITED ENVIRONMENTS

Pipelines often run through environments that are hard to access. Obstacles to an easy and fast rehabilitation of ageing pipes can be of geographical, economical, architectural or environmental nature.

Primus Line® easily overcomes those obstacles and is uniquely suited for projects in the following areas:

Diameter between DN 150 and DN 500

HOST PIPE

Small pits

START PIT

Nature Parks

Siphons + Bypasses

High-traffic Areas

Airports + Military Bases

Chemical Plants + Refineries

DESTINATION PIT

HOST PIPE

Up to 10 m/min

Independent of host pipe

Several bends up to 45°

Pressure rates with up to 82 bar (1,189 psi)

No curing, steaming or adhesion process

Up to 2,500 metres in one step

PRIMUS LINE

The prime solution for pipes.

✓ Save time and money!

- Installation speeds of up to 10 metres per minute
- Up to 2,500 metres per pull
- Quick re-commissioning for minimal time of service interruption
- Low pre-investment for installers

✓ Simplify the engineering process!

- Installation through multiple bends of up to 45°
- Withstands thermal expansion of the host pipe and seismic movement
- Fully flexible seamlessly woven aramid fabric

✓ Protect the environment and the neighbourhood!

- Minor installation footprint
- Small pits and reduction of road work
- Reduced use of machinery
- Decreased impact on traffic
- Minimal disturbance of daily life around

✓ Increase your pressure rates!

- Burst pressure rates up to 206 bar
- Operating pressure up to 82 bar
- Independent of host pipe

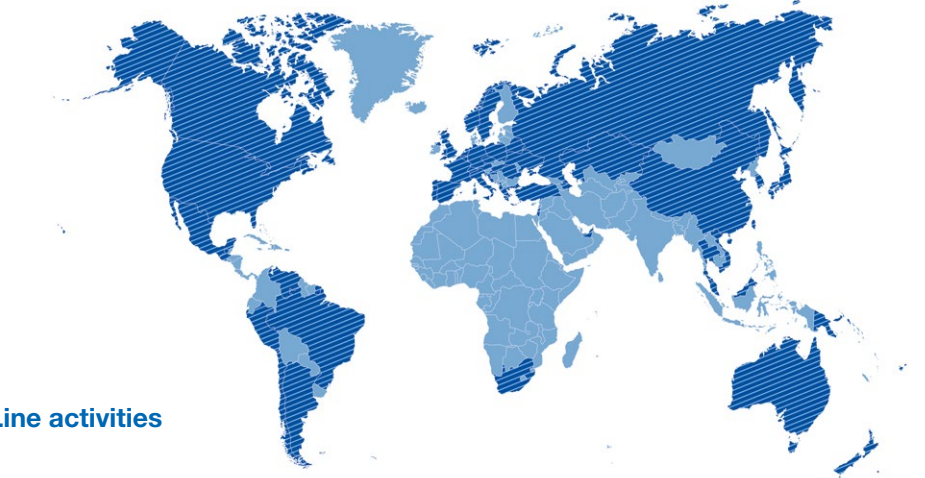
✓ Extend the service life!

- 100% quality control during the manufacturing process and before shipping
- No curing, steaming or adhesion process
- Independent of weather conditions during installation
- 50+-year lifetime

Headquarters in Germany

Branch offices in Australia, China, Canada and the USA

Installation Partners worldwide



Global Primus Line activities

APPLIED WORLDWIDE

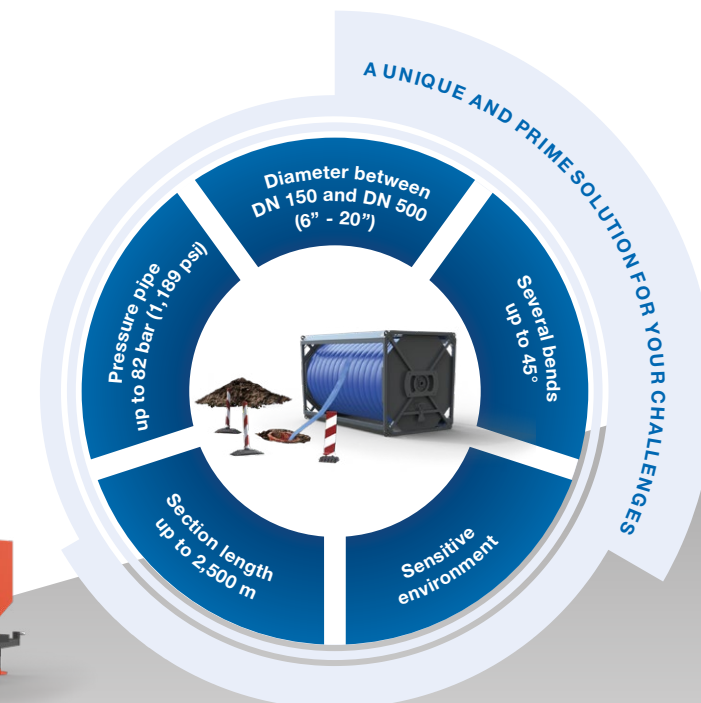
Rely on experience!

Rädlinger has been active in the construction industry for more than 55 years.

Today, Rädlinger primus line GmbH is part of the Werner Rädlinger Group with about 400 employees. With more than 15 years of experience in trenchless pipeline rehabilitation and projects in more than 40 countries, Primus Line® belongs to the leading technologies in the field of trenchless pressure pipe rehabilitation in the world.

Primus Line relies on Germany as production site.

A global partner network and own branches in Australia, China, Canada and the USA grant a fast and smooth project handling on site.



SUITABILITY OF PRIMUS LINE®

Primus Line® is most suitable for a quick and reliable rehabilitation of damaged pressure pipes between DN 150 and DN 500 (6 inches - 20 inches). Thereby, several bends can be traversed while achieving installation lengths of up to 2,500 m (8,200 feet).