

REFERENCES

INSTALLATION UNDER THE RIVER VISTULA IN 10 HOURS

Krakow, Poland  
Renewal of a natural gas siphon pipeline  
Operating pressure: 5 bar (72 psi)  
Total length: 150 m (492 ft)  
Installed in one section  
Primus Line® system: DN 250 PN 19



LONG INSTALLATION SECTION

Dnepropetrovsk, Ukraine  
Operating pressure: 6 bar (87 psi)  
Total length: 1,100 m (3,608 ft)  
Installed in one section  
Primus Line® system: DN 500 PN 10



OLD NATURAL BRINE LINE DN 250 TURNS INTO HIGH PRESSURE GAS PIPELINE

Zurzach, Switzerland  
Operating pressure: 5 bar (72 psi)  
Total length: 500 m (1,640 ft)  
Installed in one section  
Primus Line® system: DN 200 PN 25



CROSS SECTION REDUCTION

Hamm, Germany  
Systematic cross section reduction of a high pressure gas pipeline DN 500 PN 25 to DN 150 PN 25  
Total length: 3,500 m (11,482 ft)  
Installed in nine sections  
Primus Line® system: DN 150 PN 25



INVERTED SIPHON BENEATH THE RIVER OB IN THE SIBERIAN TAIGA

Kolpaschevo, Russia  
Operating pressure: 16 bar (232 psi)  
Total length: 2,500 m (8,200 ft)  
Multiple bends of 10° to 30°  
Installed in one section  
Primus Line® system: DN 150 PN 51



PRESSURE CLASS INCREASE FOR RHINE SIPHON

Koblenz, Germany  
High pressure natural gas pipe, pressure class increase from PN 10 to PN 16  
Total length: 430 m (1,410 ft)  
Installed in one section  
Primus Line® system: DN 300 PN 16



EXTENDED SERVICE LIFE FOR GAS PIPELINE IN HIGH-TRAFFIC AREA

Basel, Switzerland  
Operating pressure: 5 bar (72 psi)  
Total length: 400 m (1,312 ft)  
Installed in one section  
Primus Line® system: DN 400 PN 11



PRESSURE INCREASE

Wünschendorf, Germany  
Pressure increase of a siphon pipe DN 225 HDPE PN 10 under the "Weiße Elster" river  
Total length: 55 m (180 ft)  
Primus Line® system: DN 200 PN 25

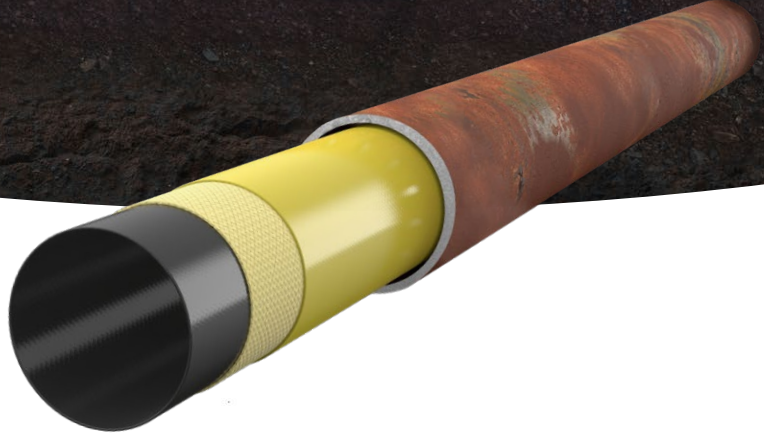


GAS PIPELINE IN A RAILWAY UNDERPASS

Krapotkino, Russia  
Operating pressure: 16 bar (232 psi)  
Total length: 150 m (492 ft)  
Installed in two sections with 75 m (246 ft) each  
Primus Line® system: DN 200 PN 25



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

- ✓ Pipeline
- ✓ Main
- ✓ Pipe within local network

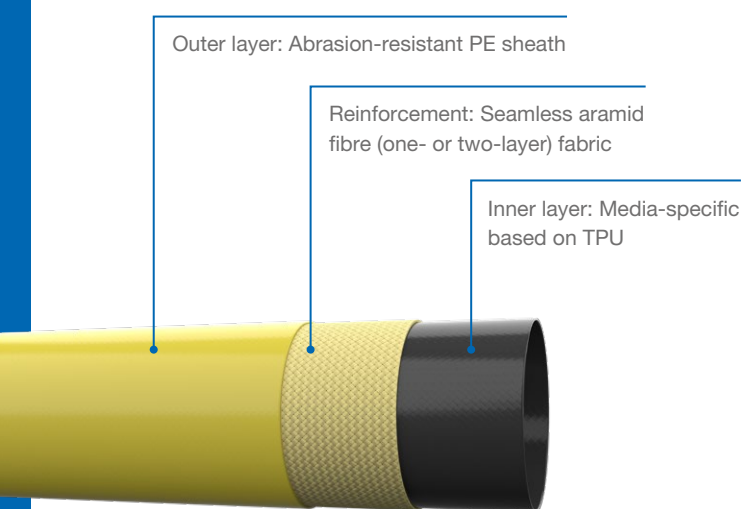
Designed  
developed and  
made in Germany

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# PRIMUS LINE® GAS

## FEATURES



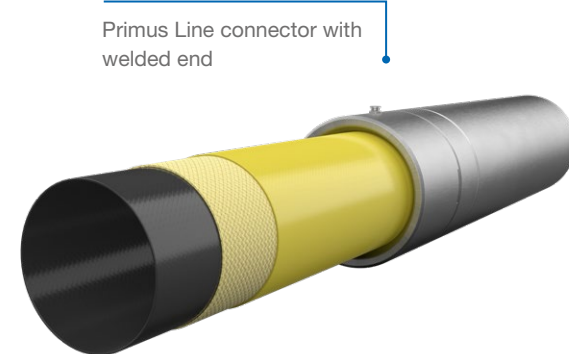
## APPLICATION

### Pipeline rehabilitation made easy

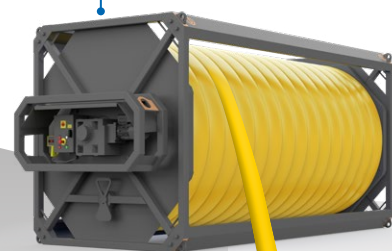
Primus Line® is an innovative technology for the trenchless rehabilitation of pressure pipelines for different media such as gas, water and oil. The process is based on a flexible high-pressure pipe and a connection technology developed specifically for this system.

Gaseous media represent a special challenge to trenchless pipe rehabilitation. However, an inner layer made of permeation reducing plastics and the seamless production of up to 4,500 metres (14,763 feet) of the Primus Line pipe have made it possible for gas pipelines to also be renovated with Primus Line®. A monitoring pipe with a fitted valve that is affixed to the old pipeline allows the system-specific annular space to be monitored after the renovation work.

The conveyed gas covers media from categories such as natural gas, liquid gases, coke gases and mixed gases (for detailed information please request our Chemical Resistance Sheet).



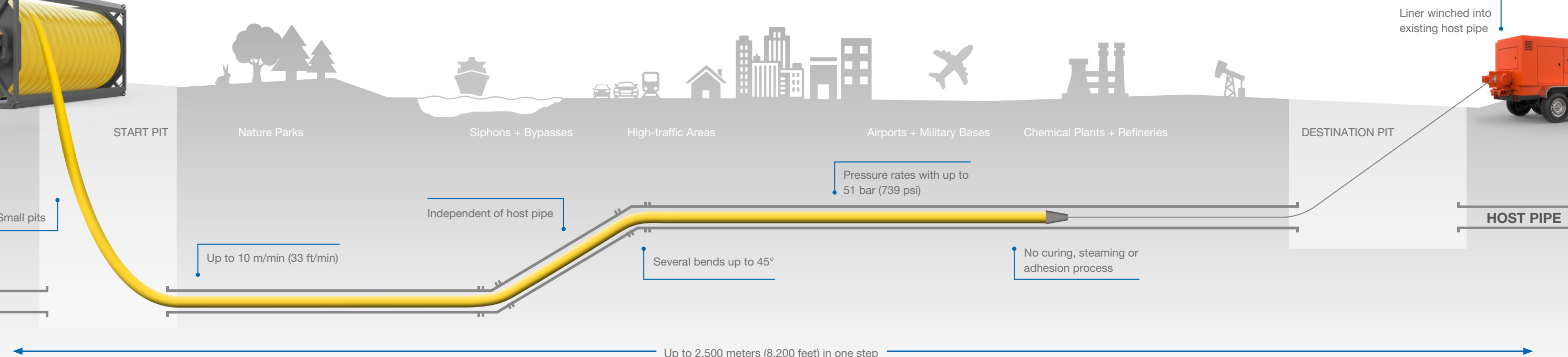
Factory-produced product



## 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:



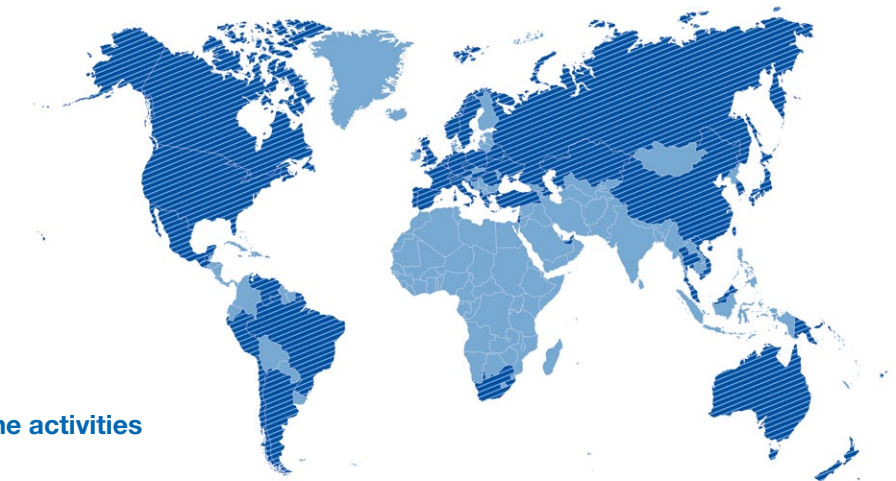
The prime solution for pipes.

- ✓ **Save time and money!**
  - Installation speeds of up to 10 metres per minute (33 feet per minute)
  - Up to 2,500 metres (approx. 8,200 feet) 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 (2,987 psi)
  - Operating pressure up to 51 bar (739 psi)
  - 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

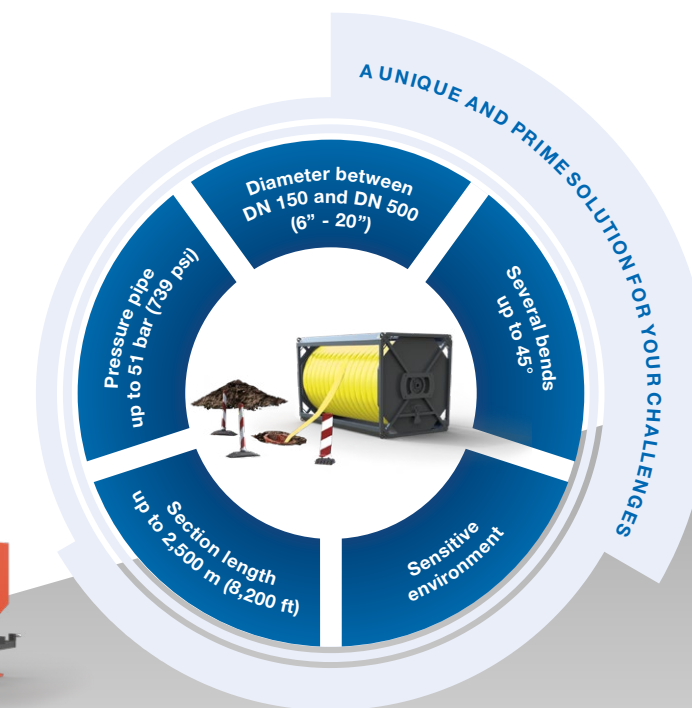
### Rely on experience!

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).