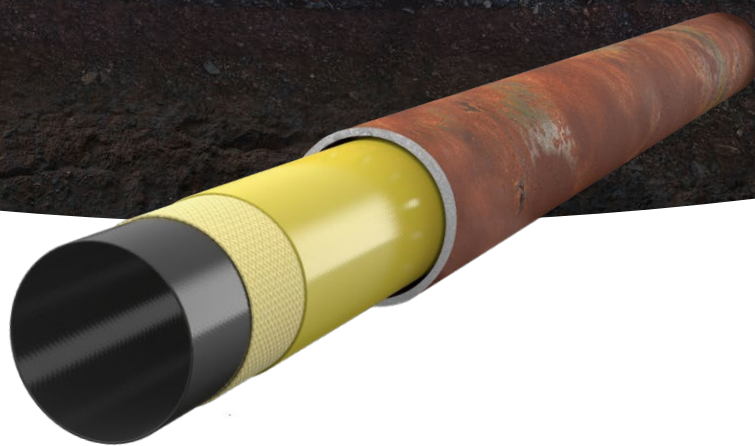


# PRIMUS LINE

The prime solution for pipes.



Gas



Oil



Water



Industry



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

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

Designed  
developed and  
made in Germany

# PRIMUS LINE® GAS

## FEATURES

Outer layer: Abrasion-resistant PE sheath

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

Inner layer: Media-specific based on TPU

## 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).

Primus Line connector with 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 (6" - 20")

HOST PIPE

Small pits

START PIT

Nature Parks

Up to 10 m/min (33 ft/min)





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### 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



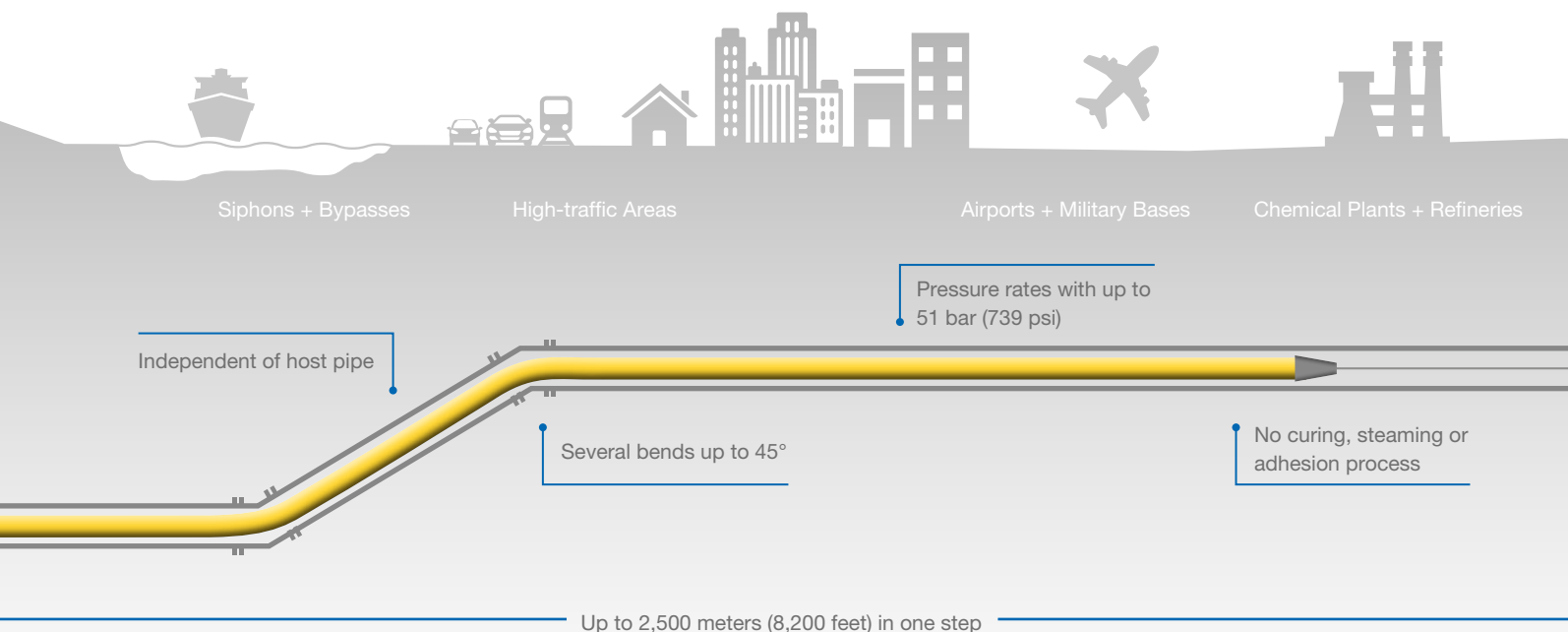
### Increase your pressure rates!

- 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

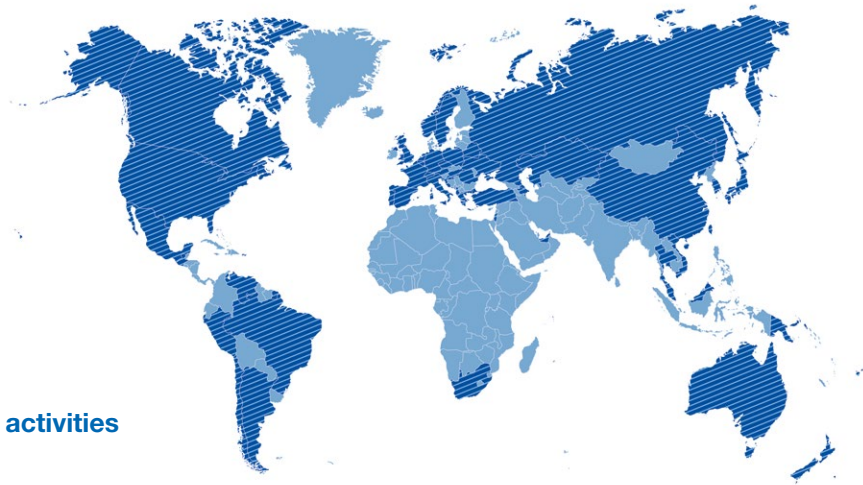




Headquarters in  
Germany

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.

Liner winched into  
existing host pipe



DESTINATION PIT



**HOST PIPE**



## 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).

# REFERENCES

## • INSTALLATION UNDER THE RIVER VISTULA IN 10 HOURS

Krakow, Poland

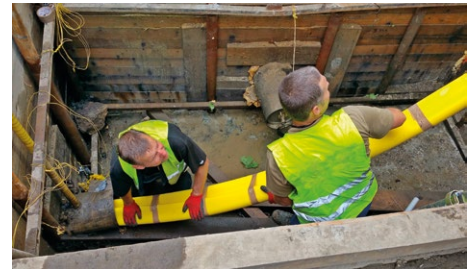
Renewal of a natural gas siphon pipeline

Operating pressure: 5 bar (72 psi)

Total length: 150 m (492 ft)

Installed in one section

Primus Line® system: DN 250 PN 19



## • 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



## • 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



## • 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



## • GAS PIPELINE IN A RAILWAY UNDERPASS

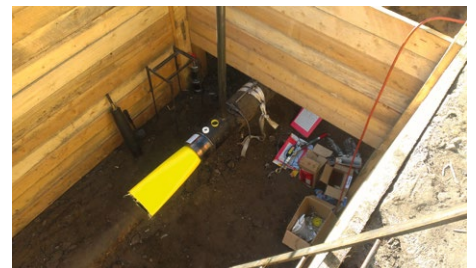
Krapotkino, Russia

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





## 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



## 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



## 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



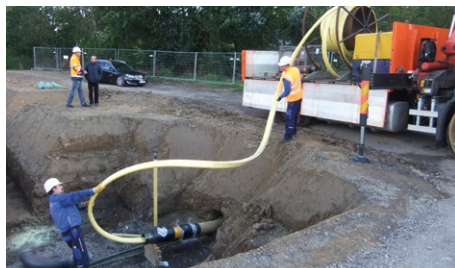
## PRESSURE INCREASE

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



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