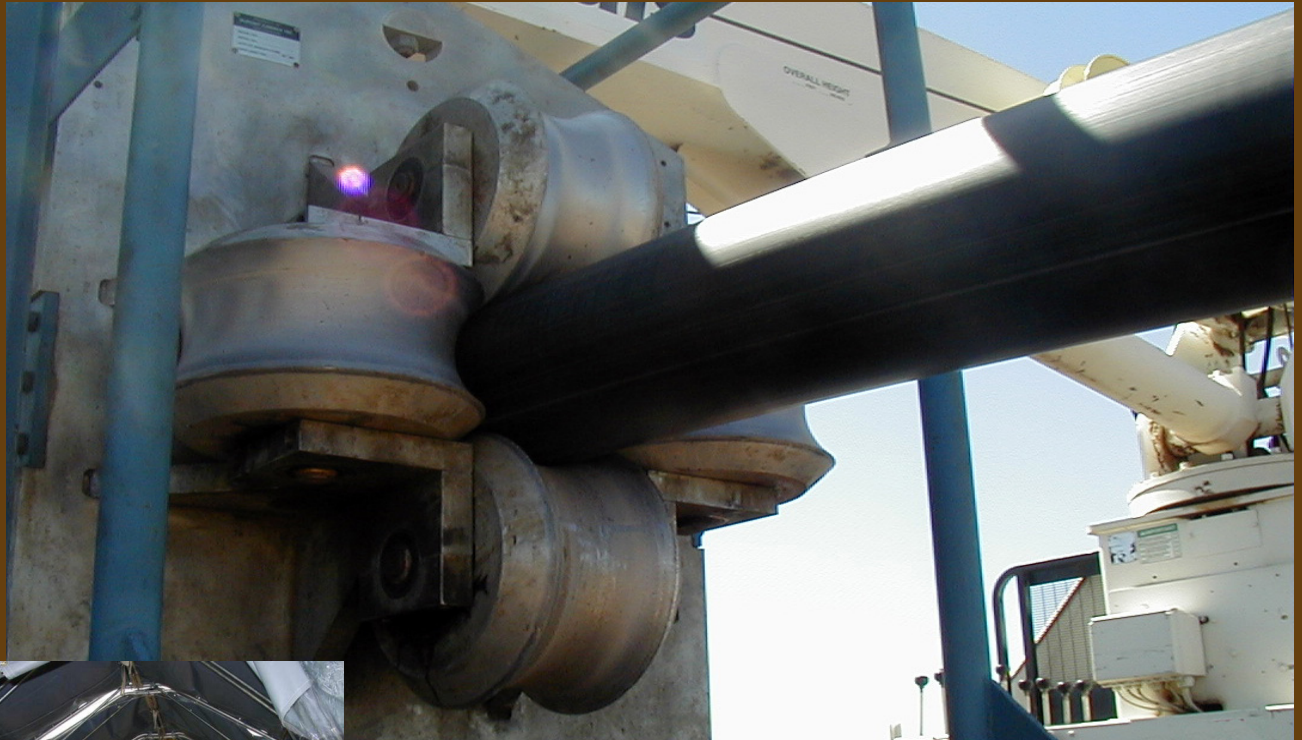


NBS

GLOBAL HDPE LINING SOLUTIONS

OVERSIZED HDPE LINER



- ◇ Internal Pipeline Protection & Rehabilitation
- ◇ Corrosion & Abrasion Resistant
- ◇ Cost Effective
- ◇ Environmentally Beneficial
- ◇ Improved Flow Properties
- ◇ Fast, Safe, Highest Quality Installation
- ◇ Superior Customer Service

**The new global leader
in high-density polyethylene (HDPE) lining systems
for internal pipeline protection and rehabilitation**

- Why HDPE LINING? -

◇ High density polyethylene (HDPE) is highly resistant to chemical and biological attack. Installation of an HDPE liner will eliminate the need for corrosion inhibitors or chemical biocide treatment in your pipeline.

◇ HDPE offers improved resistance to abrasion and erosion as compared to bare carbon steel. Use of an HDPE liner can significantly increase your pipeline lifespan in abrasive and internally corrosive applications.

◇ Installation of an HDPE liner is usually much faster and more cost-effective than complete pipeline replacement (dig-and-replace) methods.

◇ HDPE pipe liner surface is approximately 30 times smoother than that of new commercial steel. An HDPE liner can improve flow characteristics and lower operating costs for your pipeline.

◇ Environmentally friendly trenchless technology minimizes digging and reduces the social and environmental impact of projects.

◇ HDPE lining eliminates ongoing operating and maintenance costs by providing you with a fit-and-forget solution.

◇ Monitoring vents, gauges, and valves can be used to easily and continuously confirm the integrity of the HDPE lining system and the internal protection of your carbon steel pipelines.

◇ HDPE lined flange connections have been successfully used in leak-free service on thousands of projects and at pressures above 5,000 psi.

◇ There is no maximum pressure limitation for the HDPE liner as the host steel pipe provides the structural integrity and pressure containment.

◇ HDPE lining can be used in applications with temperatures up to 180° F/82° C or higher.

◇ Pull lengths of 800 meters or more are possible on HDPE lining projects up to 60" diameter, depending on conditions and parameters.

◇ Pipeline field bends of 20D or more are possible for the HDPE lining system.

◇ HDPE resin is a global commodity and generally inexpensive compared to other pipeline protection alternatives.

Once your HDPE liner is installed, "it never stops working for you".

Basic Installation Steps

Step 1. The host steel pipeline is subdivided into appropriate pull section lengths for HDPE liner insertion.

Step 2. On the job site, shorter lengths of HDPE liner are thermally fused together, creating longer monolithic lengths to match the steel pipe segments.

Step 3. A cable or Kevlar rope with a sizing plate and blow-down pig is sent through a steel pipeline section.

Step 4. At the opposite end of the steel pipe pull section, the cable is attached to a pull-head on the matching HDPE liner.

Step 5. The HDPE liner is pulled through a roller reduction box prior to entering the steel host pipe. The radial compression of the HDPE liner allows it to temporarily fit within the inner diameter of the steel pipe. This reduction in the HDPE liner's outer diameter is maintained due to axial tension during the pulling process.



Oversized HDPE liner insertion

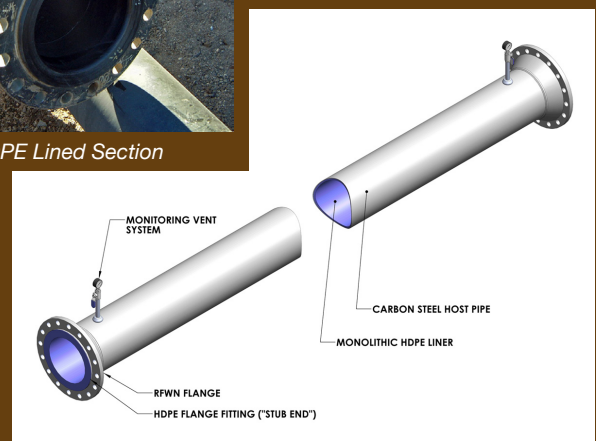
Step 6. Once the HDPE liner has been pulled completely through the host pipe, the tension is released and the HDPE expands, allowing the liner to form a "friction fit" against the steel.

Step 7. Specially machined HDPE flange "stub-ends" are used to isolate the lined segments. Steel compression rings are utilized to ensure a leak-free connection between the HDPE gasketed steel flanges.

Step 8. The lined segment is thoroughly tested prior to bolting up the steel flanges at which point the pipeline is ready to be placed back in service.



HDPE Lined Section



GLOBAL HDPE LINING SOLUTIONS
OVERSIZED HDPE LINER

- Why NBS? -

NBS is becoming the new worldwide leader in global HDPE lining solutions because we:

Offer a better, faster, and lower cost HDPE lining solution for protecting your pipelines

Work closely with our trusted partners to offer the most competitive price possible

Are possessed by safe operating performance to the point that if any step is to be taken on a project, it must be done safely...or not at all

Adhere to the highest quality standards to guarantee that every aspect of a project is done once...because it is done right the first time

Will be the first and only HDPE lining company with ISO 9001:2008 certification rather than simply relying on our material suppliers' certificates

Have an unfailing commitment to the environment by helping prevent pipeline leaks and by leaving our jobsite in better condition than when we arrived

Are continually developing new methods and advanced technologies to provide increasingly better, faster, and cheaper solutions for our customers and partners



Safety

Safety is never an afterthought at NBS – it is a fundamental core value which guides and protects us company-wide.

This commitment benefits all NBS stakeholders by increasing employee morale and productivity, while controlling costs and eliminating accident-related expenditures.

Our HSE team is far and away the most experienced in the HDPE lining industry, and all employees are responsible for upholding our “safety first” philosophy.



Quality

A cornerstone of the NBS philosophy is an unwavering dedication to a standard of quality that is second to none.

We are firmly committed to meeting our customers' needs and expectations in all operations, on time, and on budget with the highest levels of craftsmanship.

NBS will be the first and only HDPE lining company with ISO 9001:2008 certification, ensuring that projects meet customer requirements and satisfaction.



Environment

Pledged to environmental leadership, NBS is proud to provide solutions for pipeline protection worldwide and aims to follow the “leave no trace” ethic, leaving only our HDPE footprint behind.

HDPE lining protects the environment by preventing pipeline leaks and eliminating the need for corrosion inhibitors. HDPE lined pipe requires significantly less repair, maintenance, and replacement, while trenchless technology minimizes disruptive digging, reducing the social impact of a project.

Experience

The existing oversized HDPE lining technology has been used for approximately 25 years, and the NBS team is comprised of individuals that have been key to the industry's growth, development and success.

Individually, our owner-employees have held critical industry positions for as long as 18 years, and many of our key personnel have spent more than a decade perfecting their skills in the oversized HDPE lining business. We have now come together to innovate and improve on the technology and methodology that was initially developed 25 years ago as well as to provide a better, lower cost solution for our valued customers.

The foundation of NBS experience is built on the experience of our owners and employees.



The *new* global leader
in high-density polyethylene (HDPE) lining systems
for internal pipeline protection and rehabilitation

◇ Oil & Gas

Water Injection and Disposal
Sour/Wet Gas
Three-Phase Oil Emulsion
Crude Oil
Brine
CO₂

◇ Mining

Slurry Transport
Tailings
Concentrate
Pregnant Leach Solution
Acid
Wastewater

◇ Municipal

Raw Water
Potable Water
Fire Water Mains
Sewer Mains

Within these market segments, there are a multitude of additional services that are well suited for an internal corrosion and abrasion resistant thermoplastic liner.

High-density polyethylene (HDPE) lining is often the best cost and time saving alternative to traditional dig and replace methods.

***Contact us to learn more about the feasibility and benefits
of HDPE lining for your pipeline protection needs.***

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WE NEVER STOP WORKING FOR YOU