ITALIA NO DIG LIVE 2025

Titolo intervento:

RIABILITAZIONE ADDUTTORI IDRICE IN PRESSIONE DI MEDIO E GROSSO DIAMETRO CON TUBAZIONI ASOE PIPE IN LINER IN POLIETILENE FLESSIBILE RINFORZATO.

Relatore : **Dr. Michele Libraro WPR SERVICE SRL**

Novegro, 12 giugno 2025

Cosa chiede il Cliente quando si parla di riabilitazione di una condotta adduttrice?

- Allungare la vita della condotta esistente oppure installare una nuova condotta autoportante.

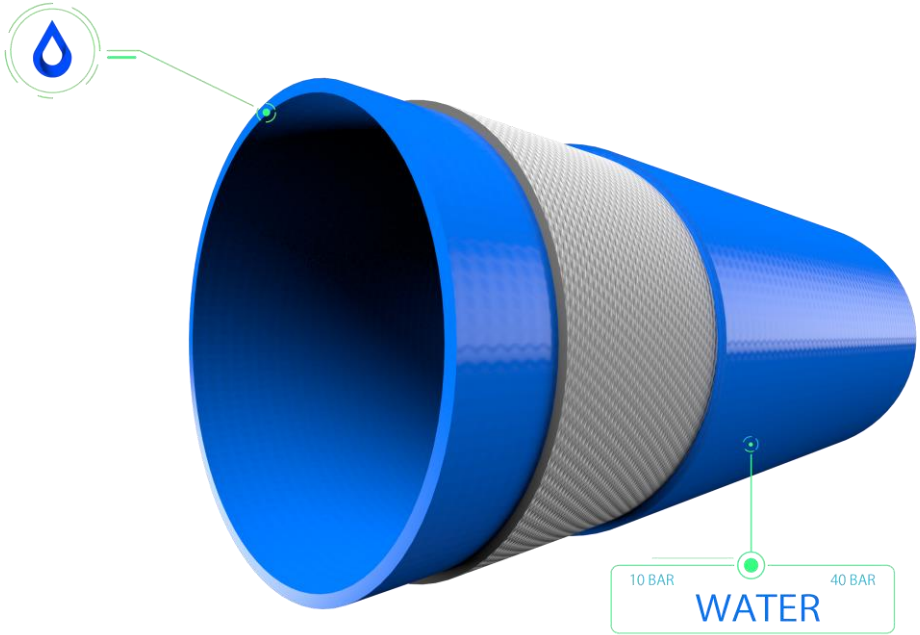
- Recuperare quanto più possibile la portata d'acqua originaria.

- Evitare perdite di carico.

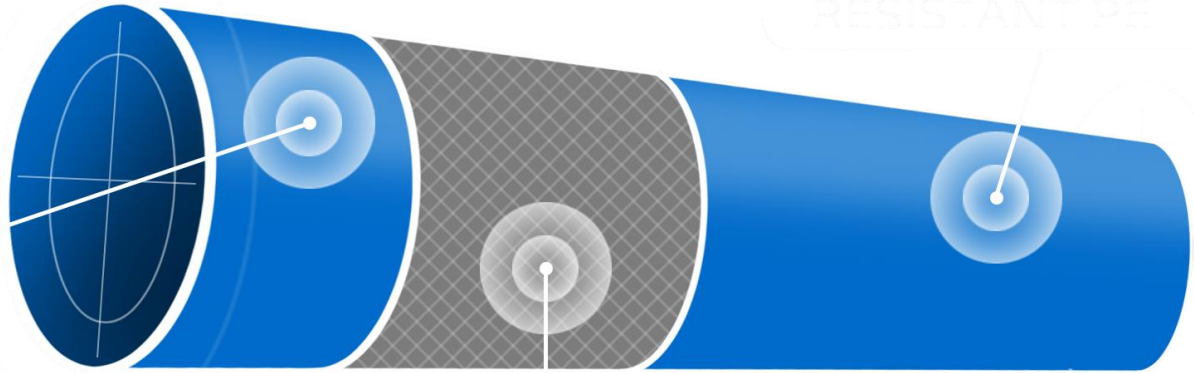
- Durata della nuova condotta

- Velocità di installazione.

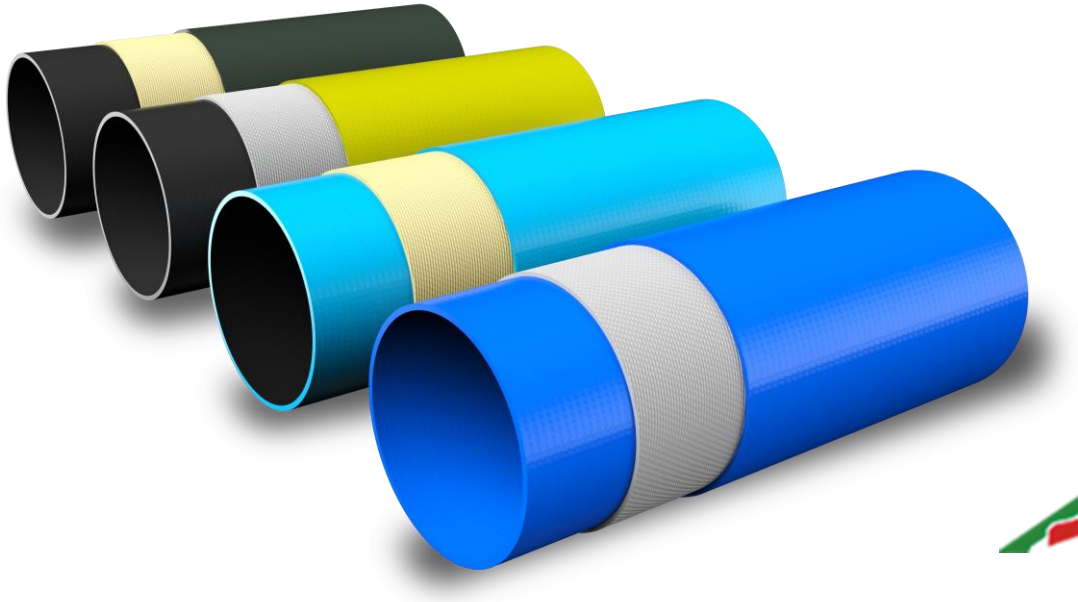
OGGI ILLUSTREREMO UNA TECNOLOGIA HOSE LINER IN MODALITA’ CLOSE FIT LINER DENOMINATA ASOE PIPE IN LINER



TRATTASI DI UNA TUBAZIONE FLESSIBILE IN POLIETILENE MODIFICATO E RINFORZATO IN POLIESTERE O IN FIBRA ARAMIDICA



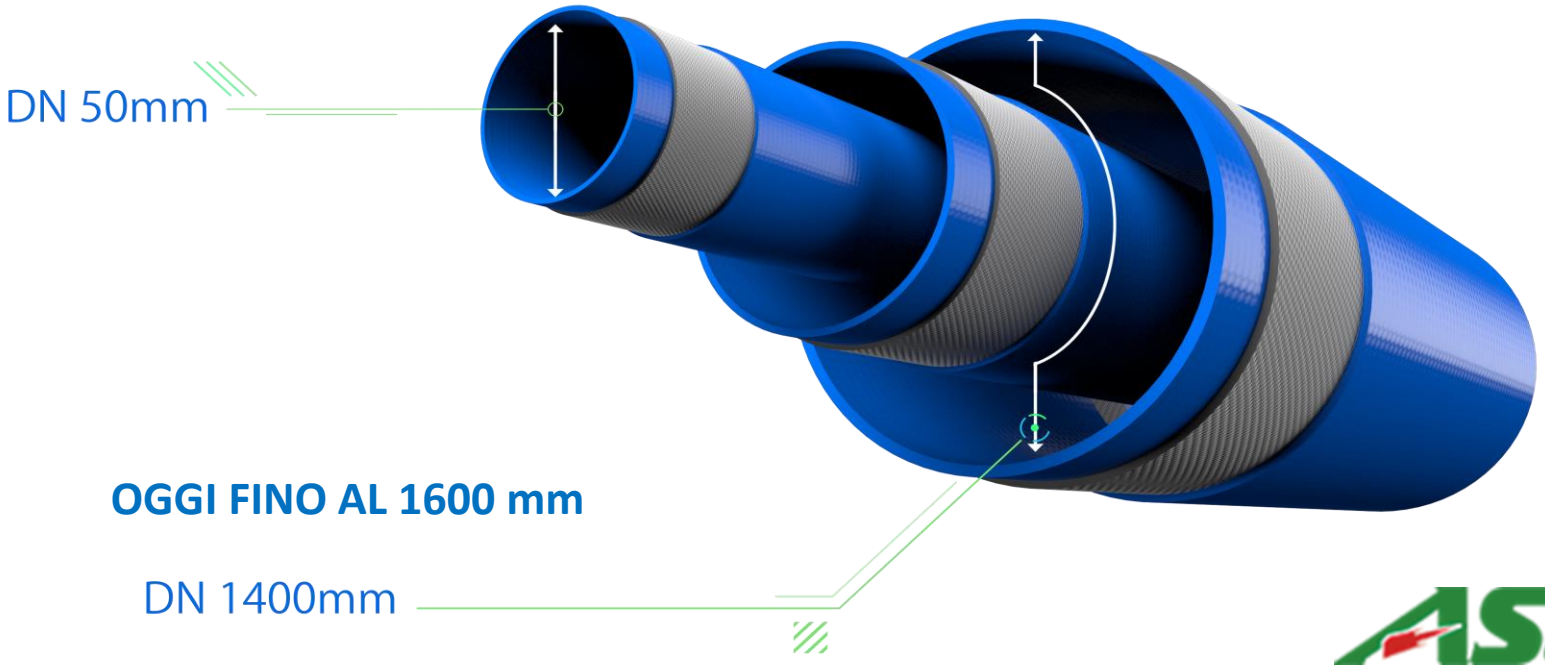
ACQUA GAS OIL TELERISCALDAMENTO



Fatturato Annuale
ASOE NEL SETTORE
75 Milioni di Dollari

ASOE

DIAMETRI REALIZZABILI



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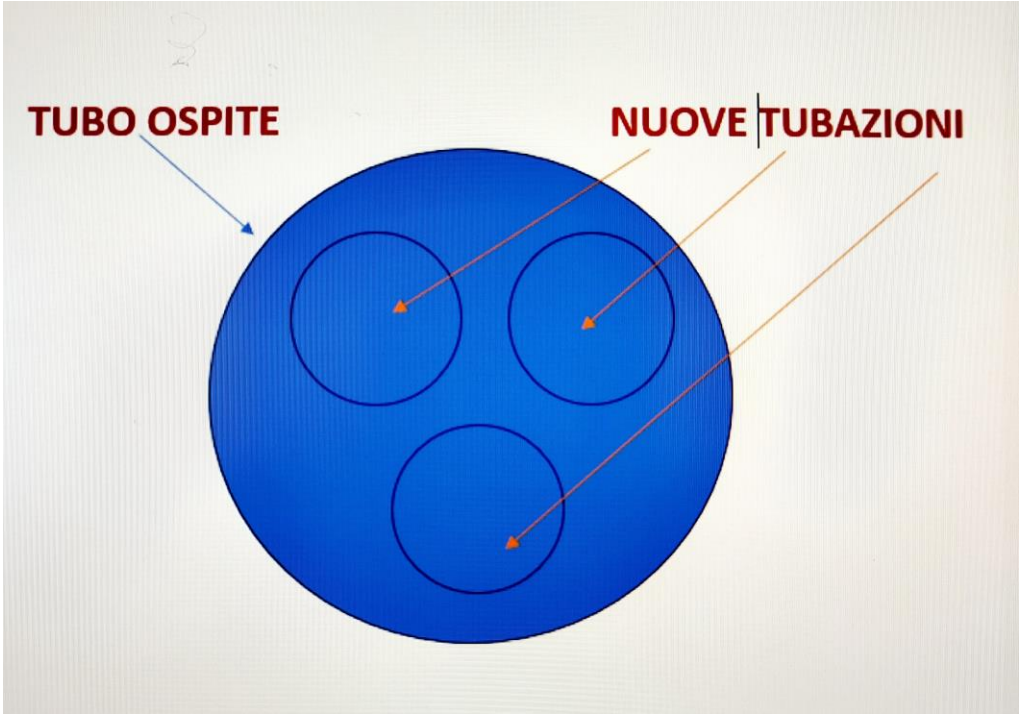
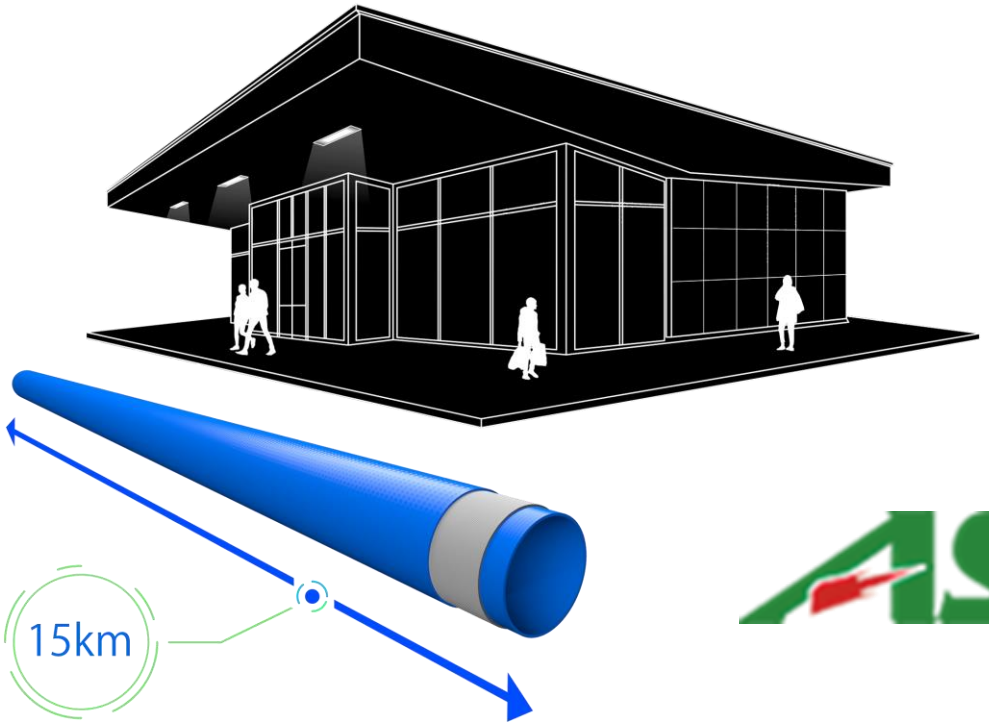


ESEMPIO DI BOBINA DI TUBAZIONE PRODOTTA

Bobine Speciali per lunghe distanze

MODALITA’ CLOSE FIT LINER

LUNGHEZZE REALIZZABILI



Test Report

Long-Term Tensile Performance Assessment

Test Subject: Reinforced Composite Pipeline System
Client: Asoe Hose Manufacturing Inc.
Testing Facility: Trenchless Technology Center, Louisiana Tech University

Executive Summary

This report presents the findings of comprehensive long-term tensile modulus testing conducted on Asoe Hose Manufacturing Inc.'s reinforced composite pipeline system. The testing was performed in accordance with ASTM D2992 and ISO 14692 standards to evaluate the material's long-term structural integrity under sustained load conditions. Results indicate excellent long-term performance characteristics with gradual tensile modulus reduction over time under constant load.

Test Methodology

The long-term tensile modulus evaluation was conducted using standardized testing protocols in compliance with DIN 16887 and DIN EN ISO 9080 standards for verification of long-term strength. Test specimens were subjected to a constant load of 336 psi (2.3 MPa) under controlled environmental conditions at a minimum temperature of 20°C.
Testing parameters: Test temperature: Minimum 20°C, Test duration: Up to 10,000 hours, Sample quantity: 10 test specimens, Test configuration: 5 pressure levels with 2 specimens per level.

Results and Analysis

The tensile modulus data collected over the test duration demonstrates a characteristic gradual decay that is typical of high-performance composite materials. As shown in the accompanying graph, the long-term tensile modulus exhibits a gradual decrease over time. The test results reveal that after initial stabilization, the tensile modulus stabilizes at approximately 100,000 psi for the first 100 hours before exhibiting a gradual decline to approximately 80,000 psi at 1,000 hours.

Extrapolation and Service Life Prediction

Following methodologies outlined in DIN 16887 and DIN EN ISO 9080 for determination of long-term behavior, the data has been extrapolated to predict long-term performance.
Based on the established relationship between time and tensile modulus, the projected tensile modulus at the 50-year (438,000 hours) service point is calculated to be 55,000 psi, representing a retention of approximately 55% of the initial tensile modulus.

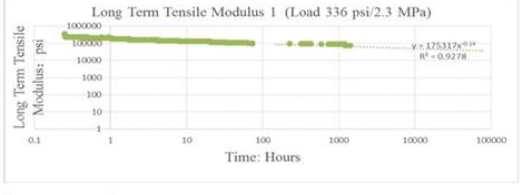
Maximum Operating Pressure Calculation

The Maximum Operating Pressure (MOP) determination follows a dual-factor methodology as stipulated in the European regulations:

Fabric Factor: Based on the long-term testing of the aramid fabric reinforcement, a fabric factor of 2.0 has been established after conducting tests up to 10,000 hours and extrapolating to 50 years of service life.
Safety Factor: In accordance with national standards for pipeline systems:
For water applications: Safety Factor = 1.25
For gas applications: Safety Factor = 2.0
The MOP is calculated using the following formula:
MOP = Short-term Burst Pressure / (Fabric Factor × Safety Factor)
For the tested pipeline system with a short-term burst pressure of 850 psi:
Water application MOP = 850 / (2.0 × 1.25) = 340 psi
Gas application MOP = 850 / (2.0 × 2.0) = 212.5 psi

Conclusions

The long-term tensile modulus testing demonstrates that Asoe Hose Manufacturing Inc.'s reinforced composite pipeline system exhibits excellent long-term performance characteristics suitable for underground infrastructure applications. The established relationship between time and tensile modulus retention provides a reliable basis for predicting long-term performance.
The material exhibits a tensile modulus retention that exceeds industry requirements for a 50-year service life, confirming its suitability for long-term infrastructure applications.



John C. Matthews, Ph.D.
Director, Trenchless Technology Center (TTC)
Professor, Construction Engineering Technology Louisiana Tech University
Ruston, LA 71272
Office: (318) 257-2852
Email: matthews@latech.edu

March 10, 2025

John C. Matthews, Ph.D.
Director, Trenchless Technology Center (TTC)
Professor, Construction Engineering Technology Louisiana Tech University
Ruston, LA 71272
Office: (318) 257-2852
Email: matthews@latech.edu

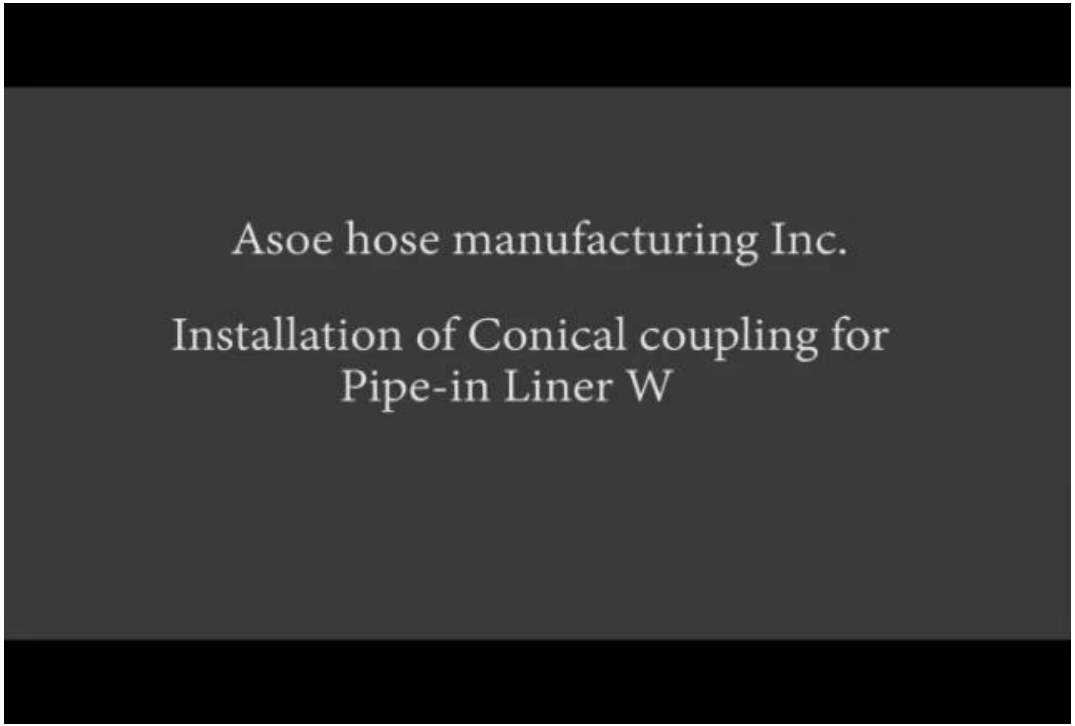
UNI/PdR

"Tecniche relining con tubi e tubolari plastici"

CONNESSIONI BREVETTATE

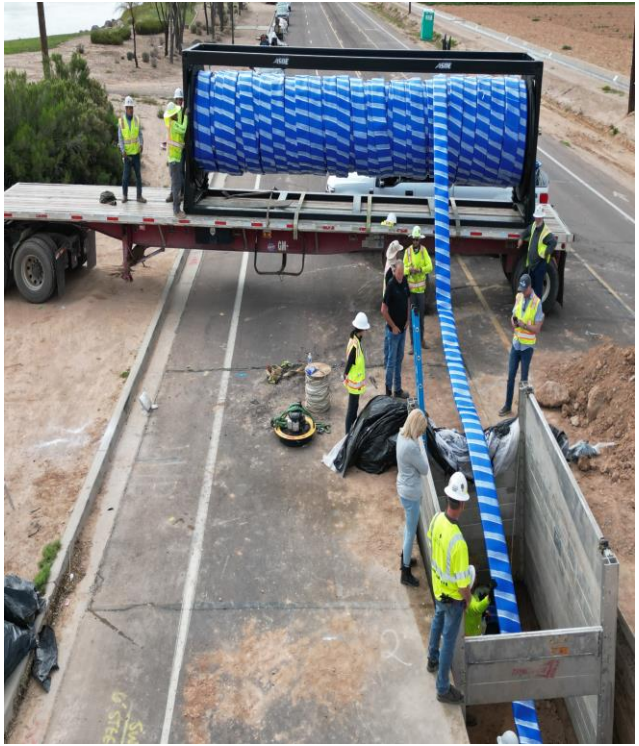
ILLUSTRAZIONE 3D DELL'INSTALLAZIONE

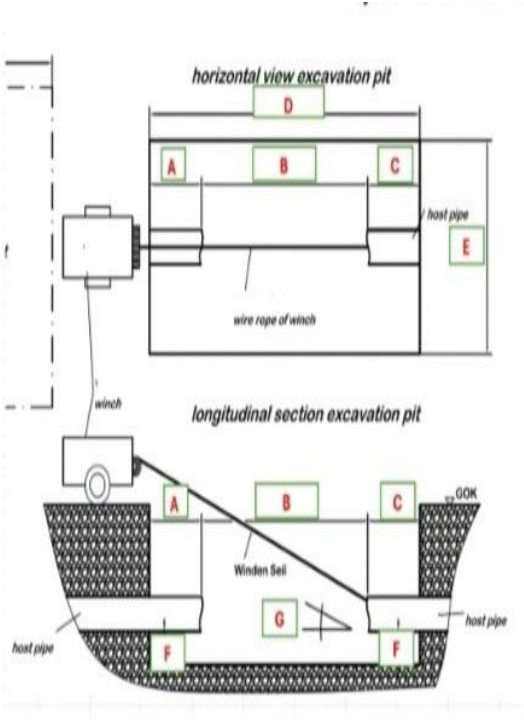
VIDEO MONTAGGIO CONNESSIONI



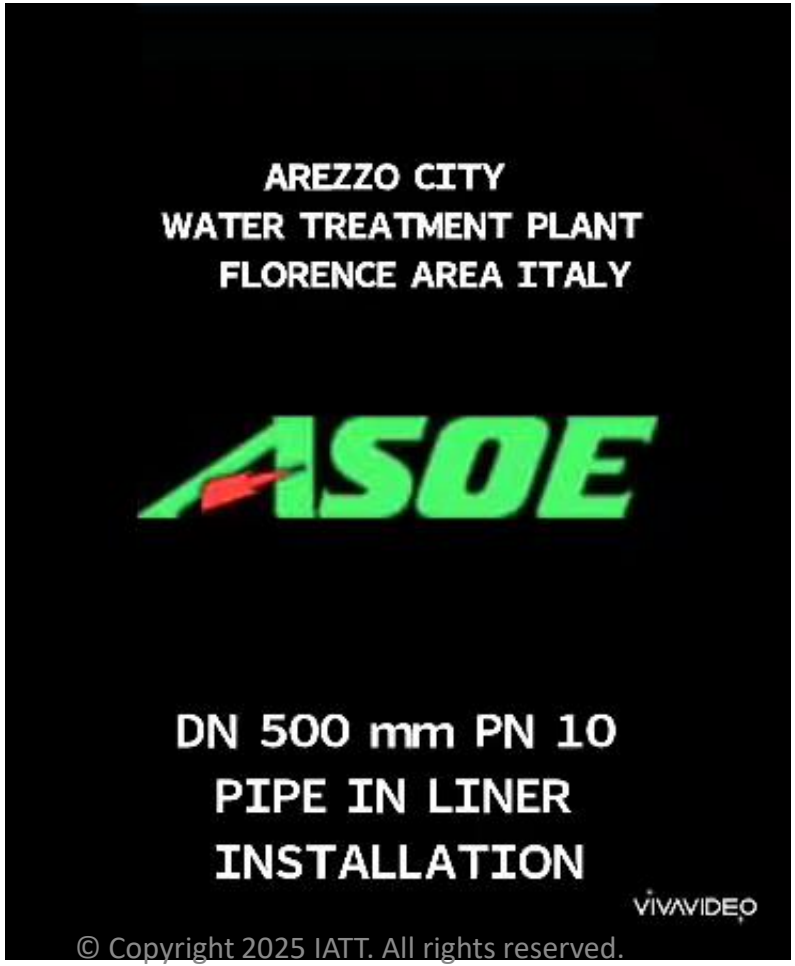
PROVA DI PRESSIONE IN STABILIMENTO

ESEMPIO SCAVO SU GROSSO DIAMETRO

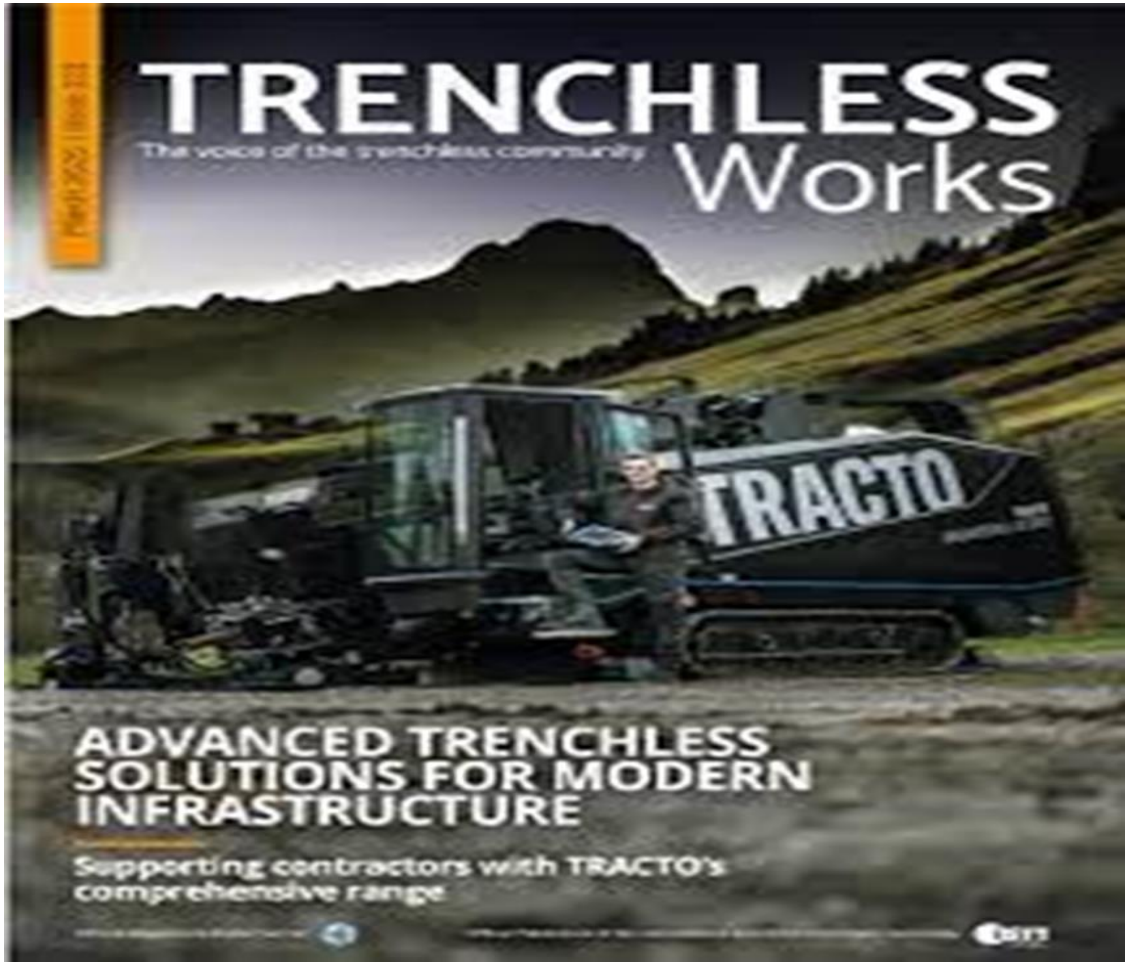




Dimension pit			
	Unit	Host Pipe 820 mm	Host Pipe 1100 mm
A	m	0.3	0.3
B	m	1.9	2.5
C	m	0.3	0.3
D = (A+B+C)	m	2.5	3.1
E	m	1.8	2.5
F	m	0.6	0.6
G max	°	45	45



ESEMPI DI INSTALLAZIONI REALIZZATE



PIPELINE REHABILITATION

Bridging time: Trenchless technology restores Spoleto's legendary landmark

Spoleto is an ancient city in Umbria, Italy. It is surrounded by hills and vineyards and is famous for its churches and magnificent bridge. The fourteenth-century bridge called Ponte delle Torri (Bridge of the Towers) was derived from a Roman viaduct and is the symbol of Spoleto, as well as one of the city's most panoramic points. It was, in fact, first an aqueduct, originally built by the Romans and then rebuilt (or expanded, according to some sources) in the 12th century. It spans the deep ravine and ensures a reliable water supply to Spoleto.

Connecting the hillside to the city's high point, both ends of the bridge feature a fortress: the Rocca Albornoziana on the city side and the Fortilizia dei Mulini on the other. These two fortresses, with battlements and towers, gave the bridge its name. The Rocca is the highest point in Spoleto. The bridge is 230 metres long (787 feet) and nearly 80 metres (262 feet) high, featuring nine graceful arches. The top of the aqueduct has a walkway outlined by a parapet and is open to foot traffic.

Underneath this walkway, drinking water pipes were buried in the 1890s to carry water from one side of the ravine to the other. Years of use resulted in heavy leakage that began to damage the viaduct. It was decided that the historic structure needed to be protected, and consequently, the pressure pipes, which operate at 3-4 bar internally, were relined.

As traditional digging was not an option WPR, the expert relining company in Italy, and ASOE cleaned the pipes using pigging, and then the hose lining was pulled into place and sealed at each end with pressure couplings. The lining took a few hours and allowed the pipes to be completely sealed, reopening the viaduct to the public. Two lines of over 350 metres each were installed in one pull.

Thames Water attended the site with their Tier 1 contractor, Cappagh Contractors Construction (London), to evaluate the project and explore the opportunity to use this technology within the Thames Water area. They were pleased with the materials, installation techniques, pressure testing, and handover. Dean Hansford, Trenchless Contracts Director for Cappagh, said: "It's been great to see the simple and efficient method of installation and the range of options that this product offers. We will definitely be looking for opportunities to collaborate with ASOE in the UK with our current and future clients."

Michele Libraro, CEO at WPR, commented, "The project had been challenging but was completed ahead of time." Deon Pohorille from NUFLOW and ASOE also commented saying: "This was another monumental project for ASOE, and we are looking forward to supporting Thames Water and Cappagh with their challenges and future installations in the UK."

GRAZIE PER L'ATTENZIONE

Dr. Michele Libraro

service@wprsrl.com

cell. +39-348-6539203