Tuboscope — Europe
Corrosion Control Services

Tuboscope | NOV Wellbore Technologies

Tuboscope — Europe

As a leading global oilfield service provider,

Tuboscope has built its reputation through being innovative, safety conscious and service minded. Worldwide, we provide the most comprehensive and integrated suite of value-added solutions for all your drilling, production and line pipe needs. Our newest generation technologies and services maximize the lifecycle of your assets, helping you drill safer and more efficiently, increase production and reduce downtime.

Tuboscope's Gladbeck, Germany facility provides coating services for all oilfield tubulars and accessories, as well as offering line pipe connection systems for bare and internally coated line pipe.

What we coat

- Drill pipe
- Casing
- Tubing
- Line pipe
- Spools
- Fittings
- Valves
- Thru-Kote sleeves
- Other custom accessories




Why coat?

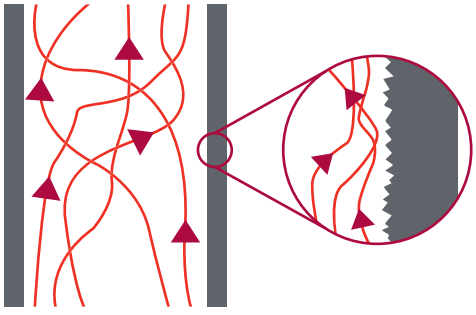
A corrosion control program is essential to the safety and success of your drilling, production and line pipe applications. Corrosive and abrasive environments, as well as the buildup of harmful scale shorten the life of tubulars leading to costly downtime due to failures, interventions and paraffins. Accurate TK™-Coating selection based on individual well characteristics is proven to extend asset life, improve performance and reduce drilling and production inefficiencies.

Tuboscope engineers, manufactures and applies OCTG internal coatings under the proprietary Tube-Kote™ *(TK™)* product line. Accepted as the industry standard, our 20+ coatings address multiple/specific well environments and conditions.

As operating conditions continue to change, our in-house coating engineering team is consistently developing new products to meet customer requirements.

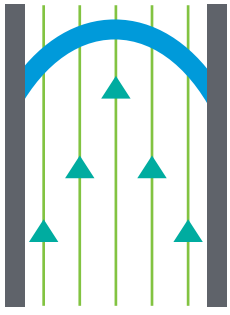
Benefits

- Corrosion protection
- Deposit mitigation
- Abrasion and wear resistance
- Flow improvement
- Fluid purity
- Electrical insulation
- Galvanic protection
- Extend tubular life



Turbulent flow
Motion of fluids in which local velocities and pressures fluctuate irregularly, in a random manner.

Surface roughness
Uneven surfaces cause fluid drag, impeding flow.



Laminar flow
Streamlined flow in which all particles of the fluid move in distinct and separate lines.

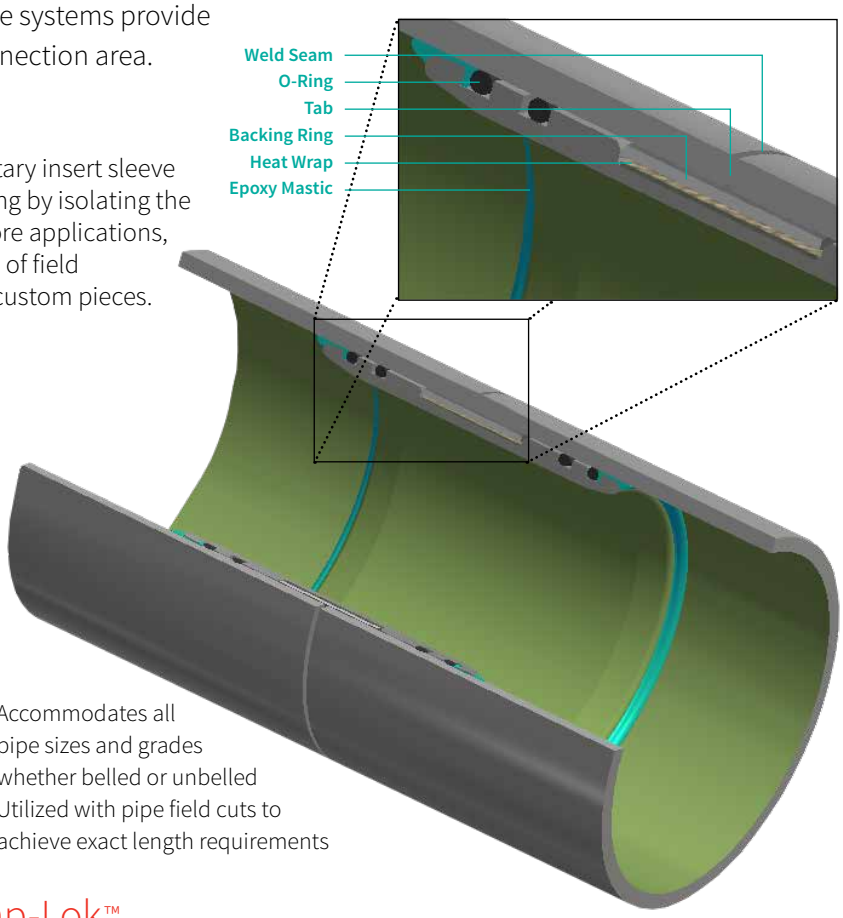
Please contact your local Tuboscope representative for a coating recommendation form

Line Pipe Connection Systems

Protecting the area in and around each connection is critical to pipeline integrity. Tuboscope's Thru-Kote™ UBI sleeve and Zap-Lok™ systems are proven, safe and reliable for internally coated pipeline construction. When used in conjunction with internally coated line pipe these systems provide a continuous coated surface throughout the connection area.

Thru-Kote™ UBI

The original Thru-Kote UBI's system utilizes a proprietary insert sleeve designed to protect the internal coating during welding by isolating the burn-back of coating. Suitable for onshore and offshore applications, this system offers an economical and flexible method of field construction by eliminating expensive fabrication of custom pieces.



Benefits:

- Suitable for all onshore/offshore pipelines worldwide
- Fast and flexible method of field construction
- Compatible with our Tube-Kote Coatings
- Full penetration, 100% X-ray approved
- Compatible with API and ASME requirements
- Accommodates all pipe sizes and grades whether belled or unbelled
- Utilized with pipe field cuts to achieve exact length requirements

Zap-Lok™

Zap-Lok's mechanical connection system enables safe, fast construction speeds for bare or internally coated flow lines, gathering lines, water lines and aided-injection systems. Onshore and offshore, this system replaces the variable performance, reliability and cost of welders and other skilled labor with a highly efficient, hydraulic machine.

Benefits:

- Achieves consistent construction rates
- Eliminates field joint coatings
- Eliminates welding and X-rays
- Reduces fire & safety hazards
- Yields holiday-free external and internal coatings throughout the connection
- Compatible with internal inspection, pigging and cathodic protection

Fast, Field-Proven Installations

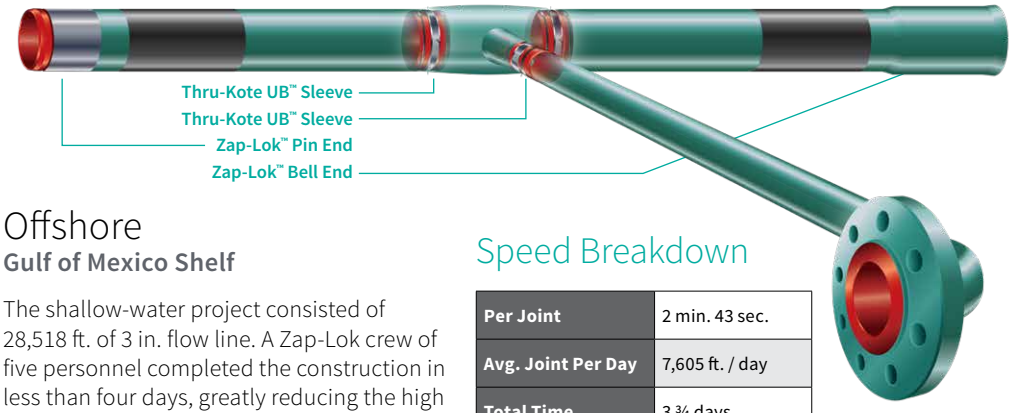
Onshore

West Texas

80,000 ft., 6 in. flow line, installed in West Texas. Zap-Lok crew of six completed and installed, incident-free, in 6 ½ days.

Speed Breakdown

Per Joint	1 min. 55 sec.
Avg. Joint Per Day	12,308 ft. / day
Total Time	6 ½ days



Offshore

Gulf of Mexico Shelf

The shallow-water project consisted of 28,518 ft. of 3 in. flow line. A Zap-Lok crew of five personnel completed the construction in less than four days, greatly reducing the high costs associated with offshore installation.

Speed Breakdown

Per Joint	2 min. 43 sec.
Avg. Joint Per Day	7,605 ft. / day
Total Time	3 ¾ days

TK™-15XT

Modified Novolac *(Powder)*

To 300°F *(149°C)*
10–18 mils *(250–450 µm)*

Acid resistance and higher temperature capabilities while providing a high level of flexibility.

TK™-34P

Epoxy Novolac *(Powder)*

Will withstand all temperatures commonly encountered during drilling, provided circulation is maintained.

6–12 mils *(152–305 µm)*
Drill Pipe

TK™-34XT

Modified Epoxy Phenolic *(Liquid)*

Will withstand all temperatures commonly encountered during drilling, provided circulation is maintained.

5–9 mils *(127–229 µm)*
Drill Pipe

TK™-70

Epoxy *(Powder)*

To 225°F *(107°C)*
10–20 mils *(254–508 µm)*

Highly flexible, thick film corrosion resistant coating.

TK™-70XT

Epoxy *(Powder)*

To 225°F *(107°C)*
10–20 mils *(254–508 µm)*

Highly flexible, thick film corrosion resistant coating for use in high wear applications.

TK™-216

Epoxy *(Powder)*

To 203°F *(95°C)*
6–20 mils *(154–508 µm)*

Suitable for general production environments and water handling systems.

TK™-236

Epoxy Novolac *(Powder)*

To 400°F *(204°C)*
7–15 mils *(175–380 µm)*

High performance corrosion resistant coating, with enhanced corrosive gas resistance.

TK™-805

Epoxy Novolac *(Powder)*

To 305°F *(177°C)*
6–13 mils *(152–330 µm)*

High temperature, high pressure corrosion resistant coating with enhanced wear properties.

Tubular coating application process

Our proprietary application process ensures the superiority of your coatings performance.

Step 1 – Thermal Cleaning

1st Step in coating application process is thermal cleaning of tubulars in a pre-bake oven to remove any residual hydrocarbons.

Step 2 – Blasting

Next step is an abrasive blasting with aluminum oxide that creates an anchor pattern optimal for adhesion.

Step 3 – Primer Application

Proprietary TK™ Primer is applied to the surface in order to provide superior cross linking with our TK™-Coatings.

Step 4 – Powder / Liquid

TK™ coatings are applied before the final heat-curing process. During the final bake thermoset polymers crosslink between primer and top-coat.

Step 5 – Quality Control

Our ISO-based quality program assures coatings are applied consistently and bond securely to meet our extraordinary standards and your specifications.

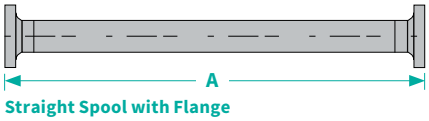
Result

A high-quality, 100% holiday free, tightly adhered and homogenous coating that offers maximum corrosion protection for years to come.

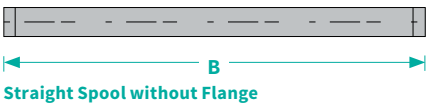
Custom coating

Tuboscope offers a wide range of coating services for spools, fittings and other custom accessories for oil and gas, water and other media.

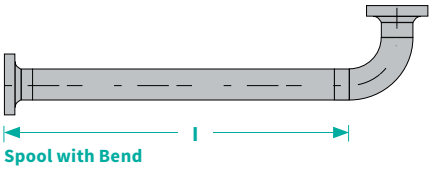
Any spool variations required beyond the images below may be configured with the use of the Thru-Kote Sleeve.



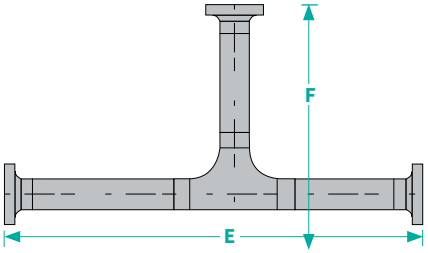
Straight Spool with Flange



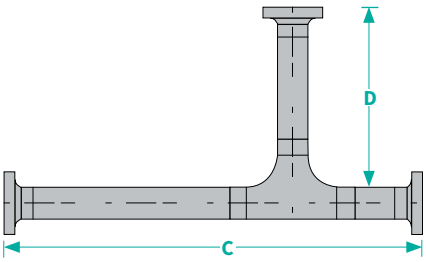
Straight Spool without Flange



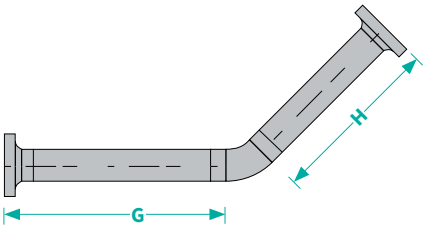
Spool with Bend



Equal or Un-Equal Tee



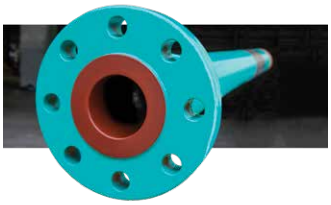
Spool with Branch Connection(s)

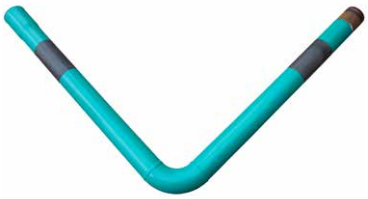


45° or 90° Degree Bend

A – Straight runs with flanges / Zap-Lok™ Connections: 15′

B – Straight runs plain end bevel x plain end bevel: 20′





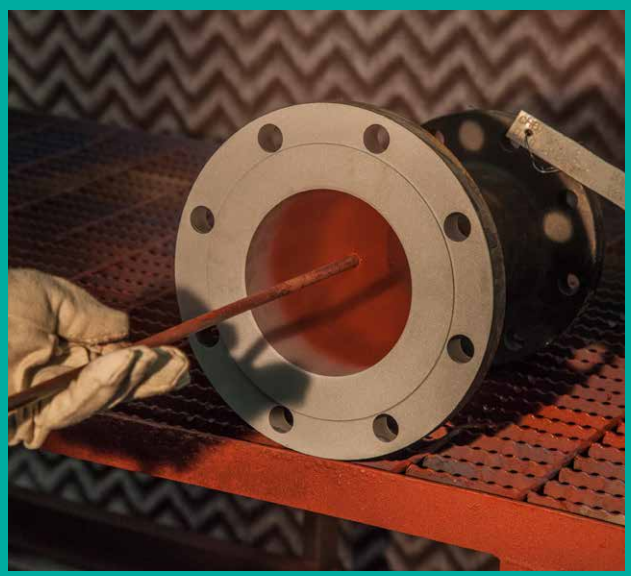
All other custom coating variations will be quoted on a per drawing basis. Please contact your Tuboscope sales rep for an official quote with any available drawings or sketches.

To ensure a complete internally coated system, all spools and fittings must be fitted with a straight extension and a minimum length of 100–150 mm to allow installation of the cylindrical Thru-Kote UB1 sleeve connection.

The system requires pipe end tolerances in accordance with the most current API 5L Specification. For all sizes, diameter measurements of pipe ends can be measured with a plug gauge, snap gauge, caliber or other device that measures the actual inside diameter *(ID)* across a single plane.

Uncoated areas *(cut back)* of the inner surface should be discussed with our quality assurance department. Each fitting or spool requires a straight length of min. 70 mm that can be achieved by welding extension or controlled during the manufacturing process.

The inside pipe and weld seam surface require suitable coating conditions. All welds and similar abrupt contours, such as high and low of adjoining plate of pipe shall exhibit rounded edges, be free of undercutting, sharp edges, porosity, weld splatter or other internal defects that would limit application of a holiday free coating film.



Additional requirements for electric-welded pipes

The inside flash shall not extend above the prolongation of the original inside surface of the pipe, more than 0,25 mm. The depth of groove resulting from removal of the internal flash of electric-welded pipe shall not be greater than 0,25 mm.

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