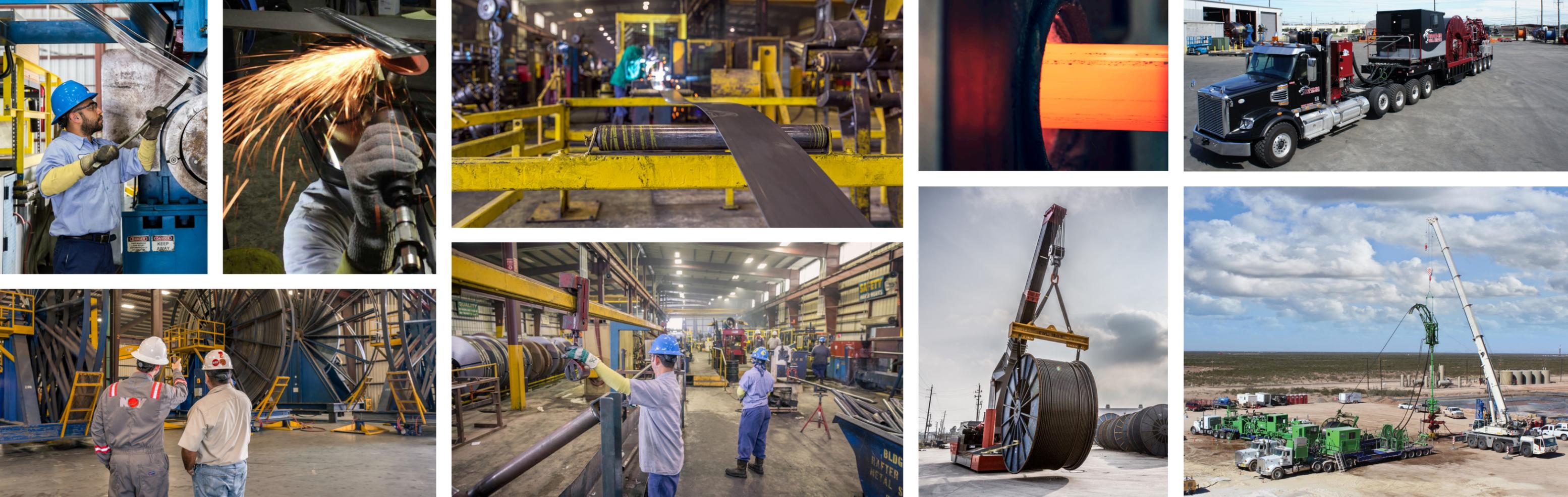


Coiled Tubing Products and Services



Quality Tubing | **NOV**



Quality Tubing has been the leader in coiled tubing manufacturing processes over the past 40 years. Our developments in the welding, manufacturing, and testing of continuously milled tubing result in the highest quality product created to your exact specifications. We deliver product on time that represents the highest standard of workmanship and value to you.

We are more than just a manufacturer of coiled tubing - we are your partner through the entire process. We service the industry with our growing network of service centers, supporting your global operations. Our regional service centers are stocked with finished goods targeted at reducing downtime for your projects around the world. We currently lead the coiled tubing industry in the total number of international service centers. As an additional service, we have established finished goods stocking points based on customer demand.

Product development

Our product development team works to continuously improve our products and our customer service. Partnering with our quality control lab, failure analyses are performed, free of charge, on customer tubing from the field and with short turnaround time compared to a third-party lab. This gets answers to your operational problems and provides recommendations for remediation, getting you running again as quickly as possible.

We also perform low-cycle fatigue testing on various tubing grades and dimensions with our two fatigue test machines. These tests are done in conjunction with CTES, a part of our Intervention and Stimulation Equipment business unit, to continuously improve Cerberus™ fatigue modeling software. Our metallurgists also work closely with Quality Tubing's Welding School to develop and improve procedures and train welders.

In addition to testing, we work closely with you before, during, and after the sale to provide complete string design support and analysis for both land and offshore operations. We can also design and implement test plans for unique projects, perform tubing force analysis and assist with corrosion control and mitigation.

TRUE-TAPER

Originally developed by Quality Tubing in 2000, a TRUE-TAPER™ string comprises individually tapered strips of steel, facilitating the welding of equal gauge material. This reduces stress concentrations, yielding improved fatigue performance.

Recently, we have worked closely with our steel suppliers to develop shorter TRUE-TAPER XR taper sections which allow us to more precisely distribute the string weight in the lateral. Horizontal wells with long laterals require heavy-wall tubing in the vertical section to beyond the heel into the lateral. Once in the lateral, the string wall transition needs to go from heavy to light wall as quickly as possible. Quicker transitions may also result in the reduction of overall string weight, which is always welcome in today's ever-changing and demanding market.

TRUE-TAPER XR is currently available for QT-900 and all grades of ATP coiled tubing.

TRUE-TAPER Advantages

- Internal wall steps at the bias weld eliminated, producing a smoother ID
- Welding similar gauge material eliminates stress concentrations
- Higher usage to pipe in high-cycle and deviated well conditions due to fewer bias welds needed
- Achieve better reach in longer laterals
- Lighter overall string weight

Providing the strings you need for your applications



Our proven processes and dedicated team of metallurgists provide quality coiled tubing that leads to our customers' success and improved confidence within the industry. Through years of research and development and strategic partnerships with leading providers of quench and tempered process equipment, we have developed the most consistent advanced thermally processed (ATP) coiled tubing. ATP coiled tubing offers a major advantage over conventional coiled tubing in a vast range of applications. The normalization of the bias weld to the parent material in ATP coiled tubing eliminates the bias weld fatigue spikes, which are often the number one cause of retirement in the conventional offering.

Advanced Thermally Processed

ATP-140

Mechanical Properties

Minimum Yield Strength, psi (MPa)	140,000 (965)
Minimum Tensile Strength, psi (MPa)	145,000 (1,000)
Maximum Hardness	39 HRC

Available Sizes

Outside Diameter: 1.750 - 2.875 in. (44.5 - 73.025 mm)
Wall Thickness: Up to 0.276 in. (7.01 mm)

ATP-130

Mechanical Properties

Minimum Yield Strength, psi (MPa)	130,000 (896)
Minimum Tensile Strength, psi (MPa)	135,000 (931)
Maximum Hardness	37 HRC

Available Sizes

Outside Diameter: 1.750 - 2.875 in. (44.5 - 88.9 mm)
Wall Thickness: Up to 0.276 in. (7.01 mm)

ATP-120

Mechanical Properties

Minimum Yield Strength, psi (MPa)	120,000 (827)
Minimum Tensile Strength, psi (MPa)	125,000 (862)
Maximum Hardness	33 HRC

Available Sizes

Outside Diameter: 1.750 - 2.875 in. (44.5 - 88.9 mm)
Wall Thickness: Up to 0.276 in. (7.01 mm)

ATP-110

Mechanical Properties

Minimum Yield Strength, psi (MPa)	110,000 (758)
Minimum Tensile Strength, psi (MPa)	116,000 (800)
Maximum Hardness	30 HRC

Available Sizes

Outside Diameter: 1.750 - 2.875 in. (44.5 - 88.9 mm)
Wall Thickness: Up to 0.276 in. (7.01 mm)

Conventional Coiled Tubing

QT-900

Mechanical Properties

Minimum Yield Strength, psi (MPa)	90,000 (621)
Minimum Tensile Strength, psi (MPa)	98,000 (676)
Maximum Hardness	22 HRC

Available Sizes

Outside Diameter: 0.750 - 3.500 in. (19.1 - 88.9 mm)
Wall Thickness: 0.087 - 0.250 in. (2.2 - 6.35 mm)

QT-800

Mechanical Properties

Minimum Yield Strength, psi (MPa)	80,000 (552)
Minimum Tensile Strength, psi (MPa)	90,000 (621)
Maximum Hardness	22 HRC

Available Sizes

Outside Diameter: 0.750 - 3.500 in. (19.1 - 88.9 mm)
Wall Thickness: 0.087 - 0.250 in. (2.2 - 6.35 mm)

Leading number of international service centers and stocking points



In order to continue expanding our customer partnerships, service centers have been strategically placed around the world. As an additional service, we have established finished goods stocking points based on customer demand. Our standards and specifications are upheld at all of our service centers. This standardization assures that you will receive the same level of quality and service as you would from our headquarters, while having a quicker response time in receiving the goods and services.



Inventory, Storage, and Spooling*

We have increased our consignment stock to provide you with the fastest turnaround time available. This stock is designed to meet your specific regional requirements for your operations, providing immediate delivery and improving your operational efficiency. In addition to storing specific stock strings, we also store used strings and spare reels for future use. Whether you need a new string spooled on or an old one spooled off, spooling services are available at all of our service centers.

Maintenance Programs and Preventative Measures*

Regularly scheduled maintenance increases the reliability and longevity of your strings in addition to minimizing costly and disruptive downtime while on the job. We offer maintenance programs that extend your strings' life expectancy and can detect possibly damaged or highly-fatigued areas of the string.

Special Projects*

We have the equipment and most experience to promptly help with your special projects. These projects could include wireline installation, removal and inspection, concentric string arrangements, and capillary installment.

String Repair and Welding*

For repairs, we work with you to determine how much tubing should be removed. A new section of like-grade tubing will be added, or the remaining sections will be joined together with a tube-to-tube weld. We have a team of welders with a combined 45 years of service who can come to your site to support your needs for welding needs in the field.

Testing and Inspections*

Full-body electromagnetic inspection determines wall thickness and dimensional changes of the string. Visual and dimensional inspections detect outer surface problems by using calibrated micrometers and compression wave ultrasonic equipment. Tube-to-tube weld nondestructive testing is performed by radiographic, liquid penetrant inspection, and ultrasonic inspection. Hydrostatic testing uses treated water and subsequent flushing to check weld seam integrity.

*Some services not available at all locations. For more information, contact your Quality Tubing sales representative.

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