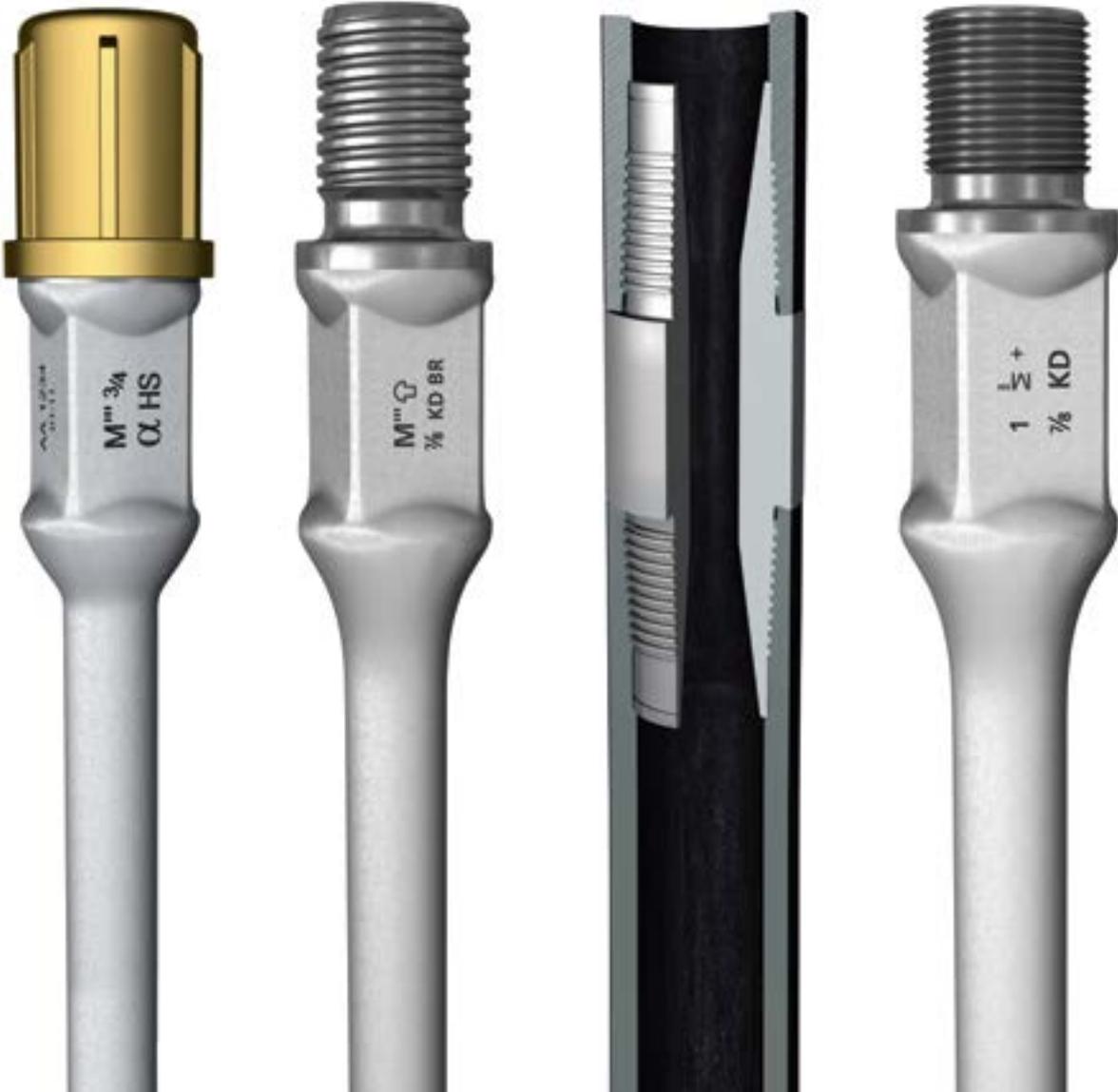


# Sucker Rods





# Who we are

*Tenaris is a leading supplier of tubes and related services for the world's energy industry.*

Our mission is to deliver value to our customers through product development, manufacturing excellence and supply chain management. We seek to minimize risk for our customers and help them reduce costs, increase flexibility and improve time-to-market.

Tenaris employees around the world are committed to continuous improvement by sharing knowledge across a single global organization.

Through our integrated global network of manufacturing, R&D and service facilities, we work with our customers to meet their needs for the timely supply of high-performance products in increasingly complex operating environments.

## Sucker Rods

**+45 years**  
worldwide experience

**5 countries**  
with production facilities:  
Argentina, Brazil, Mexico,  
Romania and USA.

**+4 million**  
units production capacity



Tenaris' sucker rods and accessories are designed to efficiently respond to challenging operating conditions.

# Fully integrated manufacturing process

Tenaris manufactures sucker rods in a fully integrated industrial process. With production and service centers strategically located, we meet the growing demand of our customers all over the world.

From the production of steel as a raw material to the threading of each sucker rod, the entire process takes place in our own manufacturing centers. Located in Villa Mercedes (Argentina), Pindamonhangaba (Brazil), Veracruz (Mexico), Campina (Romania) and Conroe (USA), these state-of-the-art plants are equipped to manufacture Tenaris's full line AlphaRod® Series, HolloRod™ Series, BlueRod®, X-Torque, High Strength and API sucker rods.

Tenaris' sucker rods and accessories are designed to efficiently respond to challenging operating conditions, including high loads, corrosive environments and applications where control of tubing/rod friction is required.

Manufactured to the most stringent quality standards, all product lines comply with ISO 9001 and API Q1 specifications. A single quality policy and the enforcement of a rigorous quality management system ensure homogeneous quality across all facilities. Quality control procedures include statistical process controls, daily process/product audits and sucker rods traceability systems.

Each individual rod is straightened, while its entire surface is inspected by Non Destructive Testing (NDT) equipment that can detect any potential transversal or longitudinal defects in accordance with API criteria. Internal ultrasonic tests are also performed. Additionally, all Tenaris sucker rods undergo a shot peening process that compresses their external surface to improve fatigue resistance.

Our state-of-the-art manufacturing mill in Veracruz, Mexico.



Leading steel manufacturer

Sucker rods and accessories for the most challenging operation conditions

Highest quality standards and controls.

# Delivering value for customers

Tenaris offers a wide range of services that add value through customized supply, operational, administrative and technical solutions for our customer's operations.

## STRING DESIGN OPTIMIZATION

Full assistance in identifying the optimum string design for each particular application, using advanced simulation software.

## JUST-IN-TIME DELIVERY AND INVENTORY MANAGEMENT

Just-in-time delivery of materials and full inventory management services, thanks to our global network of customer service centers, combined with our logistics expertise.

## RUNNING SUPERVISION

Specialized service that includes trained personnel for the supervision of handling, thread cleaning, make-up and torque control activities, ensuring compliance with best practices. Deployment of advanced hydraulic power tongs for optimal make-up operation and torque control analysis.

## TECHNICAL ASSISTANCE

During installation, Tenaris's field engineers are trained to assist customers and address any technical doubts that could arise in the field.

## TRAINING

Classroom or in-field training services on product selection, string design, material handling and other aspects of the installation and operation of sucker rods.

## FAILURE ANALYSIS

In our state-of-the-art laboratories, we analyze the mechanical and dimensional properties of materials, as well as the corrosion effects on them. The resulting data is used to effectively diagnose the cause of failure.

## MATERIAL OPTIMIZATION SERVICE (MOS)

Designed to improve sucker rod performance and to reduce well interventions, our MOS is based on an integral analysis of the problematic field or area. Following the completion of field surveys, interviewing of key customers and statistical analysis of well intervention history, our experts will propose detailed technical recommendations, covering material selection, string design and operational practices, and assist with their implementation.

## Customized Services



FULLY INTEGRATED MANUFACTURING, PRODUCT DEVELOPMENT & LOGISTICS

# A product for each need

Tenaris manufactures the industry's most comprehensive range of sucker rods for demanding well conditions.

## ALPHAROD® SERIES



The AlphaRod® Series was created to overcome more demanding requirements and offer a solution to fatigue and corrosion fatigue problems. The new steel grades of the AlphaRod® generation were specially designed to widely exceed the performance of API and HS steel grades under critical conditions.

## BLUEROD® PREMIUM SUCKER ROD



The total capacity of the sucker rod string depends mostly on the connection capacity.

Up to now, a high percentage of conventional pumping failures were traceable to this part of the rods. BlueRod® design, with a tapered trapezium thread profile and flank-to-flank contact, offers remarkable resistance for high loads, opening up a new frontier for oil pumping operations.

## HOLLOROD™ SERIES



Tenaris R&D team developed the HollowRod™ Series, a technological breakthrough especially designed to resist high-torsion loads. The HollowRod™ reduces connection failure, tubing wear, and backspin effect, and enables injection of chemical corrosion inhibitors or viscosity-reduction fluids down the inside of the rod. In the last years, the use of HollowRod™ was expanded to other applications like RP, deliquification, gas lift applications, heavy oil production, paraffin control and special operations. The HollowRod™ family includes several models with different torque capacities.

## X-TORQUE ROD

X-Torque rods, specially designed for progressive cavity pumping (PCP) applications in the most demanding environments, offer increased torque capacity by incorporating a modified pin end with a larger threaded section than conventional rods. X-Torque rods are full-length heat treated – producing a high-quality, refined and homogenized steel grain structure as a result. They are available in API, AlphaRod® and high-strength steel grades.



## HIGH STRENGTH ROD

Tenaris manufactures high strength sucker rods from quality steel bars to be used in high-flow wells. They meet the most stringent requirements for greater mechanical strength, thus ensuring quality performance in deep wells with very high loads. There are two options that vary depending on the chemical composition and heat treatment: Ultra High Strength (UHS) rod, and Ultra High Strength Special (MMS) rod.



## CONVENTIONAL ROD

Tenaris delivers API sucker rods for both beam and progressive cavity pumping. Available in different steel grades, depending on the type of load and the corrosion level in the wells.



# The complete rod string kit

Tenaris offers a wide range of high quality products to complete the rod string and increase its lifespan and performance.

## ROD GUIDES

Each year, oil field operators using Beam Pumping (BP) and Progressive Cavity Pumping (PCP) systems increase operational costs associated with rod/tubing friction and paraffin deposition in production tubing.

Tenaris has developed a series of rod guides that are molded directly onto the rod body to control this threat. Our rod guides come in a wide range of materials specifically selected to ensure their optimum performance and long lifespan: Polyamide 66, Poliphenylene Sulfide (PPS) and Polyphthalamide (PPA).



### TenFlow™ Rod Guide

Tenaris TenFlow™ is a new High Performance Rod Guide for BP applications. With the best hydrodynamic features, it is capable of reducing turbulence to the minimum with the highest Erodible Wear Volume (EWV) that can be found in a rod guide today.



### Helix™ Rod Guide

The new design of the Helix™ Rod Guide has a helical fin geometry, turning it into an excellent solution as a mechanical remover of paraffin and/or for wells without string rotators.

## COUPLINGS

We provide a complete line of couplings and subcouplings for sucker rods and polished rods. They are available in reduced slim-hole (SH) diameters and normal full size (FS) diameters for both API and high-strength (UHS) versions.

The new AlphaRod® couplings incorporate the CS, SM and HS grades with a specially designed steel to be the best partner of the AlphaRod® series.

### Spray Metal Couplings

Spray Metal is a superficial hardening process in which a nickel, chrome, boron and silicon based powder is applied on the base metal and later melted, resulting in a hard, dense and uniform surface with a very low friction coefficient and high corrosion resistance.



### Guided Couplings

Tenaris produces guided couplings for beam pumping and progressive cavity pumping. They can be injected with material to work under high or low temperatures.

## PONY RODS

Pony rods are used to space out the sucker rod installation. They are available for each steel grade, rod body diameter and thread.

## SINKER BARS

Used to maintain an optimized string design in beam pumping applications and to avoid premature failures in the installation. Very effective for reducing failures in rod body, pins and coupling, which occur due to the effect of compression and buckling in the string.

## ACCESSORIES FOR HOLLOROD™ SERIES

Tenaris offers a wide range of high-quality accessories to complement its line of HolloRod™ Series rods: HolloRod™ Nipple; HolloRod™ / API thread Crossover; HolloRod™ / HolloRod™ Crossover; Injection Swivel; Check valve; Polished Hollow Rod and Slotted Pup Joint.



# Steel grades to meet every demand

*Tenaris has developed different proprietary product lines that offer a wide range of solutions both for conventional and non-conventional wells.*

## ALPHAROD® SERIES

Manufactured in different steel grades (low alloy carbon steels with special addition of chromium, molybdenum, nickel and/or micro alloy addition of niobium and boron) and dedicated heat treatment.

## ULTRA HIGH STRENGTH SPECIAL (MMS)

Manufactured in AISI 4138 Mod. steel to provide high mechanical strength. Produced from a chromium-molybdenum alloy steel with no nickel. Recommended for deep well applications with high loads. Non-corrosive wells.

## ULTRA HIGH STRENGTH (UHS)

Manufactured in AISI 4330 Mod. alloy steel, with nickel-chrome and molybdenum. Recommended for non-corrosive wells with very high loads.

## STANDARD STEEL GRADES

API sucker rods are manufactured in standard steel grades - Grades C, K, D Carbon, D Alloy, KD and D Special - suiting varying load types and corrosion levels.

## TENARIS GRADES FOR PREMIUM PRODUCTS

For BlueRod® products, three grade options are available to suit different service conditions: D BlueRod®, KD BlueRod® and AlphaRod® CS.

HolloRod™ Series products are manufactured from seamless pipes with different steel grades (low alloy carbon steels with special addition of chromium, molybdenum, nickel and/or micro alloy addition of niobium and boron) and dedicated heat treatment.



Our experienced specialists are always on hand to assess our customers' operational needs.

[www.tenaris.com/suckerrods](http://www.tenaris.com/suckerrods)



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