

## Products & Services for E&P operations



# Tenaris

Tubular technologies. Innovative services.

Tenaris is a leading supplier of tubes and related services for the world's energy industry and certain other industrial applications. Our mission is to deliver value to our customers through product development, manufacturing excellence, and supply chain management. We 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.

For additional information please visit us at [www.tenaris.com](http://www.tenaris.com)





# Delivering Value for Customers

Tenaris offers an integral product and service package.

## Full Product Range

We design and manufacture a comprehensive range of high quality seamless and welded casing and tubing, drill pipe, premium connections, coiled tubing pipe accessories and sucker rods for use in even the most demanding oil and gas drilling and well completion activities. At our state-of-the-art integrated manufacturing facilities, we can produce seamless steel pipe from 1 1/3" to 24 1/2" (outside diameters). We also produce most steel grades including 13 chrome and other high alloy grades and our own proprietary steel grades.

## Reliable Product Quality

All our products are manufactured to the most exacting quality standards. We hold a global ISO 9001 registration for our operations, which follow a uniform quality policy and apply rigorous quality management systems. Quality control procedures include statistical process controls, daily process and product audits and tube traceability systems.

## Leading Product Technology

Ensuring that we have the right products to meet our customers' needs is a permanent objective. By sharing knowledge and resources across our mills and using our specialized research and testing centers

in Italy, Japan, Mexico and Argentina, we are able to develop and improve our range of specialized products to meet the requirements of today's increasingly demanding well conditions.

## Added Value Services

Using our global network of customer service centers and our logistics expertise, we offer a wide range of services from well design programming to well installation. Our services include full analysis of material selection, string design and running assistance in order to identify the most appropriate product for your particular drilling environment.

# Full Product Range

We supply seamless and welded tubular products with sizes for all phases of oil and gas drilling and well completion.

OCTG DIMENSIONAL RANGE																
OD (in.)		1.315	1.660	1.900	2.063	2 3/8	2 7/8	3 1/2	4	4 1/2	5	5 1/2	6 5/8	7	7 5/8	7 3/4
Nominal weights (lb/ft)	From	1.70	2.30	2.75	3.24	4.00	6.40	6.50	8.20	9.50	11.50	14.00	20.00	17.00	24.00	46.10
	To	2.19	3.24	4.19	4.50	7.70	11.65	17.05	22.50	26.50	34.00	43.10	65.80	63.90	70.70	56.10
	From	24.00	32.30	62.80	32.75	42.00	58.80	57.60	48.00	80.40	88.20	82.50	65.00	87.50	94.00	133.00
	To	90.00	91.00	72.10	108.70	119.90	71.80	137.90	145.60	81.40	105.00	120.00	147.30	139.00	169.00	207.00

Find more information at: [www.tenaris.com/oilfield](http://www.tenaris.com/oilfield)

## Steel Grades

Tenaris focuses on developing a broad range of proprietary steel grades to service the most demanding well conditions, from severe sour environments to high external pressure conditions and deep wells.

### Severe Sour Service

Designed for a range of sour environments up to the most severe, with higher resistance to sulfide stress corrosion cracking.

### High Collapse Service

Designed for wells where high external pressures are anticipated, through the optimization of tubular collapse performance.

### High Collapse & Sour Service

Designed for oil and gas wells, where high external pressures in sour environments are anticipated.

### Deep Well Service

Designed for deep wells, where added strength with good ductility and fracture toughness is required.

### Critical Service

Designed for specific mild CO<sub>2</sub> environments, giving a cost effective alternative as an optional carbon steel for sweet corrosion, where CRA is not economically justified.

### Low Temperature Service

Proprietary grades with improved fracture toughness designed to be used in low temperatures, such as Arctic regions.

### High Ductility

Designed for expandable applications.

### Thermal Service

Designed for the production of high density oil under severe thermal service wells.

TENARIS PROPRIETARY STEEL GRADES															
SMYS [Ksi]	45	55	60	70	75	80	90	95	100	110	125	135	140	150	
Sour Service						TN 80 S	TN 90 S	TN 95 S							
Severe Sour Service						TN 80 SS	TN 90 SS	TN 95 SS	TN 100 SS	TN 110 SS	TN 125 SS				
High Collapse Service						TN 80 HC		TN 95 HC		TN 110 HC	TN 125 HC		TN 140 HC		
High Collapse Service & Sour Service						TN 80 HS		TN 95 HS	TN 100 HS	TN 110 HS					
Deep Well Service													TN 135 DW	TN 140 DW	TN 150 DW
Critical Service		TN 55 CS		TN 70 CS	TN 75 CS	TN 80 Cr3		TN 95 Cr3		TN 110 Cr3					
Low Temperature Service		TN 55 LT				TN 80 LT		TN 95 LT		TN 110 LT	TN 125 LT				
High Ductility	TN 45 HD		TN 60 HD	TN 70 HD											
Thermal Service		TN 55 TH				TN 80 TH									

API GRADES MANUFACTURED BY TENARIS								
SMYS [Ksi]	40	55	65	80	90	95	110	125
Group 1	H40	J55, K55				R95		
Group 2			M65		L80.1, L80 13Cr	C90.1	T95.1	C110
Group 3								P110
Group 4					Q125			

Find more information at: [www.tenaris.com/oilfield](http://www.tenaris.com/oilfield)

# TenarisHydril Premium Connections

## Application Guide

SURFACE CASING	INTERMEDIATE CASING	PRODUCTION CASING AND TIE-BACKS	LINERS
<b>Threaded &amp; Coupled</b> Wedge 563™ (*) ER™  <b>Integral</b> Wedge 523™ (*) Wedge 521™ (*) Wedge 513™ (*) Wedge 511™ (*)	<b>Threaded &amp; Coupled</b> Blue™ (*) Wedge 563™ (*) 3SB™ MST™ HW™  <b>Integral</b> Blue™ Near Flush (*) Wedge 523™ (*) Wedge 521™ (*) SLX™ (*) MACII™ (*)	<b>Threaded &amp; Coupled</b> Blue™ (*) Wedge 563™ (*) 3SB™ MST™  <b>Integral</b> Blue™ Near Flush (*) Wedge 523™ (*) Wedge 513™ (*) SLX™ (*) MACII™ (*)	<b>Conventional Liners</b> Blue™ (*) Blue™ Near Flush (*) Wedge 523™ (*) Wedge 521™ (*) Wedge 513™ (*) Wedge 511™ (*) SLX™  <b>Rotating Liners</b> Blue™ (*) Blue™ Thermal Liner (***) Wedge 563™ (*) Wedge 523™ (*) Wedge 521™ (*) Wedge 513™ (*) Wedge 511™ (*)
HORIZONTAL AND EXTENDED REACH WELLS	THERMAL WELLS	PRODUCTION TUBING	WORKSTRINGS
<b>Threaded &amp; Coupled</b> Blue™ (*) Blue™ Thermal Liner (***) Wedge 563™ (*) Wedge 561™ (*)  <b>Integral</b> Wedge 523™ (*) Wedge 521™ (*) Wedge 513™ (*) Wedge 511™ (*)	<b>Casing/Liners - Metal Seal</b> Blue™ (*) Wedge 563™ (*)  <b>Casing/Liners - Thread Seal</b> Blue™ Thermal Liner (***) ER™  <b>Slotted Pipes, SAGD</b> Blue™ Thermal Liner (***) Wedge 521™ (*) Wedge 511™ (*)  <b>Production Tubing</b> Wedge 503™ (*) Blue™ (*) Blue™ Thermal Liner (***) Wedge 511™ (*)	<b>Metal Seal</b> Blue™ (*) Wedge 563™ (*) Wedge 533™ (*) Wedge 503™ (*) Wedge 553™ (*) PH4™ (*) PH6™ (*) CS® (*) PJD™ 3SB™ MST™	<b>Metal Seal</b> PH4™ (*) PH6™ (*) CS® (*) PJD™ Wedge 553™ (*)  <b>Thread Seal</b> Wedge 561™ (**) Wedge 531™ (**) Wedge 501™ (**) Wedge 551™ (**) Wedge 511™ (*) Wedge 563™ (*)
DRILLING WITH CASING	INTERNAL COATING	DRILLING WITH TUBING	HP/HT AND DEEP WELLS
<b>Threaded &amp; Coupled</b> Blue™ (*) Blue™ Thermal Liner (***) Wedge 563™ (*) ER™  <b>Integral</b> Wedge 523™ (*) Wedge 521™ (*) Wedge 513™ (*) Wedge 511™ (*)	Wedge 563™ (*) Wedge 533™ (*) Wedge 553™ (*) PH4™ (*) PH6™ (*) CS® (*)	<b>Threaded &amp; Coupled</b> Wedge 563™ (*) Blue™ (*)  <b>Integral</b> Wedge 533™ (*) Wedge 553™ (*) PH4™ (*) PH6™ (*) CS® (*) PJD™	<b>Threaded &amp; Coupled</b> <b>Heavy Wall</b> Blue™ (*)                      HW™ Wedge 563™ (*)              MACII™ (*)  <b>Integral</b> Blue™ Near Flush (*) Wedge 523™ (*) Wedge 521™ (*) Wedge 513™ (*) Wedge 511™ (*) SLX™ (*)

(\*) Dopeless® technology available. (\*\*) Connection technology information available at [www.tenaris.com/tenarishydril](http://www.tenaris.com/tenarishydril).

(\*\*\*) TenarisHydril Blue™ Thermal liner was formerly known as TenarisHydril Blue™ SAGD.

# Connections Nomenclature

TECHNOLOGY	ACRONYMS
<b>Blue™ Series</b>	
TenarisHydril Blue™	TSH BLUE
TenarisHydril Blue™ Dopeless®	TSH BLUE-DPLS
TenarisHydril Blue™ Matched Strength	TSH BLUE-MS
TenarisHydril Blue™ Special Clearance	TSH BLUE-SC
TenarisHydril Blue™ Special Bevel	TSH BLUE-SB
TenarisHydril Blue™ Corrosion Barrier	TSH BLUE-CB
TenarisHydril Blue™ Thermal Liner	TSH BTL
TenarisHydril Blue™ Thermal Liner Special Clearance	TSH BTL-SC
TenarisHydril Blue™ Thermal Liner Special Bevel	TSH BTL-SB
TenarisHydril Blue™ Near Flush	TSH BNF
TenarisHydril Blue™ Near Flush Dopeless®	TSH BNF-DPLS
<b>Wedge Series 500™</b>	
TenarisHydril Wedge 563™	TSH W563
TenarisHydril Wedge 563™ Dopeless®	TSH W563-DPLS
TenarisHydril Wedge 563™ Matched Strength	TSH W563-MS
TenarisHydril Wedge 563™ Corrosion Barrier	TSH W563-CB
TenarisHydril Wedge 563™ Recess Free Bore	TSH W563-RFB
TenarisHydril Wedge 523™	TSH W523
TenarisHydril Wedge 523™ Dopeless®	TSH W523-DPLS
TenarisHydril Wedge 521™	TSH W521
TenarisHydril Wedge 521™ Dopeless®	TSH W521-DPLS
TenarisHydril Wedge 513™	TSH W513
TenarisHydril Wedge 513™ Dopeless®	TSH W513-DPLS
TenarisHydril Wedge 511™	TSH W511
TenarisHydril Wedge 511™ Dopeless®	TSH W511-DPLS
TenarisHydril Wedge 533™	TSH W533
TenarisHydril Wedge 533™ Dopeless®	TSH W533-DPLS
TenarisHydril Wedge 533™ Corrosion Barrier	TSH W533-CB
TenarisHydril Wedge 503™	TSH W503
TenarisHydril Wedge 503™ Dopeless®	TSH W503-DPLS
TenarisHydril Wedge 553™	TSH W553
TenarisHydril Wedge 553™ Dopeless®	TSH W553-DPLS
TenarisHydril Wedge 553™ Corrosion Barrier	TSH W553-CB

TECHNOLOGY	ACRONYMS
<b>Legacy Series</b>	
TenarisHydril 3SB™	TSH 3SB
TenarisHydril 3SB™ Special Clearance	TSH 3SB-SC
TenarisHydril 3SB™ Special Bevel	TSH 3SB-SB
TenarisHydril MS™	TSH MS
TenarisHydril MS™ Matched Strength	TSH MS-MS
TenarisHydril MS™ Special Clearance	TSH MS-SC
TenarisHydril MS™ Special Bevel	TSH MS-SB
TenarisHydril HW™	TSH HW
TenarisHydril HW™ Special Bevel	TSH HW-SB
TenarisHydril HW™ Special Clearance	TSH HW-SC
TenarisHydril ER™	TSH ER
TenarisHydril ER™ Matched Strength	TSH ER-MS
TenarisHydril ER™ Special Clearance	TSH ER-SC
TenarisHydril ER™ Special Bevel	TSH ER-SB
TenarisHydril PJD™	TSH PJD
TenarisHydril PJD™ Corrosion Barrier	TSH PJD-CB
TenarisHydril SLX™	TSH SLX
TenarisHydril SLX™ Dopeless®	TSH SLX-DPLS
TenarisHydril MACII™	TSH MACII
TenarisHydril MACII™ Dopeless®	TSH MACII-DPLS
TenarisHydril PH4™	TSH PH4
TenarisHydril PH4™ Dopeless®	TSH PH4-DPLS
TenarisHydril PH4™ Corrosion Barrier	TSH PH4-CB
TenarisHydril PH6™	TSH PH6
TenarisHydril PH6™ Dopeless®	TSH PH6-DPLS
TenarisHydril PH6™ Corrosion Barrier	TSH PH6-CB
TenarisHydril CS®	TSH CS
TenarisHydril CS® Dopeless®	TSH CS-DPLS
TenarisHydril CS® Corrosion Barrier	TSH CS-CB



# Tubular Services

Tenaris works closely with its customers to offer services to suit their particular drilling operations.

Based on Tenaris's unique capabilities, we focus on providing comprehensive packages of products and services, increasing the value of Tenaris products by simplifying operations, adding flexibility, reducing total costs, and handling logistics so customers can focus on their core business.

Using our global network of customer service centers and logistics expertise, we work closely with our customers to manage their tubular requirements providing full invento-

ry management services, just-in-time delivery to the rig, procurement of accessories management and preparation of assemblies, as well as rig returns handling, inspection and repair services.


We offer different types of technical assistance to complete the service package deal for all stages of your E&P operations.

Our services include interaction on daily operations, customized solutions, suppliers evaluation and string design assistance to identify the most suitable products for every well environment.

## Product Information

On our website customers can find casing and tubing performance data to view connections sizes, torque values and steel grade availability.

Through this material selector we guide our customers to select the appropriate materials for their well conditions. This tool allows for a preliminary evaluation of materials that can be useful before starting a technical analysis with a Tenaris technical expert.



### Casing and Tubing Performance Data

Choose pipe size, weight and grade to view connection options and performance data.

**PRODUCT**  
Wedge 563™ Casing

**PIPE SELECTION DATA**

Unit: SI unit  
Size: 139.700  
Wall (Weight, kg/m): 12.090 (38.63)  
Grade: TN 80C13  
Connection: Wedge 563™ Casing

**Options**

- > Printer friendly version
- > E-mail results
- > View list of grade codes
- > TenarisHydril Homepage

PIPE BODY DATA			
Nominal OD	139.700 mm	Nominal Weight	38.69 kg/m
Drift Diameter	112.344 mm	Special Drift Diameter	114.300 mm
Collapse	87200 kN	Body Yield Strength	2.3 x1000 kN
Plain End Weight	38.04 kg/m	Internal Yield	83600 kN
		Yield Torque	90800 N-m

WEDGE 563™ CASING CONNECTION DATA			
Regular OD	155.575 mm	Pin ID (Bore)	114.349 mm
Threads per m	3.06	Critical Section Area	4249.7 sq. mm
Compression Rating	3.7 x1000 kN	Bending	82 °/1000 ft
Parting Load	2.8 x1000 kN	100% Special Clearance OD	153.848 mm
Regular OD Tension Efficiency	89.7 %	Compression Efficiency	100.0 %
		Joint Yield Strength	2.4 x1000 kN

MAKE-UP TORQUES		
Minimum	14900 N-m	Target
Yield Torque	36600 N-m	Maximum
		N/A N-m

BUCK-ON TORQUES	
Minimum	23400 N-m
Maximum	23800 N-m

BLANKING DIMENSIONS		
Pin ID	113.868 (+0.254) mm	Pin OD
		139.700 mm (min)
Box OD	155.575 (+0.508) mm	



For contact information, please visit our website:

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