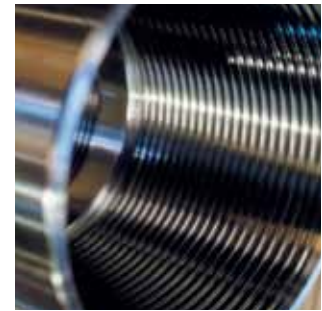




 **Tenaris**Hydri

Premium Connections  
for Demanding  
Environments



# TenarisHydril

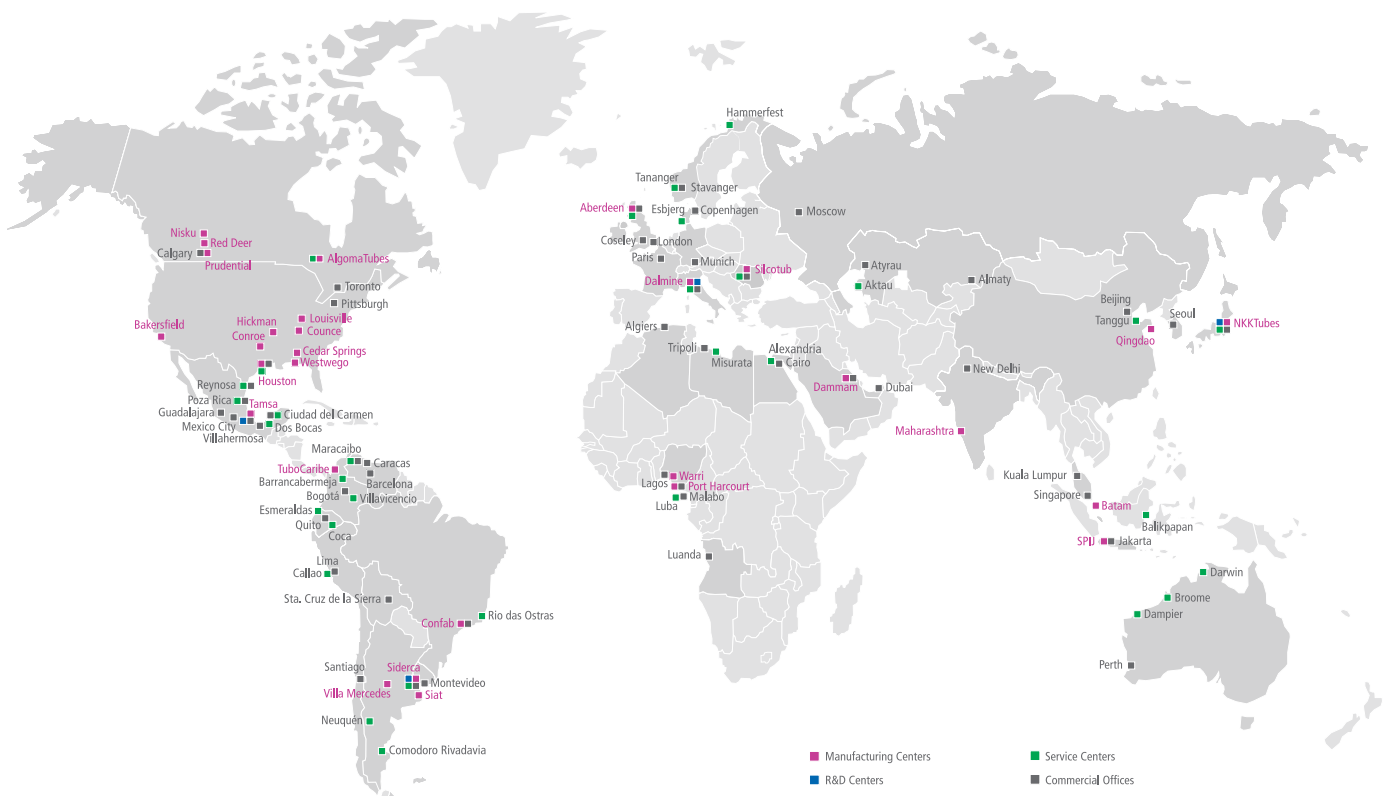
TenarisHydril offers outstanding premium connection design and technology worldwide. With a comprehensive range of high performance products backed by an extensive global field service network and licensed

threading shops, we develop solutions to meet the needs of any E&P operations.

TenarisHydril premium connections are provided and supported by Tenaris, a leading manufacturer

and supplier of steel tubes and integrated tubular services to the world's energy industry.

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



# Design & Technology

TenarisHydril offers a comprehensive range of outstanding and proven products designed to meet the requirements of even the most challenging applications.

## Blue™ Series

Our Blue™ Series incorporates the most advanced premium connection technology available. Designed for the most complex and environmentally sensitive wells and for testing under ISO 13679 CAL IV, these connections are the perfect choice for HP/HT drilling operations all around the world.

Including coupled and integral configurations plus our Dopeless® option, Blue™ Series connections reduce drilling risk by providing performance you can rely on when you most need it.

## Dopeless®

Dope-free products can provide substantial operational and HSE benefits in complex conditions.

Our Dopeless® technology is a dry, multi-functional coating which is applied through a controlled industrial process.

Originally developed in response to stringent environmental requirements for offshore operations in Norway, Dopeless® technology has the potential to transform drilling and completion operations in



the most complex and sensitive environments. It is also an ideal choice for operations that lack infrastructure, where ease of handling, preparation and installation reduces risk and costs.

## Wedge Series 500™

Specifically designed for use where torque strength is critical, our Wedge Series 500™ connections provide superior compression and bending resistance and also several times the torque strength of most competing technologies. They are used in demanding applications from highly deviated wells to strings that must be rotated and pushed into place.

Wedge Series 500™ connections reliably perform even on pipes with thin walls.

They are perfect for tight clearance applications like lean profile, which generates cost savings for our customers, due to their slim profile and compression, torque and bending capacity. Wedge Series 500™ connections are available in flush, near flush, upset and threaded and coupled configurations, with or without metal-to-metal seals.

## Legacy Series

TenarisHydril products have been at the forefront of premium connection design and technology for the past 60 years. Our Legacy Series includes tried and proven performers which have provided many years of reliable service in challenging drilling environments around the world.



# Tubular Services

Tenaris works closely with its customers to offer comprehensive solutions to manage their tubular requirements worldwide.

In addition to the field services and repair shops network, Tenaris has expanded its support for its customers by offering comprehensive services that add value through customized supply, operational, administrative and technical solutions for E&P operations.

We cover all stages in well operations, from string design to remnant management.

Our global Technical Sales team helps customers identify the most appropriate solution for their operations. Through our unique manufacturing network of licensed threading, repair shops and service centers, Tenaris supplies a wide variety of premium products, services and field experts to assist with well installations and inspections worldwide.

The full menu of tubular services comprises: technical services, inventory handling, field services, operation & production consultancy and remnant & post-installation activities.

Whether you are interested in one service or many, you can be assured of our single purpose - to add value to your well operations.

# Quality & Manufacturing

TenarisHydril connections are manufactured under Tenaris standards resulting in a consistent worldwide quality management system.

Our presence in more than twenty five countries, grants us greater flexibility to adapt to our customers' needs.

By manufacturing premium connections as part of an integrated process of pipe design, production, treatment and finishing, we ensure our products' quality to our customers. We also respond

promptly and flexibly to changes in required specifications and other unexpected conditions while maintaining the highest quality standards expected by the industry.

For further information about the licensed threading shops, their qualifications and capacity, please visit us at [www.tenaris.com](http://www.tenaris.com)



# Application Guide

## Functional Applications

SURFACE & INTERMEDIATE CASING	PRODUCTION CASING, TIE-BACKS & LINERS	PRODUCTION TUBING
<b>Threaded &amp; Coupled</b>	<b>Threaded &amp; Coupled</b>	<b>Threaded &amp; Coupled</b>
Blue™ (*)	Blue™ (*)	Blue™ (*)
Wedge 563™ (*)	Wedge 563™ (*)	Wedge 563™ (*)
HW™		
ER™ (*)		
<b>Integral</b>	<b>Integral</b>	<b>Integral</b>
Wedge 523™ (*)	Blue™ Near Flush (*)	Wedge 513™ (*)
Wedge 521™ (*)	Wedge 523™ (*)	Wedge 533™ (*)
Wedge 513™ (*)	Wedge 513™ (*)	
Wedge 511™ (*)		

## Operational Applications

HP/HT & DEEP WELLS	HORIZONTAL & EXTENDED REACH WELS	SHALES	CASING WHILE DRILLING
<b>Threaded &amp; Coupled</b>	<b>Threaded &amp; Coupled</b>	<b>Threaded &amp; Coupled</b>	<b>Threaded &amp; Coupled</b>
Blue™ (*)	Blue™ (*)	Blue™ (*)	Blue™ (*)
Wedge 563™ (*)	Wedge 563™ (*)	Wedge 563™ (*)	Wedge 563™ (*)
		TXP™ Buttress (*) (**)	ER™ (*)
<b>Integral</b>	<b>Integral</b>	<b>Integral</b>	TXP™ Buttress (*) (**)
Blue™ Near Flush (*)	Wedge 523™ (*)	Wedge 523™ (*)	<b>Integral</b>
Wedge 523™ (*)	Wedge 521™ (*)	Wedge 513™ (*)	Wedge 533™ (*)
Wedge 513™ (*)	Wedge 513™ (*)	Wedge 625™ (*)	Wedge 523™ (*)
	Wedge 511™ (*)		Wedge 521™ (*)
<b>Heavy wall</b>			Wedge 513™ (*)
HW™			Wedge 511™ (*)
MACII™			
WORKSTRINGS	CORROSION PROTECTION & ID COATING	SAGD & CSS	GEOTHERMAL
<b>Threaded &amp; Coupled</b>	<b>Threaded &amp; Coupled</b>	<b>Casing/Liners</b>	<b>Threaded &amp; Coupled</b>
Wedge 563™ (*)	Wedge 563™ (*)	Blue™ (*)	Blue™ (*)
		Wedge 563™ (*)	Blue™ Thermal Liner (*)
<b>Integral UPSET</b>	<b>Integral UPSET</b>	Wedge 521™ (*)	Wedge 563™ (*)
Wedge 533™ (*)	Wedge 533™ (*)	ER™ (*)	ER™ (*)
Wedge 553™ (*)	Wedge 553™ (*)		TXP™ Buttress (*) (**)
		<b>Slotted Pipes</b>	<b>Integral</b>
<b>Integral FLUSH</b>		Blue™ Thermal Liner (*)	Wedge 521™ (*)
Wedge 511™ (*)			Wedge 511™ (*)
		<b>Production Tubing</b>	
		Blue™ Thermal Liner (*)	
		Wedge 511™ (*)	

(\*) Dopeless® technology alternative available (\*\*) Interchangeable with API Buttress. For technical and performance information please visit our website [www.tenaris.com](http://www.tenaris.com).

# Product Characteristics

## THREADED & COUPLED



### Blue™

Available in sizes from 2 3/8" to 13 5/8"

#### Features

- Designed for high performance and versatility. ISO 13679 CAL IV tested and field proven.
- Parabolic seal contact pressure profile minimizes galling risk while improves sealing performance stability.

#### Applications

- Surface & intermediate casing
- Production casing, tie-backs & liners.
- Production tubing
- Casing while drilling
- Horizontal & extended reach wells
- SAGD & CSS
- Shales
- Geothermal
- HP/HT & deep wells

#### Options

- Dopeless®
- Matched Strength
- Special Bevel
- Special Clearance



### Blue™ Thermal Liner

Available in sizes from 2 3/8" to 10 3/4"

Connection formerly known as TenarisHydril Blue™ SAGD.

#### Features

- Special design for slotted pipes to be used on heavy oil operations like SAGD and CSS.
- Fast and easy make-up that reduces cross-threading risk.

#### Applications

- SAGD & CSS
- Geothermal

#### Options

- Dopeless®
- Matched Strength
- Special Clearance
- Special Bevel



### Wedge 563™

Available in casing sizes from 5" to 16"

Available in tubing sizes from 2 3/8" to 7"

#### Features

- 100% ratings in tension and compression provided by the dovetail threads.
- 100% collapse rated thread seal created by full form contact of the dovetail threads, also providing a secondary internal pressure seal rated at pipe body.
- Wedge 563™ is interchangeable with Wedge 533™, Wedge 503™ and Wedge 553™.

#### Applications

- Surface & intermediate casing
- Production casing, tie-backs & liners
- Casing while drilling
- Horizontal & extended reach wells
- SAGD & CSS
- HP/HT & deep wells
- Shales
- Geothermal
- Corrosion protection & ID coating

#### Options

- Dopeless®
- Matched Strength
- Recess free bore (RFB)
- CB ring



### 3SB™

Available in sizes from 2 3/8" to 13 5/8"

#### Features

- Reliable and field proven connection design, specially on chrome materials.

#### Applications

- Production casing
- Production tubing

#### Options

- Special Clearance
- Special Bevel



### MST™

Available in sizes from 2 3/8" to 14"

#### Features

- Proven design provides excellent gas tightness with high mechanical properties.

#### Applications

- Production casing
- Production tubing

#### Options

- Matched Strength
- Special Clearance
- Special Bevel



### ERT™

Available in sizes from 7" to 24 1/2"

#### Features

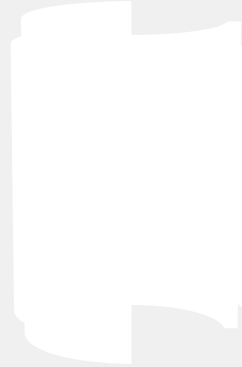
- Easy stabbing, fast make-up with minimum cross threading risk.

#### Applications

- Surface & intermediate casing
- Casing while drilling
- SAGD & CSS
- Geothermal

#### Options

- Dopeless®
- Matched Strength
- Special Clearance
- Special Bevel



### HW™

Available in sizes from 5" to 14"

#### Features

- Specially designed for medium to heavy wall pipes.
- Suitable for salt dome applications.

#### Applications

- Surface & intermediate casing
- HP/HT & deep wells

#### Options

- Special Clearance
- Special Bevel

## INTEGRAL SEMI FLUSH



### Blue™ Near Flush

Available in sizes from 5" to 13 5/8"

#### Features

- Designed for high performance, structural efficiency and maximum clearance. ISO 13679 CAL IV tested and field proven.
- Box OD is only 2–3% larger than pipe body (1–2% larger than API maximum) permits use in clearance situations.

#### Applications

- Production casing, tie-backs & liners
- HP/HT & deep wells

#### Options

- Dopeless®

## INTEGRAL SEMI FLUSH



### Wedge 523™

Available in sizes from 7" to 16"

#### Features

- 100% collapse rated thread seal created by full form contact of the dovetail threads, also providing a secondary internal pressure seal rated at pipe body.
- High compression rating provided by the reverse angle stab flank of the threads makes the Wedge 523™ suitable for the more severe compression applications. Compression strength exceeds tension strength.
- Wedge 523™ is interchangeable with Wedge 513™.

#### Applications

- Surface & intermediate casing
- Production casing, tie-backs & liners
- Casing while drilling
- Horizontal & extended reach wells
- HP/HT & deep wells
- Shales

#### Options

- Dopeless®



### Wedge 521™

Available in sizes from 4" to 18 5/8"

#### Features

- Threads lubricant seal provides 100% pipe body internal yield and collapse strength.
- High compression rating provided by the reverse angle stab flank of the dovetail threads makes the Wedge 521™ suitable for the more severe compression applications. Compression rating is typically 80–89% of the pipe body, and is usually higher than the tension rating.
- Excellent for large diameter pipe, the dovetail thread eliminates thread pull-out, even on thin wall pipe.

#### Applications

- Surface & intermediate casing
- Casing while drilling
- Horizontal & extended reach wells
- SAGD & CSS
- Geothermal

#### Options

- Dopeless®



### SLX™

Available in sizes from 4 1/2" to 13 5/8"

#### Features

- High performance achieved by machining pin and box on formed ends.
- Patented seal saver protects the pin seal from handling damage and acts as a stiffener to improve metal seal functioning.

#### Applications

- Production casing, tie-backs & liners
- HP/HT & deep wells



### MACII™

Available in sizes from 5 1/2" to 16"

#### Features

- High performance achieved by machining pin and box on formed ends.
- Perfect alternative for heavy wall applications with reduced clearances.

#### Applications

- HP/HT and deep wells

## INTEGRAL FLUSH



### Wedge 513™

Available in sizes from 4 1/2" to 16"

#### Features

- High compression rating provided by the reverse angle stab flank of the dovetail threads makes the Wedge 513™ suitable for all liner applications. Compression strength exceeds tension strength.
- Wedge 513™ is interchangeable with Wedge 523™.

#### Applications

- Surface & intermediate casing
- Production casing, tie-backs & liners
- Casing while drilling
- Production tubing
- Horizontal & extended reach wells
- HP/HT & deep wells
- Shales

#### Options

- Dopeless®



### Wedge 511™

Available in sizes from 2 1/16" to 18 5/8"

#### Features

- High compression rating provided by the reverse angle stab flank of the dovetail threads makes the Wedge 511™ suitable for use as slotted liners in geothermal and steam injection service. Compression strength exceeds tension strength.
- 100% pipe body collapse strength created with the lubricant seal of the dovetail threads.

#### Applications

- Surface & intermediate casing
- Casing while drilling
- Workstrings
- Horizontal & extended reach wells
- SAGD & CSS
- Geothermal

#### Options

- Dopeless®

## INTEGRAL UPSET



### Wedge 533™

Available in sizes from 2 3/8" to 7 5/8"

#### Features

- 100% collapse rated thread seal created by full form contact of the dovetail threads, also providing a secondary internal pressure seal rated at pipe body.
- 100% ratings for tension and bending provided by machining pin and box on hot forged internal-external upsets. Reverse angle stab flank provides 100% compression rating.
- Wedge 533™ is interchangeable with Wedge 503™, Wedge 553™ and Wedge 563™.

#### Applications

- Production tubing
- Casing while drilling
- Workstrings
- Corrosion protection & ID coating

#### Options

- Dopeless®
- CB ring



### Wedge 503™

Available in sizes from 2 3/8" to 4 1/2"

#### Features

- 100% pipe body ratings for tension and bending provided by machining pin and box on API EUE upset. Reverse angle stab flank provides 100% compression rating.
- 100% collapse rated thread seal created by full form contact of the dovetail threads, also providing a secondary internal pressure seal rated at pipe body.
- Wedge 503™ is interchangeable with Wedge 533™, Wedge 553™ and Wedge 563™.

#### Applications

- Production tubing
- Workstrings

#### Options

- Dopeless®

## INTEGRAL UPSET



### Wedge 553™

Available in sizes from 2 3/8" to 7 5/8"

#### Features

- 100% collapse rated thread seal created by full form contact of the dovetail threads, also providing a secondary internal pressure seal rated at pipe body.
- 100% pipe body ratings for tension and bending developed using nonupset pin end and upset box end pipe. Reverse angle stab flank provides 100% compression rating.
- Wedge 553™ is interchangeable with Wedge 503™, Wedge 533™ and Wedge 563™.

#### Applications

- Workstrings
- Corrosion protection & ID coating

#### Options

- Dopeless®
- CB ring



### PH4™/PH6™/CS®

Available in sizes from 3/4" to 7"

#### Features

- 100% tension strength produced by machining pin and box on hot forged upsets.
- Worldwide reputation in production tubing and workstring applications.

#### Applications

- Production tubing
- Workstrings
- Corrosion protection & ID coating

#### Options

- Matched Strength
- CB ring



### PJD™

Available in sizes from 2 3/8" to 5"

#### Features

- Streamlined, clearance OD facilitates running, pulling, and circulating and eliminates coupling face hang-up.
- 100% pipe body performance in tension, compression, bending, internal and external pressure.

#### Applications

- Production tubing
- Workstring

#### Options

- CB ring

# 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 Dopeless®	TSH BTL-DPLS
TenarisHydril Blue™ Thermal Liner Matched Strength	TSH BTL-MS
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 MST™	TSH MS
TenarisHydril MST™ Matched Strength	TSH MS-MS
TenarisHydril MST™ Special Clearance	TSH MS-SC
TenarisHydril MST™ 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™ Dopeless®	TSH ER-DPLS
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 MACII™	TSH MACII
TenarisHydril PH4™	TSH PH4
TenarisHydril PH4™ Corrosion Barrier	TSH PH4-CB
TenarisHydril PH6™	TSH PH6
TenarisHydril PH6™ Corrosion Barrier	TSH PH6-CB
TenarisHydril CS®	TSH CS
TenarisHydril CS® Corrosion Barrier	TSH CS-CB



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