

# 01. TenarisHydril

## Worldwide Support

TenarisHydril premium connections are supplied and supported by Tenaris, a leading manufacturer and supplier of steel pipe and integrated tubular services to the world's energy industry.

### REPAIR SHOPS

A broad international network of licensed threading facilities provides services for TenarisHydril products. Please check our website to find the nearest authorized repair shop.

## Field Services

Based upon extensive experience and knowledge of pipe and connections starting at the initial design phase, Tenaris field service contributes to well integrity through process efficiency and optimal product performance. At every rig operation we serve, we prioritize the safety of our people and uphold the highest environmental standards.

This Running Manual includes Tenaris' recommendations on best practices for the care, handling and installation of our products. These recommendations aim to maximize the value of our products before, during and after installation. In addition to the guidelines described in our Running Manual, we recommend the assistance of a Tenaris field services specialist when running TenarisHydril premium connections to ensure optimum efficiency

and best performance. We offer our customers running assistance and technical assistance in accordance with the summarized and general description detailed below. Should you require a complete description of Tenaris field services, please contact us at [fieldservices@tenaris.com](mailto:fieldservices@tenaris.com).

## RUNNING ASSISTANCE SERVICES – RIG SITE ACTIVITY

1. Interaction with the operating company representative.
2. Interaction with services companies.
3. General application of TenarisHydril Running Manual recommendations.
4. Visual inspection of TenarisHydril products at the well site.
5. Verification of running equipment calibration.
6. Verification of ancillary running equipment such as, but not limited to:
  - Appropriate Drift, OD & length
  - Stabbing guides
  - Handling plugs
  - Quick fit protectors
7. Advise the operating company representative on:
  - HSE issues relating to field service operations.
  - Care, handling and preparation of TenarisHydril products prior to, during and after running activities.
  - Correct application of appropriate thread compound to connections.
  - Connection make up parameters.
  - Recommended best practices for the running and pulling processes.
  - Preparation of surplus pipe post running.
  - Segregation and identification of rejected joints.

8. Monitor make up operations during running.
9. Field repair connections as per applicable guidelines if necessary.

Tenaris field service specialists are fully trained and highly experienced in Tenaris product design and running practices. This in depth knowledge and training allows flexibility of decision to amend recommended guidelines and criteria when special or unusual operational situations arise. All decisions made being done so in the knowledge no decision or change will be detrimental to product integrity.

### **TECHNICAL ASSISTANCE SERVICES - YARD, MACHINE SHOP, BUCKING FACILITY**

1. Interaction with customers, operating company representatives, drilling and completion technicians.
2. General application of field services guidelines, Tenaris procedures and TenarisHydril Running Manual.
3. Visual inspection of our pipe and connections on site.
4. Verification of make up / buck on equipment calibration.
5. Sub-assembly make up verification at Tenaris or at third-party premises:
  - Buck on / off couplings
  - Make up completion assemblies
  - Make up shoe tracks
  - Make up hangers
  - Make up packers
6. Accessory inspection at customer or third-party premises.

7. Field repair of TenarisHydril connections as per applicable guidelines.
8. Dopeless® technology support; inspection and repair of connections with Dopeless® technology.
9. Periodic stock inspection, traceability, coating condition check.
10. Advise best practices for storage and transportation.
11. Organize rig-ready preparation.
12. Participate in pre-job and drilling on paper meetings.
13. Proactively advise on process efficiency improvement.
14. Customer and service company training and presentations.

## JOB DEVELOPMENT AND COMPLETION

During job development, a field services specialist will advise and recommend best practices for the handling and use of Tenaris products in accordance with the scope summarized above. Any final decision made on any job will remain with the customer's company representative at the worksite.

Any deviations or anomalies contrary to Tenaris procedures, the advice of the field service specialist and / or the TenarisHydril Running Manual recommendations, which may be deemed detrimental to the performance of the product will be documented by the field services specialist.

Upon completion of field services, and prior to the departure of the Tenaris representative from the worksite, a service ticket shall be prepared by the Tenaris representative to be signed by the customer's company representative at the worksite. The service ticket will contain a brief description of the services performed, including any deviations or anomalies mentioned, among other relevant information. In addition, a detailed report will be delivered to the customer if agreed by the parties.

## COMMITMENT TO SUSTAINABLE BUSINESS

Tenaris would like to emphasize the importance of paying utmost attention to all aspects of health, safety and environmental protection during the running of our TenarisHydril premium connections.

Tenaris is committed to incorporating the principles of sustainable development throughout its operations with practices aiming to protect personal health, uphold group safety and minimize environmental impact.

During the execution of running operations on the premises of the oil and gas company, all HSE procedures applicable at the rig site should be fully acknowledged, addressed and followed.

Moreover, we strongly recommend the assistance of Tenaris field service specialists, who receive comprehensive HSE training as part of their qualification plan.

Regarding health, rest periods should be respected as well as the physical fitness requirements for each job.

As regards safety pipe running operations generally involve several hazards and exposure to risks, including moving objects; H<sub>2</sub>S and risks involved in handling and exposure to chemical substances; manipulation of heavy pipe and equipment; road, sea and air transportation; fire and explosion risks and many more which are well known to oil and gas operators. All applicable safety measures must be addressed, including procedures, protective measures and equipment, risk analysis, emergency response drills and a toolbox safety talk prior to operations startup. An attitude involving a permanent awareness of safety should be fostered and encouraged among personnel.

Concerning the environment, water, pipe protectors, cleaning rags and all other site waste should be correctly disposed, in accordance with the oil and gas company procedures.

We are convinced that all efforts devoted to health, safety and environment will result in an improved performance and sustainable development.

# 02. TenarisHydril Premium Connections

Tenaris product lines encompass many variants of connection design allowing complete flexibility for modern well design applications.

## BLUE® SERIES

TenarisHydril Blue®

TenarisHydril Blue® Max

TenarisHydril Blue® Heavy Wall

TenarisHydril Blue® Quick Seal

TenarisHydril Blue® Thermal Liner

TenarisHydril Blue® Near Flush

TenarisHydril Blue® Riser

## WELD-ON CONNECTORS

TenarisHydril BlueDock™

## WEDGE SERIES 500™

TenarisHydril Wedge 563®

TenarisHydril Wedge 561™

TenarisHydril Wedge 523®

TenarisHydril Wedge 521®

TenarisHydril Wedge 513®

TenarisHydril Wedge 511®

TenarisHydril Wedge 533®

TenarisHydril Wedge 503®

TenarisHydril Wedge 553®

## WEDGE SERIES 600™

TenarisHydril Wedge 625®

TenarisHydril Wedge 623®

## LEGACY SERIES

TenarisHydril PJD™

TenarisHydril SLX®

TenarisHydril MACII™

TenarisHydril PH4™

TenarisHydril PH6™

TenarisHydril CS®

TenarisHydril ER™

TenarisHydril MS™

TenarisHydril MS XT/XC™

TenarisHydril MS28™

TenarisHydril MS28 XT/XC™

TenarisHydril 3SB™

TenarisHydril HW

TenarisHydril HWSL

TenarisHydril New HWSL

## TENARISXP® SERIES

TenarisXP® Buttress

Most TenarisHydril connections can also be manufactured with the following options:

- Special Clearance (SC)
- Matched Strength (MS)
- Special Bevel (SB)
- Corrosion Barrier (CB)
- Fiber Glass Lined (FGL)



## DOPELESS® TECHNOLOGY

TenarisHydril Dopeless® technology is a dry, multifunctional coating applied to TenarisHydril premium connections in the mill, making thread compounds obsolete. By doing so, Dopeless® coating makes operations more efficient, lessening the environmental footprint and minimizing risk and costs for E&P operators. Dopeless® technology is available on TenarisHydril Blue® Series, Wedge Series 500™, Wedge Series 600™, ER™ and MACII™ premium connections.

### Wedge Series 500™

Wedge Series 500™ and Wedge Series 600™ connection terminology is determined by a 3 digit system indicating specific designs.

1 <sup>ST</sup> DIGIT	2 <sup>ND</sup> DIGIT	3 <sup>RD</sup> DIGIT
SERIES 500	CONFIGURATION AND PIPE ENDS	METAL TO METAL SEAL
Wedge thread	0. Integral connection on external API upset pipe	1. Not present
	1. Integral connection on non-upset pipe with pipe body OD box (flush)	
	2. Integral connection on non-upset pipe with swaged and turned OD box (semi-flush)	
	3. Integral connection on internal/external upset pipe	3. Internal Seal
	5. Integral connection on non-upset pin end and upset box end pipe	
	6. Coupled connection on non-upset pipe	

## Wedge Series 600™

1 <sup>ST</sup> DIGIT	2 <sup>ND</sup> DIGIT	3 <sup>RD</sup> DIGIT
SERIES 600	CONFIGURATION AND PIPE ENDS	METAL TO METAL SEAL
<b>Advanced Wedge threads</b>	<b>1.</b> Integral connection on non-upset pipe with swaged and turned pipe body OD box (flush)	<b>3.</b> Internal and External seals
	<b>2.</b> Integral connection on non-upset pipe with swaged and turned OD box (semi-flush)	<b>5.</b> Mid seal on step-to-step Wedge thread
	<b>6.</b> Coupled connection on non-upset pipe	<b>7.</b> Internal and mid-seal on step-to-step Wedge thread

NOTE: INDIVIDUAL CONNECTION DESIGN CONFIGURATIONS CAN BE VIEWED IN THE CONNECTION SPECIFIC RUNNING GUIDELINES.

# 03. Application Guide

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HP/HT & DEEP WELLS	
CONDUCTOR AND SURFACE CASING	Weld-on Connector BlueDock™
	Threaded & Coupled Blue® Quick Seal ERT™
INTERMEDIATE CASING, LINERS AND TIE-BACKS	Threaded & Coupled Blue® Blue® Max
	Integral Semi Flush Wedge 623® Wedge 523® Blue® Near Flush MACII™
	Integral Flush Wedge 513® / 511®
	Threaded & Coupled Blue® Blue® Max Blue® Heavy Wall Wedge 563®
PRODUCTION CASING / LINERS, TIE-BACKS AND TUBING	Integral Semi Flush Wedge 623® Wedge 523® Blue® Near Flush
	Integral Flush Wedge 513®

DEEP WATER	
CONDUCTOR AND SURFACE CASING	Weld-on Connector BlueDock™
	Threaded & Coupled Blue® Quick Seal ER™
INTERMEDIATE CASING, LINERS AND TIE-BACKS	Threaded & Coupled Blue® Blue® Max Wedge 563®
	Integral Semi Flush Wedge 623® Wedge 523® / 521® Blue® Near Flush
	Integral Flush Wedge 513® / 511®
	Threaded & Coupled Blue® Blue® Max Blue® Heavy Wall Wedge 563®
PRODUCTION CASING / LINERS, TIE-BACKS AND TUBING	Integral Semi Flush Wedge 623® Wedge 523® Blue® Near Flush
	Threaded & Coupled Blue® Riser
	TOP-TENSIONED / DRILLING RISER

SHALES	
PRODUCTION CASING / LINERS AND TUBING	Threaded & Coupled Blue® Wedge 563® TXP® Buttress
	Integral Semi Flush Wedge 625® Wedge 521®
	Integral Flush Wedge 513®

SHALLOW WATER	
CONDUCTOR AND SURFACE CASING	Weld-on Connector BlueDock™
	Threaded & Coupled Blue® Quick Seal ERTM
INTERMEDIATE CASING, LINERS AND TIE-BACKS	Threaded & Coupled Blue® Wedge 563®
	Integral Semi Flush Wedge 623® Wedge 523® / 521® Blue® Near Flush
	Integral Flush Wedge 513® / 511®
	Threaded & Coupled Blue® Wedge 563®
PRODUCTION CASING / LINERS, TIE-BACKS AND TUBING	Integral Semi Flush Wedge 623® Wedge 523® Blue® Near Flush
	Integral Flush Wedge 513® / 511®

THERMAL (SAGD & CSS)	
SURFACE CASING	Threaded & Coupled ERTM
	Integral Semi Flush Wedge 521®
INTERMEDIATE CASING AND LINERS	Threaded & Coupled Blue® Wedge 563®
SLOTTED LINERS AND TUBING	Threaded & Coupled Blue® Thermal Liner
	Integral Flush Wedge 511®

## CASING WHILE DRILLING

SURFACE CASING	Threaded & Coupled ER™
INTERMEDIATE CASING AND LINERS	Threaded & Coupled Blue® Wedge 563® ER™
	Integral Semi Flush Wedge 523® / 521®
	Integral Flush Wedge 513® / 511®
PRODUCTION CASING / LINERS AND TUBING	Threaded & Coupled Blue® Wedge 563® ER™
	Integral Semi Flush Wedge 523® / 521®
	Integral Upset Wedge 533®
	Integral Flush Wedge 513® / 511®

## WORKSTRINGS

WORKSTRINGS AND TUBING	Threaded & Coupled Wedge 563®
	Integral Upset Wedge 533®
	Integral Flush Wedge 511®

GEOTHERMAL	
SURFACE CASING	Threaded & Coupled ERTM
INTERMEDIATE CASING AND LINERS	Threaded & Coupled Blue® Wedge 563® ERTM
	Integral Semi Flush Wedge 521®
	Integral Flush Wedge 511®
PRODUCTION CASING / LINERS AND TUBING	Threaded & Coupled Blue® Wedge 563® ERTM
	Integral Semi Flush Wedge 521®
	Integral Flush Wedge 511®

HORIZONTAL & EXTENDED REACH WELLS	
INTERMEDIATE CASING AND LINERS	Threaded & Coupled Wedge 563® Blue®
	Integral Semi Flush Wedge 523® / 521®
	Integral Flush Wedge 513® / 511®
PRODUCTION CASING / LINERS AND TUBING	Threaded & Coupled Wedge 563® Blue®
	Integral Semi Flush Wedge 625® Wedge 523® / 521®
	Integral Flush Wedge 513® / 511®

## CORROSION PROTECTION &amp; ID COATING

TUBING	Threaded & Coupled Wedge 563® - CB® (with Corrosion Barrier)
	Integral Upset Wedge 533® - CB® (with Corrosion Barrier)

## OTHER APPLICATIONS

CONDUCTOR AND SURFACE CASING	Weld-on Connector BlueDock™
	Threaded & Coupled Blue® Quick Seal ER™
INTERMEDIATE CASING AND LINERS	Threaded & Coupled Blue® ER™
PRODUCTION CASING / LINERS AND TUBING	Threaded & Coupled Blue® Blue® Thermal Liner ER™
	Integral Semi Flush Wedge 523® / 521®
	Integral Flush Wedge 513® / 511®