Dopeless® Technology

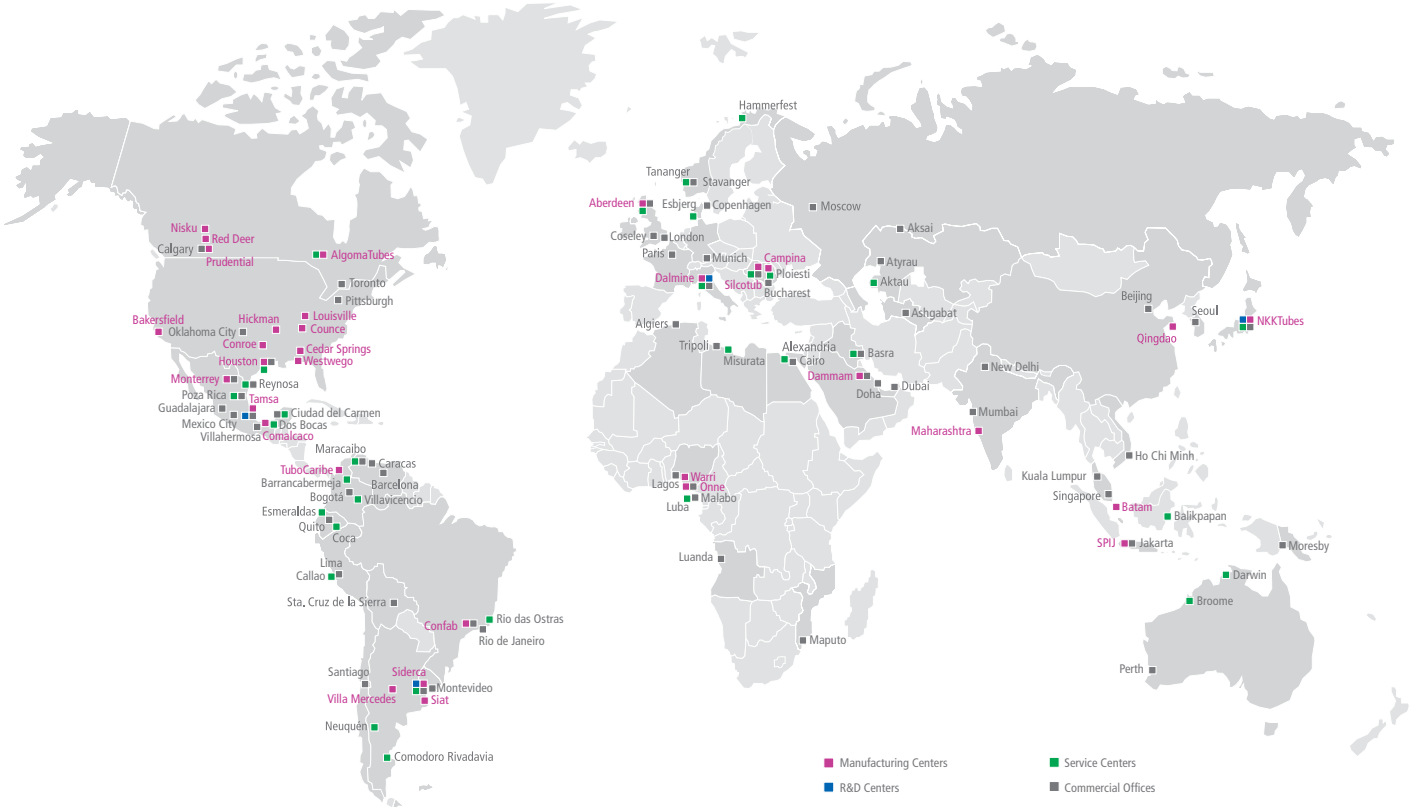
TenarisHydril

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 ever more demanding E&P environments.

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

For further information please visit our website at www.tenaris.com.



Dopeless® Technology

Dopeless® technology is a dry, multifunctional coating applied to TenarisHydril premium connections on dedicated production lines at Tenaris's mills worldwide.

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TenarisHydril
Wedge Series 500™ with
Dopeless® technology

Dopeless® coating is applied in a fully automatic process that ensures consistent quality. TenarisHydril premium connections coated with this solution increase operational efficiency, improve safety at the rig and minimize operations' impact on the environment.

By simplifying pipe handling and cleaning operations, the Dopeless® solution provides important operational benefits. For example, the technology reduces make-up problems, increasing the reliability of the installation and cutting running times. It also provides HSE benefits.

DOPELESS® EXPANSION

Tenaris is currently expanding, Dopeless® production capacity to satisfy growing demand and maintain its position as the leader in the provision of dope- free technology. Our Dopeless® production lines are located in Argentina, Mexico, Indonesia, Italy, Romania and the United States.

A HISTORY OF FIRSTS

2003

First offshore running of TenarisHydril Blue® Dopeless® connections for ConocoPhillips' Ekofisk project in Norway.

2004

Debut of Dopeless® technology on TenarisHydril Blue® in Venezuela at Total's Jusepin field.

Statoil opts to use TenarisHydril Blue® with Dopeless® technology for Snøhvit project, signifying the first entire field to use dope-free connections.

First installation of a Dopeless® high chromium alloy. A 13 Cr tubular string was installed at ConocoPhillips Ekofisk.

2005

The Snøhvit well becomes first 100% Dopeless® well ever installed. A 25 Cr Dopeless® string is also run for the first time.

Proven Performance

The benefits of Dopeless® technology have been proven in many different applications and environments. Since its introduction on TenarisHydril Blue® connections in the North Sea in 2003, over six million feet of Dopeless® premium connections have been used in more than 20 countries. Tenaris provides running support for all Dopeless® operations through its integrated global network of field services, repair and technical support teams.

Dopeless® technology brings quantifiable benefits to E&P operations:

Zero discharge and minimal risk

HSE performance

Without thread compounds the rig site is cleaner and safer while significantly decreasing the operation's environmental footprint.

Nearly 0 re-makeups and rejects

Reliability

Dopeless® products reduce the risk of make-up problems, increasing the reliability of the installation. Typical re-make ups (2.5% of connections) and rejects (1.5% of connections) are significantly reduced.

10% savings on total pipe cost

Offshore savings

As a rule of thumb in offshore operations, based on customer experience, a well with 100% Dopeless® casing and tubing will produce a 10% savings of the total pipe cost due to increased rig time efficiency.

Running times reduced up to 25%

Time

According to customers' experience with Dopeless® technology, running time can be reduced up to 25%.

2007

Tenaris's integration of Hydril results in a comprehensive line of premium connections known as TenarisHydril.

2008

Global R&D project launched at Tenaris R&D centers in Argentina and Mexico to develop Dopeless® technology on Wedge Series 500™ connections.

2009

Dopeless® is applied to TenarisHydril Wedge 563™ and Wedge 523,™ proving its capability with uniform make and break and torque performance during a rig demonstration in Houston.

2010

TenarisHydril Wedge 563™ with Dopeless® technology proves its operational and environmental advantages during a field running in the U.S.

2011

TenarisHydril Wedge 521™ with Dopeless® technology was selected for extended reach wells in the UAE.

Dopeless® technology is run in an offshore project using Wedge 523™ in the Mediterranean.

Dopeless® technology was chosen for an environmentally sensitive well in the Peruvian Amazon.

Dopeless® technology on integral Wedge Series 500™ connections significantly reduced running times in the Gulf of Mexico.

2012

In offshore Angola, Dopeless® connections made running operations cleaner, safer and faster.

Dopeless® technology is available on TenarisHydril premium connections in a wide range of casing and tubing dimensional ranges, carbon steel (both API and proprietary), 13 Cr and Corrosion Resistant Alloys (CRAs).

Developed and tested in accordance with ISO 13679 standards, TenarisHydril premium connections with Dopeless® technology offer consistent performance superior plus make and break capacity.

If several make and breaks are necessary, Dopeless® technology performs reliably, resisting galling tendency.

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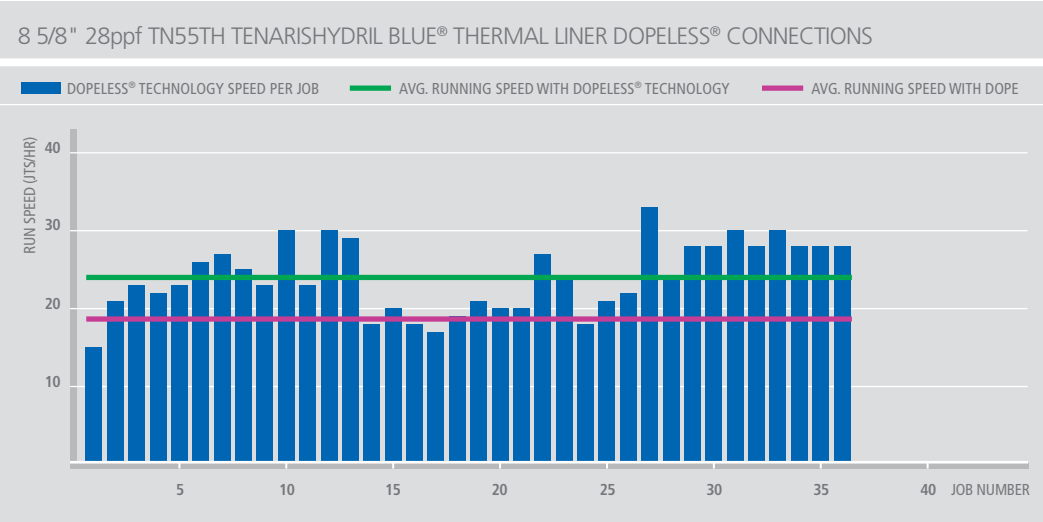
Running time comparison between Dopeless® connections and standard connections.



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Dopeless® technology makes operations in the field safer and more efficient.

Dopeless® technology's unique engineered coating protects the integrity of the connection's metal surface, which helps to ensure:

Resistance to any potential galling, including when high chrome, CRA materials are used.

Corrosion protection even during prolonged exposure

Superior torque stabilization

Dopeless® technology is available on the following TenarisHydril premium connections:

BLUE® SERIES
Blue® 3 1/2" - 13 5/8"
Blue® Thermal Liner 3 1/2" - 10 3/4"
Blue® Near Flush 5" - 13 5/8"

WEDGE SERIES 500™
Wedge 563™ 2 3/8" - 16"
Wedge 523™ 7" - 16"
Wedge 521™ 4" - 18 5/8"
Wedge 513™ 4 1/2" - 16"
Wedge 511™ 2 1/16" - 18 5/8"
Wedge 533™ 2 3/8" - 7 5/8"

WEDGE SERIES 600™
Wedge 625™ 4 1/2" - 7"

LEGACY SERIES
ER™ 7" - 24 1/2"

Improved Operational Performance

The Dopeless® solution arrives rig-ready, saving time and money while reducing risk.

While standard E&P operations require the manual application of dope in with a brush, TenarisHydril premium connections with Dopeless® technology arrive rig-ready.

The Dopeless® solution ensures a more stable make-up process, reducing the time required for the installation of the string and increasing the reliability of its behavior.

DOPELESS® BENEFITS

Increased Efficiency	Reliability
Less pipe handling	More consistent make-up operations reduce risk
Less inspection and cleaning in offshore operations.	Less re-makeups and rejects
Easier management of rig returns	By taking out the dope, there is no risk of applying an incorrect compound, over- or under-doping
Avoids reapplication of lubricant in make and breaks	

PREPARATION & RUNNING

Standard Connections	Dopeless® Connections
Start/Step 1 Remove thread protectors	Start/Step 1 Remove thread protectors
Step 2 Clean and dry thread protectors	Step 2 Measure – Drift – Inspect Connections
Step 3 Clean and dry connections	Finish/Step 3 Re-apply thread protectors
Step 4 Measure – Drift – Inspect Connections	
Step 5 Apply thread compound	
Step 6 Re-apply thread protectors	
Finish/Step 7 Waste management and disposal	

Improved well productivity

Dopeless® technology prevents formation damage, improves downhole operations and reduces mud contamination.

Dopeless® connections have the exact amount of lubricant and require no further thread compound, preventing lubricants from invading and plugging a porous formation, which reduces permeability and blocks flow paths.

Dopeless® technology simplifies downhole operations, e.g. wireline, tractor tools and coiled tubing applications. This solution takes away the possibility of any contamination with thread compounds in the tubing/liner. This also reduces the risk of sand screen clogging problems.

Dopeless® technology provides distinct advantages to a variety of extreme onshore and offshore environments.

Offshore

Dopeless® technology enhances operational reliability and efficiency. The cleaner rig floor provides a safer workplace.

Arctic

Dopeless® technology protects the connection's mechanical integrity and performance even under severe arctic temperatures. Complications associated with dope compounds that freeze are eliminated due to the dry, non-stick Dopeless® coating.

Desert

The non-stick Dopeless® coating prevents connection contamination from sand, dust and other particles, which can potentially hinder connection make-up and performance.

Shales

In addition to reducing the environmental footprint, Dopeless® technology offers efficient drilling, including reduced running time and costs.

Jungle

Contaminant-free Dopeless® products arrive rig ready for environmentally sensitive areas.

Health, Safety and Environmental Benefits

With Dopeless® technology, operators provide safer and cleaner workplaces for the rig crew and can be assured of compliance in environmentally sensitive areas.

HEALTH, SAFETY AND ENVIRONMENTAL BENEFITS	
	Safer and cleaner workplaces and less OCTG handling provide health and safety advantages while reducing risk
	No thread compound, grease, oil or any other additive is released throughout the life cycle of the connection
	No cleaning solvents, soaps, chemicals or high-pressure cleaning are required
	Zero discharge of hazardous materials in both well site and preparation operations because Dopeless® technology is completely dry Reduced environmental footprint
	The protector is clean, making protector recycling simpler and more cost-effective

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For additional information, please visit
www.tenaris.com/dopelesstechnology

TSH / PC / Version 04 / March 2012

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