

Dopeless® Technology

Tenaris Dopeless® technology is a dry multi-functional coating applied to TenarisHydril premium connections during manufacturing that makes thread compounds obsolete. Dopeless® technology enables the pipe to be delivered from the mill directly to the rig site, where the end user can simply remove the end protectors and run them.

Dopeless® technology has been rigorously tested and field proven, accumulating over 20 years of field experience. TenarisHydril premium connections can be supplied with Dopeless® Technology, to make operations simpler and more efficient, increase safety at rig sites and minimize the environmental footprint.

Throughout this and all other sections of the TenarisHydril running manual the terms “Dopeless® connection” and “Dopeless® technology” are used in a general manner to reference all Dopeless® versions. This includes Dopeless®, Dopeless® 3.0 and Dopeless® 3.1 versions. The term “doped version” is used to reference regular connections supplied with storage compound.

All Dopeless® technology versions are fully compatible among them and with the doped version.

Dopeless® Technology versions

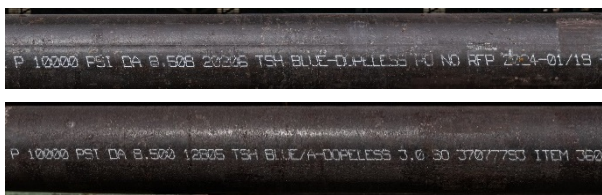
Dopeless® Technology is the renowned version of the technology, launched in 2003.

Dopeless® 3.0 Technology is the evolution of the original version after 20 years of field experience. Dopeless® 3.0 version increases robustness, improving long-term corrosion resistance and torque capabilities, among other enhanced features.

Dopeless® 3.1 Technology is a derivative of this new version specifically designed for extreme torque applications.

Identification

Pipes with Dopeless® Technology, have the word 'DOPELESS' or 'DOPELESS 3.0' or "DOPELESS 3.1" stenciled on the pipe body and coupling, indicating the version applied.



The visual aspect of pin and box ends depends on the specific version of Dopeless® technology.

Dopeless® version has a shiny grey color on the pin side and white color on box side.



DOPELESS® VERSION PIN



DOPELESS® VERSION BOX

Dopeless® 3.0 version has dark grey color on pin side, and shiny dark grey color on box side.



DOPELESS® 3.0 VERSION PIN



DOPELESS® 3.0 VERSION BOX

Thread protectors

Dopeless® connections have specific thread protectors with rubber rings in place for long-term corrosion protection. All versions of Dopeless® technology utilize the same design of protector.

Ensure clean and completely dry Dopeless® thread protectors are properly installed on pin and box ends during storage, handling and transportation. Do not use damaged, cracked, broken or contaminated protectors, and always ensure both rubber rings are in place.



DOPELESS® THREAD PROTECTORS

Handling and Storage

Applicable handling and storage guidelines are those outlined in GDL23347 “Handling and Storage” section, with the addition of the following specific practices.

Dopeless® connections are ready-to-use and do not need to be cleaned. Never use diesel, solvents, oil, chemicals, wire brushes or any other mechanical method for cleaning Dopeless® connections (any version).

Dopeless® connections are delivered with bumper rings distributed along the length of the pipe, to preserve protectors’ integrity. These should be kept during handling and transportation, and removed prior to running.



BUMPER RINGS ON DOPELESS® CONNECTIONS

Inspection

When in storage, it is recommended to periodically inspect 10% of the connections at least every 6 months.

Refer to GDL44277 “Recommended Guidelines for Field Inspection of Dopeless® connections”

Running

Follow the guidelines outlined in GDL23350 "Running Manual - Running General Guidelines", together with the specific connection running guidelines.

The main aspects that are specific to running Dopeless® connections are.

- Thread compound is not required for connection assembly.
- Wedge™ Series connections with Dopeless® technology do not require the “double bump” process during make-up.
- Thread locking instructions are different than for doped connections.

Torque Application

Always use the latest datasheet corresponding to the version of the Dopeless® technology for the specific connection being assembled.

Doped version, Dopeless®, Dopeless® 3.0 and Dopeless® 3.1 Technology connections are fully compatible. Interchange capability is as indicated in the product data sheet.

When mixing different Dopeless® technology versions, do not apply running compound.

When mixing a doped connection with any Dopeless® technology version, apply running thread compound following the recommendations from the connection specific running guidelines. Ensure to use one of the approved thread compounds indicated in FTD29356 “Premium Connections Approved Thread Compounds”.

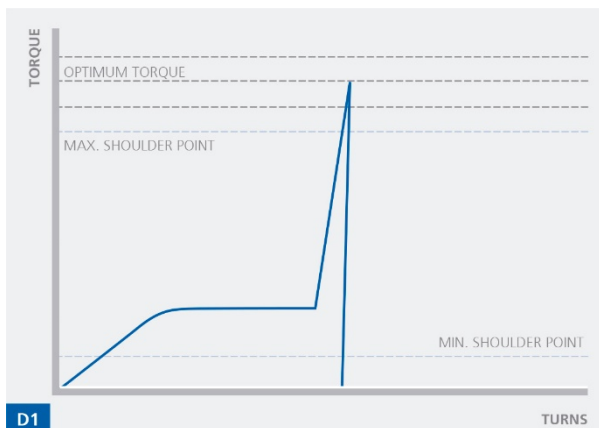
Torque values of any mix assembly can be obtained from the “Mixed Assemblies Torque Calculator” tool available on https://dcp.tenaris.com/Mixed_Assemblies

Make up Acceptance

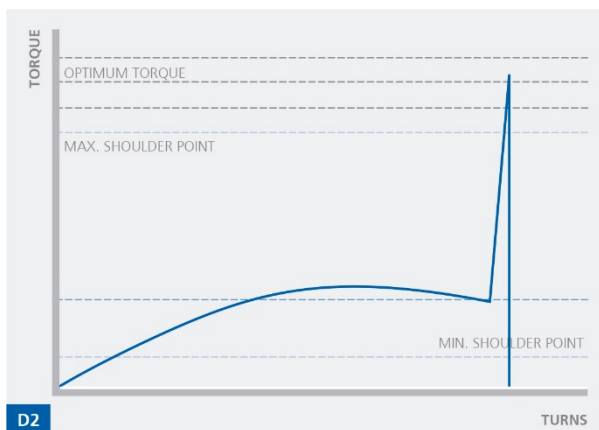
For Dopeless® connections computer make up graphs exhibit equivalent profiles to those of the doped version of whichever connection is being assembled.

Therefore, the graphs indicated in GDL23353 “Blue® Series and Legacy Series Make up Acceptance”, and GDL23355 “Wedge™ Series Make up Acceptance” are applicable.

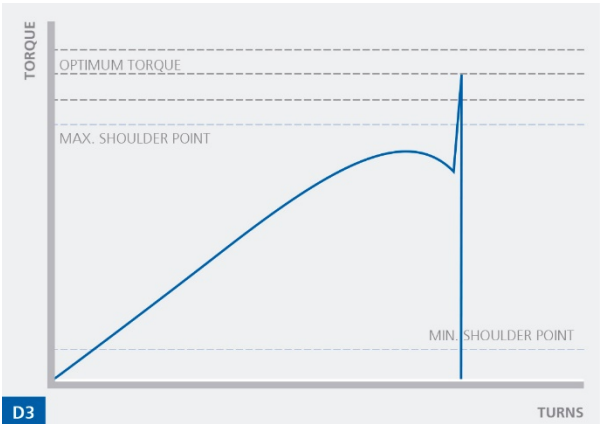
There are however some graph profiles where the herein criteria prevail when concerning shouldered Dopeless® connections.



Plateau prior to shoulder point.



Curved thread and seal interference build with smooth, continuous profile, no humps or erratic peaks.



Thread and seal interference build with a smooth, continuous profile, exhibiting no erratic or jagged peaks with a hump higher than shoulder point.

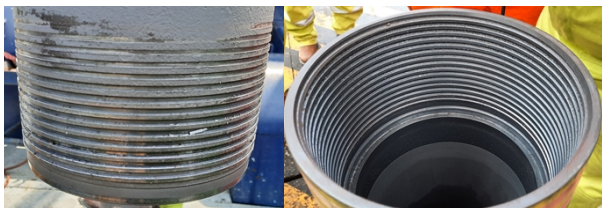
Dopeless® connections after break out

When broken out, Dopeless® connections (all versions) will exhibit shiny areas where the coating has been compressed due to power tight contact. Signs of coating flaking in some areas may be noticed, however that is part of the normal functioning of the technology. There is no need to remove coating flakes for a subsequent assembly.

The connections can be re-assembled without further intervention.



CONNECTIONS AFTER BREAK-OUT: DOPELESS® VERSION



CONNECTIONS AFTER BREAK-OUT: DOPELESS® 3.0 VERSION

After being made up and broken out, Dopeless® technology no longer offers its original level of corrosion protection. If connections are stored for mid-to-long term, the best approach is to clean and dry the connections, then apply a thin layer of storage compound to prevent corrosion, or alternatively have the coating refurbished at a Tenaris facility. Prior to installing protectors, remove their rubber rings as they are incompatible with storage compounds. Before reuse of connections, simply wipe off the storage compound. Connection can be run again as Dopeless®, traces of storage compound left behind will not impact performance.

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