

TenarisHydril Wedge 425® Connection

Scope

These guidelines apply specifically to the use of Wedge 425® connections, **all variants**. This document is part of the TenarisHydril Running Manual and provides an overview of best practices for these specific products. It should be used in conjunction with the rest of the sections within the TenarisHydril Running Manual.

Tenaris Field Service Representatives can modify these guidelines when circumstances dictate. Implementation will only occur if the representative deems the modification to be non-detrimental to product integrity. All modifications need to be clearly explained and agreed with the client representative prior to implementation.

References

- FTD29356 - Premium Connection Approved Thread Compounds
- GDL31457 - Recommended Guidelines for the Field Inspection of TenarisHydril Connections
- GDL23355 - Wedge™ Series Make up Acceptance
- GDL23349 - Pre-Running Preparation
- GDL23351 - Handling / Lift Plugs

Equipment, Material & Documents

1. Verify the appropriate thread compound is available for this connection. Refer to document FTD29356 for a list of compounds approved by Tenaris.
2. Latest version of the specific Product Data Sheet can be obtained from the Tenaris website. In case this is not available, request the data sheet from the local Technical Sales Representative.
3. The use of a torque-turn computer monitoring system is recommended to make up Wedge 425® connections.
4. The use of a torque turn computer monitoring system is strongly recommended for CRA / chrome material.
5. The use of slip type elevators is recommended to run and pull Wedge 425® connections.

Pre-Running

1. Never move or handle pipe without the correct thread protectors securely in place.
2. Ensure connections are clean and free of debris and / or contaminants, cleaning methods employed should conform to the recommendations contained within GDL23349 - Pre-Running Preparation.
3. Visually inspect threads and seal areas prior to running, ensuring no damage is evident.
4. On Dopeless® connections check the condition of both pin and box ensuring no peel off or degradation of the coating has occurred.

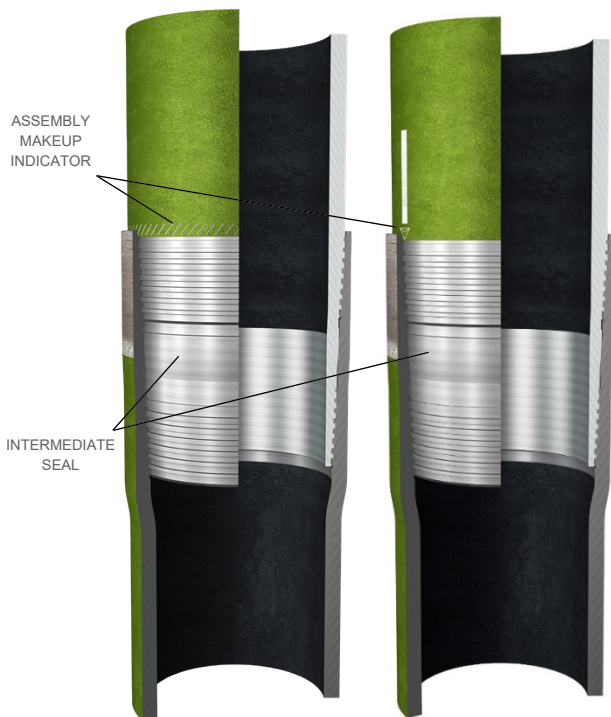
5. Verify all pipe and accessories have genuine TenarisHydril manufactured connections.
6. Verify the compatibility of the Wedge 425® pipe with accessories such as pup joints, cross overs, cement heads, etc.
7. Verify material grade of all accessories ensuring compatibility with main string.
8. Check availability of handling plugs, minimum of 3 to ensure efficiency of running process.
9. Check the handling plugs are genuine TenarisHydril threads and are correct for the size and weight of the connection, this will be stamped on the plug.
10. Check the handling plugs are in good condition and fit correctly onto the pipe.
11. Make up the plug by hand and then snug up tight with the assistance of a bar inserted into the holes of the flange. When correctly installed there should be no threads visible on the handling / lift plug nor should the box face contact the flange.
12. Check the extension plate of the slip type elevators actuates on the handling plug, ensuring the slips are set on the pipe body below the connection.
13. Check single joint elevator has sufficient clearance to slide over the box expanded area and seat against the handling plug.
14. Verify handling plug number and maximum lift capacity. Never exceed the maximum lift capacity.

15. Refer to GDL23351 - Handling / Lift Plugs, for the care and use of handling and lift plugs.

Inspection

1. Inspection criteria for Wedge 425® connection are outlined in GDL31457.
2. Pay particular attention to the seal area.
3. Ensure there are no gouges, tears or raised material on the thread lead-in areas and from final thread to seal.
4. Check box connections for damage or ovality caused by transportation, handling or storage.
5. Ensure there is at least 75% coverage of 'Dry Moly' present on the connection if it is bead blasted. If the connection is phosphated (carbon steel) 'Dry Moly' is not required.
6. On Dopeless® variant, ensure coating is not damaged or peeling off.

Wedge 425® Configuration



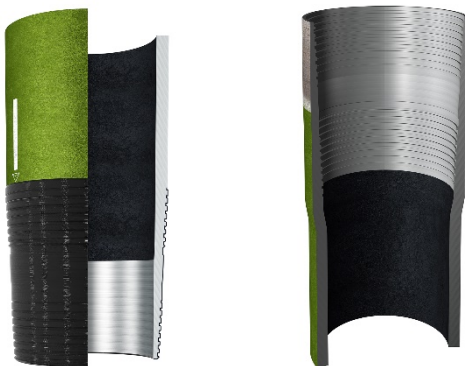
The visual indicator can be either

- A make up triangle with a white strip locator mark, or
- A make up band without white strip mark (new design).

Regardless of the visual indicator, the connections are the same, keeping full interchangeability, identical dimensions, and properties.

Thread Compound Application

Doped Variant



1. Storage compound should be completely cleaned from the connections.
2. Apply a thin coating of thread compound on the full pin end only, threads and seal, the thread form should be clearly visible.
3. Do not apply running compound to the box end. If thread compound has been applied previously, remove before running.
4. If pipe is received from Tenaris as RunReady™ with running compound already applied, no additional cleaning or compound application is required prior to running.

Thread Lock Application

Doped Variant



1. Connections should be clean and dry when applying thread lock. 'Dry Moly' should also be removed if present.
2. Thread lock should be applied to 50% of the threads at the back of the pin connection (large step).
3. Do not apply thread lock to the intermediate seal.
4. Running compound should then be applied to the seal and threads at the back of the box connection (small step).

Wedge 425® Dopeless® 3.0 Thread Compound Application

1. Dopeless® 3.0 connections do not require the application of thread compound for make up.
2. If for whatever reason thread compound has to be applied to Dopeless® 3.0 connections, whether both pin and box are Dopeless® 3.0 or when mixing a doped connection with a Dopeless® 3.0 one, apply thread compound as indicated below.
 - Apply a very thin coating of thread compound on all pin threads and seal.
 - Do not apply thread compound to the box connection.
3. For the correct thread compound to apply refer to FTD29356, Premium Connection Approved Thread Compounds.

Wedge 425® Dopeless® 3.0 Thread Lock

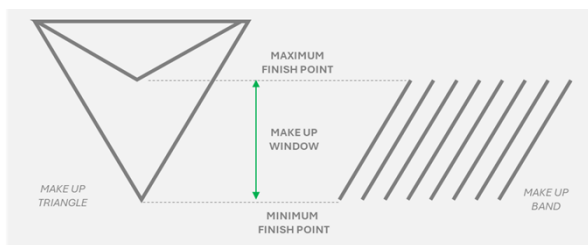
1. Ideally when running a Dopeless® 3.0 string the connections to be thread locked should be the doped variant with the connections cleaned of thread compound and completely dried, then thread lock and dope applied as per page 7.
2. When thread locking Dopeless® 3.0 connections, use a hand or rotary brass wire wheel to remove the Dopeless® 3.0 coating from the threads on the large step of the pin where the thread lock is to be applied.

3. Leave the Dopeless® coating on the seal and small step threads on the pin end where no thread lock is to be applied.
4. Dopeless® boxes should be washed with hot water then dried prior to thread locking.
5. Thread lock should be applied to threads on the large step, where Dopeless® 3.0 coating has been removed, as per page 7.
6. The application of thread compound is not required.

Torque Application

1. Computer make up equipment is recommended for Wedge 425® connections.
2. Computer make up equipment is strongly recommended for Wedge 425® connections in chrome steel.
3. Set tong dump valve at optimum torque then test on pipe body.
4. Check calibration certificates of computer equipment and any torque gauge used for make-up.
5. Apply the specified torques as indicated on the latest data sheet. Do not apply thread compound manufacturer's friction factor.
6. The make up criteria for Wedge 425® connection is the attainment of optimum torque along with the box face final position.

7. When computer equipment is used, there is no need to verify the box face final position.
8. If computer equipment is not used, ensure correct torque is applied and verify the box face finishes within the make-up band lines or triangle stamp position. Frequency of verification should be agreed with the Tenaris Field Services Representative and documented in the running report. It is suggested to visually check the first 5 joints, then every 20 joints during the job.
9. Wedge 425® connections may have as many as two threads exposed after makeup which is normal for this connection and is not cause for concern.



10. When thread locking connections apply optimum torque at low RPM, then relax the tong and re-apply optimum torque. Verify that the correct final position is reached.
11. Wedge 425® connections of the same size and different weights are not interchangeable.
12. If two different grades are to be made up the torque to be applied should be the higher of the two values.
13. If mixing doped and Dopeless® 3.0 variants, apply higher of the two torque values.

14. Torque values of mixed assemblies can be obtained from the tool available at https://dcp.tenaris.com/Mixed_Assemblies.

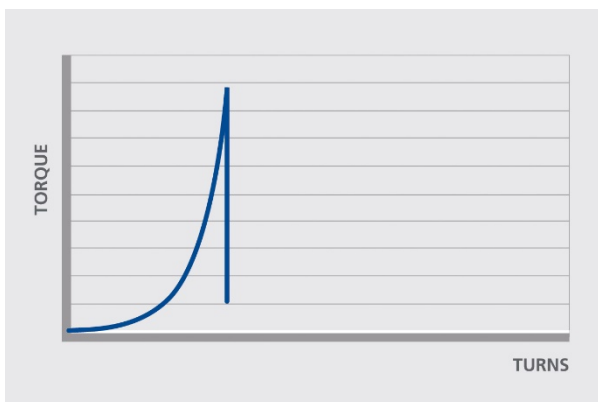
15. TenarisHydril Wedge 425® was formerly TORQ® SFW™ and therefore, is interchangeable with that connection in the same size and weight. Since TORQ® SFW™ has no make up indicator stamp, computer assisted make up is strongly recommended when assembling TORQ® SFW™ to a compatible Wedge 425® connection.

16. Graph analysis for Wedge 425® is similar to that for all Wedge™ Series, refer to document GDL23355 “Wedge™ Series Make up Acceptance” for further explanation.

17. When computer equipment is used, reference torque should be set at 5% of optimum torque.

18. Set the computer turns to 2 initially, then adjust as necessary to attain a good graph depiction.

19. Graph profile should be similar to the one below.



Running

1. The use of a stabbing guide is strongly recommended.
2. The use of slip type elevators is strongly recommended.
3. The use of a safety clamp is strongly recommended.
4. The use of a weight compensator is strongly recommended for chrome pipe and stands of three joints $\geq 7"$.
5. To avoid cross-threading stab pipe in a smooth controlled fashion ensuring the pipe is vertical when doing so. Continue to support and stabilize the pipe throughout the stabbing and make up operation.
6. Upon commencement of initial rotation use low RPM (5 RPM or below) to ensure the pipe has not cross-threaded during stabbing. If cross threading is evident, immediately reverse rotate the pipe, completely disassemble, clean and inspect both connections.
7. Maximum assembly speeds are indicated in the table below. These are applicable for running in singles with power tong or CRT and assuming ideal conditions.

THS W425®	OD	SPIN IN RPM	FINAL MAKE-UP RPM
Carbon Steel	4" - 5 1/2"	35	15
	6 5/8" - 7 5/8"	20	10
	8 5/8" - 9 5/8"	10	5
	10 3/4" - 13 5/8"	3	3

8. Conditions may dictate lower assembly speeds than the maximums indicated. High winds or excessive pipe movement among other variables will necessitate a lower RPM be used.
9. Walk chrome pipe all the way in to hand tight position, then apply tong at low RPM (do not exceed 5 RPM) for final make up.
10. Apply the back up tong on the pipe body below the box expanded area to prevent damage. Never apply the tong over the connection area.
11. A factor which may preclude complete assembly is excessive thread compound being applied to the connection, reduce the quantity applied if this is the case.

Downhole Rotation

1. Tenaris recommends utilizing the minimum amount of torque necessary to break the friction between the tubing or casing and the well bore if downhole rotation of the string is required.
2. Wedge 425® connections should not be rotated beyond the specified operating torque and the RPM should be limited to 40 RPM or lower.
3. Care should be taken to gradually increase or decrease torque when rotating to allow the stored kinetic energy to dissipate and prevent connection yield or break out.
4. Caution is advised as torque measurement accuracy and dump valve response time can vary depending on the equipment utilized.

Pulling

1. Automatic stabbing system or stabber is strongly recommended to maintain the pipe in a vertical position.
2. The use of a stabbing guide is strongly recommended to prevent hang up.
3. The use of slip type elevators is strongly recommended.
4. The use of a safety clamp is strongly recommended.
5. The use of a weight compensator is strongly recommended for chrome pipe and stands of three joints $\geq 7''$.
6. Apply the back up tong on the pipe body below the box. Do not apply tongs on either pin or box connection expanded area.
7. Apply power tong in low rpm (3-5 rpm) to break out the connection, ensuring the pipe is stabilized during the break out process. Do not exceed 15 RPM during spin out.
8. Walk chrome pipe all the way out by hand after initial break out.
9. Visual inspection is recommended to classify the thread condition, any rejected connections should be clearly marked and segregated for further investigation.
10. Apply clean dry thread protectors after applying storage compound.

11. Storage / thread compound should always be applied to connections post job, even rejects.

12. Prior to re-running the connections should be thoroughly cleaned and inspected.

13. Unless the connections are phosphate coated apply an even coat of 'Dry Moly' to the connections and allow to dry.

14. Do not apply storage compound to Dopeless® 3.0 connections.

15. For long-term storage of Dopeless® 3.0 connections, refurbishment by qualified personnel is recommended.

16. Ensure clean, dry, Dopeless® protectors with seal rings correctly in place are installed.

17. If refurbishment cannot be done prior to storage, storage compound may be applied to Dopeless® 3.0 connections. In this case, remove rubber rings from the Dopeless® thread protectors prior to installation. Remove storage compound prior to re-run.

18. Regardless of connection variant, do not re-run the string if it has been taken beyond the specified operating torque.

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