TenarisHydril Wedge 667® Connections

Scope

These guidelines apply specifically to the use of TenarisHydril Wedge 667® Dopeless®. In the specific cases of connections with Tenaris dope-free technologies, this document addresses products sold and marked as Dopeless® and does not address the use of versions identified as Dopeless® 3.0 or Dopeless® 3.1. If the product has been procured with any of these newer versions please contact our regional Technical Sales team.

This document should be used in conjunction with the TenarisHydril Running Manual, which is the main document applicable to the running of all TenarisHydril premium connections.

Tenaris Field Services Representatives can modify the application of the recommendations established in 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 and fully documented in the running report.

References

- GDL00337 "TenarisHydril Running Manual"
- FTD29356 "Premium Connection Approved Thread Compounds"

IDM Code GDL366776/3 / March 2022

- GDL31457 "Recommended guidelines for the field inspection of TenarisHydril connections".

Equipment, Material & Documents

1. Latest version of the specific Product Data Sheet can be obtained from Tenaris web site. In case this is unavailable, request the data sheet to the local Technical Sales Engineer or contact-tenarishydril@tenaris.com.

2. The use of a torque-turn computer monitoring system is not mandatory but is recommended to be used to make up this type of connection when applied on carbon steel.

3. The use of a torque-turn computer monitoring system is strongly recommended to be used to make up this connection when applied on chrome steel.

4. Slip type elevators are strongly recommended due to slimness of coupling OD.

Pre-Running

1. Never move or handle pipe without the correct thread protectors securely in place.

2. Ensure connections are clean and free of all debris and / or contaminants, cleaning methods employed should conform to the recommendations contained within the GDL00337 "TenarisHydril Running Manual".

3. Visually inspect threads, internal and intermediate seal areas prior to running, ensuring no damage is evident.

4. Verify all pipe and accessories have genuine TenarisHydril manufactured connections.

5. Verify the compatibility of the TenarisHydril Wedge 667® Dopeless® pipe with any accessories such as cement heads, safety valves, cross-overs, etc.

6. Check condition of both pin and box Dopeless® coating ensuring no peel off or degradation has occurred.

7. Connection weight interchange compatibility is indicated in the TenarisHydril premium connections catalogue.

8. Verify material grade of all accessories ensuring compatibility with main string.

Inspection

1. Inspection criteria for all Wedge 600™ series connections is as outlined in the GDL31457 "Recommended guidelines for the field inspection of TenarisHydril connections" for Wedge™ type connections.

2. Pay particular attention to seal areas.

3. Ensure the pin seal saver has no deformation or dents which could cause material to protrude.

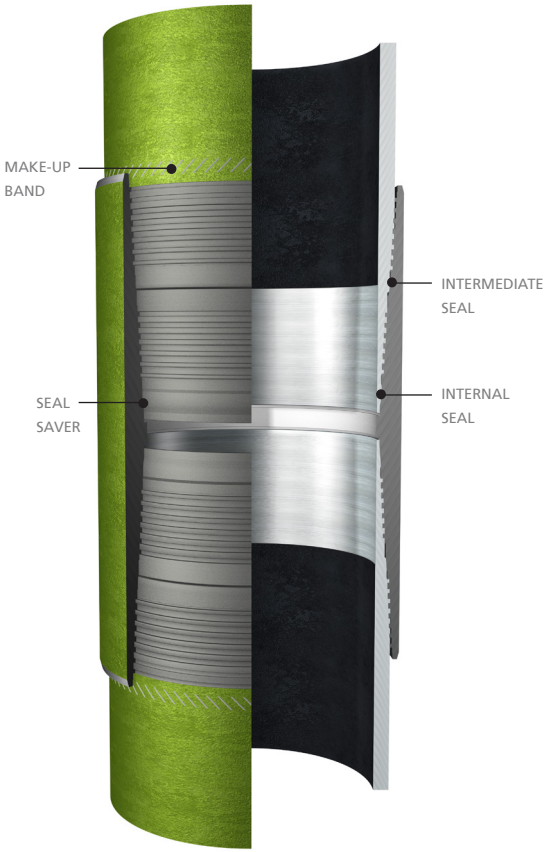
4. Ensure the cylindrical area between the last thread of smaller thread step and the intermediate seal of the pin has no tearing or raised areas which may contact the corresponding box intermediate seal during make up.

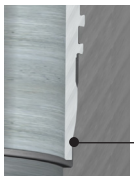
5. Minor rust or discolouring of the pin connection can be removed with the use of a clean dry rag ensuring the Dopeless® coating remains intact.

6. Minor rust or discolouring of the box connection can be removed with the use of a scour pad and a clean dry rag ensuring the Dopeless® coating remains intact.

IDM Code GDL36676/3 / March 2022

TenarisHydril Wedge 667®
Dopeless® Configuration





Thread Compound Application TenarisHydril Wedge 667® Dopeless®

If for whatever reason dope has to be applied to TenarisHydril Wedge 667® Dopeless® connections, whether both pin and box are Dopeless® or when mixing a doped connection with a Dopeless®, apply thread compound as indicated below. Refer to FTD29356 "Premium Connection Approved Thread Compounds" for thread compounds to use on this connection.

- .Apply a very thin coating of thread compound on the full pin end, threads and seals.
- Do not dope any part of the box connection.

Thread Lock Application Non Dopeless® Connections

1. Ideally, when running a Dopeless® string the connections to be thread locked should be non Dopeless®, with the connections free of thread compound and completely dried. Then, thread lock and dope should be applied as indicated in the following steps.

2. Thread lock should be applied to the full thread step furthest from the pin nose.

3. Running compound should then be applied to the small step of the box connection including both internal and mid-located, intermediate external seal.

IDM Code GDL36676/3 / March 2022

Thread Lock Application to Dopeless® Connections

1. When thread locking TenarisHydril Wedge 667® Dopeless® connections remove the Dopeless® coating from the large step threads of the pin connection prior to application of thread lock, leaving the Dopeless® coating on the remainder of the pin end threads and seals.

2. Use a hand or rotary brass wire wheel to remove the Dopeless® coating from the threads, ensuring no contact is made with the seal.

3. Dopeless® boxes should be washed with hot water then dried before thread locking.

4. Thread lock should be applied to the large step of the pin connection where the Dopeless® coating has been removed.

5. The application of running compound is not required.

6. Do not apply thread lock to the seal areas.

Torque Application

1. Check calibration certificates of any torque gauge and computer equipment used for make up.

2. Set tong dump valve at optimum torque then test on the pipe body.

3. For Dopeless® technology connections apply the specified torques as indicated on the TenarisHydril Dopeless® technology data sheet.

4. For Dopeless® technology connections applying optimum torque twice (double bump) is not necessary.

5. If thread compound is to be applied to Dopeless®, ‘double bump’ the first connection make up as follows;

- Apply Dopeless® torques as per appropriate data sheet. Do not apply the thread compound manufacturers friction correction factor.
- Once optimum torque has been attained relax the tong and re-apply optimum torque.
- If movement over ½" is witnessed, re-apply optimum torque.
- Repeat process until no movement over ½" is witnessed, checking to ensure no other factors are absorbing the applied torque.
- Often the issue is caused by excessive application of thread compound.
- Continue making up further joints applying optimum torque.
- For connections ≥ 10 ¾" double bump every make up when thread compound is applied.

6. For thread locking, do not apply thread lock manufacturers friction factor, apply optimum torque +20% then double bump the connection.

7. TenarisHydril Wedge 667® Dopeless® has limited same size/weight interchange capability, if mixing weight / grade ensure compatibility of design and apply the higher torque values of the two connections.

IDM Code GDL366763 / March 2022

Running

1. The use of a stabbing guide is strongly recommended.

2. The use of slip type elevator is strongly recommended

3. The use of a safety clamp is strongly recommended when running Wedge 667® Dopeless® connections.

4. Prior to stabbing, ensure the rubber anti corrosion protection rings have been removed along with the protectors and are not on the connection.

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. For chrome material pipe spin in by hand with the use of a strap wrench.

7. Upon commencement of initial rotation use low RPM (5 RPM or below) in order to ensure the pipe has not cross threaded during stabbing. If cross threading is evident, immediately reverse rotate the pipe slowly.

8. Maximum spin in speed should not exceed 15 RPM.

9. Apply power tong at low rpm (do not exceed 5 rpm), for final make up.

10. Upon attainment of optimum torque the coupling face should be within the oblique lines of the make up band.

11. A factor which may preclude complete assembly is excessive thread compound applied to the connection, reduce the quantity applied if this is found to be the case. Refer to section 10.

12. If a different weight or grade of connections is to be mixed ensure compatibility of weight and apply the higher of the indicated make up torques.

13. Computer make up equipment is not mandatory for TenarisHydril Wedge 667® Dopeless® connections in carbon steel however it is recommended.

14. Computer make up equipment is highly recommended for this connection in chrome material.

15. Graph analysis for TSH W667® Dopeless® is similar to that of other Wedge Series 600™ and Wedge Series 500™, refer to the TenarisHydril running manual make up acceptance section for further explanation of graph acceptance / rejection criteria.

16. Tenaris recommends the use of torque turn measurement for accurate graph interpretation.

17. The use of torque-time prevents accurate graph interpretation of connection assembly and is not recommended.

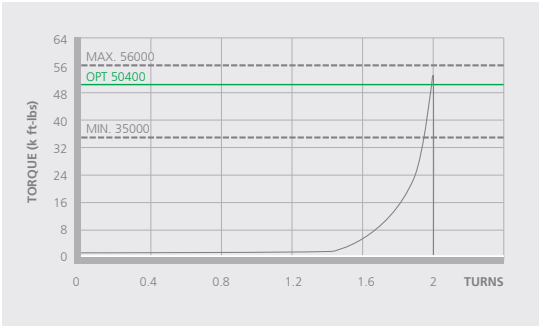
18. When computer equipment is used, reference torque should be initially set at 5% of optimum torque.

19. The dump valve should be set at optimum torque, verify correct operation on the pipe body prior to first make up.

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

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

IDM Code GDL366776/3 / March 2022



22. No shoulder will be evident in the graph, there should be a smooth thread & seal interference build profile culminating at optimum torque.

23. The make up band can be used as an additional verification of correct final position after assembly, visually checking that box face finishes within the make up band lines.

24. Frequency of the visual check of make up band should be agreed with Tenaris Field Services representative and documented in running report. It is suggested to visually check the first 5 joints, then every 20 joints during the job.

Pulling

1. Automatic stabbing system or stabber is highly recommended to maintain the pipe in a vertical position.

2. The use of a stabbing guide is recommended to assist in centralizing the pin to prevent hang up.

3. Place the back-up tong jaw on the pipe body below the coupling. If gripping over the coupling cannot be avoided, the back-up jaws should be set on the mill side of the coupling, leaving the field side free to disengage.

4. Apply power tong in low rpm (3-5 rpm) to break out the connection, ensuring the pipe is stabilized during the break out process.

5. Once the connection is broken release back up jaws and spin out below 10 RPM.

6. For Chrome material pipe, once the connection is broken spin out by hand with the use of a strap wrench.

7. The use of a stabbing guide is strongly recommended when lifting the pin from the box to prevent hang up of the threads.

8. Visual inspection is recommended to classify the thread condition. Any rejected connections should be clearly marked and segregated for further investigation.

9. Apply clean, dry thread protectors on clean dry connections.

10. Ensure the rubber anti corrosion protection rings are in place on the protectors prior to installation.

IDM Code GDL36676/3 / March 2022