TenarisHydril Wedge 533®/503®/553® Connections

Scope

These guidelines apply specifically to the use of TenarisHydril Wedge 533®, Wedge 503® and Wedge 553® connections, all variants including Dopeless® connections.

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 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 and fully documented in the running report.

References

- FTD29356 - Premium Connection Approved Thread Compounds.
- GDL31457 - Recommended Guidelines for the Field Inspection of TenarisHydril Connections.
- GDL23351 - Handling / Lift Plugs.
- GDL23356 - Dopeless® Connections.
- GDL23352 - Torque Application.
- GDL23355 - Wedge™ Series Make up Acceptance.
- GDL23349 - Pre-Running Preparation.

IDM Code GDL23368/5 / September 2024

Equipment, Material & Documents

1. Verify the recommended thread compound is available.

2. Identify the product to be run including the Dopeless® version if applicable and the connections of all accessories.

3. Latest version of the specific Product Data Sheet can be obtained from the Tenaris website. In case this is unavailable, request the data sheet from the local Technical Sales representative.

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 TenarisHydril Running Manual, (GDL23349 - Pre-Running Preparation).

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

4. Verify the connections to be assembled are genuine TenarisHydril manufactured connections.

5. Verify compatibility of the Wedge 533® / 503® / 553® connection with any accessories such as pup joints, cross overs, cement heads, etc.

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

7. On Dopeless® connections check condition of both pin and box coating ensuring no peel off or degradation has occurred.

8. Wedge 533® / 503® / 553® handling plugs are designed to protect the box threads during running with slip type elevators.

9. Check availability of handling plugs, minimum of 3 to ensure efficiency of running process.

10. Check the handling plugs are in good condition and fit correctly onto 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 handling plugs are genuine TenarisHydril threads.

13. Verify handling plug number and maximum lift capacity.

14. Never exceed the maximum lift capacity.

15. For further information on the care and use of handling and lift plugs refer to GDL23351, Handling / Lift Plugs.

IDM Code GDL23368/5 / September 2024

Inspection

1. Inspection criteria for all Wedge™ Series 500 connections is as outlined GDL31457, Recommended Guidelines for Field Inspection of TenarisHydril Connections.

2. Pay particular attention to seal areas.

3. Ensure there are no gouges, tears or raised material on the pin nose.

4. For Wedge 533® / 553® Corrosion Barrier (CB) variant, ensure the CB groove is free of debris or damage which may preclude correct installation of the CB ring.

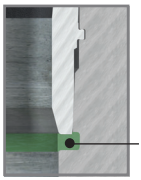
5. Wedge 533® and Wedge 553® check box and pin external shoulders for signs of contact, connections indicating contact at the shoulders should be rejected for re-cut.

Wedge 533® / 503® Configuration

The diagram below is applicable to doped and Dopeless® variants.

Wedge 533® / 503® connections end type:

- Wedge 533® = IEU Pipe
- Wedge 503® = EU Pipe



For further information on Dopeless® connections refer to GDL23356, Dopeless® Connections.

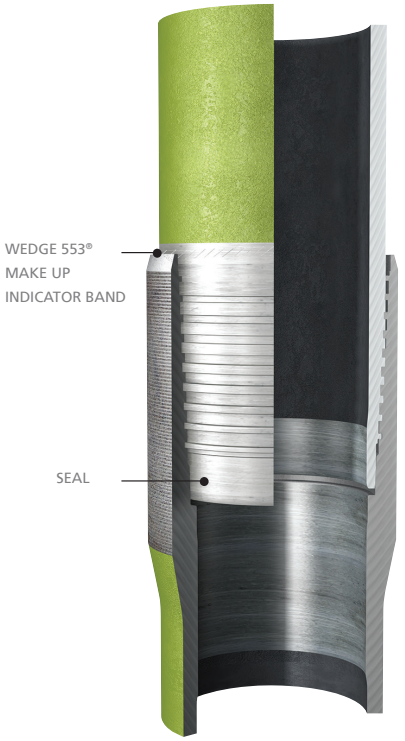
IDM Code GDL23368/5 / September 2024

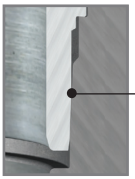
Wedge 553® Configuration

The diagram below is applicable to doped and Dopeless® variants.

Wedge 553® connection end type:

- Wedge 553® = IEU Box / Non Upset Pin

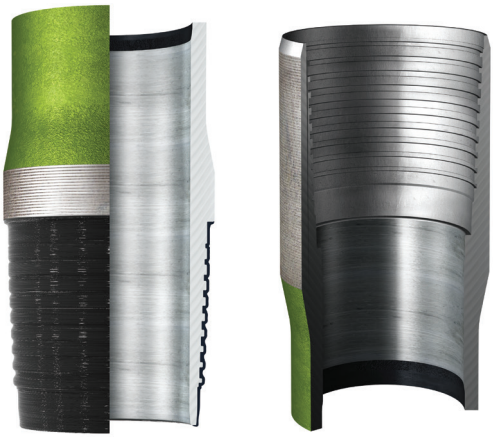




For further information on Dopeless® connections refer to GDL23356, Dopeless® Connections.

Thread Compound Application

Doped Variant



1. Apply a thin coating of thread compound on the full pin end only, threads, seal and pin nose, the thread form should be clearly visible. Refer to FTD29356 - Premium Connection Approved Thread Compounds.

2. Do not apply running compound to the box end.

3. If pipe is received from Tenaris as RunReady™ with running compound already applied , no additional cleaning or compound application is required prior to running. Remove thread protectors, redistribute thread compound on the pin with a clean brush to ensure homogeneous coverage of threads and pin nose.

IDM Code GDL23368/5 / September 2024

Thread Lock Application

Doped Variant

Connections should be clean and dry when applying thread lock.

1. Thread lock should be applied to 50% of the threads at the back of the pin connection.

2. Running compound should then be applied to the threads and seal at the back of the box connection.

Thread Compound Application Wedge 533® / 553® / 503® Dopeless® Connections

1. Dopeless® connections do not require the application of thread compound for make up.

2. If for whatever reason dope has to be applied to Dopeless® connections, whether both pin and box are Dopeless® or when mixing a doped variant connection with Dopeless®, proceed as indicated below:

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

Wedge 533® / 503® / 553® Dopeless® Thread Lock

1. Ideally when running a Dopeless® 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 applied as per page 8.

2. When thread locking Dopeless® connections remove the Dopeless® coating from the threads on the pin connection where the thread lock is to be applied prior to the application of thread lock.

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

4. Leave the Dopeless® coating on the pin seal and threads where no thread lock is to be applied.

5. Dopeless® boxes should be washed with hot water then dried prior to thread locking.

IDM Code GDL23368/5 / September 2024

6. Thread lock should be applied to the threads furthest from the pin nose, approximately 50% of the threads should have thread lock applied.

7. The application of thread compound is not required.

8. Do not apply thread lock to seal area.

Torque Application

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

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

3. For doped connections, apply the specified torques indicated on the TenarisHydril doped variant data sheet.

4. Do not apply thread compound manufacturer's friction factor.

5. Doped variant, first connection make up;

- Once optimum torque has been attained relax the tong and re-apply optimum torque.
- If movement over ½" is witnessed re-apply optimum torque +20%.
- Repeat process, 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 higher torque if required.
- Refer to GDL23352, Torque Application.

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

7. When any doped variant is made up to a Dopeless® connection apply the higher of the two make up torque values. Double bump the connection as point 5.

8. When applying thread lock to doped connections, doped variant torque values +20% should be used then double bump the connection.

9. When applying thread lock to Dopeless® connections, Dopeless® torque values +20% should be used then double bump the connection.

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

11. Computer make up equipment is recommended for Wedge 533®/ 503®/ 553® connections.

12. Computer make up equipment is strongly recommended for Wedge 533® / 503® / 553® connections in chrome steel.

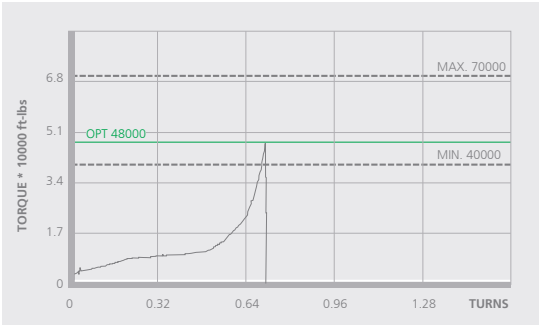
13. Graph analysis for Wedge 533® / 503® / 553® connections is similar to that for all Wedge Series 500™ connections. Refer to GDL23355; Wedge™ Series Make up Acceptance.

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

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

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

IDM Code GDL23368/5 / September 2024



17. Wedge 533® / 503® / 553® connections have limited same size / weight interchange capability, if mixing weight / grade ensure compatibility of design and apply the higher torque value of the two connections.

18. Wedge 533® / 503® / 553® connections are compatible in the same size / weight combination.

19. Wedge 533® / 553® connections are compatible with Wedge 533® / 553® CB option in the same size / weight, apply standard optimum torque.

20. For connection interchange capability see the connection specific data sheet.

21. When Wedge 533® and 503® connections are correctly assembled a gap should exist between the external shoulders of the connections, as indicated on page 4.

22. The gap should not be excessive, approximately 1/32" to 1/8" for new connections when correctly assembled for the first time.

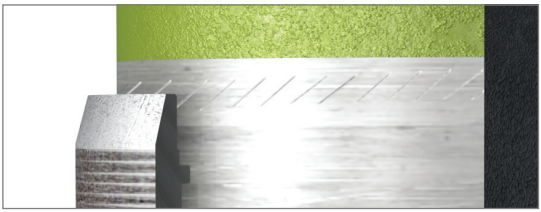
23. After several make ups, some wear will occur to the connections during each assembly, reducing the gap size.

24. When the gap closes the connections are worn, both connections should be rejected for re-cut.

25. Connection wear can only be assessed after assembly, it is not possible to determine wear quantity by gauging.

26. For Wedge 553®, the make up band can be used as an additional verification of correct final position after assembly, visually checking the box face finishes within the make up band lines.

27. Frequency of the visual check of make up band on Wedge 553® 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.



WEDGE 553® MAKE UP BAND

Running

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

2. The use of slip type elevators is recommended, never use drill pipe / bottle neck elevators.

3. The use of a weight compensator is strongly recommended for chrome pipe.

4. For the CB variant a new CB ring should be installed prior to every make up.

5. To avoid cross threading, stab pipe in a smooth controlled fashion ensuring the pipe is vertical when doing so, continue to support and stabilise the pipe throughout the make up operation.

6. Upon commencement of initial rotation use low RPM (5 RPM or below) in order to ensure the pipe has not cross threaded during stabbing.

7. If cross threading is evident, immediately reverse rotate the pipe, completely disassemble, clean and inspect both connections

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

9. Walk chrome pipe all the way in to hand tight, then apply tong only for final make up.

10. Ensure the back up tong is located below the box upset to prevent damage.

11. Never grip the connection upset area of pin or box.

12. 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.

Pulling

1. A stabbing guide is strongly recommended to prevent hang up.

2. The use of a single joint compensator is recommended for chrome pipe.

3. Apply the back up tong jaw well below the box.

4. Never grip the connection upset area of pin or box.

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

6. Walk chrome pipe all the way out by hand after initial break out.

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

8. Apply clean, dry thread protectors after applying storage compound on clean, dry connections.

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

10. Do not apply storage compound to Dopeless® connections.

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

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

13. If refurbishment cannot be done prior to storage, storage compound may be applied to Dopeless® connections. In this case, ensure to remove rubber rings from Dopeless® thread protectors prior to installation as they are not compatible with storage compound.

IDM Code GDL23368/5 / September 2024