TenarisHydril ER™ Connection

Scope

These guidelines apply specifically to the use of TenarisHydril ER™ (Easy Running) connections, all variants including Dopeless® connections.

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 and fully documented in the running report.

References

- FTD29356 - Premium Connection Approved Thread Compounds.
- GDL31457 - Recommended Guidelines for the Field Inspection of TenarisHydril Connections.
- GDL23349 – Pre Running Preparation.
- GDL23356 - Dopeless® Technology.
- GDL23353 - Blue® Series and Legacy Series Make up Acceptance.

Equipment, Material & Documents

1. Verify the appropriate thread compound is available.

2. Refer to FTD29356 for a list of compounds approved by Tenaris.

3. Verify the product to be run including the Dopeless® variants if applicable and the connections of all accessories.

4. Latest version of the specific Product Data Sheet can be obtained from the Tenaris web site. 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 cleaned and free of all debris and / or contaminants, cleaning methods employed should conform to the recommendations contained within GDL23349 - Pre Running Preparation.

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

4. Visually inspect threads and torque shoulder prior to running, ensuring no damage is evident.

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

6. Verify the compatibility of the ER™ connection with any accessories such as, cement heads, safety valves, cross overs, etc.

7. Connection weight interchange compatibility is indicated in the product data sheet.

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

Inspection

1. Inspection criteria for all TenarisHydril connections are outlined in GDL31457.

2. Ensure the pin and box torque shoulders have no dents, tears or raised material which could interfere with correct assembly.

ER™ Configuration

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

7" to 13 5/8" = 4 TPI
14" to 24 1/2" = 3 TPI
No Metal to Metal seal

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

Thread Compound Application

Doped Variant

1. Apply a thin coating of thread compound on the pin and box connections, fully covering all threads, pin nose and box torque shoulder, the thread form should be fully visible.

2. Use approximately 50% of the quantity applied to the pin when doping the box.

3. Use Tenaris approved thread compounds and apply the friction factor indicated in FTD29356, Premium Connections Approved Thread Compounds.

4. For thread compounds other than those listed, in FTD29356 apply the thread compound manufacturers indicated friction factor.

Thread Lock Application

Doped Variant

Connections should be clean and dry when applying thread lock.

1. Apply a thin coating of thread lock on 50% of the pin threads furthest from the pipe body.

2. Do not apply thread lock on the torque shoulder.

3. Apply thread compound to the box torque shoulder.

4. Apply the thread lock manufacturers indicated friction factor.

ER™ Dopeless®
Thread Compound Application

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

2. If for whatever reason thread compound has to be applied to ER™ Dopeless® connections, whether both pin and box are Dopeless® or when mixing a doped connection with a Dopeless® one, apply thread compound as indicated below.

- Apply a very thin coating of thread compound on all pin threads and pin nose.
- 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.

ER™ 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 and dope applied as per page 6.

2. When thread locking Dopeless® connections, use a hand or rotary brass wire wheel to remove the Dopeless® coating from the threads on the pin where the thread lock is to be applied.

3. Leave the Dopeless® coating on the pin nose and threads 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 50% of the pin threads immediately behind the pin nose, as per the diagram on page 6.

6. The application of thread compound is not required.

7. When assembling Dopeless® connections with thread lock, apply the doped variant torque values, and apply the thread lock manufacturers indicated friction factor.

Torque Application

1. The use of computer make up analysis equipment is strongly recommended when assembling ER™ connections.

2. Reference torque should initially be set at 5% of optimum.

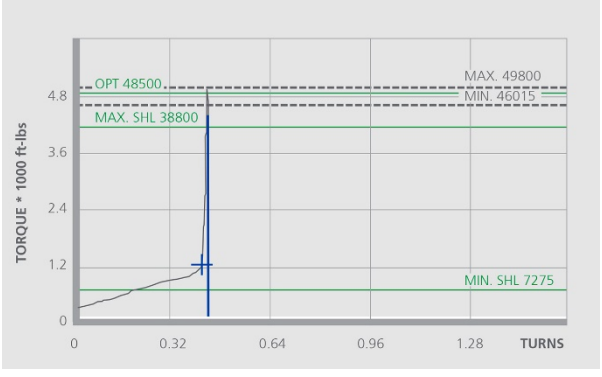
3. The dump valve should be set at optimum, verify correct operation on the pipe body prior to first make up.

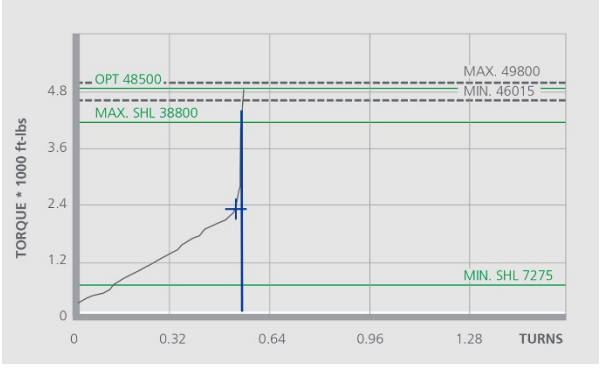
4. Set the computer turns to 2 initially then adjust as necessary to attain good graph depiction.

5. The computer make up profile for ER™ connections should be similar to the ones on next page.

6. Refer to GDL23353, Blue® Series and Legacy Series Make up Acceptance for further explanation.

7. For graphs specific to Dopeless® connections refer to GDL23356, Dopeless® technology.





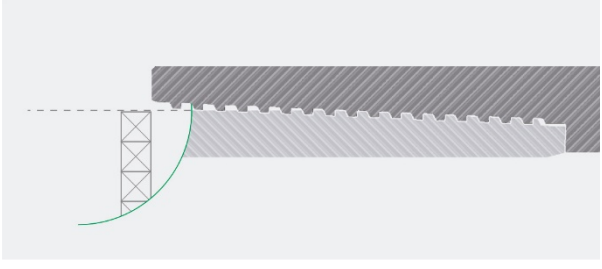
8. If different weight or grade of connections are to be mixed apply the lower weight or grade make up torque.

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

10. TenarisHydril ER™ pipe ≥ 13 3/8” should have a make up loss (MUL) indicator stamped around the circumference of the pin OD. This MUL indicator is to assist in the visual verification of correct assembly and eradicates the necessity of applying the MUL by hand, however this does

not replace the requirement for a good make up graph as the primary acceptance / rejection criteria for connection assembly.

11. After make up the face of the coupling should finish at the lower edge of the make up band (edge closer to the pin nose).



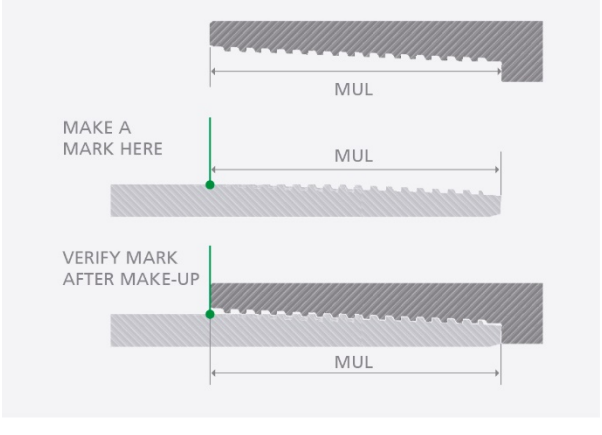
12. The make up band may be located within the thread run out area and may be of a different configuration to the one indicated above. The distance from the pipe end to the make up band should always be checked in order to verify it corresponds to the MUL indicated on the latest product data sheet.

13. For ease of identification after make up it is recommended the make up band be highlighted with a paint stick or some other form of marker prior to connection assembly.

14. Older pipe may in some regions have a make up triangle (possibly three) hard stamped on the pin ends as a visual indicator of complete make up. When made up the coupling face should reach the base of this triangle. Best practice is to check randomly that the distance from the base of these triangles to the pin nose corresponds to the make up loss indicated on the product data sheet.

15. In the absence of either a MUL indicator or hard stamped triangle(s) on the pin end, the MUL should be indicated on every pin end to be run. In order to do this, measure the MUL length (indicated on the Product Data Sheet) from the nose of the pin end and make a mark on the pin OD.

16. The MUL should be applied on at least one point of the pin OD, however it is good practice to apply the MUL mark at 3 points round the OD of the pin, this allows faster identification of the MUL mark.



NOTE: IF FOR ANY REASON THE DATA SHEET FOR THE SPECIFIC PRODUCT IS NOT AVAILABLE ON LOCATION THE MAKE UP LOSS CAN BE DETERMINED BY MEASURING FROM THE TORQUE SHOULDER TO THE FACE OF THE BOX, AS ABOVE.

17. The most efficient method of MUL marking is as below, this allows instant identification of where the MUL marks are on the pipe OD, the vertical line being easily identifiable above any extruded thread compound.

Running

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

2. The use of a weight compensator is strongly recommended for pipe with an OD ≥ 14"and stands of 3 pipe ≥ 7".

3. 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 stabbing and make up operation.

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

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

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

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

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 centralising the pin to prevent hang up.

3. A weight compensator is strongly recommended for pipe with an OD ≥ 14"and stands of 3 pipe ≥ 7".

4. Apply the back up tong jaw on the lower part, over the mill end of the coupling.

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

6. Maximum spin out speed should not exceed 15 RPM.

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® Technology 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, remove rubber rings from the Dopeless® thread protectors prior to installation. Remove storage compound prior to re-run.