Pre-running

1. Locate and inspect all necessary accessories and tools on location, such as: pup joints, crossovers, float equipment, stabbing guides, handling / lifting plugs, single joint elevators, thread compound, tong dies.

2. Verify the pipe and accessories have genuine TenarisHydril manufactured connections.

3. Verify interchangeability of accessories with main string, size, weight and connection type.

4. Connection interchange capabilities can be found in the TenarisHydril product catalogue.

5. Verify grade of all accessories, ensuring compatibility with main string.

Protectors

1. Remove and clean protectors as the pipe is racked out.

2. Stack protectors on a clean, dry surface as they are removed and ensure they are not contaminated by debris, corrosive fluids or water.

3. Do not use broken or damaged protectors.

4. If debris or fluids contaminate the protectors, clean thoroughly and dry prior to re-installation.
5. Connections with Dopeless® or Dopeless® 3.0/3.1 technologies have specific protectors which must have rubber rings in place as a corrosion barrier.

THREAD PROTECTORS FOR DOPELESS® / DOPELESS® 3.0/3.1 TECHNOLOGIES

Rubber rings act as a corrosion barrier.
6. Bumper rings should only be removed once the pipe has been received and racked at the rig site and should be re-installed prior to the pipe being transported.

**RACKING SYSTEM**

With bumper rings to protect flush connections.
Drifting

1. Drift the pipe prior to cleaning and inspecting the connections.

2. Ensure drift mandrels meet API dimensional requirements (reference API Specification 5CT) or specified special drift requirements.

3. Using compressed air blow out the pipe ID from box to pin to completely remove loose mill scale and accumulated debris.

4. Drift from box to pin, be careful not to damage connections during drifting operations.

5. Pipe that fail the drift test should be marked with a red paint band either side of the restriction and marked as “No Drift” then segregated from the main string for further investigation.

6. Use a nylon / plastic drift for chrome, CRA, internally plastic coated (IPC), Fiber Glass Lined (FGL) and Glass Resin Epoxy (GRE) lined material.

7. In the case of IPC, FGL and GRE lined pipe the drift dimensions will require to be reduced dependent on coating / liner thickness.

API Standard Drift Mandrel Size (min.)

<table>
<thead>
<tr>
<th>PRODUCTS &amp; SIZES</th>
<th>LENGTH</th>
<th>DIAMETER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>inch</td>
<td>mm</td>
</tr>
<tr>
<td></td>
<td>inch</td>
<td>mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CASING AND LINERS</th>
<th>LENGTH</th>
<th>DIAMETER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smaller than 9 5/8”</td>
<td>6</td>
<td>d - 1/8</td>
</tr>
<tr>
<td>9 5/8” to 13 3/8”</td>
<td>12</td>
<td>d - 5/32</td>
</tr>
<tr>
<td>Larger than 13 3/8”</td>
<td>12</td>
<td>d - 3/16</td>
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</table>
Some Alternate Drift Sizes

<table>
<thead>
<tr>
<th>OD</th>
<th>WEIGHT</th>
<th>DRIFT</th>
</tr>
</thead>
<tbody>
<tr>
<td>inches</td>
<td>ppf</td>
<td>inches</td>
</tr>
<tr>
<td>7</td>
<td>23</td>
<td>6.25</td>
</tr>
<tr>
<td>7</td>
<td>29</td>
<td>6.125</td>
</tr>
<tr>
<td>7 3/4</td>
<td>32</td>
<td>6</td>
</tr>
<tr>
<td>8 5/8</td>
<td>46.1</td>
<td>6.5</td>
</tr>
<tr>
<td>8 5/8</td>
<td>32</td>
<td>7.875</td>
</tr>
<tr>
<td>8 5/8</td>
<td>40</td>
<td>7.625</td>
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<td>9 5/8</td>
<td>53.5</td>
<td>8.5</td>
</tr>
<tr>
<td>9 5/8</td>
<td>58.4</td>
<td>8.375</td>
</tr>
<tr>
<td>9 7/8</td>
<td>65.1</td>
<td>8.5</td>
</tr>
<tr>
<td>10 3/4</td>
<td>45.5</td>
<td>9.875</td>
</tr>
<tr>
<td>10 3/4</td>
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<tr>
<td>11 3/4</td>
<td>42</td>
<td>11</td>
</tr>
<tr>
<td>11 3/4</td>
<td>60</td>
<td>10.625</td>
</tr>
<tr>
<td>11 3/4</td>
<td>65</td>
<td>10.625</td>
</tr>
<tr>
<td>13 3/8</td>
<td>72</td>
<td>12.25</td>
</tr>
</tbody>
</table>

**NOTE:** CHECK MILL STENCIL AND OD OF DRIFT PRIOR TO COMMENCING DRIFTING OPERATIONS.
Cleaning

1. Storage compounds do not have the correct lubrication properties for making up connections.

2. All storage compound must be completely removed from the connections.

3. Cleaning of the connections to remove storage compound should be carried out as close to the time of running as possible.

4. Clean connections using one of the following methods:
   • A non-metallic brush and cleaning solvent.
   • Steam clean with fresh water and cleaning solvent.
   • A rotary bristle brush with high pressure water jet and cleaning solvents.
   • High pressure water blast.

5. Do not use diesel or oily solvents. These are difficult to remove and affect running compound.

6. Dry the cleaned connections using compressed air then reinstall clean, dry protectors.

7. If cleaned connections are left exposed for over 12 hours, apply light oil to the connections with a spray or soft brush and install clean, dry protectors.

8. The lightly oiled connections can then be lifted to the rig floor, the protectors removed and the oil cleaned off prior to applying running compound.

9. If connections need to be exposed for over 72 hours, apply a suitable storage compound and install clean, dry protectors.

10. Connections with Dopeless® or Dopeless® 3.0/3.1 technologies do not require cleaning unless contaminated.
11. Cleaning of connections with Dopeless® or Dopeless® 3.0/3.1 technologies should only be carried out using a mild detergent in fresh water and a soft bristle brush or rags.

 CONNECTIONS PRIOR TO CLEANING
The complete removal of all storage compounds is imperative.
PROPERLY CLEANED CONNECTIONS
Connections must be completely clean of all contamination prior to applying running compound.

12. Connections with Dopeless® or Dopeless® 3.0/3.1 technologies should have no compounds applied to the threads and arrive with specific thread protectors installed.

13. If connections with Dopeless® or Dopeless® 3.0/3.1 technologies have been contaminated, clean with fresh water and mild detergent using clean rags. Do not use high pressure water, steam, rotary brushes or any sort of solvent.
Pipe measuring

1. Remove protectors then reinstall immediately after measuring each pipe.

2. Measure and note full length; box face to pin nose.

3. Effective length can then be calculated by subtracting make up loss (MUL) from total length.

4. MUL for each connection is indicated on the relevant product data sheet.

\[
\text{EL} = \text{TL} - \text{MUL}
\]

Inspection

1. Check all pipe and accessory connections are genuine TenarisHydril manufactured.

2. Ensure the pipe can be rolled a minimum of 2 full rotations to facilitate complete cleaning and inspection.

3. Inspect all connections for damage, as outlined in Tenaris Guideline GDL31457.

4. Field repair can only be performed by a Tenaris Field Service Representative.
5. Re-install clean, dry thread protectors upon completing inspection.

6. For connections with Dopeless® or Dopeless® 3.0/3.1 technologies ensure coating is in an undamaged state.

7. All rejects should be clearly marked and segregated away from pipe to be run.

**Connection Preparation**

1. Handle all pipe with the correct thread protectors in place.

2. API Modified running compound is recommended for all connections.

3. For a list of thread compounds approved by Tenaris see FTD29356.

4. Use a thermal grade running compound when the service temperature exceeds 250°F / 120°C.
5. Use an Arctic grade running compound in freezing temperatures. The compound should be free of water and ice particles and kept warm in the dog house or with a warming device.

6. Connections with Dopeless® or Dopeless® 3.0/3.1 technologies do not require the application of thread compound.

RUNNING COMPOUND APPLICATION

1. Running compound must be completely homogenized prior to use.

2. Never use a running compound that has reached its expiry date.

3. Ensure the connections are completely clean and free from debris / contamination prior to applying running compound.

4. For specific thread compound application refer to the individual connection running guideline.

5. Apply the running compound with the use of a soft bristle brush, moustache brush or similar.

6. Never add a thinning agent as this seriously affects the properties of the running compound.

7. Ensure the running compound is kept free of contaminants.

8. Excess compound on the connections should be removed.
9. For non Dopeless® Technology connections in chrome or CRA a thin coat of molybdenum disulfide may be applied to the seals and threads, subject to Field Services representative advice and in agreement with client representative prior to implementation.

10. For Wedge Series 500™, Wedge Series 600™, MACII™, SLX® and CS® in chrome or CRA apply a thin coat of molybdenum disulfide spray to any shiny areas on the pin seal.

11. Always allow the coating of molybdenum disulfide to dry prior to applying thread compound.

12. For connections with Dopeless® or Dopeless® 3.0/3.1 technologies thread compound is not required.

13. Ensure connections with Dopeless® or Dopeless® 3.0/3.1 technologies are clean and free of all debris or contamination, leave protectors in place as long as possible.