

# Running Procedure for Hercules™ Connection

Procedure No: FT-RP-002

Rev: 01

## Fermata™ Technologies



### Approvals

|                      |   |           |
|----------------------|---|-----------|
| <b>Documented By</b> | Israel Martinez (Fermata Technologies) & Daniel Ruiz (Oilfield Services & Technologies) | 2/24/2021 |
| <b>Reviewed By</b>   | Mathew Jarvis   | 3/18/21   |
| <b>Approved By</b>   | Ryan Broussard  | 3/18/21   |

### Revision Control

| <b>Rev</b> | <b>Description of Changes</b>   | <b>Date Issued</b> |
|------------|---|--------------------|
| 00         | Issued for use  | 10/28/20           |
| 01         | Additional thread compound, pictures of thread compound application, format | 3/18/21            |

All material contained in this brochure is for general information only. This material should not, therefore, be used or relied upon for any specific application without independent competent professional examination and verification of its accuracy, suitability and applicability. Fermata Technologies, LLC does not assume any responsibility or liability for any loss, damage, injury resulting from the use of information and data

# Running Procedure for Hercules™ Connection

Procedure No: FT-RP-002

Rev: 01

## 1. General Running Procedure

1.1 Refer to General Running Procedure No. FT-RP-000 latest revision.

## 2. Thread Compound Application

2.1 Fermata™ recommends the use of BOL 2000, BOL 2000 AG, or BOL 72733. Ensure thread compound is properly mixed prior to using. Thread compound shall be in good condition without any debris or contaminants.

2.2 The use of a fine brush is recommended to best control the application of thread compound. The brush should be free of any water. Water that is on the brush, connection, or in the running compound bucket must be completely removed before applying the compound. Apply a light coat of thread compound to the field end pin nose face and the **threads**. Thread compound should also be applied to the threads in the coupling. **Do not fill the dope pocket.**

2.3 When applying thread compound ensure the mill end pin is made up to the center of the coupling to prevent a low or high shoulder torque.

2.4 Under certain circumstances thread compound application may be altered only if approved by Fermata™ engineering.



Figure 1: Correct way to apply thread compound to pin.

# Running Procedure for Hercules™ Connection

Procedure No: FT-RP-002

Rev: 01



Figure 2: Correct way to apply thread compound to box.

## 3. Compatibility

3.1 Hercules™ pins have limited compatibility with differing weights within the same O.D. Careful consideration of the performance properties of the weakest connection must be made by the operator.

## 4. Make-up

4.1 Fermata™ recommends targeting the optimum make-up torque listed on the current connection data sheet. Any make-up torque between the minimum and maximum make-up torque is acceptable, but the optimum make-up torque is ideal for most conditions and common equipment. Add 10% to all specified make-up torque values when using thread locking compound. A torque shoulder must be visible for proper make-up.

4.2 Spin in the connection in high gear at Revolutions per Minute (RPM) at or below that listed in Table 1.

4.3 Switch to low gear prior to shouldering and keep the RPM's at or below that listed in Table 1.

4.4 The following (Table 1) is the recommended maximum make-up RPM.

| Pipe Diameter      | High Gear not to exceed | Low Gear not to exceed |
|--------------------|-------------------------|------------------------|
| 4-1/2" to 5-1/2"   | 30 RPMs                 | 15 RPMs                |
| 7" to 7-5/8"       | 20 RMPs                 | 10 RPMs                |
| 9-5/8" and greater | 15 RPMs                 | 7 RPMs                 |

Table 1

4.5 The shoulder torque is the point in which the pin noses make contact. This is indicated by a

# Running Procedure for Hercules™ Connection

Procedure No: FT-RP-002

Rev: 01

dramatic spike in the torque-turn graph and shall be clearly visible at a minimum of 5% of make-up torque and at a maximum of 90% of make-up torque.



Figure 3: Correct make-up graph.

## 5. Downhole Rotation

- 5.1 The maximum operating torque listed on the current connection data sheet is the maximum torque for downhole rotation unless reviewed and approved by engineering. Speed should not exceed 40 RPM. RPM's and operating torque can be evaluated and adjusted on a case-by-case basis if approved by Fermata engineering.
- 5.2 Take care to gradually increase or decrease rotation speed and torque to prevent potential dynamic loading scenarios.

## 6. Break out and Inspection

- 6.1 Verify back-up tongs are equipped with the appropriately sized dies prior to break-out.
- 6.2 Place the back-up tongs on the lower half of the coupling and not on the pipe body for threaded & couple connections to ensure breaking out the field end pin.



# Running Procedure for Hercules™ Connection

Procedure No: FT-RP-002

Rev: 01

- 6.3 Break-out the connection in low gear to ensure adequate torque capability.
- 6.4 Keep break-out speed low to prevent galling (preferably 5 RPM or less)
- 6.5 Break-out slowly until the pin “jumps”, indicating disengagement.
- 6.6 Use a stabbing guide prior to disengagement to prevent damage to the connection.
- 6.7 Alignment is equally important during break-out as during make-up. Verify alignment prior to break-out.
- 6.8 If re-running, fully break-out the connection, remove all thread compound and debris, inspect, and follow the make-up procedure. If laying down, apply storage compound and thread protectors free of grime and debris.

## 7. Marking Instructions

- 7.1 All used, rejected, repairable, and or prime pipe left on rig locations will be identified into a classification based on the below chart and must be submitted to Field Service Management as soon as possible via email.

| Summary of Pipe left on Rig Location |                          |  |
|--------------------------------------|--------------------------|--|
| Customer: _____                      |                          | Rig: _____ Well Name: _____  |
| String 1                             | String 2                 |  |
| <input type="checkbox"/>             | <input type="checkbox"/> | <b>Prime Joints</b> , conduct VTI leave insructions to apply storage compound prior to having thread protectors placed back on.<br>(Joints that never left the pipe rack)  |
| String 1                             | String 2                 |  |
| <input type="checkbox"/>             | <input type="checkbox"/> | <b>Rig Returns</b> , identified by <b>1 White band</b> near mill end & <b>1 Yellow band</b> at repairable end / area.<br>(Joints that were made up never went below the rig floor, broken out, laid down, and passed VTI.) |
| String 1                             | String 2                 |  |
| <input type="checkbox"/>             | <input type="checkbox"/> | <b>Used Pipe</b> , identified by a <b>1 Orange band</b> 6 inches each side of the defect, damage, or made up end and near the mill end.<br>(Joints failed VTI or went below rig floor.)                                    |
| String 1                             | String 2                 |  |
| <input type="checkbox"/>             | <input type="checkbox"/> | <b>Rejected Pipe</b> , identified by a <b>1 Red band</b> 6 inches each side of the defect, damage, or made up end and near the mill end.<br>(Joints rejected with signs of galling, pitting, or other damage.)             |

Figure 4: Pipe classification summary.