



**CONNECTION
TECHNOLOGY
PRODUCT
SPECIFICATION**

SECTION	II	
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REVISION	003	

SUBJECT: COUPLING MAKE UP

1.0 SCOPE

- 1.1. This document sets forth the specification for the mill end make up or bucking of the following Hunting Connection Technology (HCT) connectors:
 - 1.1.1. Integral shouldered products consist of **TEC-LOCK BTC-S, SEAL-LOCK HT-S and TKC 4040 HO-I.**
 - 1.1.2. Non-integral shouldered products consist of **TEC-LOCK BTC, SEAL-LOCK HT, SEAL-LOCK BOSS and TKC 4040 RTC.**

2.0 DEFINITION

- 2.1. Make up shall be defined as the power tight application of a coupling or box connector to a pin connector.
- 2.2. Integral shouldered connections are connections that have a shoulder machined into the center of the coupling.
 - 2.2.1. All accessory connections are considered integral shouldered connections.
- 2.3. Non-integral shouldered connections are connections that rely upon the mill side pin nose as the shouldering feature for field end make up.

3.0 EQUIPMENT

- 3.1. The following list of equipment is required for the make up or buck on of couplings to connector.
 - 3.1.1. Appropriate size, grade, type box connector or coupling to match the pipe and pin connector.
 - 3.1.2. An adequate supply of clean, uncontaminated thread compound.

NOTE 1: For thread compounds, please refer to Hunting’s website to verify the current Recommended Thread Compounds approved by Hunting – Per Connection List.
To access the list, visit www.hunting-intl.com, click in “Connection Technology” and look for the link: “Recommended Thread Compounds approved by Hunting.”

NOTE 2: For SLHT and SLHT-S, Hunting has standardized the use of SealLube™ on the mill end coupling make up as follows:

- SealLube™ LTF 4444 for any size larger than 3-1/2”.
- SealLube™ HTM 1001 for 3-1/2” and smaller.

- 3.1.3. Thread lubricant application brushes (Model 58235 moustache brush recommended)
- 3.1.4. Power tongs capable of producing the required torque range.

NOTE 3: The power and back up tongs shall have sufficient dies, evenly spaced around the coupling and pipe circumference such that an even gripping pressure is applied, both axially and circumferentially to prevent distortion of the coupling.

CAUTION: For thin wall products, the use of a stiffener or thread protector is recommended to prevent damage to the open end of the coupling.



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- 3.1.5. Appropriate connection datasheet with the specified torque values for the appropriate size, weight, and grade.
- 3.1.6. **OPTIONAL** – Torque turn monitoring system.
- 3.1.7. **OPTIONAL** – Barrettes are available for **SLHT** and **SL BOSS**.
- 3.1.8. Hunting field service kit comprised of caliper and pit gauge (four (4) month calibration frequency)

4.0 CERTIFICATION

- 4.1. The torque unit shall be calibrated for accuracy every six (6) months.

5.0 Dump Test

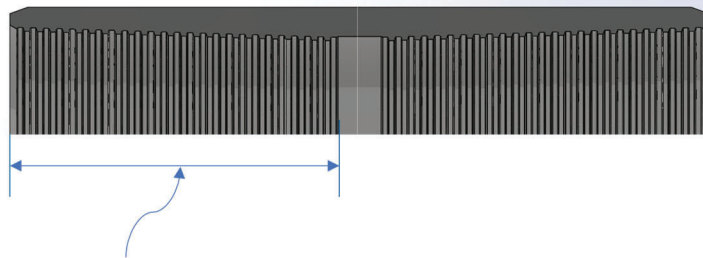
- 5.1. Dump test shall be conducted prior to casing run. Failure to verify dump test could result in premature dump of torque prior to acceptable optimal torque and or over torque of connection.
- 5.2. When conducting a dump test, the torque applied at test will depend on the wall thickness of the casing body. Consideration should be given to “THIN WALL” casing. This will have to be evaluated by the qualified HCT representative on location at that time. It is recommended, in questionable thin wall casing dump tests, that 65% of the connection optimal torque be utilized. If the dump test results are questionable, contact HCT Quality Assurance for guidance.
- 5.3. When conducting multiple dump tests on casing, it is crucial that the Hunting representative have the tong operator release the jaws and remove the tongs from casing. Tongs are to be applied at a different area on the casing for sequential dump tests. Failure to do so may result in excessive die penetration or point loading which can jeopardize the integrity of the casing.

6.0 MAKE UP PROCEDURE

- 6.1. Thoroughly clean and visually inspect both sides of the connection to be made up.
 - 6.1.1. Ensure that the pin thread start, and full form threads are free from tears or burrs.
 - 6.1.2. Ensure that the coupling or box connector is free from burrs or tears on the starting threads and throughout the full formed thread length.
 - 6.1.3. Both connectors shall be free from any debris such as chips, shavings, dirt, or other foreign particles that could create galling or damage to the connection during make up.
 - 6.1.4. **OPTIONAL** – For **SLHT** and **SL BOSS**, mark make up lines in accordance with **Ancillary Specification for Make Up Position Using Barrettes**.
- 6.2. Apply a light to moderate, even coating of approved thread compound to cover the full coupling/box threaded surface and the thread runout of the pin connector per section 3.1.2.

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Mill end assembly procedure:
Thread lubricant application



Moderate application of thread compound
All over the full length of coupling mill end

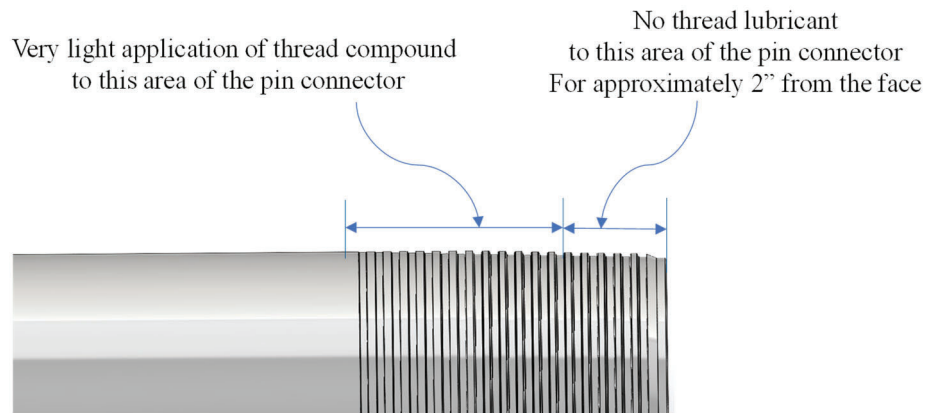


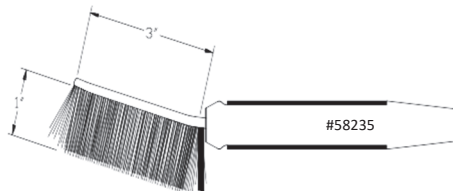
Figure A

NOTE 4: A light to moderate even coating of thread compound is defined as all thread surfaces, root, and crest and pin face/torque shoulder covered with an even coating of thread compound. The thread form should remain clearly visible.

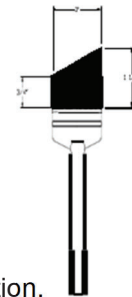
Do Not Use
Bottle Brush



Preferred Moustache Brush
#58235



Alternate Acceptable
Modified Paint Brush



6.3. Apply the box or coupling to the pin end by hand to the hand tight position.

6.4. Position the connection in the power tongs. See Figure B for the proper buck on unit die position,

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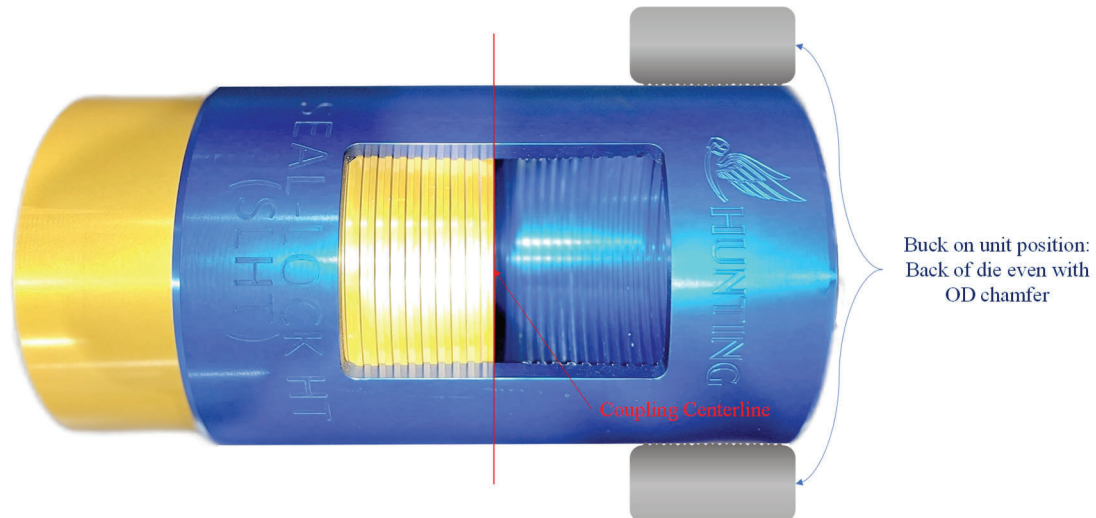


Figure B

- 6.5. Apply the specified torque to the connection at 5-20 RPM. Make up speed should not exceed 20 RPM. Make up speed should not vary excessively during make up and should be continuous with no gear changing.
- 6.6. **OPTIONAL – Make-Up Torque/Turn Monitoring**
- 6.6.1. Optional Torque-Turn Equipment – A torque-turn /time or torque/turn monitoring system may be utilized. Monitoring equipment should be capable of resolving torque to 1/100th of a turn increments as a minimum but equipment capable of resolving torque to 1/1000th of a turn should be utilized when available. An enhanced computer display should be part of the torque-turn monitoring equipment and should be utilized to monitor make up. The load cells used with the torque monitoring equipment should be calibrated every six (6) months, traceable to the appropriate national standard.
- 6.6.2. If the optional torque/turn monitoring equipment is used, a make up torque-turn graph should be generated for every connection.

NOTE 5: If an appreciable amount of thread lubricant is being pushed to the tube ID and/or the tube OD during make up, too much thread lubricant is being applied to the connection.

NOTE 6: All semi-premium threaded and coupled connections have a positional make up. For integral shouldered products, and all accessory products the integral shoulder determines the correct make up position.

7.0 MAKE UP ACCEPTANCE AND REJECTION

- 7.1. An acceptable make up requires that both position and torque requirements be met.
- 7.1.1. Non-integral shouldered connections are made up by positioning the mill end pin connector into the middle of the coupling. (See Figure B and D). The proper makeup is determined by the make up loss, or half the coupling length, and the tolerance is as specified in table 1.

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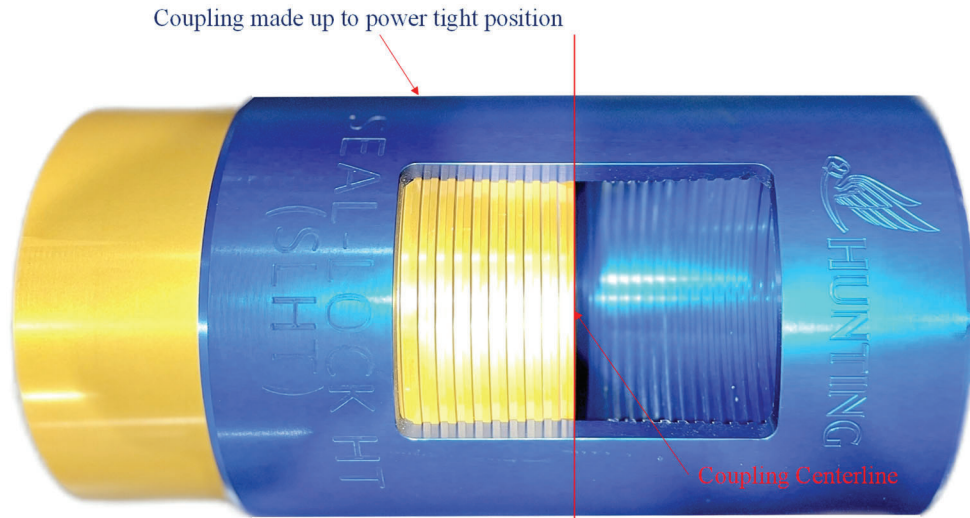


Figure C

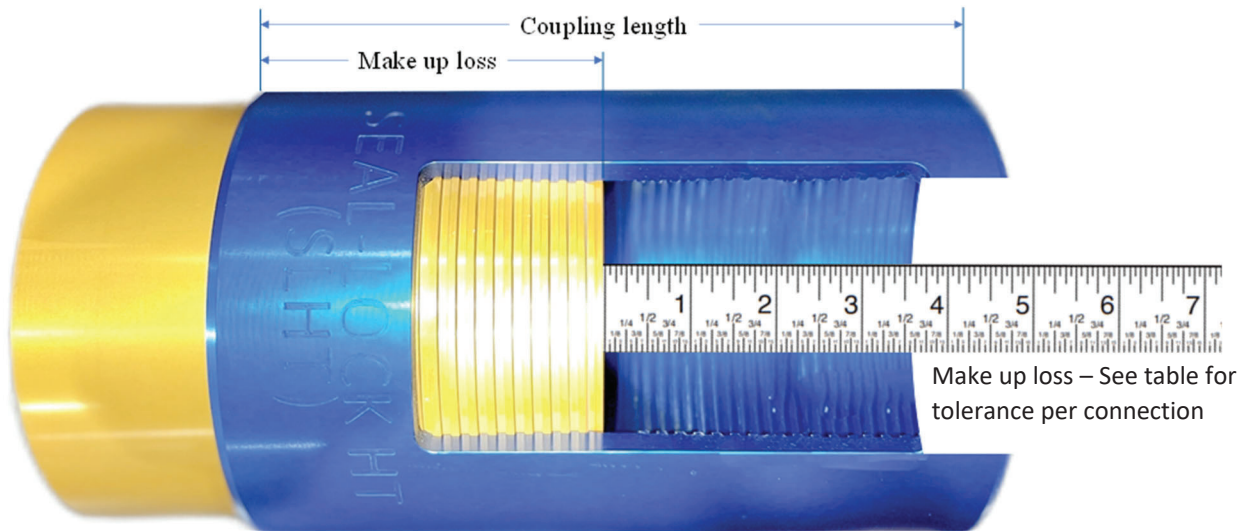


Figure D

Size Range	Tolerance +	Tolerance -	Connection Type
All	0.000	-0.031	SEAL-LOCK HT
< 13.375	0.000	-0.063	SEAL-LOCK BOSS
13.375 and UP	0.000	-0.125	SEAL-LOCK BOSS
All	0.000	-0.063	TKC 4040 RTC
All	0.000	-0.125	TLBTC

Table 1: Make up loss tolerance



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- 7.1.2. **OPTIONAL** – For **SLHT** or **SL BOSS**, if using the **Ancillary Specification for Make Up Position Using Barrettes**, utilize acceptance criteria established in section 5.0 of said Ancillary Procedure.
- 7.1.3. The torque applied to the non-integral shouldered connection shall meet the Mill End torque requirements specified in the connection data sheet.
- 7.1.4. Integral shouldered connections including all accessory connections must exhibit a clear and distinct shoulder on the torque turn graph.
- 7.1.5. The torque applied to integral shouldered connections and all accessory connections shall meet the minimum requirements published in the connection data sheet. The maximum published torque may be exceeded on thick wall accessories but shall not exceed 80% of the published minimum yield torque.
- 7.2. Connections which do not meet the criteria of paragraph 7.1 should be set aside and contact with an HCT Quality Assurance representative shall be made for disposition.
- 7.3. End drift the made up connection in accordance with the **AS-004 Drifting**.

8.0 REWORK

- 8.1. If the connection does not reach the proper position during make up, remove the coupling, clean, and visually examine both pin and box for damage. If no damage is found, re-make up as directed in section 6.0.
- 8.2. Connections which will not meet the criteria of section 7.0 should be set aside and contact should be made with an HCT Quality Assurance representative.